

Implementing the primary health care approach

A primer



Editors

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Global report
on primary
health care



World Health
Organization

European
Observatory
on Health Systems and Policies
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Foreword from the Director General, World Health Organization

Since the Declaration of Astana on Primary Health Care (PHC) was adopted five years ago, the world has changed – and will continue to change – in fundamental ways that pose profound challenges for achieving health and well-being in every country and community. At the World Health Assembly in May 2023, WHO's 194 Member States expressed strong support for the urgent need to reorient health systems to the PHC approach to accelerate progress towards universal health coverage (UHC).

This PHC Primer, reflecting lessons from over 50 countries and all WHO Regions, is part of WHO's ongoing commitment to support countries in advancing PHC on the road to UHC. It builds on the substantial work that WHO and its partners have been doing since Astana to provide countries with the most up-to-date guidance and support for strengthening PHC.

Central to this effort has been the development of two joint WHO-UNICEF publications: the *Operational Framework for Primary Health Care*, an evidence-based tool which translates the vision of the Declaration of Astana into practical action; and the *Primary Health Care Measurement Framework and Indicators*, which monitors health systems through a PHC lens. In parallel, the WHO Special Programme on PHC was created to foster WHO's support for countries, and to strengthen its organizational capacity, including through the UHC Partnership, WHO's largest platform for international cooperation on UHC. WHO has also been working closely with UNICEF and other partners in the PHC Accelerator of the Global Action Plan for Healthy Lives and Well-being (SDG3 GAP).

Despite the progress being made towards PHC globally, the concept is still often misunderstood, even within the public health community. While the provision of high-quality comprehensive primary care is indeed a defining feature, PHC encompasses a broader and more holistic approach to health and well-being rooted in the principals of equity, human rights and social justice. PHC recognises the importance of designing and delivering people-centred health services that address all the health needs of people, both physical and mental, acute and chronic, communicable and noncommunicable, rather than treating individual diseases and disorders in isolation from one another. As Hippocrates, the father of medicine said, "It is far more important to know what person the disease has than what disease the person has".

This Primer offers a contemporary understanding of PHC and more conceptual clarity. Most importantly, it provides extensive examples of how PHC is being implemented in practice. The Primer will also serve as the basis for a companion publication that will use data on the status of PHC capacities and performance globally, using the PHC measurement framework, to generate further guidance for countries to strengthen their PHC approach.

I hope this Primer will be a useful tool for ministries of health, policy-makers, public health practitioners, researchers, students and teachers, partners and donors, and PHC champions and advocates, as we work together to realise the promise and potential of PHC.



Dr Tedros Adhanom Ghebreyesus

Director-General, World Health Organization

Preface from the WHO Regional Director for Europe

It's long been clear that transforming and strengthening primary health care (PHC) is essential to respond better to the ever-changing and constantly growing demand for health services globally. Yet we continue to struggle to build the evidence to implement effective PHC policies. This is primarily because of the lack of conceptual clarity about what a PHC approach actually stands for and the complexity of its implementation in health systems. All of this means that while we know PHC is the cornerstone for achieving universal health coverage and improving people's health and well-being across the life-course, its potential remains largely untapped.

The primer before you seeks to signpost the future of PHC by creating conceptual clarity and providing a comprehensive review of evidence regarding policies and their impact. Symbolic of our efforts to connect theory and practice, the primer was unveiled at our 2023 International Conference on Primary Health Care Policy and Practice: Implementing for Better Results in Astana, marking 45 and 5 years since the adoption of the historic Alma-Ata and Astana Declarations on PHC respectively.

PHC is about more than models and definitions. It is about humane and patient-centred care to which every person has a fundamental right. It is about ensuring that PHC is an accessible and affordable entry point into the health system, and that it remains a constant contact point for patients needing care across the life-course.

In a modest, yet ambitious way, the primer aims to inspire policy-makers and health care workers by documenting the real-world implementation of PHC reforms in a range of countries, many of which are in the WHO European Region.

At the same time, this volume is far from exhaustive. As we zoom in on the state of evidence in various WHO Regions, including the WHO European Region which encompasses 53 Member States, we admit to the gaps in our knowledge. Even where we have seen much progress in research and data collection, we are still missing critical information on PHC models and their impact on access and efficiency, underscoring just how important it is to thoroughly study the impact of PHC across time, given how vital PHC is in achieving health for all – the vision that guides all that we at WHO do.

This document is but a first step on this transformative journey. Together with our team at the WHO European Centre for Primary Health Care in Almaty, Kazakhstan, we will continue working with and for countries to get a clearer picture and understanding of the PHC policy landscape. By exploring successful PHC transformations with rigorous data collection and analysis we will continue providing solid evidence and guidance for effective primary health care policy and practice.

May this volume spark a renewed commitment to bring evidence in support of the PHC movement, driving transformative change and ensuring that health for all becomes a reality in our lifetime.



Dr Hans Henri P Kluge

Regional Director

WHO Regional Office for Europe

Executive summary

Policy-makers, practitioners and communities agree that primary health care (PHC) is uniquely placed to offer people care close to their home and the chance to be treated by professionals who understand their needs and preferences, as well as the context in which they live. They also agree that PHC is intrinsically linked to public health and an integral part of strengthening health systems to advance towards universal health coverage (UHC) – giving it a key role in efforts to secure access to high-quality, people-centred health services without financial hardship.

The values of primary health care – and the value of the continuity, comprehensiveness and coordination which PHC provides – were formally recognized by the global community in the Alma-Ata Declaration of 1978 and have been reaffirmed since by the Sustainable Development Goals and the Astana Declaration. More than that, countries acknowledge that primary health care is a crucial tool in shaping and reshaping health systems to make them sustainable.

PHC stands as the principal interface between the health system and communities – the locus where the formalized system meshes with people's lives. It is locally embedded and responsive, which makes it a bedrock of resilience. There is powerful evidence that a PHC orientation can prevent disease and promote public health, reducing pressures on the care system, and that it encourages integrated, more holistic care. It delivers better access and more equity, responding to and engaging communities, including the most marginalized, and empowering people to take charge of their own health. It is also clear that it promotes greater efficiency, moving care into lower cost settings and serving as a natural partner for multisectoral action on the broader determinants of health. However, and despite the weight of evidence of PHC's added value, it has been neglected.

The current “permacrisis” with its rising disease burden, the impacts of climate change and conflict may, perversely, represent an opportunity for PHC. As policy-makers' fears on how to finance and staff health and care services grow, they may act at last on the imperative for reform and invest substantially and decisively in PHC. Fulfilling the promise of PHC would drive countries towards UHC and improved health system performance. It would also enhance health security and resilience, and underpin a cost-effective approach to meeting people's needs – all of which are paramount concerns for countries which face mounting challenges and constrained resources.

The World Health Organization (WHO), in collaboration with the European Observatory on Health Systems and Policies, recognizes this window of opportunity with this first Global Report on Primary Health Care as a PHC Primer. It brings together the evidence on the ‘how’ of PHC by laying out an analysis of best practices and tacit knowledge that countries have generated through “natural experiments” in strengthening PHC.

As policy-makers consider, plan, and implement the transformation of their health systems, the evidence as laid out in this document will help to:

- make the case for investing in primary care and public health
- assess how to reorient models of care
- understand the strategic and operational PHC levers that can shift health systems towards PHC
- use governance, workforce and financing to incentivize change
- explore what works in different contexts
- identify enablers and barriers to change
- improve health system performance
- translate commitments to PHC into action.

The Primer and PHC Global Report can thus inform countries' reforms as they seek to make the difference in quality, access, equity, and financial protection; to foster resilience to withstand shocks and adapt to environmental needs; and as they pave the way for the realization of UHC.

The Primer is organized in three parts:

- **Part I** explains the PHC approach, its history, core concepts and rationale, and draws out lessons for transformation.
- **Part II** addresses the 'operational levers of PHC' or dimensions that need to be addressed to make PHC work. It covers the operational and strategic levers of governance, financing and human resources for health, medicines, health technology, infrastructure and digital health, and their role in implementing change.
- **Part III** concludes by taking a cross-cutting view of the impacts of PHC on the health system and wider goals of efficiency, quality of care, equity, access, financial protection and health systems resilience, including in the face of climate change.

Part I: History and core concepts

Chapter 1 explains the **primary health care approach**. PHC is the cornerstone of strong and resilient health systems. It shapes them so that they respond to people; offer quality, affordable care close to communities; and engage people in their own health and well-being. Key messages include:

- PHC is fundamentally about delivering holistic, integrated health services.
- Person-centred primary care services and the population focus of public health are linked by PHC, which makes PHC a tool for stronger UHC, health security, health and well-being.
- PHC acts as a bridge between health care and community engagement and so supports access, participation and quality.
- Different sectors are brought together by PHC on policy and for action, fostering whole-system, whole-society thinking.

- PHC typically suffers in terms of resources in comparison with hospitals, but a PHC approach is not simply about shifting funds. Specialist settings can play a crucial role in a PHC-oriented system if they use their expertise, innovation and technology to support PHC and provided that they engage and communicate with primary care providers, referring patients back when the time is right.

Chapter 2 looks at the long traditions of PHC and its unrealized potential. The **history of PHC** is one of consensus about its importance, debate about its feasibility and the failure to fully implement it. The reasons the PHC approach has not been rolled out despite the United Nations (UN) Sustainable Development Goals (2015), Alma-Ata (1978) and Astana (2018) offer important lessons for policy-makers today and for the future. Key messages include:

- Comprehensive implementation of PHC is an inherently political process that requires more than technical solutions.
- A clear long-term vision and consistent health system goals pursued throughout the political cycle mark out those countries that have implemented the PHC approach successfully.
- A combination of top-level leadership, political will and long-term vision is critical in bringing together the elements needed to develop and implement effective PHC, not least governance, human and financial resources, different sectors and civil society.
- Policy-makers can avoid some of the failings of the past by being aware of misconceptions and addressing the tensions that exist, such as:
 - the (widespread) perception of generalist, 'low tech' and community-led care as being less modern and of less value than specialist hospital care, which has tended to undermine PHC
 - the preference in some settings for 'selective' PHC approaches and vertical programming – as a response to donors' priorities – which has worked against a comprehensive, PHC orientation
 - the misguided sense of PHC as exclusively 'pro-poor' rather than for everyone (universalist) and the linked notion of PHC services being second-rate.
- Rising health care costs and concerns about sustainability have created a window of opportunity for PHC but it will inevitably be time-limited, which makes action particularly urgent.

Chapter 3 covers **definitions, terminology and frameworks**. "Primary health care" and "primary care" are related but distinct concepts. Although they are often used interchangeably, they reflect different priorities and approaches. Clear definitions and consistent use of terms can help communication, allow actors to share lessons more

effectively and make more explicit the complex actions and considerations required to strengthen PHC. Key messages include:

- PHC is a whole-of-society approach that strengthens health systems and maximizes the level and distribution of health and well-being. As in the Declarations of Alma-Ata and Astana, it shapes the whole health system by:
 - putting primary care and the essential public health functions together at the core of integrated health services
 - leveraging multisectoral policy and action
 - empowering people and communities as co-creators of their health.
- Primary care is at the heart of the services component of PHC but does not have the same whole-of-society breadth. Its four core characteristics are:
 - first contact access
 - continuity
 - comprehensiveness
 - coordination.
- The frameworks developed in light of the Astana Declaration tally with the definitions of PHC and give policy-makers and other system stakeholders tools to operationalize policy commitments and measure PHC performance.

Chapter 4 addresses the **rationale for PHC**-oriented health systems. PHC is a worthwhile investment because it makes care more efficient and more equitable. More than that, PHC has a positive impact on overall health system performance, improving access, quality and patient satisfaction. Securing the political will to invest in PHC is complex, but the evidence shows that the long-term benefits of reorienting the system outweigh the costs. Key messages include:

- PHC improves services because it uses a full range of levers for better quality and access, as well as to ensure continuity, comprehensiveness and coordination.
- Efficiency is enhanced by PHC, which reduces unnecessary use of (costly) specialists and hospitals.
- Population health improves with long-term investment in PHC, which is linked to better health outcomes including for mental and child health and noncommunicable diseases (NCDs).
- PHC is provided in a trusted setting where the patient, family and community context are understood, which leads to higher user satisfaction and better self-reported health.
- PHC reduces financial hardship, narrows outcome gaps and improves equity, particularly when adequate funding, staffing and training allow it to reach underserved populations.
- Long-term commitment to PHC has a wider return on investment, keeping people well enough to work and stimulating economic productivity.

- Gender equity is promoted where PHC offers valued roles to women – provided they are given the right training and employment terms and if gender imbalances in seniority and pay are addressed.
- Emergency preparedness and resilience are reinforced by PHC’s prevention function, the way it bridges individual and population-level approaches and its multidisciplinary approach, but also through the ties it creates with and within communities.

Chapter 5 explores the central importance of **integrating public health and primary care** to the PHC approach. Public health and primary care add value to each other. Separating them because public health has a population perspective, while primary care typically focuses on the individual, is artificial and creates unnecessary barriers. PHC integrates both perspectives, encouraging greater efficiency and effectiveness, and creating the conditions for more community engagement and multisectoral action, so strengthening health systems and fostering resilience. Key messages include:

- Primary care and public health services have natural synergies, particularly in the five key areas of:
 - health protection
 - health promotion
 - disease prevention
 - surveillance, monitoring and population health analysis
 - public health emergency preparedness and response.
- A PHC-oriented system can integrate primary care and public health in a range of ways from maintaining two distinct services but ensuring mutual awareness, through cooperation and collaboration, to full integration in a single, merged organization.
- Enabling the integration of two strands of health care delivery with different paradigms is not straightforward in practice. Country experiences highlight the importance of:
 - creating a clear shared vision, goals and mandates that public health and primary care co-own
 - acknowledging the distinct training, culture and ways of working in public health and primary care, and ensuring that change management and leadership styles acknowledge these differences
 - revisiting education and training to combine primary care and public health perspectives, and to make collaboration the norm
 - establishing shared data systems and shared protocols that bridge individual patient and community-level data and facilitate integration
 - joint funding that minimizes or rules out any perception of competition for resources.

Chapter 6 sets out thinking on **models of care**. A model of care outlines where and how a set of services is delivered. Such models often develop ad hoc over time and health systems typically have multiple, interlinked models operating simultaneously across levels. This can cause fragmentation and inefficiency. A PHC-oriented model of care facilitates the delivery of comprehensive, integrated people-centred care, prevention and health promotion over the life course. Key messages include:

- Reorienting models of care towards PHC is a complex, long-term, iterative process but supports high-quality, responsive and more efficient care.
- There is no single “correct” model – national and local context are crucial, but country experience suggests effective processes include at least four domains:
 - selection and planning of services defines the package of care and identifies delivery channels; it allows planners to tackle integration across platforms, settings and levels, and to consider how to engage the public and/or private sectors
 - service design is a way of ensuring individuals are assigned to a primary care provider, building in desired practices, clinical guidelines and care pathways that promote primary care and encourage timely patient referral to acute services and effective counter-referral
 - getting organization and management right means strengthening professional management, leadership and supervision; building multidisciplinary teams; and encouraging community-based case management and coordination
 - community linkages and collaboration between facility and community-based providers are an asset as is involving communities in planning and organizing services and offering care and education in homes.

Part II: Implementation

The second section of the Primer looks at each of the levers that need to be addressed to make PHC work and highlights the practical challenges of implementing change.

Chapter 7 discusses **health governance**. Health governance is about how societies and actors develop and implement collective decisions, set priorities and determine policies in health systems, and addresses oversight, incentives and accountability. The governance of PHC has three critical aspects: decision-making autonomy at the local level, which facilitates responsiveness; policy frameworks and joint planning arrangements, which support service integration; and leadership, which fosters a culture of equity and quality assurance. Key messages include:

- Decentralizing decision-making autonomy matters in PHC because local units are best placed to improve access, equity and efficiency, and make services more people-centred and responsive. It works when local units have sufficient capacity and resources, and if there is clarity on authority, roles and accountability, including to local communities.

- Central coordination remains important as a way of reducing fragmentation and adjusting for the differences in capacities and resources between subnational units.
- Governance has an important, often critical, role in service integration because without policy frameworks and some clarification of roles and policy, joint planning and relationships between stakeholders and communities may not succeed.
- Quality assurance, regular monitoring and feedback loops are central to effective leadership and good governance because they prompt data-driven decision-making and action.
- Effective leadership supports quality in PHC.
- Including stakeholders and communities in identifying the root causes of performance issues and the possible solutions is key to coproducing quality improvement.
- Government engagement with the private sector can help ensure that private sector actions support the implementation of a PHC approach and public health goals.

Chapter 8 examines the role of the **health and care workforce**. The PHC workforce is expected to provide health promotion, prevention and public health services; deliver acute and chronic care; ensure continuity of care; and respond to patients' needs and expectations. Educating, attracting and retaining sufficient adequately-trained, motivated professionals is absolutely critical. Strategic planning, education, life-long training, recruitment, retention and distribution are essential. Key messages include:

- A strategic vision for a fit-for-purpose workforce ensures the acquisition of the right competencies and skills to achieve PHC. The vision needs to account for patient needs, context, service delivery and labour market trends, and build in flexibility for the future.
- Strategic planning of the PHC workforce must address:
 - workforce composition, deployment, distribution and management
 - the definition of scope of practice and roles, the division and transfer of tasks, and the development of multiprofessional teams
 - the adjustments in education, financing, employment practices and regulation to enable task-shifting.
- High-quality pre-service education and life-long training will have to evolve to enable the workforce to deliver effective PHC-oriented care and to (continue to) adapt to changing needs.
- Attractive working conditions and safe and supportive environments are crucial to recruiting and retaining the PHC workforce. Consideration must be given to the personal and professional implications of working in remote, rural settings, and gender inequities must be addressed as well.
- Developing an effective workforce for PHC-oriented systems requires a whole-of-government commitment, involvement of professional organizations, stakeholder support and community engagement.

Chapter 9 investigates **health financing**. It is the role of health financing to mobilize sufficient resources to make PHC effective and, given the shortfall in public funding in so many settings, to seek to preserve access and equity, and protect patients from the (sometimes catastrophic) impacts of out-of-pocket payments. It is also a crucial tool in reorienting health systems towards a PHC approach giving policy-makers the levers to achieve change. Key messages include:

- Political will is the primary factor in securing financing for health and for PHC. It determines what share of public funds goes to primary rather than specialist care and the extent of out-of-pocket payments.
- Health financing arrangements can be designed to support (or drive) change to a PHC orientation. Policy levers include:
 - changing how revenue is collected, pooled and – most particularly – allocated
 - adjusting the population coverage and the services included in, or excluded from, benefit packages
 - aligning purchasing practice with health system goals
 - using a tailored blend of provider payment methods and targeted funding to incentivize PHC.
- PHC often relies on funding from multiple sources (government, insurance, donors), which undermines integration, and on out-of-pocket payments which are inequitable. Using pooled funds to pay for PHC reduces the financial burden on patients and the fragmentation of service delivery.
- Clearly defining and aligning comprehensive packages with public funding and incentives reduces the inappropriate use of expensive emergency and secondary care, and is cost-effective and equitable.
- Investing in good public financial management allows a timely flow of resources that facilitates continuity in service provision, provision of medicines and supplies, and the retention of staff.
- Provider autonomy – coupled with responsibility and accountability – encourages responsiveness to local needs.

Chapter 10 reviews **medicines and pharmaceutical services**. Equitable access to safe, effective and affordable medicines and vaccines is key to PHC. Yet the cost of medicines prescribed in primary care is a main driver of out-of-pocket expenditure in many countries, jeopardizing financial protection. Making appropriate, quality medicines and pharmaceutical services accessible depends on supply-chain management, prescribing and dispensing and, above all, on coverage policies. Key messages include:

- Ensuring affordable access to medicines in PHC requires the use of public financing (benefit packages) to pay for essential medicines and systematic use of generic and biosimilar medicines to keep costs down.
- Medicines are more easily available if they are dispensed closer to patients and if community pharmacies can be integrated into primary care services.

- Improved stock management and procurement practices support access and efficiency.
- Closer coordination between community pharmacies and prescribers facilitates access to medicines and encourages responsible consumption.
- The appropriateness and acceptability of services can be strengthened by clear treatment guidelines; routine prescribing of generics; and shifting prescribing from specialized settings to primary care, all of which also support effective PHC.
- Training staff and strengthening processes will improve the quality of pharmaceutical services and help them respond better to population need.
- Involving patients, care-givers and communities; education programmes that foster medicine and vaccine literacy; and efforts to encourage responsible self-care and self-management of medication, all increase the effectiveness of PHC and foster community empowerment with all its associated benefits.

Chapter 11 tackles **health technology**. Misconceptions of PHC as ‘naturally’ low-tech are unhelpful. Technology has huge potential to address some of PHC’s central concerns by enabling diagnosis and treatment in communities rather than secondary care; by improving integration; and by encouraging community engagement. PHC can benefit from everything from simple communication devices to complex imaging systems or decision support tools, robotics and assistive technologies. Key messages include:

- Harnessing the right technology can support both individual and population health.
- Using technology to facilitate early identification of risk factors and early diagnosis allows early intervention in local settings, at lower cost.
- Communication technologies such as email, mobile phone applications, telemedicine and digital health tools can overcome time and distance barriers to foster active involvement of patients and communities, and boost health literacy.
- Health technologies can be a driver of self-care, especially in prevention and disease monitoring. They are efficient, support patients in self-management and can increase their satisfaction.
- Integrated care and multisectoral collaboration are made more effective and efficient by technology-driven clinical support tools and referral systems that allow information-sharing and facilitate care coordination and continuity across primary, secondary, acute and long-term care.
- Technology helps planners to understand population needs, supports people-centred service design, promotes task-shifting and competency-sharing with non-physician cadres or by patients, and so contributes to better health service management.
- Country deployment of health technologies flags the importance of:
 - addressing the acceptability of technologies
 - buy-in (and provision of resources) from different levels of government
 - skills training for the relevant workforce and for patients
 - support services, management and maintenance
 - fostering trust in data privacy.

Chapter 12 considers **health infrastructure**. Infrastructure includes buildings and non-medical equipment, utilities and supply systems. Infrastructure needs and maintenance are sometimes neglected in primary care settings but patients care about the quality of PHC facilities. These have a direct impact on patient-provider interactions and patient satisfaction. They also significantly impact staff well-being and effectiveness. Key messages include:

- Basic requirements, including water, sanitation and hygiene (WASH), solid waste management and reliable electricity and internet connections, are a fundamental prerequisite for high-quality, primary care.
- High-quality infrastructure and good (evidence-based) design support the PHC approach, encouraging collaboration, staff and patient mental health and well-being. They facilitate efficiency and teamwork, and contribute to staff satisfaction, recruitment and retention. Infrastructure can also engage communities and build trust – but although this enables high-quality care, it cannot guarantee it.
- Investing in primary care infrastructure is typically less costly than hospital investment but still represents a major cost and has significant long-term implications, shaping provision for decades.
- Infrastructure investment must consider more than initial capital costs if it is to be appropriate and needs-responsive, by taking into account:
 - the medical and non-medical needs of individuals and communities
 - the likely pattern of future demand and of technological innovation
 - the implications of room layout and design
 - possible system shocks and how infrastructure might be adapted in response
 - reliability and maintenance costs over the whole life-cycle, including aspects of environmental impact (a more “value-based” approach).

Chapter 13 assesses **information systems and digital solutions**. Health and digital information systems, including eHealth, mHealth and artificial intelligence (AI), collect, store, process and distribute data. The assessment of digital solutions is ongoing, but it is already clear that they play a critical role in understanding health needs, outcomes and care processes, and inform health planning. They can also help engage individuals and communities across the care continuum. However, their impact is limited unless they are aligned with the broader health system infrastructure and integrated into routine workflows. Key messages include:

- High-quality, reliable and trusted data – that is analysed, shared and interpreted – offers policy-makers necessary insights to implement a PHC approach. Integrated services also depend on efficient flows of high-quality data.
- Ensuring data that is “good enough” to support all stakeholders’ decision-making and integration requires:
 - interoperable data systems with standardized data definitions
 - timely availability, which in turn means resourcing effective data entry and data pipelines

- communicating the data in ways that are tailored to local decision-making processes, and which empower patients to participate in informed health care choices.
- E-registries, a unique identifier and automated quality checks are key tools in meeting system needs and fostering coordination and communication between patients, providers and decision-makers.
- Information and digital systems will best support a PHC approach when:
 - there is a comprehensive and resilient digital ecosystem in place
 - PHC objectives and a commitment to integration underpin the approach
 - this is developed and implemented mindful of inequalities in adoption and use.

Part III: Impact on performance

Chapter 14 gives an overview of the impact of PHC on **efficiency and quality**. Quality and efficiency are closely linked. Reforms that align health systems to the PHC approach also foster efficiency and quality including its dimensions of effectiveness, safety, satisfaction and trust. Key messages include:

- PHC can enhance quality because its focus on community engagement ideally helps identify health problems early, address them equitably and ensure continuity of care, improving outcomes and user satisfaction.
- The PHC approach encourages generalist-led, multidisciplinary teams, which helps to coordinate health and care workers and specialists, strengthening patient safety and encouraging a rationalized use of complex tests and treatments.
- Efficiency is boosted by a PHC orientation because PHC fosters public health, prevention and health promotion, all of which reduce the call for unnecessary, costly and potentially harmful specialist care and hospitalization.
- The PHC approach promotes more efficient resource allocation and utilization, while the impact on health outcomes and patient safety also contains costs.
- By improving relationships between facilities and communities, the PHC approach can enhance perceptions of quality and boost user satisfaction, increasing population trust in the health system and helping investments to translate into better population health.
- Country experiences highlight tools for quality and efficiency within PHC such as:
 - ensuring a combination of well-remunerated and trained health and care workers and allied health professionals
 - using PHC as a platform for priority areas such as mental health or nutrition
 - establishing effective communication between primary care teams and specialists, clear division of tasks and referral pathways
 - applying clinical decision support and electronic health records in PHC.

Chapter 15 reflects on the impact of PHC on **equity, access and financial protection**. Despite global commitments to both PHC and to providing all people with quality, affordable and accessible health care, more than half of the world's population is not covered by essential health services, and paying out-of-pocket for health services causes widespread and severe financial hardship. PHC is a key strategy in enhancing equity, access and financial protection. Key messages include:

- Equitable access can be strengthened by effective PHC because:
 - it is rooted in the local area, offering services where people are and without long travel times
 - it understands communities and the way they use services, making it possible to tailor coverage to cultural, linguistic and socioeconomic contexts, and to include marginalized groups.
- PHC reforms have the potential to significantly reduce financial hardship policies but need careful consideration and to include:
 - comprehensive health benefit packages
 - essential health services, essential medicines and public health interventions.
- PHC is also an effective vehicle for publicly funded coverage for vulnerable groups. Specific interventions can tackle the affordability aspects of access for them.
- Country experience has identified PHC strategies that enhance access and equity, including:
 - organizing health services around first contact primary care – which works if individuals are assigned to a primary care provider (or 'empaneled')
 - including community health workers and managers, and task-shifting in multidisciplinary teams
 - making care more approachable and acceptable and therefore more available through community-based approaches such as mobile clinics and outreach services
 - using new technologies such as telemedicine to help bring comprehensive first contact care to remote and rural areas.

Chapter 16 highlights the impact of PHC on **health systems resilience including in the face of climate change**. Resilience is the ability to absorb, adapt and transform to cope with shocks and is critical to maintaining health system performance under stress. Resilience to climate change in the health system context implies addressing the health impacts of climate change and the impact the system itself has on the environment. PHC can be at the core of both. Key messages include:

- PHC's contribution to the health system's resilience revolves around its inherent strengths, including that:
 - PHC integrates primary care and essential public health, and supports actions on social and environmental determinants of health

- linkages and networks across communities and sectors confer an ability to mobilize local and societal solidarity
- PHC is already embedded in the communities most impacted by environmental, economic and health shocks – including the marginalized – and can support the harder-to-reach
- the tradition of multidisciplinary teams working across boundaries offers a wide range of delivery options in an emergency
- PHC fosters ‘environmentally friendly’ prevention and self-care; it uses resources efficiently by treating close to the community and prefers lower environmental impact technologies and interventions, so reduces the health system’s carbon footprint.
- Investing in PHC will allow governments to bolster access to health services, reducing population vulnerability to shock and mitigating disruptions when shocks do occur.
- PHC provides efficient, local responses to extreme weather events, crisis-induced disease outbreaks and other climate change created health problems.
- Adapting prescribing and cutting emissions and waste can reduce PHC’s own carbon footprint.
- PHC can use the trust it inspires in communities to raise awareness of links between behaviour and environmental impact, and promote action.

Chapter 17 draws out **conclusions**. Strengthening PHC-oriented health systems is an essential step towards achieving universal health coverage. However, translating commitments into action requires an understanding of health systems and health system performance as well as the levers for change. Analysis of the evidence and country experiences offer practical lessons on how to implement PHC. Key messages include:

- The history and foundations of PHC help explain its potential, in particular:
 - the importance of integrating public health and primary care
 - its role in integrating health services for more holistic, equitable, person-centred care
 - the added value of links to people and communities, and the scope to empower them as co-creators of their health
 - its privileged position in terms of working across sectors and on the wider determinants of health.
- The operational levers are key to incentivizing a stronger PHC orientation with:
 - governance, including decentralized decision-making and leadership, to support the service integration and community engagement
 - workforce policies having a central role in enabling team working and fostering responsive care

- well-designed financing mechanisms offering the means to prompt change
- medicines, technologies, infrastructure and information systems all being powerful enablers of the PHC approach.

Reorienting health systems towards a PHC approach delivers huge benefits for overall health system performance and in particular for quality, access and equity, and for resilience.

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List of abbreviations

3RP	Regional Refugee & Resilience Plan
ACSC	ambulatory care sensitive condition
AI	artificial intelligence
AIDS	acquired immune deficiency syndrome
AMR	antimicrobial resistance
API	application programming interface
ARTF	Afghanistan Reconstruction Trust Fund
BPHS	Basic Package of Health Services
CASCADES	Creating a Sustainable Canadian Health System in a Climate Crisis
CDSS	clinical decision support systems
CFDS	Contract-based Family Doctor Service
CHA	community health assistant
CHPS	[Ghana's] Community-Based Health Planning and Services
CHW	community health worker
COPC	community-oriented primary care
COPD	chronic obstructive pulmonary disease
COVID-19	Coronavirus disease
CPC+	Comprehensive Primary Care Plus
CPCI	Components of Primary Care Instrument
CRVS	Civil Registration and Vital Statistics
CTMA	county-wide tight medical alliances
DHIS2	District Health Information System II
EBAIS	<i>Equipos Básicos de Atención Integral de Salud</i> (multidisciplinary teams)
EBD	evidence-based design
EHR	electronic health record
EPHF/EFPH	essential public health function/essential functions of public health
EPHS	Essential Package of Hospital Services
EU	European Union
FDA	Food and Drug Administration
FFS	fee-for-service
FHIR	Fast Healthcare Interoperability Resources
FHP	[Brazil's] Family Health Programme

GAVI	Global Alliance for Vaccine and Immunization
GDP	gross domestic product
GHG	greenhouse gases
GIS	geographical information systems
GOBI	growth monitoring, oral rehydration, breastfeeding and immunization
GOBI-FFF	growth monitoring, oral rehydration, breastfeeding and immunization with food supplementation, female literacy and family planning for mothers
GP	general practitioner
HAQ	Healthcare Access and Quality [Index]
HEW	health extension worker
HiAP	Health in All Policies
HIC	high-income country
HIE	health information exchange
HIS	health information system
HIV	human immunodeficiency virus
HL7	Health Level Seven
HLM	health labour market
HSPA	Health System Performance Assessment
ICD	International Classification of Diseases
ICPC	International Classification of Primary Care
IMF	International Monetary Fund
IMSS	Mexican Social Security Institute
INN	International Non-proprietary Name
IPC	infection prevention control
IPHC	Institute for Primary Health Care
IT	information technology
LGBTQ+	Lesbian, Gay, Bisexual, Trans, Queer, etc.
LIC	low-income country
LMICs	low- and middle-income countries
MDG	Millennium Development Goal
MHICs	middle- and high-income countries
MIC	middle-income country

MIS	management information system
NCD	noncommunicable disease
NDoH	National Department of Health
NGO	nongovernmental organization
NHS	[United Kingdom] National Health Service
NHSU	National Health Service of Ukraine
NHWA	National Health Workforce Accounts
NICE	National Institute for Health and Care Excellence
OECD	Organisation for Economic Co-operation and Development
P4C	Pay-for-coordination
P4P	Pay-for-performance
P4Q	Pay-for-quality
PAHO	Pan American Health Organization
PaRIS	Patient-Reported Indicator Surveys
PCAT	Primary Care Assessment Tool
PCET	Primary Care Evaluation Tool
PHC	primary health care
PHC-IMPACT	Primary Care Impact, Performance and Capacity Tool
PHCMFI	PHC Monitoring Framework and Indicators
PHCPI	Primary Health Care Performance Initiative
PREMs	patient-reported experience measures
PMG	Programme of Medical Guarantees
PROMs	patient-reported outcome measures
QJS	Quadripartite Joint Secretariat
SARA	Service Availability and Readiness Assessment
SDG	Sustainable Development Goal
SIHI	Social Innovation in Health Initiative
SINAN	Notifiable Diseases Information System
SMS	short messaging service
SNS	(Spanish) National Health System
STI	sexually transmitted infection
SUS	<i>Sistema Único de Saúde</i>
SWOT	strength-weakness-opportunity-threat

TB	tuberculosis
UCS	Universal Coverage Scheme [of Thailand]
UHC	universal health coverage
UHC-P	Universal Health Coverage Partnership
UHC2030	International Health Partnership for Universal Health Coverage 2030
UMIC	upper-middle-income country
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
URRMI	Urban-Rural Residents Medical Insurance
US\$	US dollars
USA	United States of America
WASH	water, sanitation and hygiene
WASHFIT	WASH Facility Improvement Tool
WHO	World Health Organization
WOAH	World Organisation for Animal Health
WONCA	World Organization of Family Doctors
WPV	wild polio virus

Glossary

Acceptability

Refers to cultural and social factors determining the possibility for people to accept the aspects of the service and the judged appropriateness for the persons to seek care.

Access (to health services)

The ability, or perceived ability, to reach and obtain health services or health facilities in terms of location, timeliness and ease of approach in situations of perceived need for care.

Accountability

The obligation to report or give account of one's actions, for example, to a governing authority through scrutiny, contract, management and regulation or to an electorate.

Advanced practice nurse/Nurse practitioner

A registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice.

Affordability

Reflects the financial and timely capacity for people to use appropriate services.

Algorithm

A specification of how a computer shall solve a problem, perform a calculation and execute a task.

Allocation

Describes the decisions about how pooled funds should be distributed across the different types of health care and across geographic areas.

Artificial intelligence

Artificial intelligence refers to systems designed by humans that involves developing computer programs to complete tasks which would require human intelligence.

Assistive technologies

Is an umbrella term covering the systems and services related to the delivery of assistive products and services. Assistive products support people with impaired cognitive, perceptual, and physical functions, maintain or improve an individual's functioning and independence and help to prevent or reduce the effects of secondary health conditions. Assistive technology is a subset of health technology and comprises for example hearing aids, wheelchairs, communication aids, spectacles, prostheses, pill organizers and memory aids.

Blended payments

Blended payments mean that different payment mechanisms are combined to mitigate against the shortcomings of any one mechanism and to provide a more balanced set of incentives.

Bundled payments

Involve paying one single payment to several providers to deliver one episode of care for a certain condition, which should stimulate providers to better coordinate care by allowing them to retain any saving.

Capitation payment

Providers are given a fixed per-person prospective payment to deliver a defined set of services to each enrolled individual regardless of the actual volume provided, for a specified period.

Change management

An approach to transitioning individuals, teams, organizations and systems to a desired future state.

Community

A unit of population, defined by a shared characteristic (for example, geography, interest, belief, or social characteristic), that is the locus of basic political and social responsibility and in which every day social interactions involving all or most of the spectrum of life activities of the people within it takes place.

Community-based

Community-based is another characteristic of primary care, where community refers to a 'place', capturing its delivery in close proximity with where people live or work.

Community engagement (or empowered people and communities)

A process of developing relationships that enable stakeholders to work together to address health-related issues and promote well-being to achieve positive health impact and outcomes.

Community health worker

Is a frontline worker who provides health and medical care to members of their local community, often in partnership with health professionals; alternatively known as village health worker, community health aide or promoter, health educator, lay health adviser, expert patient, community volunteer or some other term. The worker has a close understanding of and trusting relationship with the community. This enables them to serve as a intermediary between health/social services and the community and to facilitate access to services and improve the quality and cultural competence of service delivery.

Community-oriented primary care

A continuous process by which primary health care is provided to a defined community on the basis of its assessed health needs, by the planned integration of primary care practice and public health.

Competency-based education

Competency-based education is a whole-of-program approach with a dual focus on the services to be provided, and the competencies of the health worker who provides them. The action-oriented principles are associated with better learner engagement, better transitions to practice, and improved quality of health workers.

Comprehensiveness of care

Comprehensiveness can be referred to as the scope, breadth, and depth of primary care, including the competence to address health issues throughout the life course. Comprehensive primary care can respond to the majority of an individual's health care needs, either through direct provision of care (for the vast majority of problems) or through referral to other levels of care or services.

Continuity of care

Continuity of care results from the delivery of seamless coherent person-focused care over time across different care encounters and transitions of care.

Coordination of care

The responsibility to coordinate service delivery across the whole spectrum of health and social care services, including mental health services, long-term and social care, through integrated, functional and mutually supportive arrangements (including referral systems) for transitions and information-sharing along evidence-based care pathways.

Co-payments

A fixed amount (flat rate) charged for a service (see also 'Out-of-pocket payment').

Coverage policies

Policies that set out what health services will be fully or partially subsidized; who is entitled to these services, and the terms under which the population can access these services.

Digital health

An overarching term that is defined as the use of digital technologies to improve health. It includes eHealth and mHealth (e.g. telemedicine, electronic health records and wearable sensors) as well as developing areas such as the use of advanced computing sciences in the fields of big data and artificial intelligence. Digital technologies also include some medical devices and assistive products.

Digital health literacy

Refers to the skills, knowledge, and attitudes necessary to successfully use digital solutions, effectively understand and utilize data outputs from such solutions as well as actively participate in the digital information society.

Digitalization

The process of automating workflows and services using technology and digital information systems. In this format, manual efforts are minimized. Digitalization is the second step towards digital transformation.

Digitization

The process of storing data electronically. In this format, data is available for action, update and reporting. Digitization is the initial step towards digital transformation.

Disease management

A system of coordinated, proactive health care interventions of proven benefit and communications to populations and individuals with established health conditions, including methods to improve people's self-care efforts.

Effectiveness

Extent to which a service achieves the desired results or outcomes, at the patient, population or organizational level.

Efficiency

Relationship between a specific product (output) of the health system and the resources (inputs) used to create the product, distinguishing technical and allocative efficiency.

e-health

Information and communication technologies that support the remote management of people and communities with a range of health care needs through supporting self-care and enabling electronic communications among health workers and between health workers and patients.

Electronic health record (EHR)

Real-time, patient-centred records that provide immediate and secure information to authorized users. EHRs typically contain a patient's medical history, diagnoses and treatment, medications,

Emergency preparedness

The knowledge, capacity and organizational systems that governments, response and recovery organizations, communities, and individuals develop to anticipate, respond to, or recover from emergencies

Empanelment

The identification and assignment of populations to specific health care facilities, teams, or providers who are responsible for the health needs and delivery of coordinated care in that population.

Empowerment

The process of supporting people and communities to take control of their own health needs resulting, for example, in the uptake of healthier behaviours or an increase in the ability to self-manage illnesses.

Equity in health

The absence of systematic and remediable differences in health status, access to health care and health-enhancing environments, and treatment, in one or more aspects of health across populations or population groups within and across countries.

Essential medicines

Medicines that satisfy the priority health care needs of the population and are selected based on public health relevance, evidence on efficacy and safety, and comparative cost– effectiveness.

Essential public health functions

Refer to a fundamental and indispensable set of collective actions under the responsibility of the State which are needed to meet public health goals, including the attainment and maintenance of the highest level of population health possible within given resources.

Family medicine (or general practice)

The discipline for the provision of comprehensive, generalist, continuing and person-centered health care to individuals in the context of their family and community. Its scope encompasses all ages, genders, diseases and parts of the body. It is commonly delivered in the community or in partnership with communities where it can constitute the interface or “first contact access” between people and the health system. Providers often include generalist practitioners or family physicians, nurses, and other health professionals. It is increasingly delivered through multidisciplinary teams.

Family physician

Family physician (family practitioner, family doctor) is a medical doctor who provides primary, generalist and continuing person-centred care (sometimes secondary) to patients and their families within their community. Family physicians diagnose, treat and prevent illness, disease, injury, and other physical and mental impairments in humans through application of the principles and procedures of scientifically underpinned and socially accountable medicine. They do not limit their practice to certain disease categories or methods of treatment, and may assume responsibility for the

provision of continuing and comprehensive medical care to, and the maintenance of general health of, individuals, families and communities. Family physicians have completed postgraduate training in family medicine. In many countries the term “general practitioner” is used to describe this professional group as stated below (see ‘General practitioner’).

Fee-for-service payment

A method of reimbursement based on payment for each service rendered or patient encounter provided, e.g. a consultation, a test, or a home visit. Reimbursement may be from the patient and/or a third party such as an insurance company or a government programme.

Financial hardship

Financial hardship occurs when health service utilization comes at the expense of other necessities in life.

Financial protection

Financial protection is closely linked to health coverage and can be undermined by gaps in the breadth (universality), scope (range of benefits) and depth (out-of-pocket payments) of coverage, as well as by the quality and timeliness of service delivery. Financial protection is achieved when: (a) there are no financial barriers to access; and (b) direct payments required to obtain health services are not a source of financial hardship.

First contact

Refers to primary care as the first point of contact for the large majority of disease prevention activities as well as for acute and chronic health problems.

Fragmentation (of health services)

Fragmentation of health services includes: (a) coexistence of units, facilities or programmes that are not integrated into the health network; (b) the lack of service coverage of the entire range of promotion, prevention, diagnosis, treatment, rehabilitation and palliative care services; (c) the lack of coordination among services in different platforms of care; or (d) the lack of continuity of services over time.

Gender equity

Fairness and justice in the distribution of benefits, power, resources, and responsibilities between women and men.

Generalism

A care philosophy that considers the overall well-being of the whole person within the context of their lives, encompassing the practitioner’s training, attitudes, scope of practice, and work setting.

General practitioner (GP)

In many countries the term “general practitioner” is used interchangeably with “family physician” when it refers to clinicians with the training, competencies and scope described above (see ‘Family physician’). In a limited number of countries, general/family practice is not yet recognized as a specialty, and the term “general practitioner” refers to individuals who enter clinical practice directly after basic medical training, often immediately after graduating from medical school, without any further postgraduate training or without postgraduate training informed by the principles of family medicine. However, the global trend is to require specialty training in family medicine before a doctor starts practicing.

Generics and biosimilars

Both are versions of brand-name drugs that may offer more affordable treatment options to patients. Generics (typically small molecules) and biosimilars (typically larger, more complex molecules) However, biosimilars are not generics, and important differences exist between them. For example, generic drugs are usually synthesized from chemicals and the manufacturing process results in an active ingredient that is the same within each manufactured lot and between lots. However, biosimilars, like their reference biological products, are typically manufactured from living systems (e.g., microorganisms, like yeast and bacteria, and animal cells).

Globalization

Refers to the increasing integration of economies around the world, particularly through the movement of goods, services, and capital across borders. The term sometimes also refers to the movement of people (labour) and knowledge (technology) across international borders.

Health

State of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.

Health governance

The wide range of steering and rule-making related functions carried out by governments and decision-makers as they seek to achieve national health policy objectives. Governance is a political process that balances competing influences and demands. It includes: maintaining the strategic direction of policy development and implementation; detecting and correcting undesirable trends and distortions; articulating the case for health in national development; regulating the behaviour of a wide range of actors, from health care financiers to health care providers; and establishing transparent and effective accountability mechanisms.

Health in All Policies

An approach to public policies across sectors that systematically takes into account the implications for health and health systems of decisions, seeks collaborations, and avoids harmful health impacts in order to improve population health and health

equity. It is founded on health-related rights and obligations. It emphasizes the effect of public policies on health determinants and aims to improve the accountability of policy-makers for the effects on health of all levels of policy-making.

Health indicator

A recorded single variable, which gives important information about the health of a given population.

Health literacy

The achievement of a certain level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions.

Health security

Refers to the actions required in minimizing the danger and impact of acute health events that adversely impact upon the health of people living across geographical regions and international boundaries.

Health technology

Defined as the application of organized knowledge and skills in the form of devices, medicines, medical and surgical procedures, in prevention, diagnosis and treatment of diseases as well as in disease monitoring, rehabilitation, and the organizational and supportive systems within which care is provided.

Holistic approach

Care that considers the whole person, including psychological, social and environmental factors, rather than just the symptoms of disease or ill health.

Horizontal integration

Coordination of the functions, activities or operating units that are at the same stage of the service production process; examples of this type of integration are consolidations, mergers and shared services within a single delivery platform.

Information system

An organizational system that collects, stores, processes, and distributes information using software, hardware, networks, databases, and people. It facilitates data capture and then converts data into information to generate knowledge that can be used for policy and management decision-making; and also research. Information systems can be paper based or digital.

Integrated health services

The management and delivery of health services so that people receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation and palliative care services, coordinated across the different levels and sites of care within and beyond the health sector, and according to their needs throughout the life course.

Integration

A coherent set of methods and models on the funding, administrative, organizational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors for the purpose of improving patient care and experience. When such processes achieve improved patient care and experience, the result is termed integrated care.

Interoperability

Ability of different applications to access, exchange, integrate and use data in a coordinated manner through the use of shared application interfaces and standards, within and across organizational, regional and national boundaries, to provide timely and seamless portability of information and optimize health outcomes.

Interprofessional education

Where students from two or more professions learn from, about, and with each other for effective collaboration in future practice.

Model of care

A model of care represents a set of strategic choices that determine what services are delivered, and where and how they are delivered. The model of care evolves to meet the health aims and priorities of the population and to improve the performance of the health system.

Multidisciplinary teams

Various health care professionals working together to provide a broad range of services in a coordinated approach. The composition of multidisciplinary teams in primary care will vary by setting but may include generalist medical practitioners (including family doctors and general practitioners), physicians assistants, nurses, specialist nurses, community health workers, pharmacists, social workers, dieticians, mental health counsellors, physiotherapists, patient educators, managers, support staff, and other primary care specialists

Multisectoral policy and action

Policy design, policy implementation and other actions related to health and other sectors (for example, social protection, housing, education, agriculture, finance and industry) carried out collaboratively or alone, which address social, economic and environmental determinants of health and associated commercial factors or improve health and well-being.

Neoliberalism

Neoliberalism is a form of liberalism that supports economic freedom and the free market. The key tenets include privatization and deregulation.

Operational levers

Operational levers of the PHC Operational Framework guide transformational actions and interventions to accelerate progress in strengthening PHC-oriented systems. The 10 operational levers comprise among others an integrated, people-centred model of care, sound public–private partnership, adequate and competent PHC workforce, secure and accessible health facilities, available and affordable medicines and digital technology-enabled service delivery. The full list of the operational levers can be found in Figure 1.2 of this publication and a narrative description for each operational lever in the PHC Operational Framework.

Out-of-pocket payment

Payments are expenditures borne directly by the patient for goods or services that include: (i) direct payments that are not covered by any form of insurance; (ii) cost sharing: a provision of health insurance or third-party payment that requires the individual who is covered to pay part of the cost of health care received; and (iii) informal payments: unofficial payments for goods and services that should be fully funded from pooled revenue.

People-centred care

An approach to care that consciously adopts the perspectives of individuals, carers, families and communities as participants in and beneficiaries of trusted health systems that respond to their needs and preferences in humane and holistic ways. People-centred care also requires that people have the education and support they need to make decisions and participate in their own care.

Pharmaceutical services

Pharmaceutical services encompass a diverse range of activities aimed at ensuring patient and community access to medicines. These services extend beyond conventional pharmacy functions, such as dispensing, counseling, and compounding, to include activities like vaccination, medicine use review, point-of-care testing, and disease management. Various health professionals, including pharmacists, can provide these services.

PHC Operational Framework

The Operational framework for PHC provides a series of 14 interdependent, inter-related and mutually reinforcing levers for action, including four core strategic and 10 operational levers. The levers expand on the health system building blocks, addressing key health sector elements that can help countries to accelerate progress on PHC. The core strategic levers are foundational prerequisites for action in all other operational levers. The Operational Framework for PHC provides: (a) a narrative description for each lever; (b) proposed actions and interventions that can be applied at national, sub-national and community levels; and (c) a list of tools and resources for each lever (WHO & UNICEF, 2020).

PHC-oriented model of care

Defines service priorities based on life course needs; accounts for people's desires and preferences regarding access to care; fosters promotion, prevention and public health; builds strong primary care-based systems by shifting towards more outpatient and ambulatory care; and innovates and incorporates new technologies. It positions primary care and public health at the core of comprehensive, integrated service delivery.

Pooling

The way funds are combined across individuals and sources to cover the health needs of a defined population.

Population health

Refers to health and well-being outcomes within a defined group of individuals driven by policies and actions on the wider determinants of health of those populations.

Primary care

Primary care can be defined by the core functions of first contact accessibility, comprehensiveness, continuity and coordination for person-centred services. This Primer views "primary care" as the core and foundation of all service-fronting integrated health services, which constitute one of three integral components of PHC, as put forward by the Astana Declaration. Because of primary care's unique ability to drive towards the goals and principles of PHC, it is prioritized in PHC-oriented health systems.

Primary health care

A whole-of-society approach to health that aims to maximize the level and distribution of health and well-being through three components: (a) primary care and essential public health functions as the core of integrated health services; (b) multisectoral policy and action; and (c) empowered people and communities.

Primary health care-oriented health system

Health system organized and operated to guarantee the right to the highest attainable level of health as the main goal, while maximizing equity and solidarity. A primary health care-oriented health system is composed of a core set of structural and functional elements that support achieving universal coverage and access to services that are acceptable to the population and equity enhancing.

Purchasing

The set of arrangements that govern how funds move from a fund pool to providers on behalf of a population to pay for health care.

Quality of care

The degree to which health services for individuals and populations increase the likelihood of desired health outcomes. Quality health care should be safe, effective and people-centred.

Resilience

The ability of health systems to constructively anticipate, adapt to, and respond to a wide variety of shocks and stressors, such as pandemics, economic crises, or the chronic and acute effects of climate change.

Responsiveness

A measure of how well a health system meets the non-medical, legitimate expectations of a population in its interactions with the health system.

Revenue collection

Describes how funds for health are mobilized and classifies these according to their source (government expenditure derived from taxation and mandatory insurance contributions, private expenditure including both out-of-pocket payments and private insurance premia, and external sources). It determines the overall size of the health budget, and the distribution of the financial burden across different payers.

Safety

Extent to which health care processes avoid, prevent and ameliorate adverse outcomes or injuries that stem from the processes of health care itself.

Self-care

Is the ability of individuals, families and communities to promote, maintain, or restore health and to cope with illness and disability with or without the support of a health worker.

Self-management

The knowledge, skills and confidence to manage one's own health, to care for a specific condition, to know when to seek professional care, or to recover from an episode of ill-health

Social determinants of health

Social determinants of health are the nonmedical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies, racism, climate change, and political systems

Social prescribing

An approach that connects people to activities, groups, and services in their community to meet the practical, social and emotional needs that affect their health and well-being. Care providers can refer patients to health and well-being services in the community, such as housing, healthy food, gym membership, or community activities.

Strategic levers

Four core strategic levers of the PHC Operational Framework comprise political commitment and leadership, governance and policy frameworks, funding and allocation of resources, and the engagement of communities and other stakeholders. Without these core strategic levers, actions and interventions carried out through use of the operational levers are unlikely to lead to effective primary health care.

Sustainable Development Goals

The Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 SDGs are integrated – they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability.

Task-sharing

A process of delegation whereby tasks are moved, where appropriate, from higher qualified to lower qualified professions or health workers. The aim of task-sharing (often interchangeably used with task-shifting) is to expand access to services, with increased workforce efficiency, work flows and other parameters.

Telehealth/Telemedicine

Telehealth/Telemedicine (used interchangeably) refers to the provision of health care services at a distance with communication conducted between health care providers seeking clinical guidance and support from other health care providers (provider-to-provider telemedicine); or conducted between remote health care users seeking health services and health care providers (client-to-provider telemedicine) using tools such as remote video consultations and virtual monitoring.

Universal health coverage

All people – no matter who they are or where they live – can receive quality health services, when and where they are needed, without incurring financial hardship. It includes the full spectrum of essential, quality health services, from Health promotion to prevention, treatment, rehabilitation, and palliative care across the life course.

User experience

Extent to which the service user perspective and experience of health care is measured and valued as an outcome of service delivery.

Vertical programmes

Health programmes focused on people and populations with specific (single) health conditions.

Vertical integration

The coordination of the functions, activities or operational units that are in different phases of the service production process. This type of integration includes the links between platforms of health service delivery, for example between primary and referral care, hospitals and medical groups or outpatient surgery centres and home-based care agencies.

Well-being

A multidimensional construct aiming at capturing a positive life experience, frequently equated to quality of life and life satisfaction. Measures of well-being typically focus on patient-reported outcomes covering a wide range of domains, such as happiness, positive emotions, engagement, meaning, purpose, vitality and calmness.

Whole-of-society approach

Whole-of-society approach means to consider engaging multisectoral stakeholders (civil society, communities, academia, media, private sector, nongovernmental organizations (NGOs), other voluntary associations, families, and individuals) and facilitate their active participation in the decision-making process to take appropriate measures together. It embraces both formal and informal institutions in seeking a generalized agreement across society about policy goals and the means to achieve them. The whole-of-society approach can strengthen the resilience of communities to withstand threats to their health, security and well-being.

PART I

The PHC approach: foundations, history and concepts



1

The PHC approach: an introduction

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Key messages

Primary health care (PHC) is the cornerstone of strong and resilient health systems. It shapes them so that they respond to people; offer quality, affordable care close to communities; and engage people in their own health and well-being.

- PHC is fundamentally about delivering holistic, integrated health services.
- Person-centred primary care services and the population focus of public health are linked by PHC, which makes PHC a tool for stronger universal health coverage (UHC), health security, health and well-being.
- PHC acts as a bridge between health care and community engagement and so supports access, participation and quality.
- Different sectors are brought together by PHC on policy and for action, fostering whole-system, whole-society thinking.
- PHC typically suffers in terms of resources in comparison with hospitals, but a PHC approach is not simply about shifting funds. Specialist settings can play a crucial role in a PHC-oriented system if they use their expertise, innovation and technology to support PHC and provided that they engage and communicate with primary care providers, referring patients back when the time is right.

1.1 Primary health care

1.1.1 Definition, values and principles of PHC

PHC has been the focus of renewed global attention over the past few years for its central role in achieving “health and well-being for all” (SDG3) amid the wider global agenda for health, peace and prosperity outlined in the Sustainable Development Goals.

The PHC approach, by definition, enhances health equity and shapes health systems to be resilient, efficient and responsive to people’s needs and demands (WHO & UNICEF, 2018). It integrates population and individual-level health interventions and shifts efforts from a reactive approach to illness to a more holistic and proactive

approach to health and well-being. As such, PHC provides an essential foundation to effectively address population health needs and serves as a basis for all health system strengthening efforts. This Primer uses the definition of PHC as outlined in the 2018 Astana Declaration and its accompanying document, “*A Vision for Primary Health Care in the 21st Century*” (WHO, 2018a; WHO & UNICEF, 2018) (Box 1.1).

Box 1.1 Primary health care

- PHC is a whole-of-society approach to health that aims to maximize the level and equitable distribution of health and well-being by focusing on people’s needs and preferences as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care.
- The PHC approach accelerates progress towards achieving UHC and health security. At the same time, it enables health systems to have all essential health services readily available, of high quality, accessible and affordable to communities, as close as possible to people’s everyday environment.
- PHC combines multisectoral policy and action, community engagement and high-quality services. It integrates population and individual-level health interventions and shifts efforts from a reactive biomedical approach to illness to a more holistic and proactive approach to health and well-being.

Sources: WHO, 2018a; WHO & UNICEF, 2018

Throughout the 45 years since the 1978 Declaration of Alma-Ata, and through its affirmation in the Declaration of Astana, the concept of PHC has been repeatedly reinterpreted. Where linguistics and ideologies may have caused confusion and disagreement about the concept of PHC, its core values and principles have generally been a point of consensus (see Chapter 3). Central to the paradigm shift presented by the Declaration of Alma-Ata and the renewed commitment expressed in the Declaration of Astana is a reframing of the “disease agenda” into a “health agenda” where health is understood as a state of physical, mental and social well-being rather than the mere absence of disease. Captured in the concept of PHC, this paradigm shift is an expression of the right to health – the fundamental right of every individual to enjoy the highest attainable standard of physical and mental health.

The right to health is enshrined in various international human rights instruments, including the Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights (United Nations General Assembly, 1948; United Nations, 1967). It is further expressed in the principles that constitute the core of the PHC approach:

- **Universal access:** *The right to health guarantees access to health services and care for everyone.* PHC calls for, and enables, equitable access to health care and services for all individuals without discrimination regardless of age, gender, race, socioeconomic status, geographic location or their ability to pay.

- **Solidarity and equity:** The right to health calls for the reduction of social, economic and health disparities and the elimination of discriminatory practices. PHC purposefully addresses health inequities by prioritizing vulnerable and marginalized populations, attending first to those with the greatest need and ensuring that no one is left behind, including through multisectoral policy and action on adverse determinants of health.
- **Holistic approach:** *The right to health emphasizes a comprehensive notion of health beyond the absence of disease.* PHC recognizes and addresses the social, economic and environmental determinants that impact health, and integrates the full spectrum of care and services from health protection, promotion and education to disease prevention, treatment, rehabilitation and palliation for the overall well-being of individuals and communities.
- **Multisectoral policy and action:** *The right to health necessitates involvement and engagement beyond the health sector.* PHC includes purposeful policy decisions to shape and enable health and well-being for individuals and communities beyond the delivery of primary care and essential public health services, including through the environment, transportation, labour and education sectors, among others.
- **Community engagement to co-create health:** The right to health demands the participation of individuals and communities in the formulation, implementation and evaluation of health policies and programmes. PHC engages individuals and communities in decisions and actions that affect their health and well-being, and includes active community participation in decision-making processes related to health as one of its core components.
- **Care which is of good quality and affordable:** The right to health requires that health services, including medicines, be available, accessible, acceptable and of good quality. PHC includes the delivery of affordable and high-quality integrated health services, including essential medicines, the use of appropriate health technologies and the participation of accountable and qualified health and care workers.

Through its three mutually dependent components (integration of primary care services and essential public health functions, multisectoral policy and action, and individual empowerment and community engagement) (see Fig. 1.1), PHC translates the right to health into concrete goals and highlights ways to achieve them. While health systems do not naturally evolve towards a PHC orientation, progress is entirely possible, as repeatedly demonstrated over the past decades in settings where political will and leadership have prioritized a PHC-oriented implementation.

1.1.2 Key concepts and terms

Advancing PHC through shared learning requires an *a priori* description of commonly used concepts and terms. In this section, key concepts and terms are described: PHC and primary care, generalism, essential public health functions, integrated health services, and models of care. These are central to the PHC approach and are consistently used across the chapters of this PHC Primer. These are also described and discussed in more detail in Part I of this publication.

PHC and primary care

As described by the World Health Organization (WHO), and for the purpose of this volume, PHC and primary care refer to two related but distinct concepts (see also Chapter 3).

PHC is “a whole-of-society approach to health that aims equitably to maximize the level and distribution of health and well-being by focusing on people’s needs and preferences (both as individuals and communities) as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people’s everyday environment” (WHO & UNICEF, 2018). As an approach, it effectively organizes and strengthens national health systems to bring services for health and well-being closer to communities. As outlined in the Declaration of Astana (2018), it includes three inseparable and mutually influential components: multisectoral policy and action, empowered people and communities, and integrated health services with primary care and essential public health functions as their core (WHO & UNICEF, 2018). The PHC approach emphasizes action across sectors to address the social, economic, commercial and environmental determinants of health.

Primary care is the core of the service-fronting component of PHC and refers to essential health and social services that meet most of people’s health needs, delivered close to home. In PHC-oriented systems, primary care enables first contact access, continuity, comprehensiveness and coordination, also called “the 4Cs” (see Chapter 3). Together, essential public health functions and primary care balance individual and population-level interventions, and constitute the integrative component of all health services, including specialist, secondary and tertiary services, which are also planned and delivered according to PHC’s key principles and support the delivery of high-quality primary care (WHO, 2018b).

Authors’ Note: The term “PHC services” is often erroneously used to refer to primary care services. “PHC services” in this volume refer to all interventions and actions involved in the implementation of a PHC-oriented approach, including many outside the health system to address the underlying reasons of people’s well-being. Primary care services refer to health and social services delivered at the primary care level (see also Chapter 3 and Glossary).

Generalism

In PHC-oriented systems, primary care is expected to address most of people’s health needs (WHO, 2018b) across the full spectrum of care and throughout the life course, through people-informed and person-centred care. To meet this ambitious goal, the delivery of primary care services needs to involve teams of health workers with an

explicit interest and expertise in generalism.¹ Across professional groups, be they nurses, physicians, rehabilitation providers (e.g. physiotherapists, occupational therapists), dentists, social workers or others, generalists are comfortable with diagnostic uncertainty, naturally adopt a “whole-person” approach, can integrate physical and social sciences, apply a wide breadth of expertise and expect to adapt their skills to meet clinical needs as they arise (Howe, 2012; Howe & Kidd, 2019). Generalists impart a degree of flexibility and adaptability to the delivery of health services that is particularly important to address complex chronic conditions at the individual level and to support the progressive expansion of available services in responsive health systems (see Chapter 8). This is because trained generalists can apply their clinical expertise to the growing range of long-term conditions, “manage risk safely, and share complex decisions with patients and carers, while adopting an integrated approach to their care” (Misky et al., 2022). As such, generalism is central to PHC.

In PHC-oriented health systems, generalist providers, especially those working in primary care, deliver a flexible and scalable number of services, playing a key role in imparting responsiveness to health systems. Long mistakenly associated with the absence of “special skills”, generalist medicine is increasingly recognized as requiring purposeful training. In many countries, highly trained generalist physicians responsible for high-quality primary care (and sometimes some secondary care) and trained according to the patient-centred clinical method are called family physicians. In PHC-oriented health systems, not all generalist providers are physicians and not all generalist physicians are family physicians but also include nurse practitioners, for example (Howe & Kidd, 2019). Yet the delivery of high-quality comprehensive primary care requires the involvement of family physicians in numbers and roles adapted to each specific environment. As outlined in Chapter 8, the key role of generalism, and specifically of family physicians in primary care and on primary care teams, has planning, resources and training implications.

Essential public health functions

Essential public health functions (EPHFs) refer to a “fundamental and indispensable set of collective actions under the responsibility of the state which are needed to meet public health goals, including the attainment and maintenance of the highest level of population health possible within given resources” and “a means to plan, prioritize and provide key public health interventions for population health” (WHO, 2021).

The specific list of essential public health functions and the ways to operationalize them vary across countries and regions. As outlined in the WHO technical guidance document “*A Vision for Primary Health Care in the 21st Century*”, and detailed in Chapter 5, efforts to integrate public health and primary care focus on the following functions: health protection, health promotion and disease prevention, surveillance and response, and emergency preparedness. Many essential public health functions correspond to levers of the WHO PHC Operational Framework, and are analysed in Part II of this publication.

¹ In some settings, generalists also work at the secondary care level.

In the context of PHC, situating essential public health functions at the core of integrated health services conveys the central importance of population-based interventions in protecting and promoting health and in preventing illness, and calls for the inclusion of related interventions in packages of essential services. It also conveys the importance of giving first attention to addressing adverse determinants of health as their impact on health and illness outweighs that of individual curative services. Presenting primary care in tandem with essential public health functions underscores the complementarity and interdependence of population-based and individual-focused services. The essential contributions and high impact of population-based approaches to a PHC-oriented health care system are further outlined in Chapter 5.

Integrated health services

As proposed by the WHO's Framework on integrated people-centred health services, integrated health services refer to services that are "managed and delivered so that people receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease-management, rehabilitation and palliative care services, coordinated across the different levels and sites of care within and beyond the health sector, and according to their needs throughout the life course" (WHO, 2016).

The distinction between "integrated" and "coordinated" care and services is not always clear and the terms are often used interchangeably. Integration involves purposeful technical and operational dimensions, as well as a relational dimension, and can occur through financial, administrative, organizational and clinical processes. The specific ways in which health services are ultimately integrated are reflected in models of care. In PHC-oriented health systems, integration is ultimately centred on people's needs.

In the context of PHC, services are integrated in different ways:

- **Integrated population and individual-level services:**
As mentioned above and discussed more in depth in Chapter 5, in PHC-oriented systems population and individual-level services are integrated. They inform and mutually reinforce one another. This has implications for data collection, health workforce competency and capacity, funding and payment models as well as community engagement among others.
- **Integrated services within and across levels of care:**
In PHC, health services are integrated at the micro- and meso-levels among members of the primary care team, and possibly a network, "around" and centred on the person. When the needs of the patient exceed the capacity of the primary care team, the patient is easily and promptly referred to a specialist colleague or team at secondary and tertiary care levels, either in outpatient or inpatient facility settings. Effective integration requires all levels of care to be PHC-oriented. Transitions between providers across levels of care are best coordinated at primary care level with the integration of care supported by effective communication and the sharing of patient information through adequate and accountable referral and counter-referral mechanisms. Services can be integrated at the regional, sub-regional (such as districts or provinces) and/or local level (municipality, village or community).

- Integrated services across platforms and settings:

Integration is also important to ensure the safe and effective transition of care as individuals move from preventive to acute and chronic care, rehabilitation and palliation, and between facilities and care settings including home, primary care facilities, clinics, hospitals, hospices, nursing homes and long-term care facilities.

Models of care

A model of care refers to the way in which services are selected, organized and managed, and the implicit or explicit assumptions, values and goals that underpin that organization. In the context of PHC, models of care outline the configuration of service delivery that reflect PHC's principles and achieve its stated objectives.

There is no single PHC-aligned model of care as the various elements can be organized in several ways in order for service delivery to align with, reflect and enable the principles and goals of PHC. Models of care are shaped by values and principles, available resources, the types of services to be delivered and the target population (see Chapter 6).

In short, models of care outline “what” services (including the essential package of services) are provided and “for whom” (what population), “by whom” (health workforce), “where” (what platforms, facilities and settings) and “how”. In PHC-oriented models of care, “how” refers specifically to strategies, processes and tools that lead to the desired outcomes such as equity, accessibility, quality, responsiveness and improved health outcomes.

In health systems not purposefully aligned with PHC, the dominant “default” model of care has traditionally been organized around hospitals and physician specialists. The implicit focus and priority of this model is the intensive use of technology and specialized expertise to cure disease. In some settings, a separate model exists for the delivery of health promotion and disease prevention services at the population level, often with a primary and narrow focus on traditional hygiene and water sanitation measures, as well as addressing maternal and newborn health needs. Commonly, these services are not integrated with comprehensive individual care and are significantly under-resourced. As further elaborated in Chapter 6, in order to reap the full benefits of PHC, models of care need to steer away from an inefficient and inequitable “default” organization of health systems and enable integrated service delivery combined with community engagement and multisectoral action.

1.1.3 The three components of PHC

In this Primer, we use the PHC approach as defined in the Declaration of Astana and its accompanying vision document (WHO, 2018a; WHO & UNICEF, 2018), which incorporates the three inter-related and synergistic core components of PHC:

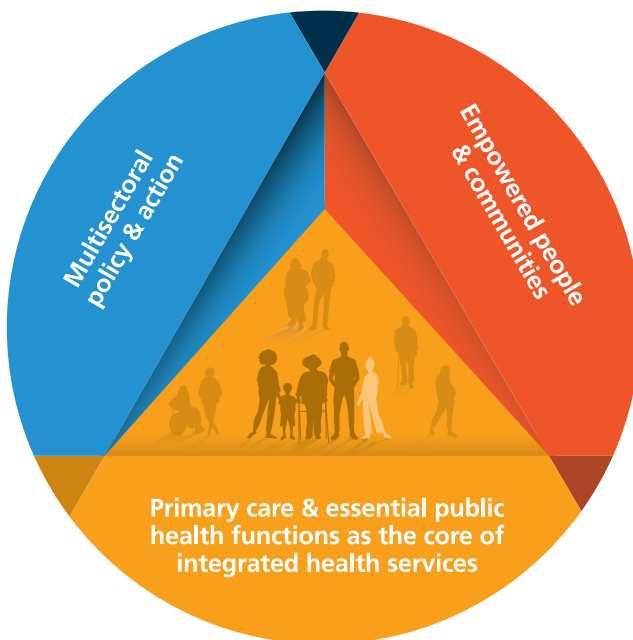
1. Primary care and essential public health functions as the core of integrated health services with the aim to meet people's health needs throughout their lives;
2. Addressing the broader determinants of health through multisectoral policy and action; and
3. Empowering individuals, families and communities to take charge of their own health.

While the PHC approach as a concept is inherently complex, its interpretation and implementation commonly focus on only one of its three components – primary care services and essential public health functions as the core of integrated health care delivery – with or without very limited consideration of the other two (see Chapter 3).

Building on the depiction of PHC presented in the Declaration of Astana, a representation of the three components of PHC as a triangular pyramid is proposed in which integrated health services, the yellow plane of the pyramid, are depicted as the front-facing component and primary focus of attention in efforts to develop PHC-oriented health systems. This is because most activities and interventions required to implement PHC-oriented health systems take place through integrated health services and many of the demands and expectations of people with regards to their right to health are expressed through them (Fig. 1.1). The red and blue components, multisectoral actions and community engagement, cannot be separated from integrated health services. They shape and are shaped by them and as such are inherent to a comprehensive implementation of the PHC approach through and across the whole of society.

The triangular pyramid conveys the interrelatedness of the three components of PHC and illustrates that any PHC-related action can be primarily focused on one of the components but will inevitably be connected to and involve the other two. At the intersection of the three components, at the centre of the pyramid, are people and their needs, be they individuals, families, communities or whole populations, who are the focus of the PHC approach and whose needs are addressed through all three components.

Fig. 1.1 The PHC approach as a triangular pyramid



Source: Authors, adapted from WHO & UNICEF, 2020

In PHC-oriented health systems, primary care services and essential public health functions constitute the core and foundation of all health services. As a whole-of-society approach, PHC informs how all actors, institutions and levels of the health system and beyond enable and support this foundational core of high-quality primary care and essential public health functions. Those not directly involved in the delivery of services nonetheless have a critical role in ensuring that all services, especially those in primary care and public health, are planned and organized according to a PHC orientation of the whole system. In practice, this might mean, for example, allocating public spending to care delivery closer to communities, making decisions that optimize the delivery of integrated and person-centred care at facility level and in the community, including at home, and establishing processes that ensure timely and integrated specialist care through effective referral and counter-referral to primary care.

Hospitals, as settings with concentrated resources, specialized expertise, hubs of innovation and technology, and as prime teaching environments, have a crucial role to play in a PHC-oriented system. They can leverage their resources to support high-quality primary care by enabling prompt access to secondary and tertiary care and to hospital-bound technology when needed, by ensuring referral back to comprehensive primary care particularly for ambulatory care-sensitive care conditions, and by engaging and communicating regularly with primary care providers to plan and deliver integrated and comprehensive care for the population. In high-performing health systems, hospitals and primary care providers work in tandem and their relationship is primarily informed by the needs of the people they serve.

Over the last decades, a large share of investment in health has been directed towards disease-based programmes (see Chapter 2) (De Maeseneer et al., 2008). Their importance has been supported by some evidence showing that the provision of disease-specific care results in better outcomes than primary care services for individuals affected by the disease of interest, a phenomenon called the primary care paradox (Homa et al., 2015) (Box 1.2).

Box 1.2 Disease-based (vertical) programmes and the primary care paradox

In many settings, especially in low- and middle-income settings, services are organized (and often funded) around body systems or functions (cardiovascular diseases, mental illness, renal diseases, etc.), specific diseases (HIV, TB, diabetes) or subpopulations (maternal health, paediatrics, etc.). While health systems anchored in robust high-quality primary care are clearly linked to better outcomes, equity and value at the population level (De Maeseneer et al., 2008), some evidence suggests that individual outcomes are sometimes better when services are delivered through disease-specific care and vertically organized programmes compared to comprehensive primary care. This phenomenon is referred to as the primary care paradox (Homa et al., 2015; Bitton, 2018).

A number of confounding factors likely contribute to this discrepancy. First, the clinical outcomes prioritized by vertical programmes are typically fewer and focused (but limited) and therefore easier to measure. Conversely, in a highly heterogeneous population with multiple health issues, clinical outcomes are much more difficult to outline and measure both punctually and over time (Stange & Ferrer, 2009). Secondly, in part because of the appeal of their clearly measurable outcomes, vertical programmes often benefit from a disproportionate amount of resources compared to comprehensive (routine) primary care. These resources, in the form of medicines, equipment, facilities and human resources, can translate into timely and effective services, including the prompt transition of patients to other levels of care as needed, at least for the conditions of focus. Thirdly, health workers in vertical programmes can achieve higher levels of expertise faster as they often focus on a limited range of clinical problems and presentations and may benefit from a number of advantages such as better wages, recognition and focused continuing professional development. In contrast, health workers in primary care settings are expected to address the most common health issues, often in their undifferentiated state, and often work in less well-resourced conditions, for lower wages, with limited support and often without adequate training. Together, these factors likely contribute to the gap in outcomes between vertical programmes and comprehensive care in some studies (Homa et al., 2015).

That is not to say that disease-focused integration is never indicated. In some cases, the complexity of needs, the concentration of the expertise required to address them and/or the frequency of encounters call for vertical integration – that is, the seamless planning, funding, administration and delivery of services along the different stages of the patient pathway for a given condition or related group of conditions. This may be the case, for example, for some dialysis patients, people with severe chronic and treatment-resistant mental illness or complex cancer patients during active treatment for whom care is best provided by teams with the expertise to address complex care needs likely to exceed the skills of most primary care teams. Nonetheless, in most cases, individuals and populations do better overall when their care, including their preventive, acute and chronic care, is integrated and anchored in a continuous relationship with a primary care provider (or team) (Grunfeld, 2005).

Lastly, this paradox points to the fact that improved clinical outcomes at the population level and across all health needs can coexist with poorer clinical outcomes at the individual level. In a PHC approach, the delivery of comprehensive, person-centred (and not disease-focused) services seeks to bridge that gap.

1.1.4 The PHC Operational Framework

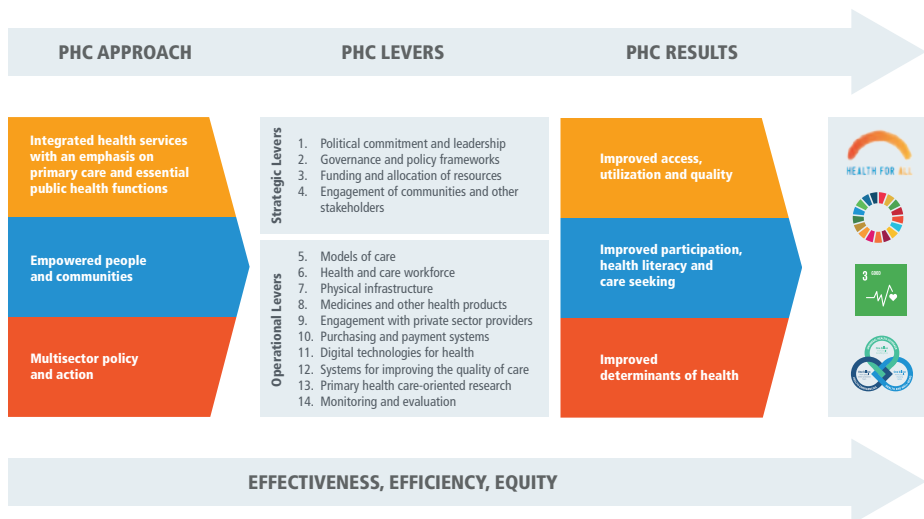
Efforts to strengthen PHC can be analysed using the PHC Operational Framework with particular attention paid to how these levers can be implemented to align with the PHC approach – and ultimately impact achieving UHC and other health-related SDGs (see Box 1.1). The Operational Framework was developed at the request of Member States to translate the commitments of the Declaration of Astana into concrete policy and action and to accelerate countries' progress towards strengthening PHC-oriented systems (Fig. 1.2) (WHO, 2018a; WHO & UNICEF, 2020). The Framework proposes

strategic and operational levers to guide transformational action and enable effective implementation across the three components of PHC. At the strategic level, PHC requires political commitment and leadership, legal frameworks and governance, funding and allocation of resources, and engagement of individuals, communities and stakeholders from all sectors.

At the operational level, PHC requires actions and interventions in key areas of integrated, people-centred models of care; engagement with private sector providers, workforce, physical infrastructure and appropriate medicines, products and technologies; digital technologies; purchasing and payment systems; systems for improving quality of care; and PHC-oriented research; as well as monitoring and evaluation. These levers are interdependent and mutually reinforcing/impact and enable one another.

PHC orientation is determined by the specific way in which each lever is implemented and by the interaction between the strategic and the operational levers, i.e. whether there is a clear and explicit political commitment and enabling policy framework, or which models of care are prioritized by governance actors and other stakeholders, and which workforce is cultivated, with which competencies and for which roles. The 14 strategic and operational levers were derived from and complement the six health system building blocks proposed by WHO in 2007 (financing, governance, workforce, medicines and medical products, service delivery and information systems) (WHO, 2007).

Fig. 1.2 The PHC Operational Framework



Source: WHO & UNICEF, 2022

The PHC Operational Framework is reflected in the organization of this Primer and the operational levers provide the lens through which evidence on efforts to strengthen PHC is presented.

Each of the chapters in Part II of this Primer presents evidence on “how” a specific operational lever² can be used to orient a health system towards PHC in various contexts, with an analysis of the current evidence on implementation – what has worked well and what has worked less well (see Section 1.2). The strategic levers are allocated in the chapters on governance and financing (Chapters 7 and 9).

1.2 The Primary Health Care Primer

1.2.1 The aims of this Primer

Throughout the 45 years since the Declaration of Alma-Ata (1978), implementation of PHC has evolved and resulted in substantial progress. Efforts by many countries to implement PHC-oriented health systems have produced diverse strategies to bring it to life. While PHC has been the subject of extensive analyses, treatises and reports, a textbook that summarizes the latest evidence on PHC implementation strategies and their impact on health systems performance is missing (Greenhalgh, 2013; McMurray & Clendon, 2014; WHO & UNICEF, 2022; WHO Regional Office for Europe, 2022).

This text aims to support implementation of the PHC approach by presenting evidence on “how” countries have been using the various levers of the PHC Operational Framework to maximize the impact of PHC (WHO & UNICEF, 2020).

It complements existing publications with a more comprehensive and timely examination of the full breadth of actions taken to shift from health systems characterized by fragmented, often market-driven, hospital-centric and/or disease-focused approaches, to systems that deliver the full spectrum of people-centred, integrated, equitable and affordable health care and services, in a manner that expresses the values and principles of the Declarations of Alma-Ata and Astana.

To achieve its goal, this volume seeks to:

- Cultivate a common understanding of PHC and of the specific role of primary care and essential public health functions at the core of integrated health services (Chapters 3 and 5).
- Analyse the trajectory of PHC since the Declaration of Alma-Ata, lay out its pivotal role in health systems of the 21st century and summarize the contemporary theoretical and political rationale for PHC (Chapters 2 and 4).
- Describe how models of care have been reoriented towards a PHC approach (Chapter 6).

² With some adaptations – for example, levers 11, 13 and 14 are in one chapter; lever 9 is a section in the governance chapter; etc.

- Elaborate on strategies and actions within each of the PHC Operational Framework levers that can support health systems transition towards PHC and showcase the diversity of approaches to implementing the PHC approach in different contexts (Part II chapters).
- Provide an analysis of the role and influence of contextual factors and confounders on the success, failure and/or unforeseen consequences of PHC implementation, and review how various PHC levers work (or do not work) to achieve UHC and in which circumstances (Parts II and III chapters).
- Emphasize the potential of PHC to achieve health system objectives and improve health system performance (Part III chapters).
- Through a critical analysis of the policies and actions to strengthen PHC, identify common enablers and barriers to advance PHC (Chapter 17).

This volume thus aims to cultivate a common understanding of the concept of PHC among academics, practitioners, professionals, students and policy-makers but also citizens, patients, teams of primary care initiatives as well as educators and trainers.

1.2.2 Approach for development: Synthesis of empirical insights and country experiences

Evidence reviews conducted through the PHC lens

Fifteen teams of authors were selected, one team for each chapter (except Chapters 1 and 17), with attention paid to demonstrated expertise in the respective area, diverse geographic representation and gender. Each author team conducted a narrative review of scientific and grey literature on their chapter's specific topic, and summarized and analysed key findings, trends and knowledge gaps in their chapter.

A narrative review was chosen as it is a common method for rapidly collecting evidence and understanding complex topics and common issues, and has the potential to provide more in-depth information on specific topics than systematic reviews (Pautasso, 2019).

The narrative reviews were guided by two foundational questions:

- In a society committed to PHC, how can actions and interventions related to each of the operational levers be implemented to enable the delivery of integrated health services with primary care and essential public health functions at the core?
- How can engaged individuals and communities and multisectoral policy and actions purposefully shape service delivery to reflect and fulfill the principles of PHC?

Using these two foundational questions as a starting point, and based on their expertise, previous work and preliminary literature search, each author team conducted a literature search, outlining specific research questions, selecting initial search terms, refining their literature search strategy, and outlining their own inclusion criteria regarding publication dates, language, type of studies, etc.

The author teams iteratively developed and refined their search strategies following extensive scoping and piloting of search terms. For some chapters, authors encountered particular challenges in constructing a search strategy that offered sufficient sensitivity and specificity across the broad remit of the topic. The search strategy, the defined MeSH terms and search strings were discussed and validated within the individual author teams and in regular meetings between these teams and editors.

Author teams searched the most widely used literature databases, such as Embase, Medline in Ovid, Cochrane CENTRAL, Web of Science Core Collection, CINAHL EBSCOhost, Scopus, Global Health, Google Scholar and others. In addition, the chapters draw on unstructured searches of grey literature sources such as policy documents, project reports and relevant websites; snowball sampling conducted via hand searching reference lists of key papers and other resources; and previous work and publications known to the authors. Some author teams also sent out a call to expert networks requesting literature.

The evidence reviews undertaken for this Primer reflect its primary focus on the integrated services component of PHC. Much of the literature presented pertains to the implementation of primary care services and essential public health functions, with particular attention paid to the ways in which multisectoral policy and action, and empowered people and communities, interact with integrated health services to shape and be shaped by them.

Country illustrations

In addition, each chapter team analysed selected country- and setting-specific cases and exemplars to identify and describe the contextual drivers, enablers and barriers that determine if and how their particular topic area impacts PHC implementation.

The country illustrations were selected from different sources. The most important ones are listed in Box 1.3. The selection of country illustrations was guided by the following criteria:

- policy changes that support pathways towards PHC orientation
- policy changes that exemplify the topics identified in the evidence review
- interventions and strategies that enhance PHC orientation of health systems
- policy changes that are transferable and/or provide lessons for different national or regional contexts
- evidence on impact.

Box 1.3 Sources for country illustrations

- WHO PHC Country Case Study Compendium (a catalogue of existing case studies developed by WHO and partners with the aim to improve dissemination and use of case studies and reduce duplicate requests)
- PATH primary health care case studies
- PHC country vignette series developed by the WHO European Centre for Primary Health Care that highlights the transformation of primary health care during the COVID-19 pandemic
- Exemplars in Global Health on PHC
- Case studies from the PRIMASYS initiative of the Alliance for Health Policy and Systems Research
- Country case studies and promising practices of the Primary Health Care Performance Initiative (PHCPI)
- Cases and country profiles of the Social Innovation in Health Initiative (SIHI)

1.2.3 Structure of the Primer

This Primer is divided into three parts (see Fig. 1.3). **Part I** includes six chapters and provides an in-depth introduction to PHC. It lays out the historical background (Chapter 2), definitions and conceptual frameworks (Chapter 3) and the rationale (Chapter 4) of the PHC approach. Part I also describes the integration of primary care and essential public health functions, which is at the core of the PHC approach (Chapter 5) and lays out fundamental changes related to models of care congruent with a PHC approach (Chapter 6).

The second part (**Part II**) of the Primer consists of seven chapters, each summarizing evidence on how a given PHC lever has been implemented to align with the PHC approach. The chapters highlight knowledge gaps, focus on implementation lessons and point to implications for practice through in-depth country illustrations (see Fig. 1.3). In Part II a fictional story of a family (the Maluna family) illustrates how PHC unfolds in practice. At the beginning of each chapter readers will meet the different members of the Maluna family. Their stories illustrate how PHC-oriented interventions within each operational lever can impact the family's life and accelerate progress towards UHC.

The last part (**Part III**) consists of three chapters that examine the impact of PHC on key dimensions of health system performance, namely quality and efficiency (Chapter 14), equity, access and financial protection (Chapter 15), and health systems resilience including in the face of climate change (Chapter 16). The concluding chapter (Chapter 17) reviews some of the key evidence presented in the Primer and summarizes salient implementation lessons for policy-makers. At the end of the volume, the reader can find a glossary with definitions of key terms used across the chapters.

Fig. 1.3 Structure of the PHC Primer

PART I The PHC approach – foundations, history and concepts	PART II The PHC approach – implementation	PART III The PHC approach – impact on performance
<ul style="list-style-type: none"> • Chapter 1 The PHC approach: an introduction • Chapter 2 Historical overview and unrealized potential of PHC • Chapter 3 PHC: definitions, terminology and frameworks • Chapter 4 The PHC approach: rationale for orienting health systems • Chapter 5 Integrating public health and primary care at the core of the PHC approach • Chapter 6 PHC-oriented models of care 	<ul style="list-style-type: none"> • Chapter 7 Health governance • Chapter 8 Health workforce • Chapter 9 Health financing • Chapter 10 Medicines and pharmaceutical services • Chapter 11 Health technologies • Chapter 12 Health infrastructure • Chapter 13 Information systems and digital solutions 	<ul style="list-style-type: none"> • Chapter 14 The impact of PHC on efficiency and quality of care • Chapter 15 The impact of PHC on equity, access, and financial protection • Chapter 16 The impact of PHC on health system resilience including in the face of climate change • Chapter 17 Implementing the PHC approach: lessons learned, conclusion, and way forward

Source: Authors

This Primer leads the reader through an in-depth exploration of PHC. An initial review of the PHC approach and of what it entails for policy and practice is followed by an analysis of the operational evidence of policy and practice, and eventually leads to consideration of the impact of implementing the PHC approach on desired health system goals.

All chapters are organized into the same four sections. **Section 1** is an introduction to the chapter topic and to the structure used to organize the content. For example, the financing chapter (Chapter 9) is framed around the well-established financing functions of revenue collection, pooling and purchasing, while the chapter on medicines and pharmaceutical services (Chapter 10) is anchored around key selected issues that emerged from the review of the evidence related to the vast topic of medicines in PHC today. **Section 2** summarizes and presents the results of the narrative reviews (see Section 1.2.2). **Section 3** describes how countries have implemented the interventions presented in Section 2, with a particular focus on the reform implementation and outcomes. **Section 4** summarizes the chapter’s main messages, lessons learned and implementation challenges.

The content of this Primer provides a timely reminder not only of the vital importance of PHC in achieving health and well-being for all, of the wealth of knowledge and experience collected over the past decades, and of the remarkable progress achieved, but also of the persistent and emerging needs for greater efforts to radically reorient health systems towards the PHC approach.

REFERENCES

- Alliance for Health Policy and Systems Research (2017). Primary Health Care Systems (PRIMASYS). Geneva: World Health Organization. Available at: <https://ahpsr.who.int/what-we-do/thematic-areas-of-focus/primary-health-care/primary-health-care-systems-primasys/primary-health-care-research>.
- Bitton A (2018). The Necessary Return of Comprehensive Primary Health Care. *Health Serv Res*, 53(4):2020–6. doi: 10.1111/1475-6773.12817.
- De Maeseneer J et al. (2008). Strengthening primary care: addressing the disparity between vertical and horizontal investment. *Br J Gen Pract*, 58(546):3–4.
- Exemplars in Global Health (2021). Primary Health Care. Exemplars in Global Health. Available at: <https://www.exemplars.health/topics/primary-health-care> (accessed 17 September 2023).
- Greenhalgh T (2013). Primary Health Care: Theory and Practice. BMJ Books. Available at: <https://www.wiley.com/en-us/Primary+Health+Care%3A+Theory+and+Practice-p-9781118693438> (accessed 4 September 2023).
- Grunfeld E (2005). Cancer survivorship: a challenge for primary care physicians. *Br J Gen Pract*, 55(519):741–2.
- Homa L et al. (2015). A participatory model of the paradox of primary care. *Ann Fam Med*, 13(5):456–65. doi: 10.1370/afm.1841.
- Howe A (2012). What's special about medical generalism? The RCGP's response to the independent Commission on Generalism. *Br J Gen Pract*, 62(600):342–3.
- Howe A, Kidd M (2019). Challenges for family medicine research: a global perspective, *Fam Pract*, 36(2):99–101. Available at: <https://doi.org/10.1093/fampra/cmz044> (accessed 4 September 2023).
- McMurray A, Clendon J (2014). Community health and wellness: Primary health care in practice. 5th edn. Chatswood, NSW: Churchill Livingstone an imprint of Elsevier Australia (a division of Reed International Books Australia).
- Misky AT et al. (2022). Understanding concepts of generalism and specialism amongst medical students at a research-intensive London medical school. *BMC Med Educ*, 22(1):291. doi: 10.1186/s12909-022-03355-1. PMID: 35436928; PMCID: PMC9017034.
- PATH (2020). Case studies. Available at: <https://www.path.org/search/?filters=casestudies&page=2> (accessed 17 September 2023).
- Pautasso, M (2019). The Structure and Conduct of a Narrative Literature Review. In Shoja M et al. (eds). *A Guide to the Scientific Career: Virtues, Communication, Research and Academic Writing* (John Wiley & Sons), pp. 299–310. Available at: <https://onlinelibrary.wiley.com/doi/10.1002/9781118907283.ch31> (accessed 5 September 2023).
- Stange KC, Ferrer RL (2009). The paradox of primary care. *Ann Fam Med*, 7(4):293–9. doi: 10.1370/afm.1023.
- United Nations (1967). International Covenant on Economic, Social and Cultural Rights. Available at: https://treaties.un.org/doc/treaties/1976/01/19760103%2009-57%20pm/ch_iv_03.pdf (accessed 4 September 2023).

- United Nations General Assembly (1948). The Universal Declaration of Human Rights (UDHR). New York: United Nations General Assembly. Available at: <https://www.un.org/en/about-us/universal-declaration-of-human-rights#:~:text=Proclaims%20this%20Universal%20Declaration%20of,these%20rights%20and%20freedoms%20and> (accessed 17 April 2024).
- WHO (2007). Everybody's business. Strengthening health systems to improve health outcomes: WHO's framework for action. Geneva: World Health Organization. Available at: <https://www.who.int/docs/default-source/primary-health-care-conference/quality.pdf> (accessed 17 April 2024).
- WHO (2016). Framework on integrated, people-centred health services. Report by the Secretariat. 69th World Health Assembly. Available at: https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_39-en.pdf?ua=1&ua=1 (accessed 4 September 2023).
- WHO (2018a). Declaration of Astana. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.61> (accessed 4 September 2023).
- WHO (2018b). Quality in primary health care. Technical Series. Geneva: World Health Organization. Available at: <https://www.who.int/docs/default-source/primary-health-care-conference/quality.pdf> (accessed 17 April 2024).
- WHO (2021). 21st century health challenges: can the essential public health functions make a difference? Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/351510> (accessed 4 September 2023).
- WHO European Centre for Primary Health Care (2022). Primary Health Care Country Vignettes. Copenhagen: WHO Regional Office for Europe. Available at: [https://www.who.int/europe/teams/centre-for-primary-health-care-\(kaz\)/primary-health-care-country-vignettes](https://www.who.int/europe/teams/centre-for-primary-health-care-(kaz)/primary-health-care-country-vignettes) (accessed 17 September 2023).
- WHO Regional Office for Europe (2022). Pocket book of primary health care for children and adolescents: guidelines for health promotion, disease prevention and management from the newborn period to adolescence. WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/352485> (accessed 4 September 2023).
- WHO, UNICEF (2018). A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. Geneva: World Health Organization/United Nations Children's Fund. Available at: <https://who.int/publications/i/item/WHO-HIS-SDS-2018.15> (accessed 17 April 2024).
- WHO, UNICEF (2020). Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization/United Nations Children's Fund. Available at <https://www.who.int/publications/i/item/9789240017832> (accessed 17 April 2024).
- WHO, UNICEF (2022). Primary health care measurement framework and indicators: monitoring health systems through a primary health care lens. Geneva: World Health Organization/United Nations Children's Fund. Available at: <https://www.who.int/publications/i/item/9789240044210> (accessed 17 April 2024).

2

Historical overview and unrealized potential of PHC

Erica Di Ruggiero, Thiago Trindade and Nyawira Gitahi

Key messages

- The history of primary health care (PHC) is one of consensus about its importance, debate about its feasibility and the failure to fully implement it. The reasons the PHC approach has not been rolled out despite the United Nations (UN) Sustainable Development Goals (SDGs) (2015), Alma-Ata (1978) and Astana (2018) offer important lessons for policy-makers today and for the future.
- Comprehensive implementation of PHC is an inherently political process that requires more than technical solutions.
- A clear long-term vision and consistent health system goals pursued throughout the political cycle mark out those countries that have implemented the PHC approach successfully.
- A combination of top-level leadership, political will and long-term vision is critical in bringing together the elements needed to develop and implement effective PHC, not least governance, human and financial resources, different sectors and civil society.
- Policy-makers can avoid some of the failings of the past by being aware of misconceptions and addressing the tensions that exist, such as:
 - the (widespread) perception of generalist, 'low tech' and community-led care as being less modern and of less value than specialist hospital care, which has tended to undermine PHC
 - the preference in some settings for 'selective' PHC approaches and vertical programming – as a response to donors' priorities – which has worked against a comprehensive, PHC orientation
 - the misguided sense of PHC as exclusively 'pro-poor' rather than for everyone (universalist) and the linked notion of PHC services being second-rate.

Rising health care costs and concerns about sustainability have created a window of opportunity for PHC but it will inevitably be time-limited, which makes action particularly urgent.

2.1 Introduction

Since the articulation of PHC in the Declaration of Alma-Ata (1978), evidence has consistently shown it to be a crucial foundation of resilient and high-performing health systems (WHO & UNICEF, 2022). However, the complete and “radical reorientation” of health systems towards a PHC approach remains unfulfilled as significant health inequalities, structurally determined exposure to adverse determinants of health and inadequate access to health services and care persist worldwide.

Several factors have challenged the full implementation of the PHC approach. These include ideological disagreements, conflicting interpretations and external shocks (such as the oil crisis, economic recessions, the global human immunodeficiency virus (HIV) epidemic and the COVID-19 pandemic), as well as growing power asymmetries within and between countries and actors (Labonté & Ruckert, 2019). Underlying these challenges are the cumulative and interactive effects of colonialism, globalization and neoliberalism (Koivusalo, Schrecker & Labonté, 2009; Labonté, 2015).

To accelerate progress on PHC and avoid repeating past mistakes, it is essential to acknowledge and understand the complex forces that have curtailed past efforts. In this chapter, a political economy of health perspective is used to trace and analyse the evolution and implementation of the PHC approach, and to derive important lessons to strengthen future endeavours.

A consideration of the historical evolution of PHC through a political economy of health lens acknowledges that achieving health and health equity requires more than a technical solution. It is inherently a political process that hinders or supports effective implementation of comprehensive PHC through global, national, subnational and local policies, strategies and models of care (see Chapters 3 and 6). Mechanisms that empower individuals and communities, as well as multisectoral policies and actions for health and well-being, are inherent to PHC and are shaped by political, economic and social forces. To move towards a PHC approach, these forces require political will, PHC-congruent governance, adequate PHC-enabling human and financial resources, reliable data and evidence, robust cross-sectoral collaboration, and civil society and media engagement (see Part II) (WHO & UNICEF, 2018).

This chapter considers the historical evolution of the PHC approach including influential social, economic and political forces, actors and key events at global and regional levels. It explores four prevailing themes in the literature on PHC that were decisive in shaping trajectories towards implementing the PHC approach in countries. It explores some of these themes in three country illustrations (Brazil, India and South Africa) and concludes with key insights.

2.2 Evidence review

2.2.1 Historical evolution of PHC

In this section, we trace the historical evolution of PHC from the pre-Second World War period to now, analysing major social, economic and political forces through key historical milestones in the development of PHC (see Table 2.1).

Table 2.1 Critical milestones and events and their implications for the development of PHC

Date	Event	Implications for PHC
1937	The Bandung Conference	Foreshadowed Alma-Ata and approached the problems of rural hygiene, focusing on improving access to modern medicine, public health, economic and social advancement
1948	<ul style="list-style-type: none"> • Universal Declaration of Human Rights (UN) • World Health Organization (WHO) Constitution 	<ul style="list-style-type: none"> • Health as a human right • Broad definition of health as complete physical, mental and social wellbeing and not just absence of disease
1978	Alma-Ata Declaration	<ul style="list-style-type: none"> • Health for all by 2000 • Health as a human right • Universality, community participation, social justice and equity
1986	Ottawa Charter for Health Promotion	Made preventative health promotion a priority and endorsed a positive definition of health
2000	World Health Report: Health systems: improving performance	Assesses health systems and compares them using common indicators to inform health system improvement
2000	Millennium Development Goals (MDGs)	<ul style="list-style-type: none"> • Vertical approaches • Only directed at developing countries
2008	World Health Report: Primary Health Care	Presented the common shortcomings of health care delivery, explored the need for health systems in implementing PHC and recommended four steps to reforms (universal coverage, health services delivery, public policy, and leadership)
2010	World Health Report: Health systems financing: the path to universal coverage	Focused on how to improve financing to achieve UHC, based on raising funding, getting better efficiency on spending, promoting access to services and reducing inequalities

Continued on next page

Date	Event	Implications for PHC
2015	Declaration of the Sustainable Development Goals	<ul style="list-style-type: none"> • Directed at all countries • Universal health care (UHC) (SDG3) • Intersectoral action • PHC through UHC
2018	Astana Declaration	Reaffirmed Alma-Ata's commitment to PHC in improving population health; multisectoral action and equity; made connection to SDGs
2019	United Nations General Assembly high-level meeting on UHC	United Nations high-level landmark meeting with multicountry commitment to strengthening PHC as a vehicle towards UHC
2023	World Health Organization Regional Office for Europe High-Level Forum on Health in the Well-being Economy	Moving beyond traditional framings of economic growth

Source: Authors' compilation

Pre-Second World War period

As early as the 1800s, and possibly even earlier, approaches to health that would later be associated with PHC were emerging across the globe. For instance, during disease outbreaks, public health measures such as community isolation were often implemented under the guidance of a political authority such as a tribal chief or king (Waite, 1987). Similarly, the Afro-Asian Bandung Conference in 1937, driven by social equity advocates, highlighted rural hygiene, emphasized intersectoral and interagency perspectives, and called for improved access to modern medicine and public health while addressing economic and social development challenges (Brown & Fee, 2008).

The first traces of “coverage” and early expressions of purposeful primary care emerged in Europe in the late nineteenth and early twentieth centuries as social health insurance schemes for the benefit of workers and their families were rolled out across Germany, the Austro-Hungarian Empire and the United Kingdom, although coverage was neither comprehensive nor universal. At the same time, across the European parts of the Russian Empire, rudimentary community-based public health services for rural populations were made available (Gorelova & Surovtseva, 2014; Birn & Kremensov, 2018). After the October Revolution in 1917, the zemstvos (district-based medical services for rural populations) were disbanded and replaced by the foundational elements of Soviet primary care, which were then exported throughout the territory of what was the Russian Empire. This model involved a hierarchy of government-owned and operated facilities staffed by generalist physicians employed by the state. It provided state-funded individual care, population surveillance and public health

services free at the point of use, and is known as the Semashko model (after its architect, Nikolai Semashko). In 1920, influenced by the Semashko model, the United Kingdom's Dawson report outlined a health care model based on "Primary Health Centres" and "Domiciliary services", with generalists serving as first points of accessible and affordable access to health care for the entire population. This model would later inform the establishment of the National Health Service in 1946 (Tangye, 1920; Hart, 1972).

The post-Second World War period and the lasting impact of imperialism

Through the first half of the twentieth century, the value of broad coverage, the merits of health system organization and the key role of purposeful generalism in primary care began to emerge in Europe (Kmietowicz, 2006; Simon, 2009; Harris & Zwar, 2014). The end of the Second World War marked significant milestones in the evolution of PHC. In 1948, health was recognized as a fundamental human right in the UN Declaration of Human Rights. The establishment of the World Health Organization (WHO) the same year further emphasized the importance of promoting health as a holistic state of "complete physical, mental and social well-being", rather than merely the absence of disease or infirmity. WHO explicitly noted governments' responsibility to provide "adequate health and social measures" for their citizens (WHO, 1946; United Nations General Assembly, 1948).

In the post-colonization era that followed the Second World War in the Global South, efforts towards national self-determination were hindered by centuries of expansionist imperialism by European powers and the resulting political and economic practices shaped by a dominant cultural eurocentrism in former colonies that had managed to gain independence (Keshri & Bhaumik, 2022). Those countries which were aligned with the Soviet Union after the Second World War were given Semashko-style health systems.

Many high-income countries (HICs) and the Soviet Union witnessed rapid technological and scientific progress during the first half of the nineteenth century. Consequently, their health systems focused on hospitals and specialist care with a relative and gradual devaluing of generalism which was perceived to be of lesser quality as it was less dependent on modern technology. Services were primarily shaped and informed by hospitals and specialist physicians, rather than by communities and users.

This dominance of specialized and hospital-based models in HICs was transposed to other nations, including former colonies, and continues to persist today (Werner & Sanders, 1997; Tilley, 2016). Many low- and middle-income countries (LMICs) have maintained health systems centred primarily around curative services, mirroring the more institutionalized and better financed facility-based health systems of wealthier countries. For example, in Kenya, exposure to colonizers brought decentralized vertical medical services targeting single diseases and immunization programmes (Chaiken, 1998). Such facility-based, biomedical curative models prevalent in the Western world did not always fully align with the contextual realities or health priorities of many colonized countries nor did it adequately serve predominantly poor populations globally (Werner & Sanders, 1997; Druetz, 2018; Arteaga-Cruz & Cuvil, 2021).

Between the 1950s and the 1970s, several critical events further paved the way for the concept of PHC. In South Africa, the community-oriented PHC model was developed based on the 1945 Gluckman Report. This model combined curative and preventive care in the acclaimed Pholela health centre (see below) (Phillips, 1993). In China, a comparable approach relied on “barefoot doctors” who were trained as lay health workers to provide water and sanitation services as well as basic curative and preventive services for vulnerable rural communities (Sidel, 1972). WHO, drawing on the experiences of the Christian Medical Commission, promoted the potential benefits of community-led health care models in post-colonial health systems, paving the way for the Declaration of Alma-Ata (Cueto, 2004; Winiger & Peng-Keller, 2021).

The principles and values that underpin PHC gained traction in a new political context characterized by the emergence of national, anti-imperialist and leftist movements in many LMICs at that time (Beaudevin, Gaudillière & Gradmann, 2023). Leadership from multilateral health organizations such as UNICEF, the Rockefeller Foundation and others, helped align global policy messaging about PHC and advocated for its global implementation. These historical precursors were foundational in the lead-up to the Alma-Ata conference.

Alma-Ata and after

The 1978 Alma-Ata Declaration on Primary Health Care called for a transformative shift away from disease-specific and technocratic approaches to a vision of “*Health for All by the Year 2000*”, grounded in the principles of universality, community participation and social justice (Snyder, 2017; Perry, 2018). While the Declaration primarily focused on health services, it offered a broader and more comprehensive approach to health, emphasizing the integration of health promotion, disease prevention, and curative, rehabilitative and palliative care within the framework of PHC. More importantly, it recognized that health services were just one element of PHC, which should be interconnected with multiple sectors and community engagement (see Chapter 3).

An emphasis on community participation recognized the positive social and economic benefits that result from enhanced coordination between the state and society (Phua, Goh & Sharipova, 2021). During the 1980s, characterized by increasing reliance on capitalist markets in Asia and the resulting growing inequalities in access to health care and social resources, community participation became even more crucial, especially in countries with weaker institutions (Phua, Goh & Sharipova, 2021). Building on the progress of Alma-Ata, the Ottawa Charter for Health Promotion (1986) responded to a new public health movement and marked an important milestone for health promoters worldwide. It recognized a broader range of social determinants of health and called for broader engagement of sectors within and outside of health (Kickbusch & Gleicher, 2012).

Despite the broad endorsement of the principles outlined in the Alma-Ata Declaration, the concepts of universality and social justice were soon criticized as too radical and impractical, as it was not clear how it would be financed, particularly in the Global South (Cueto, 2004). The lack of clear implementation guidance, and persistent confusion on how to balance concrete service delivery with less easily measured

community engagement and multisectoral involvement, led to increasing resistance to Alma-Ata's comprehensive vision (Bhutta et al., 2018; Birn & Kremmentsov, 2018). In 1979, at a conference organized by the Rockefeller Foundation, the predominant focus on health services in the conceptualization of PHC became evident. A small number of cost-effective interventions, known as GOBI (growth monitoring, oral rehydration, breastfeeding and immunization) were selected for delivery to children. They were later expanded to include food supplementation, female literacy and family planning for mothers (GOBI-FFF) (Werner & Sanders, 1997). GOBI-FFF became a major initiative for UNICEF and other organizations in subsequent decades.

Throughout the 1980s, various political and economic factors further facilitated the implementation of selective PHC and vertical programmes (Werner & Sanders, 1997; Bhutta et al., 2018). In the context of economic recession and the rise of neoliberalism, the World Bank and International Monetary Fund (IMF) imposed loan conditions on impoverished countries through structural adjustment programmes. These conditions severely undermined publicly funded health, education and welfare programmes, limiting countries' capacity to implement comprehensive PHC (Werner & Sanders, 1997; Kentikelenis, 2017). Moreover, powerful physician groups within countries tended to oppose comprehensive PHC for fear of losing revenue, prestige and autonomy (Cueto, 2004).

Concurrently, there was a global push for increased private sector involvement in health service delivery with an emphasis on a cost-effective approach of care. External and often private philanthropic donors played an increasingly important role in funding health, especially in countries with frail local institutions. They favoured vertical programmes as they were perceived as easier to implement and measure in terms of impact through disease-specific outcomes. Their verticalized funding mechanisms, separate from national health budgets, allowed easier and greater alignment with their own priorities, with greater control and monitoring through reporting. This reduced the scope of comprehensive care and shifted the emphasis away from self-reliance of communities (Medcalf & Nunes, 2018). The devastating social effects of the global HIV epidemic, especially in sub-Saharan Africa, directed global political and funding efforts to HIV through further vertical programmes, which were later joined by tuberculosis (TB) and malaria, and recently noncommunicable diseases (NCDs). In some programmes this may lead to "inequity by disease" as, for example, patients with a specific condition may have access to food grants or educational grants while patients with another condition do not have access (De Maeseneer et al., 2012).

Mounting evidence (1990–2000s)

In the 1990s and 2000s, amid a wide range of attempts by countries to implement versions of PHC, a growing body of evidence confirmed the value of high-quality primary care. Barbara Starfield's ground-breaking research provided a framework for assessing the quality of primary care based on health outcomes (Starfield, 1994). Starfield has demonstrated that health systems with high-quality primary care were consistently associated with greater effectiveness, efficiency and equity (Starfield, 2012), and identified four key characteristics, known as the "4Cs" (first contact, continuous,

comprehensive and coordinated care), that are consistently associated with high-quality primary care (see Chapters 3 and 4) (Starfield, 1994).

Subsequent research revealed that improved health outcomes were not solely dependent on the country's wealth nor on the total number of health workers, but were rather linked to the health system organization and service delivery arrangements for primary care. These features include universal financial coverage under government control or regulation, equitable resource distribution mechanisms, comprehensive services, and low or no copayments for primary care services (see Chapter 15) (Starfield, 2009, 2012). When combined, these features facilitate the provision of high-quality primary care as defined by the 4Cs. Numerous studies have consistently demonstrated the validity of this approach in HICs, middle-income countries (MICs) and low-income countries (LICs), establishing PHC and high-quality primary care as the preferred avenue to achieve optimal outcomes, equity and value on investment (see Chapter 4).

Millennium Development Goals (2000–2015)

Despite mounting evidence highlighting the critical role of PHC and of high-quality primary care for health systems worldwide, the global community adopted the MDGs as a framework for development without explicit mention of PHC. Among the eight MDGs, the three health-related goals focused on maternal health, child mortality, and HIV/AIDS and malaria, often referred to as “verticalized” targets (Adedeji & Ako, 2009).

While the MDGs undoubtedly brought about positive outcomes and spurred progress in various health indicators, critics pointed out their limitations (Mutasa, 2005). The MDGs did not explicitly address human rights concerns, and the vertical implementation of individual goals overshadowed the interconnectedness of social determinants of health, diseases and equity (United Nations, 2012; Fehling, Nelson & Venkaapuram, 2013). Furthermore, in many countries, MDG implementation faced challenges owing to inadequate investments in the more comprehensive (horizontal) and integrative function of health systems central to PHC.

The MDGs reflected a prevailing preference for vertical programming, focusing on specific measurable targets, at the expense of cultivating strong and resilient health systems capable of addressing diverse population needs and responding to shocks. The MDGs did not contribute significantly to the advancement of PHC and may in fact have detracted from health system strengthening efforts.

World Health Reports (2000–2010)

Since the year 2000, several influential WHO reports have shaped and reflected the evolving political economy of PHC. The World Health Report 2000 *“Health Systems: Improving Performance”* (WHO, 2000) brought attention to assessing the performance of the whole health system, rather than one aspect of it, with a holistic, bird's-eye view. It introduced the concept of *responsiveness*, recognizing the significance of people's perceptions and demand-side factors in evaluating health systems. This holistic

approach aligns with the core principles of PHC. In addition, the report emphasized the crucial role of government engagement with the private sector in service of health system goals.

Another key report, the WHO 2008 Report titled *“PHC: Now More Than Ever”*, specifically focused on PHC and provided a diagnostic analysis of the challenges facing health systems at that time. The report highlighted issues such as inverse care, impoverishing care, fragmented care, unsafe care and misdirected care, and proposed four corresponding sets of PHC reforms related to universal coverage, service delivery, public policy and leadership (WHO, 2008). These reforms aimed to effectively respond to global health challenges, uphold the values of equity, solidarity and social justice that drive the PHC movement, and meet the evolving expectations of populations in modern societies.

The WHO 2010 Report *“Health Systems Financing: The Path to Universal Coverage”* provided crucial guidance at a time characterized by economic downturn, escalating health care costs, ageing populations, increasing prevalence of chronic diseases and the availability of new and more expensive treatments (WHO, 2010). The landmark report, supported by civil society, played a pivotal role in initiating the UHC movement which later grew in momentum through the UHC2030 alliance. It emphasized the need for countries to take deliberate actions to protect previous gains while acknowledging that there is no magic bullet for achieving universal access. Notably, although UHC was included in the SDGs as Target 3.8, PHC was not explicitly mentioned, as UHC was considered the overarching concept for health systems. However, the significance of PHC in countries’ journey towards achieving UHC regained global attention after the Declaration of Astana (2018), with the phrase “PHC-for-UHC” used by the WHO Director-General Dr Tedros Adhanom Ghebreyesus gaining traction shortly thereafter (WHO Director-General, 2019a, 2019b).

Sustainable Development Goals (2015–2030)

In 2015, Member States ratified the Sustainable Development Goals (SDGs), providing a comprehensive global framework for action for people, the planet, prosperity, peace and partnership by 2030 (United Nations, 2015). The SDGs and PHC share several points of alignment, as they prioritize equity (leaving no one behind), inclusivity (engage all countries, and all people within countries), and the pursuit of UHC as reflected in Target 3.8 (Davletov, Nurgozhin & McKee, 2018; Hone, Macinko & Millett, 2018). They nonetheless present some implementation challenges, such as the lack of an explicit mention of PHC, and potential barriers posed by sectoral silos which hinder intersectoral policy coherence (Chotchoungchatchai et al., 2020).

The mounting evidence linking PHC to improved health outcomes, equity and cost-effectiveness, coupled with the need to respond to demographic shifts, urbanization, the empowerment of women, the democratization of information and climate change, ultimately led to the updating of the Declaration of Alma-Ata: the Declaration of Astana.

2018 Declaration of Astana

The Declaration of Astana (WHO, 2018a), a significant milestone, unequivocally identified PHC as the most inclusive and effective approach to enhance health and social well-being. It also recognized the increasing importance of NCDs, mental health, injuries and the health consequences of climate change. Further, Astana positioned PHC as a cornerstone and necessary prerequisite for achieving UHC, establishing strong connections to the SDGs, as well as other related goals, such as reducing inequalities (SDG10), promoting community participation (SDG6), and fostering intersectoral collaboration (SDG17) (Walraven, 2019).

2019–2023 Astana-inspired PHC frameworks and roadmaps

In response to the need for clear implementation guidance following the Declaration of Astana, and upon the request of Member States, several frameworks and roadmaps have been developed to support the practical implementation of PHC. These include the PHC Operational Framework “*Translating vision into action*” and the PHC Monitoring Framework and Indicators, as well as other frameworks and roadmaps associated with supporting countries in their efforts to achieve UHC. These resources have played a vital role in providing guidance and impetus towards the pragmatic implementation of PHC (WHO & UNICEF, 2018, 2020, 2022).

A defining moment in championing PHC occurred during the world’s first High-Level Meeting on Universal Health Coverage in 2019, where UN Member States made a resounding call for strategic resource allocation towards PHC. They advocated for PHC-related data collection and progress monitoring, and placed a specific emphasis on strengthening meaningful community engagement (SDG index, 2022). The resounding support from Member States further underscored the significance of PHC in achieving UHC and advancing global health goals.

The COVID-19 pandemic (2020–2023)

Countries with strong PHC-oriented health systems were better positioned to respond to the COVID-19 pandemic (WHO, 2018b; Aguilar-Guerra & Reed, 2020; WHO Regional Office for South-East Asia et al., 2022). The pandemic shed light on the interconnectedness between empowered people, multisectoral policy and action, and integrated services with primary care and essential public health functions at their core. It also exposed existing gaps in PHC within many health systems, emphasizing the untapped potential to strengthen health systems using a PHC approach (Lancet Infectious Diseases, 2018; Tumusiime et al., 2020). Prior to the pandemic, health and welfare systems were already under strain globally due to the growing burden of NCDs, infectious disease outbreaks and humanitarian health crises.

These challenges spurred the development of innovative financing models, such as well-being budgeting, which align better with the concept of health as more than the absence of disease, a central tenet of PHC. Well-being budgeting prioritizes public spending based on a programme’s ability to improve population well-being, recognizing that good health is a fundamental component of overall well-being (Cylus & Smith,

2020). There is growing evidence that health significantly contributes to educational attainment, labour market participation and productivity, reinforcing the argument for increased health spending to promote well-being (Chapter 4) (Cylus, Permanand & Smith, 2018). While countries like New Zealand and Scotland have made considerable progress in implementing well-being budgets, it remains a relatively new and complex approach with limited adoption worldwide.

The WHO Regional Office for Europe High-Level Forum on Health in the Well-being Economy called for more widespread adoption of well-being economies (WHO, 2022, 2023a). This meeting also provided countries and other stakeholders an opportunity to reinvigorate progress towards delivering health for all, including the comprehensive implementation of PHC. The report by the independent Council on the Economics of Health for All provides recommendations to develop new economic policies and structures to make Health for All a reality (WHO, 2023b).

2.2.2 Key themes in the history of PHC

Three prevailing themes emerge from the history of PHC, which deepen our understanding of why countries are where they are today in their journey towards implementing the PHC approach.

Vertical integration and selective PHC vs. horizontal integration and comprehensive PHC

Persistent tensions between vertical and horizontal approaches to PHC characterize the historical evolution of PHC. In vertical approaches to programming, the planning, funding, administration and delivery of services are organized around a single disease or condition, or around a specific subpopulation. A horizontal approach favours a person-centred, comprehensive, integrated and systems-based approach to service delivery across different types of services and platforms. The latter can be more complex to implement, monitor and manage, whereas vertical programmes have been promoted as “simpler” to implement and easier to administer and measure (WHO, 2008). The appeal of vertical approaches was reflected in the vertical orientation of the MDGs described earlier (Bhutta et al., 2018).

Selective PHC shares commonalities with vertical programming in that it prioritizes a reduced (selective) scope of services to address a limited number of health problems and diseases, such as GOBI, arguably to make service delivery easier, more feasible and/or cost-effective (see also Box 1.2) (Unger & Killingsworth, 1986). Because PHC, by definition, is an integrated and comprehensive approach to health, the notion of selective PHC has been deemed at best a paradox (see Chapter 1, Box 1.1), and at worst a threat that can be thought of as a counter-revolution to be rejected (Newell, 1988).

However, both vertical and horizontal approaches may be needed within a PHC-oriented health system (Ooms et al., 2008; Kirwin et al., 2022). The difficulty arises when politicians and policy-makers sway too far in one direction, and negate the need for the other, which historically was the case for verticalism as it was easier to understand, easier to implement and easier to link to concrete outcomes in a short period

of time. Consequently, disease-based programmes have been favoured not only by private and international donors and philanthropies (McCoy et al., 2009; Labonté & Ruckert, 2019), but also by national governments, who may have to contend with strong professional or hospital lobbies or private sector actors seeking to maintain the status quo.

The historical account of malaria eradication highlights the limitations of vertical programming as its success eventually required the integration of case surveillance, horizontal health service delivery and non-health sector interventions such as reliance on sanitation engineers (Bradley, 1998). Scholars, nongovernmental organizations (NGOs) and political leaders voiced their critique of a vertical approach to malaria eradication and a 1975 WHO–UNICEF report promoted an “alternative” to traditional vertical programmes heralding the integrative orientation of PHC presented in the Declaration of Alma-Ata (Djukanovic et al., 1975; Cueto, 2004).

Despite undeniable contributions, vertical programmes often go against the PHC approach, prioritizing emerging and often expensive disease-oriented technology, rather than promoting community-informed preventive interventions that respond to the expressed needs of a greater number, including those most in need. For example, investing in oral hydration therapy rather than in the development of safe water and sewage systems was not deemed appropriate by proponents of comprehensive PHC (Cueto, 2004). The prolonged dominance of vertical programmes and selective PHC has thus contributed to the fragmentation and fragilization of health systems, redirecting resources into silos not always fully matched with health needs (Atun et al., 2008). The renewed calls to foster comprehensive PHC, which have grown louder since 2018, seek to rectify this. One of these calls was the launch of the www.30by2030.net campaign, asking donors to invest – by 2030 – 30 % of their budgets for vertical disease-oriented programmes in strengthening local primary care services (De Maesekeer et al., 2020).

Varying interpretations of commitments to justice and equity in advancing PHC

A prominent theme in the evolving political economy of PHC is the varying interpretations of the commitment to justice and equity, ranging from a focus on pro-poor growth to universalism.

The Declaration of Alma-Ata emphasized the need to address the “existing gross inequality in the health status of the people”, both within and between countries, and called for a “new economic order” to achieve this goal. This linked PHC’s equity principle to a pro-poor (growth) approach that aimed at poverty alleviation. Pro-poor approaches seek to reduce disparities related to poverty, including equitable access to health and to health services for vulnerable populations. This approach advocates for PHC which explicitly includes addressing health determinants.

However, this emphasis on targeting “the poor”, rather than addressing the broader gap in health disparities, has contributed to a distorted perception of PHC as “inferior care for impoverished individuals” or as a second-rate solution limited to low-income

settings. This perception fails to recognize PHC's comprehensive social, political and economic approach that can benefit *all* populations, including higher socioeconomic classes as well as HICs (WHO, 1978; Bhutta et al., 2018).

Over time, this pro-poor economic focus has evolved into a commitment to *universalism* within health systems, which entails addressing health issues based on people's need rather than their ability to pay. Contemporary PHC thinking is recognizing the need to combine universal *and* targeted (pro-poor) strategies – proportionate universalism – to achieve equitable health outcomes. It advocates for ensuring universal access to health services while giving proportionate attention to the level of disadvantage experienced by different population groups (Carey, Crammond & de Leeuw, 2015).

High-level commitment to UHC, including through the SDGs, has bolstered attention on PHC. Though initially largely focused on health financing and ensuring access to services without financial hardship, the concept of UHC has evolved to include notions of quality of care and of right to health (Kutzin, 2013; Kutzin, Yip & Cashin, 2016).

Nevertheless, some scholars argue that the expanded concept of UHC risks transforming the universal right to health into the right to UHC (Giovanella et al., 2019). They suggest that this distorts the principle of the right to health, which is based on the egalitarian principle of social justice and can only be guaranteed by the state. Instead, it narrows the concept into a focus on coverage associated with market-based provision of health services, aligning with a limited vision of citizenship (Giovanella et al., 2019). Consequently, there are concerns that UHC might not fully capture the spirit of the Alma-Ata Declaration and SDG3, which aim to ensure healthy lives for all. Furthermore, some argue that the emphasis on *coverage* in UHC may distract from the comprehensive, integrated approach of PHC and may ultimately overlook the principle of *health as a human right* and its related imperative to address social determinants (Hone, Macinko & Millett, 2018). These ambiguities about the concept of coverage, and a commitment to meet the demand of South American countries to incorporate the guarantee to the right to health and access to health services, led the Pan American Health Organization (PAHO) to withhold endorsement of the UHC proposal and to commit instead to “universal health”, as defined in *Resolution CD53/5* of 2014.

More recently, critics of the Declaration of Astana have argued that its use of the term “justice” rather than “social justice” fails to explicitly acknowledge the role of austerity policies in shaping economic and commercial determinants that continue to constrain equitable access to health (Giovanella et al., 2019). In an alternative to the initial draft of the Declaration of Astana, the People's Health Movement denounced such austerity policies and appealed for “Health for All Now!” (People's Health Movement, 2018).

The roles of generalism and primary care vs. specialized and hospital-based approaches

Generalism is a care philosophy that considers the overall well-being of the whole person within the context of their lives, encompassing the practitioner's training, attitudes, scope of practice and work setting (Reeve et al., 2013). The Alma-Ata Declar-

ation invited a shift away from indiscriminate overspecialization of the health workforce and acknowledged the value of lay workers and traditional healers, as well as the importance of community participation in implementing comprehensive PHC (Cueto, 2004). However, this shift was not intended to diminish primary care as a “primitive” and underfunded health care approach aimed at exerting social control over the disadvantaged, as argued by Latin American scholars (Breilh, 1979; Testa, 1989).

To deliver high-quality primary care services, strong and qualified multidisciplinary teams are needed (Chapter 8). General practice (also called family medicine) is a globally recognized medical specialty rooted in a generalist and person-centred approach (Chapter 1). It involves well-defined competencies achieved through postgraduate/medical residency training (Shi et al., 2003; WHO, 2013). Evidence indicates that the presence of family physicians within primary care teams leads to more person-centred care, resulting in higher satisfaction levels among patients. Moreover, the inclusion of family physicians in health systems is associated with positive outcomes, such as reduced health inequalities, improved life expectancy and decreased mortality rates (Maheux et al., 1992; Jaturapatporn, 2006; Jaturapatporn & Hathirat, 2006; Jaturapatporn & Dellow, 2007; Basu et al., 2021).

In LMICs, inadequate investment in PHC services during the 1980s and 1990s created a vicious circle of poorly resourced front-line services delivered by inadequately trained health workers. This eroded public trust and led to underutilization of primary care services, reinforcing a general undervaluing of primary care (Senghor, 1984). Consequently, there have been persistently low investments in the training of comprehensive primary care physicians (such as family physicians) and nurse practitioners, limiting the widespread implementation of high-performing multidisciplinary primary care teams. Nevertheless, in some settings, a PHC-informed focus on participation and community engagement has led to the involvement of lay health workers or community health workers, typically women from the local community, in the delivery of primary care and public health services (see Chapters 4, 6 and 8) (van Ginneken, Lewin & Berridge, 2010; Perry, 2018; Public Services International, 2018).

Despite stated support for PHC, many countries and populations equate high-quality and sophisticated care with highly specialized, technology-intensive and hospital-delivered services. It is important to recognize that both generalist and specialist-delivered care, as well as primary care and hospital services, are integral to the PHC approach (see Chapters 1 and 3).

2.3 Country illustrations: tracing pathways to PHC

The shift from a biomedical framing of health to one emphasizing universality, community participation, health promotion and health equity has been repeatedly challenged by competing paradigms of care and sociopolitical and economic influences, thereby impacting how well comprehensive PHC has been implemented.

National movements like the *Prev-saúde* in Brazil (Paiva & Freitas, 2021), the civic participatory programme in Argentina (Falleti & Cunial, 2019), the social medicine approach in South Africa, and intersectoral collaborations that promoted civic participation and people-driven health care in the United Republic of Tanzania (Kamuzora, 1996; Phillips, 2014) explicitly moved beyond the medical model to include innovative governance models and multisectoral approaches to the social determinants of health. They were dependent, however, on political will and financial stability, both of which waxed and waned over time.

The following country examples provide more in-depth illustrations of some of these sociopolitical themes, highlighting the lessons learned from successes but also from partial or incomplete uptake of comprehensive PHC.

2.3.1 South Africa: the community-oriented primary care (COPC) experience

The evolution of community-oriented primary care (COPC) in South Africa began in the 1940s as a response to limited access to care in rural KwaZulu-Natal. COPC is a continuous process by which PHC is provided to a defined community on the basis of its assessed health needs, by the planned integration of primary care practice and public health (Abrahamson, 1988). The Pholela Health Centre model, established in 1940, emerged as an early precursor to COPC, seeking to address social conditions and determinants of health, to build evidence-informed service provision, and to incorporate community empowerment and participation into service delivery (Kautzky & Tollmann, 2008). Despite its promising start with the establishment of the Institute for Family and Community Health in 1946, the full implementation of the COPC approach faced political, institutional and economic constraints (Tollman & Pick, 2002). One was the rise of segregationist apartheid policies which did not favour a focus on the health of the masses. Another was declining financial and political support, also from the powerful medical establishment, without which COPC could not be easily operationalized.

Consequently, the 44 COPC centres were closed or converted into outpatient clinics, leading to segregated health services, privatization of health care and the dominance of hospital-based curative services during the Apartheid era. Interestingly, this period also saw the creation of a new cadre of “PHC nurses” with triage and diagnosis skills as well as prescribing and dispensing authority. This new cadre strongly influenced South Africa’s nurse-based system, leading to the four-year diploma course for nurse-clinicians (Kautzky & Tollmann, 2008).

During the post-Apartheid period, South Africa published the National Health Plan (1994) and the White Paper for the Transformation of the Health System (1997), drawing much inspiration from the COPC experiences and placing PHC at the heart of the system’s transformation (WHO & Alliance for Health Policy and Systems Research, 2017). In 2003, the National Health Act established the District Health System, a decentralized governance model, which was deemed the most appropriate to move the

health system towards PHC, offering a comprehensive package of basic services including maternal, child and reproductive health, HIV and TB testing and treatment, screening and care for NCDs and treatment of common ailments (Schneider et al., 2022).

However, an amalgam of factors limited the achievement of district-based PHC, including managerial capacity deficiencies, health system leadership challenges, imbalances and disruption of the health and care workforce, and a complex and evolving burden of disease with emerging infectious and noncommunicable epidemics (Kautzky & Tollmann, 2008; Dookie & Singh, 2012). In 2010, South Africa adopted the PHC Re-engineering Strategy; this became an integral part of the National Health Insurance White Paper in 2015, which provided grounds for the establishment of 11 national health insurance pilot districts. The latter piloted various health system strengthening interventions centring PHC through conditional grants. Various successful interventions were implemented subsequently through the PHC Re-engineering Strategy as part of national health insurance pilots. However, the interventions were fragmented and tended to be piecemeal due to the lack of a comprehensive PHC strategy (Schneider et al., 2022).

Overall, COPC might have gained more traction in South Africa with earlier community involvement and well-aligned funding and training of health professionals. The lack of economic incentives and political will from national governments and global donors restricted the comprehensive adoption of the COPC approach, as indicated by the strategic levers of the PHC operational framework (WHO, 2008). Despite its limited translation into practice in South Africa, the COPC model influenced other countries to varying degrees, including Israel, the United Kingdom and the United States of America (USA), while its community orientation inspired PHC implementation in countries such as Brazil and Bolivia (Yach & Tollman, 1993; Mash et al., 2018, 2019). Lastly, the COPC concept also played a role in the formulation of the Declaration of Alma-Ata in 1978.

2.3.2 India: a diagonal approach to health programming

The Bhore Committee's report of 1946 played a pivotal role in shaping India's health policy landscape after independence (Pal et al., 2019; Ramani, Sivakami & Gilson, 2019). It recommended a shift from the disease-specific approach prevalent under British colonial rule to an integrated PHC model, with the establishment of multidisciplinary primary health centres in rural areas (Pal et al., 2019; Ramani, Sivakami & Gilson, 2019). This led to the development of a network of primary health centres in the 1950s, although the implementation and quality of these centres varied between states owing to differences in capacity and resources available (Lahariya, Khanna & Nandan, 2010).

During the 1950s and 1960s, India adopted a parallel horizontal and vertical approach, with the launch of vertical programmes targeting priority health areas alongside investments in primary health centres (Ramani, Sivakami & Gilson, 2019). Notable initiatives included the world's first family planning programme in 1952, the National Malaria Control Programme in 1953 and the National Tuberculosis Programme in

1961. While vertical programme implementation saw huge initial successes, with drastic reductions in disease incidence, the implementation of comprehensive PHC in the 1960s and 1970s suffered from suboptimal integration across levels of care, and limited engagement from national and state actors as well as community organizations (Deodhar, 1982). Many of the challenges of horizontal integration can be traced back to the Indian health community's medical training focusing on curative, hospital-based care (Ramani, Sivakami & Gilson, 2019).

The Declaration of Alma-Ata in 1978 provided renewed impetus for comprehensive PHC implementation, leading to the expansion of the primary health centres network and health sub-centres in the 1980s (Chauhan et al., 2022). However, domestic stakeholders, including hospital lobbies and medical associations, exerted significant influence over India's health policies, leading to a reprioritization of vertical programmes in the 1990s, focusing on HIV/AIDS, malaria, TB, and reproductive and child health (Chauhan et al., 2022; WHO, 2022). This shift, coupled with policies favouring the private sector and hospital care in urban areas, further exacerbated the rural-urban health divide. Limited public funding and structural adjustment programmes contributed to poor population health outcomes (Chauhan et al., 2022; WHO, 2022).

The advocacy efforts of India's civil society led to the launch of the National Rural Health Mission in 2005, a significant milestone in the country's PHC journey (Gaitonde et al., 2017). The National Rural Health Mission aimed to upgrade rural health systems through increased government financing, infrastructure improvements, staff recruitment and community engagement (Ramani, Sivakami & Gilson, 2019). However, initially, the National Rural Health Mission focused primarily on maternal and child health as a vertical programme in "mission mode" (Rao, 2017; WHO, 2022).

In line with global discussions on UHC and the SDGs, India's third national health policy in 2017 emphasized the strengthening of PHC and achieving UHC (Lahariya, 2020). The Ayushman Bharat Programme, launched later, aimed to convert primary care facilities into "Health and Wellness Centres" (Lahariya, 2020). Several state governments have supplemented central government initiatives by providing additional funding for PHC. However, public funding for health still faces criticism for its inadequacy in meeting population health needs (Lahariya, 2020).

In conclusion, India's journey towards comprehensive PHC implementation has faced challenges, including the powerful influence of vested interests and very limited public funding. Global health discourses have positively influenced India's commitment to PHC. However, addressing the chronic underfunding of health services remains critical to ensuring contribution of PHC to UHC in India.

2.3.3 Brazil: a horizontal approach to PHC and UHC

As in many other Latin American countries, from the 1950s to the 1980s the development of Brazil's health system was characterized by disease-specific health programmes. The first steps towards expanding health coverage took place in the 1950s and 1960s. At this time, the state invested in building large public hospitals but also strengthened private sector engagement and care provision. In the 1970s, a group

of public health researchers, democracy activists and health professionals, known as the “Health Reform Movement”, pointed to existing health inequalities, and the fragmentation, inefficiency and exclusiveness of the health care system and called for both the recognition of health as a right of citizenship and more equal access to care (Grag-nolati, Lindelow & Couttolenc, 2013; Machado & Silva, 2019; Davidian, 2021; Venkateswara, Slaria & Mukherjee, 2022; Bornstein et al., 2023).

In 1988, Brazil returned to democracy, and the Health Reform Movement seized the historic window of opportunity. The Unified Health System (*Sistema Único de Saúde* (SUS)) was created in 1990 (Venkateswara, Slaria & Mukherjee, 2022). The SUS was designed to be comprehensive in its primary care service offer and to be focused on community participation to ensure equitable access for all. Several political, legislative and policy levers, including the 1988 Brazil Constitution, anchored health as a human right and clear state responsibility into the principles underpinning the SUS. Management and funding were decentralized and municipal governments became accountable for the provision of primary care (Castro et al., 2019). The 1994 Family Health Strategy further advanced the implementation of Brazil’s decentralized PHC approach with the establishment of multidisciplinary primary care teams including community health agents who deliver preventive and primary care (see also Chapter 4). The Family Health Strategy provided financial resources for municipalities to improve health care facilities and further cemented the government commitment for SUS to work for underserved populations; technocrats acknowledged the cost–effectiveness of such teams, outlining clear governance and management structures to enable smooth functioning. Roles for both federal and local authorities were negotiated in terms of financing and performance monitoring; municipalities were given the responsibility for the organization, management and delivery of primary care services (Castro et al., 2019). A further reform in 2009 aimed to fine-tune the SUS service delivery model to make it more people-centred (Soranz, Pinto & Penna, 2016).

Since 1994, states and cities have implemented the Family Health Strategy differently, leading to inter-regional inequalities and reflecting the differing political priority for health in different regions and municipalities.

By all measures, the SUS and the Family Health Strategy are clearly a success for achieving nearly UHC (Castro et al., 2019), improving health outcomes and extending close-to-community primary care services to two thirds of the population (see Chapter 4). This remarkable success was enabled by strong political will, and a clear commitment to reducing sociodemographic health inequalities. The focus on equity and pro-poor services was greatly influenced by the grassroots movements which gave birth to the SUS, mentioned above. Prioritizing making the SUS work for the most deprived communities led to an emphasis on community engagement and partnerships with families and community leaders. This meant political prioritization and funding for a truly holistic approach to health. Brazil’s Family Health Teams provide much more than curative services – they engage in preventive care and health literacy, and undertake educational and social interventions. Through early diagnosis and referral management, Family Health Teams aim to reduce hospital use (see also Chapters 4 and 5).

However, governments and politics change, and with them, the political will to invest in health. Brazil's political and economic context in 2015 led to difficult austerity measures with dire consequences for health financing which reverberate to this day. Compounded by pockets of pre-existing governance deficiencies, inter-regional inequalities in health service access have grown, particularly for more socioeconomically disadvantaged population groups (Massuda et al., 2018; Roland, 2019). Fiscal austerity has also meant that infrastructure investments were delayed, leaving many of the country's health facilities unfit-for-purpose. Brazil has also not escaped the global challenge of health workforce recruitment and retention, with shortages of primary care physicians contributing to the reversals of previous gains. The long-term sustainability of the SUS as the heart of Brazil's PHC approach is threatened, illustrating that PHC-oriented health systems do not spontaneously occur and require sustained and deliberate support. Brazil's example also shows that a system which has grassroots support can be sustained even when political priorities shift with the electoral cycle – but the investment needs to return when the political winds change to ensure that the health system is responsive to population needs.

2.4 Conclusion

For over four decades, the global community has made ambitious commitments to create a healthier future for all. Key milestones include the Declarations of Alma-Ata in 1978 and Astana in 2018, as well as the United Nations SDGs in 2015. These commitments recognized the importance of PHC in achieving equitable health outcomes and UHC.

However, the concept of PHC has been subject to conflicting interpretations influenced by various factors such as globalization, medicalization, colonialism and neoliberalism. These differing interpretations have resulted in varying resource commitments and implementation of PHC between countries and contexts. Some countries have embraced comprehensive PHC as a cornerstone of their health systems, while others have prioritized specialized and vertical approaches.

The historical evolution of health service delivery has played a significant role in shaping the adoption of PHC models. The balance between generalist care and specialized care, as well as the choice between horizontal and vertical approaches, has influenced the implementation of PHC. Countries that have successfully implemented a PHC approach have sustained a long-term vision and a commitment to consistent health system goals, despite fluctuations in political commitment. This sustained commitment has been crucial in achieving positive health outcomes and improving access to essential health services.

The recent global focus on UHC has renewed attention on PHC. High-level commitments at the global and national levels have emphasized the importance of strengthening PHC as fundamental to achieving UHC. Political leadership and government spending on health are subject to fluctuations over time. Therefore, it is crucial to take advantage of attention and support for PHC before competing priorities or changes in leadership divert resources and attention elsewhere. Lessons from the historical evolution of PHC are important reminders of how we got there.

REFERENCES

- Abramson JH (1988). Community-oriented primary care—strategy, approaches, and practice: a review. *Public Health Rev*, 16:35–98. Available at: <https://pubmed.ncbi.nlm.nih.gov/3073435/> (accessed 17 April 2024).
- Adejebi AA, Ako RT (2009). Towards achieving the United Nations' Millennium Development Goals: The imperative of reforming water pollution control and waste management laws in Nigeria. *Desalination*, 248(1–3):642–9. doi: 10.1016/j.desal.2008.05.114.
- Aguilar-Guerra TL, Reed G (2020). Mobilizing Primary Health Care: Cuba's Powerful Weapon against COVID-19. *Medic Review*, 22(2). DOI: 10.37757/mr2020.v22.n2.15. Available at <https://www.sciencedirect.com/science/article/pii/S2214109X21003417?via%3Dihub> (accessed 17 April 2024).
- Arteaga-Cruz E, Cuvil J (2021). Thinking outside the modern capitalist logic: health-care systems based in other world views. *Lancet Glob Health*, 9(10):e1355–e1356.
- Atun RA et al. (2008). When do vertical (stand-alone) programmes have a place in health systems? Policy Brief. European Observatory on Health Systems and Policies. World Health Organization Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/107977> (accessed 24 July 2023).
- Basu S et al. (2021). Estimated Effect on Life Expectancy of Alleviating Primary Care Shortages in the United States. *Ann Intern Med*, 174(7):920–6. doi: 10.7326/M20-7381.
- Beaudevin C, Gaudillière JP, Gradmann C (2023). The local roots of 'health for all': Primary health care in practices, 1950s–2000s. *Soc Sci Med*, 319:115321. doi: 10.1016/j.socscimed.2022.115321.
- Bhutta ZA et al. (2018). Alma Ata and primary healthcare: back to the future. *BMJ (Clinical research ed.)*, 363:k4433. doi:10.1136/bmj.k4433.
- Birn AE, Kremontsov N (2018). 'Socialising' primary care? The Soviet Union, WHO and the 1978 Alma-Ata Conference. *BMJ Glob Health*, 3(Suppl 3):e000992. doi: 10.1136/bmjgh-2018-000992.
- Bornstein VJ et al. (2023). Community Health Workers in Brazil. Available at: <https://www.exemplars.health/topics/community-health-workers/brazil> (accessed 24 July 2023).
- Bradley DJ (1998). The particular and the general. Issues of specificity and verticality in the history of malaria control. *Parassitologia*, 40(1–2):5–10. PMID: 9653726.
- Breilh J (1979). Community medicine under imperialism: a new medical police? *Int J Health Serv*, 9:5–24. Available at: <https://pubmed.ncbi.nlm.nih.gov/370035/> (accessed 17 September 2023).
- Brown TM, Fee E (2008). The Bandoeng Conference of 1937: a milestone in health and development. *Am J Public Health*, 98(1):42–3. doi:10.2105/AJPH.2007.119222.
- Carey G, Crammond B, de Leeuw E (2015). Towards health equity: a framework for the application of proportionate universalism. *Int J Equity Health*, 14(1):81. doi:10.1186/s12939-015-0207-6.

- Castro MC et al. (2019). Brazil's unified health system: the first 30 years and prospects for the future. *Lancet*, 394(10195):345–56. doi:10.1016/s0140-6736(19)31243-7.
- Chaiken MS (1998). Primary health care initiatives in colonial Kenya. *World Dev*, 26(9):1701–17. Available at: [http://dx.doi.org/10.1016/S0305-750X\(98\)00067-9](http://dx.doi.org/10.1016/S0305-750X(98)00067-9) (accessed 17 September 2023).
- Chauhan AS et al. (2022). Cost of delivering primary healthcare services through public sector in India. *Indian J Med Res*, 156(3):372–80, doi: 10.4103/ijmr.IJMR_67_19.
- Chotchoungchatchai S et al. (2020). Primary health care and sustainable development goals. *Bull World Health Organ*, 98(11):792–800. doi:10.2471/BLT.19.245613.
- Cueto M (2004). The origins of primary health care and selective primary health care. *Am J Public Health*, 94(11):1864–74. doi:10.2105/ajph.94.11.1864.
- Cylus J, Permanand G, Smith P (2018). Making the economic case for investing in health systems: what is the evidence that health systems advance economic and fiscal objectives? World Health Organization. Available at: <https://iris.who.int/handle/10665/331982> (accessed 17 April 2024)..
- Cylus J, Smith PC (2020). The economy of well-being: what is it and what are the implications for health? *BMJ (Clinical research ed.)*, 369:m1874. doi:10.1136/bmj.m1874.
- Davidian A (2021). Health reform in Brazil: The sanitaristas as programmatic actors. *Eur Policy Anal*, 7.10.1002/epa2.1107.
- Davletov K, Nurgozhin T, McKee M (2018). Reflecting on Alma Ata 1978: forty years on. *Eur J Public Health*, 28(4):587. doi:10.1093/eurpub/cky094.
- Deodhar NS (1982). Primary health care in India. *J Public Health Policy*, 3(1):76–99. doi:10.2307/3342068.
- De Maeseneer J et al. (2012). Tackling NCDs: a different approach is needed. *Lancet*, 379(9829), 1860-1861. [https://doi.org/10.1016/S0140-6736\(11\)61135-5](https://doi.org/10.1016/S0140-6736(11)61135-5).
- De Maeseneer J et al. (2020). Universal health coverage and primary health care: the 30 by 2030 campaign. *Bull World Health Organ* 2020;98:812–81. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7607468/> (accessed 17 April 2024).
- Djukanovic V et al. (1975) . Alternative approaches to meeting basic health needs in developing countries: a joint UNICEF/WHO study edited by V Djukanovic & EP Mach. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/40076> (accessed 17 September 2023).
- Dookie S, Singh S (2012). Primary health services at district level in South Africa: a critique of the primary health care approach. *BMC Fam Pract*, 3:67. doi: 10.1186/1471-2296-13-67. PMID: 22748078; PMCID: PMC3403923.
- Druetz T (2018). Integrated primary health care in low- and middle-income countries: a double challenge. *BMC Med Ethics*, 19(Suppl 1):48. Available at: <https://doi.org/10.1186/s12910-018-0288-z> (accessed on 17 April 2024).
- Falletti TG, Cunial SL (2019). Civic programmatic participation in public health: the case of Argentina. *Cad Saude Publica*, 35(Suppl 2):e00243218. doi:10.1590/0102-311X00243218.

- Fehling M, Nelson BD, Venkatapuram S (2013). Limitations of the Millennium Development Goals: a literature review. *Glob Public Health*, 8(10):1109–22, doi: 10.1080/17441692.2013.845676
- Gaitonde R et al. (2017). Community action for health in India's National Rural Health Mission: one policy, many paths. *Soc Sci Med*, 188:82–90. Available at: <https://doi.org/10.1016/j.socscimed.2017.06.043> (accessed 24 July 2023).
- Giovanella L et al. (2019). From Alma-Ata to Astana. Primary health care and universal health systems: an inseparable commitment and a fundamental human right. *Cad Saude Publica*, 35(3):e00012219. doi:10.1590/0102-311X00012219.
- Gorelova LE, Surovtseva TI (2014). Zemstvo district medicine and charity in Russia. *Hist Med*, 4(4):29–34.
- Gragnotati M, Lindelow M, Couttolenc B (2013). Twenty Years of Health System Reform in Brazil: An Assessment of the Sistema Único de Saúde. World Bank Publications no. 15801.
- Harris MF, Zwar NA (2014). Reflections on the history of general practice in Australia. *Med J Aust*, 201(1 Suppl):S37–S40.
- Hart JT (1972). Primary care in the industrial areas of Britain. Evolution and current problems. *Int J Health Serv: planning, administration, evaluation*, 2(3):349–65. PMID: 45632532.
- Hone T, Macinko J, Millett C (2018). Revisiting Alma-Ata: what is the role of primary health care in achieving the Sustainable Development Goals? *Lancet*, 392(10156):1461–72. Available at: <https://www.sciencedirect.com/science/article/pii/S0140673618318294> (accessed 24 July 2023).
- Jaturapatporn D (2006). Does family medicine training affect the referral pattern of primary care doctors in Thailand? *Fam Med*, 38(6):387–8.
- Jaturapatporn D, Dellow A (2007). Does family medicine training in Thailand affect patient satisfaction with primary care doctors? *BMC Fam Pract*, 8:14.
- Jaturapatporn D, Hathirat S (2006). Specialists' perception of referrals from general doctors and family physicians working as primary care doctors in Thailand. *Qual Prim Care*, 14(41):48.
- Kamuzora P (1996). The politics of implementing intersectoral policies for primary health care development: experience and lessons from Tanzania. *World Hosp Health Serv*, 32(2):22–9. Available at: <https://pubmed.ncbi.nlm.nih.gov/10165873/> (accessed 24 July 2023).
- Kautzky K, Tollman SM (2008). A perspective on primary health care in South Africa: Primary health care: In context. *S Afr Health Rev*, 2008(1):17–30. Available at: <https://hdl.handle.net/10520/EJC35514> (accessed 24 July 2023).
- Kentikelenis A (2017). Structural adjustment and health: a conceptual framework and evidence on pathways. *Soc Sci Med*, 27:296–305.
- Keshri VR, Bhaumik S (2022). The feudal structure of global health and its implications for decolonisation. *BMJ Glob Health*, 7(9):e010603. doi: 10.1136/bmjgh-2022-010603.
- Kickbusch I, Gleicher D (2012). Governance for health in the 21st century. WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/326429> (accessed 24 July 2023).

- Kirwin E et al. (2022). The diagonal approach: a theoretic framework for the economic evaluation of vertical and horizontal interventions in healthcare. *Soc Sci Med*, 301:114900. doi:10.1016/j.socscimed.2022.114900.
- Kmietowicz Z (2006). A century of general practice. *BMJ*, 332(7532):39–40. doi: 10.1136/bmj.332.7532.39.
- Koivusalo M, Schrecker T, Labonté R (2009). Globalization and policy space for health and social determinants of health. In: Labonté R, Schrecker T, Packer C, Runnels V (eds). *Globalization and Health: Pathways, Evidence and Policy*. Routledge.
- Kutzin J (2013). Health financing for universal coverage and health system performance: concepts and implications for policy. *Bull World Health Organ*, 91(8):602–11. doi:10.2471/BLT.12.113985.
- Kutzin J, Yip W, Cashin C (2016). Alternative financing strategies for universal health coverage. In: *World Scientific Handbook of Global Health Economics and Public Policy*. World Scientific, pp. 267–309. Available at: https://doi.org/10.1142/9789813140493_0005 (accessed 24 July 2023).
- Labonté R (2015). Globalization and Health. In: *International Encyclopedia of the Social & Behavioral Sciences*. Elsevier, pp. 198–205.
- Labonté R, Ruckert A (2019). *Health Equity in a globalizing era: past challenges, future prospects*. Oxford: Oxford University Press.
- Lahariya C (2020). Health & wellness centers to strengthen primary health care in India: Concept, progress and ways forward. *Indian J Pediatr*, 87(11):916–29. doi:10.1007/s12098-020-03359-z.
- Lahariya C, Khanna R, Nandan D (2010). Primary health care and child survival in India. *Indian J Pediatr*, 77:283–90.
- Lancet Infectious Diseases (2018). The Astana Declaration: time to focus on primary health care. *Lancet Infect Dis*, 18(12):1289. doi:10.1016/S1473-3099(18)30679-0.
- McCoy D et al. (2009). The Bill & Melinda Gates Foundation's grant-making programme for global health. *Lancet*, 373(9675):1645–53. doi:10.1016/S0140-6736(09)60571-7.
- Machado CV, Silva, GA (2019). Political struggles for a universal health system in Brazil: successes and limits in the reduction of inequalities. *Glob Health*, 15(Suppl 1):77. Available at: <https://doi.org/10.1186/s12992-019-0523-5> (accessed 24 July 2023).
- Maheux B et al. (1992). Effects of residency training in family medicine v. internship training on professional attitudes and practice patterns. *CMAJ*, 146(6):901–7.
- Mash R et al. (2018). Reflections on family medicine and primary healthcare in sub-Saharan Africa. *BMJ Glob Health*, 3(Suppl 3):e000662. Available at: <http://dx.doi.org/10.1136/bmjgh-2017-000662> (accessed 24 July 2023).
- Mash B et al. (2019). Community-orientated primary care: a scoping review of different models, and their effectiveness and feasibility in sub-Saharan Africa. *BMJ Glob Health*, 4:e001489.
- Massuda A et al. (2018). The Brazilian health system at crossroads: progress, crisis and resilience. *BMJ Glob Health*, 3(4):e000829. doi:10.1136/bmjgh-2018-000829.

- Medcalf A, Nunes J (2018). Visualising primary health care: World Health Organization representations of community health workers, 1970–89. *Med Hist*, 62(4):401–24. doi:10.1017/mdh.2018.40.
- Mutasa C (2005). The Politics of the Millennium Development Goals in Africa: Is Global Partnership Really Working? *J Sustain Dev Law Policy*, 6(1).
- Newell KW (1988). Selective primary health care: the counter revolution. *Soc Sci Med*, 26(9):903–6. doi: 10.1016/0277-9536(88)90409-1. PMID: 3388069.
- Ooms G et al. (2008). The “diagonal” approach to Global Fund financing: a cure for the broader malaise of health systems? *Glob Health*, 4(1):6. doi:10.1186/1744-8603-4-6.
- Paiva CH, Freitas GC (2021). Entre Alma-Ata e a reforma sanitária brasileira: o Programa Nacional de Serviços Básicos de Saúde (Prev-saúde), 1979–1983. *Hist Cienc Saude Manguinhos*, 28(2):527–79. doi:10.1590/s0104-59702021000200011.
- Pal R et al. (2019). Public health crisis of road traffic accidents in India: Risk factor assessment and recommendations on prevention on the behalf of the Academy of Family Physicians of India. *J Fam Med Prim Care*, 8(3):775.
- People’s Health Movement (2018). Alternative Civil Society Astana Statement on Primary Health Care – People’s Health Movement. People’s Health Movement, 24 October 2018. Available at: <https://phmovement.org/alternative-civil-society-astana-declaration-on-primary-health-care/> (accessed 17 April 2023).
- Perry HB (2018). An extension of the Alma-Ata vision for primary health care in light of twenty-first century evidence and realities. *Gates Open Res*, 14(2):70. doi: 10.12688/gatesopenres.12848.1.
- Phillips H (2014). The return of the Pholela experiment: medical history and primary health care in post-Apartheid South Africa. *Am J Public Health*, 104(10):1872–6. doi:10.2105/AJPH.2014.302136.
- Phillips HT (1993). The 1945 Gluckman Report and the establishment of South Africa’s health centers. *Am J Public Health*, 83(7):1037–9. doi:10.2105/ajph.83.7.1037.
- Phua KH, Goh LG, Sharipova D (2021). Ageing in Asia: Beyond the Astana Declaration towards financing long-term care for All; comment on “financing long-term care: Lessons from Japan.” *Int J Health Policy Manag*, 10(1):32–5. doi:10.34172/ijhpm.2020.15.
- Public Services International (2018). Decent work for community health workers in south Asia: A PSI report. PSI. 3 March 2018. Available at: <https://www.world-psi.org/en/decent-work-community-health-workers-south-asia-psi-report-0> (accessed 17 April 2023).
- Ramani S, Sivakami M, Gilson L (2019). How context affects implementation of the Primary Health Care approach: an analysis of what happened to primary health centres in India. *BMJ Glob Health*, 3(Suppl 3):e001381.
- Rao KS (2017). *Do We Care? India’s Health System*. Delhi: Oxford Academic, online edn, 16 February 2017. Available at: <https://doi.org/10.1093/acprof:oso/9780199469543.001.0001> (accessed 24 July 2023).
- Reeve J et al. (2013). Generalist solutions to complex problems: generating practice-based evidence – the example of managing multi-morbidity. *BMC Fam Pract*, 14:112. Available at: <https://doi.org/10.1186/1471-2296-14-112> (accessed 24 July 2023).

- Roland M (2019). 40 years on. Has the vision of Alma-Ata been realized? *Cad Saude Publica*, 35(1):e00212218. doi:10.1590/0102-311x00212218.
- Schneider H et al. (2022). Primary Health Care. In: Matsoso MP et al. (Eds). *The South African Health Reforms 2015–2020. The Road Ahead*. Johannesburg: Trackstar Trading 111 (Pty Ltd). Available at: <https://www.hrsp.co.za/The-South-Africa-health-reforms-2015-2020-The-Road-Ahead> (accessed 24 July 2023).
- SDG Index (2022). Sustainable Development Report 2022. *Sdginde.org*. Available at: <https://dashboards.sdginde.org/> (accessed 17 April 2023).
- Senghor D (1984). Révolution ou alibi? *Famille et Développement*, 28:34–58.
- Shi L et al. (2003). The relationship between primary care, income inequality, and mortality in US States, 1980–1995. *J Am Board Fam Pract*, 16(5):412–22. doi: 10.3122/jabfm.16.5.412. PMID: 14645332.
- Sidel VW (1972). The barefoot doctors of the People's Republic of China. *N Engl J Med*, 286(24):1292–1300. doi: 10.1056/NEJM197206152862404. PMID: 4401952.
- Simon C (2009). From Generalism to Specialty—A Short History of General Practice. *InnovAiT*, 2(1):2–9. doi:10.1093/innovait/inn171.
- Snyder A (2017). Halfdan Mahler. *Lancet*, 389(10064):30. doi:10.1016/S0140-6736(16)32604-6.
- Soranz D, Pinto LF, Penna GO (2016). Eixos e a Reforma dos Cuidados em Atenção Primária em Saúde (RCAPS) na cidade do Rio de Janeiro, Brasil. *Cien Saude Colet*, 21(5):1327–38. doi:10.1590/1413-81232015215.01022016.
- Starfield B (1994). Is primary care essential? *Lancet*, 344(8930):1129–33. doi: 10.1016/s0140-6736(94)90634-3. PMID: 7934497.
- Starfield B (2009). Toward international primary care reform. *CMAJ*, 180(11):1091–2. doi: 10.1503/cmaj.090542. PMID: 19468110; PMCID: PMC2683215.
- Starfield B (2012). Primary care: an increasingly important contributor to effectiveness, equity, and efficiency of health services. *SESPAS report (2012)*. *Gac Sanit*, 26(Suppl 1):20–6. doi: 10.1016/j.gaceta.2011.10.009. Epub 2012 Jan 21. PMID: 22265645.
- Tangye CE (1920). The Dawson report: author Claude E. Tangye, *journal Public Health*, 42–4.
- Testa M (1989). Atención ¿Primaria o primitiva? de salud [Primary or primitive health care?]. In *Pensar en salud [Thinking about health]*. Buenos Aires: Pan American Health Organization, 125–37.
- Tilley H (2016). Medicine, empires, and ethics in colonial Africa. *AMA J Ethics*, 18(7):743–53. doi:10.1001/journalofethics.2016.18.7.mhst1-1607.
- Tollman SM, Pick WM (2002). Roots, shoots, but too little fruit: assessing the contribution of COPC in South Africa. *Am J Public Health*, 92(11):1725–28. doi:10.2105/ajph.92.11.1725.
- Tumusiime P et al. (2020). Building health system resilience in the context of primary health care revitalization for attainment of UHC: proceedings from the Fifth Health Sector Directors' Policy and Planning Meeting for the WHO African Region. *BMC Proc*, 14(Suppl 19):16. doi:10.1186/s12919-020-00203-2.
- Unger JP, Killingsworth JR (1986). Selective primary health care: a critical review of methods and results. *Soc Sci Med*, 22(10):1001–13. doi:10.1016/0277-9536(86)90200-5.

- United Nations (2012). UN System Task Team on the post-2015 UN Development Agenda, Review of the contributions of the MDG Agenda to foster development: lessons for the post-2015 UN Development Agenda. 16 March 2012. Available at: https://www.un.org/en/development/desa/policy/untaskteam_undf/group_a_mdg_assessment.pdf (accessed 11 May 2023).
- United Nations (2015). Transforming our world: the 2030 Agenda for Sustainable Development. 25 September 2015. Available at: <https://sdgs.un.org/sites/default/files/publications/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> (accessed 17 April 2023).
- United Nations General Assembly (1948). The Universal Declaration of Human Rights (UDHR). New York: United Nations General Assembly.
- van Ginneken N, Lewin S, Berridge V (2010). The emergence of community health worker programmes in the late apartheid era in South Africa: An historical analysis. *Soc Sci Med*, 71(6):1110–18. doi:10.1016/j.socscimed.2010.06.009.
- Venkateswaran S, Slaria S, Mukherjee S (2022). Political motivation as a key driver for universal health coverage. *Front Public Health*, 10:922578. doi: 10.3389/fpubh.2022.922578.
- Waite G (1987). Public health in pre-colonial east-central Africa. *Soc Sci Med*, 24(3):197–208. doi:10.1016/0277-9536(87)90047-5.
- Walraven G (2019). The 2018 Astana Declaration on Primary Health Care, is it useful? *J Glob Health*, 9(1). doi:10.7189/jogh.09.010313.
- Werner D, Sanders D (1997). Questioning the solution: the politics of primary health care and child survival, with an in-depth critique of oral rehydration therapy. Available at: <http://www.healthwrights.org/books/questioning-the-solution/questioning-the-solution.pdf> (accessed 24 July 2023).
- WHO (1946). Constitution of the World Health Organization. *Am J Public Health Nation's Health*, 36(11):1315–23. doi:10.2105/ajph.36.11.1315.
- WHO (1978). Declaration of Alma-Ata. World Health Organization. Available at: https://cdn.who.int/media/docs/default-source/documents/almaata-declaration-en.pdf?sfvrsn=7b3c2167_2 (accessed 17 April 2023).
- WHO (2000). The World Health Report: 2000: Health systems: improving performance. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/42281> (accessed 17 September 2023).
- WHO (2008). The World Health Report 2008 – Primary Health Care: Now More Than Ever. ReliefWeb. Available at: <https://reliefweb.int/report/world/world-health-report-2008-primary-health-care-now-more-ever> (accessed 17 April 2023).
- WHO (2010). The World Health Report: Health systems financing: the path to universal coverage. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241564021> (accessed on 17 April 2024).
- WHO (2013). The Contribution of Family Medicine to Improving Health Systems: A Guidebook from the World Organization of Family Doctors. World Health Organization. ISBN 9781846195549.

- WHO (2018a). Declaration of Astana. Geneva: World Health Organization. Available at: <https://www.who.int/primary-health/conference-phc/declaration> (accessed 24 July 2023).
- WHO (2018b). Primary health care as an enabler for “ending the epidemics” of high-impact communicable diseases. World Health Organization. License: CC BY-NC-SA 3.0 IGO, Available at: <https://apps.who.int/iris/handle/10665/326300> (accessed 24 July 2023).
- WHO (2022). WHO European Regional High-level Forum on Health in the Well-being Economy (Copenhagen, Denmark, 1–2 March 2023) – Scope and purpose. Meeting report, 7 November 2022. Available at: <https://www.who.int/europe/publications/m/item/who-european-regional-high-level-forum-on-health-in-the-well-being-economy-copenhagen-denmark-1-2-march-2023-scope-and-purpose> (accessed 24 July 2023).
- WHO (2023a). WHO/Europe High-Level Forum on Health in the Well-Being Economy. 2023. World Health Organization. Available at: <https://www.who.int/europe/news-room/events/item/2023/03/01/default-calendar/who-europe-high-level-forum-on-health-in-the-well-being-economy> (accessed 17 April 2023).
- WHO (2023b). Health for All: transforming economies to deliver what matters. Final Report of the WHO Council on the Economics of Health for All. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240080973> (accessed 24 November 2023).
- WHO Director-General (2019a). High-Level Meeting on Universal Health Coverage, 23 September 2019. Available at: <https://www.who.int/director-general/speeches/detail/high-level-meeting-on-universal-health-coverage> (accessed 24 July 2023).
- WHO Director-General (2019b). Opening Speech at the 144th Session of the Executive Board, 24 January 2019. Available at: <https://www.who.int/director-general/speeches/detail/opening-speech-at-the-144th-session-of-the-executive-board> (accessed 24 July 2023).
- WHO Regional Office for Europe (2018). Multisectoral and intersectoral action for improved health and well-being for all: mapping of the WHO European Region. Governance for a sustainable future: improving health and well-being for all: final report. World Health Organization Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/341715> (accessed 24 July 2023).
- WHO Regional Office for South-East Asia (2021). Strengthening primary health care in the COVID-19 era: a review of best practices to inform health system responses in low- and middle-income countries. WHO South-East Asia J Public Health, 10(1):S1–S99, 10(3):1–20. Available at: <https://apps.who.int/iris/handle/10665/351476> (accessed 24 July 2023).
- WHO Regional Office for South-East Asia et al. (2022). India: health system review. Health Systems in Transition, 11(1). World Health Organization Regional Office for South-East Asia. License: CC BY-NC-SA 3.0 IGO. Available at: <https://apps.who.int/iris/handle/10665/352685> (accessed 24 July 2023).

- WHO, Alliance for Health Policy and Systems Research (2017) . Primary health care systems (PRIMASYS): case study from South Africa. World Health Organization. License: CC BY-NC-SA 3.0 IGO. Available at: <https://apps.who.int/iris/handle/10665/341145> (accessed 24 July 2023).
- WHO, UNICEF (2018). A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. World Health Organization and United Nations Children's Fund. Available at: <https://apps.who.int/iris/handle/10665/328065> (accessed 24 July 2023).
- WHO, UNICEF (2020). Operational framework for primary health care: transforming vision into action. World Health Organization and United Nations Children's Fund. Available at: <https://apps.who.int/iris/handle/10665/337641> (accessed 24 July 2023).
- WHO, UNICEF (2022). Primary health care measurement framework and indicators: monitoring health systems through a primary health care lens. World Health Organization and United Nations Children's Fund. Available at: <https://apps.who.int/iris/handle/10665/352205> (accessed 24 July 2023).
- Winiger F, Peng-Keller S (2021). Religion and the World Health Organization: an evolving relationship. *BMJ Glob Health*, 6:e004073. doi:10.1136/ bmjgh-2020-004073.
- Yach D, Tollman SM (1993). Public health initiatives in South Africa in the 1940s and 1950s: lessons for a post-apartheid era. *Am J Public Health*, 83(7):1043–50. doi:10.2105/ajph.83.7.1043.

3

PHC: definitions, terminology and frameworks

Erica Barbazza, Luke Allen, Seye Abimbola and Dionne Kringos

Key messages

- “Primary health care” and “primary care” are related but distinct concepts. Although they are often used interchangeably, they reflect different priorities and approaches. Clear definitions and consistent use of terms can help communication, allow actors to share lessons more effectively and make more explicit the complex actions and considerations required to strengthen primary health care (PHC).
- “PHC is a whole-of-society approach that strengthens health systems and maximizes the level and distribution of health and well-being. As in the Declarations of Alma-Ata and Astana, it shapes the whole health system by:
 - putting primary care and the essential public health functions together at the core of integrated health services
 - leveraging multisectoral policy and action
 - empowering people and communities as co-creators of their health.
- “Primary care is at the heart of the services component of PHC but does not have the same whole-of-society breadth. Its four core characteristics are:
 - first contact access
 - continuity
 - comprehensiveness
 - coordination.
- “The frameworks developed in light of the Astana Declaration tally with the definitions of PHC and give policy-makers and other system stakeholders tools to operationalize policy commitments and measure PHC performance.

3.1 Introduction

Because PHC is a complex concept, this chapter seeks to map, explain and clarify the different ways in which the terms “primary health care” and “primary care” are and have been used. By providing an overview of frequently used definitions, terms and frameworks, this chapter deliberately draws attention to the enduring confusion around these terms, and clarifies how “primary health care” and “primary care” are used in this volume. Consistency in the use of PHC terminology is important to foster conceptual agreement, improve comparability in the literature, and support the convergence of efforts across national and global health actors. Ultimately, the chapter presents a conceptual common ground for consistency across this volume, supporting analysts and policy-makers in deepening their comprehension and justification of the “PHC approach” as introduced in Chapter 1.

Building on the concept of PHC in the 1978 Declaration of Alma-Ata (see Chapter 2), this chapter first considers the factors that have contributed to the definitional confusion between the terms “primary health care” and “primary care”. The sections that follow explore the definitions of each term in turn. The use of “primary health care” and its application in practice are examined in different contexts, specifically as used by international organizations, across World Health Organization (WHO) regions, and by countries in their national plans and strategies. Definitions of “primary care” are explored next, first using the commonly described primary care characteristics (first contact, continuity, comprehensiveness and coordination) and then through other primary care descriptors such as settings, types or scopes of services, and health and care worker categories. Lastly, PHC and primary care are explored and analysed through a review of various frameworks developed to support and guide their implementation and monitoring.

3.1.1 The causes of definitional confusion around PHC and primary care

Despite widespread agreement and ample literature describing primary health care and primary care as different concepts, the two terms remain difficult to differentiate and are often used interchangeably (Shoultz & Hatcher, 1997; Muldoon, Hogg & Levitt, 2006). PHC has been deemed both over-defined, with different actors proposing (re)definitions over time, and under-specified, with published works on PHC often lacking a definition, and leaving the concept open to interpretation (Sheaff, 1998; White, 2015). For example, in one literature review on PHC, 46% of more than 2000 studies identified did not include a definition (Ramírez et al., 2011).

The conceptual confusion caused by the persistent conflation of the terms PHC and primary care has significantly impaired PHC strengthening (Frenk, 2009). More than an issue of semantics, clarity of vision and the appropriate use of PHC and related terms are key to fully appreciating the complex factors involved in strengthening PHC and securing the investment of required resources (Shoultz & Hatcher, 1997; Frenk, 2009).

The definitional confusion around PHC has been attributed to a number of factors. First, the concept of PHC has been repeatedly reinterpreted, rewritten and refined by the global health community over time (Hone, Macinko & Millett, 2018; Rasanathan & Evans, 2020). Secondly, the inherent complexity of PHC as an approach has made it difficult to succinctly and fully outline its contours (Frenk, 2009). It has been argued that no simple definition of PHC incorporates all its dimensions, thereby contributing to the debate around its meaning (Institute of Medicine Committee, 1994). Thirdly, some experts have argued that there cannot be one “cookie-cutter” definition of the PHC approach as it is an inherently context-specific concept (Sheaff, 1998).

The multiple meanings of “primary” in English have also contributed to the confusion (Institute of Medicine, 1994; Muldoon, Hogg & Levitt, 2006; Frenk, 2009). “Primary” can be understood as first in contact, level or cause. It may also mean first, as in chief, principal or main (for example, PHC as a fundamental central part of the health system), relative to things that are secondary or subsidiary (Abimbola, 2021). Moreover, other languages require different or additional words and phrases to convey the same concepts, or simply lack terms to distinguish between “primary health care” and “primary care”.

Most importantly, the multiple definitions of PHC reflect the coexistence of conceptual nuances that serve different purposes (Sheaff, 1998). Some definitions of PHC have a more normative purpose. These definitions outline a specific vision and set of values for PHC. Others are descriptive and outline the essential qualities of PHC. Differentiating between normative and descriptive definitions of PHC may therefore offer the best route into more consistent and accurate use.

3.2 Evidence review: defining primary care and PHC

3.2.1 Defining PHC

The Declaration of Alma-Ata

The 1978 Declaration of Alma-Ata set out a broad vision for a comprehensive PHC approach to achieve “Health for All” (Box 3.1) (WHO, 1978). The definition put forward in Alma-Ata was shaped by perceived health system inadequacies including the dominance of disease-oriented technology and the overspecialization of health professionals (Hone, Macinko & Millett, 2018) (Chapter 2). Re-centring the notion of health as a human right as an impetus for health equity, Alma-Ata proposed a paradigm shift that included addressing the social and environmental determinants of health and community participation as a necessary condition for a just society. The Declaration’s definition of PHC (Box 3.1) also emphasizes health care close to where people live, coordinated efforts across society to create health, and primary care services as the fulcrum of the health system (Rasanathan & Evans, 2020).

Box 3.1 PHC in the Declaration of Alma-Ata (1978)

PHC is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and the community with the national health system, bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process.

PHC:

1. Reflects and evolves from the economic conditions and sociocultural and political characteristics of the country and its communities and is based on the application of the relevant results of social, biomedical and health services research and public health experience.
2. Addresses the main health problems in the community, providing promotive, preventive, curative and rehabilitative services accordingly.
3. Includes at least: education concerning prevailing health problems and the methods of preventing and controlling them; promotion of food supply and proper nutrition; an adequate supply of safe water and basic sanitation; maternal and child health care, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; and provision of essential drugs.
4. Involves, in addition to the health sector, all related sectors and aspects of national and community development, in particular agriculture, animal husbandry, food, industry, education, housing, public works, communications and other sectors; and demands the coordinated efforts of all those sectors.
5. Requires and promotes maximum community and individual self-reliance and participation in the planning, organization, operation and control of primary health care, making fullest use of local, national and other available resources; and to this end develops through appropriate education the ability of communities to participate.
6. Should be sustained by integrated, functional and mutually supportive referral systems, leading to the progressive improvement of comprehensive health care for all, and giving priority to those most in need.
7. Relies, at local and referral levels, on health workers, including physicians, nurses, midwives, auxiliaries and community workers as applicable, as well as traditional practitioners as needed, suitably trained socially and technically to work as a health team and to respond to the expressed health needs of the community.

Source: WHO, 1978

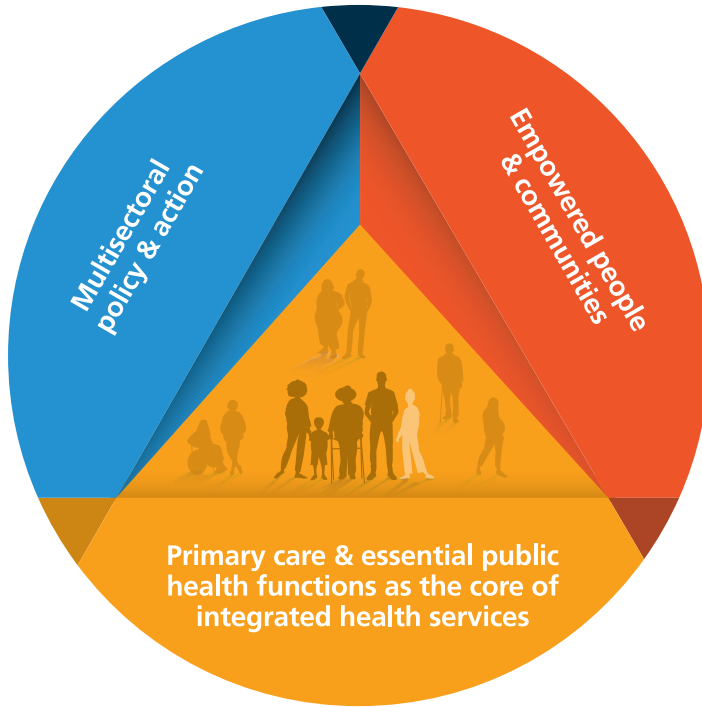
The Declaration of Alma-Ata provided key normative principles for PHC including human rights; social justice, equity and solidarity; evidence-informed, context-responsive and community-based care; self-determination, participation and intersectoral action. Operationally, it described primary care services as the central and main focus of health systems and first level of accessible, continuous and coordinated care for individuals, families and communities (WHO, 1978). Unfortunately, the principles of the PHC approach proposed in the Declaration were almost immediately abandoned and PHC was largely reduced to its “primary care” component as the first level of health care, and to a very narrow approach to service delivery (see Chapter 2) (Walraven, 2019; Barkley et al., 2022).

PHC and UHC in the Declaration of Astana

In 2018, on the 40th anniversary of the Declaration of Alma-Ata, the global health community met in Astana, Kazakhstan, to renew its commitment to comprehensive PHC for all. The Declaration of Astana (2018) recognizes the continued relevance of the Alma-Ata principles, identifying PHC as the most “inclusive, effective and efficient approach to enhance people’s physical and mental health, as well as social well-being” (Cupertino de Barros et al., 2022). Many of the seminal principles of the Ottawa Charter, which are integral to PHC, were further highlighted in Astana and in accompanying documents (WHO & UNICEF, 2018). The Declaration of Astana also identifies universal health coverage (UHC) as the “contemporary manifestation of Health for All” (Allen, 2022), where PHC-oriented health system strengthening operationalizes universal access to health services, when and where needed, without financial hardship (Rasanathan & Evans, 2020; Allen, 2022; Cupertino de Barros et al., 2022; UHC2030, 2022).

In this Primer, we use the term PHC as defined in the Declaration of Astana and its accompanying vision document including its three integral components: (a) primary care and essential public health functions as the core of integrated health services; (b) multisectoral policy and action; and (c) empowered people and communities (WHO, 2018; WHO & UNICEF, 2018). These three core components are presented as the distinct but inseparable and mutually influenced facets of a triangular pyramid (Fig. 3.1; see also Chapter 1).

Fig. 3.1 The core components of PHC: the triangular pyramid



Source: Authors' compilation

3.2.2 Core components of PHC

Primary care and essential public health functions as the core of integrated health services

The first component of PHC focuses on the delivery of quality integrated health services that respond to the needs and preferences of people at the population and individual levels (WHO & UNICEF, 2018). To this end, “primary care” is identified as the core and foundation of PHC-oriented health services. It is characterized as the delivery of a full spectrum of services, from health promotion and disease prevention to treatment, rehabilitation and palliative care, close to where people live and work, through a person-centred approach and a population-level focus. The specific “public health functions” closely linked to primary care as the core of the PHC approach include: health protection, health promotion, disease prevention, surveillance and response, and emergency preparedness (WHO, 2018). Primary care and public health reinforce each other through their respective functions to improve individual-level and population-level health (see Chapter 5) (Levesque et al., 2013).

The degree to which service delivery aligns with the principles of PHC is influenced by models of care which explicitly link primary care with public health services and a population perspective when defining the target population needs; selecting, planning, designing, organizing and managing services; and ensuring community linkages (Chapter 6) (WHO, 2020). A given health system can combine several models of care which together constitute *one* operational lever for strengthening health systems. Models of care are underpinned by various health system inputs (also called functions) including enabling ones such as leadership, governance and financing, identified as strategic levers in the WHO PHC Operational Framework (see below).

Multisectoral policies and action

As the second component of the PHC approach, multisectoral policies and action expands on the call for intersectoral action in the Declaration of Alma-Ata and underscores the need to address macro-level determinants of health, including the interaction between social, economic, environmental and commercial factors, in order to improve health outcomes and achieve health equity. The contemporary concept of PHC as multisectoral action “recognizes the important roles of sectors beyond health in creating (and damaging) health, and the need for coordinated action across these sectors to achieve health goals and reduce health threats” (Rasanathan & Evans, 2020).

Multisectoral policies and action shape the impact of health-related sectors on health at the population and individual level. This extends to agriculture, animal husbandry, food, industry, education, housing, public works, communication and others. Health in All Policies (HiAP) is a well-established approach to intersectoral coordination that systematically considers the broader determinants, identifies the health implications of policy decisions, seeks synergies between sectors, and avoids harmful health impacts (World Health Assembly, 2014).

Empowered people and communities

The third component of PHC focuses on the integral right and role of people to be autonomous and in control of their own health, and acknowledges the importance of eliciting and addressing people’s stated health needs (Rasanathan & Evans, 2020). This component highlights three broad expressions of empowerment and engagement. First is people’s prerogative, as advocates of their own health, to participate in formulating, planning and implementing multisectoral policies and action for health. Second, people should participate as co-developers of health and social services, contributing to the way health services are managed and delivered. This involvement includes being able to raise concerns which are acted upon, and to participate in decisions about tailoring health services to the needs of specific communities (Rajan et al., 2021). Third, people are recognized as key decision-makers with a central role in co-creating their own health and well-being as self-carers and caregivers.

3.3 Use of PHC as a term in practice

As noted above, despite the conceptual guidance provided by the Declarations of Alma-Ata and Astana, the heterogeneous interpretation of PHC in practice has contributed to persistent confusion about its meaning and has impeded its consistent and fulsome application. This is illustrated in the use of the PHC definition in three contexts: globally by international organizations, regionally and at country level.

3.3.1 International organizations

While increasingly and explicitly included in strategic documents by global health organizations, the term PHC has taken on different interpretations in the global arena. In addition to reflecting the historical evolutions of PHC described in Chapter 2, these definitions reflect differences in breadth, scope and in the focus of any given organization (Table 3.1).

The Gates Foundation, the Global Alliance for Vaccine and Immunization (GAVI), the Global Fund and the Global Financing Facility highlight the crucial role of PHC in delivering essential services, including those within their remit such as vaccinations, treatments for malaria, tuberculosis (TB) and human immunodeficiency virus (HIV), and maternal and child health services. They emphasize the need for PHC to provide these essential interventions and services to individuals and communities.

In contrast, other organizations that have a broader scope emphasize a more holistic approach to PHC. They view primary care as the entry point for a comprehensive PHC approach. Entities like the International Health Partnership for Universal Health Coverage 2030 (UHC2030), the WHO Commission on Social Determinants of Health and the World Bank emphasize the broader societal impact and public health aspects of PHC. They recognize PHC as a whole-of-society approach that addresses the comprehensive health needs of individuals, including physical, mental and social well-being, as well as promoting health, preventing disease and addressing the needs of specific populations.

Organizations whose mandates extend beyond health (such as UNICEF, the World Bank, etc.) tend to acknowledge the importance of PHC in the broader context of sustainable development and equitable access to public services. They highlight the role of PHC in engaging communities and addressing not only individual and household needs but also broader societal challenges.

Table 3.1 Examples to define PHC applied by international organizations

Organization	Definition of PHC
Gates Foundation	“[...] where people get all the basic health services they need: vaccines, prenatal care, and treatment for common yet life-threatening illnesses like diarrhea, pneumonia, HIV, TB, and malaria. PHC systems keep families healthy in normal times and are the first line of defence when global crises like COVID-19 arise.” (Kagubare, 2020)
GAVI, The Vaccine Alliance	“Immunization is the prototypical community-based activity that exemplifies PHC across multiple levers. Robust routine immunization services are important for delivery of other non-immunization health interventions at primary health care level. Considering immunization through the lens of PHC-oriented health system strengthening helps ensure that immunization services are aligned to, supportive of and supported by all relevant institutions and programmes.”
Global Financing Facility	“[...] targeted strengthening of service delivery systems, particularly primary health care – to save lives and as a critical step toward accelerating progress toward achieving Universal Health Coverage and the Sustainable Development Goals (SDGs).” (Global Financing Facility, 2020)
Global Fund to Fight Aids, Tuberculosis and Malaria	“Primary health care provides the foundation for increasing access to health care for all so that no one is left behind. [...] Even with disrupted health systems from conflicts, disasters and emerging infections, with strong PHC-oriented systems, communities will continue accessing care and treatment of HIV, TB and malaria, in order to stay on track towards the elimination of these diseases.”
OECD	“Primary health care is expected to be the first and main point of contact for most people with the health care system focused on people and their communities.” (OECD, 2020)
UHC2030	“A ‘PHC-oriented health system’ maximizes equity and solidarity and is composed of core structural and functional elements that support UHC and access to services that are acceptable to the population and enhance equity.” (UHC2030, 2022)
UNICEF	“[PHC] aims to address the majority of a person’s health needs throughout their lifetime. This includes physical, mental and social well-being and it is people-centred rather than disease-centred. PHC is a whole-of-society approach that includes health promotion, disease prevention, treatment, rehabilitation and palliative care. Through providing care within the community as well as through the community it addresses not only individual and household needs but also broader public health and the needs of particular populations.” (UNICEF, 2016, 2022)

Continued on next page

Organization	Definition of PHC
WHO Commission on Social Determinants of Health	"Primary health care (combining the PHC model of action on the social determinants of health and an emphasis on the primary level of care, with effective upwards referral) implies comprehensive, integrated, and appropriate care, emphasizing disease prevention and promotion." (CSDH, 2008)
World Bank	"A health- and social-service delivery platform uniquely designed to meet communities' health and health care needs across a comprehensive spectrum of services – including health services from promotive to palliative – in a continuous, integrated, and people-centred manner. Services provided by this platform are tailored to the socioeconomic and cultural ecology to which communities belong, as well as the financial and human resources of the health system within which the platform operates resiliently and sustainably. The platform ensures equitable access to quality health care and other services throughout people's life course, advancing universal health coverage and contributing to sustainable development." (Baris et al., 2022)

3.3.2 WHO Regional Offices

WHO's six regions have also emphasized different components and different applications of PHC, adding to its richness as well as its complexity. In the context of the 40th anniversary of the Declaration of Alma-Ata, all six WHO regional offices prepared reports on PHC outlining the successes, challenges and future policy directions of PHC implementation in their respective regions (PAHO, 2018; WHO Regional Office for Africa, 2018; WHO Regional Office for the Eastern Mediterranean, 2018; WHO Regional Office for Europe, 2018; WHO Regional Office for South-East Asia, 2018; WHO Regional Office for the Western Pacific, 2018).

While all regions acknowledged a commitment to PHC's core principles, used the definition of PHC as set out in the Declaration of Alma-Ata, and identified UHC as a common goal, the reports differed widely in their implementation priorities and, specifically, in the focus of the policies, strategies and action plans used for PHC-oriented health systems strengthening.

For example, in the European region and in the Americas, regional policies to put PHC in practice focused on *people-centred, integrated health services delivery and networks* (PAHO, 2011; WHO Regional Office for Europe, 2016). In the African region, a shared goal to accelerate progress on a PHC approach to services delivery built on the Ouagadougou Declaration on PHC (WHO Regional Office for Africa, 2008) and its implementation framework (Regional Committee for Africa, 2011), with a focus on *health district systems* and *community practice*. In the Eastern Mediterranean region, the Qatar Declaration on PHC focused on strengthening national health systems and prioritized a *family practice-based approach* to PHC (WHO Regional Office for the Eastern Mediterranean, 2008, 2010). Actions aligned with their respective regional strategic

priorities were similarly adopted to enable *PHC-oriented health systems* in the Western Pacific and South-East Asia regions (WHO Regional Office for the Western Pacific, 2010; WHO Regional Office for South-East Asia, 2021).

The regions' different areas of emphasis in implementing PHC reflect a number of factors including their different starting points, development level and, importantly, continuously evolving health threats and challenges (for example, emergencies, conflicts, natural disasters and climate change, outbreaks and epidemics, economic crisis), and health needs (for example, reproductive health, infectious diseases, NCDs).

3.3.3 Country level

Application of the term PHC has also varied between countries. Analysis of national plans and policies based on PATH's PHC policy tracker database shows that national governments tend to use the term "primary health care" (or local equivalents such as "*Soins de Santé Primaires*") in one of three ways (PATH, 2023). The most prevalent is as a synonym of *primary care services*, often discussed in the context of PHC "staff", "clinics" or "facilities", or referring to a care setting that includes community-based services. The fact that some languages do not have distinct terms for "primary health care" and "primary care" further contributes to their interchangeable use.

PHC is also used in national documents to refer to a level of care, in contrast to secondary and tertiary level services, but without specifying what services are or should be included. This reduces PHC to a narrow and limited sub-component of the whole health system. Much less commonly, the term PHC is used as intended in the Declaration of Alma-Ata, typically in the introductory statements and prefaces of documents, to describe an overall health system approach characterized by a core set of values, including solidarity, community empowerment and equity.

In short, while in theory many countries endorse a common notion of PHC as a whole-of-society approach to health, they differ in their application of PHC and often equate PHC with primary care. This is partly related to the fact that PHC implementation, by definition, builds on existing systems and structures, and reflects distinct local purposes and terminology, marked by local historical, cultural, political and economic factors, all of which impact the language and the understanding of PHC.

3.4 Defining primary care

3.4.1 The relationship between "primary care" and "primary health care"

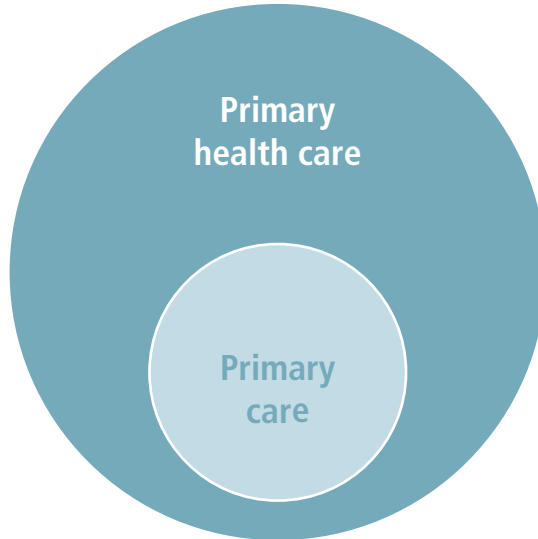
Primary care is the central focus and an integral component of PHC-oriented health systems (Tarlier, Johnson & Whyte, 2003). It is the orienting principle for organizing health services (Kringos et al., 2015).

The implementation of a PHC orientation requires high-quality primary care services and essential public health functions as the foundation for all integrated health services (Hone, Macinko & Millett, 2018). PHC and primary care services do not constitute

a separate “system”. Rather, they convey the guiding principles, identify the essential components and outline the foundational services required for the whole and undoubtedly unique PHC-oriented health system. The alternative to a PHC-oriented health system is one or several parallel and fragmented health systems whose inputs, processes and outputs are informed by various guiding principles (or the absence thereof) and are focused primarily on the uncoordinated and opportunistic delivery of services with inequitable and variable outcomes.

The Declarations of Alma-Ata and Astana clearly indicate that integrated health services, including primary care, constitute only *one* component – the service-fronting element – of the expansive concept that is PHC. Indeed, as noted earlier, PHC requires the coordinated actions of all sectors, including housing, education, transport, social welfare and beyond, as these all strongly influence health outcomes. Both Declarations call for the concerted efforts and partnership of government departments, service providers, non-governmental organizations, academics and community members to collaboratively build entire societies around the principles of equity, justice, community empowerment, and social and economic flourishing. To reduce this expansive “whole-of-society” approach to the sole remit of the health system, let alone primary care services delivery, does disservice to the bold vision of PHC.

As a more tangible and widely familiar “service” component of health systems, primary care has traditionally been a more visible centrepiece of PHC than the other two components (albeit often misunderstood as discussed below). While distinct, primary care and PHC are linked. PHC as an approach is a prerequisite for strong primary care. In facilitating equitable and intersectoral action on health, community-orientated services and participatory governance structures, it informs and shapes what and how primary care services are delivered (Hone, Macinko & Millett, 2018). Conversely, primary care services, in their scope, design, organization and delivery, translate the principles of PHC. For example, primary care can drive towards the principles and goals of PHC by engaging community-based health professionals, by empanelling patients as an accountability-enhancing mechanism, and by working with local groups to inform health and social service delivery. Primary care is optimally positioned to identify and draw attention to local determinants of health and community needs, and facilitate intersectoral engagement and linkages, especially through participatory approaches (Hone, Macinko & Millett, 2018). Primary care, then, as the core and foundation of all integrated health services, is a central and essential *component* of PHC (Fig. 3.2) (London School of Hygiene and Tropical Medicine, 2022).

Fig. 3.2 Primary care as a subset of PHC

Source: London School of Hygiene and Tropical Medicine, 2022

Nevertheless, because most people tasked with implementing PHC work in the health sector, it is almost inevitable that the operationalization of PHC tends to start (and unfortunately sometimes ends) with the organization and delivery of health services. A common approach to PHC implementation is to ground it in the development of strong primary care services that then build out to engage with communities and other sectors. While limited and potentially limiting, this approach is a natural starting point where PHC champions have no power beyond their own sector.

3.4.2 Functional definition of primary care

The Declaration of Alma-Ata defines primary care as: “the first level of contact for the population with the health care system, bringing health care as close as possible to where people live and work. It should address the main problems in the community, providing preventive, curative, and rehabilitation services” (WHO, 1978).

Building on this definition, Barbara Starfield articulated four *characteristics* of primary care, also well-known under the labels of four pillars, four tenets or simply the “4Cs of primary care” (Jimenez et al., 2021). They are “first contact, continuous, comprehensive, and coordinated care provided to populations undifferentiated by gender, disease, or organ system” (Starfield, 1994). Kringos et al. have further defined primary care as: “the first level of professional care service, where people present their health problems, and where the majority of the population’s curative and preventive health needs can be satisfied” (Kringos et al., 2010b).

Decades of research have refined the concept and explored the boundaries and inherent inter-relatedness of the primary care characteristics while also validating them as indicators of performance (WHO, 2008, 2018; WHO Regional Office for Europe, 2010b; Kringos, 2012; Tello & Barbazza, 2015; OECD, 2020; Jimenez et al., 2021). As a result, the “4Cs” are widely considered integral to most definitions of primary care and were referenced in the Declaration of Astana (WHO & UNICEF, 2018) and are used in this Primer (Box 3.2).

Box 3.2 The definition of primary care used in this Primer

“Primary care” can be defined by the core functions of first contact accessibility, comprehensiveness, continuity and coordination for person-centred services. This Primer views “primary care” as the core and foundation of all service-fronting *integrated health services*, which constitute one of three integral components of PHC, as put forward by the Astana Declaration. Because of primary care’s unique ability to drive towards the goals and principles of PHC, it is prioritized in PHC-oriented health systems.

First contact

First contact refers to primary care as “the first point of contact for the large majority of disease prevention activities as well as for acute and chronic health problems” (WHO, 2018). This definition highlights primary care’s role as the main entry point and interface between the population and the health system (Jimenez et al., 2021). Some proponents of primary care have emphasized that *users* should ultimately determine their preferential contact point with the health system (Paula et al., 2016). In some instances, such as in the event of a medical emergency, optimal care might call for first access outside the primary care setting for a given episode. Beyond the management of the urgent presentation and whatever related hospitalization is required, first contact access for follow-up by a primary care provider or team is likely to result in better long-term outcomes. In some settings, primary care can also serve as first contact for acute care needs, for example, providing after-hours care. A requirement for users to be assessed first by a primary care provider before being referred for investigations or specialized care is called gatekeeping (Starfield, 2005; WHO, 2018; Jimenez et al., 2021).

Evidence regarding the first contact function of primary care suggests that it enables appropriate referrals and specialist use and reduced hospitalizations (WHO, 2018; Jimenez et al., 2021). Policy changes to increase primary care’s first contact function like empanelment (enrolment) have been linked to performance gains such as improved patient experience, reduced costs and improved health outcomes (see Chapters 4 and 6) (Bodenheimer et al., 2014; Bearden et al., 2019; Marchildon et al., 2021).

Comprehensiveness

Comprehensiveness can be referred to as the “scope, breadth, and depth of primary care, including the competence to address health issues throughout the life course. Comprehensive primary care can respond to the majority of an individual’s health care needs, either through direct provision of care (for the vast majority of problems) or through referral to other levels of care or services” (WHO, 2018). Comprehensiveness in relation to the *scope* of services typically includes promotion, prevention, early diagnosis, curative, rehabilitative and palliative care (Jimenez et al., 2021). Comprehensive primary care has been associated with greater efficiency, improved care-seeking behaviours, better health and lower costs, predominantly via reduced unnecessary hospitalizations, increased uptake of preventive care, and reduced preventable complications (WHO, 2018; Jimenez et al., 2021).

Continuity

Continuity of care “results from the delivery of seamless coherent person-focused care over time across different care encounters and transitions of care” (WHO, 2018). It is distinct from, but related to, access and coordination, and involves an individual and a chronological dimension over time (Uijen et al., 2012). Three different types of continuity have been described: *informational* (the compilation of a person’s health information over time and across episodes in a single set of, or easily integrated, medical records, accessible as needed to various providers and increasingly, to users themselves); *management* (the consistent and coherent management of conditions over time); and *relational* (a sustained relationship between a patient or user and a clearly identified and accountable provider or team over the life course) (Haggerty et al., 2003; Salisbury et al., 2009; WHO Regional Office for Europe, 2010a). Relational continuity in primary care has been linked to better outcomes, improved cost-effectiveness, improved preventive care, fewer acute hospital visits and lower mortality, lower use of out-of-hours services, more personalized care and increased patient and provider satisfaction (van Walraven et al., 2010; Jimenez et al., 2021; Kiran et al., 2023).

Coordination

Coordination refers to primary care’s responsibility to “coordinate service delivery across the whole spectrum of health and social care services, including mental health services, long-term and social care, through integrated, functional and mutually supportive arrangements (including referral systems) for transitions and information-sharing along evidence-based care pathways” (WHO, 2018). Through coordination, primary care helps patients navigate transitions between providers and settings of care, for example, providing support and follow-up after a person is discharged from the hospital. In PHC-oriented health systems, primary care is also responsible for the coordination of services between primary, secondary and tertiary care services; between physicians and other providers; between medical, preventive and social services; and between public and private services as required to address the specific health needs of a person (Jimenez et al., 2021). The coordination function

is supported by patient empanelment (enrolment) as each patient is linked to a clearly identified primary care provider (and/or team) who assumes responsibility for maintaining a holistic overview of their care needs. The term coordination is sometimes used interchangeably with *integration*; however, definitions of integration capture a broader concept entailing the provision of comprehensive and continuous services to provide seamless care (Valentin et al., 2013). Optimizing the coordination of primary care has been linked to more appropriate care, overall quality and health status, reducing redundancies, fragmentation and errors (Jimenez et al., 2021).

Other characteristics of primary care

Beyond the “4Cs”, some definitions have added *person-centredness* which is implicit in continuity, first contact access and comprehensiveness. It is made explicit and is emphasized in the Declaration of Astana, which underscores that primary care is “centred on the whole person, in health and in sickness, taking into consideration the full physical, mental and social circumstances rather than focusing on a specific organ, stage of life or subpopulation” (WHO, 2018).

Community-based is another characteristic of primary care, where community refers to a “place”, capturing its delivery in close proximity with where people live or work. *Community-focused* or *community-informed* are also used and refer to the fact that primary care is focused not only on the individual but on their family and community-level health. This echoes the association of primary care and essential public health functions in the concept of PHC used in this volume (Chapter 5) (OECD, 2020). *Community-control* is yet another term that highlights a governance dimension of primary care with services that are designed in the spirit of self-determination to be culturally appropriate and responsive to local community health needs (Lavoie et al., 2016). Community involvement and control has been operationalized through a broad range of community governance models and types of community health committees, especially by Indigenous communities in countries such as Australia, Canada, New Zealand and the United States of America (USA) (Lavoie et al., 2016; Campbell et al., 2018; Jongen et al., 2020).

3.4.3 Other definitions and dimensions of primary care

Other definitions of primary care have been put forward over time. The Institute of Medicine proposes a *clinician-based* definition of primary care as the “provision of integrated, accessible health care services by clinicians who are accountable for addressing most personal health care needs, developing a sustained partnership with patients and practising in the context of family and community” (Institute of Medicine, 1994). Others have used a wide variety of terms and labels to describe primary care according to primary care service delivery settings, activities or services (Integrated People-Centred Health Services, 2019), and types of professionals and providers as described below (Sarkar et al., 2011) (Table 3.2).

Table 3.2 Illustrative examples of terms used to commonly characterize primary care settings, services and health and care workers

Settings	Services	Health and care workers
Offices of general practitioner/family doctor (single practice, group practice, teams, networks)	Mother and child services	General practitioners/family physicians
Multiprofile group practices	Health promotion	District therapists
Community health centres	Disease prevention	District paediatric doctors
Polyclinics	Immunizations	Narrow specialists
Nurse practitioner-led teams	Family planning	Paediatricians
Nurse and midwife offices	Behaviour change communication	Nurses/midwives
Feldsher assistant points	Counselling	Nurse practitioners
Health posts	Health education	Feldschers
Indigenous health centres	Screening (e.g., sexually transmitted infections, cancers, etc.)	Traditional birth attendants
Family planning centres	Management of diseases	Traditional health practitioners
Mobile clinics	Treatment for priority infectious diseases (HIV/AIDS, tuberculosis, malaria)	Village health workers
Rural health centres	First aid	Social workers
Walk-in clinics	Non-inpatient minor surgery	Assistant medical officers
Nursing homes	Prescription/dispensing for basic drugs	Medical technicians
Pharmacies	Referral to secondary services	Community health workers
Rehabilitation centres/clinics	Diagnostic services	Care coordinators
Dental practices	Rehabilitation	Patient navigators
Schools	Certification	Dietitian/nutritionists
<i>Others</i>	24-hour availability	Occupational therapists
	Home visits	Speech therapists
	Palliative care	Physiotherapists
	Mental health services	Psychologists (mental health care workers, community psychiatrists)
	Therapeutic care (physiotherapy, speech therapy, etc.)	Public health specialists
	Long-term care	Specialist medical practitioners
	Telehealth services	Pharmacists/pharmacy assistants
	School health services	Dentists/dental assistants
	Community nursing and paramedical services	Optometrists/opticians
	Community engagement	Epidemiologists
	Dental services	<i>Others</i>
	<i>Others</i>	

Note: This list is not exhaustive.

Sources: Adapted from existing reviews and classifications, namely: Tello & Barbazza, 2015; OECD, Eurostat & WHO, 2017; WHO, 2017

- **Services delivery settings.** Comprehensive primary care services can be delivered in a wide range of settings including single-practice offices, polyclinics, walk-in clinics, homes, community health centres, mobile clinics and aboriginal health access centres, among others. The System of Health Accounts (OECD, Eurostat & WHO, 2017) – an accounting framework for tracking health spending – defines *ambulatory* settings as “establishments that are primarily engaged in providing health care services directly to outpatients who do not require inpatient services”. According to this definition, subsets of primary care services can also be delivered in various ambulatory settings including medical clinics, dental clinics, preventive health centres, rehabilitation clinics and clinics for other types of primary care services, community settings (such as immunization clinics in schools) and at home. While primary care is typically delivered in ambulatory settings, conversely, ambulatory services can include either primary, secondary (specialist) and even tertiary (dialysis) services. Furthermore, where the delivery of primary care services does not purposefully achieve or strive to achieve the key functions of continuity, comprehensiveness, coordination and person-centredness, it cannot be expected to deliver the full benefits expected of the PHC-oriented process defined as primary care. Importantly, the widespread digitalization of primary care has enabled access to remote virtual care. While its benefits, such as increased access, are undeniable, debate is ongoing about the impact of primary care delivered exclusively through virtual encounters on comprehensiveness, continuity and the relational dimension of person-centredness, and how these might in turn affect outcomes.
- **Types of services.** Primary care services include a broad continuum of promotive, preventive, diagnostic, curative, rehabilitative and palliative services delivered across the life course (Perry, 2018; WHO, 2018). The International Classification of Primary Care (ICPC) is the guiding classification system for the *content* of primary care. It provides a structured approach and a common starting point to identify primary care services (WONCA, 2016). As discussed above, in PHC-oriented health systems, primary care should strive towards having the capacity to effectively address most health needs close to where people live and work (WHO & UNICEF, 2018). Moreover, what is included in primary care will vary across settings depending on regulatory frameworks and available resources including facility readiness and the availability and competency of the health work force.
- **Types of health and care workers.** Primary care is delivered by a wide range of health and care workers with varying skills, competencies, roles and responsibilities (Table 3.2) (Göktaş, 2022). Furthermore, the scope and core competencies of any given type of health and care worker can vary across jurisdictions. For example, beyond a common core, the scope and competencies of family physicians/GPs vary widely around the world. The National Health Workforce Accounts (NHWA) offers some standardization of the health work force for the purpose of international comparisons by type of education and training, largely focused on physicians (WHO, 2017). WHO recently developed a universal competency framework for health workers in primary care, including mid-range health workers, that outlines expected or achievable competencies for quality in UHC (WHO, 2022) (see also Chapter 8).

Importantly, these characterizations of primary care according to specific input (facilities and workforce) or output (services) offer a limited and fragmented perspective on primary care. Without clarity about their mutual interaction and their configuration into models of care, they are of limited use for policy-makers. The categories themselves also face limitations, as existing systems of classification for primary care settings and health professionals fail to capture the diversity that exists within primary care (Table 3.2). For example, disaggregated information about the number, profile and role of nurses in primary care cannot be readily extracted from commonly used databases, making this information impractical for the purpose of primary care and PHC strengthening.

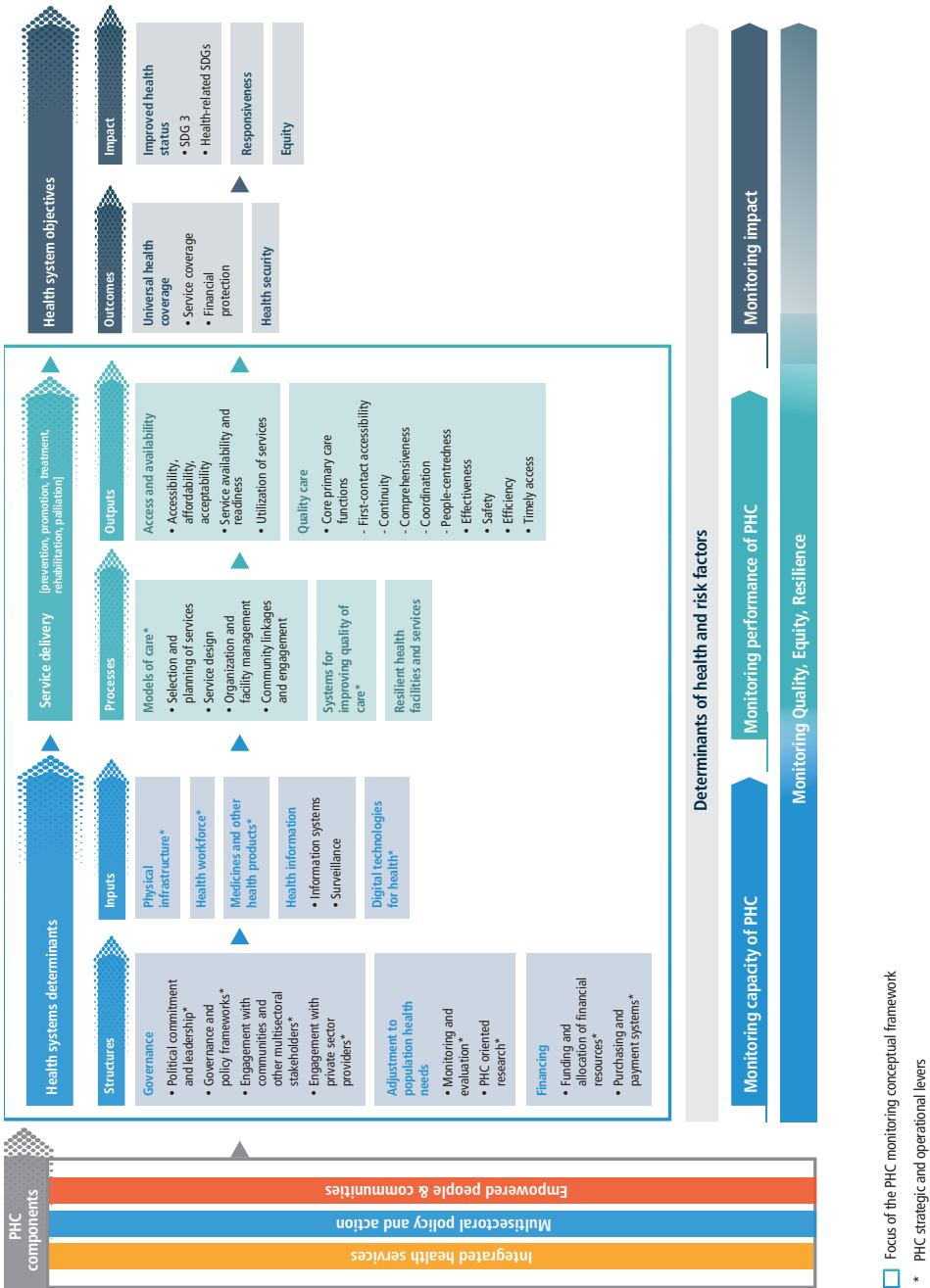
In addition, the boundaries of primary care are fluid and continuously evolving, based on population needs, encompassing a wide range of services from minor surgery and low-risk obstetrics to palliative care and sports medicine. The extent to which these services are considered primary or secondary care is a continuum, influenced by the frequency of presentations, the level of expertise required and the capacity to address these needs. Primary care providers and teams may adapt and expand their capabilities over time, especially in situations where alternative options are limited, such as during the COVID-19 pandemic.

3.4.4 Frameworks

At the request of Member States, and building on previous guidance, two frameworks have been developed to support the implementation of PHC and of its primary care component in line with the vision and global commitments put forward in the Declaration of Astana. They include the “WHO Operational Framework for Primary Health Care” and the related “PHC Measurement Framework and Indicators” (WHO, 2020; WHO & UNICEF, 2022). The PHC *operational framework* identifies 14 interdependent, interrelated and mutually reinforcing “levers” that can be “actioned” to align health systems along a PHC approach (see Fig. 1.2 in Chapter 1). The levers are clustered into four core strategic levers and ten operational levers. Each of the operational levers is explored in a separate chapter in Part II of this Primer.

The related *measurement framework* aims to support monitoring and improvement of PHC performance within and across countries. It integrates and organizes the 14 levers of the PHC operational framework and their related indicators in a result chain (inputs, processes, outputs, outcomes and impact), outlining capacity, performance and impact. The monitoring framework serves as a tool for the development of performance information to inform PHC strengthening via continuous learning and improvement (Fig. 3.3). Domains related to the outputs, outcomes and impact of PHC are explored in detail in Part III (Chapters 14, 15 and 16) of this Primer.

Fig. 3.3 WHO PHC monitoring conceptual framework to support the operationalization and measurement of PHC following the Declaration of Astana



Source: WHO & UNICEF, 2022

PHC frameworks are constantly evolving. The operational and monitoring frameworks draw on earlier work. The operational framework builds on well-established health systems building blocks and integrates components of the 2016 WHO framework on integrated, people-centred health services (WHO, 2007, 2016). Similarly, the monitoring framework consolidates measurement domains and indicators from more than twenty different frameworks, such as the Primary Health Care Activity Monitor for Europe (Kringos et al., 2010a), the Primary Health Care Performance Initiative (Primary Health Care Performance Initiative, 2015; Veillard et al., 2017), and WHO European Primary Care Impact, Performance and Capacity Tool (PHC-IMPACT) (WHO Regional Office for Europe, 2019b). In doing so, both frameworks reflect continued progress in the operationalization and measurement of PHC over time. Nonetheless, both frameworks remain heavily skewed towards “primary care”. This may reflect the fact that early frameworks like the Primary Care Assessment Tool (PCAT) (Shi, Starfield & Xu, 2001), the Primary Care Evaluation Tool (PCET) (WHO Regional Office for Europe, 2010a), and the Components of Primary Care Instrument (CPCI) (Flocke, 1997) were in fact primary care-specific tools and instruments. It also reflects the persistent and inherent challenge in implementing and assessing PHC comprehensively.

Importantly, “primary health care” and “primary care” are also embedded within other operational and measurement frameworks. For example, in health system performance assessment frameworks, primary care is often one component or area of focus (Papanicolas et al., 2022). This is demonstrated in the Organisation for Economic Co-operation and Development (OECD)’s health care quality and outcomes measurement (Arah et al., 2006), where a subset of indicators are focused specifically on primary care. Relatedly, measurement of primary care often leverages data sources from other parts of the health system. For example, measuring the management of ambulatory care sensitive conditions – conditions closely tied to the quality of primary care services – typically relies on hospital data (admissions/discharges). This may reflect in part primary care’s functions (i.e., coordination), though may also relate to data constraints that have traditionally characterized a key challenge for PHC measurement, creating a dependence on alternative data sources (see Chapter 12).

Furthermore, as with the different definitions of PHC, PHC frameworks also reflect different purposes and uses. This is evident, for example, in the context of improvement priorities, in the differences between the Primary Health Care Performance Initiative (PHCPI) (Veillard et al., 2017), developed for low- and middle-income countries (LMICs), and that of the PHC-IMPACT framework, developed for the European context (Barbaza et al., 2019; WHO Regional Office for Europe, 2019a, 2019b). Similarly, the PHC measurement framework and indicators have already been tailored to meet the needs of the Eastern Mediterranean region (Letaief et al., 2021) and for country-specific uses, for example in Iran (Rezapour et al., 2022).

3.5 Conclusion

Acknowledging that PHC is a complex concept, this chapter clarifies that, in this Primer, the concept of the PHC approach as laid out in the Declaration of Astana is used, encompassing the three components of public health: primary care integration, community engagement and empowerment, and multisectoral action.

The following conclusions are noted. First, the Declaration of Alma-Ata offers enduring guidance on the principles and values of PHC (see Chapter 1). The Declaration of Astana reiterated the vision of Alma-Ata and explicitly outlined PHC's three inseparable and mutually influential components. These Declarations have served as clear guidance for the implementation of PHC in countries, across WHO regions and by international organizations, with some variability in the extent to which implementation and priorities reflect the full and comprehensive concept of PHC. These differences underscore the importance of discerning the influence of varied perspectives and contexts on PHC definitions.

Second, a functional definition of "primary care", based on core characteristics, is more actionable for the purpose of PHC strengthening. This is in contrast to less useful descriptive categorizations of primary care according to settings, services or types of health and care professionals, which reduce primary care (and PHC more broadly) to individual inputs and overly simplistic classification systems.

Third, frameworks developed based on the Declaration of Astana offer guidance to operationalize and measure PHC. They reflect the continued refinement of tools that enable the implementation and monitoring of PHC, albeit with an enduring focus on "primary care".

Ultimately, clarity of definitions, terms and frameworks related to PHC is more than an issue of semantics. While the coexistence of multiple definitions, terms and frameworks is unavoidable and reflects a multiplicity of actors, contexts and purposes, striving for more consistency in our language is key to effective collective efforts to strengthen PHC.

REFERENCES

- Abimbola S (2021). The uses of knowledge in global health. *BMJ Glob Health*, 6:e005802.
- Allen LN (2022). The philosophical foundations of “health for all” and Universal Health Coverage. *Int J Equity Health*, 21:155.
- Arah OA et al. (2006). A conceptual framework for the OECD Health Care Quality Indicators Project. *Int J Qual Health Care*, 18:5–13.
- Barbazza E et al. (2019). Creating performance intelligence for primary health care strengthening in Europe. *BMC Health Serv Res*, 19:1006.
- Baris E et al. (2022). *Walking the talk: Reimagining primary health care after COVID-19*. Washington, DC: World Bank.
- Barkley S et al. (2022). Health Systems Based on Primary Health Care. In: Mataria A, Rouleau KD, Iqbal M, Siddiqi S (Eds.). *Making Health Systems Work in Low and Middle Income Countries: Textbook for Public Health Practitioners*. Cambridge: Cambridge University Press.
- Bearden T et al. (2019). Empanelment: a foundational component of primary health care. *Gates Open Res*, 3:1654.
- Bodenheimer T et al. (2014). The 10 Building Blocks of High-Performing Primary Care. *Ann Fam Med*, 12:166.
- Campbell MA et al. (2018). Contribution of Aboriginal Community-Controlled Health Services to improving Aboriginal health: an evidence review. *Aust Health Rev*, 42:218–26.
- CSDH (2008). *Closing the gap in a generation: health equity through action on the social determinants of health. Final report of the Commission on Social Determinants of Health*. Geneva: World Health Organization.
- Cupertino de Barros FP et al. (2022). Primary health care “From Alma-Ata to Astana”: Fostering the international debate through the experiences of Portuguese-speaking countries. *Int J Health Plann Manage*, 37:2528–33.
- Flocke (1997). Measuring attributes of primary care: development of a new instrument. *J Fam Pract*, 45:64–74.
- Frenk J (2009). Reinventing primary health care: the need for systems integration. *Lancet*, 374:170–3.
- Global Financing Facility (2020). *Protecting, promoting and accelerating health gains for women, children and adolescents: Global financing facility 2021–2025 strategy*. Washington, DC: World Bank Group.
- Göktaş O (2022). The Göktaş definition of family medicine/general practice. *Aten Primaria*, 54:102468.
- Haggerty JL et al. (2003). Continuity of care: a multidisciplinary review. *BMJ*, 327:1219–21.
- Hone T, Macinko J, Millett C (2018). Revisiting Alma-Ata: what is the role of primary health care in achieving the Sustainable Development Goals? *Lancet*, 392:1461–72. Available at: <https://www.sciencedirect.com/science/article/pii/S0140673618318294> (accessed 26 July 2023).
- Institute of Medicine (1994). *Defining primary care: an interim report*. In: Donaldson M, Yordy K, Vanselow N (Eds). *Committee on the Future of Primary Health Care*. Washington, DC: National Academies Press.

- Institute of Medicine Committee on the Future of Primary Care (1994). Part 2, Earlier definitions of primary care: a review. In: Donaldson M, Yordy K, Vanselow N (Eds). Committee on the Future of Primary Health Care. Washington, DC: National Academies Press.
- Integrated People-Centred Health Services (2019). Explore IntegratedCare4People [Online]. Available at: <https://www.integratedcare4people.org/> (accessed 26 July 2023).
- Jimenez G et al. (2021). Revisiting the four core functions (4Cs) of primary care: operational definitions and complexities. *Prim Health Care Res Dev*, 22:e68.
- Jongen C et al. (2020). Transitioning to Aboriginal community control of primary health care: the process and strategies of one community-controlled health organisation in Queensland. *BMC Fam Pract*, 21:230.
- Kagubare J (2020). Primary health care is exactly that [Online]. Bill and Melinda Gates Foundation. Available at: <https://www.gatesfoundation.org/ideas/articles/coronavirus-jean-kagubare-phc#:~:text=PHC%20is%20precisely%20what%20the,HIV%2C%20TB%2C%20and%20malaria> (accessed 26 July 2023).
- Kiran T et al. (2023). Relational Continuity, Physician Payment, and Team-Based Primary Care in the Canadian Health Care System. *J Am Board Fam Med*, 36(1):130–41.
- Kringos D (2012). General introduction. The strength of primary care in Europe. Utrecht: Nivel.
- Kringos DS et al. (2010a.) The European primary care monitor: structure, process and outcome indicators. *BMC Fam Pract*, 11:81.
- Kringos DS et al. (2010b). The breadth of primary care: a systematic literature review of its core dimensions. *BMC Health Serv Res*, 10:65.
- Kringos DS et al. (eds) (2015). Building primary care in a changing Europe [Internet]. Copenhagen: European Observatory on Health Systems and Policies.
- Lavoie JG et al. (2016). Responding to health inequities: Indigenous health system innovations. *Glob Health, Epidemiology Genom*, 1:e14.
- Letaief M et al. (2021). Implementation research on measuring quality in primary care: balancing national needs with learning from the Eastern Mediterranean Region. *Int J Qual Health Care*, 33(3):mzab119. doi: 10.1093/intqhc/mzab119.
- Levesque J-F et al. (2013). The Interaction of Public Health and Primary Care: Functional Roles and Organizational Models that Bridge Individual and Population Perspectives. *Public Health Rev*, 35:14.
- London School of Hygiene and Tropical Medicine (2022). Seminar Session 2: What Is Primary Health Care? [Online]. LSHTM. Available at: <https://www.lshtm.ac.uk/newsevents/events/what-primary-health-care> (accessed 26 July 2023).
- Marchildon GP et al. (2021). Achieving higher performing primary care through patient registration: a review of twelve high-income countries. *Health Policy*, 125:1507–16.
- Muldoon LK, Hogg WE, Levitt M (2006). Primary care (PC) and primary health care (PHC). What is the difference? *Can J Public Health*, 97:409–11.
- OECD (2020). Realising the potential of primary health care. OECD Health Policy Studies. Paris: OECD Publishing.

- OECD, Eurostat, WHO (2017). *A system of health accounts 2011: Revised edn*. Paris: OECD.
- PAHO (2011). *Integrated Health Service Delivery Networks: Concepts, Policy Options and a Road Map for Implementation in the Americas*. Washington, DC: Pan American Health Organization. Available at: <https://iris.paho.org/handle/10665.2/312169> (accessed on 17 April 2024).
- PAHO (2018). *Regional report. Primary health care 40 years of Alma-Ata. Situation in the Americas*. Washington, DC: Pan American Health Organization. Available at: https://www.who.int/docs/default-source/primary-health-care-conference/phc-regional-report-americas.pdf?sfvrsn=4afe25c7_2 (accessed on 17 April 2024).
- Papanicolas I et al. (2022). *Health system performance assessment: a framework for policy analysis*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240042476> (accessed on 17 April 2024).
- PATH (2023). *PHC Policy Tracker: PHC policy tracker dashboard* [Online]. Available at: <https://www.path.org/programs/advocacy-and-policy/phc-policy-tracker/> (accessed 26 July 2023).
- Paula WK et al. (2016). Primary health care assessment from the users' perspectives: a systematic review. *Rev Esc Enferm USP*, 50:335–45.
- Perry HB (2018). An extension of the Alma-Ata vision for primary health care in light of twenty-first century evidence and realities. *Gates Open Res*, 2:70.
- Primary Health Care Performance Initiative (2015). *Primary Health Care Performance Initiative: Methodology Note*. Washington, DC: Primary Health Care Performance Initiative.
- Rajan D et al. (2021). *Voice, agency, empowerment – handbook on social participation for universal health coverage*. Geneva: World Health Organization. Available at <https://www.afro.who.int/publications/ouagadougou-declaration-primary-health-care-and-health-systems-africa> (accessed on 17 April 2024).
- Ramírez NA et al. (2011). Comprehensive primary health care in South America: contexts, achievements and policy implications. *Cad Saude Publica*, 27:1875–90.
- Rasanathan K, Evans TG (2020). Primary health care, the Declaration of Astana and COVID-19. *Bull World Health Organ*, 98:801–8.
- Regional Committee for Africa (2011). *Framework for the implementation of the Ouagadougou Declaration on Primary Health Care and Health Systems in Africa: achieving better health for Africa in the new Millennium: Report of the Regional Director*.
- Rezapour R et al. (2022). Developing Iranian sub-national Primary Health Care Measurement Framework: a study protocol. *Prim Health Care Res Dev*, 23:e62.
- Salisbury C et al. (2009). How should continuity of care in primary health care be assessed? *Br J Gen Pract*, 59:e134–41.
- Sarkar U et al. (2011). Patient-physicians' information exchange in outpatient cardiac care: time for a heart to heart? *Patient Educ Couns*, 85:173–9.
- Sheaff R (1998). What is "primary" about primary health care? *Health Care Anal*, 6:330–40.
- Shi L, Starfield B, Xu J (2001). Validating the adult primary care assessment tool. *J Fam Pract*, 50:161–4.

- Shoultz J, Hatcher PA (1997). Looking beyond primary care to primary health care: an approach to community-based action. *Nurs Outlook*, 45:23–6.
- Starfield B (1994). Is primary care essential? *Lancet*, 344:1129–33.
- Starfield BS (2005). *Primary care assessment tools*. Baltimore: John Hopkins University.
- Tarlier DS, Johnson JL, Whyte NB (2003). Voices from the wilderness: an interpretive study describing the role and practice of outpost nurses. *Can J Public Health*, 94:180–4.
- Tello J, Barbazza E (2015). *Health services delivery: a concept note*. Copenhagen: WHO Regional Office for Europe.
- UHC2030 (2022). *Action on health systems for universal health coverage and health security: a UHC2030 strategic narrative to guide advocacy and action*. UHC2030.
- Uijen AA et al. (2012). How unique is continuity of care? A review of continuity and related concepts. *Fam Pract*, 29(3):264–71. doi: 10.1093/fampra/cm104.
- UNICEF (2016). *Strategy for health 2016–2030*. New York: UNICEF.
- UNICEF (2022). *Path to progress: the COVID-19 response as a catalyst for strengthening health and immunisation systems*. United Kingdom: UNICEF.
- Valentijn PP (2013). Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care. *Int J Integr Care*, 13:e010. doi: 10.5334/ijic.886.
- Van Walraven C et al. (2010). The association between continuity of care and outcomes: a systematic and critical review. *J Eval Clin Pract*, 16:947–56.
- Veillard J et al. (2017). *Better Measurement for Performance Improvement in Low- and Middle-Income Countries: The Primary Health Care Performance Initiative (PHCPI) Experience of Conceptual Framework Development and Indicator Selection*. *Milbank Q*, 95:836–83.
- Walraven G (2019). The 2018 Astana Declaration on Primary Health Care, is it useful? *J Glob Health*, 9(1). doi:10.7189/jogh.09.010313.
- White F (2015). Primary health care and public health: foundations of universal health systems. *Med Princ Pract*, 24:103–16.
- WHO (1978). *Declaration of Alma-Ata*. World Health Organization. Available at: https://cdn.who.int/media/docs/default-source/documents/almaata-declaration-en.pdf?sfvrsn=7b3c2167_2 (accessed 26 July 2023).
- WHO (2007). *Everybody's business: strengthening health systems to improve health outcomes*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/everybody-s-business---strengthening-health-systems-to-improve-health-outcomes> (accessed on 17 April 2024).
- WHO (2008). *The World Health Report: Primary health care now more than ever*. Geneva: World Health Organization. Available at: <https://www.who.int/director-general/speeches/detail/primary-health-care---now-more-than-ever> (accessed on 17 April 2024).
- WHO (2016). *Framework on integrated, people-centred health services*. Geneva: World Health Organization. Available at: https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_39-en.pdf (accessed on 17 April 2024).

- WHO (2017). National Health Workforce Accounts: a handbook. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241513111> (accessed on 17 April 2024).
- WHO (2018). Declaration of Astana. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.61> (accessed 18 September 2023).
- WHO (2020). Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240017832> (accessed on 17 April 2024).
- WHO (2022). Global Competency Framework for Universal Health Coverage. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240034686> (accessed on 17 April 2024).
- WHO Regional Office for Africa (2008). Ouagadougou Declaration on Primary Health Care and Health Systems in Africa: Achieving Better Health for Africa in the New Millennium. WHO Regional Office for Africa. Available at: <https://www.afro.who.int/publications/ouagadougou-declaration-primary-health-care-and-health-systems-africa> (accessed on 17 April 2024).
- WHO Regional Office for Africa (2018). Primary health care programme in the WHO African Region from Alma-Ata to Ouagadougou and beyond. WHO Regional Office for Africa. Available at: https://www.who.int/docs/default-source/primary-health-care-conference/phc-regional-report-africa.pdf?sfvrsn=73f1301f_2 (accessed on 17 April 2024).
- WHO Regional Office for the Eastern Mediterranean (2008). Primary health care.
- WHO Regional Office for the Eastern Mediterranean (2010). Progress report on strengthening primary health care-based health systems. Available at https://applications.emro.who.int/docs/EM_RC57_inf_doc_4_en.pdf (accessed on 17 April 2024).
- WHO Regional Office for the Eastern Mediterranean (2018). Report on primary health care in the Eastern Mediterranean Region: review of progress over the last decade (2008–2018). Cairo: WHO Regional Office for the Eastern Mediterranean. Available at: https://www.who.int/docs/default-source/primary-health-care-conference/phc-regional-report-eastern-mediterranean.pdf?sfvrsn=2a5a2528_2 (accessed on 17 April 2024).
- WHO Regional Office for Europe (2010a). Primary care evaluation tool. Copenhagen: WHO Regional Office for Europe.
- WHO Regional Office for Europe (2010b.) Primary care evaluation tool [Online]. Copenhagen: WHO Regional Office for Europe. Available at: http://www.euro.who.int/_data/assets/pdf_file/0004/107851/PrimaryCareEvalTool.pdf?ua=1 (accessed 26 July 2023).
- WHO Regional Office for Europe (2016). Strengthening people-centred health systems in the WHO European Region: framework for action on integrated health services delivery Regional Committee for Europe 66th Session. Copenhagen: WHO Regional Office for Europe. Available at: https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_39-en.pdf (accessed on 17 April 2024).

- WHO Regional Office for Europe (2018). From Alma-Ata to Astana: Primary health care – reflecting on the past, transforming for the future. Copenhagen: WHO Regional Office for Europe. Available at: <https://www.who.int/docs/default-source/primary-health-care-conference/phc-regional-report-europe.pdf> (17 April 2024).
- WHO Regional Office for Europe (2019a). Glossary of terms: WHO European Primary Health Care Impact, Performance and Capacity Tool (PHC-IMPACT). Copenhagen WHO Regional Office for Europe. Available at: <https://iris.who.int/handle/10665/346481> (accessed on 17 April 2024).
- WHO Regional Office for Europe (2019b). Indicator passports: WHO European Primary Health Care Impact, Performance and Capacity Tool (PHC-IMPACT). Copenhagen: WHO Regional Office for Europe. Available at: <https://iris.who.int/handle/10665/346478> (accessed on 17 April 2024).
- WHO Regional Office for South-East Asia (2018). Primary health care at forty: reflections from South-East Asia. New Delhi: WHO Regional Office for South-East Asia. Available at: <https://www.who.int/docs/default-source/primary-health-care-conference/phc-regional-report-south-east-asia.pdf?sfvrsn=1c2a8e85> (accessed on 17 April 2024).
- WHO Regional Office for South-East Asia (2021). South-East Asia regional strategy for primary health care: 2022–2030, New Delhi, WHO Regional Office for South-East Asia. Available at: <https://www.who.int/publications/i/item/9789290229094> (accessed on 17 April 2024).
- WHO Regional Office for the Western Pacific (2010). Western Pacific Regional strategy for health systems based on the values of primary health care. Manila, Philippines: WHO Regional Office for the Western Pacific. Available at: https://iris.who.int/bitstream/handle/10665/207483/9789290615019_eng.pdf?sequence=1&isAllowed=y (accessed on 17 April 2024).
- WHO Regional Office for the Western Pacific (2018). Primary health care in the Western Pacific Region: looking back and future directions. Manila, Philippines: WHO Regional Office for the Western Pacific. Available at: https://www.who.int/docs/default-source/primary-health-care-conference/phc-regional-report-western-pacific.pdf?sfvrsn=5fbff145_2 (accessed on 17 April 2024).
- WHO, UNICEF (2018). A vision for primary health care in the 21st century: Towards universal health coverage and the Sustainable Development Goals. Geneva: World Health Organization/United Nations Children's Fund. Available at: <https://www.who.int/docs/default-source/primary-health/vision.pdf> (accessed on 17 April 2024).
- WHO, UNICEF (2022). Primary health care measurement framework and indicators: monitoring health systems through a primary health care lens. Geneva: World Health Organization/United Nations Children's Fund. Available at: <https://www.who.int/publications/i/item/9789240044210> (accessed 17 April 2024).
- WONCA (2016). International classification of primary care. World Organization of Family Doctors.
- WONCA Europe (2005, revised 2023). The European definition of general practice/family medicine.
- World Health Assembly (2014). Contributing to social and economic development: sustainable action across sectors to improve health and health equity. Sixty-seventh World Health Assembly.

4

The PHC approach: rationale for orienting health systems

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Key messages

- Primary health care (PHC) is a worthwhile investment because it makes care more efficient and more equitable. More than that, PHC has a positive impact on overall health system performance, improving access, quality and patient satisfaction. Securing the political will to invest in PHC is complex, but the evidence shows that the long-term benefits of reorienting the system outweigh the costs.
- PHC improves services because it uses a full range of levers for better quality and access, as well as to ensure continuity, comprehensiveness and coordination.
- Efficiency is enhanced by PHC, which reduces unnecessary use of (costly) specialists and hospitals.
- Population health improves with long-term investment in PHC, which is linked to better health outcomes including for mental and child health and noncommunicable diseases (NCDs).
- PHC is provided in a trusted setting where the patient, family and community context are understood, which leads to higher user satisfaction and better self-reported health.
- PHC reduces financial hardship, narrows outcome gaps and improves equity, particularly when adequate funding, staffing and training allow it to reach underserved populations.
- Long-term commitment to PHC has a wider return on investment, keeping people well enough to work and stimulating economic productivity.
- Gender equity is promoted where PHC offers valued roles to women – provided they are given the right training and employment terms and if gender imbalances in seniority and pay are addressed.
- Emergency preparedness and resilience are reinforced by PHC's prevention function, the way it bridges individual and population-level approaches and its multidisciplinary approach, but also through the ties it creates with and within communities.

4.1 Introduction

This chapter presents the rationale for prioritizing and investing in PHC by presenting its impact on various dimensions of health system performance. These dimensions of health system performance include quality and access, efficiency, equity, people-centredness, financial protection and overall health improvement (Rajan et al., 2022). Furthermore, the chapter delves into the broader question of how PHC contributes to societal goals such as well-being, economic development and environmental sustainability.

PHC has been examined from diverse perspectives, contributing to a comprehensive understanding of its impact. While understanding of all components of PHC is evolving, most research on PHC performance over the past decades has concentrated on services provided at the first contact level of the health system. Consequently, in making the case for investment in PHC-oriented health systems, this aspect of PHC is emphasized in the evidence review. Research focusing on the impact on health system performance of multisectoral policy and action and of empowered communities is under way and will continue to inform PHC performance assessment in the future.

This chapter deciphers the relationship between PHC strengthening interventions and their outcomes. By examining the nuances within the evidence base, it provides readers with a clearer understanding of the specific interventions and attributes that have linked PHC to better outcomes, better value and better equity. Real-life examples from countries such as Brazil, Ethiopia, Kazakhstan and Viet Nam demonstrate that a decades-long commitment to PHC is needed to yield significant improvements across multiple performance dimensions. To conclude, the chapter offers insights into optimizing the implementation of PHC to achieve the best possible outcomes.

4.2 Evidence review: what are the returns on investing in PHC?

This section summarizes evidence on the potential gains from investing in PHC-oriented integrated health services, considering in turn its impact on health system performance and societal goals. Acknowledging their mutual influence, the impact of PHC-orienting interventions on the following is presented in turn: quality and access, efficiency, overall health outcomes and effectiveness, equity, and demand-side factors such as user satisfaction and responsiveness/people-centredness. With regards to broader societal goals, impact on non-health Sustainable Development Goal (SDGs), labour and economic productivity, and gender equity is considered.

4.2.1 PHC improves quality of care and access to services

The purposeful implementation of high-quality primary care as the core of integrated health services improves access to services and quality of care. Low- and middle-income countries (LMICs), with policies and interventions that prioritize PHC, especially through financing strategies, workforce development and community engagement,

have improved access and quality, with most achieving sustained progress over time (Levine, Landon & Linder, 2019). Research has also consistently found a moderate to strong correlation between core primary care characteristics (such as first contact access, continuity, comprehensiveness and coordination – also known as the “4Cs”) and improved access and quality (Bitton et al., 2019). For example, an American study revealed that individuals who had a regular primary care provider (continuity) reported enhanced access and a more positive health care experience (Levine, Landon & Linder, 2019). The involvement of community health workers, a key feature of PHC-oriented service delivery, has also been identified as a way of enhancing access to care and improving the user experience (Bitton et al., 2019).

Nevertheless, there is wide heterogeneity in the impact of PHC across different settings, a scarcity of high-quality studies overall, and limited information about various system inputs (for example, facility infrastructure, information systems and models of care (see Part II of this Primer). Consequently, there is an urgent need for more robust research to comprehensively assess the impact of PHC on access and quality given that many countries face the challenge of people seeking medical care directly from specialists in hospital outpatient settings, bypassing primary care services. This phenomenon reaffirms the need for more evidence to inform policies that ensure first contact access and continuity in primary care but also the importance of cultivating trust to drive primary care utilization among users.

4.2.2 PHC improves health system efficiency

The rationale for prioritizing primary care as the core of integrated health services is closely tied to its impact on efficiency, which measures the degree to which health system inputs achieve health system objectives. Studies have linked investments in PHC-oriented primary care services to reduced use of specialists and hospital services. Strong primary care has been associated with lower rates of unnecessary hospitalizations, particularly for primary care-sensitive health conditions such as diabetes, hypertension, heart failure, chronic obstructive pulmonary disease (COPD) and asthma (Shi et al., 2002; Stenberg et al., 2019). Several systematic reviews from high-income countries (HICs) have shown that access to primary care and continuity of care reduce total hospitalizations and decrease emergency department presentations (Huntley et al., 2014; Kirkland, Soleimani & Newton, 2018; WHO, 2018a; OECD, 2020). Furthermore, regarding health care costs, evidence from the United States of America (USA) suggests that more primary care services are associated with lower total health care expenditures (Gao et al., 2022). A large-scale policy initiative in the USA, aimed at integrating primary care and hospital services through Accountable Care Organizations, resulted in reduced spending, with net savings of US\$256 million in 2015 for organizations led by primary care providers (McWilliams et al., 2018). A critical review has shown that interpersonal continuity of care, defined as ongoing relationships between physicians and patients, was associated with lower health care costs and more appropriate use of care (Bazemore et al., 2023). This is confirmed by an earlier systematic review that showed continuity of care was associated with reductions in resource utilization and costs (Sans-Corrales et al., 2006).

Gatekeeping policies, which require patients to be assessed by a primary care provider before being referred to specialists, have been associated with lower health expenditure given that care provided by specialists is more expensive than that provided by primary care physicians (Delnoij et al., 2000). However, evidence is mixed, with some studies showing no significant impact or even higher primary care physician expenditure with gatekeeping, indicating that there is no clear picture (Starfield, Shi & Macinko, 2005; Sripa et al., 2019).

4.2.3 PHC improves overall population health by improving effectiveness of care and lowering all-cause mortality

Since Starfield's seminal review of the contribution of primary care to health systems, PHC has been consistently linked to lower mortality and improved overall population health (Starfield, Shi & Macinko, 2005). World Health Organization (WHO) modelling in 67 countries projected that a scaled-up investment in preventive and outpatient care from 2020 to 2030 could avert over 60 million deaths and increase life expectancy from 2.3 years in upper-middle-income countries (UMICs) to 6.7 years in LICs. This was mainly attributed to reductions in under-5 mortality and four NCDs (cardiovascular disease, diabetes, asthma and COPD). Inclusion of skilled birth attendants and multisectoral interventions in the model were associated with additional gains (Stenberg et al., 2019).

Higher density of primary care physicians, as one measure of PHC, has been associated with lower all-cause mortality, infant mortality and mortality from NCDs in HICs, and this association has persisted after adjusting for sociodemographic factors. In the United Kingdom, one additional general practitioner (GP) per 10 000 population was associated with a 6% reduction in all-cause mortality, which translates into 127 617 potentially averted deaths with a 12.6% increase in GPs in 2002 (Gulliford, 2002; Gulliford et al., 2004; Starfield, Shi & Macinko, 2005).

A similarly strong and consistent association has been found between access to PHC-oriented primary care services and improved health outcomes across studies with a wide range of PHC definitions and methodologies. In a 2009 review of 36 peer-reviewed studies conducted in LMICS, PHC (defined mainly as living in a geographic area where primary care was available) was linked to improved outcomes, especially in infant and child health (Macinko, Starfield & Erinosh, 2009). In 27 European HICs, people with chronic conditions were more likely to be in better health in countries with a stronger primary care structure (defined via a mix of criteria including service delivery governance, workforce development, accessibility, continuity of care, coordination of care, comprehensiveness of services, etc.), compared to those without (Friedberg, Hussey & Schneider, 2010; Hansen et al., 2015; Rajan et al., 2022).

Core primary care characteristics (the 4Cs) have also been linked to better health outcomes (Macinko, Starfield & Erinosh, 2009). Comprehensive primary care and patient centredness have been strongly linked to improvements in general and disease-specific outcomes, including mental health and child health (Shi et al., 2002; Macinko,

Guanais & de Souza, 2006; Conejo-Cerón et al., 2017; Trivedi, 2017), as have the less well-studied coordination and continuity, albeit with a somewhat weaker link (Bitton et al., 2019).

The considerable gains in life expectancy and reductions in mortality and morbidity did not happen overnight and are fruits of decades of sustained commitment to PHC reforms, albeit subject to various political ups and downs (see Chapter 2).

4.2.4 PHC improves user experience and people-centredness

In addition to demonstrated benefits on disease and system-related outcomes, evidence also suggests that PHC positively impacts user experience, as well as perceived and self-reported health. Well-developed core primary care characteristics (the 4Cs) are associated with higher satisfaction (Starfield, 1994). Where enabled, features associated with high-quality primary care, such as regularity in the place of care, provider familiarity with medical history, easy communication with providers, and provision of coordinated care, meant patients were almost 30% more likely to say they were receiving high-quality care (adjusted for health needs and overall health system characteristics) (Guanais et al., 2019). A USA survey found that adults receiving comprehensive primary care were more likely to report better experience of care on measures such as communication with their physician than those without access to primary care (Levine, Landon & Linder, 2019).

4.2.5 PHC improves health equity

PHC improves outcomes for underserved populations thereby contributing to improved health equity, including by mitigating the impact of adverse social determinants on health outcomes and improving financial protection (Kruk et al., 2010). Countries with a robust and deliberate primary care orientation have more equitable health outcomes than those that prioritize specialist services (Starfield, 1994; Starfield & Shi, 2002; Macinko, Starfield & Shi, 2003). For example, universal access to high-quality primary care in the United Kingdom meant the rate of below knee amputations for people with diabetes in London did not differ by ethnic group, while amputation rates for black Americans with diabetes is two to three times higher than that of white Americans (Leggetter et al., 2002). In the USA, a higher density of primary care physicians, as a proxy of access, also correlated with more favourable rates of low birth weight and infant mortality in more socially deprived areas (Shi et al., 2004) and mitigated the adverse effect of income disparities on all-cause, heart disease and cancer mortality (Shi et al., 2005).

Purposefully implemented primary care has also narrowed the gap in health outcomes between socially advantaged and disadvantaged populations. In Mexico and Bolivia, PHC-congruent factors such as continuity of care, effective referral processes, services from a public primary care facility and community-based planning of primary care services mitigated the higher likelihood of death in socially deprived children (Reyes et al., 1997; Perry et al., 1998).

Purposeful investment in well-trained health workers to deliver services close to communities and without out-of-pocket payments improves access for underserved communities (Bitton et al., 2019). Conversely, without ongoing funding in high-quality primary care, its impact on access and equity wanes. In Kerala, underfunding of public primary care services and shortages of primary care physicians increased reliance on private providers paid for out of pocket, which has led to growing inequality (Kruk et al., 2010). Similarly, in Sri Lanka, as in many other countries, reduced quality and access in publicly financed primary care associated with underfunding has resulted in people bypassing primary care to seek care directly from hospitals (Kruk et al., 2010).

4.2.6 PHC strengthens progress towards non-health SDGs

In addition to the compelling arguments for health as a human right, there are equally compelling arguments that investment in health generates considerable value to people's lives and to the well-being and prosperity of nations. Although it is difficult to determine PHC's direct contribution to well-being and prosperity, an extensive literature review conducted by Hone et al. in 2018 concluded that strengthening comprehensive PHC approaches contributes much to nine of the 16 non-health SDGs (no poverty, zero hunger, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, reduced inequalities, peace, justice and strong institutions, and sustainable cities and communities) (Hone, Macinko & Millett, 2018). PHC is critical to reducing household health expenditure, and financial protection from catastrophic and impoverishing health spending is an important aspect of poverty reduction strategies (see Chapter 15). Through its empowered communities focus, PHC strengthens advocacy for expanding financial protection policies, maximizes social participation in decision-making, and improves satisfaction with, and demand for, appropriate services (WHO & UNICEF, 2018).

4.2.7 PHC's contribution to improved health fosters overall economic productivity

PHC can contribute to economic productivity through its potential to improve health outcomes as outlined above. In regard to improved health, there is considerable evidence on its impact on economic productivity and on prosperity. In 2013, the Lancet Commission on Global Health 2035 estimated that reductions in mortality accounted for around 11% of economic growth in LMICs during the period 1970–2000. However, focusing only on national economic growth underestimates the "full income" which includes the value of additional life-years from greater quality of life. Up to 24% of the full income growth of these countries can be attributed to improvements in health (Jamison et al., 2013). The return on investment from public health interventions was 14.3 to 1 and the median cost-benefit ratio was 8.3 (Masters et al., 2017). Improved health leads to improved labour productivity, education, investment, access to natural resources and the ratio of workers to dependants (Bloom & Fink, 2013). In the United Kingdom, improvements in health and nutrition are estimated to have accounted for up to 30% of gross domestic product (GDP) growth since industrialization from 1780

to 1979 (Fogel, 1997). A WHO modelling study estimated that modest investments (US\$5 per person per year over the period 2015–2035) to improve health for women and children in 74 LMICs has benefit-cost ratios of up to 8.7 and a corresponding 1–3% rise in annual GDP overall and as much as 10% in some countries (Stenberg et al., 2014).

Investing in human resources for health, particularly for PHC, is also associated with economic growth and stability during crisis periods. The 2016 WHO high-level commission on health employment and economic growth provided ample evidence that investment in the health workforce boosts economic productivity, and issued a bold call to action to increase health workforce density worldwide, particularly in LMICs (WHO, 2016).

4.2.8 PHC has the potential to promote gender equity

Women play a significant role in primary care, nursing and midwifery, comprising about 70% of the health and care workforce (WHO, 2019). However, despite their numerical representation, women often find themselves concentrated in lower status, low-paid and unpaid roles, while men hold the majority of higher-status positions and leadership roles (Boniol et al., 2019; WHO, 2019, 2021a). This occupational segregation contributes to a persistent gender pay gap within the health sector.

Nevertheless, the employment of women in health can also be a catalyst for empowerment and contribute to gender equity in communities. Investing in the health workforce and promoting women's entry into formal work, particularly in primary care and public health, has shown positive outcomes for gender equality. As women gain income, education and autonomy through their involvement in the health sector, overall gender equality improves (WHO, 2019). Moreover, the national benefits of increased women's workforce participation extend beyond individual empowerment. Studies have linked enhanced workforce participation for women to poverty reduction and increased economic productivity (WHO, 2016; Buchan, Dhillon & Campbell, 2017). For instance, research conducted in sub-Saharan Africa demonstrates that staining and expanding community health worker programmes can yield a remarkable return on investment, with benefits primarily accruing to women (Dahn et al., 2015). Similarly, experiences from Guatemala highlight that women working as community health agents in primary care and health promotion have reported personal empowerment, increased status within their families, and leadership opportunities within their communities (Allen et al., 2022).

It is important to note that the impact of women's employment in the health sector is not universally positive. Evidence from Ethiopia suggests that certain community health worker programmes can inadvertently reinforce gender hierarchies, indicating the need for context-specific approaches (Closser et al., 2019). Careful design and implementation of programmes is therefore important to address these challenges and promote women's leadership and advancement opportunities. By doing so, the health sector can become a catalyst for gender equality and empowerment.

4.2.9 PHC contributes to emergency preparedness and resilience

PHC offers health security through its commitment to prevention and equity and its holistic approach to health, integrating both individual and population perspectives to address the wide array of health needs, especially those relevant in a health emergency (see Chapter 5).

The emergency response starts at the interface between communities, public health and primary care, where context-specific threats and vulnerabilities can be assessed, their impact mitigated and essential services maintained (Lugten et al., 2023). In particular, the community engagement and multidisciplinary nature of PHC is central for community resourcefulness to address crises (see Chapter 16) (Forsgren et al., 2022).

The multidisciplinary nature of PHC-oriented systems, including public health and social care professionals, goes a long way in meeting the needs of vulnerable, rural and harder-to-reach communities, ensuring that any health emergency response addresses the needs of those who are usually impacted the most by a crisis (Bhaumik et al., 2020).

Moreover, the integration of public health and primary care, as a key component of PHC (see Chapter 1), plays a critical role in enhancing emergency preparedness, response and recovery from shocks (Tumusiime et al., 2020; Lugten et al., 2023). The COVID-19 pandemic highlighted the significance of primary care providers' involvement in public health operations, and vice versa, enabling effective surveillance, contact tracing and case management in countries like Spain and India (Kinder et al., 2021). In Colombia, North Macedonia and Viet Nam, integrating COVID-19 surveillance with national information systems showed substantial benefits, enabling local surveillance and contact tracing efforts (Bariş et al., 2022). Moreover, the robust primary care and public health infrastructure in these countries played a pivotal role in facilitating large-scale and rapid COVID-19 vaccination campaigns (OECD, 2023), underscoring the importance of public health and primary care integration in emergency responses (see Chapters 5 and 16).

4.3 Country illustrations: pathways to successful implementation of the PHC approach

Investing in, and political prioritization of, PHC generates major benefits in terms of health, social and economic outcomes. For many politicians, decision-makers and public health managers, the policy imperative to invest in PHC is not new. However, how do countries with varying resources available to invest and fewer service-ready primary care facilities further strengthen PHC?

This section describes the impact of PHC in four countries – Brazil, Ethiopia, Kazakhstan and Viet Nam – that implemented comprehensive PHC reforms over the past decades on the various dimensions as highlighted in Section 4.2.

4.3.1 Brazil: the Family Health Strategy was pivotal to improved health system performance

The prioritization of PHC in Brazil, particularly through the implementation of the Family Health Strategy, has had a significant impact on health outcomes, equity, efficiency, quality and access. The expansion of the Strategy is associated with notable improvements in population health. Infant mortality (Aquino, de Oliveira & Barreto, 2009; Rasella, Aquino & Barreto, 2010), neonatal mortality (Venancio et al., 2016), cardiovascular mortality (Rasella et al., 2013; Hone et al., 2017), and hospital admissions among older adults (Macinko et al., 2010; Marques et al., 2014) have shown significant reductions. Hospital admissions for primary-care sensitive conditions have also decreased substantially, by 45% between 2001 and 2016 (Dourado et al., 2011; Mendonça et al., 2012; Afonso et al., 2017; Bastos et al., 2017; Magalhães & Morais 2017; Pinto & Giovanella, 2018). Additionally, life expectancy at birth increased by 5.7 years between 2000 and 2019 (OECD, 2021). Wider societal benefits of the Strategy reported in two poor regions, the North and the Northeast of Brazil, were an increase of labour supply by 6.8% and 4.5% respectively, as well as increased school enrolment of children aged between 10 and 17 during the 21 months study period (Rocha & Soares, 2010).

The integration of the Strategy with the Bolsa Família conditional cash transfer programme has contributed to the reduction of infant mortality (Rasella et al., 2013). Detection and cure rates of tuberculosis and leprosy have increased as a result (Nery et al., 2014). The introduction of a pay-for-performance system has also shown positive effects on the quality of primary care, reflected in lower hospitalization rates for chronic conditions (OECD, 2021).

The expansion of the Strategy since its inception has been substantial, with the proportion of the Brazilian population registered with a Family Health Team increasing from 4% in 1998 to 63% in 2020 (Macinko et al., 2007; Neves et al., 2018). This expansion has allowed for a more comprehensive and person-centred model of care. The inclusion of oral health teams (Ministry of Health Brazil, 2000; Mattos et al., 2014) and the addition of other health care professionals to address prevalent health needs have further strengthened the Strategy (Ministry of Health Brazil, 2008; Mattos, Gutiérrez & Campos, 2022).

Investments and prioritization of PHC in health workforce training, particularly generalist physicians, have been key to successful implementation of the Strategy. Changes in medical school curricula have emphasized primary care, resulting in one third of the two-year clerkship being dedicated to PHC and emergency care (Gomes et al., 2012; Brasil, 2014; Ferreira et al., 2019).

Brazil has also made significant investments in the digitalization of health data, allowing for robust monitoring of PHC activities and resources. Data consolidation and digitalization have also driven evidence-based decision-making as the impact of the Strategy on health outcomes could be measured (Ministry of Health Brazil, 2002; Coelho Neto, Andrezza & Chioro, 2021; Brasil, 2019).

Leadership, governance and financial support for the Strategy has established it as the primary model for PHC implementation in Brazil (Melo et al., 2018). However, austerity policies in 2016 and subsequent reforms have introduced challenges to its governance structure and funding arrangements (Brasil, 2016). Monitoring the impact of these changes on population health outcomes is crucial to ensure that the huge gains made are not compromised (Massuda, 2020). Another crucial challenge is the inequalities in health outcomes and quality of care across different regions. Disparities in health workforce distribution, compliance with clinical guidelines, and the availability of primary care services and equipment contribute to these inequalities (OECD, 2021).

The political prioritization of PHC in Brazil, particularly through the Family Health Strategy, has yielded significant improvements in various dimensions of health system performance. Those improvements required sustained investment and implementation over several decades, demonstrating that the fruits of strengthening PHC take time to reap benefit.

4.3.2 Ethiopia: improved health outcomes through sustained efforts and health sector investments

In the early 2000s, Ethiopia ranked 180th out of 189 health systems worldwide, with poor health indicators and poor access to basic health services (WHO, 2000). The country faced high maternal and child mortality rates, attributed to poor nutritional status, infectious diseases and limited health care access. However, over the past two decades, Ethiopia has implemented major health sector reforms and the Health Extension Programme, resulting in near universal access to primary care and public health services.

Launched in 2003, the Programme aimed to expand the scope and coverage of PHC to the entire population. It deployed community health workers into the communities, providing 16 packages of promoting, preventive and curative services (Annis & Ratcliffe, 2019). Implementation of the Programme was accompanied by the construction of health facilities: Ethiopia built 17 550 health posts, 3735 health centres and 353 hospitals, surpassing the regional average on the WHO health infrastructure index (United States Agency for International Development, 2012; Ministry of Health Ethiopia, 2021).

The Programme significantly improved access to primary care and public health, particularly for marginalized populations in rural areas. They enhanced health literacy, promoted health-seeking behaviour, and achieved positive outcomes in family planning, immunization, HIV prevention, tuberculosis prevention and malaria protection. Primary care service coverage increased from 76.9% to 90% between 2005 and 2010 (Banteyerga, 2011). Antenatal care coverage rose from 27% in 2000 to 62% in 2016, and basic vaccination coverage increased from 14% to 36% during the same period (Annis & Ratcliffe, 2019). Deliveries in health facilities increased from 5% in 2000 to 48% in 2019 (Croke, 2020). Overall, the Programme showed an average social return on investment of US\$1.54 to US\$3.26 per US\$ invested, and women with low income, lower education and living in rural areas benefited most by utilizing more health services, and avoiding costly health service visits (Assebe et al., 2021).

Ethiopia's investment in the health workforce played a crucial role in these health reforms. The country focused on mid-level workers, GPs and specialists by establishing 13 new medical schools and fostering partnerships with universities and colleges. However, challenges remain, such as equitable distribution of health workers and support for health extension workers (HEWs) (Ministry of Health Ethiopia, 2021).

The Pharmaceutical Fund and Supply Agency implemented an Integrated Pharmaceuticals Logistics System, ensuring medicine availability and vaccine supply management (George et al., 2017; Annis & Ratcliffe, 2019; Ministry of Health Ethiopia, 2021). The establishment of the International Institute for Primary Health Care (IPHC) in 2016 supported capacity development, quality improvement and knowledge dissemination in collaboration with other LMICs.

Community participation, particularly through the leadership of HEWs, has been instrumental in the success of the Programme. Patient rights charters, client satisfaction surveys and the inclusion of community representatives in hospital governing boards have enhanced service responsiveness and quality (Admasu, 2016; George et al., 2017; Primary Health Care Systems (PRIMASYS), 2017).

This comprehensive package of reforms led to significant improvements in health outcomes. Ethiopia witnessed an increase in life expectancy from 50.6 years to 68.7 years between 2000 and 2019, surpassing the regional average (WHO, 2023a). The country achieved the 2015 Millennium Development Goals (MDGs) for child and maternal health, with under-5 mortality rates decreasing from 123 live births per 1000 in 2005 to 59 in 2019, and maternal mortality rates declining from 871 deaths per 100 000 live births in 2000 to 401 deaths in 2017 (Admasu, 2016; Ministry of Health Ethiopia, 2021).

Ethiopia's journey serves as a remarkable example of how sustained investments in PHC can lead to substantial advancements in access, equity and population health outcomes (WHO, 2000).

4.3.3 Kazakhstan: strengthening PHC to leave no one behind

Following the dissolution of the Soviet Union in 1991, Kazakhstan faced significant challenges, including economic turmoil, financial insecurity, rising unemployment, increased social inequality and a surge in NCDs, resulting in a decline in life expectancy (Marmot, 2004). Like other post-Soviet countries, Kazakhstan inherited an inefficient primary care system, primarily reliant on hospital settings and medical specialists. However, efforts were made to restructure the system and move towards a PHC approach, starting with the establishment of family medicine-based models in the 1990s (Order of the Chairman of the Health Committee of the Ministry of Health, Education and Sports of the Republic of Kazakhstan, 1999). Subsequent policy initiatives in the early 2000s solidified the country's commitment to PHC and the principles of family medicine (Katsaga et al., 2012; Ministry of Health of the Republic of Kazakhstan, 2004).

Through programmes such as the National Programme for Health Care Reform and Development in 2004 and the "Salamatty Kazakhstan" programme in 2011, Kazakhstan expanded the scope of family medicine, addressed infrastructure and social

determinants of health, and emphasized the importance of health system performance assessments in informing policies (Aringazina, Gulis & Allegrante, 2012). These efforts led to the creation of multidisciplinary teams with doctors, nurses, social workers and psychologists, and resulted in better access to primary care through home visits, mobile clinics and remote consultations (WHO Regional Office for Europe, 2015; Gulis et al., 2021; Inoue et al., 2021). Consequently, the country witnessed significant improvements in health outcomes.

After a decline in the early 1990s, life expectancy in Kazakhstan recovered and increased from 63 years in 2000 to 74 years in 2019 (WHO, 2023b). Mortality for children under 5 years reduced by half between 2009 and 2018, and over the past two decades, infant and maternal mortality declined four- and six-fold, respectively, bringing the country close to the OECD average (Gulis et al., 2021). The multidisciplinary team approach, combined with Disease Management Programmes, resulted in a decrease in the hospitalization rate for programme participants from 14.5% in 2017 to 2.6% in 2020 (WHO, 2021b).

Despite these achievements, challenges remain. The improvements in health outcomes have not been evenly distributed across different age groups, demographics and geographical locations (WHO, 2018b; Gulis et al., 2021). However, Kazakhstan's commitment to strengthening family medicine, expanding the scope of practice for nurses and multidisciplinary teams, and implementing new guidelines that combine clinical and non-clinical aspects of care have led to increased visits to family doctors, nurses and social workers while reducing visits to specialists (WHO, 2021b).

While Kazakhstan has made notable progress in improving population health, access to care and efficiency through its PHC-oriented reforms, there is still room for improvement in terms of achieving equity and responsiveness. Continued work is needed to ensure equitable health service delivery that prioritizes the needs and preferences of marginalized, poor and rural communities.

Kazakhstan's investment in PHC, in particular in multidisciplinary teams, has shown that countries can move from hospital-focused to PHC-oriented health systems and thereby improve population health. Today Kazakhstan is a WHO PHC Demonstration Platform country, providing to other countries practical understanding of how to overcome implementation barriers and strengthen PHC (WHO, 2022).

4.3.4 Viet Nam: expanding community health service quality and access

Viet Nam has made significant strides in improving health indicators and achieving performance goals by investing in PHC. This transformation has been the result of comprehensive political reforms.

To ensure accessibility, Viet Nam has established a large network of community health centres, with approximately 11 000 centres serving around 5000 people each (WHO, 2018c). This extensive infrastructure has brought comprehensive health services closer to communities, fostering regional equity and improving health outcomes.

Previously, Viet Nam faced challenges due to conflict, political instability and economic constraints. However, the introduction of the Doi Moi reforms in 1986 shifted the country towards a socialist-oriented market economy (Path, 2020; World Bank, 2022). In 1989, as part of these reforms, the state-financed health system, which provided access to health services free at the point of use, was replaced by a social health insurance system. While this change allowed the implementation of user fees in state health facilities, it also created financial burdens for households (Ministry of Health Viet Nam, 1989; Sepehri, Chernomas & Akram-Lodhi, 2003; London, 2008; Thuong, Huy & Huy, 2022). Nonetheless, targeted poverty alleviation measures were implemented alongside health reforms, particularly benefiting minority ethnic groups and poor rural communities (Quan, 2009).

These reform efforts have borne fruit. For instance, the share of women receiving antenatal care increased by 26 percentage points between 1997 and 2021, while facility-based delivery rates rose by 20 percentage points during the same period. These improvements have contributed to a reduction in mortality for children under 5 years, from 35 to 21 per 1000 live births, and an increase in life expectancy at birth from 72 to 74 years (1997–2021) (World Bank, 2023).

Efforts to enhance health care quality, user satisfaction and responsiveness have been evident. Patient surveys conducted in 2014 indicated that community health centres were associated with the highest overall primary care quality and scored well in various domains, including contact utilization, ongoing care, coordination, family-centredness and community orientation. In contrast, private sector facilities scored lower in terms of primary care quality (Hoa et al., 2019).

Viet Nam has recognized the need to improve community health centre infrastructure and enhance competency-based training for primary care practitioners. By 2014, only 24.4% of centres had the required five health workers, and only 59.7% had a doctor on staff, with shortages being more prevalent in remote areas (Van Huy et al., 2019). Revised national standards have mandated each community health centre to have a minimum of five health workers, including at least one medical doctor, an assistant doctor, a nurse, a midwife and a pharmacist (Ministry of Health Viet Nam, 2002, 2014). Moreover, Viet Nam invested to improve the quality of education and training for the health workforce and expanded educational opportunities for practitioners working in rural areas.

While Viet Nam has achieved significant improvements, there are still areas for further progress. Equity in health outcomes remains a challenge. Additionally, efforts to enhance responsiveness and people-centredness in primary care services are necessary to address the current preference for secondary and tertiary hospitals over community health centres among patients (Hoa et al., 2019). By continuing to prioritize performance goals and implementing targeted interventions, Viet Nam can further strengthen its health system in its PHC orientation, ensuring equitable access, improved quality and better health outcomes for its population.

Viet Nam's PHC reforms and its investment in the workforce have proved effective in terms of improved health and access to services.

4.4 Conclusion

Despite some evidence gaps, the case for investment in PHC is compelling, with a large body of evidence from diverse country settings demonstrating multiple and clear benefits. Whether measured through a narrow set of quantitative measures, such as primary care physician density, or using a more expansive set of indicators, such as improvements in mortality, health system efficiency, and wider societal and economic benefits, the benefits of PHC are seen in multiple studies across multiple settings.

Most of the available evidence pertains to primary care services but most studies are observational in nature and the associations of PHC (however broad or narrow a definition is taken) with improved outcomes may be confounded by many other factors. The major limitation in the evidence base on the impact of PHC is also that it is piecemeal in nature. Many studies take a narrow view, focusing primarily on service delivery functions or physician and health worker density.

Priority areas for further exploration include appraising the impact of multisectoral action and Health in All Policies (HiAP) approaches. Empowered people and communities are only obliquely referenced in the literature and more work is needed to understand the importance of social participation in the design and implementation of PHC policies, and its impact. Perhaps most important is the need to look at the *summative* value of all three aspects of the PHC approach (multisectoral policy and action, empowered people and communities, and integrated health services). In terms of outcomes, more studies are needed to look at the impact of PHC on both health care quality and safety. Overall, the evidence base is dominated by older studies in HICs and further research is needed in LMICs where arguably the positive impact of PHC may be greatest.

Rather than being disease-based, PHC is focused on sustainable, holistic and equitable improvement of well-being for individuals and communities. The cost of investing in PHC is extremely low relative to the considerable health, social and economic returns it can yield for individuals, communities and societies. Despite the compelling case, the political economy of making such investments is complex and it takes inspirational and sustained leadership to realize the full benefits of PHC. A long-term strategic focus on policy, governance and financing reforms, companioned with meaningful community and civil society engagement, is essential. Companioning these major reforms with workforce and technical reforms can yield early wins, setting countries on the path to enhanced prosperity for decades to come.

All in all, there will always be a need for more and stronger evidence to demonstrate the impact of PHC and highlight the contributions of contextual determinants. This, however, cannot be a reason for delay in acting to strengthening PHC policies.

REFERENCES

- Admasu KB (2016). Designing a resilient national health system in Ethiopia: the role of leadership. *Health Syst Reform*, 2(3):182–6.
- Afonso MP et al. (2017). Association between hospitalisation for ambulatory care-sensitive conditions and primary health care physician specialisation: a cross-sectional ecological study in Curitiba (Brazil). *BMJ Open*, 7(12), p.e015322.
- Allen EM et al. (2022). Community Health Agents Advancing Women's Empowerment: A Qualitative Data Analysis. *J Community Health*, 47(5):806–13. DOI: 10.1007/s10900-022-01107-2. PMID: 35749009; PMCID: PMC9477897.
- Annis E, Ratcliffe H (2019). Strengthening Primary Health Care Systems to Increase Effective Coverage and Improve Outcomes [Internet]. Primary Health Care Performance Initiative (PHCPI). Available at: <https://improvingphc.org/strengthening-primary-health-care-systems-increase-effective-coverage-and-improve-health-outcomes-ethiopia> (accessed 28 July 2023).
- Aquino R, de Oliveira NF, Barreto ML (2009). Impact of the Family Health Program on Infant Mortality in Brazilian Municipalities. *Am J Public Health*, 99(1):87–93.
- Aringazina A, Gulis G, Allegrante JP (2012). Public health challenges and priorities for Kazakhstan. *Central Asian journal of global health*, 1(1).
- Assebe LF et al. (2021). Economic evaluation of health extension program packages in Ethiopia. *PLoS One*, 16(2):p.e0246207.
- Banteyerga H (2011). Ethiopia's Health Extension Program: Improving Health through Community Involvement. *MEDICC Review*, 13(3):46. Available at: <https://doi.org/10.37757/MR2011V13.N3.11> (accessed 28 July 2023).
- Barış E et al. (2022). *Walking the Talk: Reimagining Primary Health Care After COVID-19*. Washington, DC: World Bank.
- Bastos ML et al. (2017). Correction: The impact of the Brazilian family health on selected primary care sensitive conditions: A systematic review. *PLoS One*, 12(12):p.e0189557.
- Bazemore A et al. (2023). The Impact of Interpersonal Continuity of Primary Care on Health Care Costs and Use: A Critical Review. *Ann Fam Med*, 21(3):274–9. doi: 10.1370/afm.2961. PMID: 37217332; PMCID: PMC10202515.
- Bhaumik S et al. (2020). Community health workers for pandemic response: a rapid evidence synthesis. *BMJ Glob Health*, 5(6):e002769. doi: 10.1136/bmjgh-2020-002769.
- Bitton A et al. (2019). Primary healthcare system performance in low-income and middle-income countries: a scoping review of the evidence from 2010 to 2017. *BMJ Glob Health*, 4(Suppl 8):p.e001551. Available at: <http://gh.bmj.com/> (accessed 28 July 2023).
- Bloom DE, Fink G (2013). The economic case for devoting public resources to health. In Farrar J et al. (eds). *Manson's tropical diseases*. 23rd edn. Elsevier Saunders; ch. 4.
- Boniol M et al. (2019). *Gender equity in the health workforce: analysis of 104 countries*. Geneva: World Health Organization.
- Brasil (2014). Ministério da Educação. Conselho Nacional de Educação. Câmara de Educação Superior. Resolução no. 3 de 20 de junho de 2014. Institui diretrizes curriculares nacionais do curso de graduação em Medicina e dá outras providências. *Diário Oficial da União*, Brasília, 23 jun. 2014; Seção 1:8–11.

- Brasil (2016). Presidência da República. Casa Civil. Subchefia para Assuntos Jurídicos. Emenda Constitucional no. 95, 15 de Dezembro de 2016. Brasília.
- Brasil (2019). Medida Provisória no. 890, de 2019 (Programa Médicos pelo Brasil). Brasília: Comissão Mista da Medida Provisória no. 890, de 2019.
- Buchan J, Dhillon IS, Campbell J (eds) (2017). *Health Employment and Economic Growth: An Evidence Base*. Geneva: World Health Organization.
- Closser S et al. (2019). Does volunteer community health work empower women? Evidence from Ethiopia's Women's Development Army. *Health Policy Plan*, 34(4):298–306.
- Coelho Neto GC, Andrezza R, Chioro A (2021). Integration among national health information systems in Brazil: The case of e-SUS Primary Care. *Rev Saúde Pública*, 55:93.
- Conejo-Cerón S et al. (2017). Effectiveness of psychological and educational interventions to prevent depression in primary care: a systematic review and meta-analysis. *Ann Fam Med*, 15(3):262–71. Available at: <http://www.annfammed.org/content/15/3/262.abstract> (accessed 28 July 2023).
- Croke K (2020). The origins of Ethiopia's primary health care expansion: the politics of state building and health system strengthening. *Health Policy Plan*, 35(10):1318–27.
- Dahn B et al. (2015). *Strengthening Primary Health Care through Community Health Workers: Investment Case and Financing Recommendations* [Internet]. New York: Office of the UN Special Envoy for Health MDG Financing and Malaria. Available at: <http://www.mdghealthenvoy.org/wp-content/uploads/2015/07/CHW-Financing-FINAL-July-15-2015.pdf> (accessed 28 July 2023).
- Delnoij D et al. (2000). Does General Practitioner Gatekeeping Curb Health Care Expenditure? *J Health Serv Res Policy*, 5(1):22–6.
- Dourado I et al. (2011). Trends in primary health care-sensitive conditions in Brazil: the role of the Family Health Program (Project ICSAP-Brazil). *Med care*, 49(6):577–84.
- Ferreira MJM et al. (2019). New National Curricular Guidelines of medical courses: opportunities to resignify education. *Interface-Comunicação, Saúde, Educação*, 23.
- Fogel RW (1997). New findings on secular trends in nutrition and mortality: some implications for population theory. In: MR Rosenzweig & O Stark (eds). *Handbook of Population and Family Economics*, Elsevier, pp. 433–81.
- Forsgren L et al. (2022). Health systems resilience in practice: a scoping review to identify strategies for building resilience. *BMC Health Serv Res* 22:1173. Available at: <https://doi.org/10.1186/s12913-022-08544-8> (accessed 28 July 2023).
- Friedberg MW, Hussey PS, Schneider EC (2010). Primary care: a critical review of the evidence on quality and costs of health care. *Health Aff*, 29(5):766–72. Available at: <https://doi.org/10.1377/hlthaff.2010.0025> (accessed 28 July 2023).
- Gao J et al. (2022). Primary Care's Effects on Costs in the US Veterans Health Administration, 2016–2019: an Observational Cohort Study. *J Gen Intern Med*, 37(13):3289–94.
- George A, et al. (2017). *Health Sector Financing Reform/Health Finance and Governance (HSFR/HFG)*. Project Ethiopia Health Facility.

- Gomes AP et al. (2012). Atenção primária à saúde e formação médica: entre episteme e práxis. *Rev Bras de Educ Méd*, 36(4):541–9.
- Guanais F et al. (2019). Primary Health Care and Determinants of the Perception of the Health System and Quality of Care in 17 Countries in LAC and the OECD. In: *From the Patient's Perspective: Experiences with Primary Health Care in Latin America and the Caribbean* [Internet]. InterAmerican Development Bank, pp. 151–70. Available at: <https://publications.iadb.org/publications/english/viewer/From-the-Patients-Perspective-Experiences-with-Primary-Health-Care-in-Latin-America-and-the-Caribbean.pdf> (accessed 28 July 2023).
- Gulis G et al. (2021). Population health status of the republic of Kazakhstan: trends and implications for public health policy. *Int J Environ Res Public Health*, 18(22):12235.
- Gulliford MC (2002). Availability of primary care doctors and population health in England: is there an association? *J Public Health*, 24(4):252–4.
- Gulliford MC et al. (2004). Availability and structure of primary medical care services and population health and health care indicators in England. *BMC Health Serv Res*, 4:1–8.
- Hansen J et al. (2015). Living in a country with a strong primary care system is beneficial to people with chronic conditions. *Health Aff*, 34(9):1531–7. doi: 10.1377/hlthaff.2015.0582.
- Hoa NT et al. (2019). Patient experiences of primary care quality amongst different types of health care facilities in central Vietnam. *BMC Health Serv Res*, 19(1):1–11.
- Hone T, Macinko J, Millett C (2018). Revisiting Alma-Ata: what is the role of primary health care in achieving the Sustainable Development Goals? *Lancet*, 392:1461–72. Available at: <https://www.sciencedirect.com/science/article/pii/S0140673618318294> (accessed 28 July 2023).
- Hone T et al. (2017). Large reductions in amenable mortality associated with Brazil's primary care expansion and strong health governance. *Health Aff*, 36(1):149–58.
- Huntley A et al. (2014). Which features of primary care affect unscheduled secondary care use? A systematic review. *BMJ Open*, 4(5):e004746. Available at: <http://bmjopen.bmj.com/content/4/5/e004746.abstract> (accessed 28 July 2023).
- Inoue K et al. (2021). An exploration of the labor, financial, and economic factors related to suicide in the Republic of Kazakhstan. *Int J Environ Res Public Health*, 18(13):6992.
- Jamison DT et al. (2013). Global health 2035: a world converging within a generation. *Lancet*, 382(9908):1898–955. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/24309475> (accessed 18 September 2023).
- Katsaga A et al. (2012). Kazakhstan health system review. *Health Syst Transit*, 14(4):1–154.
- Kinder K et al. (2021). Integrating primary care and public health to enhance response to a pandemic. *Prim Health Care Res Dev*, 22:e27.
- Kirkland SW, Soleimani A, Newton AS (2018). The impact of pediatric mental health care provided outpatient, primary care, community and school settings on emergency department use – a systematic review. *Child Adolesc Ment Health*, 23(1):4–13. Available at: <https://doi.org/10.1111/camh.12230> (accessed 28 July 2023).
- Kruk ME et al. (2010). The contribution of primary care to health and health systems in low- and middle-income countries: a critical review of major primary care initiatives. *Soc Sci Med*, 70(6):904–11.

- Leggetter S et al. (2002). Ethnicity and risk of diabetes-related lower extremity amputation: a population-based, case-control study of African Caribbeans and Europeans in the United Kingdom. *Arch Intern Med*, 162(1):73–8.
- Levine DM, Landon BE, Linder JA (2019). Quality and experience of outpatient care in the United States for adults with or without primary care. *JAMA Intern Med*, 179(3):363–72. Available at: <https://doi.org/10.1001/jamainternmed.2018.6716> (accessed 28 July 2023).
- London JD (2008). Reasserting the state in Viet Nam Health Care and the logics of market-Leninism. *Policy Soc*, 27(2):115–28.
- Lugten E et al. (2023). From fragility to resilience: A systems approach to strengthen primary health care. *Front Public Health*, 10:1073617. doi: 10.3389/fpubh.2022.1073617.
- McWilliams JM et al. (2018). Medicare Spending after 3 Years of the Medicare Shared Savings Program. *N Engl J Med [Internet]*, 379(12):1139–49. Available at: <https://doi.org/10.1056/NEJMsa1803388> (accessed 28 July 2023).
- Macinko J, Guanais FC, de Souza MDFM (2006). Evaluation of the impact of the Family Health Program on infant mortality in Brazil, 1990–2002. *J Epidemiol Community Health*, 60(1):13–19.
- Macinko J, Starfield B, Erinosh T (2009). The impact of primary healthcare on population health in low- and middle-income countries. *J Ambul Care Manage*, 32(2):150–71. Available at: https://journals.lww.com/ambulatorycaremanagement/Fulltext/2009/04000/The_Impact_of_Primary_Healthcare_on_Population.10.aspx (accessed 28 July 2023).
- Macinko J, Starfield B, Shi L (2003). The contribution of primary care systems to health outcomes within Organization for Economic Cooperation and Development (OECD) countries, 1970–1998. *Health Serv Res*, 38(3):831–65.
- Macinko J et al. (2007). Going to scale with community-based primary care: an analysis of the family health program and infant mortality in Brazil, 1999–2004. *Soc Sci Med*, 65(10):2070–80.
- Macinko J et al. (2010). Major expansion of primary care in Brazil linked to decline in unnecessary hospitalization. *Health Aff*, 29(12):2149–60.
- Magalhães ALA, Morais OLD (2017). Intra-urban differences in rates of admissions for ambulatory care sensitive conditions in Brazil's Center-West region. *Ciênc Saúde Colet*, 22:2049–62.
- Marmot M (2004). *The Status Syndrome: How Social Standing Affects Our Health and Longevity*. New York: Times Books.
- Marques AP et al. (2014). Hospitalization of older adults due to ambulatory care sensitive conditions. *Rev Saúde Pública*, 48:817–26. doi: 10.1590/s0034-8910.2014048005133. PMID: 25372173; PMCID: PMC4211570.
- Massuda A (2020). Primary health care financing changes in the Brazilian Health System: advance or setback? *Ciênc Saúde Colet*, 25:1181–8.
- Masters R et al. (2017). Return on investment of public health interventions: a systematic review. *J Epidemiol Community Health*, 71(8):827–34. Available at: <http://jech.bmj.com/content/71/8/827.abstract> (accessed 28 July 2023).

- Mattos GCM et al. (2014). A inclusão da equipe de saúde bucal na Estratégia Saúde da Família: entraves, avanços e desafios. *Ciênc Saúde Colet*, 19:373–82.
- Mattos MPD, Gutiérrez AC, Campos GWDS (2022). Construção do referencial histórico-normativo do Núcleo Ampliado de Saúde da Família. *Ciênc Saúde Colet*, 27:3503–16.
- Melo EA (2018). Mudanças na Política Nacional de Atenção Básica: entre retrocessos e desafios. *Saúde em Debate*, 42(spe1):38–51.
- Mendonça CS et al. (2012). Trends in hospitalizations for primary care sensitive conditions following the implementation of Family Health Teams in Belo Horizonte, Brazil. *Health Policy Plan*, 27(4):348–55.
- Ministry of Health Brazil (2000). Portaria no. 1.444, de 28 de dezembro de 2000. Estabelece incentivo financeiro para a reorganização da atenção à saúde bucal prestada nos municípios por meio do Programa de Saúde da Família. *Diário Oficial da União* 2000; 29 dez.
- Ministry of Health Brazil (2002). Secretaria Executiva. Departamento de Informática do SUS. DATASUS Trajetória 1991–2002.
- Ministry of Health Brazil (2008). Portaria no. 154, de 24 de Janeiro de 2008. Cria os Núcleos de Apoio à Saúde da Família – NASF.
- Ministry of Health Ethiopia (2021). Health Sector Transformation Plan II. Available at: <http://repository.iifphc.org/handle/123456789/1414> (accessed 28 July 2023).
- Ministry of Health of the Republic of Kazakhstan (2004). National Programme for Health Care Reform and Development 2005–2010, approved by presidential decree on 13 September 2004. Astana: Ministry of Health.
- Ministry of Health Viet Nam (1989). Edict no. 45 issued by the Council of Ministers, on 24 April 1989. Council of Ministers.
- Ministry of Health Viet Nam (2002). Decision no. 370/2002/QĐ-BYT on national standards of commune health centre in the period 2002–2010.
- Ministry of Health Viet Nam (2014). Decision no. 4667/2014/QĐ-BYT on national standards of commune health centre up to 2020.
- Nery JS et al. (2014). Effect of the Brazilian conditional cash transfer and primary health care programs on the new case detection rate of leprosy. *PLoS Negl Trop Dis*, 8(11):e3357. doi: 10.1371/journal.pntd.0003357.
- Neves RG et al. (2018). Time trend of family health strategy coverage in Brazil, its regions and federative units, 2006–2016. *Epidemiol Serv Saúde*, 27.
- OECD (2020). Realising the Potential of Primary Health Care [Internet]. OECD Health Policy Studies. Paris: OECD Publishing. Available at: https://www.oecd-ilibrary.org/social-issues-migration-health/realising-the-potential-of-primary-health-care_a92adee4-en (accessed 28 July 2023).
- OECD (2021). Primary Health Care in Brazil. OECD Reviews of Health Systems. Paris: OECD Publishing. Available at: <https://doi.org/10.1787/146d0dea-en> (accessed 28 July 2023).
- OECD (2023). Ready for the Next Crisis? Investing in Health System Resilience. OECD Health Policy Studies. Paris: OECD Publishing. Available at: <https://doi.org/10.1787/1e53cf80-en> (accessed 28 July 2023).

- Order of the Chairman of the Health Committee of the Ministry of Health, Education and Sports of the Republic of Kazakhstan (1999). On Approval of the Regulations on the General Practitioner/Family Doctor and the Regulations on the Family Medical Out-patient Clinic. Astana.
- Path K (2020). The Origins and Evolution of Vietnam's Doi Moi Foreign Policy of 1986. *TRaNS: Trans-Regional and -National Studies of Southeast Asia*, 8(2):171–85.
- Perry H et al. (1998). The census-based, impact-oriented approach: its effectiveness in promoting child health in Bolivia. *Health Policy Plan*, 13(2):140–51.
- Pinto LF, Giovanella L (2018). The Family Health Strategy: expanding access and reducing hospitalizations due to ambulatory care sensitive conditions (ACSC). *Cièn Saúde Colet*, 23:1903–14.
- Primary Health Care Systems (PRIMASYS) (2017). Case study from Ethiopia. World Health Organization.
- Quan HV (2009). Programme 135 – Sharing lessons on poverty reduction and development schemes for ethnic minorities in Vietnam. Available at: www.un.org/esa/socdev/egms/docs/2009/Ghana/Quan.pdf (accessed 28 July 2023).
- Rajan D et al. (2022). Health system performance assessment: a primer for policy-makers [Internet]. Copenhagen: European Observatory on Health Systems and Policies. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK589358/> (accessed 28 July 2023).
- Rasella D, Aquino R, Barreto ML (2010). Reducing childhood mortality from diarrhea and lower respiratory tract infections in Brazil. *Pediatrics*, 126(3):e534–40.
- Rasella D et al. (2013). Effect of a conditional cash transfer programme on childhood mortality: a nationwide analysis of Brazilian municipalities. *Lancet*, 382(9886):57–64.
- Reyes H et al. (1997). Infant mortality due to acute respiratory infections: the influence of primary care processes. *J Clin Epidemiol*, (51):S12.
- Rocha R, Soares RR (2010). Evaluating the impact of community based health interventions: evidence from Brazil's Family Health Program. *Health Econ*, 19(S1):126–58. doi: 10.1002/hec.1607.
- Sans-Corrales M et al. (2006). Family medicine attributes related to satisfaction, health and costs. *Fam Pract*, 23(3):308–16. doi: 10.1093/fampra/cmi112.
- Sepehri A, Chernomas R, Akram-Lodhi AH (2003). If they get sick, they are in trouble: health care restructuring, user charges, and equity in Vietnam. *Int J Health Serv*, 33(1):137–61.
- Shi L et al. (2002). Primary care, self-rated health, and reductions in social disparities in health. *Health Serv Res*, 37(3):529–50.
- Shi L et al. (2004). Primary care, infant mortality, and low birth weight in the states of the USA. *J Epidemiol Community Health*, 58(5):374–80.
- Shi L et al. (2005). Primary care, social inequalities, and all-cause, heart disease, and cancer mortality in US counties, 1990. *Am J Public Health*, 95(4):674–80.
- Sripa P et al. (2019). Impact of GP gatekeeping on quality of care, and health outcomes, use, and expenditure: a systematic review. *Br J Gen Pract*, 69(682):e294–303.
- Starfield B (1994). Is primary care essential? *Lancet*, 344(8930):1129–33. Available at: [https://doi.org/10.1016/S0140-6736\(94\)90634-3](https://doi.org/10.1016/S0140-6736(94)90634-3) (accessed 28 July 2023).

- Starfield B, Shi L (2002). Policy relevant determinants of health: an international perspective. *Health Policy*, 60:201–18
- Starfield B, Shi L, Macinko J (2005). Contribution of primary care to health systems and health. *Milbank Q*, 83(3):457–502. Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-0009.2005.00409.x> (accessed 28 July 2023).
- Stenberg K et al. (2014). Advancing social and economic development by investing in women's and children's health: a new Global Investment Framework. *Lancet*, 383(9925):1333–54. Available at: <http://www.thelancet.com/article/S014067361362231X/fulltext> (accessed 28 July 2023).
- Stenberg K (2019). Guide posts for investment in primary health care and projected resource needs in 67 low-income and middle-income countries: a modelling study. *Lancet Glob Health*, 7(11):e1500–10. Available at: [https://doi.org/10.1016/S2214-109X\(19\)30416-4](https://doi.org/10.1016/S2214-109X(19)30416-4) (accessed 28 July 2023).
- Thuong NTT, Huy TQ, Huy DN (2022). Catastrophic health expenditure in the Northern midlands and mountainous areas and its determinants, Vietnam from 2014 to 2020: a cross-sectional study. *BMJ Open*, 12(9):e058849.
- Trivedi D (2017). Cochrane Review Summary: Interventions for improving outcomes in patients with multimorbidity in primary care and community settings. *Prim Health Care Res Dev*, 18(2):109–11. doi: 10.1017/S1463423616000426.
- Tumusiime P et al. (2020). Building health system resilience in the context of primary health care revitalization for attainment of UHC: proceedings from the Fifth Health Sector Directors' Policy and Planning Meeting for the WHO African Region. *BMC Proc*, 14(S19):16. doi: 10.1186/s12919-020-00203-2.
- United States Agency for International Development (2012). Health Care Financing Reform in Ethiopia: Improving Quality and Equity. 000:1–12.
- Van Huy N et al. (2019). Human Resources for Commune Health Centers as per National Standards: The Case of Vietnam. *Fam Med Med Sci Res*, 8(236):1–7.
- Venancio SI et al. (2016). Effectiveness of family health strategy on child's health indicators in São Paulo State. *Rev Bras de Saúde Matern Infant*, 16:271–81.
- WHO (2000). World Health Report 2000. Health systems: improving performance. World Health Organization. 78(1):1–215. Available at: <https://www.who.int/publications/i/item/924156198X> (accessed on 17 April 2024).
- WHO (2016). High-level commission on health employment and economic growth: report of the expert group [Internet]. [cited 2023 Jan 18]. Available at: <https://apps.who.int/iris/handle/10665/250040> (accessed 28 July 2023).
- WHO (2018a). Building the economic case for primary health care: a scoping review [Internet]. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/326293> (accessed 28 July 2023).
- WHO (2018b). Country case studies on primary health care: Kazakhstan: use of mobile technologies in primary health care as part of state-run reforms in the health sector (No. WHO/HIS/SDS/2018.29). Geneva: World Health Organization.

- WHO (2018c). Country case studies on primary health care: Viet Nam: Improving equity in access to primary care (No. WHO/HIS/SDS/2018.36). 16P. World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/326257> (accessed 28 July 2023).
- WHO (2019). Delivered by women, led by men: a gender and equity analysis of the global health and social workforce, Human Resources for Health Observer Series, 24. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241515467> (accessed on 17 April 2024).
- WHO (2021a). Closing the leadership gap: gender equity and leadership in the global health and care workforce: policy action paper, June 2021. Geneva: World Health Organization. Available at: <https://www.who.int/publications-detail-redirect/9789240025905> (accessed on 17 April 2024).
- WHO (2021b). Kazakhstan: Multidisciplinary teams for better alignment of primary health care services to meet the needs and expectations of people (2021). 9P. Geneva: World Health Organization. Available at: [https://www.who.int/europe/publications/m/item/kazakhstan-multidisciplinary-teams-for-better-alignment-of-primary-health-care-services-to-meet-the-needs-and-expectations-of-people-\(2021\)](https://www.who.int/europe/publications/m/item/kazakhstan-multidisciplinary-teams-for-better-alignment-of-primary-health-care-services-to-meet-the-needs-and-expectations-of-people-(2021)) (accessed on 17 April 2024).
- WHO (2022). WHO Primary Health Care Demonstration Platform gathers momentum with visit from Kyrgyzstan. News release, 17 October 2022. Available at: <https://www.who.int/europe/news/item/17-10-2022-who-primary-health-care-demonstration-platform-gathers-momentum-with-visit-from-kyrgyzstan> (accessed 28 July 2023).
- WHO (2023a). data.who.int, Ethiopia [Country overview]. Geneva: World Health Organization (accessed 2 July 2023). Available at: <https://data.who.int/countries/231>
- WHO (2023b). data.who.int, Kazakhstan [Country overview]. Geneva: World Health Organization (accessed 2 July 2023). Available at: <https://www.who.int/countries/kaz>
- WHO Regional Office for Europe (2015). Ambulatory Care Sensitive Conditions in Kazakhstan. Copenhagen. Available at: <https://apps.who.int/iris/bitstream/handle/10665/367252/WHO-EURO-2015-6512-46278-66942-eng.pdf?sequence=1&isAllowed=y> (accessed 10 July 2023).
- WHO, UNICEF (2018). A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals [Internet] [cited 2023 Jan 18]. World Health Organization/United Nations Children's Fund. Available at: <https://apps.who.int/iris/handle/10665/328065> (accessed 28 July 2023).
- World Bank (2022). World Development Indicators – Viet Nam [Internet] 2022 [cited 2023 Jan 9]. Available at: <https://databank.worldbank.org/source/world-development-indicators> 129 (accessed 19 September 2023).
- World Bank (2023). <https://data.worldbank.org>, Viet Nam [Pregnant women receiving prenatal care (%)]. UNICEF, State of the World's Children, Childinfo, and Demographic and Health Surveys. Licence: CC BY-4.0 (accessed 22 June 2023).

5

Integrating public health and primary care at the core of the PHC approach

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Key messages

- Public health and primary care add value to each other. Separating them because public health has a population perspective, while primary care typically focuses on the individual, is artificial and creates unnecessary barriers. Primary health care (PHC) integrates both perspectives, encouraging greater efficiency and effectiveness, and creating the conditions for more community engagement and multisectoral action, so strengthening health systems and fostering resilience.
- Primary care and public health services have natural synergies, particularly in the five key areas of:
 - health protection
 - health promotion
 - disease prevention
 - surveillance, monitoring and population health analysis
 - public health emergency preparedness and response.
- A PHC-oriented system can integrate primary care and public health in a range of ways from maintaining two distinct services but ensuring mutual awareness, through cooperation and collaboration, to full integration in a single, merged organization.
- Enabling the integration of two strands of health care delivery with different paradigms is not straightforward in practice. Country experiences highlight the importance of:
 - creating a clear shared vision, goals and mandates that public health and primary care co-own
 - acknowledging the distinct training, culture and ways of working in public health and primary care, and ensuring change management and leadership styles acknowledge these differences
 - revisiting education and training to combine primary care and public health perspectives, and to make collaboration the norm
 - establishing shared data systems and shared protocols that bridge individual patient and community-level data and facilitate integration
 - joint funding that minimizes or rules out any perception of competition for resources.

5.1 Introduction

The vision of PHC outlined in the Declarations of Alma-Ata and Astana includes a dual responsibility to individuals and populations (WHO, 1978; WHO & UNICEF, 2018). Primary care primarily focuses on individuals, while public health primarily addresses entire populations (see definition in Box 5.1).

Primary care and public health share common interests, regardless of how they are perceived (Ciliska, Ehrlich & DeGuzman, 2005; WHO, 2018b) and are “inevitably and increasingly interdependent” (Maher, Ford & Gilmore, 2017). Historically, the functions assigned to public health agencies were limited to sanitation, control of communicable diseases and hygiene. Gradually, over the course of a century, the field developed into health promotion, noncommunicable disease (NCD) prevention and control, and primary care access, making integration with primary care a natural next step (WHO, 2018a). More recently it has extended to address explicitly the political and commercial determinants of health (Gilmore et al., 2023).

Public health interventions aligned with primary care include case finding, disease prevention, health promotion, immunization and screening. Public health organizations also provide primary care services such as sexual health, pre- and postnatal care, and tuberculosis treatment (Levesque et al., 2013). Better integration of public health and primary care can reduce exposure to risk factors and subsequent disease, enable better access to health services and greater public involvement in decision-making where there is a shared agenda, and support strong leadership, management and accountability, shared protocols, information sharing and good interpersonal relations (Martin-Misener et al., 2012).

The essential public health functions (EPHFs) (Box 5.1) are at the core of the integration of primary care and public health as they contain service delivery elements next to enabling elements of public health. It is important that the service-oriented activities of EPHFs, including promotive, preventive and protective public health services, are translated and integrated in primary care but also in all other service provision levels (Zhang et al., 2023).

Box 5.1 What is public health and what are the essential public health functions?

The most widely used definition of **public health** is the “organized efforts of a society to protect, promote and restore health through collective or social actions, usually with the common goals of reducing disease, premature death, and disability” (Last, 2006). Populations can be defined by geography, affiliation with a health facility (such as a general practice), or other shared characteristics (e.g., homelessness or legal status).

Population health refers to health and wellbeing outcomes within a defined group of individuals driven by policies and actions on the wider determinants of health of those populations (Kindig & Stoddart, 2003).

The roles of public health have been operationalized in the **essential public health functions**. They are a “set of fundamental and interconnected activities and capacities both within and beyond the health sector, required to ensure effective public health actions” and achieve public health goals (Zhang et al., 2023). EPHFs contribute to health system strengthening and resilience through actions on the wider determinants of health to interventions which aim to achieve broader health system goals such as equity and access (WHO, 2021a; McNicholas et al., 2023; Zhang et al., 2023).

The comprehensive and integrated approach to EPHFs proposes a renewed list of EPHFs that groups EPHFs in: (i) public health services-oriented functions; (ii) system inputs and enabling-oriented functions; and (iii) crosscutting functions (Fig. 5.1) (WHO, 2022c; Squires et al., 2023; Zhang et al., 2023).

Many of the EPHFs are system inputs and enabling-oriented functions, which are also known under the term PHC operational levers of the World Health Organization (WHO)’s PHC Operational Framework (see Chapter 1) (WHO & UNICEF, 2018); they are thus addressed in Part II of this text. The EPHFs which are also health system goals are covered in Part III of this text.

Public health services-oriented functions:

- **EPHF 7 Health promotion:** promoting health and well-being as well as actions to address the wider determinants of health and inequity
- **EPHF 6 Disease prevention and early detection:** prevention and early detection of communicable and noncommunicable diseases including mental health conditions
- **EPHF 5 Health protection:** protecting populations against health threats, including environmental and occupational hazards, communicable and noncommunicable diseases including mental health conditions, food insecurity, chemical and radiation hazards
- **EPHF 2 Public health emergency management:** managing public health emergencies

System inputs and enabling-oriented functions:

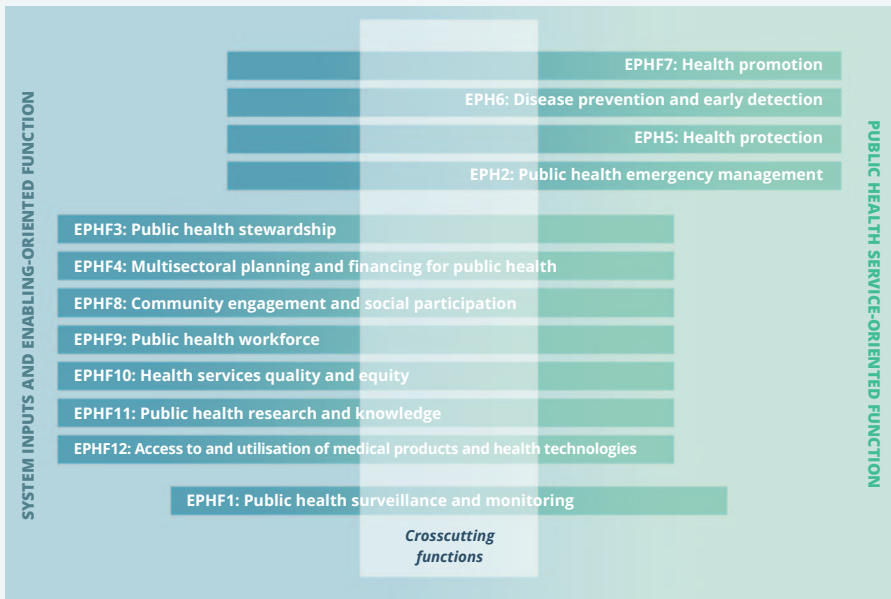
- **EPHF 3 Public health stewardship:** establishing effective public health institutional structures, leadership, coordination, accountability and regulations and legislation
- **EPHF 4 Multisectoral planning and financing for public health:** supporting effective and efficient health systems and multisectoral planning, financing and management for population health
- **EPHF 8 Community engagement and social participation:** strengthening community engagement, participation and social mobilization for health and well-being
- **EPHF 9 Public health workforce:** Developing and maintaining an adequate and competent public health workforce
- **EPHF 10 Health services quality and equity:** Improving the appropriateness, quality, equity in provision and access of health services
- **EPHF 11 Public health research and knowledge:** Advancing public health research and knowledge development

- **EPHF 12 Access to, and utilization of, medical products and health technologies:** Promoting the effectiveness, equitable access to and rational use of medical products and supplies, and health technologies

Crosscutting functions:

- **EPHF 1 Public health surveillance and monitoring:** monitoring and surveillance of population health status, risk, protective and promotive factors, threats to health, and health system performance and service utilization

Fig. 5.1 A unified list of EPHFs – an integrated and comprehensive approach to operationalizing public health in countries



Source: WHO, 2022c; Zhang et al., 2023; Squires et al., 2023

The integration of EPHFs and primary care is key to the PHC approach (see Chapter 1) as it brings together individual-level and community-level actions that are complementary and which are, as far as possible, aligned. There is always some degree of overlap but some health systems have created organizations or elements explicitly delivering services to both individuals and populations, while others use separate entities for some public health functions. Regardless of the arrangement, coordination and integration benefit from common policies, shared resources, effective communication and aligned leadership (WHO, 2018b; WHO & UNICEF, 2018).

This chapter explores the integration and overlap of primary care and public health services. Section 5.2.1 outlines their natural intersections and areas where integration efforts have most often focused, such as health protection and promotion, disease prevention, surveillance and emergency preparedness (discussed below). Section 5.2.2 outlines barriers and facilitators to greater integration of primary care and public health, and Section 5.3 presents examples of good practice that countries can learn from to strengthen integration. Section 5.4 summarizes the lessons learned and implementation challenges.

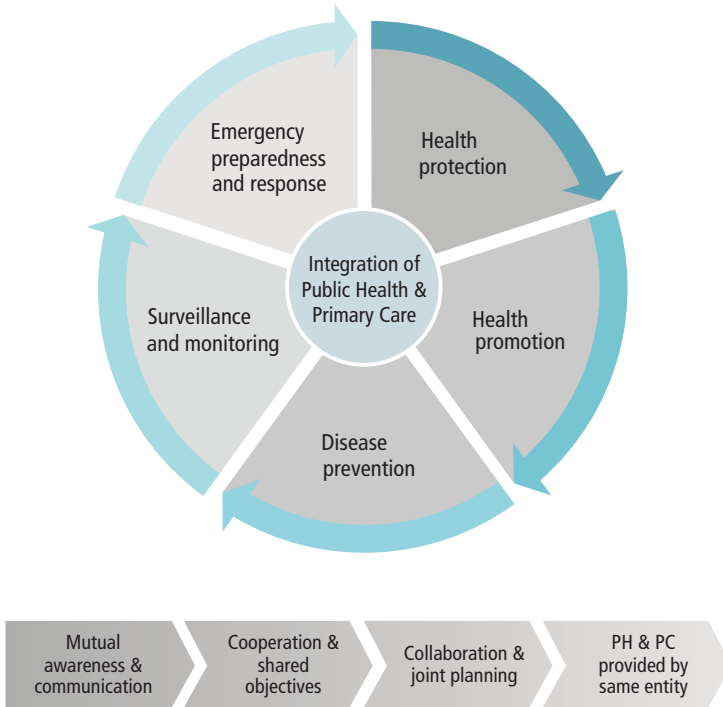
5.2 Evidence review

5.2.1 Key areas of enhanced synergies between primary care and public health

The integration of primary care and public health occurs along a spectrum (Institute of Medicine, 2012). It ranges from complete isolation from each other with some form of communication to a merger of organizations with shared governance, budget and strategic plans. Most models fall in between, from mutual awareness through cooperation to collaboration and integration (see Fig. 5.2) (WHO Regional Committee for Europe, 2011; McNicholas et al., 2023).

Mutual awareness exists where primary care and public health organizations are informed about each other's activities and share an accountability for a common defined or at least merely overlapping population. Cooperation includes sharing resources, space, data or personnel, and working together on specific tasks. Collaboration goes further, with joint planning, implementing initiatives and coordinated efforts. Integration represents the highest level of partnership, where large programmes and initiatives are seamlessly carried out together, involving citizens, patients, policy-makers and leaders from various sectors (Valaitis, 2012; IANPHI, 2022).

Fig. 5.2 Areas and degree of integration of primary care and public health



Source: Authors

Primary care services and public health converge and synergize in the five key areas elaborated on below; so it is here where integration efforts have focused in many countries, at least as reflected in the available literature. These key areas overlap with the public health services-oriented functions and the crosscutting functions of the EPHFs (see Box 5.1 and Fig. 5.1).

Health protection

Primary care services protect individual health by identifying risks, offering counselling, promoting safety and providing guidance tailored to the risks faced by the individual. They ideally also support public health campaigns and advocate for policies directed at specific risk factors, such as tobacco, alcohol consumption or infectious agents, and populations at increased risk. Public health develops policies, proposes legislation and contributes to enforcement, acting on the immediate causes of disease, such as sources of infection, and on the upstream causes, such as the commercial and political structures that enable them. This includes assessing and monitoring risks and taking action to reduce them, drawing on specialist knowledge and, in some cases, equipment (Pinto, 2008).

Health promotion

Health promotion empowers individuals and communities to make healthy choices (see Chapter 2) (Ottawa Charter for Health Promotion, 1986). Primary care provides individualized advice and support, where possible supporting changes to that individual's living conditions, for example by liaising with social services. Public health assesses the health of the population, both overall and the conditions of the many groups that comprise it, with a particular focus on those excluded or otherwise disadvantaged (Harris & Harris, 2012) and acts against the forces that undermine health, such as producers of harmful commodities. Together, primary care and public health promote the holistic well-being of the population, ideally engaging with local communities.

Disease prevention

Primary care plays a crucial role in disease prevention, in chronic disease management, maternal and child health, and other conditions (Calman et al., 2012; Green, Brancati & Albright, 2012; Harris & Harris, 2012; Truswell et al., 2012; van Avendonk et al., 2012; Bhuyan et al., 2015; Blanck and Collins, 2015; Queenan, Birtwhistle & Drummond, 2016; Banarsee et al., 2018; Jakab et al., 2018; Lionis et al., 2018; McVicar et al., 2019; Kendir et al., 2020; Katafuchi et al., 2022) and where the model of primary care works well, it can achieve improved health outcomes (see Chapter 4). Primary care includes preventive actions such as vaccinations, prompt treatment of acute conditions to prevent deterioration, and management of risk factors such as hypertension. Public health identifies patterns, supports outreach, manages outbreaks and reduces disparities, working with many sectors and organizations but, especially, primary care (Wright, Ugwi & Nice, 2015).

Surveillance, monitoring and population health analysis

Primary care services provide many elements of the data needed for effective surveillance, ideally enabling real-time analysis that can detect emerging threats early. Public health expertise in epidemiology, biostatistics and data linkage complements primary care by building population profiles and designing surveillance systems. Public health reports findings to the public and policy-makers. Collaborative priority setting between primary care and public health fosters joint planning, utilizing data and insights to feed into the health policy process (see Chapter 13) (Lynn et al., 2007; Pinto, 2013; WHO, 2023).

Public health emergency preparedness and response

Emergency preparedness builds resilient health systems for natural disasters, pandemics and armed conflicts (WHO, 2022a). Public health develops community-level emergency plans, provides training and guidance, and plans services for emerging needs (WHO, 2021b). Primary care services and frontline workers respond to emergencies, serving as an early warning system. The COVID-19 pandemic highlighted the importance of collaboration between primary care and public health in information sharing, risk reduction, testing and immunization (vaccination) clinics (see Chapter 16) (Shakory et al., 2022; WHO, 2022b).

5.2.2 What drives integration of primary care and public health?

This section reviews what is known about the barriers and facilitators to greater integration of primary care and public health (McVicar et al., 2019; Rechel, 2020). The facilitating factors identified include central coordination with local flexibility, integrated information systems, joint funding, educational efforts and shared values (Lasker, 1997). But they also involve strong intra- and interpersonal factors, such as regular contact, positive experiences and shared resources (Valaitis et al., 2018b), which are essential to successful integration of primary care and public health.

Factors that constitute important barriers to closer collaboration at the interface between population and individual level health are ineffective communication (Moloughney, 2013; Pratt et al., 2018), inadequate funding (Pratt et al., 2018; Valaitis et al., 2020), lack of education and training (Akhtar-Danesh et al., 2013), conflicting goals and mandates (Millar et al., 2013; Valaitis et al., 2020), and disjointed data systems. This section identifies five main categories of barriers and facilitators for integration, each depicted in detail below: leadership, education and training, data systems, shared vision and goals, and funding and resource factors.

Leadership and champions

Leadership plays a vital role in promoting and supporting successful collaboration between primary care services and public health. This leadership can come from local, organizational or regional champions (Lebrun et al., 2012; Pratt et al., 2017; Wong et al., 2017; Valaitis et al., 2018a). The health literature from the United States of America (USA), in particular, extols the positive effects of champions in change management contexts at the primary care level for purposes of implementing innovations (Cifuentes, 2005; Cohen et al., 2005; Mold & Peterson, 2005; Feifer et al., 2007; Ferrer et al., 2009; Crabtree et al., 2010; Holland et al., 2010; Jaén et al., 2010; Nutting et al., 2010). Core behaviours associated with champions that facilitate the adoption of collaborative practices by health stakeholders include: promoting change, building bridges between different people and organizations, mobilizing resources, navigating organizational politics, convincing people with a well-articulated vision, and contributing to organizational skills-building (Shaw et al., 2012).

Training and competencies in both the individual and population perspective

Training and education are crucial for supporting EPHFs in primary care (Martin-Misener et al., 2012; Rawaf, 2018). Dual training in public health and primary care, or additional public health training for family physicians, can enhance their capabilities. Training programmes and education can facilitate collaboration and the pursuit of common goals between public health and primary care.

Primary care providers are at the forefront of health promotion and disease prevention, but they often have limited training in epidemiology, community engagement and cross-sector mobilization. Additionally, they are not usually reimbursed for these activ-

ities, which creates barriers to their participation. To bridge the gap between public health practitioners and the front line, intermediaries such as dual-trained physicians, nurses and nurse practitioners (with training in primary care and public health) play a crucial role (Price, Chan & Greaves, 2014; Swanson et al., 2020). Nurses and other mid-level health professionals are particularly important in facilitating collaboration between primary care and public health. They engage in outreach, facilitate programmes, coordinate care and support transitions in chronic and communicable diseases as well as maternity care (see Chapter 8) (Ferrari & Rideout, 2005; Swanson et al., 2020). Public health nurses can utilize data to address the needs of underserved areas and reduce barriers to care (Ferrari & Rideout, 2005). Innovative models like Hungary's "GP cluster model" or Slovenia's community-based person-centred PHC model (see below) involve various health care professionals to integrate public health actions into primary care (Jakab, 2013).

An ideal primary care system involves diverse providers, such as family physicians and general practitioners (GPs), specialists, nurses, dentists, pharmacists, social workers and more, collaborating in multidisciplinary teams (see Chapter 8) (B-Lajoie & Chartier, 2016; Gupta, 2020). A growing number of countries have outlined competencies in population and public health for those working in primary health care, including the ability to interpret data on a group of patients, to design health promotion activities, and to support communicable disease control (B-Lajoie & Chartier, 2016; Gupta, 2020; WHO Regional Office for Europe & ASPHER, 2020).

Public health personnel include physicians, nurses, epidemiologists, communicable disease control specialists, public health inspectors, environmental health specialists, health promoters, health educators, communication specialists and community engagement staff (Rowan, Hogg & Huston, 2007). Their competencies span epidemiology, social sciences (including economics), public health initiative development and implementation, communication, collaboration, culture and advocacy, leadership and system thinking, organizational literacy and adaptability, emergency management, governance and management (Rowan, Hogg & Huston, 2007). Community engagement remains challenging owing to political constraints, limited skills and inadequate funding (WHO, 2020; Clark, Koonin & Cuevas Barron, 2021; Rajan et al., 2021).

In summary, training and education that combine primary care and public health perspectives are crucial (Chapter 8). Collaboration, dual training and competencies in epidemiology, community engagement and population health are vital for health care providers to effectively tackle public health challenges. Better connected primary care and public health offers the potential to achieve improved health outcomes for communities.

Sharable data systems facilitate collaboration and integration

Improving data systems is crucial for enhancing collaboration between primary care and public health (Gyllstrom et al., 2019). This includes collecting sociodemographic data to monitor and address health inequalities effectively. To achieve improved surveillance in primary care, shared data capabilities and standardized data collection and analysis are necessary (Calman et al., 2012; Lebrun et al., 2012; Frank & Jepson,

2013; Millar et al., 2013; Pinto, 2013; Gosling, Davies & Hussey, 2016; Wong et al., 2017; Cash-Gibson et al., 2021; Kinder et al., 2021). Data systems should encompass individual patient data, community-level data, shared protocols, tools and process information (Martin-Misener et al., 2012).

A survey of 111 countries concluded that improved data sharing, infrastructure and coordination between primary care and public health facilitated collaboration (Kinder et al., 2021). Utilizing integrated primary care and public health data at the local community level can identify areas lacking access to services and the essential social determinants of health, leading to joint community solutions (Westfall, 2013). A framework supporting coordinated action on the social determinants of health starts with data integration, followed by integrating interventions into clinical care, focusing on practice and organizational actions, and eventually addressing education and advocating for policy change (DeVoe et al., 2016; Pinto & Bloch, 2017). Overall, better data systems enable primary care and public health to work together effectively, improving health outcomes and addressing social determinants of health at various levels (see Chapter 13).

A need for shared vision and goals

Shared visions, linked to specific goals, have been seen as paramount for successful public health and primary care collaboration (Lebrun et al., 2012; Martin-Misener et al., 2012; Banarsee et al., 2018; United Nations, 2019). At the organizational level, clear visions, goals and sectoral mandates have been advocated as means to successful collaboration (Valaitis et al., 2018b, 2020). Shared vision and goals can be created through joint planning (Pinto, 2013; Gosling, Davies & Hussey, 2016). Trust and communication were two other factors that contributed to collaboration between primary care and public health. Pre-existing relationships and trust among actors in different sectors facilitated more effective collaboration (Martin-Misener et al., 2012; Valaitis et al., 2018a). Communication between primary care physicians and public health professionals, harmonized communication between the sectors, and communication regarding roles and role clarity also ensured more effective collaboration (Frank & Jepsen, 2013; Kinder et al., 2021). Finally, in the Kingdom of the Netherlands, local district health profiles and policy dialogues between the two sectors were used to facilitate primary care and public health collaboration (Storm et al., 2015).

Funding mechanisms which foster collaboration not competition

One significant barrier to effective collaboration between primary care and public health is the lack of adequate funding. In many cases, public health and population-level interventions are funded, organized and delivered separately from primary care, leading to a perception of competition between the two sectors (Millar et al., 2013). This separation of funding and resources creates a significant barrier to integration and collaboration.

Public health professionals may have concerns that integrating efforts with primary care will divert limited funding away from their sector, potentially undermining collaboration (Brown, Upshur & Sullivan, 2013). However, it is essential to consider financing

mechanisms for public health and how specific activities are funded (see also country illustration on China in Chapter 9) (WHO Regional Committee for the Western Pacific, 2017; WHO, 2018c). In situations where public health is not actively involved in the design and implementation of initiatives, there is a risk that the limited funding available will be disproportionately allocated to primary care, neglecting the important work of public health practitioners (Griffiths & Haslam, 2002).

An example of this challenge can be seen in the experience of England, where the transfer of public health and associated funding to Primary Care Trusts in the late 1990s had negative consequences. This shift resulted in a loss of key expertise and capacity for public health actions, highlighting the potential detrimental effects of funding decisions that do not prioritize collaboration and integration (Griffiths & Haslam, 2002).

To overcome this barrier, it is crucial to allocate adequate funding toward intersectoral collaboration. This funding should include provisions for human resources capacity, protected time for collaborative activities, and a redesign of reimbursement mechanisms (Valaitis et al., 2018b; Gyllstrom et al., 2019; PAHO, 2022). By ensuring that both primary care and public health receive sufficient financial support, collaboration can be fostered, allowing for the joint pursuit of improved population health outcomes.

By addressing the funding challenges and promoting equitable resource allocation, primary care and public health can work together more effectively, leveraging their aligned goals and expertise. This collaborative approach is essential for addressing complex health issues, such as the social determinants of health, which often require sustained and multifaceted initiatives (Lebrun et al., 2012). In summary, recognizing the funding barrier and proactively allocating resources to support intersectoral collaboration are crucial. Adequate funding for staff with protected time and appropriate reimbursement mechanisms will help primary care and public health to join forces, maximize their impact and effectively address the health needs of populations.

To facilitate an intersectoral approach between primary care and public health, the levels at which collaboration and stakeholder involvement can occur are important to consider. Box 5.2 depicts different integration models by the levels at which primary care and public health collaborate (micro, meso and macro).

Box 5.2 Integration of public health and primary care happens at various health system levels

Integration of primary care and public health may occur at different levels of the health system. Clinical integration occurs at the micro-level (continuity, cooperation and coherence of services for individuals), organizational and professional integration at the meso-level (organizational integration and professional integration), and functional integration at the macro-level (population-level policies, financing and regulation of both primary care and public health) (Rowan, Hogg & Huston, 2007).

Micro: Clinical integration and coordination of care at the individual level

Collaboration between primary care and public health at the clinical care level can lead to improved health outcomes and reduced inequities (Lebrun et al., 2012; Orkin et al., 2017; Shahzad et al., 2019). Country illustrations from Brazil's Family Health Strategy (see Section 5.3) and Sweden's Västerbotten Intervention Programme showcase successful integration, leveraging the strengths of both disciplines to tailor care, enhance follow-up and address individual needs (Pinto et al., 2012; Blomstedt et al., 2015). In Australia, the establishment of Primary Health Networks fostered collaboration to increase efficiency, effectiveness and coordination of medical services (Booth et al., 2016). By joining forces, primary care and public health can optimize clinical care and promote better health outcomes for individuals.

Meso: Organization or local health authority level

Collaboration between primary care and public health at the organizational (meso) level enhances access to health services (Ferrari & Rideout, 2005; Martin-Misener et al., 2012; Levesque et al., 2013; Moloughney, 2013; Pinto, 2013; Berenguera et al., 2017; Jakab et al., 2018; Shahzad et al., 2019; Kendir et al., 2020; Valaitis et al., 2020). Examples include joint efforts to improve influenza vaccine uptake, HIV care, Hepatitis B prevention, and response to public health emergencies like H1N1 and COVID-19 (Mukherjee & Eustache, 2007; Calman et al., 2012; Wynn & Moore, 2012; Torner et al., 2013; Kempe et al., 2014; Price, Chan & Greaves, 2014; Lim et al., 2022; Lin & Tin, 2022; Tobgay et al., 2022; el Arifeen et al., n.d.). Health promotion and vaccination are common areas of collaboration, as observed in multiple Latin American countries (OECD Health Policy Studies, 2022). Integration in Crete, Greece, has shown positive impacts on health-related behaviours (Lionis et al., 2018). By working together at the organizational level, primary care and public health can effectively address public health challenges and promote improved health outcomes.

Macro: Population and policy change

Essential public health functions, aimed at improving population health and reducing inequities, involve policy and legislative changes that shape the social, economic and political environment. Primary care services are crucial in supporting public health by advocating for the development and implementation of policies that positively impact health. This requires a solid grasp of the factors influencing health and advocating for upstream interventions in collaboration with others (PAHO, 2020).

Collaboration between primary care services and public health has been documented in various settings, focusing on advocacy for policy change. This collaboration aims to reduce poverty, improve work conditions, address road safety and control firearm use (Pinto, 2008, 2016; Gosling, Davies & Hussey, 2016). More recently, policy actions related to planetary health and the climate crisis have gained attention, emphasizing the integration of primary care and public health efforts (Benach et al., 2022; Gonzalez-Holguera et al., 2022). The World Organization of Family Doctors (WONCA) recognizes the importance of integrating PHC and environmental strategies for climate adaptation and mitigation (WONCA, 2017).

5.3 Country illustrations: pathways for integration of primary care and public health

As collaboration between primary care services and public health remains poorly defined and operationalized (Rechel, 2020), country illustrations are useful to identify lessons learned and to anticipate barriers and facilitators to implementation in other settings.

5.3.1 Brazil: integration of individual and population health through community health workers of the Family Health Strategy

The Family Health Strategy and its community health worker programme in Brazil are leading examples of the integration of primary care services and public health (Macinko & Harris, 2015; Bornstein et al., 2020). The Family Health Strategy, introduced in 1994 (see Chapters 2 and 4), was an important milestone as it incorporated the WHO's integrative approach to protect and promote individual and population health (Pinto et al., 2012). The Family Health Strategy introduced Family Health Teams, consisting of a nurse, nurse assistant, family physician and four to six community health workers (see also Section 4.3.1), which provide comprehensive and continuous primary care to a defined panel of about 4000 patients located in a specific geographical area (empanelment) with a reorientated focus on prevention and health promotion.

As part of the Family Health Team, the role of community health workers is central for bridging the gap between individual and population health through its functions as a health service provider, system navigator, health educator and community organizer, so the individual needs of each community can be met (Macinko & Harris, 2015). Community health workers are trained to support their communities in achieving better health, ranging from clinical assessments, health promotion and health education, to system navigation and social advocacy (de Fatima dos Santos et al., 2020; Lotta & Nunes, 2022). Community health workers extend the reach of Family Health Teams by working in homes, community institutions (such as places of worship or markets) and peripheral health posts not usually staffed by doctors or nurses (Bornstein et al., 2020). Their activities and support range from clinical triage, chronic disease management, screening uptake, immunizations, pregnancy care, breastfeeding support, health promotion and assessment of social determinants (Wadge et al., 2016). Their close linkages to their communities and their insights into domestic and community settings and the wider determinants of health (individual and population level) allow the Family Health Team to better (and/or earlier) understand and identify health needs and problems and to reinforce clinical care and chronic disease management (Harris, 2012).

Community health workers regularly visit every household within their area to collect household-level data that are of census-quality and are updated monthly, both for disease surveillance and individual level health monitoring purposes, which providers aim to incorporate into diagnosis and treatment (Pinto et al., 2012). By maintaining population health data and disease registries, community health workers provide

broad support to the planning and development of appropriate public health actions. Aggregated data are entered into a database used for monitoring of key health indicators at federal level (Bornstein et al., 2020).

Integration of public health and primary care is thus facilitated through close collaboration among providers and care workers within multidisciplinary teams (see Chapter 8) and evidence-informed diagnosis and treatment which are grounded in personal and environmental considerations and community needs and resources. Training of providers in delivering team-based care that is informed by communities' needs and community health worker knowledge is key in integrating primary care and public health (Pinto et al., 2012).

5.3.2 Lithuania: fostering links between public health and primary care at municipal level

Lithuania prioritized the development of public health services at the local level from 2006 by decentralizing public health functions and establishing municipal public health bureaus responsible for: health promotion; disease prevention; population health monitoring; planning and implementing local public health programmes to address priority health needs, advocating for public health policies at the local level; and bringing public health functions closer to communities (Kalėdienė & Ščeponavičius, 2011; Murauskiene et al., 2013).

With the leadership of public health specialists and municipal policy-makers' advocacy, multisectoral actions in addressing underlying causes of ill-health and social determinants of health were prioritized. Municipal public health bureaus collaborate with nongovernmental organizations (NGOs), communities and families, as well as with other sectors and stakeholders.

Primary care services are provided by both municipal and private centres which also provide some public health functions, such as health promotion, primary prevention and immunization. Although public health bureaus are equally owned by municipalities, there is no structural integration of services with public primary care centres owing to the distinct organizational structures.

However, establishing closer links between public health and primary care services became a priority in local public health policies. Synergies were sought between public health bureaus and primary care teams, which are tailored to the health needs of individuals and families (Poliakovienė & Gurevičius, 2011). The implementation of the national cardiovascular disease prevention programme is a fitting example of such intersectoral integration, where primary care providers are responsible for individual risk stratification of targeted population groups, and public health specialists are responsible for the broader health education of identified high-risk groups and for monitoring risk factors, NCD prevalence, avoidable hospitalizations and premature mortality.

In addition, municipal public health bureaus collaborate with primary care providers through local public health programmes. For example, in the city of Klaipėda, childhood and adolescent obesity was identified as a key priority by municipal leaders. The

local public health bureau implemented local, tailored prevention strategies for childhood and adolescent obesity, including health education and health promotion activities through secondary schools, and individual counselling by family physicians and psychologists in primary care centres. Public health specialists employed by the local public health bureau are available in all secondary schools and act as coordinators to ensure that all public health and primary care services are received.

5.3.3 Slovenia: integrating primary care and public health through a community-based person-centred PHC model

The organization and operation of primary care in Slovenia were shaped by Andrija Štampar's community-oriented primary care model (Dugac et al., 2008; Klančar & Švab, 2014), in which most primary care is delivered by a network of Community Health Centres owned and managed by municipalities. In these centres, multidisciplinary teams provide a range of public health and primary care services under one roof, including preventative, diagnostic, therapeutic, palliative, rehabilitative and health promotion services. The teams comprise family physicians, paediatricians, gynaecologists, dentists, paediatric dentists, physiotherapists and occupational therapists, community nurses and other health professionals. In 2015, nearly 75% of all physicians and 42% of all dentists working in primary care were employed in Community Health Centres (WHO, 2020).

Recognizing the need to strengthen health promotion and disease prevention to address the growing burden of NCDs in Slovenian adults, Health Promotion Centres were introduced within Community Health Centres in 2002. Their main role was to provide lifestyle interventions targeted at key NCD risk factors by combining population and individual health approaches, such as through thematic workshops and individual counselling to support people at risk or with chronic conditions in achieving and maintaining healthy lifestyles. Health Promotion Centre interventions focus particularly on improving the access of vulnerable groups to health services including preventive services by establishing relationships with social services, relevant NGOs and other institutions that could help to identify such individuals and offer support in assessing and addressing their needs. These Health Promotion Centres integrated previously dispersed activities, including community nursing (Petrič, Pribaković Brinovec & Brinovec, 2018). In 2004, a national NCD screening programme for adults aged over 30 years was set up to detect people at risk for developing NCDs, such as cardiovascular diseases, diabetes, chronic obstructive pulmonary disease and depression. Since 2012, these preventive check-ups have been conducted by nurse practitioners who joined family medicine practices to support screening and supervise patients with well-controlled chronic conditions. People identified as being at risk are referred by the family practice to Health Promotion Centres that offer active counselling and support on healthy lifestyles (WHO, 2020).

In 2014, Health Promotion Centres were upgraded in terms of service delivery and professional composition. These centres began to deliver more comprehensive NCD preventive and health promotion services, with well-defined services and community nurses, dieticians, kinesiologists and psychologists included as part of the multidis-

ciplinary team (Johansen, Vracko & West, 2020). Special emphasis was given to develop a community approach for health, connecting stakeholders in local communities to work with Community Health Centres in addressing the social determinants and other needs of vulnerable individuals. The upgrade of Health Promotion Centres was accompanied by an education programme on skills for the delivery of the new health promotion and disease prevention programmes. In particular, community nurses received further training on chronic diseases and the value of early diagnosis, treatment and a healthy lifestyle, as well as in behavioural approaches, patient-centred communication, motivational interviewing techniques and approaches to identifying vulnerable populations (Johansen, Vracko & West, 2020). This resulted in increased competencies of staff, higher quality of services and higher visibility of health promotion activities in local communities (Rechel, 2020).

Several key lessons have emerged over the past two decades. The introduction of Health Promotion Centres enabled Community Health Centres to expand their multi-disciplinary teams, task profiles and services offered. The national health insurance scheme provides funding for preventive services, including those performed by Health Promotion Centres, and for financial incentives for family medicine practices that reach target values for preventive check-ups. Close collaboration between primary care and public health also contributed to the effectiveness of the health system in responding to the COVID-19 pandemic, including providing surge capacity for testing and tracing, ensuring vaccination, identifying and responding to vulnerabilities, continued delivery of health promotion and disease prevention services and population health management, priority setting and demand management (Vračko, Petrič & Borgermans, 2021).

5.4 Conclusion

A seminal paper by White et al. (White, Williams & Greenberg, 1961) emphasized that most people experiencing illness and disability are not seen in health care settings, highlighting the need to think at a population level. This perspective remains more relevant than ever following the global experience of the Covid-19 crisis, as well as multiple other ongoing crises such as climate change, wars and economic turmoil. In moving towards primary care–public health integration, several key factors are important to be taken into consideration by policy-makers. First, primary care services and public health can maintain their unique identities while embracing a PHC approach incentivized by financial and structural mechanisms and reinforced by training and investment in EPHFs (see Part II). Secondly, both primary care and public health that come together can address the social, political and commercial determinants of health. Thirdly, technological advances in digital systems can facilitate integration of health data at the local level, supporting epidemiology and real-time surveillance (Chapter 13). It allows public health to engage primary care in health promotion campaigns and guide targeted prevention efforts. Fourthly, public health and primary care using technological advances in digital systems could integrate

health data that informs on health needs at the local level, supporting epidemiology and real-time surveillance. Lastly, the PHC approach involves responding to diverse challenges through multisectoral action (WHO, 2016). Collaboration with stakeholders at various levels can influence policies (WHO Regional Office for Europe, 2012). Community engagement and governance, leveraging the strong relationships developed by primary care services, are central to these efforts.

By aligning primary care and public health, embracing population health, integrating upstream approaches, and fostering multisectoral collaboration, communities can advance towards a comprehensive PHC approach that promotes improved health outcomes.

REFERENCES

- Akhtar-Danesh N et al. (2013). Viewpoints about collaboration between primary care and public health in Canada, *BMC Health Serv Res*, 13(1):1. Available at: <https://doi.org/10.1186/1472-6963-13-311> (accessed 31 July 2023).
- B-Lajoie M-R, Chartier L (2016). Wanted: better public health training for family physicians, *Can Fam Physician*, 62(6):471–3. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4907550/> (accessed 31 July 2023).
- Banarsee R et al. (2018). Towards a strategic alignment of public health and primary care practices at local levels – the case of severe and enduring mental illness. *Lond J Prim Care (Abingdon)*, 10(2), pp. 19–23. Available at: <https://doi.org/10.1080/17571472.2018.1437070> (accessed 31 July 2023).
- Benach J et al. (2022). The case for planetary health prevention, *J Epidemiol Community Health*, 76(2):105–6. Available at: <https://doi.org/10.1136/jech-2021-217988> (accessed 31 July 2023).
- Berenguera A et al. (2017). Beyond the consultation room: Proposals to approach health promotion in primary care according to health-care users, key community informants and primary care centre workers, *Health Expect*, 20(5):896–910. Available at: <https://doi.org/10.1111/HEX.12530> (accessed 31 July 2023).
- Bhuyan SS et al. (2015). Integration of public health and primary care: a systematic review of the current literature in primary care physician mediated childhood obesity interventions, *Obes Res Clin Pract*, 9(6):539–52. Available at: <https://doi.org/10.1016/j.ORCP.2015.07.005> (accessed 31 July 2023).
- Blanck HM, Collins JL (2015). The childhood obesity research demonstration project: Linking public health initiatives and primary care interventions community-wide to prevent and reduce childhood obesity, *Child Obes*, 11(1):1–3. Available at: <https://doi.org/10.1089/chi.2014.0122> (accessed 31 July 2023).
- Blomstedt Y et al. (2015). Impact of a combined community and primary care prevention strategy on all-cause and cardiovascular mortality: a cohort analysis based on 1 million person-years of follow-up in Västerbotten County, Sweden, during 1990a–2006, *BMJ Open*, 5(12). Available at: <https://doi.org/10.1136/BMJOPEN-2015-009651> (accessed 31 July 2023).
- Booth M et al. (2016). The new Australian Primary Health Networks: how will they integrate public health and primary care? *Public Health Res Pract*, 26(1). Available at: <https://doi.org/10.17061/PHRP2611603> (accessed 31 July 2023).
- Bornstein VJ et al. (2020). Exemplars in Global Health: Community Health Workers in Brazil [internet]. *Exemplares em Saúde Global: o caso dos Agentes Comunitários de Saúde no Brasil*. Boston: Exemplars in Global Health.
- Brown AD, Upshur R, Sullivan TJ (2013). Public Health and Primary Care: Competition or Collaboration, *Healthc Pap*, 13(3):4–8. Available at: <https://doi.org/10.12927/HCPAP.2014.23690> (accessed 31 July 2023).
- Calman N et al. (2012). Strengthening public health and primary care collaboration through electronic health records, *Am J Public Health*, 102(11). Available at: <https://doi.org/10.2105/AJPH.2012.301000> (accessed 31 July 2023).
- Cash-Gibson L et al. (2021). Health Inequalities in the Time of COVID-19: The Globally

- Reinforcing Need to Strengthen Health Inequalities Research Capacities, *Int J Health Serv*, 51(3):300–4. Available at: <https://doi.org/10.1177/0020731421993939> (accessed 31 July 2023).
- Cifuentes M et al. (2005). Prescription for health: changing primary care practice to foster healthy behaviors. *Ann Fam Med*, 3(2):S4–11.
- Ciliska D, Ehrlich A, DeGuzman A (2005). Public health and primary care: challenges and strategies for collaboration. Report prepared for the Capacity Review Committee. Hamilton, Ontario, Canada.
- Clark H, Koonin J, Cuevas Barron G (2021). Social participation, universal health coverage and health security, *Bull World Health Organ*, 99(12):846–7. Available at: <https://doi.org/10.2471/BLT.21.286554> (accessed 31 July 2023).
- Cohen DJ et al. (2005). Implementing health behavior change in primary care: lessons from prescription for health. *Ann Fam Med*, 3(2):S12–19.
- Crabtree BF et al. (2010). Summary of the National Demonstration Project and recommendations for the patient-centered medical home. *Ann Fam Med*, 8(1):S80–90.
- de Fátima dos Santos A et al. (2020). Contribution of community health workers to primary health care performance in Brazil, *Rev Saude Publica*, 54:1–10. Available at: <https://doi.org/10.11606/S1518-8787.2020054002327> (accessed 31 July 2023).
- DeVoe JE et al. (2016). Perspectives in Primary Care: A Conceptual Framework and Path for Integrating Social Determinants of Health into Primary Care Practice, *Ann Fam Med*, 14(2):104–8. doi.org/10.1370/afm.1903.
- Dugac Ž et al. (2008). Care for Health Cannot Be Limited to One Country or One Town Only, It Must Extend to Entire World: Role of Andrija Štampar in Building the World Health Organization, *Croat Med J*, 49(6):697–708. Available at: <https://doi.org/10.3325/cmj.2008.49.697> (accessed 31 July 2023).
- el Arifeen S et al. (n.d.). Bangladesh: A Primary Health Care Case Study in the Context of the COVID-19 Pandemic.
- Feifer C et al. (2007). Different paths to high-quality care: three archetypes of top-performing practice sites. *Ann Fam Med*, 5(3):233–41.
- Ferrari A, Rideout B (2005). The Collaboration of Public Health Nursing and Primary Care Nursing in the Development of a Nurse Managed Health Center, *Nurs Clin North Am*, 40(4):771–8. Available at: <https://doi.org/10.1016/j.CNUR.2005.08.006> (accessed 31 July 2023).
- Ferrer RL et al. (2009). A medical assistant-based program to promote healthy behaviors in primary care. *Ann Fam Med*, 7(6):504–12.
- Frank J, Jepson R (2013). Public Health May Not Be Ready for Health System Change – But Neither Is the System Ready to Integrate Public Health, *Healthc Pap*, 13(3):77–83. Available at: <https://doi.org/10.12927/HCPAP.2014.23673> (accessed 31 July 2023).
- Gilmore AB et al. (2023). Defining and conceptualising the commercial determinants of health. *Lancet*, 401(10383):1194–1213.
- Gonzalez-Holguera J et al. (2022). Translating Planetary Health Principles Into Sustainable Primary Care Services, *Front Public Health*, 10. Available at: <https://doi.org/10.3389/FPUBH.2022.931212> (accessed 31 July 2023).

- Gosling R, Davies SM, Hussey JA (2016). How integrating primary care and public health could improve population health outcomes: a view from Liverpool, UK. *Public Health Res Pract*, 26(1). Available at: <https://doi.org/10.17061/PHRP2611602> (accessed 31 July 2023).
- Green LW, Brancati FL, Albright A (2012). Primary prevention of type 2 diabetes: integrative public health and primary care opportunities, challenges and strategies, *Fam Pract*, 29(1):i13–i23. Available at: <https://doi.org/10.1093/FAMPRA/CMR126> (accessed 31 July 2023).
- Griffiths S, Haslam D (2002). Putting public health practice into primary care practice: Practical implications of implementing the changes in shifting the balance of power in England, *J Public Health Med*, 24(4):243–5. Available at: <https://doi.org/10.1093/pubmed/24.4.243> (accessed 31 July 2023).
- Gupta A (2020, 15 May). Stronger together – primary care and public health, *Can Fam Physician* blog post.
- Gyllstrom E et al. (2019). Measuring Local Public Health and Primary Care Collaboration: A Practice-Based Research Approach, *J Public Health Manag Pract*, 25(4):382–9. Available at: <https://doi.org/10.1097/PHH.0000000000000809> (accessed 31 July 2023).
- Harris M (2012). Integrating primary care and public health: learning from the Brazilian way. *Lond J Prim Care (Abingdon)*, 4(2):126–32. doi: 10.1080/17571472.2012.11493350.
- Harris MF, Harris E (2012). Partnerships between primary healthcare and population health: preventing chronic disease in Australia, *Lond J Prim Care (Abingdon)*, 4:133–7. Available at: <https://www.webofscience-com.myaccess.library.utoronto.ca/wos/woscc/full-record/WOS:000219628200014> (accessed 19 December 2022).
- Holland R et al. (2010). Creating champions for health care quality and safety. *Am J Med Qual*, 25(2):102–8.
- IANPHI (2022). IANPHI and WHO Partner to Strengthen Public Health Functions and Health Emergency Preparedness. International Association of National Public Health Institutes. Available at: <https://ianphi.org/news/2022/who-mou.html> (accessed 30 June 2023).
- Institute of Medicine (2012). *Primary Care and Public Health: Exploring Integration to Improve Population Health*, Washington DC: National Academies Press. Available at: <https://doi.org/10.17226/13381> (accessed 31 July 2023).
- Jaén CR et al (2010). Methods for evaluating practice change toward a patient-centered medical home. *Ann Fam Med*, 8(1):S9–20.
- Jakab M et al. (eds). (2018). *Health systems respond to noncommunicable diseases: time for ambition*. Copenhagen: WHO Regional Office for Europe.
- Jakab Z (2013). Public health, primary care and the “cluster” model, *Eur J Public Health*, 23(4):528. Available at: <https://doi.org/10.1093/EURPUB/CKT091> (accessed 31 July 2023).
- Johansen AS, Vracko P, West R (2020). The evolution of community-based primary health care, Slovenia. *Bull World Health Organ*, 98(5):353–9. Geneva: World Health Organization.

- Kalėdienė R, Ščeponavičius A (2011). Public health bureaus: new players in health improvement in Lithuania, *Acta Med Litu*, 18(4):183–9. Available at: <https://doi.org/10.6001/actamedica.v18i4.1872> (accessed 31 July 2023).
- Katafuchi R et al. (2022). The effect of the Kasuya CKD network on prevention of the progression of chronic kidney disease: successful collaboration of a public health service, primary care physicians and nephrologists—community based cohort study, *Clin Exp Nephrol*, 278:32–43. Available at: <https://doi.org/10.1007/S10157-022-02267-0> (accessed 31 July 2023).
- Kempe A et al. (2014). Effectiveness of primary care–public health collaborations in the delivery of influenza vaccine: a cluster-randomized pragmatic trial, *Prev Med*, 69:110–16. Available at: <https://doi.org/10.1016/J.YPMED.2014.08.019> (accessed 31 July 2023).
- Kendri C et al. (2020). Collaboration of primary care and public health at the local level: Observational descriptive study of French local health contracts, *Prim Health Care Res Dev*, 21. Available at: <https://doi.org/10.1017/S1463423620000559> (accessed 31 July 2023).
- Kinder K. et al. (2021). Integrating primary care and public health to enhance response to a pandemic, *Prim Health Care Res Dev*, 22:e27. Available at: <https://doi.org/10.1017/S1463423621000311> (accessed 31 July 2023).
- Kindig D, Stoddard G (2003). What is population health? *Am J Public Health*, 93(3):380–3. doi: 10.2105/ajph.93.3.380.
- Klančar D, Švab I (2014). Primary care principles and community health centers in the countries of former Yugoslavia, *Health Policy*, 118(2):166–72. Available at: <https://doi.org/10.1016/j.healthpol.2014.08.014> (accessed 31 July 2023).
- Lasker RD (1997). *Medicine & Public Health: The Power of Collaboration*, Chief Executive. The New York Academy of Medicine.
- Last JM (2006). *A dictionary of public health*. 1st edn. Oxford, UK: Oxford University Press.
- Lebrun LA et al. (2012). Primary care and public health activities in select U.S. health centers: Documenting successes, barriers, and lessons learned, *Am J Prev Med*, 42(6 suppl2):S191–202. Available at: <https://doi.org/10.1016/J.AMEPRE.2012.03.011> (accessed 31 July 2023).
- Levesque J-F et al. (2013). The Interaction of Public Health and Primary Care: Functional Roles and Organizational Models that Bridge Individual and Population Perspectives, *Public Health Rev*, 35(1):14. Available at: <https://doi.org/10.1007/BF03391699> (accessed 31 July 2023).
- Lim SM et al. (2022). The COVID Positive Pathway: a collaboration between public health agencies, primary care, and metropolitan hospitals in Melbourne, *Med J Aust*, 216(8):413–19. Available at: <https://doi.org/10.5694/MJA2.51449> (accessed 31 July 2023).
- Lin MH, Tin N (2022). Myanmar: a primary health care case study in the context of the COVID-19 pandemic.
- Lionis C et al. (2018). Towards evidence-informed integration of public health and primary health care: experiences from Crete.

- Lotta G, Nunes J (2022). COVID-19 and health promotion in Brazil: community health workers between vulnerability and resistance, *Glob Health Promot*, 29(1):14–22. Available at: <https://doi.org/10.1177/17579759211012375> (accessed 31 July 2023).
- Lynn J et al. (2007). Using Population Segmentation to Provide Better Health Care for All: The “Bridges to Health” Model, *Milbank Q*, 85(2):185–208. doi.org/10.1111/j.1468-0009.2007.00483.x.
- McNicholas T et al. (2023). A novel approach to utilizing the essential public health functions in Ireland’s health system recovery and reform. *Front Public Health*, 11:1074356. Available at: <https://doi.org/10.3389/fpubh.2023.1074356> (accessed 31 July 2023).
- McVicar KL et al. (2019). Primary Care and Public Health Collaboration Reports: A Qualitative Review of Integration Aims, Participants, and Success Determinants, *Popul Health Manag*, 22(5):422–32. Available at: <https://doi.org/10.1089/POP.2018.0160> (accessed 31 July 2023).
- Macinko J, Harris MJ (2015). Brazil’s family health strategy: delivering community-based primary care in a universal health system, *N Engl J Med*, 372(23):2177–81. Available at: <https://doi.org/10.1056/NEJMP1501140> (accessed 31 July 2023).
- Maher D, Ford N, Gilmore I (2017). Practical steps in promoting synergies between clinical medicine and public health. *Clin Med (Lond)*, 17(2):100–2. Available at: <https://doi.org/10.7861/clinmedicine.17-2-100> (accessed 31 July 2023).
- Martin-Misener R et al. (2012). A scoping literature review of collaboration between primary care and public health, *Prim Health Care Res Development*, 13(4):327–46. Available at: <https://doi.org/10.1017/S1463423611000491> (accessed 31 July 2023).
- Millar J et al. (2013). Is Public Health Ready to Participate in the Transformation of the Healthcare System?, *Healthc Pap*, 13(3):10–20. Available at: <https://doi.org/10.12927/HCPAP.2014.23689> (accessed 31 July 2023).
- Mold JW, Peterson KA (2005). Primary care practice-based research networks: working at the interface between research and quality improvement. *Ann Fam Med*, 3(1):S12–20.
- Moloughney BW (2013). Public Health Readiness and Role in Transformation to a Community-Based Primary Healthcare System, *Healthc Pap*, 13(3):64–70. Available at: <https://doi.org/10.12927/HCPAP.2014.23675> (accessed 31 July 2023).
- Mukherjee JS, Eustache FE (2007). Community health workers as a cornerstone for integrating HIV and primary healthcare, *AIDS Care*, 19(suppl1):73–82. Available at: <https://doi.org/10.1080/09540120601114485> (accessed 31 July 2023).
- Murauskiene L et al. (2013). Lithuania: Health system review, *Health Syst Transit*, 15(2):1–150.
- Nutting PA et al. (2010). Effect of facilitation on practice outcomes in the National Demonstration Project model of the patient-centered medical home. *Ann Fam Med*, 8(1):S33–44.
- OECD Health Policy Studies (2022). Primary Health Care for Resilient Health Systems in Latin America. Paris: Organisation for Economic Co-operation and Development.
- Orkin AM et al. (2017). Clinical Population Medicine: Integrating Clinical Medicine and Population Health in Practice, *Ann Fam Med*, 15(5):405–9. Available at: <https://doi.org/10.1370/AFM.2143> (accessed 31 July 2023).

- Ottawa Charter for Health Promotion (1986). The Ottawa Charter for Health Promotion. Ottawa: World Health Organization, Health and Welfare Canada & Canadian Public Health Association.
- PAHO (2020). The Essential Public Health Functions in the Americas: A Renewal for the 21st Century. Conceptual Framework and Description. Washington, DC: Pan American Health Organization. Licence: CC BY-NC-SA 3.0 IGO. Available at: <https://doi.org/10.37774/9789275122648> (accessed 31 July 2023).
- PAHO (2022). Strategy for Building Resilient Health Systems and Post-COVID-19 Pandemic Recovery to Sustain and Protect Public Health Gains. Washington, DC: Pan American Health Organization. Licence CC BY-NC-SA 3.0 IGO. Available at: https://iris.paho.org/bitstream/handle/10665.2/55858/PAHOHSSHSCOV-19210015_eng.pdf?sequence=1&isAllowed=y (accessed 31 July 2023).
- Petrič K, Pribaković Brinovec R, Brinovec Z (2018). Health Promotion Centres in Slovenia: Integrating Population and Individual Services to Reduce Health Inequalities at Community Level, in M Jakab, L Borgermans & J Cerezo Cerezo (eds), Health Systems Respond to Non-communicable Disease. Copenhagen: WHO Regional Office for Europe, pp. 82–7.
- Pinto AD (2008). Engaging health professionals in advocacy against gun violence, *Med Confl Surviv*, 24(4):285–95. Available at: <https://doi.org/10.1080/13623690802374197> (accessed 31 July 2023).
- Pinto AD (2013). Improving collaboration between public health and primary healthcare, *Healthc Pap*, 13(3):41–9.
- Pinto AD (2016). Building an advocacy network to address a key social determinant of health: Ontario's Decent Work and Health Network, in North American Primary Care Research Group 44th Annual Meeting.
- Pinto AD, Bloch G (2017). Framework for building primary care capacity to address the social determinants of health, *Can Fam Physician*, 63:476–82.
- Pinto RM et al. (2012). Primary care and public health services integration in Brazil's unified health system, *Am J Public Health*, 102(11). Available at: <https://doi.org/10.2105/AJPH.2012.300972> (accessed 31 July 2023).
- Poliakovienė R, Gurevičius R (2011). Health synergy: public health component reinforcement in the field of primary health care, *Visuomenės Sveikata*, 1(52):30–41.
- Pratt R et al. (2017). Primary Care and Public Health Perspectives on Integration at the Local Level: A Multi-State Study, *J Am Board Fam Med*, 30(5):601–7. Available at: <https://doi.org/10.3122/JABFM.2017.05.170034> (accessed 31 July 2023).
- Pratt R et al. (2018). Identifying Barriers to Collaboration Between Primary Care and Public Health: Experiences at the Local Level, *Public Health Rep*, 133(3):311–17. Available at: <https://doi.org/10.1177/0033354918764391> (accessed 31 July 2023).
- Price D, Chan D, Greaves N (2014). Physician surveillance of influenza: collaboration between primary care and public health. *Can Fam Physician*, 60(1):e7–15. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/24452584> (accessed 31 July 2023).
- Queenan JA, Birtwhistle R, Drummond N (2016). Supporting primary care public health functions, *Can Fam Physician*, 62(7).

- Rajan D et al. (2021). "Build forward better" must include health investment in government capacities to engage with communities and civil society, *Eurohealth*, 27(1):54–9.
- Rawaf S (2018). A proactive general practice: Integrating public health into primary care, *Lond J Prim Care*, 10(2):17–18. Available at: <https://doi.org/10.1080/17571472.2018.1445946> (accessed 31 July 2023).
- Rechel B (2020). How to enhance the integration of primary care and public health? Approaches, facilitating factors, and policy options. Copenhagen: European Observatory on Health Systems and Policies. Available at: <https://pubmed.ncbi.nlm.nih.gov/32073809/> (accessed: 19 December 2022).
- Rowan M, Hogg W, Huston P (2007). Integrating Public Health and Primary Care, *Healthc Policy*, 3(1). Available at: <https://doi.org/10.12927/HCPOL.2007.19144> (accessed 31 July 2023).
- Shahzad M et al. (2019). A population-based approach to integrated healthcare delivery: a scoping review of clinical care and public health collaboration, *BMC Public Health*, 19(1):708. Available at: <https://doi.org/10.1186/s12889-019-7002-z> (accessed 31 July 2023).
- Shakory S et al. (2022). Best Practices for COVID-19 Mass Vaccination Clinics, *Ann Fam Med*, 20(2):149–56. Available at: <https://doi.org/10.1370/afm.2773> (accessed 31 July 2023).
- Shaw EK et al. (2012). The role of the champion in primary care change efforts: from the State Networks of Colorado Ambulatory Practices and Partners (SNOCAP). *J Am Board Fam Med*, 25(5):676–85.
- Squires N et al. (2023). Essential public health functions: the key to resilient health systems. *BMJ Glob Health*, 8:e013136.
- Starfield B, Shi L (2002). Policy relevant determinants of health: an international perspective. *Health Policy*, 60:201–18.
- Storm I et al. (2015). How can collaboration be strengthened between public health and primary care? A Dutch multiple case study in seven neighbourhoods, *BMC Public Health*, 15(1). Available at: <https://doi.org/10.1186/S12889-015-2307-Z> (accessed 31 July 2023).
- Swanson M et al. (2020). The role of registered nurses in primary care and public health collaboration: a scoping review, *Nurs Open*, 7(4):1197–1207. Available at: <https://doi.org/10.1002/NOP2.496> (accessed 31 July 2023).
- Tobgay T et al. (2022). Bhutan: a primary health care case study in the context of the COVID-19 pandemic.
- Torner N et al. (2013). Influenza sentinel surveillance network: a public health–primary care collaborative action to assess influenza A(H1N1)pmd09 in Catalonia, Spain, *Hum Vaccin Immunother*, 9(3):671–4. Available at: <https://doi.org/10.4161/HV.23264> (accessed 31 July 2023).
- Truswell AS et al. (2012). Practice-based evidence for weight management: alliance between primary care and public health, *Fam Pract*, 29(1):i6–9. Available at: <https://doi.org/10.1093/FAMPRA/CMR058> (accessed 31 July 2023).

- United Nations (2019). Political Declaration of the High-level Meeting on Universal Health Coverage “Universal health coverage: moving together to build a healthier world”. 23 September 2019. Available at: <https://www.un.org/pga/73/wp-content/uploads/sites/53/2019/07/FINAL-draft-UHC-Political-Declaration.pdf> (accessed 31 July 2023).
- Valaitis R (2012). Strengthening Primary Health Care through Primary Care and Public Health Collaboration. Final Report for CFHI. Hamilton, Ontario.
- Valaitis R et al. (2018a). Organizational factors influencing successful primary care and public health collaboration, *BMC Health Serv Res*, 18(1). Available at: <https://doi.org/10.1186/S12913-018-3194-7> (accessed 31 July 2023).
- Valaitis RK et al. (2018b). Strengthening primary health care through primary care and public health collaboration: the influence of intrapersonal and interpersonal factors, *Prim Health Care Res Dev*, 19(4):378–91. Available at: <https://doi.org/10.1017/S1463423617000895> (accessed 31 July 2023).
- Valaitis RK et al. (2020). Addressing quadruple aims through primary care and public health collaboration: Ten Canadian case studies, *BMC Public Health*, 20(1). Available at: <https://doi.org/10.1186/s12889-020-08610-y> (accessed 31 July 2023).
- van Avendonk MJP et al. (2012). Primary care and public health a natural alliance? The introduction of the guidelines for obesity and undernutrition of the Dutch College of General Practitioners, *Fam Pract*, 29(1):i31–5. Available at: <https://doi.org/10.1093/FAMPRA/CMR095> (accessed 31 July 2023).
- Vračko P, Petrič V-K, Borgermans L (2021). Slovenia: Community health centres with multidisciplinary teams provide an effective dual-track approach to COVID-19. Geneva, Switzerland.
- Wadge H et al. (2016). Brazil’s Family Health Strategy: Using community health workers to provide primary care. *Commonwealth Fund*, 40(December):1–15. Available at: <https://www.exemplars.health/-/media/files/egh/resources/community-health-workers/brazil/brazils-family-health-strategy-using-community-health-workers-to-provide-primary-care.pdf> (accessed 31 July 2023).
- Westfall JM (2013). Cold-spotting: Linking primary care and public health to create communities of solution, *J Am Board Fam Med*, 26(3):239–40. Available at: <https://doi.org/10.3122/jabfm.2013.03.130094> (accessed 31 July 2023).
- White KL, Williams TF, Greenberg BG (1961). The Ecology of Medical Care, *N Engl J Med*, 265(18):885–92. Available at: <https://doi.org/10.1056/NEJM196111022651805> (accessed 31 July 2023).
- WHO (1978). Declaration of Alma Ata. Geneva: World Health Organization. Available at: https://cdn.who.int/media/docs/default-source/documents/almaata-declaration-en.pdf?sfvrsn=7b3c2167_2 (accessed 16 December 2022).
- WHO (2016). Strengthening essential public health functions in support of the achievement of universal health coverage. World Health Organization Executive Board, EB138.R5. Available at: <https://apps.who.int/iris/handle/10665/250789> (accessed 31 July 2023).

- WHO (2018a). Essential public health functions, health systems and health security: developing conceptual clarity and a WHO roadmap for action. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/272597> (accessed 31 July 2023).
- WHO (2018b). Primary health care: closing the gap between public health and primary care through integration (No. WHO/HIS/SDS/2018.49). Geneva: World Health Organization.
- WHO (2018c). Regional framework for action on transitioning to integrated financing of priority public health services in the Western Pacific. WHO Regional Office for the Western Pacific. Available at: <https://apps.who.int/iris/handle/10665/274718> (accessed 31 July 2023).
- WHO (2020). Integrated, person-centred primary health care produces results: case study from Slovenia. Copenhagen: WHO Regional Office for Europe. Available at: <https://iris.who.int/handle/10665/336184> (accessed on 17 April 2024).
- WHO (2021a). 21st century health challenges: can the essential public health functions make a difference? Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240038929> (accessed on 17 April 2024).
- WHO (2021b). Building health systems resilience for universal health coverage and health security during the COVID-19 pandemic and beyond: WHO position paper (WHO/UHL/PHCSP/2021.01). Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/WHO-UHL-PHC-SP-2021.01> (accessed 31 July 2023).
- WHO (2022a). 10 proposals to build a safer world together – Strengthening the Global Architecture for Health Emergency Preparedness, Response and Resilience. Geneva: World Health Organization. Available at: <https://www.who.int/publications/m/item/10-proposals-to-build-a-safer-world-together---strengthening-the-global-architecture-for-health-emergency-preparedness---response-and-resilience---white-paper-for-consultation---june-2022> (accessed 31 July 2023).
- WHO (2022b). Building resilient health systems to advance universal health coverage and ensure health security in the Eastern Mediterranean Region. WHO Regional Committee for the Eastern Mediterranean, Sixty-ninth session, Provisional agenda item 3(a) (EM/RC69/4). Available at: <https://applications.emro.who.int/docs/Build-resilient-health-systems-UHC-EMR-eng.pdf> (accessed 31 July 2023).
- WHO (2022c). 21st century health challenges: can the essential public health functions make a difference?: discussion paper. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240038929> (accessed on 17 April 2024).
- WHO (2023). Population health management in primary health care: a proactive approach to improve health and well-being. Available at: <https://www.who.int/europe/publications/i/item/WHO-EURO-2023-7497-47264-69316> (accessed 31 July 2023).

- WHO Regional Committee for Europe (2011). Sixty-first Regional Committee for Europe: Baku, 12–15 September 2011: draft resolution: strengthening public health capacities and services in Europe: a framework for action. WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/336059> (accessed 31 July 2023).
- WHO Regional Committee for the Western Pacific (2017). Transitioning to integrated financing of priority public health services (Resolution). WHO Regional Office for the Western Pacific. Available at: <https://apps.who.int/iris/handle/10665/361633> (accessed 31 July 2023).
- WHO Regional Office for Europe (2012). Strengthening public health services and capacity: an action plan for Europe: promoting health and well-being now and for future generations. WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/340447> (accessed 31 July 2023).
- WHO Regional Office for Europe, ASPHER (2020). Competency Framework for the public health workforce in the European Region. WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/bitstream/handle/10665/347866/WHO-EURO-2020-3997-43756-61569-eng.pdf> (accessed 31 July 2023).
- WHO, UNICEF (2018). A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. Geneva: World Health Organization/Switzerland: United Nations Children’s Fund. Available at: <https://www.who.int/docs/default-source/primary-health/vision.pdf> (accessed on 17 April 2024).
- WONCA (2017). Declaration Calling for Family Doctors of the World to Act on Planetary Health. Available at: www.planetaryhealthalliance.org/clinicians (accessed 18 December 2022).
- Wong ST et al. (2017). What systemic factors contribute to collaboration between primary care and public health sectors? An interpretive descriptive study, *BMC Health Services Research*, 17(1):1–10. Available at: <https://doi.org/10.1186/s12913-017-2730-1> (accessed 31 July 2023).
- Wright B, Ugwi P, Nice AJ (2015). Organizational scope of practice: Assessing the primary care and public health activities of health centers and health departments in Iowa, *Popul Health Manag*, 18(2):137–45. Available at: <https://doi.org/10.1089/POP.2014.0066> (accessed 31 July 2023).
- Wynn A, Moore KM (2012). Integration of primary health care and public health during a public health emergency, *Am J Public Health*, 102(11):9–12. Available at: <https://doi.org/10.2105/AJPH.2012.300957> (accessed 31 July 2023).
- Zhang Y et al. (2023). Towards applying the essential public health functions for building health systems resilience: a renewed list and key enablers for operationalization, *Front Public Health* [Preprint]. doi.org/doi.org/10.3389/fpubh.2022.1107192.

6

PHC-oriented models of care

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Key messages

A model of care outlines where and how a set of services is delivered. Such models often develop ad hoc over time and health systems typically have multiple, interlinked models operating simultaneously across levels. This can cause fragmentation and inefficiency. A primary health care (PHC)-oriented model of care facilitates the delivery of comprehensive, integrated people-centred care, prevention and health promotion over the life course.

- Reorienting models of care towards PHC is a complex, long-term, iterative process but supports high-quality, responsive and more efficient care.
- There is no single “correct” model – national and local context are crucial, but country experience suggests effective processes include at least four domains:
 - selection and planning of services defines the package of care and identifies delivery channels; it allows planners to tackle integration across platforms, settings and levels, and to consider how to engage the public and/or private sectors
 - service design is a way of ensuring individuals are assigned to a primary care provider, building in desired practices, clinical guidelines and care pathways that promote primary care and encourage timely patient referral to acute services and effective counter-referral
 - getting organization and management right means strengthening professional management, leadership and supervision; building multidisciplinary teams; and encouraging community-based case management and coordination
 - community linkages and collaboration between facility and community-based providers are an asset as is involving communities in planning and organizing services and offering care and education in homes.

6.1 Introduction

To meet the evolving health needs of their populations, countries increasingly aim to reorient their national and/or subnational models of care towards a PHC approach. A model of care represents a set of strategic choices that determine what services are delivered, and where and how they are delivered (WHO & UNICEF, 2020a). The term

“model of care” is widely used to describe diverse concepts, including “micro” clinical processes, “meso” clinical networks for specific diseases and “macro” conceptualization of how services can be delivered at national and subnational levels. Here we focus on the concrete domains and elements that constitute a model of care, as emphasized in the PHC Operational Framework. The chapter brings together draft WHO guidance on PHC-oriented models of care (WHO Clinical Services and Systems Unit, in press) with original country illustrations and analyses.

The model of care domains are: selection and planning of services; service design; organization and management; and linkages of these components to communities (and where possible, to social services) (see Table 6.1) (WHO, 2010; WHO & UNICEF, 2022). An intentional and well-designed model of care addresses these domains with clear roles and responsibilities identified for different platforms, networks and stakeholders. A PHC orientation to a model of care means a comprehensive approach to services, including promotion, prevention and treatment, including curative care, but also resuscitation, rehabilitation and palliative care (WHO & UNICEF, 2022). A robust model of care will be able to evolve to meet the changing health priorities of the population and to improve performance of the health system over time (WHO & UNICEF, 2020a).

Models of care are a product of a country’s unique history and health system trajectory. In practice, countries may have multiple, interrelated models of care functioning across national and subnational levels simultaneously. Many countries have implicit, default models of care that have developed unintentionally and in a fragmented way over time. A recent global scoping review found there is need for more explicit articulation of intended national and subnational models of care, as well as clear, practical, coordinated plans for their implementation, financing and monitoring over time (WHO Clinical Services and Systems Unit, in press).

Even when they are not intentional or explicit, models of care have a powerful influence over how a health system functions. In particular, fragmented health systems with service delivery platforms organized around specific diseases can undermine the ability of health systems to provide equitable, people-centred, high-quality and financially sustainable care. In some settings, national planners have explicitly designed and tried to implement new models of care. However, even when models of care are clearly planned and described, they may differ from those that are actually implemented. Section 6.3 describes such challenges, as well as others, by showcasing experiences from low- and middle-income countries (LMICs) and high-income country (HICs) spanning all regions for the policy-making reader to draw inspiration from.

Table 6.1 Domains and key elements of PHC-oriented models of care

PHC-oriented models of care	
Domains	Key elements
1 Selection and planning of services	Service package meets certain criteria
	Roles and functions of service delivery platforms and settings are clearly defined
2 Service design	Existence of empanelment system
	System to promote first contact accessibility
	System for patient referral, counter-referral and emergency transfer
	Clinical guidelines
	Existence of care pathways for key conditions
3 Organization and management	Professionalization of management and leadership
	Appropriate management authority and scope
	Existence of supportive supervision system
	Multidisciplinary team-based service delivery
	Care coordination and case management
	Existence of facility budgets and expenditures meeting criteria
4 Community linkages and engagement	Collaboration across facility-based and community-based service delivery
	Community engagement in service planning and organization
	Community-based service delivery by facility personnel
	Services for self-care and health literacy in primary care

Source: Adapted by authors based on WHO & UNICEF, 2022

6.2 PHC-oriented models of care

A defining principle of PHC-oriented models of care is the central role of primary care within comprehensive integrated service delivery (World Health Assembly, 2016; WHO & UNICEF, 2020a, 2022). A PHC-oriented model of care: defines service priorities based on life course needs; accounts for people's desires and preferences regarding access to care; fosters promotion, prevention and public health; builds strong primary care-based systems by shifting towards more outpatient and ambulatory care; and innovates and incorporates new technologies. This kind of model of care prioritizes first contact care and emphasizes longitudinal health care coordination for promotion and prevention across the life course and for conditions that require care over time (Bearden et al., 2019). It creates pathways to guide people's journeys through a health system. These models of care are centred on high-quality primary care and promote strong linkages with timely acute care and effective referral and counter-referral systems across all levels (WHO & UNICEF, 2022).

There are many possible PHC-oriented models of care, but these models share the characteristics shown in Box 6.1.

Box 6.1 Characteristics of PHC-oriented models of care (non-exhaustive list)

- High-quality primary care as first contact care, including for undifferentiated symptoms or conditions.
- Strong linkages with timely acute care (including for out-of-hours first contact services) and effective referral and counter-referral systems across all levels of care.
- Longitudinal health care coordination for promotion and prevention across the life course and for conditions that require care over time.
- Multidisciplinary, team-based service delivery.
- Optimized pathways to guide people's journeys through a health system.

PHC-oriented models of care mainly fall within the “integrated health service” component of PHC that has primary care and essential public health functions at its core (see Fig. 1.1 in Chapter 1). However, models of care also closely relate to, and intersect with, the “empowered people and communities” and “multisectoral policy and action” PHC components (WHO & UNICEF, 2020a, 2022). For example, the health sector may collaborate closely with the education sector within the model of care in large-scale school-based health promotion and preventative screening.

6.2.1 Enabling reorientation towards PHC: defining target populations and understanding their needs

■ Using population registries to define populations

Target populations can be defined depending on the context, including geographic regions, demographic attributes or cultural groups. They may also be determined by health services or patient characteristics, including health insurance providers, disease registries or patient preferences (see Chapter 13). Whichever way populations are characterized, health systems require a method to capture every individual while defining populations, ensuring that marginalized groups like migrants, prisoners and people living in remote communities are included (Kindig & Stoddart, 2003).

Once a population is defined, health system actors may establish a mechanism for identifying individuals. Personal identifying data are sensitive, so communities may have a say in how these data are collected and used.

■ Using data and community experience to understand subpopulation needs

Defining a population allows planners to characterize health needs and understand the required services to address these needs. Population and subpopulation data can actively inform service delivery and how services are organized and delivered around the person to meet needs and demands (see Box 6.2). Data used for making decisions can come from a variety of stakeholders, including health care providers, patients, insurance providers, communities, public organizations and other governmental stakeholders (finance, economics, education, etc.).

Box 6.2 Using data and community experience to understand subpopulation needs: Family Community Health Teams in El Salvador

The implementation of Family Community Health Teams in El Salvador is one example of how data and community experience are used to understand local needs (WHO, 2018a). Health authorities prioritized the 100 poorest municipalities (defined population) where a team was allocated comprising a general practitioner (GP), a nurse, a nursing technician and three health promoters. The team-based approach to care that starts with prevention, includes the curative, and is close to communities. These teams are responsible for an average of 600 families in rural areas and 1800 families in urban areas. Teams assess the assigned population by visiting families, completing assessment forms and engaging with patients and community members. Based on this, the health teams develop proactive PHC programmes in line with the needs of the individuals and the families, and then monitor these programmes and their effects to support further adjustment of services to meet local needs.

6.2.2 Domain 1: Selection and planning of services

■ Service package meets certain criteria

An explicit package of priority services for universal health coverage (UHC) (“UHC package”) is a critical element of a PHC-oriented model of care. A UHC package is a set of health interventions to which a population is guaranteed access through a range of government assurance mechanisms. These mechanisms may include direct financing or provision for some groups, mandatory contribution and pre-payment schemes, and regulatory structures that dictate what public and private entities must pay for or deliver (WHO, 2014, 2018b, 2018c, 2022b)

Critically, specific services in the UHC package mapped to specific delivery platforms will support and reinforce other model of care elements, such as roles and functions of platforms and referral between them. A well-designed UHC package facilitates the goals that a country has for service delivery and drives integration and linkage across platforms, in so doing supporting the design and implementation of effective models of care.

Developing a UHC package is a dynamic process that changes as national finances and epidemiological patterns evolve over time. Countries require strong data and monitoring systems to review the impact of UHC package decisions on different subpopulations (see Chapter 13). Strong governance is also important to guide UHC package decision-making and priority-setting, including engagement and consultation with the general public and disadvantaged populations in a deliberative process that accounts for economic realities, local health needs and social preferences.

■ Roles and functions of service delivery platforms and settings are clearly defined

In a PHC-oriented model of care, the roles and functions of service delivery platforms are defined within integrated health service delivery networks. Service delivery platforms are the modes or channels of health service delivery, such as community-based services, primary care, secondary care and tertiary care. Both publicly and privately administered service delivery platforms should promote integrated health services, strategically prioritizing primary care and public health functions and ensuring adequate coordination (WHO, 2018b, 2018d, 2022a). Service coordination and integration are reinforced when roles and functions are clear to providers, patients and communities. This clarity is especially critical at the intersection of primary care with hospital care, other types of institutionalized care, rehabilitation, therapeutic care, palliative care, day care and home-based care.

6.2.3 Domain 2: Service design

■ Existence of an empanelment system

Empanelment is the identification and assignment of individuals and/or populations to specific health care facilities, teams or providers who are responsible for the delivery of coordinated care (WHO & UNICEF, 2020a). Registering with a specific

practitioner has been found to improve care continuity, quality and accountability (Bitton et al., 2019; Levine, Landon & Linder, 2019; Marchildon et al., 2021; Silwal et al., 2023). Patient lists can be defined based on geographic empanelment, insurance-based empanelment, individual choice or specific diagnoses (see Box 6.3) (Bearden et al., 2019; JLN, 2019a). By assigning responsibility for the health of a defined group of patients to specific health care facilities, teams or providers, and aligning incentives with their long-term health outcomes, empanelment shifts the focus of service provision away from disconnected episodes of reactive care (disease treatment) towards systematic, proactive care to improve population health (health promotion and disease prevention).

Box 6.3 Panel sizes in Sudan and Mongolia

It is important to ensure that panels have an appropriate size and composition in terms of sociodemographic characteristics and disease burden. Around the world, panel sizes vary greatly. In parts of Sudan, for example, individual providers are assigned up to 10 000 people, whereas in Mongolia panels of 1750 are assigned to multidisciplinary primary care teams of seven (Bearden et al., 2019). Appropriate ratios depend on context, accessibility, team size and population characteristics, so it is important to have a robust and inclusive process for setting these ratios.

■ System to promote first contact accessibility

PHC-oriented models of care have a system to promote primary care as the first point of contact, or a patient's entry point into the health system, for most health needs. In promoting first contact, planners and managers are central to ensure that primary care needs can be met in primary care facilities, including care coordination and referral when appropriate. It is important to have key structures and processes in place, including a competent health workforce, policies that address access and a robust feedback mechanism that ensures people's perceptions of the quality of health services are being addressed.

Ease of access to a primary care provider improves continuity and appropriate utilization of health services that match users' needs (WHO, 2018f; PHCPI, 2020). First contact accessibility contributes to patients having their problem identified and managed quickly. It also enables emergency care providers and hospital specialists to spend more of their time on areas where they add the most value, while maximizing the use of primary care professionals' strengths.

■ System for patient referral, counter-referral and emergency transfer

Explicit protocols and structured communication mechanisms are in place to promote reporting and feedback between primary care practitioners and other levels and types of care (including emergency and referral visits) to promote coordination and information continuity. Protocols are contextualized within well-designed, func-

tional referral systems that have explicitly identified networks of interconnected health facilities; standardized referral guidelines addressing indications, mechanisms and communication; and structured instruments for referral and counter-referral (WHO; 2012, 2018e, 2019; WHO Regional Office for Europe, 2014; WHO Regional Office for South-East Asia, 2019; Every Woman Every Child, 2015).

■ **Clinical guidelines**

Clinical guidelines are an important PHC-oriented model of care element. Clinical guidelines are evidence-informed recommendations that support health professionals and patients to make decisions about care (Institute of Medicine, 2011; WHO & UNICEF, 2020a). Well-designed guidelines optimize the effectiveness, quality and safety of care, decrease variations in clinical practice and reduce costs (Grimshaw & Russell, 1993; Shapiro et al., 1993; Woolf et al., 1999). The WHO Package of Essential Noncommunicable (PEN) Disease Interventions is an example of a clinical guideline intended for PHC in low-resource settings. They define a minimum set of primary care interventions to address significant NCDs (for example, cardiovascular disease, diabetes, chronic respiratory diseases and early diagnosis of cancer).

■ **Existence of care pathways for key conditions**

Care pathways are structured multidisciplinary management plans (in addition to clinical guidelines) that map the routes of care through the health system for individuals with specific tracer conditions. Clearly designed care pathways improve service continuity and provision, including minimizing discrepancies in what and how care is delivered. Care pathways support the delivery of services in a timely manner, helping to reduce complications and enabling better discharge planning (WHO, 2018f; Busse et al., 2019).

Care pathways implemented in hospitals have been associated with shortened procedure time and length of patient's stay in the hospital. They also lead to better inpatient outcomes (fewer complications), reduced staff workloads (equipment and staff availability increased), and improved quality of life for patients (Carter et al., 2022). Within a PHC-oriented model of care, it is crucial that care pathways are coordinated across care settings to ensure that patients' unmet needs are served throughout life.

6.2.4 Domain 3: Organization and management

■ **Professionalization of management and leadership**

In a PHC-oriented model of care, training and/or certification pathways are in place to ensure professionalized management and leadership in health care. A framework and system that supports the development of health care managers is important in different parts of the health system, including the private and public sectors; health facilities, district health offices and central ministries; and support systems related to pharmaceutical, finances and information. In some contexts, health care management positions are occupied by clinicians with no management/ administrative expertise,

but effective health care management and leadership require a workforce trained in managerial core competencies. The professionalization of management process helps ensure adequate numbers, competencies and effective deployment of managers throughout the health system, contributing to managers' motivation and enabling them to perform well (Egger et al., 2005; WHO, 2007; Linnander et al., 2017; PHCPI, 2019).

■ **Appropriate management authority and scope**

Health care leaders and managers play an important stewardship role within PHC-oriented models of care by orienting health sector policies, strategies and plans and creating an enabling environment for PHC and its effective implementation over time. Effective leadership and management provide direction to partners and staff, facilitating change and achieving better health services through efficient, creative and responsible deployment of people and other resources. Setting a strategic vision and mobilizing resources and stakeholders are critical to health care leadership and management, but good leaders and managers also need to ensure effective organization and utilization of resources to meet a population's health targets. It is important that management and leadership processes include supportive supervision across levels, efficient resource management and community engagement.

At the facility level, a manager or management team with decision-making responsibilities can better coordinate day-to-day operations, undertake target-setting, human resource management and external relations (Egger et al., 2005; WHO, 2007; PHCPI, 2019).

■ **Existence of supportive supervision system**

Supportive supervision is a process of helping staff to improve their own work performance. It is carried out in a respectful and non-authoritarian way with a focus on using supervision as an opportunity to improve the knowledge and skills of health staff. Within a PHC-oriented model of care, supportive supervision involves monitoring performance towards health goals; use of data for decision-making and quality improvement; and regular follow-up with staff to ensure that new tasks are being implemented correctly. Supportive supervision encourages open, two-way communication and team approaches to problem-solving (WHO, 2018e; Avortri, Nabukalu & Nabyonga-Orem, 2019; PHCPI, 2019).

■ **Multidisciplinary team-based service delivery**

Multidisciplinary teams share responsibility and accountability for clinical processes and care. Such collaboration is essential within a PHC-oriented model of care to optimize care continuity and coordination, align patients' care pathways, offer comprehensive services, enhance efficiency of service delivery and improve patient outcomes and satisfaction (see Box 6.4) (Muni et al., 2016; Suter et al., 2017; Rawlinson et al., 2021).

Box 6.4 Multidisciplinary teams in Brazil and Indonesia

A core component of Brazil's Family Health Programme (FHP) is multidisciplinary family health teams comprising a physician, a nurse and four to six community health agents who together address needs that span from community to facility and from prevention and surveillance to medical treatment (Fertonani et al., 2015). The FHP programme has effectively addressed health disparities, particularly for the poorest municipalities (Sala et al., 2011; Castro et al., 2012). This programme has contributed to improvements in service coverage and health outcomes. Similarly, in Indonesia, the Nusantara Sehat (Healthy Archipelago) programme deploys multidisciplinary teams to community health centres in remote and border islands (Benotti et al., 2021). The teams comprise nine types of health care workers, including doctors, nurses, midwives, dentists, laboratory specialists, technicians, pharmacists, nutritionists, and environment and public health professionals. The model has improved health service coverage in some of the most remote areas targeted.

Within a facility, typical elements of multidisciplinary teams that promote effectiveness include an identified manager and/or practice leader who oversees and facilitates the work of the whole team; a single process to access the workers in the team, with joint meetings to share insights and concerns; electronic records of all contacts, assessments and interventions of team members with an individual and their family; a “key worker” system through which care for those with complex support packages is coordinated by a specific and identified team member; and a team member dedicated to working with communities (WHO, 2006, 2015; Nancarrow et al., 2013). Such multidisciplinary teams enable task-shifting so that each cadre can work at the top of their licence.

■ Care coordination and case management

Within a PHC-oriented model of care, care coordination is a proactive approach that brings care professionals and providers together around the needs of service users to ensure that people receive integrated and person-focused care across various settings (WHO, 2018f; WHO & UNICEF, 2020a). A related process, case management, is a targeted, community-based and proactive approach to care that involves case-finding, assessment, care planning and care coordination to integrate services around the needs of individuals. Case management can be performed by an individual case manager or by a multidisciplinary team, but it often requires highly skilled professionals who are culturally sensitive and are experts on community resources (see Chapter 8). Care coordination and case management can be more efficient than reactive and acute care, improving outcomes and quality of life, and reducing costs and hospital admissions by preventing emergency hospital admission (Ross, Curry & Goodwin, 2011; Frankel, Gelman & Pastor, 2018).

People who may particularly benefit from case management are those who have long-term conditions, who require complex care (often from multiple providers or locations) and/or who have complex social and health needs (for example, elderly

people with multimorbidity, acquired immune deficiency syndrome (AIDS) patients and those with mental health problems) (WHO, 2018f; WHO & UNICEF, 2020a). In these cases, a small share of the population can account for a large proportion of overall health spending, requiring transparent and clear processes around decision-making (see Chapter 7) which supports health equity (see Chapter 15).

■ **Existence of facility budgets and expenditures meeting criteria**

Facility budgets set out how much money comes into a facility, where it comes from, how much money is spent and on what. Within a PHC-oriented model of care, flexible facility budgets allow for reallocations when appropriate. Budgets can simply track the flow of funds as they move in real time or retroactively, but – at higher levels of performance – facilities can also use budgets to proactively plan for future activities and expenditures. These forecasting exercises can provide the information facilities need to make strategic decisions, such as what and how many medicines and supplies to buy or which staff to hire (PHCPI, 2019).

6.2.5 Domain 4: Community linkages and engagement

Collaboration across facility-based and community-based service delivery. In many contexts, community health workers play an important role within PHC-oriented models of care. Community health workers are trained to provide health and medical care to members of their local communities, often in partnership with health professionals (WHO & UNICEF, 2022). Community-based and facility-based health worker collaboration takes a range of forms depending on the context, including formal partnerships influenced by national or subnational policies and financing mechanisms; joint training, supportive supervision and community outreach; and data-sharing for referrals and counter-referrals between community, primary care and higher levels of care. For example, in some settings it may be feasible and appropriate for both community health workers and facility-based staff to have access to a patient's electronic health records (EHRs), so that updates about a patient can be shared in real-time and all health personnel are providing complementary, reinforcing information and improving the quality of care (see Chapter 13).

Creating sustainable, effective linkages between facilities and community settings helps ensure continuity of care and clinical quality. Community-based providers can alert facility-based providers to public health issues and communicate the opinions of the people they serve to improve responsiveness of primary care services. They may also act as effective brokers between communities and district or facility managers. New health worker roles may be required as part of a reorientation of a model of care towards a PHC approach (WHO & ITU, 2012; WHO, 2018g, 2019; WHO & UNICEF, 2020b; Kim et al., 2020).

■ **Community engagement in service planning and organization**

Community engagement in the planning, organization, financing, governance and provision of health care is a central component of PHC-oriented models of care. The participation of community members in such processes helps ensure that services

are tailored to population needs, priorities and values. To ensure that the needs of the entire community are met, diverse members of the community need to be engaged, including members of marginalized groups. This may require multiple methods of engagement, to best capture the needs and opinions of traditionally underrepresented community members (Roodenbeke, WHO & IHF, 2011; WHO & UNICEF, 2020b; Rawlinson et al., 2021; WHO, 2021a).

■ **Community-based service delivery by facility personnel**

Community-based service delivery by facility personnel is fundamental to PHC-oriented models of care. This involves health systems actively providing education and care in homes and communities rather than exclusively in facilities. Such community outreach services can include preventive, promotive and curative services. Examples include community health promotion, health education, bed net distribution, and home or group visits, including for identification of acute cases and pregnant women needing referral to health facilities, family planning provision and follow-up on chronic disease medication adherence (WHO 2018f, 2021a; PHCPI, 2019; WHO & UNICEF, 2020a).

Community outreach services can be critical for: preventing communicable disease through delivery of vaccines, chemoprevention, vector control and treatment; avoiding acute exacerbations and treatment failures by maintaining established treatment regimens for people living with chronic conditions; taking specific measures to protect vulnerable populations, including pregnant and lactating women, young children and older adults; and managing emergency conditions that require time-sensitive intervention and maintaining functioning referral systems.

■ **Services for self-care and health literacy in primary care**

PHC-oriented models of care include services for self-care and health literacy in primary care, as these activities can improve health service effectiveness and health outcomes and can reduce health inequities. Self-care is the ability of individuals, families and communities to promote and maintain their health, prevent disease and cope with illness and disability, with or without the support of a health worker. Health literacy is the individual achievement of a certain level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions. Health literacy means more than being able to access web sites, read pamphlets and follow prescribed health-seeking behaviours; it also includes the ability to exercise critical judgement of health information and resources and the ability to interact and express personal and societal needs for promoting health (WHO, 2018h, 2021b, 2022b).

Understanding of national or subnational models of care is still evolving, including the characterization of associated domains and elements, aspects of their implementation and evidence of their impact. To date, many countries have focused on PHC reform of specific domains or elements of models of care, without formally and comprehensively considering all model of care elements or their interdependence. Robust evidence on the impact of specific interventions remains limited, but there is an increasing number of descriptive reports to inform strategic action.

6.3 Country illustrations: pathways to reorienting model of care elements towards PHC

This section depicts various approaches and experiences of countries in taking steps to incorporate elements of PHC in their models of care and implement PHC-oriented models of care.

6.3.1 Islamic Republic of Iran: a strong network of community health workers and multidisciplinary teams allows a multi-tiered referral system

Overview: The Islamic Republic of Iran (I.R. Iran) has implemented a series of health care reforms over the last four decades, with a special focus on improving care for disadvantaged and marginalized populations. One of the first reforms was the establishment of the National Health Network (1983), which was followed by the integration of health services and medical education (1985), the Family Physician Programme (2005) and the Health Sector Evolution Plan (2014), amongst others (Asadi-Lari et al., 2004; Hsu et al., 2020). These improvements have contributed to reduced rural-urban inequities and significantly improved health outcomes (Hsu et al., 2020; GBD 2019 Iran Collaborators, 2022).

Over the years, I.R. Iran has developed a well-defined, three-tiered health system comprising primary, secondary and tertiary services. These are coordinated and regulated by the Ministry of Health and Medical Education (Doshmangir et al., 2019). In addition, “health-houses” have been established in villages as the first level of contact between families and the health system. Each health-house covers about 1200 inhabitants and is staffed by a trained female and a male community health worker who provide primary care and public health services. Community health workers are selected from rural areas and undergo a two-year training before being hired in the health-house of their home village (Shadpour, 2000; Kalroozi et al., 2020). Large villages also have rural health centres where qualified physicians and a team of health workers provide primary care to a population of about 7000 inhabitants. Health-houses are supervised by rural health centres, which in turn are supervised by district health clinics, which are supervised by hospitals and regulated by medical universities under the overall supervision of the Ministry of Health and Medical Education.

Referral system: Successive reforms in I.R. Iran have contributed to a multi-tiered referral system. Community health workers refer people either for primary care services at rural health centres or for more specialized care at secondary level facilities. Similarly, rural health centres can refer patients to secondary care services, which are delivered through a network of district health clinics. Urban areas have a similar referral network involving health posts, health centres and district hospitals (Shadpour, 2000; Khayati & Saberi, 2009; Kalroozi et al., 2020). For the most specialized care, patients are referred to tertiary care within hospitals (Shadpour, 2000).

Multidisciplinary teams: As the I.R. Iran health care system has evolved, multidisciplinary teams have developed within and between service delivery platforms. For example, community health workers collaborate with staff of rural health centres and play an important role in facilitating community engagement in planning and management of health services. In another example, strong linkages between medical sciences universities and district hospitals facilitate collaboration and the development and implementation of evidence-based clinical practice guidelines (Yazdizadeh et al., 2011).

6.3.2 Ghana: community linkages and engagement in service delivery and planning to reach UHC

Overview: Over recent decades, Ghana's health sector reform has focused heavily on improving services at the community, subdistrict and district levels. The Community-Based Health Planning and Services (CHPS) initiative, created in 1999, is one important example. CHPS aims to bring health services close to communities and connect community members with preventive and public health services and tailor services according to community stakeholder recommendations.

Service planning: An important service planning reform in Ghana happened with the establishment in 2003 of the National Health Insurance Authority that aims to cover many basic services and costs related to 95% of diseases. Despite efforts, many gaps remain – at some points in the last decade, National Health Insurance Authority expenditure in primary care and preventive services declined and insurance coverage of the population was as low as 40% – indicating opportunities for strengthening PHC delivery (Ayandipo et al., 2020; Dzampe & Siita, 2020; Akweongo et al., 2021). Currently, for example, there are gaps in coverage of some aspects of primary care, family planning and CHPS activities to facilitate health promotion and prevention (Assan et al., 2018). Reimbursement can also be problematic, with insured people still expected to make out-of-pocket payments for consultations and medicines.

Community engagement: Nurses who are trained as community health officers form the backbone of CHPS. Their main tasks are door-to-door home services for their designated catchment area (or CHPS zone) and basic services at community-based CHPS compounds (Awoonor-Williams, Tادiri & Ratcliffe, 2023). Community health officers' training focuses on developing skills in community outreach and dialogue as a means of building trust and understanding community health needs. Meetings at CHPS compounds between community health committees and CHPS staff determine health priorities and serve as opportunities for health education and promotion (Awua et al., 2017; Awoonor-Williams, Tادiri & Ratcliffe, 2023). CHPS implementation research has found that increased and targeted community health officer engagement with communities is the most effective component of the programme. Indeed, where these components were not given sufficient attention in CHPS implementation, health outcomes have suffered (Awoonor-Williams et al., 2013). On-going initiatives, such as the Ghana Essential Health Interventions Programme, seek to improve the quality and range of services provided through CHPS, but in some districts CHPS implementation

has been difficult due to insufficient financing, staffing or infrastructure (Awoonor-Williams, Phillips & Bawah, 2019).

Provider collaboration: Since 2017, Ghana has piloted Primary Provider Networks to address challenges that individual CHPS zones face due to limitation in human resources, infrastructure and medicine supplies. A network links four or five smaller CHPS zones together with a bigger CHPS zone or health centre to jointly deliver more comprehensive care to patients. Through these networks, health workers can better manage clinical cases, organize care and improve upon administrative procedures (for example, insurance claim generation) at the subdistrict level (JLN, 2019b; Chikhradze et al., 2020).

6.3.3 Bangladesh: community health workers as first point of contact in community clinics

Overview: Bangladesh introduced a community health programme in the 1970s and since that time has developed a cadre of community health workers who play a critical role in improving health for the population. The government expanded the approach in 1998 by introducing a community clinic programme with the aim of achieving UHC. This programme takes a population health approach and has a strong focus on community engagement.

First contact accessibility: Community clinic services are delivered by community health workers and provide the first point of contact for essential health services in rural areas. There is one clinic for every 6000 people and the government has established more than 13 200 community clinics nationally. For 80% of the population, clinics are within a 30-minute walk from home (Normand, Iftekar & Rahman, 2002; Riaz et al., 2020). Community clinics address basic health needs and social determinants of health. For example, community health workers provide antenatal and postnatal care, conduct diabetes and blood pressure checks, and look out for signs of fever, diarrhoea and cough. They also support family planning and safe delivery, and provide advice on nutrition, adolescent health and hygiene, among other services.

Community engagement: There are several examples of how the community clinic programme has successfully engaged with communities (Riaz et al., 2020). For instance, the lands on which clinics are hosted are donated by the respective communities; the security of most (94%) of the community clinics is provided by the community; the cleanliness of the community clinics is provided by cleaners appointed by local communities; and community groups are active in the management of most of the community clinics (89%). Studies have found that, because of utilization and participation in the management of community clinics, local women have gained respect and status in local communities, empowering them through health care development (Riaz et al., 2020).

6.3.4 Chile: combining several model of care elements through comprehensive health reforms

Overview: Chile began implementing health reforms in 2005 with the aim of guaranteeing universal access to a specified package of services, irrespective of people's public or private insurance status (Aguilera et al., 2015). Greater integration of service delivery networks was one of the pillars of health system reform, with "Explicit Health Guarantees" for the entire population as its main plank. Key elements of this reform included clinical prioritization, linkage with specialty societies, securing of funding and coordination within health care networks (Almeida, Oliveira & Giovanella, 2018).

As part of its health system reform process, Chile also developed a Comprehensive Family and Community Health Care Model focused on people, families and communities, and comprehensive and continued care. The operationalization of this model has included transformation of clinics and traditional health centres into family health centres and community health centres, as well as initiatives to strengthen basic teams, networking, intersectoral work, local management and social participation, including valuing family and community components in the system design (Almeida, Oliveira & Giovanella, 2018).

Despite significant progress and a positive impact on equity and efficiency in health service delivery, barriers to implementation of Chilean reforms have posed challenges, including a prevailing medical and organizational culture that favours a hospital-centred approach, resistance from physicians and insufficient numbers of family medicine doctors.

Service planning and design: The Explicit Health Guarantees plan prioritizes and guarantees care for a number of health conditions (such as cancer, congenital heart diseases, high blood pressure, life-threatening injuries and premature labour). Needs, diagnosis, treatment and rehabilitation are defined for each of the 80 priority issues. For each one, the target group has the right of access (with a defined maximum time for the delivery of the service); the right to financial protection (i.e. regulated co-payment according to the type of health insurance that the beneficiary has); and right to quality (i.e. health care guaranteed by a registered provider who is accredited according to the law) (Aguilera et al., 2015).

Referral and counter-referral mechanisms: Chilean health system reforms have also sought to improve referrals and counter-referrals between facilities. Treatment guarantees specify the nature of services that should be offered at each level of a health service network and the type of follow-up required by the primary care level. Depending on the assigned population, health services may be divided into micro-networks, which are organized around their respective referral hospitals, most of which are public. Hospitals receive all primary care referrals and are responsible for resolving them and handling waiting lists. A network manager is responsible for defining referrals and counter-referrals to ensure continuity of care, monitoring of goals and promotion of coordination between primary care and specialized care (Almeida, Oliveira & Giovanella, 2018). The Chilean system has also created a "demand medical

manager” role; these are doctors within health care teams who receive additional compensation to evaluate a team’s referrals (Almeida, Oliveira & Giovanella, 2018).

Multidisciplinary teams: A number of interventions have been developed to support different types of interaction in primary care in Chile, including intersectoral interventions developed with other governmental sectors; interprofessional interventions developed by different professionals collaboratively; and multiprofessional interventions developed independently but in a coordinated way (Dominguez-Cancino, Palmieri & Martinez-Gutierrez, 2020).

Community engagement: Care Networks Integration Councils were established in 2002 with the responsibility to engage stakeholders and integrate networks. Some health service directors have increased participation of civil society and community leaders in these councils (Almeida, Oliveira & Giovanella, 2018).

6.3.5 Slovenia: empanelment and multidisciplinary teams at the centre of a community-based PHC model

Overview: Slovenia provides near-universal health coverage based on a network of health centres that were first introduced in 1926. The original aim – to provide comprehensive and integrated services to meet the main health needs of the local community – remains strong today. Municipalities provide primary care through networks of community-level centres, while a central body provides public health services. The state owns and operates virtually all secondary and tertiary care. Primary care centres supplement the provision of traditional general practitioner (GP) services with emergency medical aid, physiotherapy, community nursing, gynaecology and dental care. Primary care physicians tend to focus on adults, whilst paediatricians manage children.

Slovenia has a long tradition of using a “Health in All Policies” (HiAP) approach to improving national health equity. The Parliamentary Committee for Health and Social Affairs develops action plans that are implemented under the coordination of the Ministry of Health (Petrič & Maresso, 2018). Slovenia’s 2016–2025 National Health Plan specifically targets the social determinants of health through tax, education and social welfare (Ministry of Health Slovenia, 2015).

Empanelment, First Contact and Referral: In 2013, Slovenia adopted a health care network approach that sought to ensure that all geographic populations are served by adequate numbers of core primary care staff (Albrecht et al., 2021). Primary care centres are the first point of contact for the vast majority of health problems. Every person chooses a primary care physician, which forms a strong foundation for continuous and coordinated care. Family physicians are able to manage approximately 80% of all patient contacts without referral to other services (Pavlič, Švab & Pribaković, 2015). Slovenian primary care teams play a central coordinating role in the health system. Family physicians and their allied team members are responsible for referring patients for tests and treatment in secondary and tertiary care, irrespective of whether these providers are public or private. Once a patient has been seen, secondary/tertiary care write back to inform the primary care team about the outcome and next steps.

Multidisciplinary teams: In 2011, Slovenia introduced “model practices” – which were later renamed “family medicine practices” – with the aim of improving care for patients with stable chronic conditions. The new model involved providing proactive care and preventive services. Over 90% of practices now operate under the scheme. It has prompted a wave of task-shifting from physicians to graduate nurses, who now routinely deliver counselling, assessment and annual reviews for patients with conditions such as diabetes, asthma, chronic obstructive pulmonary disease (COPD), hypertension and depression. These nurses are able to seek input from other members of the primary care team when needed.

Community-based service delivery by facility personnel: Since the Slovenian National Institute for Public Health was formed in 2012, it has worked closely with primary care centres to assess the needs of local communities and tailor the provision of services to meet these needs. In the past decade, the largest centres have also launched new health promotion centres and community mental health centres to shift towards community-based proactive care and health promotion.

6.3.6 New Zealand: care management, referrals and coordination enable new integrated care practices

Overview: New Zealand’s Health Strategy, as defined in 2016, seeks to achieve an “integrated and cohesive system working in the best interests of New Zealanders”. This includes the system being people-powered, delivering care closer to home, offering value and high performance, and delivering care through a “one team” approach. In general, New Zealand has mature models of horizontal integration, but patchy examples of effective vertical integration, with decent political support for increasing intersectoral integration (Toop, 2017). During recent years, new integrated care practices have included collective planning approaches (i.e. “alliancing”), agreed pathways of care, chronic care management initiatives, shared patient information systems, co-located centres and indigenous models of holistic care (Cumming et al., 2021).

Care pathways and referrals: In 2008, New Zealand established a web-based health information portal that contains individual care pathways for specific clinical conditions. The country also has a referral system called HealthPathways that provides health practitioners with guidance on referral pathways for over 550 clinical conditions through embedding web-based clinical care pathways into general practice hospital electronic referral management systems. End users report that this digital system has improved their knowledge of local services and changed their clinical management decisions. HealthPathways has also been associated with improved referral quality and access from primary care to secondary care (Stokes et al., 2018).

Multidisciplinary teams: Policies and initiatives are in place to enhance coordination between the health sector and other sectors, including community and social development, Māori development, health, education, justice and housing for high-needs Māori families (Cumming, 2011). Specifically, in relation to health integration with social care, some social care services (for example, home and rest home care assessments and coordination, counselling and social services) are available through

Integrated Family Health Centres that deliver services through multidisciplinary, co-located teams of GPs, nurses, pharmacists, midwives, social workers and allied health workers (Cumming et al., 2021). Clinicians from across the health system work with funders and community agencies to redesign services with a shared focus on integrating care to provide “best-for-patient, best-for-system” outcomes. Developing the content of the care and referral pathways has also fostered strong primary and secondary care relationships.

6.4 Conclusion

All WHO Member States made a clear commitment at the World Health Assembly to reorient fragmented models of care towards PHC (World Health Assembly, 2016; WHO & UNICEF, 2020a). This, however, requires careful design and systematic priority-setting adapted to context, accounting for resource limitations, cultural values and other priority criteria. Careful design includes a thorough analysis of the existing model of care. After this, the principles, elements and interventions of a more PHC-oriented model of care can be developed and prioritized, with an explicit, systematic approach to engaging communities and involving multiple sectors (for example, health, planning, local government, finance, education and emergency preparedness) as far as feasible. Integrating all three PHC components in this way will contribute to more health services being designed, purchased and provided to prioritize primary and community care services (World Health Assembly, 2016; WHO & UNICEF, 2020a).

Again, the idea is not to create a new model of care from nothing. It is important to recognize that relevant strategic shifts may be under way through other initiatives, and these may already be contributing towards a more PHC-oriented model of care. The introduction of new model of care elements and implementation of reforms will also be heavily influenced by compromises and trade-offs as it is rarely possible to advance all PHC values and principles simultaneously.

In practice, the transitional process is complex, long-term and iterative. It involves incremental steps and periodic review, both to ensure fidelity to the new model of care design and to further improve upon it. Importantly, as these country illustrations demonstrate, there is no single correct “PHC-oriented” model of care. Individual model of care elements can be defined and strategically configured in myriad ways to produce unique models that are generally aligned with the principles of a PHC approach. Further, a model of care is never the end in itself, but rather a means of delivering high-quality, equitable and responsive care to people who need it.

Despite the complexity of actively reorienting a model of care towards PHC, the country illustrations demonstrate that many countries *are* already engaged in positive, strategic action towards more PHC-oriented models of care, and that it *is* possible. Building upon such initiatives to explicitly and systematically design and implement more PHC-oriented model of cares will contribute to more efficient, effective and equitable health services (see Part III).

REFERENCES

- Aguilera I et al. (2015). Improving health system efficiency: Chile: Implementation of the Universal Access with Explicit Guarantees (AUGE) reform. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/187657> (accessed 6 September 2023).
- Akweongo P et al. (2021). Insured clients out-of-pocket payments for health care under the national health insurance scheme in Ghana. *BMC Health Serv Res*, 21:440. doi: 10.1186/s12913-021-06401-8. Available at: <https://doi.org/10.1186/s12913-021-06401-8> (accessed 6 September 2023).
- Albrecht T et al. (2021). Slovenia: Health System Review. *Health Syst Transit*, 23:1–183.
- Almeida PF, Oliveira SC, Giovanella L (2018). Integração de rede e coordenação do cuidado: o caso do sistema de saúde do Chile [Network integration and care coordination: the case of Chile's health system]. *Cien Saude Colet*, 23:2213–28. doi: 10.1590/1413-81232018237.09622018.
- Asadi-Lari M et al. (2004). Public health improvement in Iran – lessons from the last 20 years. *Public Health*, 118:395–402. doi: 10.1016/j.puhe.2004.05.011.
- Assan A et al. (2018). Universal health coverage necessitates a system approach: an analysis of Community-based Health Planning and Services (CHPS) initiative in Ghana. *Glob Health*, 14:107. doi: 10.1186/s12992-018-0426-x. Available at: <https://doi.org/10.1186/s12992-018-0426-x> (accessed 6 September 2023).
- Avortri GS, Nabukalu JB, Nabyonga-Orem J (2019). Supportive supervision to improve service delivery in low-income countries: is there a conceptual problem or a strategy problem? *BMJ Glob Health*, 4:e001151. doi: 10.1136/bmjgh-2018-001151.
- Awoonor-Williams JK, Phillips JF, Bawah AA (2019). Scaling down to scale-up: a strategy for accelerating community-based health service coverage in Ghana. *J Glob Health Sci*, 1. Available at: <https://doi.org/10.35500/jghs.2019.1.e9> (accessed 6 September 2023).
- Awoonor-Williams JK, Tadiri E, Ratcliffe H (2023). Translating research into practice to ensure community engagement for successful primary health care service delivery: The case of CHPS in Ghana. Available at: <https://www.improvingphc.org/translating-research-practice-ensure-community-engagement-successful-primary-health-care-service-delivery-case-chps-ghana-0> (accessed 6 September 2023).
- Awoonor-Williams JK et al. (2013). Lessons learned from scaling up a community-based health program in the Upper East Region of northern Ghana. *Global Health Sci Pract*, 1:117. doi: 10.9745/GHSP-D-12-00012. Available at: <http://www.ghspjournal.org/content/1/1/117.abstract> (accessed 6 September 2023).
- Awua AK et al. (2017). A tailored within-community specimen collection strategy increased uptake of cervical cancer screening in a cross-sectional study in Ghana. *BMC Public Health*, 18:80. doi: 10.1186/s12889-017-4631-y. Available at: <https://doi.org/10.1186/s12889-017-4631-y> (accessed 6 September 2023).
- Ayandipo O et al. (2020). Cancer ecosystem assessment in West Africa: health systems gaps to prevent and control cancers in three countries: Ghana, Nigeria and Senegal. *Pan Afr Med J*, 35:90. doi: 10.11604/pamj.2020.35.90.18516.

- Bearden T et al. (2019). Empanelment: a foundational component of primary health care. *Gates Open Res.* 3:1654. doi: 10.12688/gatesopenres.13059.1.
- Benotti E et al. (2021). Indonesia: Organisation of Services. The Primary Health Care Performance Initiative. Available at: <https://www.improvingphc.org/indonesia-organisation-services> (accessed 6 September 2023).
- Bitton A et al. (2019). Primary healthcare system performance in low-income and middle-income countries: a scoping review of the evidence from 2010 to 2017. *BMJ Glob Health*, 4(8):e001551. Available at: <http://gh.bmj.com/> (accessed 6 September 2023).
- Busse R et al. (2019). Improving healthcare quality in Europe: characteristics, effectiveness and implementation of different strategies. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/327356> (accessed 6 September 2023).
- Carter A et al. (2022). Integrating Care in Health Systems: The role of technology in transforming care pathways and achieving the Triple Aim. London School of Economics and Political Science. Available at: <https://www.lse.ac.uk/business/consulting/reports/integrating-care-in-health-systems> (accessed 6 September 2023).
- Castro RCLD et al. (2012). Avaliação da qualidade da atenção primária pelos profissionais de saúde: comparação entre diferentes tipos de serviços. *Cad Saúde Pública*, 28(9):1772–84.
- Chikhradze T et al. (2020). 5 principles for building an innovative primary health care model. Available at: <https://r4d.org/blog/5-principles-for-designing-an-innovative-primary-health-care-model/> (accessed 6 September 2023).
- Cumming J (2011). Integrated care in New Zealand. *Int J Integr Care*, 11:e138. doi: 10.5334/ijic.678.
- Cumming J et al. (2021). Integrated Care in Aotearoa New Zealand 2008–2020. *Int J Integr Care*, 21:17. doi: 10.5334/ijic.5679.
- Dominguez-Cancino KA, Palmieri PA, Martinez-Gutierrez MS (2020). National Health Policy Reform for Primary Care in Chile: A Qualitative Analysis of the Health Program Documents. *J Prim Care Community Health*, 11:2150132720924884. doi: 10.1177/2150132720924884.
- Doshmangir L et al. (2019). Policy analysis of the Iranian Health Transformation Plan in primary healthcare. *BMC Health Serv Res*, 19:670. doi: 10.1186/s12913-019-4505-3.
- Dzampe AK, Siita S (2020). The Community-Based Health and Planning Services Initiative as a Means of Sustainable Primary Health Care Delivery in Ghana: The Role of the National Health Insurance Scheme. *Sophia Journal of Asian, African, and Middle Eastern Studies*. Available at: https://www.researchgate.net/profile/Adolf-Dzampe/publication/351371771_Ghana's_twin_track_strategy_to_achieving_universal_primary_healthcare_httpsdigital-archivessophiaacjprepositoryviewrepository20210413002/links/63241d2c0a70852150f96992/Ghanas-twin-track-strategy-to-achieving-universal-primary-healthcare-https-digital-archivessophiaacjprepository-view-repository-20210413002.pdf (accessed 6 September 2023).

- Egger D et al. (2005). Strengthening management in low-income countries. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/69201> (accessed 6 September 2023).
- Every Woman Every Child (2015). The Global Strategy for Women's, Children's and Adolescents' Health (2016–2030). New York: Every Woman Every Child. Available at: <https://globalstrategy.everywomaneverychild.org/download/index.html>
- Fertonani HP et al. (2015). The health care model: concepts and challenges for primary health care in Brazil. *Cien Saude Colet*, 20:1869–78.
- Frankel AJ, Gelman SR, Pastor DK (2018). Case management: An introduction to concepts and skills. Oxford University Press.
- GBD 2019 Iran Collaborators (2022). Health system performance in Iran: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet*, 399: 1625–45. Available at: [https://doi.org/10.1016/S0140-6736\(21\)02751-3](https://doi.org/10.1016/S0140-6736(21)02751-3) (accessed 20 September 2023).
- Grimshaw JM, Russell IT (1993). Effect of clinical guidelines on medical practice: a systematic review of rigorous evaluations. *Lancet*, 342(8883):1317–22. doi: 10.1016/0140-6736(93)92244-n. PMID: 7901634.
- Hsu J et al. (2020). Health system transformation in the Islamic Republic of Iran: an assessment of key health financing and governance issues. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/333760> (accessed 6 September 2023).
- Institute of Medicine (2011). Clinical Practice Guidelines We Can Trust. In: Graham R, Mancher M, Wolman DM, Greenfield S, Steinberg E (eds). Washington, DC: The National Academies Press, 290.
- JLN (2019a). Empanelment: A foundational component of primary health care. Joint Learning Network for Universal Health Coverage. Available at: <https://www.joint-learningnetwork.org/wp-content/uploads/2019/10/empanelment-foundational-component-phc.pdf> (accessed 6 September 2023).
- JLN (2019b). Financing and payment models for primary health care: six lessons from JLN country implementation experience. Joint Learning Network for Universal Health Coverage. Available at: <https://www.jointlearningnetwork.org/wp-content/uploads/2019/11/phc-financing-payment-models-six-lessons.pdf> (accessed 6 September 2023).
- Kalroozi F et al. (2020). A critical analysis of Iran health system reform plan. *J Educ Health Promot*, 9:364. doi: 10.4103/jehp.jehp_493_20.
- Khayati F, Saberi M (2009). Primary Health Care (PHC) an Ever Strategy for Health Equity Extension. *J Health Admin*, 12:33–40. Available at: <http://jha.iuums.ac.ir/article-1-366-en.html> (accessed 6 September 2023).
- Kim JK et al. (2020). Utilization of traditional medicine in primary health care in low- and middle-income countries: a systematic review. *Health Policy Plan*, 35(8):1070–83. doi: 10.1093/heapol/czaa022. Available at: <https://academic.oup.com/heapol/article-abstract/35/8/1070/5855157?redirected-From=fulltext> (accessed 6 September 2023).
- Kindig D, Stoddart G (2003). What is population health? *Am J Public Health*, 93(3):380–

3. doi: 10.2105/ajph.93.3.380. PMID: 12604476; PMCID: PMC1447747.
- Levine DM, Landon BE, Linder JA (2019). Quality and experience of outpatient care in the United States for adults with or without primary care. *JAMA Intern Med*, 179(3):363–72. Available from: <https://doi.org/10.1001/jamainternmed.2018.6716> (accessed 6 September 2023).
- Linnander EL et al. (2017). Professionalizing Healthcare Management: A Descriptive Case Study. *Int J Health Policy Manag*, 6:555–60. doi: 10.15171/ijhpm.2017.40.
- Marchildon GP et al. (2021). Achieving higher performing primary care through patient registration: A review of twelve high-income countries. *Health Policy*, 125(12):1507–16. doi: 10.1016/j.healthpol.2021.09.001.
- Ministry of Health Slovenia (2015). Resolution on the National Nutrition and Physical Activity Programme 2015–2025. Available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC189116/> (accessed 6 September 2023).
- Muni MK et al. (2016). Area-based teamwork for MNCH: University of Washington Strategic Analysis, Research, and Training (START) Center Report to the Bill And Melinda Gates Foundation. Available at: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEWjQ9u_mm5P9AhV9LFkFHZ0zDeEQFnoECAwQAQ&url=http%3A%2F%2Fuwstartcenter.org%2Fwp-content%2Fuploads%2F2016%2F02%2FSTART_83_MNCH_report_final_02.16.16.pdf&usq=AOvVaw3l6SnqFP5XO_LiMmaHLAbP (accessed 6 September 2023).
- Nancarrow SA et al. (2013). Ten principles of good interdisciplinary team work. *Hum Resour Health*: 10;11:19. doi:10.1186/1478-4491-11-19.
- Normand C, Iftekar MH, Rahman SA (2002). Assessment of the community clinics: effects on service delivery, quality and utilization of services. *Health Systems Development Program*. Available at: https://assets.publishing.service.gov.uk/media/57a08c35ed915d3cfd001236/bang_omm_clinics_web_version.pdf (accessed 6 September 2023).
- Pavlič DR, Švab I, Pribaković RB (2015). Slovenia. In: Kringos DS, Boerma WG, Hutchinson A, Saltman RB, WHO (eds). *Building primary care in a changing Europe: Case studies (European Observatory Health Policy Series)*. Copenhagen: European Observatory on Health Systems and Policies. Available at: <https://apps.who.int/iris/handle/10665/330346> (accessed 6 September 2023).
- Petrič VK, Maresso A (2018). Slovenia. In: Rechel B et al. (eds). *Organization and financing of public health services in Europe. Country Reports. European Observatory on Health Systems and Policies. Health Policy Series 49:109–22*.
- PHCPI (2019). PHC progression model assessment tool. *Primary Health Care Performance Initiative*. Available at: https://www.improvingphc.org/sites/default/files/PHC-Progression%20Model%202019-04-04_FINAL.pdf (accessed 6 September 2023).
- PHCPI (2020). Deep dive – first contact accessibility. *Primary Health Care Performance Initiative*. Available at: <https://www.improvingphc.org/sites/default/files/First%20Contact%20Accessibility%20-%20v1.1%20-%20last%20updated%203.11.2020.pdf> (accessed 6 September 2023).

- Rawlinson C et al. (2021). An Overview of Reviews on Interprofessional Collaboration in Primary Care: Barriers and Facilitators. *Int J Integr Care*, 21:32. doi: 10.5334/ijic.5589.
- Riaz BK et al. (2020). Community clinics in Bangladesh: A unique example of public-private partnership. *Heliyon*, 6:e03950. doi: 10.1016/j.heliyon.2020.e03950.
- Roodenbeke E, WHO, IHF (2011). Outreach services as a strategy to increase access to health workers in remote and rural areas. Geneva: World Health Organization/International Hospital Federation. Available at: <https://apps.who.int/iris/handle/10665/44589> (accessed 6 September 2023).
- Ross S, Curry N, Goodwin N (2011). Case management: What it is and how it can best be implemented. The King's Fund. Available at: https://www.kingsfund.org/sites/default/files/Case-Management-paper-The-Kings-Fund-Paper-November-2011_0.pdf (accessed 6 September 2023).
- Sala A et al. (2011). Integralidade e Atenção Primária à Saúde: avaliação na perspectiva dos usuários de unidades de saúde do município de São Paulo. *Saúde e Soc*, 20:948–60.
- Shadpour K (2000). Primary health care networks in the Islamic Republic of Iran. *EMHJ East Mediterr Health J*, 6(4):822–5.
- Shapiro DW et al. (1993). Containing costs while improving quality of care: the role of profiling and practice guidelines. *Annu Rev Public Health*, 14:219–41.
- Silwal P et al. (2023). Association between enrolment with a Primary Health Care provider and amenable mortality: A national population-based analysis in Aotearoa New Zealand. *PLoS One*, 18(2):e0281163. doi: 10.1371/journal.pone.0281163.
- Stokes T et al. (2018). HealthPathways implementation in a New Zealand health region: a qualitative study using the Consolidated Framework for Implementation Research. *BMJ Open*, 8:e025094. doi: 10.1136/bmjopen-2018-025094.
- Suter E et al. (2017). Advancing team-based primary health care: a comparative analysis of policies in western Canada. *BMC Health Serv Res*, 17:493. doi: 10.1186/s12913-017-2439-1.
- Toop L (2017). Steps towards more integrated care in New Zealand: a general practice perspective. *BJGP Open*, 1:bjgpopen17X100845. doi: 10.3399/bjgpopen17X100845.
- WHO (2006). The World Health Report: 2006: Working together for health. World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/43432> (accessed 20 September 2023).
- WHO (2007). Towards better leadership and management in health: report of an international consultation on strengthening leadership and management in low-income countries, 29 January–1 February, Accra, Ghana. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/70023> (accessed 6 September 2023).
- WHO (2010). Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/258734> (accessed 6 September 2023).

- WHO (2012). International Telecommunication Union. National eHealth strategy toolkit. Geneva: International Telecommunication Union and World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/75211> (accessed 20 September 2023).
- WHO (2014). Making fair choices on the path to universal health coverage: final report of the WHO consultative group on equity and universal health coverage. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/112671> (accessed 6 September 2023).
- WHO (2015). WHO global strategy on people-centred and integrated health services: interim report. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/155002> (accessed 6 September 2023).
- WHO (2018a). El Salvador Territorial Community Teams. Country Case Studies on Primary Health Care. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/bitstream/handle/10665/326087/WHO-HIS-SDS-2018.22-eng.pdf?sequence=1&isAllowed=y> (accessed 6 September 2023).
- WHO (2018b). Integrating health services: brief. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/326459> (accessed 6 September 2023).
- WHO (2018c). Primary health care: closing the gap between public health and primary care through integration. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/326458> (accessed 6 September 2023).
- WHO (2018d). The transformative role of hospitals in the future of primary health care. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/326296> (accessed 6 September 2023).
- WHO (2018e). Building the primary health care workforce of the 21st century. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/328072> (accessed 6 September 2023).
- WHO (2018f). Continuity and coordination of care: a practice brief to support implementation of the WHO Framework on integrated people-centred health services. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/274628> (accessed 6 September 2023).
- WHO (2018g). WHO guideline on health policy and system support to optimize community health worker programmes. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/275474> (accessed 6 September 2023).
- WHO (2018h). Promoting health: guide to national implementation of the Shanghai declaration. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/260172> (accessed 6 September 2023).
- WHO (2019). WHO guideline: recommendations on digital interventions for health system strengthening. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/311941> (accessed 6 September 2023).
- WHO (2021a). Community outreach mental health services: promoting person-centred and rights-based approaches. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/341644> (accessed 6 September 2023).

- WHO (2021b). Health promotion glossary of terms 2021. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/350161> (accessed 6 September 2023).
- WHO (2022a). UHC Compendium Service Package Delivery & Implementation (SPDI) Tool. Geneva: World Health Organization. Available at: <https://uhcc.who.int/uhcpackages/> (accessed 7 November 2022).
- WHO (2022b). WHO guideline on self-care interventions for health and well-being, 2022 revision: executive summary. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/357179> (accessed 6 September 2023).
- WHO Clinical Services and Systems Unit (in press). Developing Primary-Health-Care-Oriented Models of Care.
- WHO Regional Office for Europe (2014). WHO meeting report “Improving quality of antenatal and postpartum care and referral system”: 24–25 October 2013, Yerevan, Armenia. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/129711> (accessed 20 September 2023).
- WHO Regional Office for South-East Asia (2019). Strategies to strengthen referral from primary care to secondary care in low- and middle-income countries. New Delhi: WHO Regional Office for South-East Asia. Available at: <https://apps.who.int/iris/handle/10665/325734> (accessed 20 September 2023).
- WHO, ITU (2012). National eHealth strategy toolkit. Geneva: World Health Organization/International Telecommunication Union. Available at: <https://apps.who.int/iris/handle/10665/75211> (accessed 6 September 2023).
- WHO, UNICEF (2020a). Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization/United Nations Children’s Fund. Available at: <https://apps.who.int/iris/handle/10665/337641> (accessed 6 September 2023).
- WHO, UNICEF (2020b). Community-based health care, including outreach and campaigns, in the context of the COVID-19 pandemic: interim guidance, May 2020. Geneva: World Health Organization/United Nations Children’s Fund. Available at: <https://apps.who.int/iris/handle/10665/331975> (accessed 6 September 2023).
- WHO, UNICEF (2022). Primary health care measurement framework and indicators: monitoring health systems through a primary health care lens. Geneva: World Health Organization/United Nations Children’s Fund. Available at: <https://apps.who.int/iris/handle/10665/352205> (accessed 6 September 2023).
- Woolf SH et al. (1999). Clinical guidelines: potential benefits, limitations, and harms of clinical guidelines. *BMJ*, 318(7182):527–30.
- World Health Assembly (2016). Framework on integrated, people-centred health services: report by the Secretariat. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/252698> (accessed 6 September 2023).
- Yazdizadeh B et al. (2011). Cesarean section rate in Iran, multidimensional approaches for behavioral change of providers: a qualitative study. *BMC Health Serv Res*, 11:159. doi: 10.1186/1472-6963-11-159.

PART II

The PHC approach: implementation



Meet the Maluna Family

At the beginning of each chapter in Part II you will meet the different members of the Maluna family. Their stories illustrate how PHC-oriented interventions within each operational lever can impact the family's life and accelerate progress towards universal health coverage.

Alma and Jo Maluna live in the city suburbs with their two children, Marina and Ulu, and Jo's mother, Mila. Alma works in a grocery store and Jo, her husband, works as a labourer supporting construction sites in nearby villages and towns.



Alma, 36 years

Ulu, 4 years

Mila, 69 years

Jo, 41 years

Marina, 12 years

GOVERNANCE

This fictional story visualizes how governance arrangements can support the implementation of the PHC approach at the local level

One morning, **Alma** received a letter in the post inviting her to be a voluntary citizen representative on the new local health committee set up by the regional health authority. The purpose of the local health committee is to involve the community in decisions about health and social care to better address community needs. As a citizen representative, Alma would represent her community in local decision-making regarding interventions and infrastructure that impact and promote citizens' health and well-being.

Alma discussed the idea with some of her customers at the grocery store throughout the day, and with her family over dinner. They all agreed that it would be an opportunity for her to share the community's concerns with decision-makers, such as the planned highway that would cut off access to service infrastructure for parts of the community. Through her participation she would gain insight into service and policy developments, which she could then share with the rest of the community.



7

Health governance

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Key messages

Health governance is about how societies and actors develop and implement collective decisions, set priorities and determine policies in health systems, and addresses oversight, incentives and accountability. The governance of primary health care (PHC) has three critical aspects: decision-making autonomy at the local level, which facilitates responsiveness; policy frameworks and joint planning arrangements, which support service integration; and leadership, which fosters a culture of equity and quality assurance.

- Decentralizing decision-making autonomy matters in PHC because local units are best placed to improve access, equity and efficiency, and make services more people-centred and responsive. It works when local units have sufficient capacity and resources and if there is clarity on authority, roles and accountability, including to local communities.
- Central coordination remains important as a way of reducing fragmentation and adjusting for the differences in capacities and resources between subnational units.
- Governance has an important, often critical, role in service integration because without policy frameworks and some clarification of roles and policy, joint planning and relationships between stakeholders and communities may not succeed.
- Quality assurance, regular monitoring and feedback loops are central to effective leadership and good governance because they prompt data-driven decision-making and action.
- Effective leadership supports quality in PHC.
- Including stakeholders and communities in identifying the root causes of performance issues and the possible solutions is key to co-producing quality improvement.
- Government engagement with the private sector can help ensure private sector actions support the implementation of a PHC approach and public health goals.

7.1 Introduction

The success or failure of health reforms, including those that require health system reorientation towards PHC, are often linked to the amount of attention paid to health governance (Fryatt, Bennett & Soucat, 2017). Governance is a core function of the health system (Siddiqi et al., 2009; Kickbusch & Gleicher, 2012), and enables the other health systems functions of financing, resource generation and service delivery (WHO et al., 2022) to contribute to overall health system performance. The World Health Organization (WHO) (2007) defines health system governance as “ensuring [that] strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system design and accountability” (WHO, 2007). This definition provides insight into the governance elements needed at the macro level to orient the health sector towards its goals – within the context of the PHC approach, this would mean that PHC is embedded in an overarching strategic vision (policy frameworks, system design) which includes input from a wide variety of stakeholders (coalition-building), with PHC values and principles enshrined in law and enforced (effective oversight, regulation, accountability).

This chapter focuses on the governance arrangements necessary to implement the PHC approach, with the entry point of the integrated services side of the triangle (see Chapter 1, Fig. 1.1). Consequently, the emphasis here will be at the meso- and micro-levels of the health system, that is, where actors within the PHC space normally find themselves (service delivery level), and from where they can take action. Given that governance arrangements, more proximally linked to the organization and delivery of health services, is our starting point, many of the macro-level actions implied in the WHO health system governance definition *provide the context* for micro-level action rather than being a focus of this chapter. These reflections led to the application of the “governance of service delivery” notion proposed by WHO’s Health System Performance Assessment (HSPA) Framework for UHC (WHO et al., 2022) as a guide to structure this chapter.

The “governance of service delivery” notion offers an approach to specifically examine meso- and micro-level health governance arrangements linked explicitly to the health system function of service delivery with its subfunctions of public health, primary care and specialized care (WHO et al., 2022). As a reminder, the PHC approach is not a level of care per se but rather an *approach* to organizing services so that the vast majority of people’s health needs are addressed close to their communities (public health, primary care and social care subfunctions). Specialized services thus also play a key role in the PHC approach by supporting first contact care, enforcing a referral and counter-referral system, and ensuring high-quality backstopping services (see Chapter 1, Section 1.2). Hence, this chapter will address the governance issues at a local level for all of these types of services, with an emphasis on the governance drivers which influence a strong PHC orientation of those services.

The HSPA Framework’s “governance of service delivery” is broken down into three principal micro- and meso-level governance elements which, according to the Framework, should be assessed to understand how well service delivery governance is

performing (WHO et al., 2022). These three elements are the key governance drivers for strong PHC: (a) decision-making autonomy; (b) service integration; and (c) quality assurance mechanisms. In this chapter we use these three topics to structure our narrative review of the literature, plus a fourth: government engagement with the private sector for PHC service delivery (see Box 7.1). Where relevant, we also acknowledge the huge influence of macro-level governance factors (WHO et al., 2022) on meso- and micro-level governance arrangements.

Box 7.1 Key governance drivers for strong PHC: decision-making autonomy, service integration, quality assurance mechanisms and private sector engagement

Decision-making autonomy

The degree of autonomy held by a service delivery unit – be it a district/local government or a health facility – essentially defines the decision space available to local policy-makers and/or managers (Bosser, 1998). This autonomy is usually granted through legal frameworks such as the constitution, decentralization laws or health facility autonomy regulation. The decision space can revolve around policy objectives for service delivery (policy autonomy), spending (budget autonomy), service delivery inputs (supplies, medicines, personnel) (input autonomy), or quality control (monitoring autonomy) (OECD, 2021).

Service integration

Horizontal and vertical integration of services – between preventive and curative care, community-based and facility-based care, health and social care, private and public sector services, etc. – is at the heart of the PHC approach to service delivery and health systems strengthening as it enhances care. Integrated care is organized holistically, taking into account people’s needs and understanding of health.

Quality assurance mechanisms

One of the key tasks of PHC managers is to ensure high quality of care by fostering regular quality monitoring and acting on monitoring results. Doing so encourages a feedback loop which nurtures an organizational culture of data-driven decision-making and implementation (WHO, 2021a).

Private sector engagement

In the context of service provision, the private health care sector is defined as “the individuals and organizations that are neither owned nor directly controlled by governments and are involved in provision of health services. They can be classified as for-profit and not-for-profit, formal and informal, domestic and international” (Chen et al., 2021). The provision of private health care varies greatly between and within countries, as does the quality of that care. Private health care ranges from the most basic care offered by travelling merchants selling medicines to highly commercialized hospital care (Horton & Clark, 2016). The diversity of actors encapsulated in the “private sector” term is wide and contributes to the contested discussion on its contribution towards health outcomes (Lee & McKee, 2015). In this chapter, “engagement” refers to government engagement with the private sector.

Source: WHO et al., 2022

7.2 Evidence review: health governance to strengthen the PHC approach

7.2.1 Decision-making autonomy

The literature on governance arrangements needed for a PHC-oriented system indicates that a decentralized service delivery unit has great potential to improve local (within-region) equity, efficiency, people-centredness and the overall health of the local population (Bossert & Beauvais, 2002; Pavolini & Vicarelli, 2012). Such a decentralized service delivery unit:

- (a) truly disposes of the power and *authority* which is formally delegated to it, evidenced by access to funding to implement decisions which are made locally without undue interference from higher-level authorities;
- (b) has adequate *capacity* to take on the delegated responsibilities and use the decision space it has at its disposal; and
- (c) uses the authority and capacity it has for regular community engagement to ensure *accountability* towards the people whose health needs it is supposed to serve (Chen et al., 2021; Ohrling et al., 2022).

Authority, capacity, accountability – the elements needed to operationalize the PHC approach

To realize the full potential of local decision-making autonomy, implementation of the PHC approach requires authority, capacity and accountability. Consequently, several studies examining decentralization measures in the health sector have found mixed results, with full power not adequately conferred or role delineation between central and regional levels is unclear (authority); or no measures are undertaken to level out capacity differences across regions (capacity), with the result that increased local autonomy was not exercised to capitalize on closer ties and knowledge with communities (accountability) (Bossert, 1998, 2016; Akin, Hutchinson & Strumpf, 2001; Robalino, Picazo & Voetberg, 2001; Bossert & Beauvais, 2002; Seshadri et al., 2016; Sumah, Baatiema & Abimbola, 2016; Cobos Muñoz et al., 2017). For example, Frumence et al. (2013) found that after more than 20 years of a decentralized health sector in the United Republic of Tanzania, autonomy had increased for more bottom-up planning for PHC services and accountability, but the lack of local capacities to bring community voice into health planning processes, as well as inadequate and late funding from the central government, severely limited the impact of this autonomy on PHC performance improvement.

A systematic review of empirical studies examining decentralization's health impact in low- and middle-income countries (LMICs) showed that the purported benefits of decentralization, such as responsiveness of PHC services to community needs, are substantially conditioned by local government capacities to take on new responsibilities, and by the scope of actual decision-making conferred to local level (Dwicaksono & Fox, 2018). A SWOT (strength-weakness-opportunity-threat) analysis of decentralization in Burkina Faso's health sector found limited financial resources allocated to local

governments (authority not backed by funding), weak local government capacity, and resistance by central government to effectively transfer power to be among the top weaknesses identified (Zon, Pavlova & Groot, 2019). A regression analysis of fiscal decentralization in India showed a strong association with infant mortality reduction, but that association was eroded in states with less community participation in PHC service delivery management (Asfaw et al., 2007).

Effectively transferring power, building capacity and developing accountability mechanisms takes time and a long-term commitment. A more recent analysis of more than a decade of decentralization in Kenya shows significant improvement in local government capacities in recent years, with subsequent knock-on effects in enhanced accountability of PHC management towards communities and stakeholders (Tsofa et al., 2023). In addition, county government officials and local health stakeholders were better able to leverage the increased decision space granted to them by the 2010 Constitution, even if they continued to be restricted by erratic fund disbursement and processes which were not decentralized down to the primary care facility level. In Spain's Autonomous Communities, likewise, high levels of decision-making autonomy as evidenced by full political and fiscal decentralization also fostered greater accountability as well as an unambiguous positive impact on health outcomes but the effects took time to unfold (Jiménez-Rubio & García-Gómez, 2017).

The literature thus clearly exposes the need for a concerted and targeted effort by all health system actors to realize the full potential of local autonomy to benefit PHC because its full benefits do not bear fruit organically. In Kenya, years of capacity building by governments and donors, as well as a broader political prioritization by the Prime Minister, has contributed to improved local governance of PHC (MoH Kenya, 2020). In Spain, decades of nationwide health reforms aimed at universalizing health services started in the 1980s and went hand-in-hand with newly decentralized political and fiscal powers over PHC services, both reinforcing each other (Jiménez-Rubio & García-Gómez, 2017). Hence, the decision-making autonomy granting localized responsibilities needs not only a favourable overall health system environment but also adequate authority and investment in capacity to enable an accountable local health system.

One important way authority is conferred is through a clear and transparent formulation of roles and responsibilities between central and decentralized levels, backed by funding and capacity building efforts to ensure that those roles and responsibilities can be taken on adequately. Examples abound of PHC service delivery units in different countries faced with capacity gaps to absorb new responsibilities when administrative decentralization takes place. This is often further compounded by the lack of role clarity between administrative levels, negatively impacting on PHC service delivery performance (Lee & McKee, 2015; Spigel et al., 2020). When it is transparent, explicit roles and (re)distribution of power effectively legitimizes the decentralized authority so it can make the most of its regional knowledge and proximity to communities. Being close to communities ensures accountability to the local population for their health.

The importance of central coordination to minimize inter-regional inequality

A crucial caveat mentioned repeatedly in the literature is that the funding and capacity building process requires steering by higher administrative authorities (central level) in order to reduce fragmentation in the way PHC plays out across different regions and/or service delivery units and to avoid regional inequalities (Jiménez-Rubio, Smith & van Doorslaer, 2008).

When each region is able to determine which PHC services are offered and how, the risk of fragmentation across the country is inevitable, and is exacerbated when decentralized authorities or service delivery unit managers have differing priorities, resources and capacities. A case in point comes from Cameroon, where municipalities lacked capacity to fulfil their newly conferred roles and responsibilities, leading to some places with PHC service delivery dominated by development assistance funds and vertical priority programmes and others providing more horizontal services (Lee & McKee, 2015). In multiple countries, the literature documents a lack of national guidance to ensure coherence in the delivery of PHC services (Pavolini & Vicarelli, 2012).

For example, in Mexico the efforts of multiple institutions – including private sector and non-governmental organizations – and government levels involved in the design and delivery of PHC services were not aligned under a coherent and clear PHC policy. Even though ministry-led efforts were made to reform the system and design a joint focus for PHC, there is still no single model of PHC that could be applied, creating challenges for local authorities in delivering PHC services (WHO & AHPSR, 2017).

Spain and Indonesia face similar challenges. This lack of national steer consequently led to fragmentation and increased inequality across regions (Bankauskaite & Novinsky, 2010; WHO, 2017a). Without inter-regional transfers coordinated at the central level, the population in more affluent, higher capacity regions will enjoy better services and better outcomes, than people living in poorer regions with less capacity. Another example of this is Italy, where decentralization in the health sector has demonstrated positive effects in terms of efficiency, people-centredness and overall health outcomes, but it has aggravated inter-regional inequality in the absence of a strong central mandate to undertake equalization measures. The need for central steer to ensure inter-regional equality was also affirmed in Canada, with one study demonstrating that income-related inequities in health care use were mostly driven by differences *between* provinces (Jiménez-Rubio, Smith & van Doorslaer, 2008). These situations highlight the central authority's key role in supporting and building capacity in poorer regions and providing adequate resources so that regions can leverage local decision-making autonomy in service of their population.

7.2.2 Service integration

Integration of different types of services (see Box 7.2), whether horizontally or vertically, is a policy goal to reduce fragmentation, and requires action within the health system service delivery function first and foremost. Experiences from different coun-

tries have shown that service delivery fragmentation can lead to difficulties in access, poor quality services, inefficient use of resources, increases in production costs and low user satisfaction (Ramagem et al., 2011). Yet the governance arrangements to ensure that service integration is supported, bolstered and can thrive play a critical role in the success of integration efforts. Regions with strong experiences in integrated service delivery have identified effective governance as a critical element in improving outcomes (Vedel et al., 2011).

Box 7.2 Definition of integration

Integration is “a coherent set of methods and models on the funding, administrative, organisational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors” for the purpose of improving patient care and experience. When such processes achieve improved patient care and experience, the result is termed *integrated care*.

Source: Shaw, Rosen & Rumbold, 2011

This section examines specific governance aspects of service integration which have been documented in the literature: policy and planning arrangements which foster integration (including promoting a culture of data monitoring) and community engagement mechanisms which reinforce service integration efforts. Most of the analysis provided below focuses on integration of services within PHC but also between primary and secondary care services.

Policy and planning arrangements which foster integration

Integration mediated by coherent rules and policies and understood by different stakeholders is key to successful service delivery (Rensburg & Fourie, 2016), whereas in the absence of policy guidance, integration can be inhibited (Smit et al., 2012). A systematic review of governance models in high-income countries (HICs) found 10 elements needed for integrated primary and secondary care in regional settings: joint planning; integrated information communication technology; change management; shared clinical priorities; incentives; population focus; measurement-using data as a quality improvement tool; continuing professional development supporting joint working; patient/community engagement; and innovation (see Chapter 6) (Nicholson, Jackson & Marley, 2013). Sound policies and frameworks can greatly facilitate integration efforts, although they are not sufficient in and of themselves to ensure that integration happens. However, their existence demonstrates decision-maker policy support for integration and offers a tool for practitioners to provide clarity of roles and responsibilities.

Joint planning serves to implement principles outlined in policies. For instance, in Uganda an analysis of efforts to integrate perinatal mental health into district PHC health services acknowledged an integration and implementation gap despite the presence of components of perinatal mental health in policy statements (Sarkar, Bain-gana & Criel, 2022). Nevertheless, its mention in such statements meant that exchanges on the topic had happened among stakeholders through a planning process, and that integrating mental health care into perinatal care was at least on the policy agenda. This gave the mandate to the government to support local health system levels to take integration forward. Similarly, in Ghana, having national and district documents for integrated community case management was important for providing strategic programme direction (Riri et al., 2022).

Conversely, lack of robust policy statements and frameworks can impede integration. In Brazil a regional integrated service network process was stalled at times owing to the lack of concrete regional health plans with a clear definition of responsibility between different regional units, but which had been discussed and agreed (Casanova et al., 2017). In South Africa a lack of national policy guidance was an impediment to integrating sexual and reproductive health services with human immunodeficiency virus (HIV) care (Smit et al., 2012). While there might be an intent to improve integration of service delivery, it may remain at the theoretical level in the absence of awareness, transparency and coordination around the planning processes, combined with inadequate health information systems, supervision, mentoring and community mobilization (Hanlon et al., 2017).

Furthermore, leadership which enforces policy frameworks with specific incentives for integration and collaboration seems to be a key ingredient in making integration work. In some instances, such as in Denmark, collaborative arrangements were mandated through government policies (Holt, Carey & Rod, 2018), with integration a requirement for funding in Australia (Lee et al., 2013). Beyond incentives, success of such initiatives is dependent on managers who prioritize education of staff and regular communication within new working arrangements, as well as structural factors such as co-location of newly collaborating teams and the absence of donor-funded vertical disease-oriented programmes (De Maeseneer et al., 2020).

Policy and planning processes help clarify roles and responsibilities, one of the most difficult and contested changes brought about by service integration efforts. Experiences from countries such as Brazil, South Africa and Uganda illustrate that the absence of clarity in roles and responsibilities to govern coordination can hamper integration initiatives (Marais & Petersen, 2015; Mugisha, Ssebunnya & Kigozi, 2016; Casanova et al., 2017). One study from Canada showed that even when formal arrangements with role clarity are in place, it can still take time for health professionals to identify with and take on those roles to the point where users feel the positive change (Breton et al., 2019).

Examples from various countries also illustrate that local PHC planning forms a critical foundational step to laying out the health governance structures for service integration. These can draw on pre-existing data sources, including national and local data,

and site visits, as well as discussions with professionals, clients, families and other stakeholders (Jenkins et al., 2010; Spigel et al., 2020). Additionally, they can also solicit inputs from the local population through a variety of means including stakeholder views on service providers, such as patient resistance views as obtained in South Africa. Regular feedback information from the population can help identify gaps in service delivery, provide insight into geographical and other access barriers, and help health providers interpret epidemiological data to make service delivery more people-centred (Marais & Petersen, 2015; Mugisha, Ssebunnya & Kigozi, 2016; Ong et al., 2018; Sarkar, Baingana & Criel, 2022).

In many contexts, the planning and design of integrated services are viewed as a continuous process, with quarterly performance reviews leveraged to improve task-sharing arrangements, strengthen referral networks and fine-tune processes within multidisciplinary teams (Ghiotto et al., 2018; Yuan et al., 2022). The process itself of developing integrated models can be quite critical, as seen in Nepal (Yadav et al., 2021), where stakeholders considered a variety of service delivery alternatives and then developed a concept with government, academia and patients to develop a prototype, with policy dialogue playing a crucial role (Jenkins et al., 2010).

Community engagement and service integration

One of the principal aims of “engaging with communities” as a pillar of the PHC approach is to ensure that PHC services are responsive to their needs (see Chapter 6). Service integration is mainly undertaken to enable responsiveness and people-centredness of PHC. Therefore, a strong system of engagement with people and communities is required to foster more successful service integration. Recognizing the importance of these concepts, in recent years countries at all income levels have highlighted that the effectiveness and sustainability of health systems will rely on access to integrated services that are predicated on stakeholder participation as well as systematic data reuse (Quaglio et al., 2018).

Establishing linkages with the local community is critical to the success of service integration, from the planning stages (Spigel et al., 2020) through to service delivery (Sarkar, Baingana & Criel, 2022). For example, in Nepal a rural service integration co-design approach placed great emphasis on community engagement, recognizing the grassroots approach as more acceptable, effective and sustainable (Yadav et al., 2021). In Zambia actively reaching out to church representatives and political and traditional leaders was considered to be an important factor for successful district-level PHC planning of integrated services (Riri et al., 2022) where managers prioritized building trusted relationship networks and sharing data and information (Allana et al., 2022).

Targeted prioritization and investment in engaging with communities are consistently identified as key factors in many successful examples of integration. A systematic review of governance models for integration of care in HICs listed community engagement and population focus as two of the ten key factors of success (Nicholson, Jackson & Marley, 2013). In rural Canada the regional health authority worked with the community to establish a health committee that included community organizations working alongside government to steer the integration process (Deegan et al., 2022).

An analysis of integrated care for rare diseases in Europe found that strong patient focus and stakeholder engagement were crucial levers for integration to improve health outcomes (De Santis, 2019). In Colombia community participation was seen as a key component in designing a comprehensive and integrated care model for rural health. This required multiple dialogue rounds, facilitated interactions, workshops and other techniques and tools to provide decision-makers and community members with opportunities to increase their skills and abilities for joint interaction and engagement (Gomez, Agudelo & Castro-Arroyave, 2020).

The Colombian example highlights an essential element of community participation in local decision-making regarding service integration: the need for a specific set of capacities for all stakeholders to enable meaningful engagement with each other. In the case of the Sumapaz locality in Colombia, targeted learning structures aimed to enhance the understanding of people's needs and expectations among those delivering PHC services (Gomez, Agudelo & Castro-Arroyave, 2020). Such meaningful engagement with communities to successfully implement the PHC approach requires capacity for both government and implementing actors to engage with communities, as well as capacity for communities to interact with decision-makers and implementers (WHO, 2021b). Building capacity for community engagement is therefore a vital investment to leverage community linkages to strengthen service integration efforts.

Community groups or alliances can also be critical in ensuring good governance and oversight of service integration. The concepts of community health alliances (Godinho et al., 2020) – people who have something in common such as place of residence or health needs, and are characterized by a shared mission and resources with necessary organizational knowledge and skills – and primary community care networks (Yen-Ju Lin, Lin & Lin, 2010) are showing promise around better service integration, including through the use of digital tools (see Chapter 13). Furthermore, organization of community-based cadres, such as community pharmacists, and their involvement in service integration has shown potential across diverse settings such as in Chile, Indonesia and Spain (see Chapter 10) (Gastelurrutia, Faus & Martinez-Martinez, 2020; Hermansyah et al., 2020; Martinez-Mardones et al., 2020).

7.2.3 Quality assurance mechanisms

The degree to which PHC managers and local policy-makers engage in the formulation and implementation of care standards locally and identify mechanisms for continued monitoring and reporting defines the successful implementation of such quality assurance mechanisms. The literature on the relationship between quality assurance at local level and primary care performance highlight two key aspects relevant for policy-makers to formulate and monitor care standards: (i) leadership to ensure a culture of quality; and (ii) the inclusion of stakeholders and communities to co-produce quality improvement.

Leadership to ensure a culture of quality

The successful inculcation of a culture of quality in health service delivery relies on effective leadership. This plays a crucial role in setting an example, demonstrating commitment to quality assurance, and convincing stakeholders to foster a sense of ownership in the process (Varkey & Antonio, 2010; Vliet et al., 2023). Studies have shown that variability in the effectiveness of quality assurance programmes is influenced, in part, by how much ownership stakeholders feel towards the programme, which, in turn, is influenced by effective leadership and implementation modalities (Ellis et al., 2020; Jones, Kwong & Warburton, 2021).

Successful quality improvement initiatives have visionary leaders behind them who pay attention to the way change is introduced and how stakeholders and communities are engaged (see Chapter 14) (Kaplan et al., 2014). Quality assurance is about questioning existing practice, reporting errors and trying new methods, all of which require stakeholders to feel safe when raising issues – that safe space is to be assured by leadership which demonstrates that the organizational culture is one which places quality at its centre (Kaplan et al., 2012; Braithwaite et al., 2017).

A large part of leadership is change management, particularly moving PHC actors away from a more biomedical paradigm, focusing on the clinician's role in treating individual symptoms (Ong et al., 2018). A shift to a more bio-psycho-social paradigm means leading those who deliver health services to work more collaboratively with stakeholders and communities to better understand causes of poor care quality and collectively find solutions to address quality incidents (Jung et al., 2023).

Settings which have managed to create governance arrangements and processes to identify quality issues that require action are able to build skills and knowledge at all levels of service delivery, from management to front-line staff (Jones, Kwong & Warburton, 2021). This helps create a workplace culture that values quality and embeds it into the way of working. Technical as well as non-technical skills of managers play a key role in embedding service innovations into routine practice (Foster et al., 2018; Brooke-Sumner et al., 2019).

A core role of leadership is ensuring that performance data are collected and regularly monitored (see Chapter 13). Without the right, good-quality data, primary care providers lose out on valuable insights into the quality of health services. Leaders have the leverage to influence which data are collected and how they are analysed – and leaders set the tone in terms of how participatory and collective analysis can be, ideally in collaboration with a range of staff, patients and communities (Gage et al., 2022). The latter is especially critical for data interpretation, to understand the root causes of quality issues from several different perspectives, and to design joint solutions. It is equally important in increasing awareness about the need to improve quality of care, building acceptance for improvement and fostering leadership commitment (Husabø et al., 2020).

To ensure continuous quality improvement, PHC managers ensure the regular training of administrators, managers and service providers to implement cycles of quality tar-

get setting, action plans and outcome tracking (Udenigwe et al., 2021; Gage et al., 2022). In Nigeria, for example, this is done through participatory action research within a continuous quality improvement model which analyses challenges in PHC to find solutions to improve performance (Eboreime et al., 2019).

Stakeholder and communities to co-produce quality improvement

Quality improvement is fundamentally about examining data, identifying quality problems and finding out the reasons behind those problems in order to implement a solution. Approaching quality in a purely technical way may fail to capture the wide variety of root causes and possible solutions which require different perspectives on the data or quality incidents. This is precisely why involving a broad range of stakeholders and communities in quality assurance mechanisms is paramount to a culture of quality and true co-production of care (Palmer et al., 2019). Doing so is not easy as it involves challenging traditional hierarchies and societal power imbalances to ensure that the perspectives and ideas of all staff (clinical and non-clinical), patients and communities are meaningfully involved.

Examples from countries such as Kenya (Sitienei, Manderson & Nangami, 2021), the United Republic of Tanzania (Frumence et al., 2013) and Ethiopia (Hanlon et al., 2017) illustrate the importance of strategic community engagement in health facility committees in PHC, whose management role includes quality reviews and improving service delivery responsiveness. However, such mechanisms require the assignment of clear roles and responsibilities for community members, along with regulation and clear processes. Bringing people's voices into quality improvement discussions helps ensure that quality monitoring focuses on what matters most to communities in terms of local service delivery (Batalden et al., 2016; Health Foundation, 2016).

Underpinning these relationships, which can be difficult at times owing to differing priorities, training and background, are shared quality goals. The process of formulating them jointly is at the heart of co-production of health. The ultimate aim is to have a space with respectful communication between different parties so that the shared process deepens an understanding of the perspectives and values of others (Ocloo & Matthews, 2016). The most challenging aspect of joint quality assurance is addressing the power imbalances among participants and ensuring that all participants can contribute on an equal basis (WHO, 2021b).

Power imbalance is a familiar theme with strategic community engagement experiences such as the community scorecard to monitor community-level public health facilities. For example, in Bangladesh, even though it was noted that political influence in selecting members to the committees hindered their effectiveness, over the course of implementation the approach demonstrated beneficial outcomes across different dimensions including quality and accountability in health service delivery, community participation, revenue generation and raising community awareness. Additionally, initial outcomes indicated that the process was mostly influential in improving the relationship between community and provider, creating an effective and inclusive space for negotiation, generating stronger community ownership and positively influencing accountability in health service delivery. The process also allowed the systematic prio-

ritization of issues around community clinic service provision, setting targets and indicators on supplies, operations, logistics, the environment and patient satisfaction (Mahmood et al., 2020).

Soliciting input from communities and patients can be important to direct quality issues and can cover fundamental issues such as treatment options, autonomy, empowerment, respect and relationships (Shields et al., 2019). As seen in the Australian context, the engagement of stakeholders needs to ensure a systems approach that is evidence informed, contextually appropriate and reflects commitment to improved health outcomes (Yashadhana et al., 2020). Continuous quality improvement has seen widespread uptake across Australia, with studies finding impacts on care received showing promising but uneven progress, and being dependent on clear leadership, community organizations and applying participatory-action principles (Bailie et al., 2007; Sibthorpe et al., 2018). Experiences from the Veterans' Health Administration in the United States of America (USA) also yields important lessons. Appropriate engagement of patients and, where relevant, their caregivers, can identify areas that need to be monitored and improved, taking into consideration aspects of reliability, timeliness, standardization and accountability (Leykum et al., 2022). Furthermore, perspectives from stakeholders on areas such as gender norms and population-specific quality improvement are useful drivers to inform transformation of care (Hamilton et al., 2017). Similarly, in Canada the use of patient engagement councils is expected to result in better quality research, encouraging decision-makers to use patient inputs for policy-making (Warren et al., 2020). However, implementing strong community engagement takes time (Lavoie & Dwyer, 2016). In some settings, where services were largely obtained from the private sector, community engagement in PHC was weak (Langlois et al., 2020).

7.2.4 Engagement with the private sector

Experience shows that a reorientation of health systems towards PHC requires governments to understand their role not only in direct service delivery through the public sector but also in overseeing and guiding the private sector's service delivery towards health system goals (WHO, 2007, 2018; Hanson et al., 2008; Siddiqi et al., 2009; Doherty, 2015). The private sector is an undeniably important player in most of the world's health systems, particularly when it comes to PHC services (WHO, 2018; Clarke et al., 2019). Among 27 HICs, only six have majority public ownership of primary care services, whereas in 21 countries primary care is mainly owned by the private sector (OECD, 2010). As per a 2019 analysis, almost 40% of all health services in the WHO Americas Region, Africa Region and Western Pacific Region are in private hands; 57% of the South-East Asia Region's and 62% of the Eastern Mediterranean Region's health services are privately owned (WHO, 2020a).

In this context, the governance arrangements between government and the private sector take on a great salience to ensure that private sector actions support the implementation of the PHC approach. Studies show that a lack of regulation and government stewardship of private providers can expose patients, often the poor, to inadequately qualified practitioners providing low-quality care in many settings (Bloom

et al., 2011; Sudhinaraset et al., 2013; Morgan, Ensor & Waters, 2016). How the private sector is governed is thus pivotal to the question of whether it is actually a complementary resource to achieve universal health coverage (UHC) (Clarke et al., 2019) or becomes a detriment to the population's health rights (David Williams, Yung & Grépin, 2021).

Unfortunately, the current literature tells us little about how governments can build governance capacities and align the objectives and interests of public and private actors to accelerate progress towards UHC (Siddiqi et al., 2023). However, work by WHO does show that governments must therefore embrace a role to “steer” rather than to “row” the health system (WHO, 2020b; Ruef & Ejderyan, 2021). However, the shift from focusing primarily on providing services directly to guiding a health system that mixes public and private provision can leverage policy instruments and institutional capacity to implement PHC reforms (Ruef & Ejderyan, 2021).

To this aim, WHO proposes six governance behaviours to engage with the private health service delivery sector (see Box 7.3). These are to: deliver strategy; align public and private organizational structures; build understanding; enable stakeholders; foster relations; and nurture trust (WHO, 2020c).

Box 7.3 Development of the six governance behaviours

The six governance behaviours were developed through an iterative process involving a series of in-person and virtual engagements with the expert members of the Advisory Group and other units within WHO. These engagements were informed by a series of studies, compiled as a private sector landscape of mixed health systems (WHO, 2020a; Clarke et al., 2023).

The strategy builds from the theoretical foundations of the WHO Report 2000 on health systems performance and by the work of Travis et al. on stewardship (Travis et al., 2002). Conceptually, the Advisory Group proposed reframing the stewardship subfunctions as behaviours in recognition of the need for a behavioural approach and a change management approach to govern the private sector within pluralistic health systems. As such, the governance behaviours presented in the strategy report seek to activate the governance building block and explicitly recognize the “messy” and interconnected relationships within health systems. They follow a socioecological practice-based approach that conveys goal-oriented interaction between public and private health system entities and emphasizes the leadership of government as stewards of health systems (Managing Markets for Health online course, Global Financing Facility). The governance behaviours further recognize that behavioural change is not a quick fix but a series of connected actions that need to be approached consistently and with constancy.

These six behaviours have been shown to help governments steer the private sector towards public health goals. They are described further below (Clarke et al., 2023; WHO, 2020a):

- *Deliver strategy* calls for up-to-date policy documents that define clear objectives for the private sector, in line with the direction and vision of UHC. When governments clearly establish the priorities, principles and values for the health system, explain through national policies and plans how to translate these into practice, and clarify roles and responsibilities of the private sector (though inclusion in strategy development and monitoring), private sector actors are more likely to actively contribute to health system goals.
- Governments which integrate the private sector, *aligning public and private organizational structures*, processes and institutional architecture, allow private sector entities to deliver health care services in line with national health goals.
- For governments to *build understanding* between all actors in the health system, collaboration with the private sector in the area of health data management is necessary for a shared understanding of health experiences, to promote access improvement, and enhance performance strategies and decision-making in pluralistic health systems. Simply put, private provider data needs to be incorporated into national health information systems, with the collaboration benefiting both parties through a shared data set which is complete, timely and of high quality.
- To *enable stakeholders*, governments act to influence the operation and performance of the private sector through the use of financing and regulatory policy mechanisms. Examples of ways this can be done are shown in Box 7.4.
- Governments that *foster relations* between the public and private sectors establish mechanisms that allow all the relevant stakeholders to participate in policy-making and planning, and to forge partnerships. Public–private coordination platforms are thus formalized and consistently used, and regular communication is established, allowing stakeholders to co-create policies and strategies, and co-design and co-implement market interventions.
- *Nurturing trust* within the health system can be done by leading the establishment of transparent, accountable and inclusive institutions at all levels in order to build trust. To this end, measures are needed to manage competing and conflicting sectoral interests, as well as enabling cooperative models of sharing of resources, capacities and skills for establishing trust between the public and private sectors.

Box 7.4. Regulatory and financing mechanisms to incentivize and channel private sector activity towards public health goals

- Regulatory frameworks (accompanied by an administrative apparatus that defines and enforces the rules and administers sanctions for non-compliance) that are valid for both the public and private sectors have proved to be effective (including, among others: regulation on licensing, accreditation, medical education, health professionals' standards of practice, clinical practice, regulation of pharmacy retailers and private health insurance).
- Well-designed and effectively implemented financing arrangements have also been used by governments to ensure that the resources and activities of private providers contribute to policy goals such as equity of access, financial protection and quality of care, without detriment to the financial sustainability of public health expenditure (examples include grants, in-kind support, contracting, social health insurance, strategic purchasing, etc.).
- Adequate public sector capacities (skills, human and financial resources) are also pivotal to ensure compliance with regulations and rules.

Performing the six governance behaviours can help governments to reframe public and private sector engagement as a partnership in health for shared health outcomes and be effective guarantors that health services are available, accessible, acceptable and of good quality, wherever people can and choose to access them (WHO, 2000; De Wolf & Toebes, 2016; Montagu & Goodman, 2016; Siddiqi et al., 2023).

7.3 Country illustrations: health governance supporting the PHC approach

This section depicts experiences and approaches from two countries in diverse global settings in implementing key governance elements to strengthen PHC-oriented health systems.

7.3.1 Costa Rica: decentralized decision-making with a strong national steer

Costa Rica's comprehensive PHC model is globally known for its success in sustainably improving population health (Lee & McKee, 2015; Peseć, Ratcliffe & Bitton, 2017) and ensuring near-universal access to quality health services (OECD, 2017). A large part of the success lies in its decentralized close-to-community model which allows for tailored, localized decision-making based on a true understanding of people's life circumstances and needs (Lee & McKee, 2015; Spigel et al., 2020). Community clinics form a pillar of localized PHC services; their multidisciplinary teams (*Equipos Básicos de Atención Integral de Salud* – EBAIS) know the community well, which is leveraged to provide comprehensive primary care and public health services (see Chapter 8) (Cuccia et al., 2019).

Decentralization has allowed the local knowledge to benefit communities, with hospitals and EBASIS clinics given far-reaching decision autonomy (Lee & McKee, 2015; OECD, 2017) and administrative independence. At the same time, national-level targets provide a strong framework within which decentralized entities must operate (Cuccia et al., 2019). For example, close collaboration between the national level and the EBASIS ensure that national goals such as improving equity are locally monitored with additional support provided to regions that need it (Pesec, Ratcliffe & Bitton, 2017). National structures also ensure regional exchange by managing regional data and knowledge sharing across EBASIS teams to manage larger population groups and share responsibility (Pesec, Ratcliffe & Bitton, 2017).

Decision-making autonomy at the local level also allows for a structured and sustainable engagement with communities. In Costa Rica community health boards form the principal decision-making structures in hospitals and larger clinics; they consist of locally elected service users, civil society representatives and labour organizations, and have a clear accountability objective towards their target population and local communities. They supervise the delivery of services, identify local service needs, assist procurement decisions, support hospitals in making services more responsive, ensure administrative and financial performance, and promote social participation. The autonomy they enjoy means that they independently manage budgets, performance contracts and clinic director selection in line with their accountability objective (Lee & McKee, 2015; OECD, 2017).

The experience of Costa Rica shows that decision-making autonomy exercised for the benefit of the local population can strengthen PHC. A clearly formulated and communicated national PHC vision is especially important to provide a strong steer towards health system goals. The national level can also foster cross-regional collaboration to exchange data and knowledge in service of population health.

7.3.2 Georgia: service integration as a cornerstone for high-quality primary care

The Georgian health system has undergone various reforms in tandem with political and social changes. Historically, the system was characterized by highly centralized planning and decision-making processes. However, after gaining independence from the Soviet Union, the country initiated a policy towards decentralization of the health system, with different donor-financed health programmes. The health service landscape became fragmented, with little integration between services funded by donors, private health insurance and networks involving pharmaceutical companies, and for-profit service providers (Richardson et al., 2017).

During the 1990s, the Ministry of Health attempted to shift towards a family medicine-based PHC approach to enhance person-centredness and overall quality (WHO Regional Office for Europe, 2021). The initiative has had mixed results primarily due to the absence of clear policies and vision, and incentives which led to fragmentation instead of service integration (Richardson et al., 2017). In urban areas, the existence of a strong network of private, for-profit providers, including private pharmacies and

clinics, along with financial incentives favouring emergency and inpatient care, further hindered the integration of different types of primary care services.

Compounding this fragmentation was a patchwork of different health programmes covering primary care (with rural areas covered separately under the Physicians for Rural Areas Assistance Programme) as well as 29 separate vertical programmes. Without a strong central government steer to bring the various programmes in line with a comprehensive PHC approach, the primary care landscape remained fragmented. For patients, this lack of integration resulted in difficulties in accessing services and claiming entitlements, thereby exacerbating inequities. The lack of integration led to high referral rates to specialized care and direct self-referral by people trying to bypass the primary care level (WHO, 2017b; Gigauri & Djakeli, 2021; Zoidze & Gabunia, 2021).

Acknowledgment of these problems led to a major step-wise reform process with the aim of horizontally integrating services around people's needs (Richardson et al., 2017). The current phase sees the Georgian government in a four-year (2021–2025) process to integrate a revised benefit package into PHC, giving priority to early childhood development and comprehensive management of noncommunicable diseases (NCDs) (WHO Regional Office for Europe, 2021). A gradual transition towards networks of multidisciplinary primary care teams is planned, reinforced by a new costing and payment model aligned with a quality framework to deliver a unified package of primary care services to the entire population without co-payments. A multistakeholder Coordinating Council supports coalition building and engages key national stakeholders in the implementation process (Zoidze & Gabunia, 2021; Richardson, 2022).

The Georgian example demonstrates the difficulties in implementing a PHC approach without a certain level of horizontal integration. Horizontal integration lends primary care the characteristics of the 4Cs, namely comprehensiveness, continuity, coordinated and first contact care.

7.4 Conclusion

Governance is a core health system function that enables other functions to improve system performance. In the context of the PHC approach and espousing its values and principles, the governance of PHC is embedded in an overarching strategic vision (policy frameworks, system design), enjoys input from multiple stakeholders (coalition-building), and is enshrined in legal frameworks and enforced (effective oversight, regulation, accountability).

Key governance elements considered in this chapter as central for strong PHC are: (i) decision-making autonomy; (ii) level of service integration; and (iii) effectiveness of quality assurance mechanisms. A fourth salient topic is the level of government engagement with the private sector.

Decision-making autonomy is critical at micro-level to operationalize the PHC approach, but central steer is needed to avoid inter-regional inequalities. In a PHC-oriented system, a decentralized service delivery mechanism, with delegated local authority and responsibility and without undue interference from higher authorities,

offers great potential to improve intra-regional equity, efficiency, people-centredness and population health. Additionally, it is important that local authorities have adequate capacity to take on the delegated responsibilities and use the decision space for meaningful community engagement to ensure greater *accountability* towards its people. Clear and transparent formulation of rules and regulations between the central and local levels, backed by funding and capacity building efforts, ensures that assigned roles and responsibilities can be taken on adequately.

Based on country experiences, two related issues are identified as significant: (i) implementing decentralized decision-making autonomy hinges on the existence of national PHC vision and guidance; and (ii) decision-making autonomy requires governance capacities at local levels. A corollary to the latter is the commitment to include community views in the decision-making process.

Integration of services, whether horizontal or vertical, requires action within the health service delivery function. Yet governance arrangements play a critical role in supporting and bolstering successful service integration. Planning arrangements and community engagement are two governance aspects of service integration considered essential. Policy and planning arrangements which foster integration require solid policies and frameworks to facilitate integration efforts, while leadership which enforces policy frameworks is a key ingredient to making integration work.

Linkages with the local communities and listening to the voices of stakeholders are critical to the success of service integration. An important element in decentralized decision-making for service integration is to meaningfully engage communities in local decision-making processes. In this regard, a fundamental premise is the political commitment and effort by local administrative authorities to enable sustainable integration of services.

Quality assurance mechanisms are vital for effectively implementing the PHC approach. The functionality of PHC-oriented models of care is impacted by the degree to which service delivery managers and policy-makers emphasize, formulate, implement and monitor standards of care. Two key governance issues are paramount in ensuring quality in service delivery: (i) leadership to ensure a culture of quality; and (ii) the inclusion of stakeholders and communities to co-produce quality improvement.

Leadership plays a crucial role in setting an example, demonstrating commitment to quality assurance, and convincing stakeholders to foster a sense of ownership in the process (Varkey & Antonio, 2010). Quality improvement is fundamentally about examining data, identifying quality problems, and pinpointing the reasons behind those problems in order to implement a solution. Involving a broad range of stakeholders and communities into quality assurance mechanisms is necessary to understand the myriad of reasons and possible solutions to quality challenges. Governance arrangements are thus essential to foster a culture of quality and true co-production of care.

Private sector engagement is an important strategy for the reorientation of health systems towards PHC. In this context, the governance arrangements between government and the private sector are of great salience to ensure private sector actions support implementation of the PHC approach. WHO has proposed six govern-

ance behaviours for effective government–private sector collaboration – deliver strategy; build understanding; foster relations; enable stakeholders; align structures; and nurture trust. These behaviours can help governments reframe public and private sector partnerships for shared health service outcomes that enhance availability, accessibility, acceptability and quality, and where people can and choose to access PHC services.

REFERENCES

- Akin JS, Hutchinson P, Strumpf KS (2001). Decentralization and government provision of public goods: the public health sector in Uganda. *Citeseer*.
- Allana A et al. (2022). Building integrated, adaptive and responsive healthcare systems – lessons from paramedicine in Ontario, Canada. *BMC Health Serv Res*, 22:595.
- Asfaw A et al. (2007). Fiscal decentralization and infant mortality: empirical evidence from rural India. *Journal of Developing Areas*, 41(1):17–35.
- Bailie RS et al. (2007). Indigenous health: effective and sustainable health services through continuous quality improvement. *Med J Aust*, 186:525–7.
- Bankauskaite V, Novinsky CM (2010). Stewardship of the Spanish National Health System. *Int J Health Plann Manage* 25:386–99.
- Batalden M et al. (2016). Coproduction of healthcare service. *BMJ Qual Saf*, 25(7):509–17.
- Bloom G et al. (2011). Making health markets work better for poor people: the case of informal providers. *Health Policy Plan*, 26(51):i45–52.
- Bossert T (1998). Analyzing the decentralization of health systems in developing countries: decision space, innovation and performance. *Soc Sci Med*, 47:1513–27.
- Bossert TJ (2016). Decision space and capacities in the decentralization of health services in Fiji: comment on “decentralisation of health services in Fiji: A decision space analysis”. *Int J Health Policy Manag*, 5:443.
- Bossert TJ, Beauvais JC (2002). Decentralization of health systems in Ghana, Zambia, Uganda and the Philippines: a comparative analysis of decision space. *Health Policy Plan*, 17:14–31.
- Braithwaite J et al. (2017). Association between organisational and workplace cultures, and patient outcomes: systematic review. *BMJ Open*, 7:e017708.
- Breton M et al. (2019). Multiple perspectives analysis of the implementation of an integrated care model for older adults in Quebec. *Int J Integr Care*, 19(4):6.
- Brooke-Sumner C et al. (2019). “Doing more with less”: a qualitative investigation of perceptions of South African health service managers on implementation of health innovations. *Health Policy Plan*, 34:132–40.
- Casanova AO et al. (2017). A implementação de redes de atenção e os desafios da governança regional em saúde na Amazônia Legal: uma análise do Projeto QualiSUS-Rede. *Ciênc Saúde Colet*, 22:1209–24.
- Chen J et al. (2021). Does decentralization of health systems translate into decentralization of authority? A decision space analysis of Ugandan healthcare facilities. *Health Policy Plan*, 36:1408–17.
- Clarke D et al. (2019). The private sector and universal health coverage. *Bull World Health Organ*, 97:434.
- Clarke D et al. (2023). The governance behaviours: a proposed approach for the alignment of the public and private sectors for better health outcomes. *BMJ Glob Health*:8:e012528.
- Cobos Muñoz D et al. (2017). Decentralization of health systems in low- and middle-income countries: a systematic review. *Int J Public Health*, 62:219–29.

- Cuccia L (2019). Costa Rica's Health Care Reform: Impact and Success of the EBAIS Model. *The Prognosis: McGill's Student Glob Health J*, Spring 2019:24.
- De Maeseneer et al. (2020). Universal health coverage and primary health care: the 30 by 2030 campaign. *Bull World Health Organ* 2020;98:812–81.
- De Santis M (2019). Integrated care for healthcare sustainability for patients living with rare diseases. *Ann Ist Super Sanita*, 55:276–82.
- De Wolf AH, Toebes B (2016). Assessing private sector involvement in health care and universal health coverage in light of the right to health. *Health Hum Rights*, 18:79.
- David Williams O, Yung KC, Grépin KA (2021). The failure of private health services: COVID-19 induced crises in low- and middle-income country (LMIC) health systems. *Glob Public Health*, 16:1320–33.
- Deegan HE et al. (2022). Development and implementation of a heat alert and response system in rural British Columbia. *Can J Public Health*, 113:446–54.
- Doherty JE (2015). Regulating the for-profit private health sector: lessons from East and Southern Africa. *Health Policy Plan*, 30(S1):i93–102.
- Dwicaksono A, Fox AM (2018). Does decentralization improve health system performance and outcomes in low and middle income countries? A systematic review of evidence from quantitative studies. *Milbank Q*, 96:323–68.
- Eboreime EA et al. (2019). Primary healthcare planning, bottleneck analysis and performance improvement: An evaluation of processes and outcomes in a Nigerian context. *Eval Program Plann*, 77:101712.
- Ellis LA et al. (2020). Accreditation as a management tool: a national survey of hospital managers' perceptions and use of a mandatory accreditation program in Denmark. *BMC Health Serv Res*, 20:1–9.
- Foster AA et al. (2018). Strengthening and Institutionalizing the Leadership and Management Role of Frontline Nurses to Advance Universal Health Coverage in Zambia. *Glob Health: Sci Pract*, 6:736–46.
- Frumence G et al. (2013). Challenges to the implementation of health sector decentralization in Tanzania: experiences from Kongwa district council. *Glob Health Action*, 6:20983.
- Fryatt R, Bennett S, Soucat A (2017). Health sector governance: should we be investing more? *BMJ Glob Health*, 2:e000343.
- Gage AD et al. (2022). The influence of continuous quality improvement on healthcare quality: A mixed-methods study from Zimbabwe. *Soc Sci Med*, 298:114831.
- Gastelurrutia MA, Faus MJ, Martinez-Martinez F (2020). Primary health care policy and vision for community pharmacy and pharmacists in Spain. *Pharm Pract (Granada)*, 18:1999.
- Ghiotto MC et al. (2018). Strengthening primary care: the Veneto Region's model of the Integrated Medical Group. *Health Policy*, 122:1149–54.
- Gigauri I, Djakeli K (2021). National Health Reforms in Georgia during 1994–2021 and their Success. *HOLISTICA – J Business Public Adm*, 12:102–8.
- Godinho MA (2020). Community health alliances as social enterprises that digitally engage citizens and integrate services: A case study in Southwestern Sydney (protocol). *Digital Health*, 6:205520762093011.

- Gomez MMB, Agudelo K, Castro-Arroyave DM (2020). Comprehensive Care Model for Rural Health: Sumapaz Locality. Social Innovation in Health Initiative. Geneva: World Health Organization & UNICEF/UNDP/World Bank/ WHO Special Programme for Research and Training in Tropical Diseases.
- Hamilton AB et al. (2017). Engaging multilevel stakeholders in an implementation trial of evidence-based quality improvement in VA women's health primary care. *Transl Behav Med*, 7:478–85.
- Hanlon C et al. (2017). Health system governance to support scale up of mental health care in Ethiopia: a qualitative study. *Int J Ment Health Syst*, 11:1–16.
- Hanson K et al. (2008). Is private health care the answer to the health problems of the world's poor? *PLoS Med*, 5:e233.
- Health Foundation (2016). Person-centred care made simple: what everyone should know about person-centred care. Health Foundation, GB.
- Hermansyah A et al. (2020). Primary health care policy and vision for community pharmacy and pharmacists in Indonesia. *Pharm Pract (Granada)*, 18:2085.
- Holt DH, Carey G, Rod MH (2018). Time to dismiss the idea of a structural fix within government? An analysis of intersectoral action for health in Danish municipalities. *Scand J Public Health*, 46:48–57.
- Horton R, Clark S (2016). The perils and possibilities of the private health sector. *Lancet*, 388:540–1.
- Howlett M, Ramesh M (2016). Achilles' heels of governance: critical capacity deficits and their role in governance failures. *Regul Gov*, 10:301–13.
- Husabø G et al. (2020). Promoting leadership and quality improvement through external inspections of management of sepsis in Norwegian hospitals: a focus group study. *BMJ Open*, 10:e041997.
- Jenkins R et al. (2010). Mental health policy and development in Egypt – integrating mental health into health sector reforms 2001–9. *Int J Ment Health Syst*, 4:17.
- Jiménez-Rubio D, García-Gómez P (2017). Decentralization of health care systems and health outcomes: Evidence from a natural experiment. *Soc Sci Med*, 188:69–81.
- Jiménez-Rubio D, Smith PC, van Doorslaer E (2008). Equity in health and health care in a decentralised context: evidence from Canada. *Health Econ*, 17:377–92.
- Jones B, Kwong E, Warburton W (2021). Quality improvement made simple: What everyone should know about Healthcare quality improvement: Quick guide. Health Foundation, GB.
- Jung OS et al. (2023). Ideas from the Frontline: Improvement Opportunities in Federally Qualified Health Centers. *J Gen Intern Med*, 1–10.
- Kaplan GS et al. (2014). Why Lean doesn't work for everyone. *BMJ Qual Saf*, 23:970–3.
- Kaplan HC et al. (2012). The Model for Understanding Success in Quality (MUSIQ): building a theory of context in healthcare quality improvement. *BMJ Quality Saf*, 21:13–20.
- Kickbusch I, Gleicher DE (2012). Governance for health in the 21st century. WHO Regional Office for Europe.
- Langlois EV et al. (2020). Measures to strengthen primary health-care systems in low- and middle-income countries. *Bull World Health Organ*, 98:781–91.

- Lavoie JG, Dwyer J (2016). Implementing Indigenous community control in health care: lessons from Canada. *Aust Health Rev*, 40:453.
- Lee SJ et al. (2013). What is needed to deliver collaborative care to address comorbidity more effectively for adults with a severe mental illness? *Aust NZ J Psychiatry*, 47:333–46.
- Lee T, McKee D (2015). An Empirical Evaluation of Devolving Administrative Control to Costa Rican Hospital and Clinic Directors. *Int J Health Serv*, 45(2):378–97.
- Leykum LK et al. (2022). Engaging Veterans, caregivers, and system stakeholders to improve VA home and community based services. *Health Serv Res*, 57:66–76.
- Mahmood MA et al. (2020). A framework for shifting the paradigm and developing coalitions to address neglected public health problems: Lessons from the Myanmar Snakebite Project. *Toxicon*, 177:S1.
- Marais DL, Petersen I (2015). Health system governance to support integrated mental health care in South Africa: challenges and opportunities. *Int J Ment Health Syst*, 9:1–21.
- Martinez-Mardones F et al. (2020). Primary health care pharmacists and vision for community pharmacy and pharmacists in Chile. *Pharm Pract (Granada)*, 18:2142.
- MoH Kenya (2020). Kenya Universal Health Coverage Policy 2020–2030. Ministry of Health Kenya.
- Montagu D, Goodman C (2016). Prohibit, constrain, encourage, or purchase: how should we engage with the private health-care sector? *Lancet*, 388:613–21.
- Morgan R, Ensor T, Waters H (2016). Performance of private sector health care: implications for universal health coverage. *Lancet*, 388:606–12.
- Mugisha J, Ssebunnya J, Kigozi FN (2016). Towards understanding governance issues in integration of mental health into primary health care in Uganda. *Int J Ment Health Syst*, 10:1–14.
- Nicholson C, Jackson C, Marley J (2013). A governance model for integrated primary/secondary care for the health-reforming first world – results of a systematic review. *BMC Health Serv Res*, 13:528.
- Ocloo J, Matthews R (2016). From tokenism to empowerment: progressing patient and public involvement in healthcare improvement. *BMJ Qual Saf*, 25:626–32.
- OECD (2010). Health system characteristics survey 2010 and OECD Secretariat’s estimates. Available at: <https://www.oecd.org/els/health-systems/characteristics.htm> (accessed 21 January 2024).
- OECD (2017). OECD reviews of health systems. Paris: OECD Publishing.
- OECD (2021). Fiscal Federalism 2022: Making Decentralisation Work. Paris: OECD Publishing.
- Ohrling M et al. (2022). Managers do it their way: How managers act in a decentralised healthcare services provider organisation – a mixed methods study. *Health Serv Manage Res*, 35:215–28.
- Ong SE et al. (2018). Health systems reforms in Singapore: A qualitative study of key stakeholders. *Health Policy*, 122:431–43.

- Palmer VJ et al. (2019). The Participatory Zeitgeist: an explanatory theoretical model of change in an era of coproduction and codesign in healthcare improvement. *Med Humanit*, 45:247–57.
- Pavolini E, Vicarelli G (2012). Is decentralization good for your health? Transformations in the Italian NHS. *Curr Sociol*, 60:472–88.
- Pesec M, Ratcliffe H, Bitton A (2017). Building a thriving primary health care system: The story of Costa Rica. Case Study, Ariadne Labs. Available at: <https://www.ariadnelabs.org/wp-content/uploads/2017/12/CostaRica-Report-12-19-2017.pdf> (accessed 7 December 2019).
- Quaglio G et al. (2018). An overview of future EU health systems. An insight into governance, primary care, data collection and citizens' participation. *J Public Health*, 40:891–8.
- Ramagem C et al. (2011). Combating health care fragmentation through integrated health services delivery networks. *Int J Integr Care*, 11:e100.
- Rensburg AJ van, Fourie P (2016). Health policy and integrated mental health care in the SADC region: strategic clarification using the Rainbow Model. *Int J Ment Health Syst*, 10:1–13.
- Richardson E (2022). *Health systems in action: Georgia*. Geneva: World Health Organization.
- Richardson E et al. (2017). *Georgia: Health system review*. WHO Regional Office for Europe.
- Riri JV et al. (2022). Facilitators and barriers to implementation of integrated community case management of childhood illness: a qualitative case study of Kapiri Mposhi District. *BMC Health Serv Res*, 22:497.
- Robalino DA, Picazo O, Voetberg A (2001). Does fiscal decentralization improve health outcomes? Evidence from a cross-country analysis. Evidence from a Cross-Country Analysis (March 2001).
- Ruef F, Ejderyan O (2021). Rowing, steering or anchoring? Public values for geothermal energy governance. *Energy Policy*, 158:112577.
- Sarkar ND, Baingana F, Criel B (2022). Integration of perinatal mental health care into district health services in Uganda: Why is it not happening? The Four Domain Integrated Health (4DIH) explanatory framework. *Soc Sci Med*, 296:113464.
- Seshadri SR et al. (2016). Decentralization and decision space in the health sector: a case study from Karnataka, India. *Health Policy Plan*, 31:171–81.
- Shaw S, Rosen R, Rumbold B (2011). What is integrated care? Nuffield Trust. Available at: <https://www.nuffieldtrust.org.uk/research/what-is-integrated-care> (accessed 8 September 2023).
- Shields M et al. (2019). Consumers' Suggestions for Improving the Mental Healthcare System: Options, Autonomy, and Respect. *Community Ment Health J*, 55:916–23.
- Sibthorpe B et al. (2018). Impacts of continuous quality improvement in Aboriginal and Torres Strait islander primary health care in Australia: A scoping systematic review. *J Health Organ Manag*, 32:545–71.

- Siddiqi S et al. (2009). Framework for assessing governance of the health system in developing countries: gateway to good governance. *Health Policy*, 90:13–25.
- Siddiqi S et al. (2023). The role of the private sector in delivering essential packages of health services: lessons from country experiences. *BMJ Glob Health*, 8:e010742.
- Sitienei J, Manderson L, Nangami M (2021). Community participation in the collaborative governance of primary health care facilities, Uasin Gishu County, Kenya. *PLoS One*, 16:e0248914.
- Smit JA et al. (2012). Key informant perspectives on policy- and service-level challenges and opportunities for delivering integrated sexual and reproductive health and HIV care in South Africa. *BMC Health Serv Res*, 12:1–8.
- Spigel L et al. (2020). Implementing sustainable primary healthcare reforms: strategies from Costa Rica. *BMJ Glob Health*, 5:e002674.
- Sudhinaraset M et al. (2013). What is the role of informal healthcare providers in developing countries? A systematic review. *PLoS One*, 8:e54978.
- Sumah AM, Baatiema L, Abimbola S (2016). The impacts of decentralisation on health-related equity: A systematic review of the evidence. *Health Policy*, 120:1183–92.
- Travis P (2002). *Towards better stewardship: concepts and critical issues*. Geneva: World Health Organization.
- Tsofa B et al. (2023). Political economy analysis of sub-national health sector planning and budgeting: A case study of three counties in Kenya. *PLoS Glob Public Health*, 3:e0001401.
- Udenigwe O et al. (2021). “We have either obsolete knowledge, obsolete equipment or obsolete skills”: policy-makers and clinical managers’ views on maternal health delivery in rural Nigeria. *Fam Med Community Health*, 9(3):e000994.
- Varkey P, Antonio K (2010). *Change management for effective quality improvement: a primer*. *Am J Med Qual*, 25:268–73.
- Vedel I et al. (2011). Ten years of integrated care: backwards and forwards. The case of the province of Québec, Canada. *Int J Integr Care*, 11:e004.
- Vliet EJ van et al. (2023). International approaches for implementing accreditation programmes in different healthcare facilities: a comparative case study in Australia, Botswana, Denmark, and Jordan. *Int J Qual Health Care*, 35:mzad026.
- Warren M et al. (2020). The Role of Patient Advisory Councils in Health Research: Lessons From Two Provincial Councils in Canada. *J Patient Exp*, 7:898–905.
- WHO (2000). *The World Health Report 2000: Health systems: improving performance*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/924156198X> (accesses on 17 April 2024).
- WHO (2007). *Everybody’s business – strengthening health systems to improve health outcomes: WHO framework for action*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/everybody-s-business----strengthening-health-systems-to-improve-health-outcomes> (accessed on 17 April 2024).

- WHO (2017a). Primary health care systems (PRIMASYS): comprehensive case study from Indonesia. Geneva: World Health Organization. Available at: <https://ahpsr.who.int/publications/i/item/primasys-comprehensive-case-study-from-indonesia> (accessed on 17 April 2024).
- WHO (2017b). Primary health care systems (PRIMASYS): case study from Georgia. Geneva: World Health Organization. Available at: <https://ahpsr.who.int/publications/i/item/primasys-comprehensive-case-study-from-georgia> (accessed on 17 April 2024).
- WHO (2018). The private sector, universal health coverage and primary health care. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.53> (accessed on 17 April 2024).
- WHO (2020a). Private sector landscape in mixed health systems. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240018303> (accessed on 17 April 2024).
- WHO (2020b). Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240017832> (accessed on 17 April 2024).
- WHO (2020c). Engaging the private health service delivery sector through governance in mixed health systems: strategy report of the WHO Advisory Group on the Governance of the Private Sector for Universal Health Coverage. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240018327> (accessed on 17 April 2024).
- WHO (2021a). Evidence, policy, impact: WHO guide for evidence-informed decision-making. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240039872> (accessed on 17 April 2024).
- WHO (2021b). Voice, agency, empowerment – handbook on social participation for universal health coverage. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240027794> (accessed on 17 April 2024).
- WHO Regional Office for Europe (2021). Rethinking primary health care financing in Georgia. WHO Regional Office for Europe. Available at: <https://www.who.int/europe/publications/i/item/WHO-EURO-2021-4202-43961-61960> (accessed on 17 April 2024).
- WHO, AHPSR (2017). Primary health care systems (PRIMASYS): case study from Mexico. Geneva: World Health Organization.
- WHO et al. (2022). Health system performance assessment: a framework for policy analysis. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240042476> (accessed on 17 April 2024).

- Yadav UN et al. (2021). Using a co-design process to develop an integrated model of care for delivering self-management intervention to multi-morbid COPD people in rural Nepal. *Health Res Policy Syst*, 19:1–12.
- Yashadhana A et al. (2020). Using quality improvement strategies to strengthen regional systems for Aboriginal and Torres Strait Islander eye health in the Northern Territory. *Aust J Rural Health*, 28:60–6.
- Yen-Ju Lin B, Lin Y-K, Lin C-C (2010). Partnership effectiveness in primary community care networks: A national empirical analysis of partners' coordination infrastructure designs. *Health Care Manage Rev*, 35:224–34.
- Yuan S et al. (2022). Primary healthcare professionals' perspective on vertical integration of healthcare system in China: a qualitative study. *BMJ Open*, 12:e057063.
- Zoidze A, Gabunia T (2021). Georgia. From crisis to opportunity: advancing primary health care reform amid the COVID-19 pandemic. Geneva: World Health Organization. Available at: [https://www.who.int/europe/publications/m/item/georgia-from-crisis-to-opportunity-advancing-primary-health-care-reform-amid-the-covid-19-pandemic-\(2021\)](https://www.who.int/europe/publications/m/item/georgia-from-crisis-to-opportunity-advancing-primary-health-care-reform-amid-the-covid-19-pandemic-(2021)) (accessed on 17 April 2024).
- Zon H, Pavlova M, Groot W (2019). Decentralization and health resources transfer to local governments in Burkina Faso: A SWOT analysis among health care decision makers. *Health Sci Rep*, 2:e119.

HEALTH WORKFORCE

This fictional story visualizes how a skilled health and care workforce can promote integrated health services, community engagement and empowerment of users

Mila, Alma's elderly mother-in-law, lives with the family. Previously, she lived and worked on a farm until her diabetic symptoms became more advanced. She recently noted decreased sensation and pain in her feet. She decided to visit the family doctor at the community health centre. During the consultation, the doctor explained that Mila had developed diabetic foot syndrome. After discussion with Alma and with her approval, the doctor arranged for a community health nurse, who is part of the health centre's multidisciplinary team, to visit Mila at home to help her manage the disease. When she visited Mila later that week, the nurse, together with Mila and her family, developed a care plan. She reviewed the importance of physical exercise, adherence to medication and healthy eating. She enquired about the specific challenges Mila encountered in managing her diabetes and provided potential

solutions. She also provided advice on glucose level monitoring and recommended to visit the information sessions on healthy eating organized by the community. The visit was reassuring for Mila and her family as they knew more about the disease and how to take care of the feet. They also felt better informed and equipped to handle Mila's concerns.



8

Health and care workforce

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Key messages

The primary health care (PHC) workforce is expected to provide health promotion, prevention and public health services; deliver acute and chronic care; ensure continuity of care; and respond to patients' needs and expectations. Educating, attracting and retaining sufficient adequately-trained, motivated professionals is absolutely critical. Strategic planning, education, life-long training, recruitment, retention and distribution are essential.

- A strategic vision for a fit-for-purpose workforce ensures the acquisition of the right competencies and skills to achieve PHC. The vision needs to account for patient needs, context, service delivery and labour market trends, and build in flexibility for the future.
- Strategic planning of the PHC workforce must address:
 - workforce composition, deployment, distribution and management
 - the definition of scope of practice and roles, the division and transfer of tasks, and the development of multiprofessional teams
 - the adjustments in education, financing, employment practices and regulation to enable task-shifting.
- High-quality pre-service education and life-long training will have to evolve to enable the workforce to deliver effective PHC-oriented care and to (continue to) adapt to changing needs.
- Attractive working conditions and safe and supportive environments are crucial to recruiting and retaining the PHC workforce. Consideration must be given to the personal and professional implications of working in remote, rural settings, and gender inequities must be addressed as well.
- Developing an effective workforce for PHC-oriented systems requires a whole-of-government commitment, involvement of professional organizations, stakeholder support and community engagement.

8.1 Introduction

A fit-for-purpose health and care workforce is central to building an effective and sustainable PHC approach (Barbazza et al., 2015; Dussault et al., 2018; WHO & UNICEF, 2018, 2022; Bariş et al., 2021). An adequate number, appropriate distribution, and skill-mix of health professionals are required, working as part of a team and across sectors, with the right clinical, public health, technical and interprofessional skills and competencies that ensure high-quality services. Building such a primary care workforce requires sustained investment in job creation and decent working conditions, supportive work environments, adequate staffing and time to meet population and patients' needs, and adapted basic and life-long training.

This chapter addresses how to develop and strengthen the health and care workforce to progress towards PHC, universal health coverage (UHC) and improved health outcomes. Section 8.2 focuses on three strategies: planning of the health and care workforce (composition, deployment and management); the adaptation of education and life-long training; and the optimization of recruitment and retention of primary care workers. In combination, these three strategies can help countries build a system of primary care services accessible to all and capable of meeting more than 80% of health needs with high user satisfaction (Dussault et al., 2018; PHCPI, 2022). Section 8.3 presents examples of good practice that countries can learn from to strengthen primary care services, and Section 8.4 summarizes lessons learned and implementation challenges.

PHC is a whole-of-society approach that promotes integrated health services, community engagement, multisectoral action and empowerment of users (see Chapters 1 and 3). The term health and care workforce in PHC-oriented systems refers to all workers engaged in health promotion, disease prevention, curative care, rehabilitation and palliative care, and thus includes the public health workforce as well as occupations engaged in the provision of diagnostics and treatment (Box 8.1).

Box 8.1 Who is part of the workforce in primary care and public health?

The health and care workforce in primary care and public health includes professionals such as physicians, nurses, midwives, social workers, psychologists, pharmacists, physician assistants or clinical officers, practice assistants, dieticians, dentists, rehabilitation specialists, and laboratory and other technicians, among others. It additionally includes epidemiologists, public health specialists, demographers, managers, statisticians, policy analysts, and educators and trainers who support the delivery of essential public health functions (WHO, 2022a, 2022b). In many countries, there are also community health workers with basic training to conduct tasks such as screening for health risks, providing information on prevention and promotion, facilitating access to services and supporting adherence to treatment. Community health workers are often the first point of contact for people seeking health care (see Chapter 3).

The roles and scope of practice of health and care workers contributing to PHC, as well as their educational background, job titles and responsibilities, vary between, even within, countries due to historical, cultural, political, legal or economic factors (Aluttis et al., 2014; WHO, 2022a). Informal carers and volunteers, the majority of whom are women, complement the work of formal workers, notably by assisting in daily life activities, monitoring medication, offering psychological support or providing transportation to health services. First contact health service providers also include acupuncturists, homoeopaths, naturopaths, Chinese medicine practitioners and other traditional or alternative providers, who integrate with the formal health and care workforce in certain countries (for example, Ayurvedic practitioners in India). In many countries, there is also an important informal health and care workforce that includes traditional birth attendants, drug sellers, herbalists, shamans and others (Kumah, 2022).

8.2 Evidence review: the health and care workforce to strengthen the PHC approach

This section focuses on three main strategies to ensure the future availability of the health and care workforce for PHC-oriented systems: (1) planning; (2) educating; and (3) recruiting and retaining the health and care workforce.

8.2.1 Implementing the PHC approach requires strategic workforce planning

Health and care workforce planning is strategic if it is informed by a thorough analysis of the health labour market (HLM), its strengths and deficiencies, and their determinants. Workers' decisions, such as to work in primary care services or not, to seek employment in the public or private sector, or where to practise, and employers' decisions relating to the number and type of jobs to offer and their working conditions shape the health and care workforce and therefore the delivery of services. The understanding of these decisions and actions by other actors, such as government ministries (health, education, finance, public administration) and agencies (regulatory, accreditation), professional associations, unions, scientific associations and political parties, is key to effective health and care workforce planning (WHO, 2021a). Combined with a valid picture of the existing workforce and with a clear vision of the future services the country wants in place to meet emerging needs resulting from demographic, burden of disease and rapid technological changes, this information then serves to identify future requirements in educating, employing and deploying the health and care workforce.

The COVID-19 pandemic has made obvious the critical importance of the health and care workforce to face this shock, but at the same time has shown how it was unprepared. Health Labour Market Analysis and National Health Workforce Accounts (NHWA) offer a set of tools to assess the gap between the current health and care workforce situation and the desired one and thereby support planning (WHO, 2017,

2018a, 2021a, 2022a). They serve to measure inflows (new graduates, foreign-trained providers and those returning) and outflows (retirees, leavers and emigrants) that form the supply of the health and care workforce, and to identify market deficiencies such as result in shortages, imbalanced geographical distribution or competency gaps that negatively affect the availability, accessibility, acceptability and quality of primary care services (WHO, 2016). However, at present, few countries have comprehensive data on their workforce in primary care and public health, as occupations other than physicians, nurses and midwives are less well documented, including dentists, pharmacists, rehabilitation and public health specialists, technicians, epidemiologists and community health workers (Gershuni et al., 2019; WHO Regional Office for Europe, 2022). In most countries, limited or even no data on the informal sector are available, save for exemptions like in Bangladesh where the World Health Organization (WHO) and Ministry of Health and Family Welfare conducted a survey of the whole supply and demand of health services in 2019 (Nuruzzaman et al., 2022). In sum, much effort is still required to build a comprehensive database on the health and care workforce.

While comprehensive health and care workforce planning is still incipient in most countries, there are initiatives aimed at responding to imbalances in the composition and deployment of workers and to skill mismatches in primary care settings. Two types of change are increasingly promoted as ways to make primary care more accessible and more effective: one is the extension of the roles, responsibilities and tasks of health professionals through task-sharing (or task-shifting). The other is the implementation of multiprofessional teams (Mash et al., 2015; OECD, 2020; Maier et al., 2022). Both changes often take place jointly and their benefits, for users and workers, are well documented (WHO, 2007; WHO, PEPFAR & UNAIDS, 2007; Newhouse et al., 2011; Mash et al., 2015; Maier and Aiken, 2016; Bryant-Lukosius et al., 2017; Bitton et al., 2019; Barış et al., 2021; Leong et al., 2021; Groenewegen et al., 2022). This is illustrated in Boxes 8.2 and 8.3.

Box 8.2 Task-sharing, skill-mix and new professional roles work well in PHC-oriented services

Task-sharing aims at expanding and optimizing the workforce to enable more person-centred, integrated and community-oriented primary care. For example, the introduction of advanced practice providers has gained importance (Halter et al., 2013; McPake et al., 2015; de Bont et al., 2016; Maier, Aiken & Busse, 2017). There is evidence that it makes an important contribution to the delivery of health promotion and disease prevention, and helps create a more person-centred, holistic, integrated and community-oriented primary care system (de Bortoli Cassiani et al., 2020; Barış et al., 2021; Maier et al., 2022). Advanced practice providers (for example, advanced practice nurses or physician assistants) or other professionals working in advanced roles (for example, pharmacists, midwives, others) provide equivalent or higher-quality care compared to physicians or teams with no extended roles (Lassi et al., 2013; Joshi et al., 2014; Laurant et al., 2018; Maier et al., 2022). Physician assistants can perform 85–

90% and nurse practitioners 67–93% of tasks traditionally provided by primary care physicians, enabling the physicians to focus on more complex cases (Hooker & Everett, 2012; Halter et al., 2013; Maier et al., 2016; Laurant et al., 2018; Lonnée et al., 2018).

New professional roles enable better use of resources, optimize time spent on care, improve adherence of patients to treatment, improve quality of care, and increase access to care as well as work satisfaction (Joshi et al., 2014; de Bortoli Cassiani et al., 2020). An analysis of community paramedics (with training in social risks assessment, community services integration and patient advocacy) in Canada showed that their extended role in conducting medical, social and environmental assessments and providing preventive care better responds to local population needs and coordination with primary care teams and social workers (Allana & Pinto, 2021). A review on skill-mix and health promotion found that expanded roles (such as outreach) with a focus on vulnerable groups such as migrants can improve outcomes, and new roles (for example, for community pharmacists) were effective in providing lifestyle advice (Maier et al., 2023). In many high-income countries (HICs), new roles such as patient navigators (who can be health professionals (for example, nurses, social workers), lay health workers or expert patients) contribute to expanding access to screenings and health services for vulnerable population groups (Budde et al., 2022; Winkelmann et al., 2022). However, not all tasks can be shared and a sufficient level of training is always required; health and care workers with extended roles also are to be embedded in a well-functioning team.

Box 8.3 Multiprofessional team-based care allows better management of patient and community needs

Multiprofessional family health care teams comprised of workers such as physicians, nurses, nurse assistants, social workers or community health workers strengthen community-based primary care (Mash et al., 2015; Dois et al., 2018; Dussault et al., 2018). In Peru, for example, the number of primary care teams expanded by 38% between 2013 and 2020, and in Brazil by 58% between 2008 and 2019 (OECD, 2022). Evidence shows that collaborative practice provides better health outcomes, for example in mental health, better adherence to treatment, higher patient satisfaction, and reduction in rates of utilization of health services (Archer et al., 2012; Schor et al., 2019; Lammila-Escalera et al., 2022; Winkelmann et al., 2022). However, evidence concerning multidisciplinary teams and nurse-led integrated care models in other areas, for example cancer care or chronic care, is mixed (Jones, 2015; Winkelmann et al., 2022; Lloyd et al., 2023). This is because of the large variation in how and in which contexts such teams are established and the resulting challenges for evaluation (Kumpunen et al., 2020; Lloyd et al., 2023). The operationalization of multidisciplinary teams faces two major challenges: how to collectively manage patients and overcome traditional hierarchies (O'Reilly et al., 2017; McDermott et al., 2022).

The integration of community health workers into primary care teams, such as Health Extension Workers (HEWs) in Ethiopia, Community Health Agents in Brazil (OECD, 2021), Behvarz in Iran, Pakistan's Lady Health Workers, and Accredited Social Health Activists in India (Saprii et al., 2015; Desta et

al., 2017) expands access to services when these workers are embedded in the community and have access to supportive supervision, continuous training, and adequate logistical support and supplies (Scott et al., 2018; Bitton et al., 2019; WHO, 2019a).

The multidisciplinary team-based approach has been successfully implemented in communities worldwide, both in urban and rural settings. In Kazakhstan and Brazil, for example, multidisciplinary teams are at the core of efforts to transform the system from a doctor-centred primary care model towards a people-centred model (OECD, 2021; WHO Regional Office for Europe, 2021).

To produce the desired benefits of these two strategies, it is important to have in place various supportive measures, such as suitable technology, infrastructure and training, a sufficient supply of workers, and adequate financing (Abrokwa et al., 2022). Hence, moving from “siloeed” workforce planning to one that considers the availability and skills of all workers who deliver primary care and public health, with a view to optimizing the use of their competencies, is critical (Fraher & Brandt, 2019). A broad set of measures to accompany this transformation are needed, such as ensuring education, licensing, supervision, recognition and remuneration. The success of planning the health and care workforce for PHC-oriented systems depends on the collaboration of numerous actors whose objectives and interests may not coincide, hence the importance of policy-makers and planners involving these stakeholders at all stages of the process. Therefore, planning that covers all dimensions of the future workforce, in particular education to address new skill requirements, is key (Batenburg & Kroezen, 2022).

8.2.2 Moving from a specialized, siloeed approach to interprofessional and skills building requires education and continuing professional development for PHC

In 2010, the *Lancet Commission on Education of Health Professionals for the 21st Century* stressed the urgency of a transformation of health workers' education to adapt their competencies to deliver patient-centred, continuous and evidence-based care, to work in multiprofessional teams, and to use the full potential of new technologies (Frenk et al., 2010). This supposes a paradigm shift from a biomedical treatment-focused care model to a more holistic and comprehensive one centred on prevention and promotion, taking into account local context and community needs, with relevant clinical and technical knowledge and skills (Table 8.1) (Bhopal et al., 2015; WHO, 2022b). At the same time, adaptation of education and training systems to the changing skill needs is important in order to fully harness the potential of electronic health records (EHRs), artificial intelligence (AI) and the use of telemedicine in primary care. New technologies (see Chapter 11) have the potential to help manage increasing demands on primary care services, provided workers are not overburdened in their daily activities where technologies and information technology (IT) support systems are too complex and do not meet their needs. In addition, green skills to appropriately address climate-sensitive conditions and resulting changes in morbidity will become more important (see also Chapter 15).

Table 8.1 Skills and competencies required for a person-centred, integrated and multiprofessional PHC approach

Competency area	Skills and competencies
Clinical skills	Communication with users, medical history taking
	Clinical examination and diagnostics, administering medication, technical skills (e.g. drawing blood)
	Skills in chronic care, rehabilitation and palliative care
Analytical skills	Synthesizing, analysing, interpreting epidemiological data
	Systems thinking
	Problem solving, continuing learning
Patient education	Health counselling (active listening, reflecting and asking solution-oriented questions to stimulate new thinking, e.g. in relation to goal-setting, person-centred communication). Promotion of health literacy (e.g., in the use of medicines)
	Empathy
	Sociocultural sensitivity and cultural awareness, effective communication, health literacy
Interprofessional competencies	Shared decision-making in health (e.g., through group discussion, experiential paired and group exercises)
	Interprofessional communication and teamwork, supporting and capacitating other team members
Skills for community development and integrated PC	Skills in prevention, protection and preservation of patient and community health and management of risk factors
	Competencies in engaging and working with stakeholders at the community level
	Assist people gaining greater control over their lives through running groups or developing community projects
Digital, eHealth and AI competences	Information and data literacy
	Communication and collaboration through digital technologies
	Protection of data
	Solving technical problems and identifying competence gaps
	Managing and evaluating data and digital content

Continued on next page

Competency area	Skills and competencies
Delivery of essential public health functions	Promoting prevention and early detection of diseases (NCDs and non-NCDs)
	Promoting health and wellbeing and actions to address the wider social and environmental determinants of health and inequity
	Advocacy, values and ethics
	Ensuring community engagement, participation and social mobilization for health and wellbeing
Green skills	Environmental awareness
	Knowledge and awareness on mitigation, adaptation and health co-benefits
	Identify opportunities and create new strategies
Managerial skills	Practice management, accounting, HR, leadership, engaging in quality improvement (audits), implementation of guidelines

Sources: Doi et al., 2018; Dussault et al., 2018; WHO Regional Office for Europe, 2020; Maeda & Socha-Dietrich, 2021; HFE & EHMA, 2022; Samarasekera et al., 2022; Valentine et al., 2022; WHO, 2022a; ENHANCE Project, n.d.

Adapting education and training

The qualifications of workers in primary care and public health are diverse. For example, many primary care physicians in HICs have specialized in family medicine or general practice. In Europe, postgraduate training of primary care physicians varies between two to six years; however, in some countries, participation in specific general practitioner (GP) specialist training is not required before being accredited as a family doctor (Michels et al., 2018a, 2018b). In Japan, few physicians providing primary care services are trained in family medicine (Kato et al., 2019; Kato & Ikegami, 2019). Overall, the numbers of family physicians and GPs are decreasing in most countries (OECD, 2020), as older physicians retire and replacements are not sufficient.

In sub-Saharan Africa, most physicians working in primary care have completed basic medical training (MBBS degrees) and one or two years of internship in a teaching hospital, but have no postgraduate training addressing the specificities of primary care (Bello et al., 2021). General practice/family medicine as a postgraduate specialization is relatively new as primary care is mainly the responsibility of nurses, community health workers and mid-level health workers (Mash et al., 2018; Flinkenflögel et al., 2020). To strengthen primary care, the development and recognition of general practice/family medicine as a specialty equivalent to other medical specialties is very important.

Many educational institutions have adapted their curricula and teaching strategies to address current skill mismatches, to strengthen training in primary care and public health and orient education towards the PHC approach (Couper et al., 2018; OECD, 2018). A novel training programme in Singapore that required third-year medical students to deliver public health talks during their family medicine rotation in primary care institutions allowed students to gain confidence in managing communication with groups of users (Tan et al., 2017). In India, the revision of the undergraduate medical curriculum in 2018 targeted the integration of community medicine competencies into other subjects (Gandhi, 2020). Overall, community-based learning promoting social accountability has a positive impact on medical students' attitudes toward the underserved (Leaune et al., 2021).

Evidence shows that medical students have successfully been trained as health coaches (Maini, Fyfe & Kumar, 2020) or navigators embedded in primary care teams during their clinical placements. They report a richer understanding of social health determinants, of the importance of interprofessional collaboration with social workers, and of the physician's role in the coordinated team working towards better patient care (Qua et al., 2022). Training as a health coach also contributed to the development of students' professional identity, of a non-judgemental, solution-oriented mindset, and of skills in self-reflection and person-centred care (Maini, Fyfe & Kumar, 2020).

Basic generalist education programmes provide opportunities to teach primary care workers a broad definition of care, not only including treatment of disease and monitoring recovery but also awareness of cultural differences and continued care through health promotion, disease prevention and shared communication and collaboration (Gandhi, 2020). Studies have shown that perception of primary care and of the importance of a holistic approach can be shaped during the medical school experience (Weiland et al., 2019). Henschen et al. (2022) analysed students' perceptions over a four-year team-based rotation in primary care and showed that the longitudinal experiences helped students acquire a sense of the broad scope, the transformative power, the distinct perspective and the importance of primary care as a career option.

Worldwide, there are promising initiatives in continued professional development, interprofessional education and competency-based education (Gruppen, Mangrulkar & Kolars, 2012; Maier & Aiken, 2016; Batenburg & Kroezen, 2022; Maier et al., 2022) to improve performance, quality and job satisfaction (Batenburg & Kroezen, 2022). In China, the introduction of in-service primary care training in township hospitals, where most basic services are delivered, showed a positive impact on competencies of physicians and public health workers and on job satisfaction (Zhao et al., 2020). In Brazil, continuous training of primary care teams reduced hospitalization rates as well as improving management and monitoring indicators for chronic conditions (dos Santos et al., 2019).

WHO and public health associations advocated for the strengthening of public health education well before the COVID-19 pandemic. Some countries (Canada, Europe, India, China, the United Kingdom) responded by formulating competency frameworks

to help structure public health workforce education programmes (Hunter et al., 2023). In 2022, WHO and partners developed a Roadmap to guide countries in *“Building a Public Health Workforce”* (WHO, 2022a).

There are various examples of global initiatives that contribute to adapting the health and care workforce to the changing needs of population groups and PHC-oriented health systems. The World Health Organization, the World Organization of Family Doctors, the International Council of Nurses, the International Confederation of Midwives and the International Federation of Hospitals have developed competency frameworks to provide guidance for basic education and training of various categories of workers (WHO, 2018b). The Network Towards Unity for Health (www.thenetworktufh.org) and the Training for Health Equity Network (www.thenetcommunity.org) have a long-standing tradition of bringing together and supporting community-oriented and socially accountable institutions providing education for health workers. Accreditation of basic and continuing education programmes is well developed in many countries, though it remains more common in medical than nursing and midwifery schools and more often in the public than in the private sector.

Exposure to practice in primary care and public health services at an early stage of their education – before specialty preferences are set – is an effective strategy to attract future health workers to primary care and public health (Marchand & Peckham, 2017; WHO, 2020, 2021b). In Israel, nursing students who had a clinical placement in community nursing showed greater intention to work in primary care after graduation (Sela-Vilensky, Grinberg & Nissanholtz-Gannot, 2020). Also, continuing professional development in the form of experiential learning and brief frequent learning opportunities that avoid disruption of service are important to build workers’ confidence.

Multistakeholder support, accreditation and licensing mechanisms

Many countries have reviewed or plan to review the scopes of practice of health occupations to allow for more flexibility in the delivery of primary care. In an increasing number of countries, nurses have autonomy in delivering primary care services, including in prescribing examinations, diagnostic tests and medicines. It is important that education markets ensure sufficient supply of qualified primary care professionals (and avoid overspecializing medical professionals), including in new or extended roles. There is an increasing number of private sector training schools, particularly in low- and middle-income countries (LMICs) (McPake et al., 2015), but not all offer quality training, which calls for better regulation (Reynolds et al., 2013). The development of quality education requires the engagement and collaboration of numerous actors at various levels (Box 8.4).

Box 8.4 Strengthening PHC in the health and care workforce's education and training requires joint efforts

Micro level

It is important that *educational institutions* support curricular reform to strengthen generalist competencies and promote PHC as an area of study and that educators update their own competencies and effectively mentor future primary care workers. Primary care services providers (private, public and not-for-profit) can offer suitable clinical training settings for future workers and ensure access for their staff to professional development activities.

Meso level

Professional councils and associations can foster the recognition of primary care, family medicine and public health as specialties and the maintenance of competencies through ongoing professional development activities. They can advocate for recertification requirements to exercise discipline and a continuing education requirement in order to renew the right to practise.

Macro level

Policy-makers and legislator are in a position to adapt scopes of practice to allow for the optimal use of each occupation's capabilities and to adopt new professional roles. Private and public payers can make available adequate financial resources to support PHC education and training, including investment in educational facilities and in training for educators.

Accreditation of education programmes and institutions is essential to ensure that they produce highly qualified graduates who can meet patients' primary care needs. National and subnational accreditation mechanisms promote both adherence to quality standards and continuous improvement (Frank et al., 2020) and needs to ideally cover the education of all health occupations, whether it takes place in public or private institutions. Accreditation exists and is compulsory in many parts of the world, but it is often still at a developing stage (Dussault et al., 2018).

8.2.3 A multipronged strategy is the best way to ensure the recruitment and retention of the health and care workforce for PHC-oriented systems

Shortages of workers in primary care and public health are a challenge that nearly all countries face (WHO, 2010, 2018c; Sirili et al., 2018; Esu et al., 2021; Russell et al., 2021). These result from a mix of factors: an ageing workforce and high rates of retirement, insufficient recruitment due to the low attractiveness of working in primary care, early exits due to poor working conditions and heavy workloads, and emigration (OECD, 2016; WHO, 2016; Dussault et al., 2018; Schimpff, 2020; WHO Regional Office for Europe, 2022; de Souza et al., 2023; Rivlin & Lumley, 2023). As most health workers are women, a gender lens is required in recruitment and retention strategies, in particular by correcting inequalities between women and men in career trajectories, pay, access to training

and professional networks (WHO, 2019b). Issues such as personal safety, stress, lack of autonomy, self-esteem and family constraints need to be taken into account to mitigate recruitment difficulties and unwanted attrition (Uneke & Uneke, 2021).

Difficulty in the recruitment and retention of workers in remote, rural and socially deprived urban areas where primary care is the only source of health services is a major challenge. Causes are well-known: personal factors, such as lack of a partner's work opportunities, lack of access to education for children and lack of adequate housing, are frequently cited. Professional factors include isolation from peers, lack of career prospects, restricted access to continuing education, a work environment without suitable infrastructure and equipment, and poor financial incentives (Esandi et al., 2020; Berg-Poppe et al., 2021; WHO, 2021b; Wieland, Ayton & Abernethy, 2021). There is evidence that single interventions, like offering financial incentives, have limited effects (Esandi et al., 2020; WHO, 2020, 2021b; Chevillard & Mousquès, 2021). A rural allowance to attract and retain primary care workers in remote areas of KwaZulu-Natal in South Africa was viewed positively by those who accepted posts in these under-served areas, but poor living and working conditions and inadequate professional development opportunities dissuaded many from staying (Mburu & George, 2017). Strategies to address such difficulties include at best a mix of measures targeting education, personal and professional support, adequate and timely remuneration, as well as adequate working and living conditions (WHO, 2010, 2021b; Barriball et al., 2015). Examples include enrolment of students from rural backgrounds, clinical rotations, on-the-job training in rural areas during studies, decentralization of education institutions or programmes and scholarships, benefits like housing subsidies, health insurance coverage, tuition fee reimbursement or improved remuneration, career development programmes, access to mentoring and to professional networks, and opportunities to participate in research activities. Interventions that aim to reduce stress, heavy workloads and the administrative burden include improved staffing levels or skill-mix to better coordinate with social care in the wider community (Beech et al., 2023). Being part of a cohesive and supportive clinical team with strong relationships and a general shift towards more collaborative and appreciative management styles positively influence health and care workforce retention (Mash et al., 2022).

Evidence shows that the choice and design of appropriate strategies to make working in primary care attractive need to be context-specific and need to anticipate important facilitators or barriers for recruitment and retention (Kroezen et al., 2015; WHO, 2020).

The three strategies discussed in Section 8.2 can only be effective if sufficient funding supports their implementation. Research and technical capacity and resources are important in collecting and analysing the data and information that strategic planning requires. The transformation of educational institutions to ensure the production and maintenance of a fit-for-purpose workforce for PHC-oriented health systems implies the training and employment of educators and trainers with the required competencies and the financing of new learning settings. Measures to increase recruitment and improve retention also imply costs. These can be regarded as investments, remembering that the costs of inaction are much higher, not only in financial terms, but, above, all in terms of poorer health outcomes.

8.3 Country illustrations: health and care workforce to strengthen the PHC approach

This section depicts country illustrations of innovative solutions or initiatives that addressed workforce challenges in primary care. These were selected for their potential to showcase how a competent and motivated workforce can foster the PHC approach to illustrate barriers and enablers of primary care workforce policy implementation.

8.3.1 Costa Rica: multiprofessional teams are at the heart of the integrated PHC model

In Costa Rica, multiprofessional teams, called *Equipos Básicos de Atención Integral de Salud* (EBAIS), deliver most primary care services, providing public health, preventive and curative services to a population of 5.8 million. The teams typically include a physician, a nurse, a technical assistant (community health worker), a medical clerk and a pharmacy assistant, all trained in community-oriented primary care. The EBAIS each serve a population of approximately 4500 and provide care over the lifespan, including treatment and monitoring of diseases, rehabilitation, vaccination, epidemiological data collection and basic sanitation activities, as well as detection and monitoring of risk groups at every age. In addition, technical assistants conduct home and community visits (in churches, schools and town centres) to provide health education.

This model is notable in two ways: it has been in place since the 1990s and it covers the whole population, whereas comparable models, such as in Brazil or Colombia, have a more limited coverage. There are 1080 EBAIS, distributed in 106 “health areas” where “support teams” that include more experienced physicians, nutritionists, psychiatrists, dentists, pharmacists, social workers and microbiologists complement the work of EBAIS as needed. EBAIS routinely collect data on their catchment community to set performance targets, monitor progress and allocate resources according to local needs (risk stratification). They monitor patient health and gather information in the national EHR system. In addition to clinical competencies, health professionals receive basic management training to support them in the planning and monitoring of their activities. Since 1995, there has been a mandatory one-year social service for new graduates in medicine, nursing, dentistry, pharmacy, microbiology, clinical psychology and nutrition prior to receiving their registration. In 2014, the Ministry of Health established a specific “social service” for specialist physicians. The social service is well accepted as a win-win policy that provides young professionals with hands-on experience and ensures access to services in the whole country. The Ministry of Health identifies health areas with unmet needs and physicians, dentists and pharmacists’ postings are decided through a lottery system. Two important features of the Costa Rica experience are the merger of public health and preventive health service responsibilities from the Ministry of Health to the curative-services-oriented Costa Rican social security agency (in 1994) and the continuous support of successive governments toward primary care services. It helped gradually overcome barriers like limited finan-

cial resources, insufficient infrastructure and shortages of health workers (Pesec et al., 2017, 2021; Pesec, VanderZanden & Ratcliffe, 2020; Spigel et al., 2020; CCCS, 2021; VanderZanden et al., 2021; OECD, 2022).

This team-based model in Costa Rica shows that public health services and primary care delivery can be integrated and provided jointly in the community, if supported by policy and shared vision.

8.3.2 Kingdom of the Netherlands: autonomous working in teams as a basis for attractive working environments – the Buurtzorg model

Buurtzorg is a nurse-led model of holistic care designed by experienced district nurses in 2006 in the Kingdom of the Netherlands, with the aim of providing integrated, person-centred home-based care. It links social services, GPs and other providers in the community to ensure continuity of care, building trusting relationships and networks in the neighbourhood. The core features of Buurtzorg are the autonomy of nurses in clinical decision-making, teamwork, and a minimal administrative workload thanks to a comprehensive IT system enabling schedule planning, access to patient records and sharing of experiences. Nurses act as health coaches and work in small self-managing teams with a maximum of 12 professionals responsible for 40–60 people within a particular area, engaging patients and families in the care process and promoting independence. Experienced community nurses, acting as regional coaches' support teams, can also rely on a small number of back-office staff who deal with finances and administration. This allows nurses to concentrate on core care tasks, develop an holistic view of the patient, and seek solutions that serve the client in the best possible way. Thanks to the self-management approach, nurses are enabled to develop their entrepreneurial skills. About 70% of Buurtzorg nurses have an undergraduate degree. The most significant results of Buurtzorg are the high satisfaction of patients and professionals, as well as lower care costs. Buurtzorg's autonomous way of working established an attractive working environment. The model has low staff turnover and low sickness absence rates; it was awarded the best employer in the Kingdom of the Netherlands title for three years running. Evaluations showed that Buurtzorg improved the support of patients with multiple long-term conditions, proactive care and the productivity of nurses compared to other home care services (Alders, 2015; Drennan et al., 2018). Buurtzorg has set a new standard for home care in the Kingdom of the Netherlands and beyond. The Buurtzorg model has been extended all over the Kingdom of the Netherlands to 850 teams and developed in other areas of care such as mental health and child and family health services. It has also been implemented in other countries, namely Germany, Japan, Sweden and the United States of America (USA) (Barriball et al., 2015; Gray, Sarnak & Burgers, 2015; de Bruin et al., 2022; Hege-düs, Schürch & Bischofberger, 2022).

The example from the Kingdom of the Netherlands illustrates that the model of autonomous nurse-led care embedded in multiprofessional teams can be attractive for health professionals and improve recruitment and retention.

8.3.3 Zambia: employing community health workers allows for greater community participation

In 2011, Zambia launched a national long-term vision (Vision2030) with the goal of providing equitable access to quality health care to all by 2030, especially in rural communities. New health facilities were established, existing ones restored and the number of health workers increased. The government created new posts in districts, including the positions of community-based volunteers and community health assistants (CHAs) to redistribute the heavy workload and improve the overall delivery of services. CHAs are responsible for disease control and prevention, health promotion, outreach in communities and for developing links with civic, community and faith-based leaders and for coordinating community-based volunteers (Shelley et al., 2016; Phiri et al., 2017; Perry, 2021; Wilmink, Measures & Worku, 2021; Exemplars, 2023). They have a one-year training in primary care and work in pairs in a community, each covering a catchment area of 1750–3000 people; they are supervised by a skilled health worker (Phiri et al., 2017; Wilmink, Measures & Worku, 2021). Evidence shows that CHAs improve health-seeking behaviour by helping communities identify and address their own health needs in collaboration with Neighbourhood Health Committees and community-based volunteers.

Community-based volunteers are members of the community, usually working part-time on behalf of donors or nongovernmental organization (NGO) partners in different vertical programmes (for example as TB Treatment Supporters or HIV Adherence Supporters). Their training varies by content, length and intensity. Community-based volunteers build direct links between the formal health services and communities by providing interactive community sensitization sessions and home visits. For example, during a cholera outbreak in early 2023, they played an important role in raising awareness of good sanitation and hygiene practices (Muchipa & Shahryar, 2023).

Community-based volunteers and CHAs are selected jointly by their respective community, the District Medical Office and the Neighbourhood Health Committees. They regularly collect and review data to monitor immunization indicators, identify gaps in coverage and develop responses accordingly under supervision of health facility staff. Since their introduction, communities have seen an increase in household visits and vaccination rates and a decrease in the prevalence of underweight children (Phiri et al., 2017; Perry, 2021; Exemplars, 2023). Strong community links have been found to be central for CHA retention and motivation which may account for their low attrition rates (Phiri et al., 2017). In contrast, high turnover rates of community-based volunteers were attributed to low or non-existent pay and inconsistent management and working hours, as well as a lack of supervision and insufficient supplies. The last National Community Health Worker strategy (Republic of Zambia Ministry of Health, 2019) addresses such deficiencies (Republic of Zambia Ministry of Health, 2019; Exemplars, 2023).

The Zambian path towards improved access to quality health care shows that direct involvement of communities, for example via recruitment decisions, ensures high community acceptance of new cadres.

8.3.4 Albania: investments in training and education to build a fit-for-purpose primary care workforce

To support the transformation of primary care, the health and care workforce needs to be equipped with the right skills and competencies to work in redefined roles, across professional and organization settings and to provide person-centred care. Many countries update the training and education of primary care workers, starting from basic education to life-long learning with a focus on the knowledge, values and skills required in primary care, i.e. inter-professional, communication, teamwork, critical thinking and digital skills.

Despite a low level of public health spending, the government of Albania is committed to substantially increase financial allocations to the health sector, namely for supporting primary care development. The *Strategy on the Development of PC services 2020–2025* defines nine policy goals, including health workforce development, and defining and piloting new types of services such as home care for the elderly. Albania currently faces a lack of appropriately trained primary care providers. In 2020, 80% of the physicians were GPs with no post-graduate training in family medicine; the others were specialists. Education for nurses is not standardized across training facilities and options for specialization are lacking; no professional profile has been developed, particularly for noncommunicable diseases (NCDs).

Important investments in the primary care workforce have been made in recent years, namely through the *Health for All Project*, with the aim of redefining the job profiles of physicians and nurses and providing training in primary care. One intervention aimed at strengthening the technical capacities of primary care providers through continuing medical education is the creation of Peer Groups of physicians, nurses and other workers at the same health centre, who meet regularly to review their clinical practice. Between May 2021 and January 2023, 20% of providers in Albania (464 family physicians and 1248 nurses) participated in peer groups and other training events, with a focus on the use of newly established clinical protocols for the management of NCDs, teamwork and home care. Further, a master's course for family nurses was launched in 2021, and several new job profiles have been defined for nurses and other professionals working in primary care, including social workers and physiotherapists. There are now 10 different profiles of health professionals that contribute to the implementation of new models of health care, like home care services for patients with chronic conditions. A Quality of Care Survey showed that these interventions led to improved quality of care, for example for chronic conditions such as diabetes and hypertension, and ultimately to better access to primary care services, including for vulnerable population groups. However, these positive results may be threatened by the emigration of health workers to Western Europe and North America (ETF, 2021; Gabrani, 2021; HAP, 2021; Saric et al., 2021).

Government commitment to strengthening primary care services and adequate investments in developing the required workforce can rapidly produce measurable health gains.

8.3.5 Finland: securing a sufficient supply of health workers through new advanced practice roles and division of labour

In Finland, the introduction of new roles for nurses was part of a larger policy to strengthen the health workforce and followed a process that combined staged planning, evidence-generation (via pilot studies and evaluations) and the involvement of relevant stakeholders before policy changes. In Finland, health centres deliver primary care services via multiprofessional teams.

As a response to the shortage of physicians and nurses and to imbalances in the division of labour between different occupations, the Finnish Ministry of Social Affairs and Health supported the development of advanced practice roles for nurses.

In 2010, the Parliament adopted an amendment allowing nurses to prescribe, stipulated the details of the postgraduate education and established a national list of medicines. The National Supervisory Authority for Welfare and Health grants the limited right to prescribe to specially trained nurses, public health nurses or midwives, subject to the authorization of the physician-in-charge of their employing organization. Since 2019, the list of conditions and medications has been extended, and the costs of additional education have been covered by the state. Postgraduate programmes at master's level were developed in parallel and harmonized and integrated in the national curriculum. Nurse prescribers in Finland perform consultations for minor acute conditions (for example, where a routine antibiotics prescription is needed) and chronic conditions (for example, renewal of prescriptions for patients with diabetes, asthma). One important part of their work is the focus on counselling of patients on goal setting, conducting a healthy lifestyle and monitoring. Nurse prescribers also perform certain consultations supported by physician e-consultation. In addition, they also play an important role in women's health and reproductive health care, for example, they can initiate contraceptive prescriptions.

Finland is one of many countries that have pioneered the expansion of the roles of nurses and midwives, showing that with adequate training and some supervision, it improves access to quality primary care services.

8.4 Conclusion

Developing a workforce that strengthens the PHC approach and can deliver primary care services adapted to the changing needs of a population is a complex and ongoing exercise. Here we briefly present four fundamental lessons that can guide policy-makers and planners in their efforts to build a workforce that will serve the needs of their population in an effective and efficient manner.

A comprehensive analysis of the health labour market shows the dynamics of the relationship between the supply, demand and needs of health workers. Combined with a clear vision of the desired future primary care services and corresponding workforce requirements, it serves to identify the gaps, in terms of the number of workers but also of competencies, of skills-mix, of deployment and in working conditions. These are the ingredients that enable the strategic planning of the primary care workforce,

based on scenarios that take into account probable demographic and burden of disease changes, technological innovations, evolving expectations and behaviours of users and providers of services, and new care delivery models, including a revised division of tasks and responsibilities between physicians and other primary care workers.

To build a fit-for-purpose primary care workforce, basic education and life-long learning need to adapt to new and changing population and patient needs, to provide adequate knowledge and skills in alignment with primary care services.

Attractive working conditions and enabling, supportive and protective environments determine staff retention in primary care and public health. Therefore, it is important that policy-makers work with educational institutions, professional councils, unions and associations, regulators, accreditation bodies, all ministries whose decisions influence the health labour market, and public and private funders. There are examples of health and care workforce good practices that contribute to the attractiveness of working in primary care services. These range from multiprofessional teamwork, to introducing new professional roles (such as nurse practitioners and other advanced roles), motivating working conditions and environment, supportive management, and social and professional recognition and rewards.

The development of an effective workforce for PHC-oriented systems is a process more likely to be successful where it is enabled by a whole-government commitment, stakeholder involvement and support, community engagement and well-targeted investments.

REFERENCES

- Abrokwa SK et al. (2022). Task shifting for point of care ultrasound in primary health-care in low- and middle-income countries – a systematic review. *eClinicalMedicine* 45, 101333. Available at: <https://doi.org/10.1016/j.eclinm.2022.101333> (accessed 2 August 2023).
- Alders P (2015). Self-managed care teams to improve community care for frail older adults in the Netherlands. *Int J Care Coord*, 18:57–61. Available at: <https://doi.org/10.1177/2053434515614429> (accessed 2 August 2023).
- Allana A, Pinto A (2021). Paramedics Have Untapped Potential to Address Social Determinants of Health in Canada. *Hcpol*, 16:67–75. Available at: <https://doi.org/10.12927/hcpol.2021.26432> (accessed 2 August 2023).
- Aluttis C et al. (2014). Developing the public health workforce. In: Rechel B, McKee M (eds). *Facets of Public Health*. WHO (on behalf of the European Observatory on Health Systems and Policies). Maidenhead: Open University Press, pp. 255–66. Available at: <https://eurohealthobservatory.who.int/publications/m/facets-of-public-health-in-europe> (accessed 2 August 2023).
- Archer J et al. (2012). Collaborative care for depression and anxiety problems. *Cochrane Database Syst Rev*, 10:CD006526. Available at: <https://doi.org/10.1002/14651858.CD006525.pub2> (accessed 2 August 2023).
- Barbazza E et al. (2015). Health workforce governance: Processes, tools and actors towards a competent workforce for integrated health services delivery. *Health Policy*, 119:1645–54. Available at: <https://doi.org/10.1016/j.healthpol.2015.09.009> (accessed 2 August 2023).
- Barış E et al. (2021). *Walking the Talk: Reimagining Primary Health Care After COVID-19*, World Bank, Washington (DC): Available at: <https://documents1.worldbank.org/curated/en/814591624897277544/pdf/Walking-the-Talk-Reimagining-Primary-Health-Care-After-COVID-19.pdf> (accessed 2 August 2023).
- Barriball L et al. (2015). *Recruitment and Retention of the Health Workforce in Europe: Final report*. Brussels: European Commission Directorate-General for Health and Food Safety. Available at: https://health.ec.europa.eu/system/files/2016-11/2015_healthworkforce_recruitment_retention_frep_en_0.pdf (accessed 2 August 2023).
- Batenburg R, Kroezen M (2022). Education and planning: anticipating and responding to skill gaps, changing skill needs and competencies. In Maier CB et al. (eds), *Skill-Mix Innovation, Effectiveness and Implementation: Improving Primary and Chronic Care*. Cambridge: Cambridge University Press, pp. 294–320. Available at: <https://doi.org/10.1017/9781009031929.010> (accessed 2 August 2023).
- Beech J et al. (2023). *Stressed and overworked: What the Commonwealth Fund's 2022 International Health Policy Survey of Primary Care Physicians in 10 Countries means for the UK*. The Health Foundation. Available at: <https://doi.org/10.37829/HF-2023-P12> (accessed 2 August 2023).

- Bello K et al. (2021). The expanding movement of primary care physicians operating at the first line of healthcare delivery systems in sub-Saharan Africa: A scoping review. *PLoS One* 16:e0258955. Available at: <https://doi.org/10.1371/journal.pone.0258955> (accessed 2 August 2023).
- Berg-Poppe PJ et al. (2021). Values that influence employment acceptance among physical therapists practicing in primary care shortage and non-urban designation areas. *Rural Remote Health*, 21:6614. Available at: <https://doi.org/10.22605/RRH6614> (accessed 2 August 2023).
- Bhopal A et al. (2015). Embed a public health ethos in the medical workforce. *Lancet* 385:853–4. Available at: [https://doi.org/10.1016/S0140-6736\(15\)60479-2](https://doi.org/10.1016/S0140-6736(15)60479-2) (accessed 2 August 2023).
- Bitton A et al. (2019). Primary healthcare system performance in low-income and middle-income countries: a scoping review of the evidence from 2010 to 2017. *BMJ Glob Health*, 4:e001551. Available at: <https://doi.org/10.1136/bmjgh-2019-001551> (accessed 2 August 2023).
- Bryant-Lukosius D et al. (2017). Advanced Practice Nursing: A Strategy for Achieving Universal Health Coverage and Universal Access to Health. *Rev Lat Am Enfermagem*, 25:e2826. Available at: <https://doi.org/10.1590/1518-8345.1677.2826> (accessed 2 August 2023).
- Budde H et al. (2022). What are patient navigators and how can they improve integration of care? *Health Systems and Policy Analysis*, Policy Brief 44. Copenhagen: WHO (acting as the host organization for, and secretariat of, the European Observatory on Health Systems and Policies). Available at: <https://iris.who.int/bitstream/handle/10665/350972/Policy-brief-44-1997-8073-eng.pdf?sequence=1> (accessed 27 February 2024).
- CCCS (2021). *Servicios de Salud de la CCSS: Diciembre 2021*. Caja Costarricense de Seguro Social, San José. Available at: <https://pesquisa.bvsalud.org/portal/resource/fr/biblio-1411945> (accessed 2 August 2023).
- Chevillard G, Mousquès J (2021). Medically underserved areas: are primary care teams efficient at attracting and retaining general practitioners? *Soc Sci Med*, 287:114358. Available at: <https://doi.org/10.1016/j.socscimed.2021.114358> (accessed 2 August 2023).
- Couper I et al. (2018). Curriculum and training needs of mid-level health workers in Africa: a situational review from Kenya, Nigeria, South Africa and Uganda. *BMC Health Serv Res*, 18:553. Available at: <https://doi.org/10.1186/s12913-018-3362-9> (accessed 2 August 2023).
- de Bont A et al. (2016). Reconfiguring health workforce: a case-based comparative study explaining the increasingly diverse professional roles in Europe. *BMC Health Serv Res*, 16:637. Available at: <https://doi.org/10.1186/s12913-016-1898-0> (accessed 2 August 2023).
- de Bortoli Cassiani SH et al. (2020). Skill mix of nurses and primary health care professionals: A systematic review. *Rev Panam de Salud Publica*, 44. Available at: <https://doi.org/10.26633/RPSP.2020.82> (accessed 2 August 2023).

- de Bruin J et al. (2022). The implementation and outcomes of self-managing teams in elderly care: A scoping review. *J Nurs Manag*, 30:4549–59. Available at: <https://doi.org/10.1111/jonm.13836> (accessed 2 August 2023).
- de Souza CA et al. (2023). Making family medicine a more attractive specialty: strategies to address the shortage of primary care specialists in Brazil. *Speaking of Medicine and Health*. Available at: https://speakingofmedicine.plos.org/2023/01/13/making-family-medicine-a-more-attractive-specialty-strategies-to-address-the-shortage-of-primary-care-specialists-in-brazil/?utm_medium=social&utm_source=twitter&utm_campaign=plosblogs&utm_content=webcard_tweet (accessed 18 January 2023).
- Desta FA et al. (2017). Identifying gaps in the practices of rural health extension workers in Ethiopia: a task analysis study. *BMC Health Serv Res*, 17:839. Available at: <https://doi.org/10.1186/s12913-017-2804-0> (accessed 2 August 2023).
- Dois A et al. (2018). Training and competencies for primary care teams from the perspective of Chilean experts. *Rev Panam de Salud Publica*, 42. Available at: <https://doi.org/10.26633/RPSP.2018.147> (accessed 2 August 2023).
- dos Santos MLM et al. (2019). Impact of distance education on primary health care indicators in central Brazil: an ecological study with time trend analysis. *PLoS One*, 14. Available at: <https://doi.org/10.1371/journal.pone.0214485> (accessed 2 August 2023).
- Drennan VM et al. (2018). Tackling the workforce crisis in district nursing: can the Dutch Buurtzorg model offer a solution and a better patient experience? A mixed methods case study. *BMJ Open*, 8:e021931. Available at: <https://doi.org/10.1136/bmjopen-2018-021931> (accessed 2 August 2023).
- Dussault G et al. (2018). Building the primary health care workforce of the 21st century – Background paper to the Global Conference on Primary Health Care: From Alma-Ata Towards Universal Health Coverage and the Sustainable Development Goals. Geneva: World Health Organization. Available at: https://www.who.int/docs/default-source/primary-health-care-conference/workforce.pdf?sfvrsn=487cec19_2 (accessed 2 August 2023).
- ENhANCE Project (n.d.). 28 competencies of the Family and Community Nurse [WWW Document]. Available at: <https://www.enhance-fcn.eu/competencies/> (accessed 2 August 2023).
- Esandi ME et al. (2020). Factors and interventions that affect working conditions and environment to increase the attraction, recruitment and retention of human resources for health at the primary care level in rural, remote or underserved areas. *Rev Panam de Salud Publica*, 44. Available at: <https://doi.org/10.26633/RPSP.2020.112> (accessed 2 August 2023).
- Esu EB et al. (2021). Interventions for improving attraction and retention of health workers in rural and underserved areas: a systematic review of systematic reviews. *J Public Health (Oxf)*, 43(1):i54–66. Available at: <https://doi.org/10.1093/pubmed/fdaa235> (accessed 2 August 2023).
- ETF (2021). How migration, human capital and the labour market interact in Albania. Turin: European Training Foundation.

- Exemplars (2023). What did Zambia do? [WWW Document]. Exemplars. Available at: <https://www.exemplars.health/topics/vaccine-delivery/zambia/what-did-zambia-do#expanded> (accessed 2 August 2023).
- Flinkenflögel M et al. (2020). A scoping review on family medicine in sub-Saharan Africa: practice, positioning and impact in African health care systems. *Hum Resour Health*, 18. Available at: <https://doi.org/10.1186/s12960-020-0455-4> (accessed 2 August 2023).
- Fraher E, Brandt B (2019). Toward a system where workforce planning and interprofessional practice and education are designed around patients and populations not professions. *J Interprof Care*, 33:389–97. Available at: <https://doi.org/10.1080/13561820.2018.1564252> (accessed 2 August 2023).
- Frank JR et al. (2020). The role of accreditation in 21st century health professions education: report of an International Consensus Group. *BMC Medical Educ*, 20:305. Available at: <https://doi.org/10.1186/s12909-020-02121-5> (accessed 2 August 2023).
- Frenk J et al. (2010). Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet*, 376:1923–58. Available at: [https://doi.org/10.1016/S0140-6736\(10\)61854-5](https://doi.org/10.1016/S0140-6736(10)61854-5) (accessed 2 August 2023).
- Gabranji J (2021). Updating Nursing Competencies in Primary Healthcare in Albania; Transforming Roles Through Tailored Education. *Int J Public Health*, 66:1604085. Available at: <https://doi.org/10.3389/ijph.2021.1604085> (accessed 2 August 2023).
- Gandhi MP (2020). Primary health care “approach” and medical education: New opportunities for revitalizing the bond. *Indian J Community Fam Med*, 6:163–7.
- Gershuni O et al. (2019). Is there a golden recipe? A scoping review of public health workforce development. *Eur J Public Health*, 29:401–8. Available at: <https://doi.org/10.1093/eurpub/cky247> (accessed 2 August 2023).
- Gray B, Sarnak DO, Burgers J (2015). Home Care by Self-Governing Nursing Teams: The Netherlands’ Buurtzorg Model.
- Groenewegen P et al. (2022). Task shifting from general practitioners to practice assistants and nurses in primary care: a cross-sectional survey in 34 countries. *Prim Health Care Res Dev*, 23:e60. Available at: <https://doi.org/10.1017/S1463423622000470> (accessed 2 August 2023).
- Gruppen LD, Mangrulkar RS, Kolars JC (2012). The promise of competency-based education in the health professions for improving global health. *Hum Resour Health*, 10. Available at: <https://doi.org/10.1186/1478-4491-10-43> (accessed 2 August 2023).
- Halter M et al. (2013). The contribution of Physician Assistants in primary care: a systematic review. *BMC Health Serv Res*, 13:223. Available at: <https://doi.org/10.1186/1472-6963-13-223> (accessed 2 August 2023).
- HAP (2021). Updated job profiles of PHC personnel [WWW Document]. HAP: Health for All Project: A project of the Swiss Agency for Development and Cooperation. Available at: <http://www.hap.org.al/en/profilet-e-punes-ne-kshp/> (accessed 30 May 2023).
- Hegedüs A, Schürch A, Bischofberger I (2022). Implementing Buurtzorg-derived models in the home care setting: a scoping review. *Int J Nurs Stud Adv*, 4:100061. Available at: <https://doi.org/10.1016/j.ijnsa.2022.100061> (accessed 2 August 2023).

- Henschen BL et al. (2022). From Passive Gatekeeper to Quarterback: Evolving Perceptions of Primary Care Among Medical Students in Longitudinal Outpatient Clerkships. *J Gen Intern Med*, 37:608–14. Available at: <https://doi.org/10.1007/s11606-021-06914-2> (accessed 2 August 2023).
- HFE, EHMA (2022). Report of the EU Health Policy Platform Stakeholder Network on “Profiling and Training the Healthcare Workforce of the Future”: Essential skills for a Resilient and effective European health Workforce. Brussels: Health First Europe and European Health Management Association. Available at: <https://ehma.org/app/uploads/2022/12/EUHPP-Stakeholder-Network-Report-Sept-2022.pdf> (accessed 2 August 2023).
- Hooker RS, Everett CM (2012). The contributions of physician assistants in primary care systems. *Health Soc Care Community*, 20:20–31. Available at: <https://doi.org/10.1111/j.1365-2524.2011.01021.x> (accessed 2 August 2023).
- Hunter MB et al. (2023). Strengthening capacity through competency-based education and training to deliver the essential public health functions: reflection on roadmap to build public health workforce. *BMJ Glob Health*, 8(3):e011310. doi: 10.1136/bmjgh-2022-011310.
- Jones SL (2015). Diabetes Case Management in Primary Care: The New Brunswick Experience and Expanding the Practice of the Certified Diabetes Educator Nurse into Primary Care. *Can J Diabetes*, 39:322–4. Available at: <https://doi.org/10.1016/j.jcjd.2014.12.006> (accessed 2 August 2023).
- Joshi R et al. (2014). Task shifting for non-communicable disease management in low and middle income countries – a systematic review. *PLoS One*, 9:e103754. Available at: <https://doi.org/10.1371/journal.pone.0103754> (accessed 2 August 2023).
- Kato D et al. (2019). Building primary care in Japan: Literature review. *J Gen Fam Med*, 20:170–9. Available at: <https://doi.org/10.1002/jgf2.252> (accessed 2 August 2023).
- Kato T, Ikegami N (2019). How Specialists Become Primary Care Physicians in Japan. *Health*, 11:322–31. Available at: <https://doi.org/10.4236/health.2019.113028> (accessed 2 August 2023).
- Kroezen M et al. (2015). Recruitment and retention of health professionals across Europe: a literature review and multiple case study research. *Health Policy*, 119:1517–28. Available at: <https://doi.org/10.1016/j.healthpol.2015.08.003> (accessed 2 August 2023).
- Kumah E (2022). The informal healthcare providers and universal health coverage in low and middle-income countries. *Glob Health*, 18:45. Available at: <https://doi.org/10.1186/s12992-022-00839-z> (accessed 2 August 2023).
- Kumpunen S et al. (2020). Why do evaluations of integrated care not produce the results we expect? *Int J Care Coord*, 23:9–13. Available at: <https://doi.org/10.1177/2053434520909089> (accessed 2 August 2023).
- Lammila-Escalera E et al. (2022). A Systematic Review of Interventions that Use Multi-disciplinary Team Meetings to Manage Multimorbidity in Primary Care. *Int J Integr Care*, 22:6. Available at: <https://doi.org/10.5334/ijic.6473> (accessed 2 August 2023).
- Lassi ZS et al. (2013). Quality of care provided by mid-level health workers: systematic review and meta-analysis. *Bull World Health Organ*, 91:824–833I. Available at: <https://doi.org/10.2471/BLT.13.118786> (accessed 2 August 2023).

- Laurant M et al. (2018). Nurses as substitutes for doctors in primary care. *Cochrane Database Syst Rev*, 7:CD001271. Available at: <https://doi.org/10.1002/14651858.CD001271.pub3> (accessed 2 August 2023).
- Leaune E et al. (2021). Medical students' attitudes toward and intention to work with the underserved: a systematic review and meta-analysis. *BMC Medical Educ*, 21:129. Available at: <https://doi.org/10.1186/s12909-021-02517-x> (accessed 2 August 2023).
- Leong SL et al. (2021). Task shifting in primary care to tackle healthcare worker shortages: An umbrella review. *Eur J Gen Pract*, 27:198–210. Available at: <https://doi.org/10.1080/13814788.2021.1954616> (accessed 2 August 2023).
- Lloyd T et al. (2023). Realising the potential of community-based multidisciplinary teams: insights from evidence. The Health Foundation. Available at: <https://doi.org/10.37829/HF-2023-IAU01> (accessed 2 August 2023).
- Lonnée HA et al. (2018). Anesthesia for Cesarean Delivery: A Cross-Sectional Survey of Provincial, District, and Mission Hospitals in Zimbabwe. *Anesth Analg*, 126:2056–64. Available at: <https://doi.org/10.1213/ANE.0000000000002733> (accessed 2 August 2023).
- McDermott I et al. (2022). Scale, scope and impact of skill mix change in primary care in England: a mixed-methods study. *Health Soc Care Deliv Res*, 10:1–148. Available at: <https://doi.org/10.3310/YWTU6690> (accessed 2 August 2023).
- McPake B et al. (2015). *The Economics of Health Professional Education and Careers: Insights from a Literature Review*. The World Bank. Available at: <https://doi.org/10.1596/978-1-4648-0616-2> (accessed 2 August 2023).
- Maeda A, Socha-Dietrich K (2021). Skills for the future health workforce: Preparing health professionals for people-centred care. *OECD Health Working Papers*, No. 124. Paris: OECD Publishing. Available at: <https://doi.org/10.1787/68fb5f08-en> (accessed 2 August 2023).
- Maier CB, Aiken LH (2016). Task shifting from physicians to nurses in primary care in 39 countries: a cross-country comparative study. *Eur J Public Health*, 26:927–34. Available at: <https://doi.org/10.1093/EURPUB/CKW098> (accessed 2 August 2023).
- Maier CB, Aiken LH, Busse R (2017). Nurses in advanced roles in primary care. Policy levers for implementation. *OECD Health Working Papers*, No. 98. Paris: OECD Publishing. Available at: <https://doi.org/10.1787/a8756593-en> (accessed 2 August 2023).
- Maier CB et al. (2016). Descriptive, cross-country analysis of the nurse practitioner workforce in six countries: size, growth, physician substitution potential. *BMJ Open*, 6:e011901. Available at: <https://doi.org/10.1136/bmjopen-2016-011901> (accessed 2 August 2023).
- Maier CB et al. (eds) (2022). *Skill-mix Innovation, Effectiveness and Implementation: Improving Primary and Chronic Care*, 1st edn. European Observatory on Health Systems and Policies. Cambridge: Cambridge University Press. Available at: <https://doi.org/10.1017/9781009031929> (accessed 2 August 2023).
- Maier CB et al. (2023). Skill-Mix Changes Targeting Health Promotion and Prevention Interventions and Effects on Outcomes in all Settings (Except Hospitals): Overview of Reviews. *Int J Public Health*, 68:1605448. Available at: <https://doi.org/10.3389/ijph.2023.1605448> (accessed 2 August 2023).

- Maini A, Fyfe M, Kumar S (2020). Medical students as health coaches: Adding value for patients and students. *BMC Medical Educ*, 20:182. Available at: <https://doi.org/10.1186/s12909-020-02096-3> (accessed 2 August 2023).
- Marchand C, Peckham S (2017). Addressing the crisis of GP recruitment and retention: a systematic review. *Br J Gen Pract*, 67:e227–e237. Available at: <https://doi.org/10.3399/bjgp17X689929> (accessed 2 August 2023).
- Mash R et al. (2015). The roles and training of primary care doctors: China, India, Brazil and South Africa. *Hum Resour Health*, 13. Available at: <https://doi.org/10.1186/s12960-015-0090-7> (accessed 2 August 2023).
- Mash R et al. (2018). Reflections on family medicine and primary healthcare in sub-Saharan Africa. *BMJ Glob Health*, 3:e000662. Available at: <https://doi.org/10.1136/bmjgh-2017-000662> (accessed 2 August 2023).
- Mash RJ et al. (2022). Retention of medical officers in the district health services of the Western Cape, South Africa: an exploratory descriptive qualitative study. *S Afr Fam Pract*, 64. Available at: <https://doi.org/10.4102/safp.v64i1.5467> (accessed 2 August 2023).
- Mburu G, George G (2017). Determining the efficacy of national strategies aimed at addressing the challenges facing health personnel working in rural areas in Kwa-Zulu-Natal, South Africa. *Afr J Prim Health Care Fam Med*, 9. Available at: <https://doi.org/10.4102/phcfm.v9i1.1355> (accessed 2 August 2023).
- Michels NRM et al. (2018a). Educational training requirements for general practice/family medicine specialty training: recommendations for trainees, trainers and training institutions. *Educ Prim Care*, 29:322–6. Available at: <https://doi.org/10.1080/14739879.2018.1517391> (accessed 2 August 2023).
- Michels NRM et al. (2018b). Educational training requirements for GP/FM specialist training. *European Academy of Teachers in General Practice (EURACT)*.
- Muchipa T, Shahryar F (2023). Cholera Threatens Lives of Children and their Families in Parts of Zambia: UNICEF responds to Cholera Outbreak in Eastern Province of Zambia [WWW Document]. UNICEF Zambia. Available at: <https://www.unicef.org/zambia/stories/cholera-threatens-lives-zambia> (accessed 30 May 2023).
- Newhouse RP et al. (2011). Advanced practice nurse outcomes 1990–2008: a systematic review. *Nurs Econ*, 29:230–50; quiz 251.
- Nuruzzaman M et al. (2022). Informing investment in health workforce in Bangladesh: a health labour market analysis. *Hum Resour Health*, 20. Available at: <https://doi.org/10.1186/s12960-022-00769-2> (accessed 2 August 2023).
- OECD (2016). *Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places*, OECD Health Policy Studies. Paris: OECD Publishing. Available at: <https://doi.org/10.1787/9789264239517-en> (accessed 2 August 2023).
- OECD (2018). *Feasibility study on health workforce skills assessment: Supporting health workers achieve person-centred care*. Paris: OECD Publishing. Available at: <https://www.oecd.org/els/health-systems/Feasibility-Study-On-Health-Workforce-Skills-Assessment-Feb2018.pdf> (accessed 2 August 2023).

- OECD (2020). Realising the Potential of Primary Health Care, OECD Health Policy Studies. Paris: OECD Publishing. Available at: <https://doi.org/10.1787/a92adee4-en> (accessed 2 August 2023).
- OECD (2021). OECD Reviews of Health Systems: Brazil 2021. Paris: OECD. Available at: <https://www.oecd.org/health/oecd-reviews-of-health-systems-brazil-2021-146d0dea-en.htm> (accessed 2 August 2023).
- OECD (2022). Primary Health Care for Resilient Health Systems in Latin America, OECD Health Policy Studies. Paris: OECD. Available at: <https://doi.org/10.1787/743e6228-en> (accessed 2 August 2023).
- O'Reilly P et al. (2017). Assessing the facilitators and barriers of interdisciplinary team working in primary care using normalisation process theory: An integrative review. *PLoS One*, 12:e0177026. Available at: <https://doi.org/10.1371/journal.pone.0177026> (accessed 2 August 2023).
- Perry HB (ed.) (2021). Health for the People: National Community Health Worker Programs from Afghanistan to Zimbabwe. Available at: https://chwcentral.org/wp-content/uploads/2021/11/Health_for_the_People_Natl_Case%20Studies_Oct2021.pdf.
- Pesc M, VanderZanden A, Ratcliffe H (2020). Integrated People-Centred Health Services Case Study: Comprehensive Primary Health Care Reform in Costa Rica, Ariadne Labs. Available at: https://www.integratedcare4people.org/media/files/Comprehensive_Primary_Health_Care_Reform_in_Costa_Rica_January2020_.pdf (accessed 2 August 2023).
- Pesc M et al. (2017). Primary Health Care That Works: The Costa Rican Experience. *Health Aff*, 36:531–8. Available at: <https://doi.org/10.1377/hlthaff.2016.1319> (accessed 2 August 2023).
- Pesc M et al. (2021). Strengthening data collection and use for quality improvement in primary care: the case of Costa Rica. *Health Policy Plan*, 36:740–53. Available at: <https://doi.org/10.1093/heapol/czab043> (accessed 2 August 2023).
- PHCPI (2022). Why Primary Health Care? Primary Health Care Performance Initiative. Available at: <https://www.improvingphc.org/why-primary-health-care> (accessed 2 August 2023).
- Phiri SC et al. (2017). An exploration of facilitators and challenges in the scale-up of a national, public sector community health worker cadre in Zambia: a qualitative study. *Hum Resour Health*, 15. Available at: <https://doi.org/10.1186/s12960-017-0214-3> (accessed 2 August 2023).
- Qua K et al. (2022). Early Medical Students' Experiences as System Navigators: Results of a Qualitative Study. *J Gen Intern Med*, 37:1155–60. Available at: <https://doi.org/10.1007/s11606-021-07168-8> (accessed 2 August 2023).
- Republic of Zambia Ministry of Health (2019). National Community Health Strategy 2019–2021: Community Health Driving Primary Health Care for Universal Health Coverage. Lusaka: Ministry of Health. Available at: https://chwcentral.org/wp-content/uploads/2021/04/Zambia_Natl_Community_Health_Strategy_2019-2021.pdf.
- Reynolds J et al. (2013). A literature review: the role of the private sector in the production of nurses in India, Kenya, South Africa and Thailand. *Hum Resour Health*, 11. Available at: <https://doi.org/10.1186/1478-4491-11-14> (accessed 2 August 2023).

- Rivlin A, Lumley T (2023). Why is there a global medical recruitment and retention crisis? World Economic Forum. Available at: <https://www.weforum.org/agenda/2023/01/medical-recruitment-crisis-davos23/> (accessed 2 August 2023).
- Russell D et al. (2021). Interventions for health workforce retention in rural and remote areas: a systematic review. *Hum Resour Health*, 19. Available at: <https://doi.org/10.1186/s12960-021-00643-7> (accessed 2 August 2023).
- Samarasekera DD et al. (2022). Challenges and opportunities in interprofessional education and practice. *Lancet*, 400:1495–7. Available at: [https://doi.org/10.1016/S0140-6736\(22\)02086-4](https://doi.org/10.1016/S0140-6736(22)02086-4) (accessed 2 August 2023).
- Saprii L et al. (2015). Community health workers in rural India: analysing the opportunities and challenges Accredited Social Health Activists (ASHAs) face in realising their multiple roles. *Hum Resour Health*, 13. Available at: <https://doi.org/10.1186/s12960-015-0094-3> (accessed 2 August 2023).
- Saric J et al. (2021). Assessing the Quality of Care at Primary Health Care Level in Two Pilot Regions of Albania. *Front Public Health*, 9:747689. Available at: <https://doi.org/10.3389/fpubh.2021.747689> (accessed 2 August 2023).
- Schimpff S (2020, 7 February). Why primary care is in crisis – and how to fix it [WWW Document]. *Med Econ*. Available at: <https://www.medicaleconomics.com/view/why-primary-care-crisisand-how-fix-it> (accessed 18 January 2023).
- Schor A et al. (2019). Multidisciplinary work promotes preventive medicine and health education in primary care: a cross-sectional survey. *Isr J Health Policy Res*, 8:50. Available at: <https://doi.org/10.1186/s13584-019-0318-4> (accessed 2 August 2023).
- Scott K et al. (2018). What do we know about community-based health worker programs? A systematic review of existing reviews on community health workers. *Hum Resour Health*, 16. Available at: <https://doi.org/10.1186/s12960-018-0304-x> (accessed 2 August 2023).
- Sela-Vilensky Y, Grinberg K, Nissanholtz-Gannot R (2020). Attracting Israeli nursing students to community nursing. *Isr J Health Policy Res*, 9. Available at: <https://doi.org/10.1186/s13584-020-00400-6> (accessed 2 August 2023).
- Shelley KD et al. (2016). Implementation of the Community Health Assistant (CHA) Cadre in Zambia: A Process Evaluation to Guide Future Scale-Up Decisions. *J Community Health*, 41:398–408. Available at: <https://doi.org/10.1007/s10900-015-0110-5> (accessed 2 August 2023).
- Sirili N et al. (2018). Retention of medical doctors at the district level: a qualitative study of experiences from Tanzania. *BMC Health Serv Res*, 18:260. Available at: <https://doi.org/10.1186/s12913-018-3059-0> (accessed 2 August 2023).
- Spigel L et al. (2020). Implementing sustainable primary healthcare reforms: strategies from Costa Rica. *BMJ Glob Health*, 5:e002674. Available at: <https://doi.org/10.1136/bmjgh-2020-002674> (accessed 2 August 2023).
- Tan NC et al. (2017). Evaluation of a training programme to induct medical students in delivering public health talks. *Singapore Med J*, 58:35–40. Available at: <https://doi.org/10.11622/smedj.2016043> (accessed 2 August 2023).

- Uneke C, Uneke B (2021). Intersectionality of gender in recruitment and retention of the health workforce in Africa: a rapid review. *East Mediterr Health J*, 27:698–706. Available at: <https://doi.org/10.26719/2021.27.7.698> (accessed 2 August 2023).
- Valentine N et al. (2022). Planetary health benefits from strengthening health workforce education on the social determinants of health. *Health Promot Int*, 37:daac086. Available at: <https://doi.org/10.1093/heapro/daac086> (accessed 2 August 2023).
- VanderZanden A et al. (2021). What does community-oriented health care look like? The experience of Costa Rica. The Commonwealth Fund. Available at: <https://www.commonwealthfund.org/publications/case-study/2021/mar/community-oriented-primary-care-lessons-costa-rica> (accessed 2 August 2023).
- Weiland G et al. (2019). What Attracts Medical Students to Primary Care? A Nominal Group Evaluation. *South Med J*, 112:76–82. Available at: <https://doi.org/10.14423/SMJ.0000000000000933> (accessed 2 August 2023).
- WHO (2007). Task shifting to tackle health worker shortages. Geneva: World Health Organization.
- WHO (2010). Increasing access to health workers in remote and rural areas through improved retention: global policy recommendations. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/increasing-access-to-health-workers-in-remote-and-rural-areas-through-improved-retention> (accessed on 17 April 2024).
- WHO (2016). Global strategy on human resources for health: workforce 2030. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241511131> (accessed on 17 April 2024).
- WHO (2017). National health workforce accounts: a handbook. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241513111> (accessed on 17 April 2024).
- WHO (2018a). National health workforce accounts: implementation guide. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241514446> (accessed on 17 April 2024).
- WHO (2018b). WHO Guideline on Health Policy and System Support to Optimize Community Health Worker Programmes. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241550369> (accessed on 17 April 2024).
- WHO (2018c). Imbalances in rural primary care: a scoping literature review with an emphasis on the WHO European Region. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018-58> (accessed on 17 April 2024).
- WHO (2019a). Community health workers delivering primary health care: opportunities and challenges (Agenda item 11.5, Seventy-Second World Health Assembly). Available at: https://apps.who.int/gb/ebwha/pdf_files/EB144/B144_R4-en.pdf (accessed on 17 April 2024).

- WHO (2019b). *Delivered by women, led by men: a gender and equity analysis of the global health and social workforce*. Human Resources for Health Observer Series, 24. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241515467> (accessed on 17 April 2024).
- WHO (2020). *Retention of the health workforce in rural and remote areas: a systematic review*. Human Resources for Health Observer Series. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240013865> (accessed on 17 April 2024).
- WHO (2021a). *Health labour market analysis guidebook*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240035546> (accessed on 17 April 2024).
- WHO (2021b). *WHO guideline on health workforce development, attraction, recruitment and retention in rural and remote areas*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240024229> (accessed on 17 April 2024).
- WHO (2022a). *National workforce capacity to implement the essential public health functions including a focus on emergency preparedness and response: Action plan (2022–2024) roadmap for aligning WHO and partner contributions*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240060364> (accessed on 17 April 2024).
- WHO (2022b). *Human resources for health leadership and management: a prototype curricula package: prototype curriculum for a master's course*. Geneva: World Health Organization. Available at: <https://www.who.int/publications-detail-redirect/9789240055940> (accessed 17 April 2024).
- WHO Regional Office for Europe (2020). *Competencies for nurses working in primary health care*. Copenhagen: WHO Regional Office for Europe. Available at: <https://iris.who.int/handle/10665/365607> (accessed 17 April 2024).
- WHO Regional Office for Europe (2021). *Kazakhstan: Multidisciplinary teams for better alignment of primary health care services to meet the needs and expectations of people*. Copenhagen: WHO Regional Office for Europe.
- WHO Regional Office for Europe (2022). *Health and care workforce in Europe: time to act*. Copenhagen: WHO Regional Office for Europe. Available at: <https://www.who.int/europe/publications/i/item/9789289058339> (accessed 17 April 2024).
- WHO, PEPFAR, UNAIDS (2007). *Task shifting: rational redistribution of tasks among health workforce teams: global recommendations and guidelines*. Geneva: World Health Organization.
- WHO, UNICEF (2018). *A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals*. Geneva: World Health Organization and the United Nations Children's Fund.
- WHO, UNICEF (2022). *Primary health care measurement framework and indicators: monitoring health systems through a primary health care lens*. Geneva: World Health Organization and the United Nations Children's Fund.

- Wieland L, Ayton J, Abernethy G (2021). Retention of General Practitioners in remote areas of Canada and Australia: a meta-aggregation of qualitative research. *Aust J Rural Health*, 29:656–69. Available at: <https://doi.org/10.1111/ajr.12762> (accessed 2 August 2023).
- Wilmink N, Measures E, Worku Y (2021). Zambia's Community Health Assistant Program [WWW Document]. CHW Central. Available at: <https://chwcentral.org/zambia-community-health-assistant-program-2/#comments>.
- Winkelmann J et al. (2022). How can skill-mix innovations support the implementation of integrated care for people with chronic conditions and multimorbidity? *Health Systems and Policy Analysis, Policy Brief*. Copenhagen: WHO (acting as the host organization for, and secretariat of, the European Observatory on Health Systems and Policies). Available at: <https://iris.who.int/bitstream/handle/10665/358467/Policy-brief-46-1997-8073-eng.pdf?sequence=1> (accessed 27 February 2024).
- Zhao X et al. (2020). Training primary healthcare workers in China's township hospitals: a mixed methods study. *BMC Fam Pract*, 21. Available at: <https://doi.org/10.1186/s12875-020-01333-4> (accessed 2 August 2023).

HEALTH FINANCING

This fictional story illustrates how financing of PHC can impact people's lives and contributes to reaching UHC

One year ago, **JO** noted periods of time when he felt sad and empty, had less interest in daily activities and had trouble getting things done. He went to see his family doctor for a consultation and was diagnosed with depression. While she could prescribe medication to help the depression, the family doctor felt that Jo would likely benefit from psychotherapy. The medication and the therapy services were not covered by public funds. Unfortunately, the Malunas could not afford to pay for them out-of-pocket so Jo was compelled to manage his symptoms without the medicines and therapy he needed.

Recently, much to his family's concern, Jo's symptoms became more severe and he found it harder to carry out his usual activities. Fortunately, through her

involvement with the local health committee, Alma has learned that the government had recently made important investments in health and had expanded the basic benefits package to include mental health services in primary care. As a result, Jo now had access to psychotherapist consultations in the community-based mental health centre and only had to pay a small co-payment should medication be prescribed. Jo and his family were relieved that he can access the care needed close to home and without major expenses.



9

Health financing

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Key messages

It is the role of health financing to mobilize sufficient resources to make primary health care (PHC) effective and, given the shortfall in public funding in so many settings, to seek to preserve access and equity, and protect patients from the (sometimes catastrophic) impacts of out-of-pocket payments. It is also a crucial tool in reorienting health systems towards a PHC approach giving policy-makers the levers to achieve change.

- Political will is the primary factor in securing financing for health and for PHC. It determines what share of public funds goes to primary rather than specialist care and the extent of out-of-pocket payments.
- Health financing arrangements can be designed to support (or drive) change to a PHC orientation. Policy levers include:
 - changing how revenue is collected, pooled and – most particularly – allocated
 - adjusting the population coverage and the services included in, or excluded from, benefit packages
 - aligning purchasing practice with health system goals
 - using a tailored blend of provider payment methods and targeted funding to incentivize PHC.
- PHC often relies on funding from multiple sources (government, insurance, donors), which undermines integration, and on out-of-pocket payments which are inequitable. Using pooled funds to pay for PHC reduces the financial burden on patients and the fragmentation of service delivery.
- Clearly defining and aligning comprehensive packages with public funding and incentives reduces the inappropriate use of expensive emergency and secondary care, and is cost-effective and equitable.
- Investing in good public financial management allows a timely flow of resources that facilitates continuity in service provision, provision of medicines and supplies, and the retention of staff.
- Provider autonomy – coupled with responsibility and accountability – encourages responsiveness to local needs.

9.1 Introduction

Health financing arrangements are one set of tools available to health sector policy-makers seeking to reorient their health systems towards PHC. Financing arrangements are vital for two main reasons. First, they determine whether sufficient resources are available for PHC to achieve its potential in improving population health. Second, they shape how resources flow through the health system to reach first contact providers, and in doing so they create incentives for providers and users.

The main challenges for policy-makers relate to the public budget allocation to primary care compared with specialist and hospital care, and how this share can be increased; whether user charges can be used to finance part of the cost of PHC; and how best to deploy donor assistance to meet essential health needs. Policy-makers are also concerned with understanding what is the best way to decide which services to include in a primary care benefit package; which provider payment methods encourage implementation of the PHC model of accessible, efficiently provided and high-quality services; and how incentives can be deployed to encourage providers to move towards more integrated care.

For all these decisions there are trade-offs – user fees might raise some funds for the system, but at the same time deter people, vulnerable groups in particular, from using services and reduce the use of preventive and health promotion interventions. Donor funding might bring additional resources but where this is directed at specific diseases, this may distort national priorities, create difficulties for coordination, sustainability and management, and bring additional burdens for reporting and accountability. Defining and broadening an explicit benefits package for PHC may provide better coverage and clarity for patients about their entitlements but it may not improve financial protection if publicly covered services are not high quality (see Chapter 14).

Health financing arrangements can be designed to support (and even drive) changes in the models of care – how health services are configured, managed and supported – to build a stronger health service orientation towards PHC (see Chapter 6). For instance, strengthening first contact that might require empanelment of patients can be reinforced by a provider payment system based on capitation (see below).

Health financing arrangements can be described in terms of their main functions. The World Health Organization (WHO) describes these as revenue collection, pooling and purchasing; here, these are augmented to include how resources are allocated to different levels of the health system and how coverage policies are set (see Box 9.1).

This chapter seeks to explore how financing arrangements can strengthen PHC-oriented health systems and progress towards universal health coverage (UHC) and improved health outcomes. Section 9.2 focuses on the health financing functions and how they can be designed to support and drive changes in the models of care. Section 9.3 presents examples of good practice from which countries can learn in order to strengthen health financing arrangements for PHC, and Section 9.4 concludes with lessons and implementation challenges.

Box 9.1 Health financing functions

Revenue collection describes how funds for health are mobilized and classifies these funds according to their source – government expenditure derived from taxation and mandatory insurance contributions, private expenditure including both out-of-pocket payments and private insurance premia, and external sources, which usually refers to development assistance provided by bi- or multilateral development agencies. Revenue collection determines the overall size of the health budget, and the distribution of the financial burden across different payers (sometimes called the incidence of health financing).

Pooling is the way funds are combined across individuals and sources to cover the health needs of a defined population. Tax-funded and insurance-based systems, or a combination of these, are both mechanisms for pooling, with such arrangements enabling cross-subsidy between those who are well and those who are sick, and among households of different socioeconomic and/or employment status. For reasons that are outlined below, this chapter takes the position that PHC is ideally covered by pooled funds, rather than paid for from unpooled out-of-pocket payment at the time of use.

Allocation describes the decisions about how pooled funds should be distributed across the different types of health care (for example, between specialized care and PHC), and across geographic areas. Government expenditure is usually allocated through the formulation and execution of budgets. Budget allocation will operate differently in centralized/unitary systems and decentralized/federal systems. Allocation mechanisms determine how much money is directed to PHC, and influences whether resources move through the system efficiently to reach frontline providers.

Coverage policies set out what health services will be fully or partially subsidized; who is entitled to these services; and the terms under which the population can access these services (for example, co-payment policies including whether balance billing is permitted). All of these will have implications for the degree of financial protection provided by the financing system, and for the rights and entitlements of the population.

Purchasing is the set of arrangements that govern how funds move from a fund pool to providers. Purchasing involves selection of the providers that are eligible to receive funds from the pool, and the setting of tariffs (the price that is paid to providers), together with management of how tariffs align with the available budget, contracting and provider payment mechanisms and the broader set of rules governing how care is accessed, such as referral and gatekeeping.

9.2 Evidence review: health financing to strengthen the PHC approach

9.2.1 Revenue collection and patterns of expenditure on PHC

Revenue collection determines the overall size of the health budget and is generally attained through three main financing intermediaries: government (from tax revenue and mandatory health insurance contributions), private sources (out-of-pocket payments and private insurance premia) and development assistance for health provided by bi- and multilateral development agencies. This subsection describes patterns of expenditure on PHC. For this purpose, it is important to first understand how PHC spending has been calculated and interpreted in this chapter (see Box 9.2).

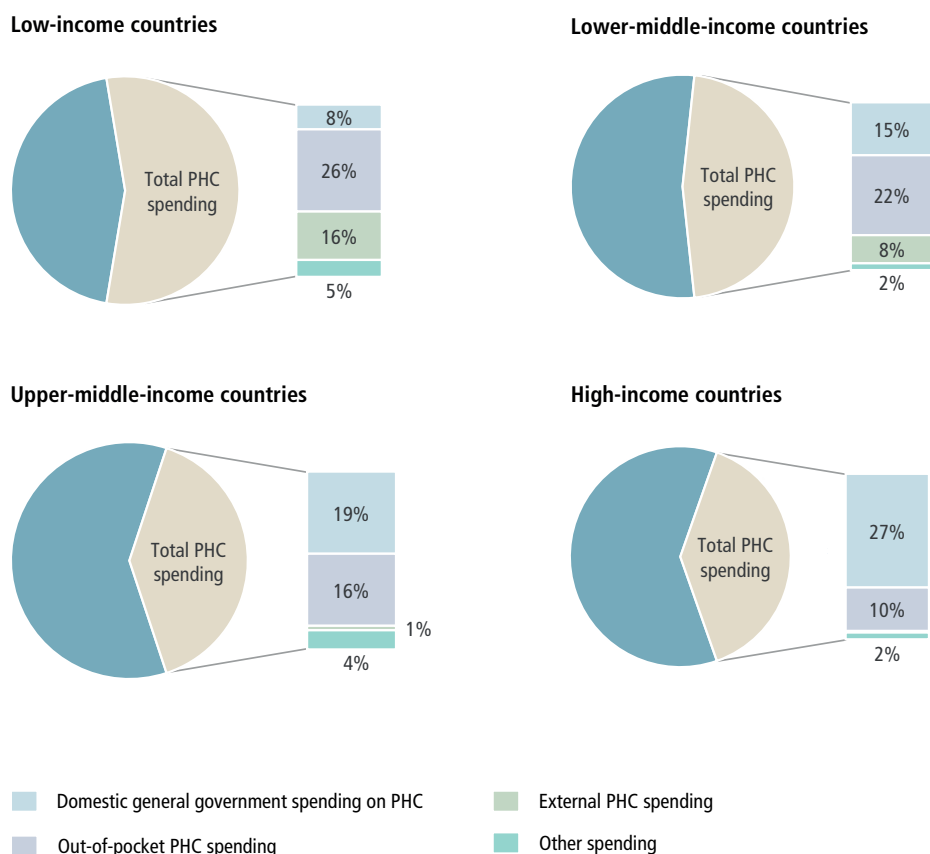
Box 9.2 Measuring PHC expenditure

The WHO definition of PHC expenditure includes expenditure on general outpatient curative care, outpatient dental care, home-based curative care, preventive care, and a share of expenditure on medical goods (mostly medicines) and on administration and governance, all computed using the System of Health Accounts classification by health care function (WHO, 2021a). This means that analysis of PHC expenditure is based on a narrower definition of PHC than the one used in this Primer, which includes three integral components: primary care and essential public health functions as the core of integrated health services, multisectoral policy and action, and community engagement (see Chapter 3).

There are several important features of the PHC expenditure landscape. First, the levels of spending on health and on PHC are shaped both by the level of national income and by the degree of priority given to health and to PHC within the health budget. The level of domestic general government spending on PHC is very low in low- and middle-income countries (LMICs), at US\$3 per capita and US\$15 per capita, respectively (see Table 9.1 in Annex). This quantum of spending is much lower than the WHO's estimate of the total recurrent cost per capita in 2030 of a comprehensive package of PHC, US\$65 per capita in low-income countries (LICs) and US\$59 per capita in LMICs (Stenberg et al., 2019).

Second, at all levels of income, government spending on PHC is about one third of total government health spending. Third, out-of-pocket spending on PHC makes up the largest share of total spending on PHC in LMICs (Fig. 9.1).

Fig. 9.1 Out-of-pocket spending makes up the largest share of total spending on PHC in LMICs



Note: Sources of PHC expenditure and share in total health expenditure, by country income group, 2020 or most recent year

Source: Authors' calculation based on WHO, 2023 and OECD, 2023 (see Table 9.1 in Annex)

Paying for services out-of-pocket presents a barrier to the timely use of care and, in the case of long-term conditions, out-of-pocket payments can accumulate and result in high levels of expenditure, exposing households to the risk of catastrophic health expenditure and impoverishment. A significant component of out-of-pocket spending on PHC is for medicines (see also Chapters 10 and 15). In the Democratic Republic of the Congo, 62% of out-of-pocket expenditure on outpatient care was for medicines (Laokri, Soelaeman & Hotchkiss, 2018). The lack of coverage of medicines can influence health-seeking behaviour: in China, evidence shows that patients seek hospital care because it offers better medicines coverage than is available from outpatient care

(Zhang, Nikoloski & Mossialos, 2017). Finally, development assistance is responsible for one third of PHC spending in LICs. While external funds are essential for closing the funding gap in settings where fiscal space is constrained, donor funding also brings additional problems of unpredictability, fragmentation of government planning and budgeting processes, and additional burdens of reporting and accountability (see Section 9.3.5).

Over time, substituting pooled funding for out-of-pocket expenditure on PHC can improve access to primary care and reduce the financial burden on households (Hanson et al., 2022). In many settings, this means making the case for PHC in government health budgets. Increasing investments in PHC can be a political challenge: spending on secondary and tertiary care is often seen as politically more attractive as it is visible and more likely to be used by local elites. While spending more on PHC may not necessarily reduce overall expenditure on health, many of the most cost-effective health interventions can be delivered at the primary care level, generating greater health benefits for each unit of spending, as Chapter 4 outlines (OECD, 2020). Community health workers could aid in the delivery of primary care services, but more research is needed on how to best sustain their financing (see Box 9.3).

Box 9.3 Sustained financing of community health workers

Community health workers form an essential part of delivering PHC in many LMICs, such as in the implementation of Integrated Community Case Management. Most community health worker programmes have relied on donor funding, such as in sub-Saharan Africa (Daviaud et al., 2017), and despite being highly cost-effective (Vaughan et al., 2015; Nkonki, Tugendhaft & Hofman, 2017), there has been limited attention to how best to transition to domestic funding for these programmes. More data are needed to understand how much of health budgets is taken up with expenditure on community health workers (Masis et al., 2021).

9.2.2 Pooling issues and fragmentation in financing for PHC

Fragmentation of funding occurs where there are barriers to redistribution across different funds so that they cannot be pooled (Mathauer, Saksena & Kutzin, 2019). Fragmentation is a common problem for PHC. A provider may receive funds for PHC through multiple sources: from a government budget, a social health insurance scheme, a private health insurance scheme, donor-funded vertical programmes, and out-of-pocket payments. These multiple funding flows come with different requirements and incentives, making it difficult for providers to know what to prioritize and where to direct their effort; they may also lead to multiple, duplicative accountability processes (Barasa et al., 2021). This is particularly problematic where people have multiple health conditions that are inter-linked, such as cardiovascular disease and mental health conditions, but providers receive funding from separate sources to address them. This makes it difficult to provide and finance an integrated service aligning the actions of multiple health workers (see Section 9.3.2). Other forms of

fragmentation may arise in decentralized financing systems where different levels of government funds cover different levels of service delivery. This problem was common in the so-called Semashko systems of Eastern Europe and the Former Soviet Union and contributed together with other factors to overly high specialist visits and avoidable hospitalizations (Kutzin, 2010).

Finding ways to integrate these funding flows, reduce the effects of fragmentation, and enable strategic planning will lead to more effective PHC financing arrangements. While revenues may be raised from multiple sources, ideally these funds should be pooled in a common pot before they reach providers. Pooling fragmented or decentralized funding flows allows more equitable resource allocation based on need, efficiency and quality (Kutzin, 2010). Kazakhstan and Kyrgyzstan both provide strong examples in which pooled funding of health services at national and regional level, together with a nationally standardized capitation payment (see Section 9.2.5), led to greater equity in resource allocation for PHC, which in turn eased access barriers, particularly for those in remote and previously underfunded areas (Erikson, Litvinova & Rechel, 2022; Moldoisaeva et al., 2022). Kyrgyzstan also serves as an example of aligning donor funding, where several partners reduced fragmentation by pooling their funds and providing direct budget support with shared policy indicators for PHC policy change and implementation (UNDP, 2023).

9.2.3 Allocating resources to PHC: ensuring adequate funds and effective financing flows

Optimizing allocation for PHC means increasing budget allocations, using budgetary means to direct resources to PHC, and having systems in place to effectively manage them. A well-defined package of services requires sufficient funds to be available (see below), which flow in ways that ensure they are disbursed promptly so they are available when needed. Allocation mechanisms are most effective when they consider population health needs, ensure equal resources for equal need, and incentivize greater productivity for effective coverage and quality of care. Including citizens and communities in these processes can create accountability and fosters a better understanding of their needs (see Box 9.4).

Box 9.4 Engaging people and communities

Empowering “people and communities” is a key component of the PHC approach. Examples of linkages with community organizations include contracting community-based organizations to provide PHC interventions (for example, through social prescribing), and integrating community health workers with the health system. Communities can also be engaged in the budgeting process – for example, through mechanisms such as community health committees, participatory budgets and improved accountability measures (Ministry of Finance, Planning and Economic Development, 2021; WHO, 2021b) – but these activities also need to be resourced. Community empowerment and involvement are vital in making health financing decisions that are fair and sustainable and foster trust. A set of guidelines for

procedural fairness in health financing has emphasized the importance of people and community empowerment in ensuring that health financing processes are inclusive, transparent, accurate and accountable (Gopinathan et al., 2023).

In some countries, increased allocations for PHC have been achieved through earmarked revenue sources (for example, the tobacco tax in the Philippines that was directed to UHC, and a health and education tax in India to strengthen PHC, particularly in rural and semi-urban areas). Earmarking in itself, however, does not improve the overall fiscal space, and funding for the earmark can be diverted from other socially important areas, thus offsetting any potential gains (Kutzin, Cashin & Jakab, 2010; Bird, 2015; Cashin, Sparkes & Bloom, 2017; Jakab, Evetovits & McDaid, 2018).

Another important element includes how funds for PHC are budgeted. Budgets can be constructed at the central level or by a decentralized authority (for example, provincial or state). Many LMICs rely on predominantly historic budgeting practices with line-item budgets for the transfer of payments to providers. In these contexts, most public resources go to facilities that are owned by the Ministry of Health and they have little decision-making space to enable them to allocate resources flexibly to reflect local priorities. Some LMICs and more upper middle-income countries (UMICs) and high-income countries (HICs) have introduced output-based budgets including programme-based budgeting. These budgeting mechanisms offer three potential benefits: they can increase the allocative efficiency of PHC financing as they support better alignment of funding to the priorities and objectives of the health sector; they provide greater flexibility in the use of funds; and they provide better transparency and accountability towards agreed outputs (Barroy et al., 2022a). They may also be a way to facilitate multisectoral action (see Box 9.5).

Box 9.5 Financing multisectoral action

PHC requires action beyond the health sector to effectively engage in promoting health and self-care. However, the health sector has only indirect influence over how other sectors' spending decisions are made. Multisector budgeting and financing approaches are needed for those elements of PHC that require inputs from different sectors, such as water and sanitation, but also to enable initiatives that draw in broader community services to support well-being (Sparkes, Kutzin & Earle, 2019). Programme budgeting is a specific budget reform that can be used to encourage greater collaboration both across departments in the Ministry of Health and across sectors (Barroy et al., 2022a). Programme budgets work by providing greater flexibility in budgeting and spending, together with joint accountability for outcomes. Uganda's human capital development programme brings together health-related sectors into a single programme budget, and Ghana includes an SDG budget presentation that shows how different sectoral budget allocations contribute to the often multisectoral requirements of the Sustainable Development Goals (SDGs) (Republic of Uganda, 2020; Republic of Ghana, 2022).

PHC financing also requires sound financial management systems for public funds and sufficient decision-making autonomy to enable providers to make decisions to meet the service needs and priorities of their populations (see Chapter 7). For example, in the United Republic of Tanzania this is enabled through Direct Facility Funding, a mechanism in which money (including some government general revenue) is transferred directly to primary care facilities (see Section 9.3.1) (WHO, 2022a).

9.2.4 Setting coverage policies for PHC

Coverage policies define who is covered by the statutory health system and for which services, and how much (if anything) people need to pay out-of-pocket at the point of service (WHO, 2022b). Gaps in coverage create financial barriers in accessing care and may result in unmet needs and financial hardship, limiting progress towards UHC (see Chapter 15). Keeping in mind all three dimensions – people, services and cost sharing – is important when deciding on coverage policy. While these dimensions are presented sequentially in the sections that follow, these decisions are closely inter-related.

Population coverage

Guaranteeing universal coverage of comprehensive PHC means covering the whole population and addressing barriers to care faced by vulnerable groups. Inadequate coverage for PHC services leads to inefficiencies and widening inequalities. For example, people without the means to pay for primary care services will not be able to seek the care they need, which may lead to worsening health status and over-reliance on often more expensive emergency care (OECD, 2020). Universal coverage is also a way of ensuring that the better-off have a stake in a publicly funded system. If they do not benefit from publicly funded services, they may be less likely to support funding for these services, leading to reduced access and quality for everyone.

Ensuring universal coverage may imply installing additional arrangements for specific groups such as undocumented migrants, asylum seekers and refugees. This may include creating enabling legislation for non-citizens to use and access PHC services, creating ways to account for the influx of new users, and using payment mechanisms that allocate greater resources to those providers disproportionately affected by migration and refugees. Important lessons come from Türkiye, where PHC services for refugees were gradually integrated into the national health system (Regional Refugee & Resilience Plan (3RP), 2021).

There are various ways in which population groups can be *de facto* excluded from coverage or cannot translate their entitlements into high-quality PHC services. In many LMICs there is a universal entitlement to publicly funded services, but these services are often under-resourced and therefore unavailable or of low quality, or they are subject to substantial user charges, or the providers are geographically inaccessible to the population and travel costs are prohibitive. In other settings, the entitlement to publicly funded services is linked to the payment of health insurance contributions through, for example, mandatory (social) health insurance. This may result in a situation in which vulnerable people, such as those in the informal sector and those

lacking stable employment, have no or limited access to PHC services (Palm et al., 2021). Where there are multiple schemes covering different populations, it is important that providers receive the same capitation payment for all groups of enrollees to reduce incentives to select patients for whom better payment is received. In Kyrgyzstan, both insured and uninsured have the same entitlement to comprehensive PHC regardless of their contribution status (WHO, 2021c).

Delinking entitlement to free or subsidized services from payment of contributions, and making primary care, including essential medicines, available to all residents and specific vulnerable groups, enables building greater universality into the system (see also Chapter 15) (WHO, 2014a). Measures to prioritize free universal access to primary care funded from core general tax-based financing require an explicit and consensus-based strategy to apply the principle of progressive universalism – a stepwise pathway to universality.

Service package

An explicitly defined essential health service package, tailored to a country's context and mostly delivered through PHC, is a useful basis for multiple purposes, namely transparent and justified budget allocations, developing payment incentives, building local ownership, and ensuring accountability and transparency. An explicit essential health service package can inform the population which services are free at the point of service, whether any cost-sharing is required, or if a service is not publicly covered (WHO, 2022b). This may help curb avoidable out-of-pocket payments resulting from unnecessary use of uncovered services, referrals to privately paid services, and informal payments. An explicitly defined package does not imply an excessively detailed description of entitlements and overly technical language. Leaving room for tailoring the package to the disease burden and need at community level based on population health management practices is important (see Chapter 5), to account for variation in population composition and health needs (for example, depopulated rural areas with a high proportion of elderly people with mobility restrictions, crowded urban areas with a young population, etc.). Also, it is important to ensure that the service delivery design aims do not dictate clinical judgement by general practitioners (GPs) and other health workers, or limit engagement with patients and the community (Bariş et al., 2022).

A final advantage of an explicit essential health service package is that it can inform decisions about supply-side requirements – in terms of staff needed to deliver the services, the training and capabilities they require, and the equipment and medicines that should be available in primary care. For example, in deciding whether to locate laboratory diagnostic capacity at the primary care or referral level, it is important to consider how this will affect patient care-seeking patterns. Depending on how providers are paid, such decisions may also affect provider income.

Defining an essential health service package requires an institutionalized priority-setting process that builds on explicit decision-making criteria, uses available data and evidence, is participatory and inclusive, and ensures regular review and updates. Aligning PHC and clinical guideline development mechanisms will prevent misalignment between the approved clinical guidelines and the benefits package. In LMICs with

major resource constraints, the evidence suggests that the PHC service package should focus on highly effective and cost-effective interventions, in line with the available budget and supply-side capacity (Bariş et al., 2022). Over time, when more resources become available and/or input prices fall, the package can be expanded.

User charges

Guaranteeing universal access to PHC services requires that the package of PHC services (as defined above) be free at the point of use. There is broad consensus in the literature that user fees for PHC services in LMICs (such as in the form of co-payments) should not be introduced or, if they are in place, they should be removed, as these user charges create barriers to accessing necessary PHC services and result in unmet needs and financial hardship (McPake et al., 2011).

A large body of evidence concludes that user charges are not an effective instrument for directing people to use health services more efficiently, are not suitable for rationing, and are likely to lead to adverse health outcomes, especially among poor people, older people and people with chronic conditions (Kiil & Houlberg, 2014; Thomson, Cylus & Evetovits, 2019). Because decisions to seek health care are generally initiated by the patient, use of these services is particularly sensitive to user charges, and even small user charges have been observed to lead to large reductions in utilization (Brook et al., 1984). As a result, the long-term costs and consequences of care for these groups are likely to be much higher than any short-term budget gains. These costs include the higher costs of delayed preventive and disease management services surfacing in emergency room use, specialist and hospital services and ultimately, worse health outcomes and economic productivity (OECD, 2020).

While in theory user charges could be combined with exemption mechanisms for those who cannot afford to pay, these work imperfectly even in sophisticated systems. The cost of correctly administering and managing people eligible for this exemption may exceed any revenues collected from user charges for PHC services. In countries of lower administrative capacity, the targeting errors will be significantly larger and the benefit of such an approach questionable.

If cost-sharing is unavoidable, it is important that it is carefully designed to be fixed (flat rate), small and protect poorer households (see Chapter 15) (Thomson, Evetovits & Cylus, 2018). Percentage co-payments (also called co-insurance) shift financial risk from the purchasing agency to households, exposing people to health system inefficiencies, and causing uncertainty about the amount of the co-payment (Thomson, Cylus & Evetovits, 2019). A lack of understanding about what services are covered can deter use or expose patients to opportunistic behaviour from providers.

Removing user fees can lead to a loss of revenue for primary care providers. Identifying alternative sources of funding for these providers can help to avoid a shift to informal fees. Where possible, this supplementary funding can be accompanied by reforms to the public financial management system to allow for provider autonomy over the use of these funds and some form of output measurement or performance targets to maximize the impact of these funds (McPake et al., 2011; Barroy et al., 2022b).

Even where PHC is free, barriers to use services may exist for some population groups. Patients may face significant transportation costs or indirect costs of accessing care (due to missed work) that prevent them from using PHC (Bariş et al., 2022). Migrants or refugees may not be eligible for free services and not empanelled with providers, or health workers may stigmatize or abuse marginalized populations. A better understanding is needed of the many demand-side reasons that may impede PHC use and how these can be addressed (see Chapter 15).

9.2.5 Purchasing PHC

Purchasing involves the allocation of pooled funds to providers. It is carried out by purchasers that can be public bodies such as the Ministry of Health or social health insurance funds, or private entities (private health insurers); they can be a single-payer or there may be multiple (possibly competing) payers; and they can be centralized (Estonia, Slovakia, the United Kingdom) or decentralized to regions or private entities. For an effective purchasing process, purchasers need the instruments, information, expertise and sufficient policy capacity, all of which may vary widely across jurisdictions (Greer, Klasa & van Ginneken, 2020).

Purchasing involves the following decisions: (1) what interventions to buy; (2) from whom; (3) how to buy them; and (4) how much to pay for them.

What interventions to buy is to a large degree determined by the benefits package (see previous section). Ideally, the benefits package for primary care is based on cost-effectiveness criteria. In addition, the amount and type of services that are purchased ideally respond to local health needs and ensure service coverage, which preferably is based on a population health needs assessment that considers epidemiological and demographic data rather than an extrapolation of historical spending or utilization data. In systems with fragmented purchasing functions, i.e. where multiple purchasers are active in one area, it becomes much harder to respond to the care needs of a given territory in a coordinated manner (Klasa, Greer & van Ginneken, 2018).

In the next step (from whom to buy), it is important to identify providers that are eligible to provide these services, meet quality standards and can fulfil local demand. To establish a rationalized network of providers in line with the overall system design, there are two main tools available: (i) a concession and network planning system regulated by the government; or (ii) (selective) contracting which may give more power to the purchasers. Selective contracting has some important drawbacks, however. There are concerns about limiting patient choice and equity, which has motivated some countries to explicitly prohibit it. Secondly, as is visible in the Kingdom of the Netherlands, it is difficult to implement, as insurers fear a backlash from the public, politicians and media when they are denying a contract to a provider (Klasa, Greer & van Ginneken, 2018; Jeurissen & Maarse, 2021). The approach to contracting will depend on the structure of the provider market.

The third step (how to buy) relates mostly to contracting, for example, conditions of contracting, such as licensing/accreditation status or (quality) data reporting requirements, service delivery standards (requiring following national clinical guidelines, if

present), etc. These contractual arrangements may also provide financial and non-financial incentives to providers (Hanson et al., 2022). A key element of contracting is the form of payment used. In PHC, there are three common payment methods, each with its advantages and disadvantages (see Box 9.6) (Robinson, 2001).

Box 9.6 Common payment models in PHC

Input-based budgets (line-item or global budget): Providers are given prospectively a fixed amount of funds to cover specific items, such as medicines and utilities, for a period (usually a year). These are administratively simple, contain costs, and guarantee providers a stable income. However, budgets create few incentives for providers to proactively address the needs of the population in their catchment area and often leave little room to shift funds between budget items to respond to local needs (Hanson et al., 2022).

Fee-for-service (FFS): Providers are reimbursed for each service unit provided. This form of payment can stimulate the provision of as many reimbursable services as possible and unnecessary use of services (Gosden et al., 2000; Busse & Mays, 2008). Therefore, FFS systems create little or no incentive for expenditure control (Ellis & Miller, 2008) or for the provision of preventive care for people with complex care needs. When Pay-for-Performance (P4P) or Pay-for-Quality (P4Q) systems are introduced alongside budgets or capitation, they often use a FFS payment system – sometimes deliberately to encourage provision of a specific set of interventions. P4P and P4Q systems carry the risk that providers engage in gaming and neglect care that is not included in the bonus system or measured (Rosenthal & Dudley, 2007; WHO, 2014b; Roland & Dudley, 2015).

Capitation: Providers are given a fixed per-person prospective payment to deliver a defined set of services to each enrolled individual regardless of the actual volume provided, for a specified period. The payment can be adjusted according to enrollee characteristics to better predict the expected cost. Like budgets, they are administratively simple, contain costs, and guarantee providers a stable income. They allow greater flexibility in managing resources and may incentivize providers to enrol more people in their practice and proactively manage the health of that population. However, providers may respond by providing less care than needed (care skimping), especially when revenue from capitation is not sufficient or where there is a lack of alternative providers. In this case, capitation may lead to under-provision of services, lower service quality, increased referrals and the selection of low-risk patients (Busse & Mays, 2008; Ellis & Miller, 2008; Nolte & Knai, 2015).

The key insight on the effectiveness of different payment methods is that no single payment method is perfect (Tan & Melendez-Torres, 2018; Jia et al., 2021). Recognizing this, many countries have implemented combinations of these payment methods (“blended payment”), in which payment mechanisms are combined to mitigate against the shortcomings of any one mechanism (Hanson et al., 2022). Typically, this includes a budget payment to cover fixed costs and/or a simple or risk-adjusted capitation sys-

tem; some FFS payments for high-priority services or for health conditions that are at risk of being underserved in a capitation model; and, in some cases, P4P models that incentivize reaching coverage targets for priority services and improving quality of care. It is important that the payment system does not create incentives that conflict with other parts of the health system. Efforts to encourage better management of long-term conditions at primary care level have led to some recent innovations in payment systems (see Box 9.7). These generally include payment for coordinating multidisciplinary care and aligning payment across primary and secondary care levels to deter inappropriate referral.

Box 9.7 Payment schemes to increase care coordination

Pay-for-coordination (P4C) schemes pay providers extra for better coordinating care, such as for having a multidisciplinary team (Struckmann et al., 2017). Bundled payments involve paying one single fee to several providers to deliver one episode of care for a certain condition (for example, diabetes or hypertension), which should stimulate providers to better coordinate care by allowing them to retain any savings (Tsiachristas et al., 2013; Stokes et al., 2018).

However, these disease-based payments may not be sufficiently responsive to the needs of a growing number of patients with multimorbidity, who need a more patient-centred and holistic approach. To overcome this limitation, several countries have been experimenting with population-based payment enabling new models of care. These new models are more demanding on government and purchasers as they require good quality data as well as ample institutional and policy capacity to manage them. Examples include models that combine a global budget with a shared savings model (see Box 9.8). Where primary care is weak, this focus on integration may risk increasing the role of specialist care providers and drawing resources to them.

Box 9.8 Shared-savings model

In a shared-savings model, savings relative to a historic or benchmark cost are shared between payers and providers to incentivize a network of providers to improve the efficiency of service delivery, deliver better coordinated and integrated care, and focus on keeping populations healthy. A proliferation of such models was seen in the United States of America (USA) after the introduction of the Medicare Shared Savings Programme in 2012, but outside the USA there are only a few examples of such programmes, such as the Healthy Kinzigtal programme in Germany (Barnes et al., 2014; Struckmann et al., 2017).

How much to pay for services (the tariff level) is another key issue. It is important to ensure that the level of payment does not tempt (or force) providers to skimp on the quality of delivered care, and that public funding is sufficient to make PHC (for example, through family medicine or general practice) attractive vis-à-vis other specialties and to reduce incentives to ask for informal payments or deliver services privately and enable queue jumping. This is no easy task, as payment levels also require alignment with the (potentially constrained) resources available.

Purchasing as a means to generate data

Beyond setting incentives for providers to deliver care efficiently, a strategic approach to purchasing also offers an opportunity to universalize or unify patient data systems. This could include a population database for enrolment and utilization databases to capture service volumes. These are needed for all provider payment systems other than input-based budgets. Where they exist, they are a good resource to better understand what services are being used and by whom (and where important gaps exist), to inform quality improvement and care coordination, and to identify outliers (and in doing so to inform service developments). Yet data are often generated through different systems and can be fragmented and difficult to analyse and use to inform decision-making (see Chapter 13). In Kyrgyzstan, for example, there are extensive health and insurance data collection systems, but these systems are not integrated, collect limited data on quality of care, and do not have the capacity for quality care monitoring and action (World Bank, 2021). To overcome fragmentation of data, some countries such as the Philippines have established oversight committees that are responsible for data governance (JLN, 2019).

9.3 Country illustrations: health financing supporting the PHC approach

This section illustrates how countries' financing arrangements have been designed and implemented to address one or more of the policy issues outlined in the previous section. In some cases, what constitutes “good practice” is still emergent, and more systematic evaluation is needed.

9.3.1 United Republic of Tanzania: Direct Facility Funding allows for more decision-making autonomy

In the United Republic of Tanzania, Direct Facility Funding, an approach to establish facilities as autonomous management entities that can receive and manage funds independently, was introduced in 2018 after a successful pilot of the budget allocation model in the education sector (WHO, 2022a). Its aim in the health sector was to solve several health financing bottlenecks that primary care facilities were experiencing – disbursement delays, allocations that were not responsive to local health care needs, and exclusion of health facilities from decision-making on the reallocations of funds. Adding to the fragmentation was the fact that different funding channels each had different reporting requirements, increasing the administrative burden of already constrained

human resources, which together led to an unpredictable flow of resources to provide the services needed.

To make Direct Facility Funding work, the government restructured the financing of primary care facilities (Kapologwe et al., 2019; WHO, 2022a). First, to ensure that facilities were visible in the public finance system and could participate in the planning process, primary care facilities' bank accounts were opened with the National Reserve Bank and included in the Ministry of Finance Charter of Accounts. This allowed for direct budget allocations to facilities instead of allocating funds to local governments, and it provided accounting oversight to the Ministry of Finance. Second, to enable primary care facilities to plan their activities while also reporting effectively to the government and funding partners, the government rolled out two complementary systems ("Planrep" and "Facility Accounting and Reporting System") which created a single accounting system for reporting on all sources of funds, thereby reducing fragmentation. Third, to provide equitable funding across different local needs, a population-based resource allocation formula is used to facilitate output-based payments to primary care facilities.

Direct Facility Funding in the United Republic of Tanzania has so far been associated with greater motivation of health workers, increased availability of medicines, strengthened governance structures at primary care facilities and inclusion of local actors and communities aligning services with local needs (Mwakatumbula, 2021; Tukay et al., 2021; Kapologwe et al., 2022).

9.3.2 China: aligning financial incentives

China's health care system has grown to be hospital-centric in both resource allocation and service utilization, undermining the important contribution of PHC to the health of its citizens. While missing referral systems are part of the problem, a fragmented financing system is creating further constraints. In concept, primary care facilities are designed to deliver a comprehensive package of basic medical services (which include outpatient and inpatient care) and basic public health services (which include preventive services and management of chronic conditions). However, these are provided, funded and financially managed in isolation from each other. Funds for the public health service are allocated by the local health administration department, which purchases public health services from primary care facilities through a programme budget and links them to their performance. Funds for medical services at the primary care facilities are managed by Healthcare Security Administrations that pay primary care facilities mainly through FFS from the Urban-Rural Residents Medical Insurance (URRMI) funds. These different payment methods generate conflicting incentives for primary care facilities, on one hand to over-prescribe and on the other to provide preventive and chronic care management services. Additionally, they also face competition with hospitals regarding the provision of general outpatient care. Hospitals are paid through a combination of FFS and diagnosis-related groups, and lack financial incentives to support the further development of primary care services and preventive care. Consequently, public health services and medical services provided

by primary care facilities or hospitals all use different service guidelines, and different information management and evaluation systems with little financial incentive to cooperate, causing duplication as well as discontinued services, which can be especially problematic for people with chronic conditions.

To solve these problems and strengthen PHC, the government has been promoting both vertical and horizontal integration between these services. Vertically, the county-level hospitals and primary care facilities are encouraged, through global budgets, to form county-wide tight medical alliances (CTMA) in which township health centres and village clinics pair with county hospitals and share their financial information and administrative management systems, as well as staff and pharmaceutical supplies, to create shared responsibilities and risks. CTMAs share the savings (subject to a range of performance targets) and deficits in social health insurance expenditure which may incentivize hospitals to focus more on disease prevention and health management. Horizontally, a “Contract-based Family Doctor Service” (CFDS) has been introduced to integrate public health services and medical services at the level of primary care. By creating a team that includes GPs, primary public health staff, village doctors and other cadres, it aims to provide an integrated package of preventive, curative and management care services to align the incentives of primary care facilities. National policies have been put in place to encourage local governments to pilot a specific fund that pays for the service package of CFDS by drawing from a small percentage of the URRMI funds and the basic public health services funds. CFDSs are also increasingly included in CTMAs: including specialists from county hospitals participating in the family doctor team, accepting the referred patients contracted with local family doctor teams.

Evidence from global budget payments suggests that CTMAs will improve the quality of care at the primary care level as well as primary-level hospitalizations. However, owing to the novelty of these reforms following the Basic Medical and Health Care and the Promotion of Health law that came into force in 2020, the evidence is still limited and it is too early to reach conclusions (National People’s Congress (NPC) of the People’s Republic of China, 2019; Ran et al., 2020; Yuan et al., 2020).

9.3.3 Ukraine: pooling and provider payment reforms

In 2015, the government of Ukraine initiated a comprehensive health financing reform to improve population health outcomes and provide better financial protection, focusing on five key elements: (i) pooling general government revenues at the national level to overcome inefficiencies and inequities created by previous decentralized financing arrangements; (ii) establishing the National Health Service of Ukraine (NHSU) as a single-payer public entity to contract public and private providers to deliver the Programme of Medical Guarantees (PMG); (iii) developing and implementing the PMG to introduce an explicit benefits package under the NHSU; (iv) introducing new financial mechanisms and provider payment methods to ensure more efficient and equitable use of resources; and (v) establishing non-contributory entitlement to services (Government of Ukraine, 2016).

The transition to the new financing system started with Primary care facilities (2018) and prescribed outpatient medicines (2019), followed by other types of care (2020). PHC services are explicitly defined under the PMG and people are entitled to PHC services free of charge after choosing a physician and signing the declaration. Primary care providers receive most of their funding through an age-adjusted capitation payment. The PHC budget was prioritized to make new financing mechanisms attractive for providers and ensure an adequate level of funding to provide PHC services without charging (in)formally extra from patients, and one of the positive outcomes of the financing reform is the reduction of the prevalence of informal payments from 62% in 2018 to 21% in 2021 (USAID, 2021).

Prior to the establishment of the NHSU, the government allocated funds for health to local administrative units using an intergovernmental fiscal transfer mechanism. In 2018, there were 1288 administrative units, each of which constituted an administratively decentralized and territorially overlapping budget-funded pool. This resulted in duplication of services and inefficient use of resources. In July 2018, the Ministry of Finance transferred part of these fiscal transfers for PHC to the NHSU, which has contracted public and private providers on a capitation basis (WHO Regional Office for Europe & World Bank, 2019).

The financing arrangements adopted (general revenue funding, non-contributory entitlement, national pooling and provider payment free of line-item constraints) proved quite resilient after and during the Russian invasion (WHO, 2022c). Despite large internal population migration and movement of health workers, providers were still paid their salaries.

9.3.4 Estonia: provider payment reforms and continuous prioritization of PHC

In the 1990s, Estonia began to reorganize its health system and gradually implement a family medicine centred PHC-model, placing greater emphasis on quality of care, the scope of services towards PHC, and deliverance by multidisciplinary teams. The initial PHC-oriented payment system implemented in 1998 incentivized family doctors to take more responsibility for diagnostic services and treatment, and to provide continuity of care, and compensated for the financial risks of caring for older people or working in remote areas. It had five components: an age-weighted capitation, a FFS fund, a basic monthly allowance, a distance fee, and a bonus for completing family medicine training. Over time, the payment system transformed into a more blended payment model.

In 2006, Estonia introduced a pay-for-performance payment to incentivize family doctors to broaden their scope of services, such as in disease prevention and management of patients with chronic diseases. In 2016, an additional bonus payment was introduced for accredited primary care providers and in 2017, special contract terms and payment incentives were developed for multidisciplinary Primary Care Centres that have at least three family doctors working together in one location, and who offer extended opening hours and provide midwifery, physiotherapy and home nurse services in addition to family doctor and nurse services. Estonia has also utilized European Union (EU) Struc-

tural Funds to lower the financial risks for health care providers in the further development of PHC services. Moving towards a more sophisticated payment system, the capitation payment constitutes less than half of the overall PHC budget.

The Estonian PHC payment reforms show that financial incentives can help drive additional organizational change, underlining the close link between PHC financing arrangements and service delivery (Kasekamp, Habicht & Kalda, 2022).

9.3.5 Afghanistan: financing PHC in a fragile state

Afghanistan has continually been affected by violent conflict since 1978 with various degrees of intensity. In August 2021, when Taliban forces took power and declared the Islamic Emirate of Afghanistan, a new phase of uncertainty started. The change of regime posed an immediate threat to the delivery of PHC because direct donor support was suspended.

In Afghanistan, PHC is based on two key interventions: the Basic Package of Health Services (BPHS) and the complementary Essential Package of Hospital Services (EPHS) that were implemented in 2003 and 2005. The Ministry of Public Health took on stewardship, purchasing and monitoring roles, and contracted with nongovernmental organizations (NGOs) to deliver the BPHS and EPHS. Financial and technical support for the contracts with the NGOs to provide health services was provided by three main donors. Gradually other donors joined to channel the funds needed for the BPHS and EPHS through the Afghanistan Reconstruction Trust Fund (ARTF) that was created in 2013, also known as the Sehatmandi project (Ministry of Public Health Afghanistan, 2016).

The ARTF, which was the most stable and predictable fund in the health sector, integrated funds from various sources and reduced fragmentations. Moreover, it helped the Ministry of Public Health to establish a Contract and Grant Management Unit, build its capacities for leadership, governance and oversight functions, and coordinate health development partners and the health policy dialogue. However, the ARTF was also highly dependent on donor funding and out-of-pocket payments, a scenario very similar to countries in comparable contexts and/or affected by conflict. The domestic funds have remained at 3% of the current health expenditures while external donor funding was at 20%. The remaining spending came from private funds, mostly out-of-pocket payments which reduced overall financial protection for health (Ministry of Public Health Afghanistan, 2021).

When donor support was suspended, payment of contracted NGOs could no longer be ensured. However, many of the service delivery partners continued to deliver health services without payment. Eventually, the Humanitarian UN Central Emergency Response Funds stepped in and were later joined by several development partners to make funds available again for the ARTF (WHO Regional Office for the Eastern Mediterranean, 2022). Despite these efforts, it remains a challenge to revise the aid architecture and find appropriate channels through which to engage the Ministry of Public Health, given that the new regime has not been internationally recognized.

9.4 Conclusion

This chapter has aimed to provide policy-makers and health system managers with some key concepts and country examples around financing for PHC. We have argued that financing has a central role in mobilizing sufficient resources for PHC. For LMICs where out-of-pocket payments are a large share of total PHC spending, a key initial step is to increase public spending on PHC. This can be achieved either by increasing the overall health budget, or by reallocating from the existing health budget to PHC. We have also demonstrated the close relationship between the model of care and the financing arrangements that underpin it, and that well-designed financing can help support a reorientation of health systems towards PHC, centred on primary care, but also leveraging community linkages and multisectoral action.

Effective financing means careful work across all the health financing functions. This includes: resources that are allocated through budget processes that can secure enough resources, are equitably distributed, released at the right time, and reach frontline providers; clear coverage policies – and this means setting entitlements that enable all population groups to access comprehensive high-quality PHC without financial hardship (see Chapter 15); and purchasing arrangements that are aligned strategically with health system objectives. In many countries, PHC financing is fragmented and leads to inefficiencies and coverage gaps. Provider autonomy and responsibility, as well as transparency of health financing decisions, are also required to ensure that resources reach where they are needed and can be used efficiently. In most instances it will be appropriate to introduce blended provider payment mechanisms to address the shortcomings of any individual payment mechanism. The specific blend will be context-specific and needs to be responsive to changes in health system needs and provider responses over time.

Strengthening financing arrangements for PHC rests on a broader set of system capacities and requirements, working across health system infrastructure, IT systems, workforce and governance arrangements. Changes to the financing system may depend on up-front investment in these capacities (Bariş et al., 2022). And finally, it is important for decision-makers to work beyond simply technical solutions to recognize the ways that the distribution of power in the health system – the political economy factors – influence what is possible at any point in time. Understanding the political landscape and the stakeholders therein is essential for ensuring effective PHC reform and implementation (Kutzin et al., 2022).

Further evidence is needed to address some of the gaps identified. A key area is evidence on how best to finance the multisectoral and community elements of the PHC approach. Compared with financing primary care, these broader elements are neglected in the financing literature. Making them visible in the public finance system is an important part of prioritizing their funding. Related to this is the need to explore budgeting mechanisms to enable (and indeed, encourage) cross-sectoral interventions. It may be possible to extend upwards some of the lessons of programme budgeting. A co-benefits or co-financing approach (see, for example, Remme, Martinez-Alvarez & Vassall, 2017) might also offer promise as a means of financing interventions and programmes that have impacts in multiple sectors.

9.5 Annex

Table 9.1 Primary health care expenditure averages by country income group (2016 until 2020) (n = number of countries)

Health spending per capita (in current US\$)						
Income group	(Total) Current health spending	Domestic general government expenditure on health	Total spending on PHC	Domestic general government spending on PHC	Out-of-pocket spending on PHC	External spending on PHC
<i>Low</i>	38 (n=19)	9 (n=19)	21 (n=19)	3 (n=19)	10 (n=17)	6 (n=19)
<i>Lower middle</i>	103 (n=35)	46 (n=35)	48 (n=35)	15 (n=35)	23 (n=32)	8 (n=33)
<i>Upper middle</i>	472 (n=29)	273 (n=29)	188 (n=29)	87 (n=23)	76 (n=22)	5 (n=20)
<i>High</i>	3471 (n=35)	2564 (n=35)	1362 (n=35)	939 (n=32)	359 (n=32)	2 (n=16)
<i>All countries</i>	1182 (n=118)	843 (n=118)	468 (n=118)	300 (n=109)	136 (n=103)	6 (n=88)

Source: Authors' calculation based on WHO, 2023 and OECD, 2023

Notes:

a. Data are taken from the latest available year, mostly 2019 and 2020. Data for Bahrain, Jordan, Qatar, St Kitts and Nevis, Samoa, Trinidad and Tobago, Tunisia and Viet Nam are from 2018 data. Data for Georgia and Tonga are from 2016.

b. Averages are unweighted means across countries. To calculate the average of ratios, we calculated the ratio for each country and took the average for each income group.

c. The sum of government, external and out-of-pocket spending will not be equal to the total spending owing to the omission of other types of private spending, such as voluntary private insurance. The gap is bigger in higher income countries because private insurance is more common in higher income countries.

d. While data on out-of-pocket spending on PHC are available in the Organisation for Economic Co-operation and Development (OECD) database, WHO only reports domestic private spending on PHC. To estimate the out-of-pocket spending for PHC in LMICs, we took the ratio of total out-of-pocket spending on health to total domestic private spending on health and multiplied it by private spending for PHC for each country.

REFERENCES

- Barasa E et al. (2021). How do healthcare providers respond to multiple funding flows? A conceptual framework and options to align them. *Health Policy Plan*, 36(6):861–8. Available at: <https://academic.oup.com/heapol/article/36/6/861/6264892> (accessed 18 January 2023).
- Bariş E et al. (2022). *Walking the talk: reimagining primary health care after COVID-19*. Washington DC: World Bank Publications. Available at: <https://openknowledge.worldbank.org/handle/10986/35842> (accessed 10 August 2023).
- Barnes AJ et al. (2014). Accountable care organizations in the USA: Types, developments and challenges. *Health Policy*, 118(1):1–7. Available at: <https://linking-hub.elsevier.com/retrieve/pii/S0168851014002000> (accessed 17 January 2023).
- Barroy H et al. (2022a). How to make budgets work for health? A practical guide to designing, managing and monitoring programme budgets in the health sector. Available at: <https://apps.who.int/iris/bitstream/handle/10665/356893/9789240049666-eng.pdf?sequence=1> (accessed 10 August 2023).
- Barroy H et al. (2022b). Public Financial Management as an Enabler for Health Financing Reform: Evidence from Free Health Care Policies Implemented in Burkina Faso, Burundi, and Niger. *Health Syst Reform*, 8(1):e2064731. Available at: <https://www.tandfonline.com/doi/full/10.1080/23288604.2022.2064731> (accessed 17 May 2023).
- Bird RM (2015). Tobacco and alcohol excise taxes for improving public health and revenue outcomes: marrying sin and virtue? [Policy Research Working Paper Series 7500]. Washington (DC): World Bank. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2695230 (accessed 24 September 2023).
- Brook RH et al. (1984). *The effect of coinsurance on the health of adults: Results from the RAND health insurance experiment*. Santa Monica, CA: RAND Corporation.
- Busse R, Mays N (2008). Paying for chronic disease care. In: Nolte E, McKee M (eds), *Caring for People with Chronic Conditions*. European Observatory on Health Systems and Policies Series. Maidenhead: Open University Press/McGraw Hill, pp. 195–221. Available at: <https://eurohealthobservatory.who.int/docs/librariesprovider3/studies—external/caring-for-people-with-chronic-conditions.pdf> (accessed 10 August 2023).
- Cashin C, Sparkes S, Bloom D (2017). Earmarking for health: from theory to practice. [Health Financing Working Paper]. Geneva: World Health Organization, 5. Available at: <https://apps.who.int/iris/handle/10665/255004> (accessed 24 September 2023).
- Daviaud E et al. (2017). Costs of implementing integrated community case management (iCCM) in six African countries: implications for sustainability. *J Glob Health*, 7(1):010403. Available at: <http://jogh.org/documents/issue201701/jogh-07-010403.pdf> (accessed 13 April 2023).
- Ellis RP, Miller MM (2008). *Provider Payment Methods and Incentives*. International Encyclopedia of Public Health. H. Kris. Oxford: Academic Press.

- Eriksen A, Litvinova Y, Rechel B (2022). Health Systems in Action: Kazakhstan. European Observatory on Health Systems and Policies/WHO Europe. Available at: <https://eurohealthobservatory.who.int/publications/i/health-systems-in-action-kazakhstan-2022> (accessed 10 August 2023).
- Gopinathan U et al. (2023). Open and Inclusive: Fair processes for financing universal health coverage. Norwegian Institute of Public Health/The World Bank/World Health Organization/Bergen Centre for Ethics and Priority Setting. Available at: <https://www.med.uio.no/helsam/english/research/centres/global-health/news-and-events/events/2023/executive-summary.pdf> (accessed 10 August 2023).
- Gosden T et al. (2000). Capitation, salary, fee-for-service and mixed systems of payment: effects on the behaviour of primary care physicians. Cochrane Effective Practice and Organization of Care Group. Cochrane Database Syst Rev. Available at: <https://doi.wiley.com/10.1002/14651858.CD002215> (accessed 17 January 2023).
- Government of Ukraine (2016). On approval of the Concept of reform of financing of the healthcare system. No. 1013-r. Available at: <https://www.kmu.gov.ua/npas/249626689> (accessed 10 August 2023).
- Greer SL, Klasa K, Van Ginneken E (2020). Power and Purchasing: Why Strategic Purchasing Fails. *Milbank Q*, 98(3):975–1020. Available at: <https://onlinelibrary.wiley.com/doi/10.1111/1468-0009.12471> (accessed 25 January 2023).
- Hanson K et al. (2022). The Lancet Global Health Commission on financing primary health care: putting people at the centre. *Lancet Glob Health*, 10(5):e715–72. Available at: <https://linkinghub.elsevier.com/retrieve/pii/S2214109X22000055> (accessed 17 January 2023).
- Jakab M, Evetovits T, McDaid D (2018). Health financing strategies to support scale-up of core noncommunicable disease interventions and services. In Jakab M, Farrington J, Borgermans L & Mantingh F (eds). *Health Systems Respond to Noncommunicable Diseases: Time for Ambition*. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/342223> (accessed 10 August 2023).
- Jeurissen P, Maarse H (2021). The market reform in Dutch health care: results, lessons and prospects. Copenhagen: WHO Regional Office for Europe. Available at: <https://eurohealthobservatory.who.int/publications/i/the-market-reform-in-dutch-health-care-results-lessons-and-prospects> (accessed 10 August 2023).
- Jia L et al. (2021). Payment methods for healthcare providers working in outpatient healthcare settings. *Cochrane Database Syst Rev*, 1.
- JLN (2019). Financing and payment models for primary health care: six lessons from JLN country implementation experience. Joint Learning Network for Universal Health Coverage. Available at: <https://www.jointlearningnetwork.org/wp-content/uploads/2019/11/phc-financing-payment-models-six-lessons.pdf> (accessed 14 June 2023).
- Kapologwe NA et al. (2019). Understanding the implementation of Direct Health Facility Financing and its effect on health system performance in Tanzania: a non-controlled before and after mixed method study protocol. *Health Res Policy Syst*, 17(1):1–13.

- Kapologwe N et al. (2022). Effects of Direct Health Facility Financing on Health System Performance and How It Is Implemented in the Public Primary Health Facilities in Tanzania: A non-controlled before and after mixed method study. Pre-print: Under Review. Available at: <https://www.researchsquare.com/article/rs-1700039/v1> (accessed 12 April 2023).
- Kasekamp K, Habicht T, Kalda R (2022). The Milestones of Reforming Primary Health Care in Estonia. London: London School of Hygiene & Tropical Medicine (Lancet Global Health Commission on Financing Primary Health Care).
- Kiil A, Houlberg K (2014). How does copayment for health care services affect demand, health and redistribution? A systematic review of the empirical evidence from 1990 to 2011. *Eur J Health Econ*, 15(8):813–28. Available at: <http://link.springer.com/10.1007/s10198-013-0526-8> (accessed 30 January 2023).
- Klasa K, Greer SL, van Ginneken E (2018). Strategic Purchasing in Practice: Comparing Ten European Countries. *Health Policy*, 122(5):457–72. Available at: <https://linking-hub.elsevier.com/retrieve/pii/S0168851018300290> (accessed 17 January 2023).
- Kutzin J (2010). *Implementing Health Financing Reform: Lessons from Countries in Transition*. Geneva: World Health Organization.
- Kutzin J, Cashin C, Jakab M, eds (2010). *Implementing health financing reform: lessons from countries in transition*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies. Available at: <http://www.euro.who.int/en/publications/abstracts/implementing-health-financing-reform-lessons-from-countries-in-transition-2010> (accessed 24 September 2023).
- Kutzin J et al. (2022). An assertive, practical, and substantive agenda to catalyse meaningful change. *Lancet Glob Health*, 10(5):e606–8. Available at: <https://linking-hub.elsevier.com/retrieve/pii/S2214109X22001772> (accessed 30 January 2023).
- Laokri S, Soelaeman R, Hotchkiss DR (2018). Assessing out-of-pocket expenditures for primary health care: how responsive is the Democratic Republic of Congo health system to providing financial risk protection? *BMC Health Serv Res*, 18(1):451. Available at: <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-018-3211-x> (accessed 13 April 2023).
- McPake B et al. (2011). Removing user fees: learning from international experience to support the process. *Health Policy Plan*, 26(2):ii104–17. Available at: <https://academic.oup.com/heapol/article-lookup/doi/10.1093/heapol/czr064> (accessed 24 April 2023).
- Masis L et al. (2021). Community health workers at the dawn of a new era: 4. Programme financing. *Health Res Policy Syst*, 19(S3):107. Available at: <https://health-policy-systems.biomedcentral.com/articles/10.1186/s12961-021-00751-9> (accessed 13 April 2023).
- Mathauer I, Saksena P, Kutzin J (2019). Pooling arrangements in health financing systems: a proposed classification. *Int J Equity Health*, 18(1):198. Available at: <https://equityhealthj.biomedcentral.com/articles/10.1186/s12939-019-1088-x> (accessed 17 May 2023).

- Ministry of Finance, Planning and Economic Development (2021). Citizen's Guide to the Budget FY 2021/22. Ministry of Finance, Planning and Economic Development Uganda. Available at: https://budget.finance.go.ug/sites/default/files/National%20Budget%20docs/Citizen%27s%20Guide%20to%20the%20Budget%20FY%202021-22_0.pdf (accessed 10 August 2023).
- Ministry of Public Health Afghanistan (2016). Sehatmandi Project: System Enhancing for Health Actions in Transition (SEHAT) Program [web site]. Available at: [https://www.moph.gov.af/index.php/en/sehatmandi-project#:~:text=System%20enhancement%20for%20health%20action%20in%20transition%20\(SEHAT\)%20will%20be,if%20additional%20resources%20become%20available](https://www.moph.gov.af/index.php/en/sehatmandi-project#:~:text=System%20enhancement%20for%20health%20action%20in%20transition%20(SEHAT)%20will%20be,if%20additional%20resources%20become%20available) (accessed 10 August 2023).
- Ministry of Public Health Afghanistan (2021). Afghanistan National Health Accounts (NHA) 2019. Islamic Emirate of Afghanistan. Available at: <https://moph.gov.af/sites/default/files/2021-12/Afghanistan%20National%20Health%20Accounts%20with%20Disease%20Account%20%2C2019.pdf> (accessed 10 August 2023).
- Moldoisaeva S et al. (2022). Kyrgyzstan: Health System Review. *Health Systems in Transition*. 24(3):1–80.
- Mwakatumbula H (2021). The implementation of Direct Health Facility Financing (DHFF): prospects and challenges. *Research on Poverty Alleviation (REPOA)*. Available at: <https://www.repoa.or.tz/?publication=the-implementation-of-direct-health-facility-financing-dhff-prospects-and-challenges> (accessed 10 August 2023).
- National People's Congress (NPC) of the People's Republic of China (2019). Law of the People's Republic of China on Basic Medical and Health Care and the Promotion of Health. CHN-2019-L-111298. Available at: <http://www.npc.gov.cn/englishnpc/c23934/202012/0e545b3ed6544a4fa93a1bb2feb13b3a.shtml> (accessed 10 August 2023).
- Nkonki L, Tugendhaft A, Hofman K (2017). A systematic review of economic evaluations of CHW interventions aimed at improving child health outcomes. *Hum Resour Health*, 15(1):19. Available at: <http://human-resources-health.biomedcentral.com/articles/10.1186/s12960-017-0192-5> (accessed 13 April 2023).
- Nolte E, Knai C (2015). *Assessing chronic disease management in European health systems: country reports*. Copenhagen: WHO Regional Office for Europe. European Observatory on Health Systems and Policies (Observatory Studies Series). Available at: <https://apps.who.int/iris/handle/10665/170390> (accessed 10 August 2023).
- OECD (2020). *Realising the Potential of Primary Health Care*. Paris: OECD (OECD Health Policy Studies). Available at: https://www.oecd-ilibrary.org/social-issues-migration-health/realising-the-potential-of-primary-health-care_a92adee4-en (accessed 18 January 2023).
- OECD (2023). OECD Stat. Health expenditure and financing. Available at: <https://stats.oecd.org/index.aspx?DataSetCode=SHA> (accessed 13 January 2023).

- Palm W et al. (2021). Gaps in coverage and access in the European Union. *Health Policy*, 125(3):341–50. Available at: <https://linkinghub.elsevier.com/retrieve/pii/S0168851020303225> (accessed 25 January 2023).
- Ran Y et al. (2020). Comparison of inpatient distribution amongst different medical alliances in a county: a longitudinal study on a healthcare reform in rural China. *Int J Equity Health*, 19(1):142. Available at: <https://equityhealthj.biomedcentral.com/articles/10.1186/s12939-020-01260-x> (accessed 13 January 2023).
- Regional Refugee & Resilience Plan (3RP) (2021). Turkey country chapter 2021–2022. Available at: https://www.unhcr.org/tr/wp-content/uploads/sites/14/2021/03/3RP-Turkey-Country-Chapter-2021-2022_EN-opt.pdf (accessed 10 August 2023).
- Remme M, Martinez-Alvarez M, Vassall A (2017). Cost-Effectiveness Thresholds in Global Health: Taking a Multisectoral Perspective. *Value Health*, 20(4):699–704. Available at: <https://linkinghub.elsevier.com/retrieve/pii/S1098301516341171> (accessed 19 May 2023).
- Republic of Ghana (2022). Budget Statement and Economic Policy of the Government of Ghana for the 2023 Financial Year. Ministry of Finance, Ghana. Available at: https://mofep.gov.gh/sites/default/files/budget-statements/2023-Budget-Statement_v2.pdf (accessed 10 August 2023).
- Republic of Uganda (2020). Third National Development Plan (NDPIII) 2020/21 – 2024/25. The Republic of Uganda, National Planning Authority. Available at: http://www.npa.go.ug/wp-content/uploads/2020/08/NDPIII-Finale_Compressed.pdf (accessed 10 August 2023).
- Robinson JC (2001). Theory and Practice in the Design of Physician Payment Incentives. *Milbank Q*, 79(2):149–77. Available at: <https://onlinelibrary.wiley.com/doi/10.1111/1468-0009.00202> (accessed 17 January 2023).
- Roland M, Dudley RA (2015). How financial and reputational incentives can be used to improve medical care. *Health Serv Res*, 50:2090–2115.
- Rosenthal MB, Dudley RA (2007). Pay-for-Performance: Will the Latest Payment Trend Improve Care? *JAMA*, 297(7):740. Available at: <http://jama.jamanetwork.com/article.aspx?doi=10.1001/jama.297.7.740> (accessed 25 January 2023).
- Sparkes SP, Kutzin J, Earle AJ (2019). Financing Common Goods for Health: A Country Agenda. *Health Syst Reform*, 5(4):322–33. Available at: <https://www.tandfonline.com/doi/full/10.1080/23288604.2019.1659126> (accessed 12 April 2023).
- Stenberg K et al. (2019). Guide posts for investment in primary health care and projected resource needs in 67 low-income and middle-income countries: a modelling study. *Lancet Glob Health*, 7(11):e1500–10. Available at: <https://linkinghub.elsevier.com/retrieve/pii/S2214109X19304164> (accessed 18 January 2023).
- Stokes J et al. (2018). Towards incentivising integration: A typology of payments for integrated care. *Health Policy*, 122(9):963–9.

- Struckmann V et al. (2017). How to strengthen financing mechanism to promote care for people with multimorbidity in Europe? 10.14279/depositonce-8828.
- Tan SY, Melendez-Torres GJ (2018). Do prospective payment systems (PPSs) lead to desirable providers' incentives and patients' outcomes? A systematic review of evidence from developing countries. *Health Policy Plan*, 33(1):137–53.
- Thomson S, Cylus J, Evetovits T (2019). Can people afford to pay for health care? New evidence on financial protection in Europe. WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/311654> (accessed 10 August 2023).
- Thomson S, Evetovits T, Cylus J (2018). Financial protection in high-income countries: a comparison of the Czech Republic, Estonia and Latvia. Geneva: World Health Organization. Available at: <https://www.who.int/europe/publications/i/item/9789289053259> (accessed 10 August 2023).
- Tsiachristas A et al. (2013). Exploring payment schemes used to promote integrated chronic care in Europe. *Health Policy*, 113(3):296–304. Available at: <https://linking-hub.elsevier.com/retrieve/pii/S0168851013001966> (accessed 17 January 2023).
- Tukay SM et al. (2021). Evaluation of the Direct Health Facility Financing Program in Improving Maternal Health Services in Pangani District, Tanzania. *Int J Women's Health*, 13:1227–42. Available at: <https://www.dovepress.com/evaluation-of-the-direct-health-facility-financing-program-in-improvin-peer-reviewed-fulltext-article-IJWH> (accessed 12 April 2023).
- UNDP (2023). Kyrgyz Republic Development Finance Assessment (DFA). United Nations Development Programme. Available at: https://www.undp.org/sites/g/files/zskgke326/files/2023-07/kyrgyz_republic_dfa_fin_july_2023-1.pdf (accessed 10 August 2023).
- USAID (2021). USAID Health Reform Support: FY 2021 Q2 Quarterly Performance Report. United States Agency for International Development. Available at: https://pdf.usaid.gov/pdf_docs/PA00XDTV.pdf (accessed 10 August 2023).
- Vaughan K et al. (2015). Costs and cost-effectiveness of community health workers: evidence from a literature review. *Hum Resour Health*, 13(1):71. Available at: <http://human-resources-health.biomedcentral.com/articles/10.1186/s12960-015-0070-y> (accessed 13 April 2023).
- WHO (2014a). Making fair choices on the path to universal health coverage: Final report of the WHO Consultative Group on Equity and Universal Health Coverage. Geneva: World Health Organization. Available at: https://apps.who.int/iris/bitstream/handle/10665/112671/9789241507158_eng.pdf?sequence=1&isAllowed=y (accessed 10 August 2023).
- WHO (2014b). Paying for Performance in Health Care Implications for Health System Performance and Accountability: Implications for Health System Performance and Accountability. Paris: OECD Publishing. Available at: <https://eurohealthobservatory.who.int/publications/m/paying-for-performance-in-health-care-implications-for-health-system-performance-and-accountability> (accessed on 17 April 2024).

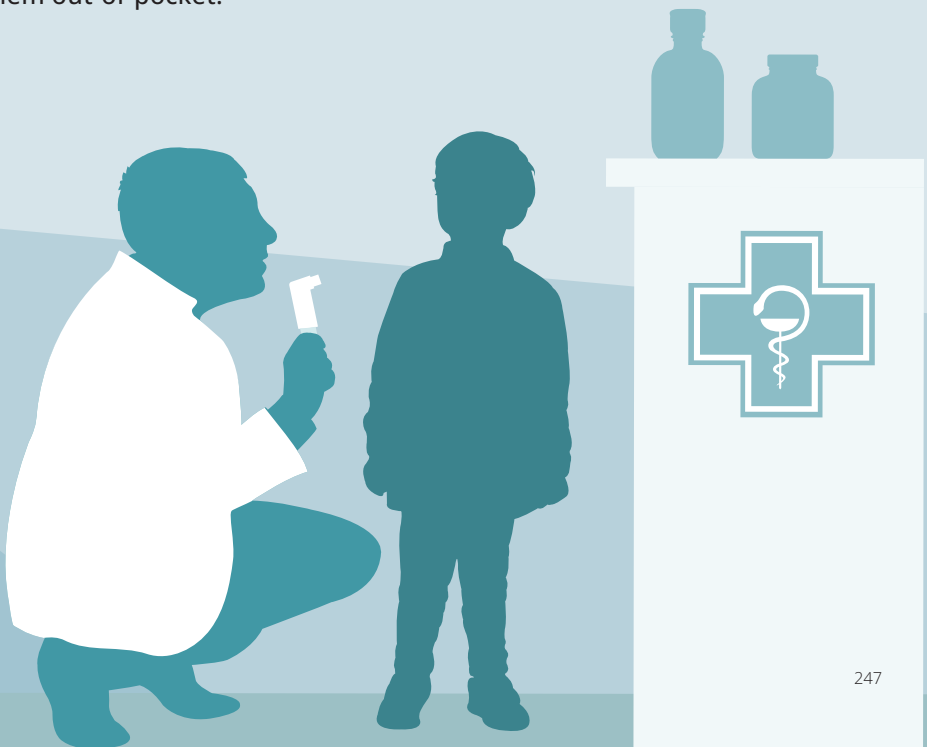
- WHO (2021a). Global expenditure on health: public spending on the rise? Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/350560> (accessed 10 August 2023).
- WHO (2021b). Voice, agency, empowerment – handbook on social participation for universal health coverage. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/342704> (accessed 10 September 2021).
- WHO (2021c). Health financing in Kyrgyzstan: obstacles and opportunities in the response to COVID-19. WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/bitstream/handle/10665/343014/WHO-EURO-2021-2604-42360-58654-eng.pdf?sequence=1&isAllowed=y> (accessed 10 August 2023).
- WHO (2022a). Direct facility financing: concept and role for UHC. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240043374> (accessed 10 August 2023).
- WHO (2022b). Benefit design: the perspective from health financing policy. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/352481> (accessed 10 August 2023).
- WHO (2022c). Health financing in Ukraine: resilience in the context of war. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/rest/bitstreams/1459155/retrieve> (accessed 19 June 2023).
- WHO (2023). Global Health Expenditure Database. Geneva: World Health Organization. Available at: <https://apps.who.int/nha/database> (accessed 13 January 2023).
- WHO Regional Office for the Eastern Mediterranean (2022). Address by Dr Ahmed Al-Mandhari, Regional Director WHO Eastern Mediterranean Region, to the high-level meeting on interim priorities for the health sector in Afghanistan. Doha, Qatar. WHO Regional Office for the Eastern Mediterranean. Available at: <https://apps.who.int/iris/handle/10665/352804> (accessed 10 August 2023).
- WHO Regional Office for Europe, World Bank (2019). Ukraine: review of health financing reforms 2016–2019: WHO–World Bank joint report, 81. Available at: <https://apps.who.int/iris/handle/10665/346328> (accessed 10 August 2023).
- World Bank (2021). Technical Assessment Kyrgyz Republic: Primary Health Care quality improvement program (P167598). Available at: <https://documents1.worldbank.org/curated/en/278311557237004060/pdf/Final-Technical-Assessment-Primary-Health-Care-Quality-Improvement-Program-P167598.pdf> (accessed 14 June 2023).
- Yuan S et al. (2020). Assessing perceived quality of primary care under hospital township health centre integration: A cross sectional study in China. *Int J Health Plann Manage*, 35(1):e196–209.
- Zhang A, Nikoloski Z, Mossialos E (2017). Does health insurance reduce out-of-pocket expenditure? Heterogeneity among China's middle-aged and elderly. *Soc Sci Med*, 190:11–19. Available at: <https://linkinghub.elsevier.com/retrieve/pii/S0277953617304781> (accessed 30 January 2023).

MEDICINES

This fictional story visualizes the role of medicines and pharmaceutical services for PHC-oriented health systems

One week after recovering from a fever and a runny nose, 4-year-old **Ulu** continued to have a dry cough and mild shortness of breath. His cough was particularly noticeable at night even though he was otherwise well. Early in the morning, his mother, Alma, took him back to the community health centre where they were immediately seen by a nurse practitioner. She explained to Alma that Ulu had wheezing in his chest and seemed to have what might be asthma. The nurse practitioner gave Alma a prescription for two different inhalers and made a follow-up appointment to monitor Ulu's condition in a few weeks. She directed Alma to the new small pharmaceutical dispensary in the community health centre for her to pick up the medicines. Alma enquired about the cost of the medicines and was told that it was covered so Alma did not need to pay for them out-of-pocket.

Alma was a bit nervous to give her son a new medication. The professional at the pharmacy carefully explained what each of the inhalers did, its potential side-effects, when and how they should be taken, including how important it was for Ulu to rinse his mouth after usage. He provided Alma with a pamphlet with more information about reactive airway conditions and asthma. Alma felt better equipped to care for Ulu's cough but she noticed that the name on the inhaler was not the same as the one written on the prescription. The professional explained that they had a policy to automatically dispense generic products when available as they were proven to be of equal quality. He reassured her that the generic was of equal quality and safety as the inhaler prescribed.



10

Medicines and pharmaceutical services

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and Veronika J Wirtz

Key messages

Equitable access to safe, effective and affordable medicines and vaccines is key to primary health care (PHC). Yet the cost of medicines prescribed in primary care is a main driver of out-of-pocket expenditure in many countries, jeopardizing financial protection. Making appropriate, quality medicines and pharmaceutical services accessible depends on supply-chain management, prescribing and dispensing and, above all, on coverage policies.

- Ensuring affordable access to medicines in PHC requires the use of public financing (benefit packages) to pay for essential medicines and systematic use of generic and biosimilar medicines to keep costs down.
- Medicines are more easily available if they are dispensed closer to patients and if community pharmacies can be integrated into primary care services.
- Improved stock management and procurement practices support access and efficiency.
- Closer coordination between community pharmacies and prescribers facilitates access to medicines and encourages responsible consumption.
- The appropriateness and acceptability of services can be strengthened by clear treatment guidelines; routine prescribing of generics; and shifting prescribing from specialized settings to primary care, all of which also support effective PHC.
- Training staff and strengthening processes will improve the quality of pharmaceutical services and help them respond better to population need.
- Involving patients, care-givers and communities; education programmes that foster medicine and vaccine literacy; and efforts to encourage responsible self-care and self-management of medication, all increase the effectiveness of PHC and foster community empowerment with all its associated benefits.

10.1 Introduction

Medicines and vaccines are essential elements of public health and primary care functions, spanning health promotion, primary and secondary disease prevention,

diagnosis, treatment and palliation. Sustainable Development Goal 3 (SDG3) emphasizes the importance of equitable access to safe, effective, quality-assured and affordable essential medicines and vaccines for all (United Nations, 2022). However, millions of people worldwide lack access to essential medicines and vaccines, i.e., those that satisfy the priority health care needs of the population and are selected based on public health relevance, evidence on efficacy and safety, and comparative cost-effectiveness (WHO, 2021). Reduced access to such essential medicines and vaccines undermines the effectiveness and quality of health care (WHO, 2023).

The Declaration of Alma-Ata from 1978 relates to “the provision of essential drugs” as an important component of PHC (WHO, 1978). Over the years, the understanding about medicines and vaccines within PHC-oriented health systems has expanded, with medicines and vaccines not simply being regarded as commodities or infrastructure but being seen and accepted as *community-centred* pharmaceutical care that includes the delivery of medicines and vaccines as well as other pharmaceutical services such as counselling, vaccinations, medicine use review, point-of-care testing and disease-management programmes. This chapter examines the role of medicines and pharmaceutical services in PHC-oriented health systems and the challenges related to equitable access.

The inclusion of medicines and pharmaceutical services as an integral part of “essential public health function” (WHO & UNICEF, 2018) and primary care at the core of integrated health services was highlighted during the COVID-19 pandemic where access to COVID-19 vaccines, among other medicines, has been a critical determinant to effectively reduce hospitalization and death. The value of medicines and pharmaceutical services within primary care has also been demonstrated in disruptive and emergency situations, such as after natural disasters or in refugee camps (OECD, 2018).

Despite the central role of medicines and pharmaceutical services in PHC-oriented health systems, promoting equitable access to affordable and quality-assured medicines and pharmaceutical services has been challenging with regard to several access dimensions. Utilizing Levesque, Harris & Russell’s (2013) adapted framework of access dimensions, Box 10.1 outlines major challenges classified per access dimension.

Section 10.2 presents evidence related to each access dimension in turn and highlights policy solutions, while Section 10.3 provides country examples of policy interventions addressing these challenges within a PHC approach. Section 10.4 summarizes the lessons learned and outlines a path forward to ensure access to the medicines and pharmaceutical services necessary for effective implementation of PHC-oriented health systems.

Box 10.1 Challenges in ensuring equitable access to medicines and pharmaceutical services, utilizing access dimensions from Levesque, Harris & Russell's framework

Levesque, Harris & Russell (2013) proposed a framework that conceptualized five dimensions of access to health care: affordability, availability, acceptability, appropriateness and approachability (awareness). Major challenges of access to medicines and pharmaceutical services in primary care can be grouped in four of those dimensions:

Affordability (financial and timely capacity to use services):

- high out-of-pocket payments
- limited scope of medicines (and related services, if offered) funded by the public sector
- patient co-payments for medicines and services included in public funding

Availability (health services can be reached in a physical and timely manner):

- shortages and stock-outs
- long distances to community pharmacies and licensed medicine outlets
- medicines for chronic conditions only prescribed at hospitals and outpatient clinics

Acceptability (cultural and social factors determining the possibility for people to accept the aspects of the services and the judged appropriateness for the persons to seek care):

- limited patient knowledge about medicines and their management
- hesitancy of patients towards medicines and vaccines
- limited trust in the quality of medicines (for example, generic and biosimilar medicines)

Appropriateness (fit between the need for services and obtaining them):

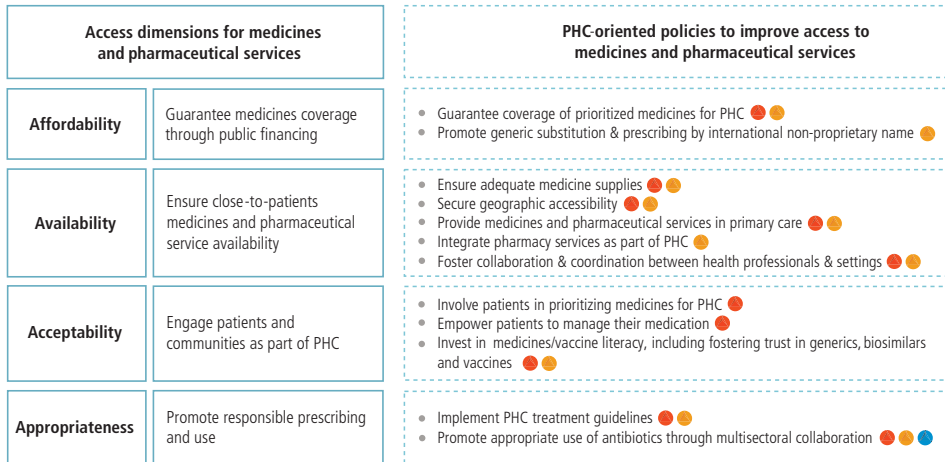
- prescribing of medicines which is not in line with evidence-based recommendations
- irresponsible use of medicines

The fifth access dimension defined by Levesque, Harris & Russell, awareness (or approachability, users can reach the services when they need them), has been subsumed under acceptability.

10.2 Evidence review: medicines and pharmaceutical services to strengthen the PHC approach

This section reviews evidence on interventions that address access challenges with regard to medicines and pharmaceutical services. Fig. 10.1 gives a concise overview of how the policy solutions are linked to the access dimensions of the adapted Levesque framework (Section 10.1) and are aligned with the three components of PHC (see Chapters 1 and 3).

Fig. 10.1 Practical PHC-oriented policies help improve equitable access to medicines and pharmaceutical services for every dimension of access



Colour coding indicating the links between the interventions and the three components of PHC

- Empowered people and communities (also includes defining patients' needs and community linkage and engagement)
- Primary care & essential public health functions at the core of integrated health services
- Multisectoral policies and actions

Source: Authors' compilation based on classification by Levesque, Harris & Russell, 2013

10.2.1 Affordability of medicines and pharmaceutical services: guarantee medicines coverage through public financing

Guarantee coverage of prioritized medicines for PHC

Coverage policies are key to strengthen the capacity of individuals to meet the expenses associated with accessing medicines and pharmaceutical services. They encompass three key aspects: the scope or range of medicines and pharmaceutical services covered; the population covered by any benefits package; and the extent of any out-of-pocket expenses needed to obtain necessary medicines. Currently, in many countries around the globe medicines are largely financed out-of-pocket, resulting in catastrophic health expenditure and household impoverishment (Chapters 9 and 15) (WHO & World Bank, 2021).

Although many medicines which are considered essential are included in reimbursement lists, they can be subject to substantial patient co-payments (Vogler et al., 2018). Examples from Europe show that even high-income countries (HICs) with well-established publicly funded systems apply co-payments (particularly for medicines in primary care, while medicines in hospitals are usually provided for free). Different co-payment designs (for example, prescription fees, price-related percentage co-payments and

deductibles, and protection mechanisms) have different financial implications for patients, their families and the community (Thomson, Cylus & Evetovits, 2019). The design of co-payments requires careful consideration, including reductions and exemptions for vulnerable groups (see Chapters 9 and 15) (Vogler, Dedet & Pedersen, 2019).

Overall, progress towards universal health coverage (UHC) requires the prioritizing of medicines for PHC, alongside pharmaceutical services, to achieve financial protection through their inclusion in a publicly funded benefits package scheme. The Farmácia Popular programme for medicines to treat chronic disease in Brazil is one illustrative example (see Section 10.3.1).

Promote generic substitution and prescribing by international non-proprietary name

Using generic medicines instead of patent-protected medicines (so-called originator medicines) is a key policy initiative to contain medicines expenditure, allowing countries to increase medicines coverage from public funding and providing access to affordable and essential medicines (Kaplan et al., 2012; Vogler, Paris & Panteli, 2018; Vogler et al., 2018). These strategies can be implemented as mandatory policies, by forcing prescribers by law to write the generic name or international non-proprietary name (INN) or requiring prescribers and dispensers to inform patients of the existence of lower-priced, quality-assured alternatives (Kaplan et al., 2016). Where generic (or biosimilar) substitution or prescribing by INN is implemented on a voluntary basis, it may be accompanied by coverage policies such as an internal reference price system to encourage patients to request a lower-price alternative (Vogler et al., 2018).

10.2.2 Availability of medicines and pharmaceutical services: ensure medicines and pharmaceutical services are close to patients and communities

Ensure adequate medicine supplies

Problems in manufacturing, disruptions in the supply chain, concentration of active pharmaceutical ingredients production in very limited locations globally and unexpected surges in demand (De Weerd et al., 2015; WHO, 2016; Acosta et al., 2019; European Commission et al., 2021) have led to shortages of medicines in LMICs (Gray & Manasse Jr, 2012) and, increasingly over the last decade, in HICs (Acosta et al., 2019; Chapman, Dedet & Lopert, 2022).

Ensuring availability of essential medicines therefore requires the management of medicine shortages. Several measures to reduce and manage the risk of medicine shortages have been implemented in HICs. These include monitoring systems that require suppliers to communicate existing and upcoming shortages on dedicated registers (sometimes coupled with sanctions), simplified regulatory procedures (for example, for importing), stocking requirements (for example, reserve supplies for critical medicines), export bans for defined medicines, regular interaction and dialogue between authorities and suppliers, and financial sanctions for suppliers that do not supply as agreed or do not comply with reporting procedures (Bochenek et al., 2018;

Vogler & Fischer, 2020; WHO, 2020a). Registers and mandatory reporting requirements have also been introduced in several MICs, such as those in Latin America (Acosta et al., 2019). In Kenya, so-called revolving fund pharmacies serve as “back-up pharmacies” when government pharmacies are unable to supply essential medicines. These pharmacies receive seed funding to purchase an initial stock of medicines, which are then sold at a price sufficient to support staff salaries, to replace the initial stock and to earn net profit (Tran et al., 2017).

Security of supply has also been increasingly addressed through procurement contracts. It is now an additional award criterion in public procurement in some European countries where suppliers may be requested to hold minimum stock (for example, two months’ supply in Iceland) or provide a corresponding bank guarantee (Latvia). Further strategic procurement strategies include awarding tenders to multiple suppliers or ordering large volumes of medicines in (intra-country or cross-country) joint procurement (Vogler, Salcher-Konrad & Habimana, 2022).

Secure geographic accessibility

Another important component for ensuring close-to-patients medicines for strong PHC-oriented health systems is geographic accessibility to pharmaceutical services. The availability of community (or retail) pharmacies or other dispensaries that supply non-prescription and also prescription medicines in remote areas is a challenge in most countries.

Studies conducted in HICs and middle-income countries (MICs) have shown that reducing regulations regarding demographic and geographic requirements for establishing new pharmacies tends to increase their numbers in urban but not in rural areas (Vogler, Habimana & Arts, 2014; Barbarisi et al., 2019; Moodley & Suleman, 2020). While regulations can help mitigate geographic disparities in licensed medicine dispensaries, they may not be sufficient to ensure adequate access in remote rural areas.

To address this challenge, some countries, including Denmark, England, Finland, Norway and Spain, offer financial incentives to pharmacies located in remote areas (Vogler, Arts & Sandberger, 2012; WHO, 2019). Similarly, in Kyrgyzstan, for example, a project supported by the Asian Development Bank provided government-funded rent subsidies for rural pharmacies, along with an initial supply of essential medicines, equipment and staff training, resulting in a significant increase in pharmacies in remote villages (WHO Regional Office for Europe, 2016).

In other countries, remote pharmacy outlets, sometimes supervised by a community pharmacy, offer a rather limited range of medicines, including some prescription medicines, with restricted opening hours. Examples include Sweden’s “Apotekom-buds”, Spain’s “farmacia botiquine” (Vogler, Arts & Sandberger, 2012) and Canada’s self-service kiosks that dispense medicines under the remote supervision of a pharmacist, all of which are expected to improve adherence in chronic disease management (Research to Reality, 2020). The country illustration from Brazil also highlights the impact of a coverage policy on improving geographical accessibility (see below).

Telepharmacy services have been utilized for over two decades in certain states of the United States of America (USA) and in Australia to reach patients in remote areas (Kimber, 2008). The virtual delivery of counselling services can mitigate the shortage of trained personnel, which is a significant barrier to providing high-quality community-based pharmaceutical services in resource-constrained settings. Separating counselling services from dispensing can allow remote centralized high-quality counselling services (Wirtz, Kaplan & Cellini, 2022).

Private companies have also been involved in delivering medicines to remote areas (Resnick, 2015). In some countries of different income groups (for example, the USA and Scotland), companies providing drone logistics are collaborating with governments to improve the timely, reliable and often affordable supply and availability of medicines in remote areas (Lin et al., 2018; Snouffer, 2022).

Integrate pharmaceutical services as part of PHC

Managing noncommunicable diseases (NCDs) through medicines and pharmaceutical services in primary care prevents complications, reduces hospitalization, is cost-effective and saves lives (Borja-Aburto et al., 2015; Prabhakaran et al., 2017). However, many countries struggle to shift hospital-based NCD treatment and provision of medicines for NCD towards community-based care (NCD Alliance, 2021); to ensure the availability of necessary medicines for effective primary care in the community, adequate capacity of professionals that can provide pharmaceutical services is required. This includes an appropriate number of skilled health workers with the necessary competencies to prescribe, compound and dispense the right medicines, and deliver the required services in the community. The global shift from hospital-based to primary care services has posed challenges in this regard. The readiness to deliver effective NCD treatment and management in primary care, including the availability of required medicines, has generally been insufficient (Albelbeisi et al., 2021; NCD Alliance, 2021). Strategies to increase capacity to provide primary pharmaceutical services include task-shifting and task-sharing, involving various categories of health worker in pharmaceutical care (see Chapter 8). The outcomes of task-shifting and task-sharing can be optimized by standard treatment guidelines, training, continuous supervision and mentoring (Joshi et al., 2014). Priority-setting tools, such as the package of essential NCD interventions (WHO PEN) for primary care (WHO, 2020c) and the Model List of Essential Medicines (WHO, 2020b), which provide a list of high-value interventions and medicines, help to prioritize services and medicines needed in primary care.

Some models of care optimize the availability and “reach” of essential primary care medicines and pharmaceutical services by integrating NCD prevention and care at primary care level. In Thailand, for example, essential medicines for NCDs are provided at primary care centres, and village health volunteers, who carry out regular home visits, play a critical role in screening for NCDs in the community. Village health volunteers and primary care centre staff meet monthly. This type of integrated care has been credited with a significant reduction in health-related out-of-pocket expenditure, including spending on medicines (Tuangratananon et al., 2021).

In other countries, integrated care and pharmaceutical services for NCDs are brought together and closer to the community in special health facilities. In Mexico, community health facilities specializing in the care of cardiometabolic diseases support standard primary care facilities with more complex patient profiles. These specialized care centres provide cost-effective care including medicines and pharmaceutical services to patients until their NCDs are well managed, and the patients return to their primary care facilities (Sosa-Rubí et al., 2020).

Community pharmacies in several HICs have expanded their range of services, and there are strong indications that this will continue (Mossialos et al., 2015; Costa et al., 2020). The COVID-19 crisis further emphasized the importance and visibility of open and accessible community pharmacies during the pandemic, creating favourable conditions for community pharmacists to assume new responsibilities (Mendonça, Santos & Pinto, 2020; Costa et al., 2022).

Beyond their traditional role in dispensing of medicines, counselling, medication review, generic substitution and (in some countries) compounding, community pharmacies have added new services in various settings. These include vaccination, point-of-care tests (including weight, total cholesterol, blood pressure, blood glucose, COVID antigen) and health promotion counselling on general health topics (for example, nutrition), as well as management programmes for specific conditions (for example, on asthma, obesity and tuberculosis (TB)). In some cases, these services are provided in collaboration with other health care professionals, some of whom may be employed by the pharmacy. An increasing number of countries allow vaccination in community pharmacies, administered by pharmacists or other qualified health professionals (Czech et al., 2020). Evidence suggests that the availability of vaccinations in pharmacies, coupled with active communication, leads to higher vaccination rates (Isenor et al., 2016; Murray et al., 2021).

Patients value advanced pharmaceutical services in the community pharmacy setting. In a survey, conducted in the USA, respondents described an ideal community pharmacy as one that utilizes an integrated health electronic record system, offers comprehensive point-of-care diagnostic testing, and provides some level of physical examination (Feehan et al., 2017). In South Africa, pharmacies offer services to newly diagnosed patients with chronic conditions, assisting with medication management to improve adherence and patient outcomes (Naidoo et al., 2023). See also the country illustration from Thailand (Section 10.3.2) where pharmacists were engaged to better manage antibiotic use for upper respiratory tract infections.

Contracting community or retail pharmacies by public payers has been challenging in many countries, particularly ensuring minimum quality standards for services, and adequate remuneration of services (Wirtz, Kaplan & Cellini, 2022). To expand the role of pharmacies in PHC-oriented health systems will require governments and public payers addressing current regulatory, financial and service delivery challenges (for example, through regulatory reforms allowing adequate remuneration of pharmacies and supervision of their services).

Foster collaboration and coordination between health professionals and settings

One example of vertical coordination between primary and other levels of care is to involve community pharmacists in routine discharge activities to help reduce poly-pharmacy and ensure safety of medication in primary care. In addition to discharge letters targeted at general practitioners (GPs), more specific pharmaceutical discharge letters (prepared by hospital pharmacists) addressing community pharmacists can be a useful intervention since they offer important information directly to community pharmacists for counselling discharged patients, as a Dutch study highlighted (Cornelissen et al., 2022). The country illustration for the “Discharge Medicines Service” describes a pharmacy service to support patients discharged from hospitals in England (see Section 10.3.3).

Furthermore, so-called “interface policies” can enhance the coordination between primary and higher levels of care (Vogler, Salcher-Konrad & Habimana, 2023). In the Stockholm region (Sweden), the national positive list, which includes publicly funded medicines for patients in the whole country, is supplemented by a more focused regional list of recommended medicines for primary care (“Wise List”). Use of medications on the “Wise List” has been strongly advocated by the regional authorities and payers to doctors and community pharmacists, and use has been monitored. Around a decade after its introduction, this list was extended to also include medicines used in hospitals (joint list), which are decided in a joint reimbursement committee with representatives of primary care providers and hospitals (Gustafsson et al., 2011).

10.2.3 Acceptability of medicines and pharmaceutical services: engage patients and communities as part of PHC

Involve patients in prioritizing medicines for PHC

The process of compiling a priority medicines list for primary care is typically based on the following key criteria: clinical need, added therapeutic benefit, cost-effectiveness and alignment with treatment guidelines, as well as the values of stakeholders who may be involved in advisory reimbursement committees (Vogler et al., 2018; WHO, 2002). However, it often overlooks the perspective of patients and their carers (Kaplan et al., 2013). Belgium and New Zealand present encouraging examples of regularly engaging with the broader public on how to define priorities within reimbursement processes through public hearings and community outreach activities, which has the potential to ultimately increase acceptability of medicines and pharmaceutical services (Leopold, Lu & Wagner, 2020).

Empower people to manage their medication

The concept of self-care can be seen as the PHC-oriented response to the traditional approach of provider-centred health care delivery which was primarily designed for delivering acute care. Self-care requires that people acknowledge and accept their role and responsibility as co-creators of their health. It is defined as “*what individuals,*

families and communities do with the intention to promote, maintain, or restore health and to cope with illness and disability with or without the support of health professionals such as pharmacists, doctors, dentists and nurses" (Ostermann et al., 2014).

Self-medication is one aspect of self-care, and empowerment for self-medication can make an important contribution to appropriately managing chronic diseases such as diabetes or asthma as well as for treating acute but minor conditions (minor ailments). While the value of self-medication is frequently defined solely by its economic benefits for the community and health systems, it also offers additional benefits for the holistic notion and community embeddedness of PHC as it supports patients' self-determination and, if supported appropriately, strengthens their skills and knowledge. However, self-medication is not an alternative to the provision of affordable pharmaceutical and health services. Yet, in many resource-constrained settings, self-medication is the only care option when high-quality medical or pharmaceutical services are unavailable, unaffordable or not accessible. Without adequate health and medicines literacy (see below), self-care and self-medication can be ineffective and may cause harm.

To avoid adverse effects, it is important for self-medication to therefore be supported by purposeful education and empowerment of patients and their community, regulations that ensure medicine safety and effectiveness, and adequate support from health professionals when required. Some countries introduced specific services to support patients and their carers in taking decisions on their health, which usually involves health information and guidance (Gibson et al., 1996; Kaltenthaler et al., 2002; Warsi et al., 2004; Deakin et al., 2005; Effing et al., 2007; Foster et al., 2007). Successful self-medication is possible in settings where the regulatory requirements ensure safe, effective and quality-assured medicines.

Invest in medicines literacy, including fostering trust in generics, biosimilars and vaccines

"Medicines literacy", that is health literacy related to medicines and pharmaceutical services, is another key component of community empowerment, which is a core part of the PHC approach.

Health and medicines literacy can be strengthened by several (communication) tools. Public authorities such as medicine regulatory authorities (for example, the Food and Drug Administration (FDA)) play a key role in providing trusted and accurate information on the efficacy and safety of medicines. However, in many resource-constrained settings such authorities are understaffed and without sufficient capacity to manage communication.

Over the years, knowledge on patient education has evolved, building on the lesson learned that information on disease and treatment is insufficient to change behaviour. Recent patient education programmes aim to enhance skill adoption and behaviour change among patients (Marengo & Suarez-Almazor, 2015) and also involve the patient's family and the community.

One common challenge related to medicines literacy concerns trust-building in medicines, especially vaccines, as well as generics and biosimilars (off-patent medicines). Quality-assured generic and biosimilar medicines have the potential to expand coverage in PHC and contain public spending on medicines, but mistrust in their quality and efficacy can lower their uptake (Dunne, 2016; Hassali et al., 2009). Action to increase trust in generics and biosimilars requires a multipronged approach, including large information campaigns, and targeted communication with health care professionals and other trusted community members such as religious leaders (Skaltsas & Vasileiou, 2015). Educating the population about the importance of generic medication and medication safety is crucial (Alrasheedy et al., 2014; Skaltsas & Vasileiou, 2015). Educating health care professionals is also important, as some doctors are reluctant to prescribe generics (Chua et al., 2010; Shrank et al., 2011; Alrasheedy et al., 2014).

Empowering people to assess the quality of information and to question false information is also relevant, because knowledge on safety, efficacy and quality can be poor, especially as media and the internet are major information sources (Alrasheedy et al., 2014; Skaltsas & Vasileiou, 2015). The importance of trust-building on generics is demonstrated in the India country illustration (Section 10.3.4).

Vaccine hesitancy further highlights the need for tailored communication strategies to enhance health and medicines literacy because different populations exhibit varying levels of vaccine hesitancy. For example, in low- and middle-income countries (LMICs), higher vaccine hesitancy was found among mothers with low education, while in HICs higher hesitancy for children's vaccination was found among families with higher education and even among health professionals (Hak et al., 2005; Biasio, 2017; Cooper et al., 2021). Moreover, a review indicated that parents desired more information about routine childhood vaccination than they can currently access (Ames, Glenton & Lewin, 2017).

10.2.4 Appropriateness of medicines and pharmaceutical services: promote responsible prescribing and use

Implement standardized treatment guidelines

Evidence-based treatment guidelines, which may define the recommended first, second and third lines of medicines and diagnostics, play a crucial role in promoting effective, high-quality and affordable health care. They should address priority health needs of the population (for example, hypertension, diabetes, depression, arthritis) (MSH, 2012). Treatment guidelines promote appropriate prescribing and responsible use of medicines and enhance the availability of medicines (Wirtz et al., 2017). The use of standardized treatment guidelines can lead to improved affordability by ensuring procurement and logistics efficiencies. Standard treatment guidelines also serve as a foundation for monitoring and assessing the quality of care, enabling consistent patient management. South Africa provides an example of successful implementation, having developed Standard Treatment Guidelines for different levels of care, including primary care, resulting in increased affordability and other positive outcomes (Govender, Suleman & Perumal-Pillay, 2021).

Promote appropriate use of antibiotics through multisectoral collaboration

The PHC components of “integrated health services” and “empowered people” were clearly highlighted in the dimensions of access described above; evidence related to multisectoral policy action, which involves collaboration with different sectors outside the health sector, related to medicines is briefly reviewed here. One example relevant to appropriate use of medicines in a PHC-oriented health system relates to the collaboration between the health and educational sectors, highlighting the role of primary and secondary schools in teaching children and adolescents about health and medicines use. Over the past decade and a half, studies have demonstrated that teaching students about prudent use of antibiotics can improve their knowledge (Young et al., 2017) and reduce inappropriate antibiotics use during the cold and flu seasons (Cebo-tarenco & Bush, 2007). The National Institute for Health and Care Excellence (NICE) in the United Kingdom recommends all schools to teach about responsible antibiotics utilization (NICE, 2017). These examples demonstrate the importance of multisectoral action as part of the PHC approach. The country illustration from Thailand (Section 10.3.2) provides a good example of promoting appropriate use of antibiotics using a multisectoral approach (health and retail sectors).

To bring together expertise on the reduction of antimicrobial resistance (AMR) across all sectors, including appropriate use of antibiotics, the Quadripartite Joint Secretariat (QJS) on AMR was launched in 2019. It includes the animal and plant health sector: the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (WOAH); the environment sector: the United Nations Environmental Programme (UNEP); and the human sector: the World Health Organization (WHO) (Quadripartite Joint Secretariat on Antimicrobial Resistance, 2022).

10.3 Country illustrations: medicines and pharmaceutical services supporting the PHC approach

The following country illustrations exemplify the policy interventions that aim to improve access to medicines and pharmaceutical services as described above and highlight contextual drivers, enablers and implementation challenges.

10.3.1 Brazil: ensuring availability and affordability of prioritized medicines through Farmacia Popular

In 2004, the Farmácia Popular programme aimed to ensure the availability and affordability of medicines used to treat NCDs, a central pillar of PHC (Ministério da Saúde do Brasil, 2004). The programme employed different but overlapping delivery strategies over time (for example, contracting only public pharmacies, contracting private pharmacies) to improve access to medicines. Accredited pharmacies were allowed to dispense outpatient medicines that the Ministry of Health reimbursed up to 90%. In 2011, the Ministry of Health started to fully reimburse the cost of medicines for dia-

betes and hypertension. These changes resulted in a substantial increase in the number of participating public and private pharmacy outlets from 2006 till 2011, which improved geographical distribution of dispensaries. Despite a sevenfold increase in the number of pharmacies in the north from 0.62 to 4.19 pharmacies per 100 000 inhabitants, inequities in geographical accessibility of pharmacies were not completely eliminated and traditionally underserved regions still face access gaps (the Southeast grew from 2.20 to 24.50 in the same time period) (Emmerick et al., 2015). As shown by the example of the Farmácia Popular programme, investing in public funding and dispensing of essential medicines is fundamental in reaching UHC for the entire population and reducing geographic disparities.

10.3.2 Thailand: promoting appropriate use of antibiotics

In 2007, the government of Thailand introduced an innovative model to promote the responsible and appropriate use of medicines and counteract antimicrobial resistance, namely the antibiotic smart use programme. It was implemented in three phases: a pilot phase in a few hospitals and community pharmacies, an expansion phase involving more hospitals and pharmacies, and a roll-out phase to the entire country (So & Woodhouse, 2014). The programme promotes antibiotic prescribing by providing financial incentives to reward appropriate prescribing behaviour by health care providers who adhere to standard treatment guidelines. The first antibiotic smart use programme for community pharmacists focused on pharyngitis as more than half of community pharmacists did not follow the antibiotic guidelines for the management of upper respiratory infections, acute diarrhoea and simple wounds (Sumpradit et al., 2012). Key success factors included the willingness of providers at all care levels to work together on this project, as well as monitoring of key variables such as antibiotic prescription rates, provider attitudes of effectiveness and knowledge of antibiotics, non-prescription rates in case of non-bacterial infections, and patient health and satisfaction (Donsamak, Weiss & John, 2021). Based on the WHO global action plan on antimicrobial resistance (WHO, 2015), Thailand developed a national strategic plan on AMR in 2016, which further developed the smart use programme (WHO, 2017). As shown by the example of Thailand, investing in national strategies on appropriate use of antibiotics by involving providers can lead to positive outcomes in more responsible prescribing and dispensing.

10.3.3 England: improving acceptability and appropriate use through targeted counselling in community pharmacies after hospital discharge

In England, several pharmacy services have been deemed essential and must be offered by community pharmacies with remuneration. In 2015, the “Discharge Medicines Service” became an essential service provided by all community pharmacies with the aim of improving communication about medication changes made during a patient’s hospital stay, and reducing incidence of avoidable harm caused by medicines. This service includes a medicine use review at the interface of primary care and hospital. Through

the Discharge Medicines Service, hospitals refer patients to their community pharmacy for additional support and follow-up care in regard to their medication (Khayyat & Nazar, 2023). Within a three-step process, National Health Service (NHS) hospitals first identify a patient who might benefit, obtain consent from the patient for a referral and send a referral to the patient's pharmacy through a secure electronic system. Secondly, a post-discharge prescription is sent to the pharmacist (or pharmacy technician), who ensures that the medicines prescribed post-discharge integrate the changes made during the hospital stay. If there are discrepancies or other issues, the pharmacy team clarifies the new prescription in collaboration with the GP practice. Lastly, a discussion is held between the pharmacist or pharmacy technician and the patient to review the use and dosages of the most recent prescriptions (PSNC, 2022). The programme has been associated with a reduction in hospital readmissions (NHS England – North West, 2022). This case shows that collaboration between professionals and qualified pharmacists in primary and hospital care can benefit and strengthen a PHC-oriented health care system. It also highlights the crucial role of hospitals for PHC and their potential to leverage their resources to support high-quality primary care.

10.3.4 India: raising awareness, acceptability and affordability through a generic medicine programme

In 2015, the Indian government expanded its generic medicines scheme called “Pradhan Mantri Bhartiya Jan Aushadhi Pariyojna” with the aim of increasing the availability and affordability of quality-assured unbranded generic medicines for all people, especially the poor (PMBI, n.d.). One of the key features of this scheme included government support to establish retail pharmacies, called Jan Aushadhi stores, to expand access to lower-priced, quality-assured medicines (Lavtepatil & Ghosh, 2022).

The scheme faced several challenges, including excessive reliance on state governments for the implementation, gaps in the supply chain, physicians' reluctance to prescribe generic medicines, distribution of free medicines through state-sponsored schemes and a poor level of awareness among individuals and communities. Patients did not trust unbranded generic products and preferred costly brand-named medicines. To boost the acceptance of generics, the Indian government invested in campaigns to spread information about the effectiveness of generic medicines amongst physicians. This resulted in a doubling of generic prescriptions and sales over time (Chandna, 2020). In 2015, the Indian government further improved the scheme by waiving the application fee and providing additional financial support to pharmacies.

A recent Brookings report on the impact of the scheme found that acceptance of the stores and their generic products were linked to higher literacy and higher level of development often in urban areas (Singh, Ravi & Dam, 2020). Despite the incentive-based nature of the scheme, some districts in Northeast and Central India failed to attract any entrepreneurs for Jan Aushadhi stores. The evaluation of the scheme provides some important lessons learned in promoting affordable medicines in the

community. This case illustrates that despite sufficient public funding and setting up appropriate infrastructure to reach essential medicines, a lack of trust in medicines by patients or prescribers can hinder uptake.

10.4 Conclusion

PHC-oriented health systems prioritize the accessibility of medicines, vaccines and pharmaceutical services in primary care. To achieve equitable access, it is essential to address factors that influence affordability, availability, acceptability and appropriateness.

Advancing medicines and services as part of effective PHC needs these services to be patient- and community-centred. Engaging with informed patients, individuals and communities on equal terms is key, thus empowerment, dialogue and participation are essential components to promote trust. These activities require consideration of cultural aspects which can otherwise be a barrier to or a lever to change.

The provision of medicines requires coordination with high-quality pharmaceutical services to ensure availability, acceptability and appropriateness. Availability relies on efficient procurement, safe storage and skills in stock management, adequate counselling and dispensing, sufficient capacity in primary care, and appropriate care models. To provide high-quality pharmaceutical services, intentional strategies and actions are required to ensure continuity, coordination, comprehensiveness and person-centred care. Separating dispensing from counselling, allowing for remote counselling, can help address the shortage of trained workers that can be a key barrier to access. Integrating community or retail pharmacies into PHC will require regulatory, financial and educational reforms in many countries.

Inadequate coverage of medicines and persistent out-of-pocket payments, regardless of the amount, are key barriers to essential treatment and hence, hinder equitable access to PHC. Medicines including pharmaceutical services are frequently neglected by policy-makers as an aspect of PHC. This is demonstrated by the currently high levels of out-of-pocket expenditure on medicines worldwide. Including medicines in benefits packages is critical to advance UHC and PHC.

Successful implementation of PHC-oriented pharmaceutical care necessitates acceptance and appropriate usage. This requires empowerment, dialogue and participation with patients and communities to promote trust. Moreover, appropriate use requires the effective implementation of standard treatment guidelines that prioritize the care and prevention that are delivered. Finally, coordination and collaboration between dispensers and prescribers, and multisectoral policies and actions that involve engagement with various sectors such as education, agriculture and the environment, are needed.

Finally, it is important that the pathways to progress towards effective PHC are accompanied by monitoring and evaluation. The country illustrations on different access dimensions of medicines and pharmaceutical services presented in this chapter illustrate that, without appropriate evaluation, it is not possible to know whether the

policies and programmes achieve their desired objectives or how to mitigate unintended consequences. Evaluation strategies are ideally built into the PHC implementation from the very beginning, including the development of key indicators and the data required to measure them.

REFERENCES

- Acosta A et al. (2019). Medicine Shortages: Gaps Between Countries and Global Perspectives. *Front Pharmacol*, 10(763):1–21.
- Albelbeisi AH et al. (2021). Public Sector Capacity to Prevent and Control Noncommunicable Diseases in Twelve Low- and Middle-Income Countries Based on WHO-PEN Standards: A Systematic Review. *Health Serv Insights*, 14:1178632920986233. Available at: <https://doi.org/10.1177/1178632920986233> (accessed 30 August 2023).
- Alrasheedy AA et al. (2014). Patient knowledge, perceptions, and acceptance of generic medicines: a comprehensive review of the current literature. *Patient Intell*, 6:1–29.
- Ames HM, Glenton C, Lewin S (2017). Parents' and informal caregivers' views and experiences of communication about routine childhood vaccination: a synthesis of qualitative evidence. *Cochrane Database Syst Rev*, 2(2):Cd011787. Available at: <https://doi.org/10.1002/14651858.CD011787.pub2> (accessed 30 August 2023).
- Barbarisi I et al. (2019). A spatial analysis to evaluate the impact of deregulation policies in the pharmacy sector: Evidence from the case of Navarre. *Health policy*, 123(11):1108–15. Available at: <https://doi.org/https://doi.org/10.1016/j.healthpol.2019.08.010> (accessed 30 August 2023).
- Biasio LR (2017). Vaccine hesitancy and health literacy. *Hum Vaccin Immunother*, 13(3):701–2. Available at: <https://doi.org/10.1080/21645515.2016.1243633> (accessed 30 August 2023).
- Bochenek T et al. (2018). Systemic Measures and Legislative and Organizational Frameworks Aimed at Preventing or Mitigating Drug Shortages in 28 European and Western Asian Countries. *Front Pharmacol*, 8(942):1–24.
- Borja-Aburto VH et al. (2015). Evaluation of the impact on non-communicable chronic diseases of a major integrated primary health care program in Mexico. *Fam Pract*, 33(3):219–25. Available at: <https://doi.org/10.1093/fampra/cmz049> (accessed 30 August 2023).
- Cebotarenco N, Bush PJ (2007). Reducing antibiotics for colds and flu: a student-taught program. *Health Educ Res*, 23(1):146–57. Available at: <https://doi.org/10.1093/her/cym008> (accessed 30 August 2023).
- Chandna H (2020). Modi govt's generic drugs scheme doubles sales to Rs 200 cr as branded variants see a fall. *ThePrint (India)*, 14 August 2020. Available at: <https://theprint.in/health/modi-govts-generic-drugs-scheme-doubles-sales-to-rs-200-cr-as-branded-variants-see-a-fall/481570/> (accessed 30 August 2023).
- Chapman S, Dedet G, Lopert R (2022). Shortages of medicines in OECD countries. *OECD Health Working Papers (no. 137)*. Paris: OECD. Available at: <https://doi.org/10.1787/b5d9e15d-en> (accessed 30 August 2023).
- Chua GN et al. (2010). A survey exploring knowledge and perceptions of general practitioners towards the use of generic medicines in the northern state of Malaysia. *Health Policy*, 95(2):229–35.

- Cooper S et al. (2021). Factors that influence parents' and informal caregivers' views and practices regarding routine childhood vaccination: a qualitative evidence synthesis. *Cochrane Database Syst Rev*, 10(10):Cd013265. Available at: <https://doi.org/10.1002/14651858.CD013265.pub2> (accessed 30 August 2023).
- Cornelissen N et al. (2022). Application of intervention mapping to develop and evaluate a pharmaceutical discharge letter to improve information transfer between hospital and community pharmacists. *Res Social Adm Pharm*, 18(8):3297–302.
- Costa S et al. (2020). Pharmacy Services in Europe: Evaluating Trends and Value. ISBE Technical Report (INSTITUTO DE SAUDÉ BASEADA NA EVIDÊNCIA). Available at: https://www.pgeu.eu/wp-content/uploads/2019/03/ISBE-Report_Pharmacy-Services-in-Europe_Evaluating-Trends-and-Value_-FINAL_20201209.pdf (accessed 24 September 2023).
- Costa S et al. (2022). Pharmacy interventions on COVID-19 in Europe: Mapping current practices and a scoping review. *Res Social Adm Pharm*, 18(8):3338–49. Available at: <https://doi.org/10.1016/j.sapharm.2021.12.003> (accessed 30 August 2023).
- Czech M et al. (2020). Flu Vaccinations in Pharmacies – A Review of Pharmacists Fighting Pandemics and Infectious Diseases. *Int J Environ Res Public Health*, 17(21). Available at: <https://doi.org/10.3390/ijerph17217945> (accessed 30 August 2023).
- De Weerd E et al. (2015). Causes of drug shortages in the legal pharmaceutical framework. *Regul Toxicol Pharmacol*, 71(2):251–8.
- Deakin TA et al. (2005). Group based training for self management strategies in people with type 2 diabetes mellitus. *Cochrane Database Syst Rev* (2).
- Donsamak S, Weiss MC, John DN (2021). Evaluation of antibiotic supply decisions by community pharmacists in Thailand: A vignette study. *Antibiotics*, 10(2):154.
- Dunne SS (2016). What do users of generic medicines think of them? A systematic review of consumers' and patients' perceptions of, and experiences with, generic medicines. *Patient*, 9(6):499–510.
- Effing T et al. (2007). Self management education for patients with chronic obstructive pulmonary disease. *Cochrane Database Syst Rev* (4).
- Emmerick ICM et al. (2015). Farmácia Popular Program: changes in geographic accessibility of medicines during ten years of a medicine subsidy policy in Brazil. *J Pharm Policy Pract*, 8(1):10. Available at: <https://doi.org/10.1186/s40545-015-0030-x> (accessed 30 August 2023).
- European Commission et al. (2021). Future-proofing pharmaceutical legislation: Study on medicine shortages: Final report. Publications Office of the European Union. Available at: <https://data.europa.eu/doi/10.2875/211485> (accessed 30 August 2023).
- Feehan M et al. (2017). Patient preferences for healthcare delivery through community pharmacy settings in the USA: A discrete choice study. *J Clin Pharm Ther*, 42(6):738–49.
- Foster G et al. (2007). Self management education programmes by lay leaders for people with chronic conditions. *Cochrane Database Syst Rev* (4).
- Gibson PG et al. (1996). Self management education and regular practitioner review for adults with asthma. *Cochrane Database Syst Rev*, 2010(1).

- Govender T, Suleman F, Perumal-Pillay VA (2021). Evaluating the implementation of the standard treatment guidelines (STGs) and essential medicines list (EML) at a public South African tertiary institution and its associated primary health care (PHC) facilities. *J Pharm Policy Pract*, 14(1):1–14.
- Gray A, Manasse Jr HR (2012). Shortages of medicines: a complex global challenge. *Bull World Health Organ*, 90(3):158–158A.
- Gustafsson LL et al. (2011). The 'wise list' – a comprehensive concept to select, communicate and achieve adherence to recommendations of essential drugs in ambulatory care in Stockholm. *Basic Clin Pharmacol Toxicol*, 108(4):224–33. Available at: <https://doi.org/10.1111/j.1742-7843.2011.00682.x> (accessed 30 August 2023).
- Hak E et al. (2005). Negative attitude of highly educated parents and health care workers towards future vaccinations in the Dutch childhood vaccination program. *Vaccine*, 23(24):3103–7. Available at: <https://doi.org/10.1016/j.vaccine.2005.01.074> (accessed 30 August 2023).
- Hassali MA et al. (2009). Consumers' views on generic medicines: a review of the literature. *Int J Pharm Pract*, 17(2):79–88.
- Isenor J et al. (2016). Impact of pharmacists as immunizers on vaccination rates: a systematic review and meta-analysis. *Vaccine*, 34(47):5708–23.
- Joshi R et al. (2014). Task Shifting for Non-Communicable Disease Management in Low and Middle Income Countries – A Systematic Review. *PLoS One*, 9(8):e103754. Available at: <https://doi.org/10.1371/journal.pone.0103754> (accessed 30 August 2023).
- Kaltenthaler E et al. (2002). A systematic review and economic evaluation of computerised cognitive behaviour therapy for depression and anxiety. *Health Technol Assess*, 6(22):1–89. Available at: <https://pubmed.ncbi.nlm.nih.gov/12433315/> (accessed 30 August 2023).
- Kaplan WA et al. (2012). Policies to promote use of generic medicines in low and middle income countries: A review of published literature, 2000–2010. *Health Policy*, 106(3):211–24. doi: 10.1016/j.healthpol.2012.04.015.
- Kaplan WA et al. (2013). Priority medicines for Europe and the world. Update 2013 report. Geneva: World Health Organization. Available at: <https://ppri.goeg.at/system/files/inline-files/WHO-report-on-priority-medicines-for-Europe-and-the-World-2013.pdf> (accessed 24 September 2023).
- Kaplan W et al. (2016). Policy options for promoting the use of generic medicines in low-and middle-income countries. Health Action International. Available at: https://haiweb.org/wp-content/uploads/2017/02/HAI_Review_generics_policies_final.pdf (accessed 30 August 2023).
- Khayyat SM, Nazar H (2023). Qualitative investigation of barriers to providing an electronic hospital to community pharmacy referral service for discharged patients. *PLoS One*, 18(3):e0283836. doi: 10.1371/journal.pone.0283836.

- Kimber MB (2008). The application of telepharmacy as an enabling technology to facilitate the provision of quality pharmaceutical services to rural and remote areas of Australia. PhD thesis, James Cook University. Available at: <https://researchonline.jcu.edu.au/2087/2/02Chapters1-5.pdf> (accessed 30 August 2023).
- Lavtepatil S, Ghosh S (2022). Improving access to medicines by popularising generics: a study of 'India's People's Medicine' scheme in two districts of Maharashtra. *BMC Health Serv Res* 22:643. Available at: <https://doi.org/10.1186/s12913-022-08022-1> (accessed 30 August 2023).
- Leopold C, Lu CY, Wagner AK (2020). Integrating public preferences into national reimbursement decisions: a descriptive comparison of approaches in Belgium and New Zealand. *BMC Health Serv Res*, 20(1):1–10.
- Levesque JF, Harris MF, Russell G (2013). Patient-centred access to health care: conceptualising access at the interface of health systems and populations. *Int J Equity Health*, 12:18.
- Lin CA et al. (2018). Drone delivery of medications: Review of the landscape and legal considerations. *Am J Health Syst Pharm*, 75(3):153–8. Available at: <https://pubmed.ncbi.nlm.nih.gov/29237587/> (accessed 30 August 2023).
- Marengo MF, Suarez-Almazor ME (2015). Improving treatment adherence in patients with rheumatoid arthritis: what are the options? *Int J Clin Rheumatol*, 10(5), 345–56. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4826730/> (accessed 30 August 2023).
- Mendonça A, Santos C, Pinto IC (2020). Community Pharmacy Services During the COVID-19 Pandemic: A Systematic Review. *INNOSC Theranostics and Pharmacological Sciences*, 3(2):18–26. Available at: <https://doi.org/10.36922/itps.v3i2.971> (accessed 30 August 2023).
- Ministério da Saúde do Brasil (2004). Decreto No. 5.090, de 20 de Maio de 2004. Regulamenta a Lei No 10.858, de 13 de Abril de 2004, E Institui O Programa "Farmácia Popular Do Brasil", E Dá Outras Providências.
- Moodley R, Suleman F (2020). To evaluate the impact of opening up ownership of pharmacies in South Africa. *J Pharm Policy Pract*, 13(1):28. Available at: <https://doi.org/10.1186/s40545-020-00232-4> (accessed 30 August 2023).
- Mossialos E et al. (2015). From "retailers" to health care providers: Transforming the role of community pharmacists in chronic disease management. *Health Policy*, 119(5):628–39. Available at: <https://doi.org/10.1016/j.healthpol.2015.02.007> (accessed 30 August 2023).
- MSH (2012). Treatment guidelines and formulary manuals. Management Sciences for Health. Available at: <https://msh.org/wp-content/uploads/2013/04/mds3-ch17-stgs-mar2012.pdf> (accessed 30 August 2023).
- Murray E et al. (2021). Impact of pharmacy intervention on influenza vaccination acceptance: a systematic literature review and meta-analysis. *Int J Clin Pharm*, 43(5):1163–72. Available at: <https://doi.org/10.1007/s11096-021-01250-1> (accessed 30 August 2023).

- Naidoo V et al. (2023). New Medicine Service by Community Pharmacists: An Opportunity to Enhance Universal Health Coverage at a Primary Health Level in South Africa. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 60:00469580221146834.
- NCD Alliance (2021). Integrating noncommunicable disease prevention and care into global health initiatives and universal health coverage. Available at: https://ncdal-liance.org/sites/default/files/NCD_%20LEVERAGING_GLOBAL_HEALTH_WINS_8_09_FINAL%20%281%29.pdf (accessed 30 August 2023).
- NHS England – North West (2022). Liverpool’s Discharge Medicines Service. Available at: <https://www.england.nhs.uk/north-west/recovery-bulletin/recovery-bulletin-issue-01-may-2022/liverpools-discharge-medicines-service/> (accessed 30 August 2023).
- NICE (2017). Antimicrobial stewardship: changing risk-related behaviours in the general population. NICE guideline [NG63], published 25 January 2017. National Institute for Health and Care Excellence. Available at: <https://www.nice.org.uk/guidance/NG63/history> (accessed 30 August 2023).
- OECD (2018). How resilient were OECD health care systems during the “refugee crisis”? Paris: OECD. Available at: <https://www.oecd.org/migration/Migration-Policy-Debates-Nov2018-How-resilient-were-OECD-health-care-systems-during-the-refugee-crisis.pdf> (accessed 30 August 2023).
- Ostermann H et al. (2014). A cost/benefit analysis of self-care systems in the European Union. Available at: https://jasmin.goeg.at/396/1/Self_Care_final%20report_20150629.pdf (accessed 30 August 2023).
- PMBI (n.d.). Pradhan Mantri Bhartiya Jan Aushadhi Pariyojna. Pharmaceuticals & Medical Devices Bureau of India. Available at: <http://janaushadhi.gov.in/pmjy.aspx> (accessed 30 August 2023).
- Prabhakaran D et al. (2017). Disease Control Priorities (Vol. 5): Cardiovascular, Respiratory, and Related Disorders. Washington DC: World Bank. Available at: <http://hdl.handle.net/10986/28875> (accessed 30 August 2023).
- PSNC (2022). Discharge Medicines Service. Available at: <https://psnc.org.uk/national-pharmacy-services/essential-services/discharge-medicines-service/> (accessed 30 August 2023).
- Quadrupartite Joint Secretariat on Antimicrobial Resistance (2022). Terms of Reference Established in October 2019 and updated in June 2022. Available at: https://cdn.who.int/media/docs/default-source/antimicrobial-resistance/amr-gcp-tjs/qjs-tor-final-june-2022.pdf?sfvrsn=30182887_0 (accessed 30 August 2023).
- Research to Reality (2020). It’s Like an ATM, But for Prescription Drugs. Available from: <https://research2reality.com/health-medicine/healthcare/medavail-pharmacy-kiosks-prescription-drugs-access/> (accessed 30 January 2023).
- Resnick H (2015). How Coca-Cola is helping deliver medicines. Available from: <https://borgenproject.org/coca-cola-helping-deliver-medicines/> (accessed 30 January 2023).

- Shrank WH et al. (2011). Physician perceptions about generic drugs. *Ann Pharmacother*, 45(1):31–8.
- Singh P, Ravi S, Dam D (2020). Medicines in India: Accessibility, affordability and quality. Brookings India. Available at: https://www.brookings.edu/wp-content/uploads/2020/03/Medicines-in-India_for-web-1.pdf (accessed 30 August 2023).
- Skaltsas LN, Vasileiou KZ (2015). Patients' perceptions of generic drugs in Greece. *Health Policy*, 119(11):1406–14.
- Snouffer E (2022). Six places where drones are delivering medicines. *Nat Med*, 28(5):874–5.
- So AD, Woodhouse W (2014). Thailand's Antibiotic Smart Use Initiative. Alliance for Health Policy & Systems Research. Available at: https://assets.publishing.service.gov.uk/media/57a089a840f0b649740001dc/AllianceHPSR_FlagshipRep_Medicines_in_Health_Systems__Ch5_Annex3.pdf (accessed 30 August 2023).
- Sosa-Rubí SG et al. (2020). Cost-effectiveness analysis of a multidisciplinary health-care model for patients with type-2 diabetes implemented in the public sector in Mexico: A quasi-experimental, retrospective evaluation. *Diabetes Res Clin Pract*, 167:108336. Available at: <https://doi.org/10.1016/j.diabres.2020.108336> (accessed 30 August 2023).
- Sumpradit N et al. (2012). Antibiotics Smart Use: a workable model for promoting the rational use of medicines in Thailand. *Bull World Health Organ*, 90:905–13.
- Thomson S, Cylus J, Evetovits T (2019). Can people afford to pay for health care – New evidence on financial protection in Europe. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/bitstream/handle/10665/311654/9789289054058-eng.pdf?sequence=1&isAllowed=y> (accessed 30 August 2023).
- Tran DN et al. (2017). Ensuring patient-centered access to cardiovascular disease medicines in low-income and middle-income countries through health-system strengthening. *Cardiology Clinics*, 35(1):125–34.
- Tuangratananon T et al. (2021). Healthcare providers' perspectives on integrating NCDs into primary healthcare in Thailand: a mixed method study. *Health Res Policy Syst*, 19(1):139. Available at: <https://doi.org/10.1186/s12961-021-00791-1> (accessed 30 August 2023).
- United Nations (2022). Sustainable Development Goals (SDG). Available at: <https://www.un.org/sustainabledevelopment/health/> (accessed 30 August 2023).
- Vogler S, Arts D, Sandberger K (2012). Impact of pharmacy deregulation and regulation in European countries. Vienna: Gesundheit Österreich. Available at: https://ppri.goeg.at/sites/ppri.goeg.at/files/inline-files/GOeG_FP_PharmacyRegulationDeregulation_FullReport_March2012_0.pdf (accessed 30 August 2023).
- Vogler S, Dedet G, Pedersen HB (2019). Financial Burden of Prescribed Medicines Included in Outpatient Benefits Package Schemes: Comparative Analysis of Co-Payments for Reimbursable Medicines in European Countries. *Appl Health Econ Health Policy*, 17(6):803–16. Available at: <https://doi.org/10.1007/s40258-019-00509-z> (accessed 30 August 2023).

- Vogler S, Fischer S (2020). How to address medicines shortages: Findings from a cross-sectional study of 24 countries. *Health Policy*, 124(12):1287–96.
- Vogler S, Habimana K, Arts D (2014). Does deregulation in community pharmacy impact accessibility of medicines, quality of pharmacy services and costs? Evidence from nine European countries. *Health Policy*, 117(3):311–27. Available at: <https://doi.org/http://dx.doi.org/10.1016/j.healthpol.2014.06.001> (accessed 30 August 2023).
- Vogler S, Paris V, Panteli D (2018). Ensuring access to medicines: How to redesign pricing, reimbursement and procurement? Copenhagen: WHO (acting as the host organization for, and secretariat of, the European Observatory on Health Systems and Policies). Policy Brief 30. Available at: <https://iris.who.int/bitstream/handle/10665/331972/Policy-brief-30-1997-8073-eng.pdf?sequence=1> (accessed 30 August 2023).
- Vogler S, Salcher-Konrad M, Habimana K (2022). Study on best practices in the public procurement of medicines: final report.
- Vogler S, Salcher-Konrad M, Habimana K (2023). Interface policies bridging outpatient and hospital sectors in Europe: can cross-sectorial collaboration in reimbursement and procurement improve access to affordable medicines? *Expert Rev Pharmacoecon Outcomes Res*, 1–12. doi: 10.1080/14737167.2023.2237683.
- Vogler S et al. (2018). Medicines Reimbursement Policies in Europe. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/bitstream/handle/10665/342220/9789289053365-eng.pdf?sequence=1> (accessed 30 August 2023).
- Warsi A et al. (2004). Self-management education programs in chronic disease: a systematic review and methodological critique of the literature. *Arch Intern Med*, 164(15):1641–9.
- WHO (1978). Declaration of Alma-Ata. Geneva: World Health Organization. Available at: https://cdn.who.int/media/docs/default-source/documents/almaata-declaration-en.pdf?sfvrsn=7b3c2167_2 (accessed 17 April 2023).
- WHO (2002). The selection of essential medicines. WHO Policy Perspectives on Medicines. Geneva: World Health Organization. Available at: https://apps.who.int/iris/bitstream/handle/10665/67375/WHO_EDM_2002.2_eng.pdf (accessed 30 August 2023).
- WHO (2015). Global Action Plan on Antimicrobial Resistance. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/rest/bitstreams/864486/retrieve> (accessed 30 August 2023).
- WHO (2016). Medicines shortages: global approaches to addressing shortages of essential medicines in health systems. *WHO Drug Inf*, 30(2):180–5. Available at: <https://iris.who.int/bitstream/handle/10665/331028/DI302-180-185-eng.pdf?sequence=1&isAllowed=y> (accessed 17 April 2024).
- WHO (2017). Thailand: National strategic plan on antimicrobial resistance 2017–2021. Geneva: World Health Organization. Available at: https://cdn.who.int/media/docs/default-source/antimicrobial-resistance/amr-spc-npm/nap-library/thailand-s-national-strategic-plan-on-amr-2017-2021.pdf?sfvrsn=a277ad92_1&download=true (accessed 30 August 2023).

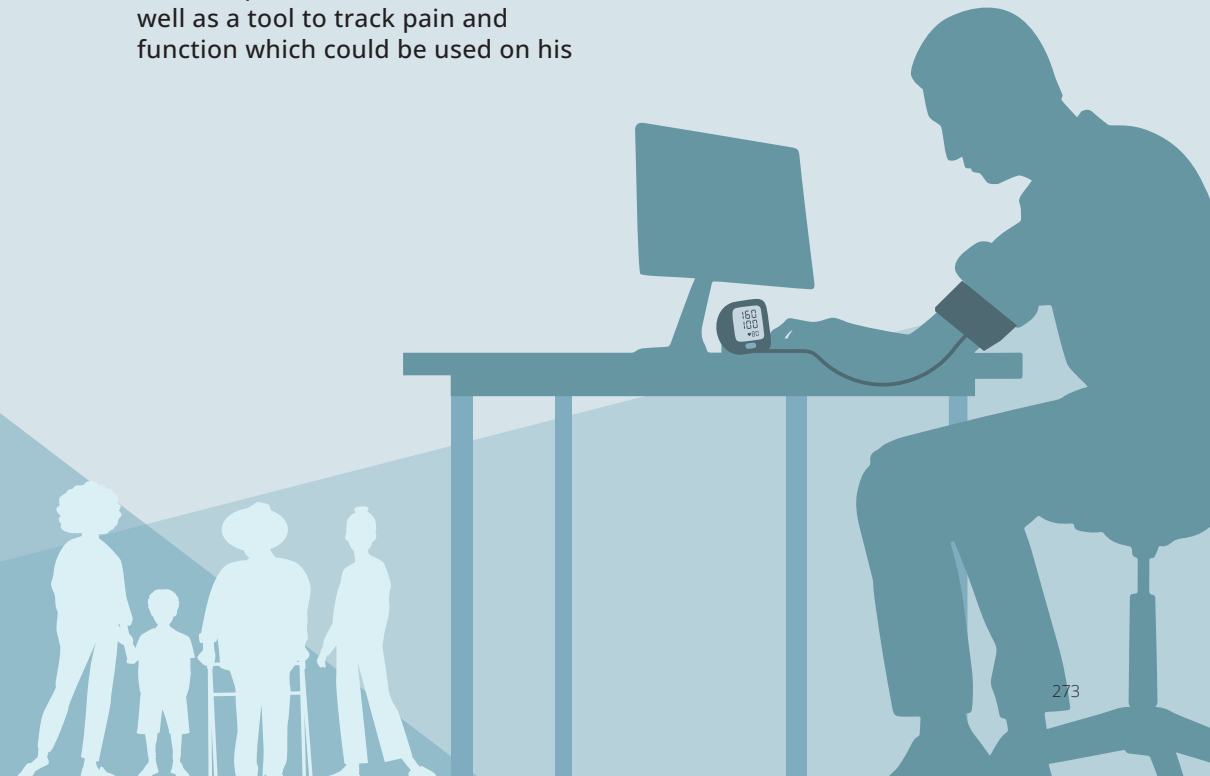
- WHO (2019). The legal and regulatory framework for community pharmacies in the WHO European Region (9289054247). Copenhagen: WHO Regional Office for Europe. Available at: <https://www.pgeu.eu/wp-content/uploads/2019/10/WHO-Europe-Report-Regulatory-framework-for-community-pharmacies-October-2019.pdf> (accessed 30 August 2023).
- WHO (2020a). Assessing the magnitude and nature of shortages of essential medicines and vaccines: focus on the WHO European Region CC BY-NC-SA 3.0 IGO). Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/337965> (accessed 30 August 2023).
- WHO (2020b). WHO Model List of Essential Medicines. Geneva: World Health Organization. Available at: <https://www.who.int/groups/expert-committee-on-selection-and-use-of-essential-medicines/essential-medicines-lists> (accessed 30 August 2023).
- WHO (2020c). WHO package of essential noncommunicable (PEN) disease interventions for primary health care. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240009226> (accessed 30 August 2023).
- WHO (2021). WHO Model List of Essential Medicines. Geneva: World Health Organization. Available at: https://www.who.int/topics/essential_medicines/en/ (accessed 30 August 2023).
- WHO (2023). Moving towards PHC. Geneva: World Health Organization. Available at: <https://www.who.int/activities/moving-towards-phc> (accessed on 17 April 2024).
- WHO Regional Office for Europe (2016). Pharmaceutical pricing and reimbursement reform in Kyrgyzstan. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/344011> (accessed 24 September 2023).
- WHO, UNICEF (2018). A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. Available at: <https://apps.who.int/iris/bitstream/handle/10665/328065/WHO-HIS-SDS-2018.15-eng.pdf> (accessed 30 August 2023).
- WHO, World Bank (2021). Tracking Universal Health Coverage: 2021 Global Monitoring Report. Geneva: World Health Organization & World Bank. Available at: <https://www.who.int/publications/i/item/9789240040618>
- Wirtz V, Kaplan W, Cellini C (2022). Use of Retail Pharmacies as a Source of Essential Medicines, including Family Planning Products, for Public Sector Clients in Low- and Middle-Income Countries: A Thought Leadership Paper. Available at: <https://www.ghsupplychain.org/sites/default/files/2022-07/Use-of-retail-pharmacies-for-public-procurement-in-LMICs.pdf> (accessed 30 August 2023).
- Wirtz VJ et al. (2017). Essential medicines for universal health coverage. *Lancet*, 389(10067):403–76. Available at: [https://doi.org/10.1016/s0140-6736\(16\)31599-9](https://doi.org/10.1016/s0140-6736(16)31599-9) (accessed 30 August 2023).
- Young VL et al. (2017). A mixed-method evaluation of peer-education workshops for school-aged children to teach about antibiotics, microbes and hygiene. *J Antimicrob Chemother*, 72(7):2119–26. Available at: <https://doi.org/10.1093/jac/dkx083> (accessed 30 August 2023).

TECHNOLOGIES

Jo had an accident at work on a construction site and injured his knee and hand. He went to his community health centre where he was examined by the nurse practitioner. When an X-ray of his hand was ordered, Jo asked if he could also have an X-ray of his knee and back which had been sore for months. The nurse practitioner, whom Jo trusted, explained that based on his examination, those were not needed but that in addition to his presenting musculoskeletal injuries, Jo's recent weight gain, as gleaned from his medical record, and the high blood pressure noted both deserved prompt attention. Confirming there was no fracture, the clinical officer explained that recovery and Jo's return to work would be aided by rehabilitation exercises, weight loss and a gradual return to exercising. Jo was sent a link that provided exercise videos as well as a tool to track pain and function which could be used on his

This fictional story visualizes how health technologies can support the PHC approach

phone or his computer if he had internet at home. He was also loaned a blood pressure machine and asked to log his blood pressure measurements on the health centre's virtual platform three times a week, until his next follow-up appointment in one month. He was given a link to an integrated virtual tool to monitor and manage blood pressure, carbohydrates and cholesterol intake, including a food scanner, a food tracker and automated messages and tips generated specifically for him through AI. The tool also connected Jo to a virtual community of people with similar health issues.



11

Health technologies

S Yunkap Kwankam, Akriti Mehta, Lucinda Cash-Gibson, Juliane Winkelmann and Dheepa Rajan

Key messages

Misconceptions of primary health care (PHC) as ‘naturally’ low-tech are unhelpful. Technology has huge potential to address some of PHC’s central concerns by enabling diagnosis and treatment in communities rather than secondary care; by improving integration; and by encouraging community engagement. PHC can benefit from everything from simple communication devices to complex imaging systems or decision support tools, robotics and assistive technologies.

- Harnessing the right technology can support both individual and population health.
- Using technology to facilitate early identification of risk factors and early diagnosis allows early intervention in local settings, at lower cost.
- Communication technologies such as email, mobile phone applications, telemedicine and digital health tools can overcome time and distance barriers to foster active involvement of patients and communities, and boost health literacy.
- Health technologies can be a driver of self-care, especially in prevention and disease monitoring. They are efficient, support patients in self-management and can increase their satisfaction.
- Integrated care and multisectoral collaboration are made more effective and efficient by technology-driven clinical support tools and referral systems that allow information-sharing and facilitate care coordination and continuity across primary, secondary, acute and long-term care.
- Technology helps planners understand population needs, supports people-centred service design, promotes task-shifting and competency-sharing with non-physician cadres or by patients, and so contributes to better health service management.
- Country deployment of health technologies flags the importance of:
 - addressing the acceptability of technologies
 - buy-in (and provision of resources) from different levels of government
 - skills training for the relevant workforce and for patients
 - support services, management and maintenance
 - fostering trust in data privacy.

11.1 Introduction

A health system oriented towards PHC ensures that the vast majority of people's essential health needs can be addressed close to their communities, in locations and in ways which do not overly disrupt people's daily lives (WHO, 2019a). This implies the need for a variety of diagnostic and therapeutic health technology tools to be available close to communities, enabling self-care and the co-production of health. Examples of such tools include COVID-19 lateral flow or rapid tests, early pregnancy tests, other forms of point-of-care tests, imaging devices like ultrasound, and monitoring devices used for chronic care management, all of which make primary care accessible and affordable, allowing patients and providers to manage and monitor their conditions more effectively.

Health technology can have a profound effect on how health services are delivered, as it enables the rapid identification of risk factors, more accurate diagnosis of health conditions, and better channelling of information and patients through the health system. Failure to leverage the full potential of health technology in PHC can lead to people bypassing primary care services in favour of hospital-based care or paying for services out-of-pocket, moving the health system away from a PHC orientation and the goal of universal health coverage (UHC).

Technology today serves as a catalyser that underpins three model of care components: understanding population needs, people-centred service design, and health service management and planning. A case in point is geographic information system mapping technology which can overlay road infrastructure with topographic data, population and epidemiological maps to help planners identify the best locations for health services and support optimization of resource utilization (see also Chapter 13). Further examples include clinical support tools and referral systems which make care coordination and continuity across primary, secondary, acute and long-term care services more affordable and accessible. Communications technology also helps patients to become actively involved in diagnostic and therapeutic processes. This transformation can contribute to increased health literacy and co-production of health and care, ensuring that population health needs are addressed at first contact level, thereby forming a bedrock for the PHC approach.

This chapter examines how health technology (definitions see Box 11.1) helps to operationalize the PHC approach, namely how it supports integrated services via enhanced communication, screening, diagnosis and monitoring, and by fostering treatment innovations. It explores how health technology can catalyse the frequency and depth of community engagement. Section 11.2 lays out the evidence on how various tools can enhance primary care and public health service delivery, including technology's role in facilitating close linkages and engagement with communities and supporting multisectoral collaboration. Section 11.3 outlines country illustrations to present the potential and challenges of health technology solutions to strengthen PHC. Section 11.4 summarizes the lessons learned and implementation challenges.

This chapter does not cover systemic digital solutions and information platforms that support the PHC approach, which are covered in Chapter 13. Technological issues related to health infrastructure (buildings, utilities), equipment (medical equipment, hospital equipment and plant) and logistics (supply systems, transport) are covered in Chapter 12. However, many of the concerns and issues related to health technology apply equally to medical equipment, infrastructure and logistics. And, even more importantly, all of these components need to be managed together, as smooth interactions between them are essential to getting the most value from technological resources.

Box 11.1 Definition of key terms

Health technology is defined as the application of organized knowledge and skills in the form of devices, medicines, and medical and surgical procedures in prevention, diagnosis and treatment of diseases as well as in disease monitoring, rehabilitation and the organizational and supportive systems within which care is provided (WHO, 2023).

Telehealth/Telemedicine (used interchangeably) refers to the provision of health care services at a distance with communication conducted either between health care providers seeking clinical guidance and support from other health care providers (provider-to-provider telemedicine), or between remote health care users seeking health services and health care providers (client-to-provider telemedicine) using tools such as remote video consultations and virtual monitoring (WHO, 2020).

Digital health is an overarching term that is defined as the use of digital technologies to improve health. It includes eHealth and mHealth (for example, telemedicine, electronic health records (EHRs) and wearable sensors) as well as developing areas such as the use of advanced computing sciences in the fields of big data and artificial intelligence. Digital technologies also include some medical devices and assistive products (WHO, 2018a).

Assistive technology is an umbrella term covering the systems and services related to the delivery of assistive products and services. Assistive products support people with impaired cognitive, perceptual and physical functions, maintain or improve an individual's functioning and independence, and help to prevent or reduce the effects of secondary health conditions. Assistive technology is a subset of health technology and may comprise, for example, hearing aids, wheelchairs, communication aids, spectacles, prostheses, pill organizers and memory aids (WHO, 2016).

11.2 Evidence review: health technologies to strengthen the PHC approach

This section lays out the evidence on health technology, which supports integrated service provision of primary care and public health with close linkages and engagement with communities. Health technology is categorized into four groups: 1) communications technology; 2) diagnosis, disease monitoring and screening tools; 3)

treatment innovations; and 4) technology facilitating multisectoral collaboration. The examples covered are simply illustrative, and far from being an exhaustive set of relevant tools.

11.2.1 Communications technology: bringing providers, patients and communities closer together

The most widespread use of health technology in primary care pertains to communication between providers and patients. The following subsection summarizes evidence on how various communications technology tools help bring providers, patients and communities closer together.

Communication via telephone, email and mobile telephone applications

Targeted communication between patients and providers utilizing tools such as email, telephones and mobile telephone applications often minimizes, and in some cases eliminates, unnecessary patient visits to primary care facilities, while also influencing lifestyle-related health risk behaviours (Schmid et al., 2008).

Various disease programmes in primary care and public health utilize communications technology to improve access and customize services according to patient needs. These programmes cover a range of areas, including asthma management, alcohol-related problems, and antenatal, maternal and child health treatment (de Jongh et al., 2012; Horvath et al., 2012; Sawmynaden et al., 2012; Marcano Belisario et al., 2013; Pal et al., 2013; Smith et al., 2015; Kaner et al., 2017; McCabe, McCann & Brady, 2017; Palmer et al., 2018, 2020; Massoudi et al., 2019; Whittaker et al., 2019; Janjua et al., 2021; Chan et al., 2022; Planas & Yuguero, 2021).

In chronic care, targeted communication using these tools appears to be most beneficial for patients who partially self-manage their health conditions and require support at specific intervals. The positive impact of communications technology has been reported in various areas, such as asthma care (Chan et al., 2022), primary prevention of cardiovascular diseases (Palmer et al., 2018), human immunodeficiency virus (HIV) patient care (Horvath et al., 2012), chronic obstructive pulmonary disease (COPD) management (Janjua et al., 2021), type 2 diabetes management (Pal et al., 2013), and reducing alcohol consumption (Kaner et al., 2017). Improvements have also been found in depression and anxiety symptoms (Planas & Yuguero, 2021; Massoudi et al., 2019), as well as contraception adherence in reproductive health services (Smith et al., 2015). However, the cost-effectiveness and long-term effects of these interventions remain unknown.

Nevertheless, targeted communications have not demonstrated benefits in some areas, such as smoking cessation, attendance at preventive health check-ups, patient or caregiver behaviours, and overall patient health status and well-being (Sawmynaden et al., 2012).

Telehealth: real-time two-way communication

Telehealth witnessed a rapid expansion during the COVID-19 pandemic, ensuring remote access to primary care providers and keeping patients safe from potential infection (WHO, 2019b). Telehealth is widely used by patients and communities for remote patient monitoring, communication and counselling. It contributes to service integration among health care professionals by facilitating communication between primary care providers, specialists and members of multidisciplinary teams who may not be physically located in the same place.

Telehealth significantly enhances access to primary care services by providing easier and faster initial consultations, reducing the need for physical presence on-site. It also enables more comprehensive care by allowing remote consultations with various clinicians and specialists, thereby complementing the skills of the local health care workforce.

Multiple systematic reviews have presented compelling evidence regarding the positive effects of telehealth interventions in primary care services. These interventions have been shown to improve patient outcomes such as mortality rates and quality of life, and enable reductions in hospital admissions (Bashshur et al., 2016a, 2016b, 2017; Totten et al., 2016). Telephone or videoconference consultations have proven to be as effective as face-to-face visits in improving clinical outcomes for mental health and general primary care services. Additionally, these services have demonstrated greater time-efficiency, potentially lower costs and higher patient satisfaction (Carrillo de Albornoz, Sia & Harris, 2022). Telehealth interventions, provided alongside or instead of standard care, have also shown moderate positive effects on primary health outcomes, particularly in terms of improving patient self-management among individuals with diabetes (Eland-de Kok et al., 2011).

In general, patients with chronic conditions requiring regular medical follow-up care, as well as those facing difficulties in travelling to health care facilities due to limited mobility, geographical distance or time constraints, are likely to benefit the most from teleconsultations in primary care.

Regarding the improvement of clinical quality by health care providers, one study found moderate-to-low quality evidence supporting the use of mobile telephone technology by primary care providers for consultations with hospital specialists (Gonçalves-Bradley et al., 2020). This evidence may have been influenced by the use of mobile telephones rather than purpose-built videoconferencing equipment.

The potential of mobile telephone technology in mental health

Evidence suggests that the use of communications technology can especially benefit patients with mental health conditions by enhancing continuity of care through easier communication between providers and more frequent communication between providers and patients. A systematic literature review showed additional benefits of mobile telephone tools for mental health patients in enabling a more structured patient assessment and closer monitoring of their mental health status. Mobile tele-

phone tools were also a key factor in empowering patients to be more involved in their health decisions, have greater control over their own treatment, and allowed patients to communicate from an environment of comfort when speaking of their mental health issues (Falconer, Kho & Docherty, 2018).

The role of social media in primary care

Patients often utilize a wide range of social media platforms, including blogs, content communities, social networking sites, collaborative projects, virtual game worlds and virtual social worlds. The reasons for using social media in primary care vary greatly, from complementing provider information to strengthening patient autonomy and receiving psychosocial support (Smailhodzic et al., 2016).

Evidence on the use of social media in primary care presents a mixed picture. It can enhance self-reported and psychological well-being, as well as improve self-management and control (Smailhodzic et al., 2016). However, it has also been found to contribute to excessive use of social media, diminish subjective well-being and compromise privacy. It affects the patient-provider relationship in different ways, promoting more equal communication but potentially resulting in shorter and sub-optimal interactions between health professionals and patients (Smailhodzic et al., 2016).

In summary, health technology plays a significant role in facilitating communication in primary care. However, both patients and providers encounter barriers when attempting to maximize the effectiveness of communications technology. User skills and trust of the population, in both the technology and data privacy, heavily influence the extent to which communications technology can be utilized for the benefit of health and care. Additionally, the lack of integration with existing information systems and suboptimal technical support continue to pose major barriers in some settings (Bondaronek et al., 2022). Most importantly, computer literacy and e-literacy need to be fostered among health professionals and the population to ensure successful implementation. For example, patients with higher health literacy may derive greater benefit from telephone consultations as they are better able to use the technology and effectively communicate their situation (Carrillo de Albornoz, Sia & Harris, 2022). In general, disparities in the adoption of technological primary care interventions can be observed along dimensions such as age, gender, ethnicity, educational attainment, disability and the number of comorbidities, with young men in full-time employment being the most frequent users of health technology-based services (Mold et al., 2018; WHO, 2022b).

11.2.2 Diagnosis and screening tools: enabling co-production of comprehensive and coordinated care

This subsection displays services and tools that improve diagnosis and screening in primary care and thus have the potential for early diagnosis and timely referral to specialist care, to improve equity, quality and cost-effectiveness of care as well as the quality of life of patients.

Remote disease monitoring

New diagnostic tools have the potential to revolutionize primary care by enabling non-physicians to administer diagnostic tests that previously required complex methods and trained experts. The current trend is towards low-cost, non-invasive, contactless tools for capturing or estimating physiological parameters such as temperature, blood pressure, blood glucose and more. These innovations enable comprehensive care even in the absence of sophisticated equipment and laboratory facilities. The evidence is highly promising in terms of clinical quality, continuous monitoring and collection of patient health data. One notable example is photoplethysmography, which provides an opportunity to monitor cardiovascular health in daily life and offers high diagnostic accuracies for atrial fibrillation. It has the potential to contribute to the diagnosis or prognosis of other cardiovascular diseases as well (Yang et al., 2021; Charlton et al., 2022). By incorporating additional automatic analysis capabilities, photoplethysmography can serve as a valuable preliminary screening tool before administering gold standard tests that typically require advanced analyses (Yang et al., 2021). Remote photoplethysmography utilizes reflected light to measure heart rate, blood pressure and other vital signs. Once these signals are captured, they can undergo a wide range of signal processing algorithms, including artificial intelligence (AI), either in the measuring device or in remote systems. These tools, enabling remote continuous monitoring of vital signs, significantly improve safety and assist general practitioners (GPs) and specialists in detecting potentially serious health issues at an early stage.

Web-based laboratory services

Health technology plays a crucial role in laboratory services for diagnosis and screening in primary care. Direct web-based access to diagnostic testing and results allows patients to access tests easily and share information rapidly with health care providers. These point-of-care tests contribute to reducing diagnosis delays, prompt treatment initiation, service integration, equitable and remote access to diagnostics, and improved testing efficiency in primary care (Versluis et al., 2022). Point-of-care or home-based testing is commonly used for sexually transmitted infections and has shown comparable effectiveness and convenience to clinic-based testing, with higher use rates and follow-up treatment rates (Ndlovu & Ellman, 2021; Versluis et al., 2022). However, proper training of non-laboratory health professionals is necessary to implement point-of-care testing effectively (Katoba, Kuupiel & Mashamba-Thompson, 2019).

X-ray and ultrasound

X-ray and ultrasound are the most common diagnostic imaging tools in primary care. The use of portable versions of these tools is increasing, extending their reach to remote and informal health care settings and supplementing other examinations (Anderson et al., 2019; Strøm et al., 2020). Evidence suggests that lung ultrasonography performed by non-imaging specialists has high sensitivity and specificity in diagnosing pneumonia (Strøm et al., 2020). Point-of-care ultrasound performed by GPs for various conditions has shown satisfactory diagnostic accuracy and high patient satisfaction (Anderson et al., 2019, 2021). Task-shifting for point-of-care ultrasound in

LMICs, performed by different health care professionals after short-term training, can address workforce shortages and limited diagnostic infrastructure, and expand access to diagnostic services (Abrokwa et al., 2022).

Telemedicine for cancer screening

Telehealth cancer care has seen significant growth, particularly during the COVID-19 pandemic. Telemedicine supports primary care and generalist clinicians in cancer screening, allowing for more efficient specialist referrals while appropriately managing non-suspicious lesions in primary care (Chuchu et al., 2018).

Other tools in diagnosis and screening

Various tools have been used for diagnosis and screening with varying degrees of success. Examples include mobile clinic applications for women and children, diagnostic prediction models for colorectal cancer, dermoscopy for triaging suspicious skin lesions, and surveillance mammography. These tools have shown potential in improving primary care practitioners' ability to identify conditions for further investigation or urgent referral (Robertson et al., 2011; Abdel-Aleem et al., 2016; Ferrante di Ruffano et al., 2018; Jones et al., 2019; Grigore et al., 2020).

Symptom checkers and self-triage

Digital and online symptom checker applications allow patients to input their symptoms and biodata to receive likely diagnoses and triage advice. While diagnostic accuracy of symptom checkers is low and varies, triage accuracy is higher in the best-performing ones, making them potentially valuable for directing individuals towards appropriate treatment, particularly in acute and emergency situations. However, there is a risk of unsafe triage advice when it comes to achieving the appropriate balance between sensitivity and specificity. Moreover, evidence suggests that ethical, legal and social dimensions associated with the use of symptom checkers should be considered, and further large-scale primary studies are required to evaluate the performance of different applications (Müller et al., 2022; Schmieding et al., 2022; Wallace et al., 2022).

11.2.3 Treatment innovations: revolutionizing the scope of primary care and public health services

This subsection outlines health technology innovations that emerged as potential solutions in primary care, revolutionizing the scope of primary care and public health services.

Robotics in primary care

Robots can support both patients and health providers in primary care by taking over certain tasks. Robots can be AI-driven and almost fully autonomous, or entirely controlled by a human operator. Social robots can be used in teaching, coaching and communication for children with disabilities and diabetes (Dawe et al., 2019). Humanoid robots can support older people or people in rehabilitative care with impaired

physical functions – movement performance, mobility and independence (Orejana et al., 2015; Andtfolk et al., 2022). Older people may also be positive towards the use of robots when they can increase their quality of life. For health professionals, robots can offer relief in terms of staff time (performing routine tasks), reducing physical burden (lifting or moving items), and providing information on demand (Servaty et al., 2020; Persson, Redmalm & Iversen, 2022). During the COVID-19 pandemic, robots were used for detecting COVID-19, monitoring health conditions and reducing the workloads of health care workers by automating business operations (Sarker et al., 2021). While robotics can have advantages in providing primary care, there are challenges for the wider adoption of robots such as cost, ethics and safety (Servaty et al., 2020).

Drones

Drones are increasingly utilized to overcome access barriers in health care by enabling the delivery of medical supplies, equipment, vaccines, test samples, blood, medicines and organs (Poljak & Šterbenc, 2020). They offer significant benefits, particularly for populations in hard-to-reach areas, in emergency situations and in the surveillance and monitoring of infectious diseases (Poljak & Šterbenc, 2020; Mohd Daud et al., 2022). Additionally, drones are deployed for emergency preparedness and response, providing support for search and rescue operations, transporting emergency supplies, and facilitating monitoring, mapping and damage assessment (Mohd Daud et al., 2022).

Assistive technology

Assistive technology plays a crucial role in improving safety, communication, independence and quality of life for individuals with impaired cognitive, perceptual and/or physical functions. Assistive technology encompasses a wide range of devices, from low-tech solutions such as sensors, walking aids, door openers, hip protectors, home monitors and internet-based communication services to high-tech interventions like computer vision systems powered by AI algorithms (De Freitas et al., 2022). Assistive technology enables self-management and autonomy, allowing individuals to remain at home and better connect with informal and formal support networks within their communities (Fotteler et al., 2022). Utilizing home and body sensor networks, cloud servers, remote caregivers and supervised machine learning can facilitate remote disease monitoring and provide early warning signals to alert necessary health worker interventions (Sapci & Sapci, 2019). For example, devices such as low beds, walking aids, hip protectors, identification bracelets, vision assessment/correction, bed alarms or slip adjustments are effective in reducing the risk of falls, particularly among older individuals, thereby preventing injuries and fractures (Rimland et al., 2016).

Wearables

Wearables, including activity trackers and smartwatches, are electronic medical devices that significantly support health and safety monitoring, chronic disease management, disease diagnosis, treatment and rehabilitation (Lu et al., 2020). The adoption of wearable technology has witnessed a substantial increase in recent years,

with each new generation offering enhanced computational power and an increased number of sensors, enabling more precise and personalized primary care services (Penzel, Schöbel & Fietze, 2018). Wearables effectively integrate health services directly into people's lives, while also empowering individuals to be more aware of, and in control of, their own health. However, it is important to address challenges such as user-friendliness, security, privacy and the lack of industry standards (Lu et al., 2020).

11.2.4 Health technology facilitating multisectoral collaboration

Health technology can facilitate bringing the health sector together with other sectors by making information sharing and communication vastly easier. Information platforms provide the necessary infrastructure for stakeholders from the health sector and other sectors to communicate and share information seamlessly. This enables collaboration to address health and other sectoral challenges effectively. In particular, health data sharing is a crucial aspect of multisectoral collaboration facilitated by health technology. Information platforms allow secure sharing of health data between the health sector and other sectors such as education, energy ministries, environmental monitoring agencies and social services (see also Chapter 13) (National Academies of Sciences, Engineering, and Medicine et al., 2019; Lanford et al., 2022).

Such data sharing promotes coordinated care for individuals with chronic conditions by ensuring that relevant health information is accessible to all stakeholders involved in their care. For example, when school nursing teams have access to health data shared by health care providers, they can better support students with specific health needs, such as allergies or chronic conditions (Downs et al., 2017; Leroy, Wallin & Lee, 2017). This allows schools to implement appropriate preventive measures and provide necessary accommodations to ensure the well-being and safety of students. Furthermore, health data sharing enables timely interventions. When health care providers share information with other stakeholders, such as social services, targeted interventions can be initiated promptly to address social determinants of health that impact individuals' well-being.

Overall, information platforms and secure health data sharing mechanisms have the potential to foster collaboration between the health sector and other sectors. By exchanging data, research findings and best practices, stakeholders could work together more effectively to address health challenges and promote holistic, integrated approaches to care. This collaboration could ultimately lead to improved primary health care services that take into account the broader determinants of health across sectors.

11.3 Country illustrations: health technologies supporting the PHC approach

This section presents five country illustrations from diverse global settings that present PHC challenges and corresponding health technology solutions. It identifies facilitators and barriers to successful implementation of health technology solutions to strengthen PHC-oriented health systems.

11.3.1 El Salvador: mHealth solutions enable territorial Community Health Teams to monitor population health

To enhance access to basic health services, El Salvador adopted a family and community health model in 2009, reorienting the health system towards PHC centred around Community Health Teams (Equipos Comunitarios de Salud Familiares), each comprising a GP, a professional nurse, a nursing technician and three health promoters. Each team is responsible for about 600 assigned families in rural areas, and 1800 assigned families in urban areas (WHO, 2018b). In addition, over 40 individual data systems were merged into the Unified Health Information System and Health Surveillance System (WHO, 2018b; Morgan et al., 2020).

These teams are equipped with mobile telephones and tablets with a digital application that enables field level data entry and the completion of family forms. This allows tracking of patients with chronic conditions who require follow-up and creates georeferenced maps that facilitate developing interventions plans, follow-up and care coordination with other providers within the service networks, among other benefits. Field data can be consolidated at higher levels, facilitating real-time decision-making and planning that takes into consideration population characteristics and social determinants of health as well as the distribution and supply of human and physical resources.

A supportive policy environment that enhanced investments in information technology (IT) infrastructure and the set-up of a unique health information system facilitated successful implementation of health technology. The work of the Community Health Teams was then made much more challenging by several external factors in El Salvador, including the fiscal crisis, political polarization and violence in cities that led to low staff retention and disruption of primary care services.

11.3.2 Honduras: shortening distances and enhancing health literacy through mobile technology

MosquitiaMed represents a group of physicians who use their professional and personal networks alongside mobile technology to serve the local population. Their aim is to provide health information and to improve the health literacy of the population and improve access to services in the La Mosquitia region in Honduras. La Mosquitia is one of the most deprived areas within the very sparsely populated Gracias a Dios district, which has among the poorest health outcomes in the country. In addition, La Mosquitia faces broader challenges of limited access to drinking water, an unstable

electricity supply and low agricultural yield (Social Innovations in Health Initiative, 2018; Castro & Pinto, 2019).

The MosquitiaMed uses mobile technology to create and diffuse videos in communities on medical topics in native indigenous languages to educate the local population about the management of low complexity health situations and thus prevent long, expensive and sometimes unnecessary trips to the hospital. Moreover, telemedicine using a mobile application is used for specialist consultations in the capital to address health problems remotely. This exchange between GPs and specialists avoids unnecessary transfers to the nearest hospital or the capital and allows health problems to be addressed in the community. MosquitiaMed empowers communities as they learn and resolve health problems of low complexity independently. Through the use of accessible and free-to-use technology, by 2017, MosquitiaMed had directly benefited about 2800 children through its nutrition programme, while 350 patients had telemedicine consultations.

Implementation of MosquitiaMed was facilitated by widespread access to telephone and mobile data networks in the region that operate through solar panels or fuel-based generators in the absence of electricity. Telemedicine was enabled by the presence of basic communications technology in the capital allowing video sharing for remote consultations with health care providers.

11.3.3 Kazakhstan: PHC reforms driven by health technology

Despite progress, Kazakhstan is grappling with inequalities in health outcomes and challenges arising from urbanization, as well as epidemiologic and demographic shifts. Kazakhstan has undertaken PHC strengthening reforms with a focus on integrated and evidence-based models of care, supported by patient and community engagement and health technology to drive person-centred and continuous care.

With the aim of developing a unified health information system, the Kazakh government, along with private entities, piloted several mobile telephone applications. These include the “my pregnancy” application that connects pregnant women with GPs and midwives through the course of the pregnancy, facilitating remote routine care management, information exchange, visit scheduling and flagging of medical emergencies. The local health department paid for and provided telephones and service fees for poor, vulnerable women in the region. Another application introduced in primary care is the “home care nurse” application which enables nurses to enter information using their mobile telephones into patient records during home visits. The application allows the updating of medical records for antenatal care and postpartum visits for mother and child as well as documentation of living and social environments. The “people’s control” application was launched in 2017 by the national health insurance fund, the largest payer for health services in Kazakhstan. The application is a patient feedback and evaluation tool that is also used to generate provider rankings to improve transparency on providers’ service quality (WHO, 2018c).

Implementation of these pilot mobile applications was facilitated by the government’s investments in IT infrastructure, the widespread use of mobile telephones in the

country and political will. The Ministry of Healthcare and local health authorities played a key role in reform implementation by encouraging the development and implementation of new mobile technology tools; ensuring rational and effective use of funds and increasing the motivation of primary care personnel to adopt and follow evidence-based practices.

The apps contributed to improved patient satisfaction and care delivery processes. The “my pregnancy” app improved antenatal care for pregnant women, while the “people’s control” app helped to increase transparency regarding providers’ service quality and acted as a patient satisfaction evaluation tool.

11.3.4 Norway: use of e-health during the COVID-19 pandemic enhanced patient monitoring

To address disruptions in health service delivery during the COVID-19 pandemic, Norway leveraged the potential of existing health technology to maintain essential primary care services and extend COVID-19 information to the community.

Despite the availability of e-consultation technology prior to the pandemic, its adoption and use were low. While only 3% of all consultations were provided remotely before the pandemic, 41% were via video, text or telephone in April 2020. This was enabled by factors such as technology readiness, competence among health workers and financial incentives. Progress was also made in regard to data-sharing. During the COVID-19 pandemic several communities tested digital monitoring tools at home (ear thermometer, blood pressure monitor, pulse oximetry, spirometry, blood sugar analysers) and applications through which patients regularly report readings. These digital monitoring tools contributed to increased collaboration between GPs, emergency care, infection control teams and hospitals, increased patient empowerment and enabled closer follow-up of patients (WHO, 2022c).

The digital health portal Helsenorge.no played a central role. Prior to COVID-19, it had enabled self-management and effective care-seeking as individuals could log into the portal to schedule appointments, communicate with providers, renew prescriptions, access their health records or view self-management videos, applications and e-courses. During the pandemic, the portal was used to provide information on COVID-19-related rules, recommendations, self-checker tools and test results and a new digital tool was added to aid the selection of patients and identification of high-risk patient groups from GP EHRs. Moreover, utilization of remote mental health services increased, enabled by collaboration among psychologists, GPs and other actors at the municipal and secondary care levels.

The rapid scale-up of technology during the pandemic was enabled by political support and stakeholder engagement as well as the overall high use of e-health solutions in the country. The increased use of e-consultations was thus facilitated by technology readiness, digital literacy, the absorptive capability of health care professionals, and financial incentives, making it easy for providers to adapt during the pandemic. However, the use of different EHR systems across providers acted as a barrier to sharing patient information.

11.3.5 Mongolia: mobile health clinics bring PHC to vulnerable communities

Mongolia's vast land area and sparse population pose challenges in delivering health services to those living in disadvantaged and remote rural areas, including vulnerable and nomadic populations, migrants and unregistered people.

In 2011, the People in Need project, with support from the Czech Development Agency and the World Health Organization (WHO), deployed mobile medical units to six provinces in Mongolia, covering about 30% of the country's population. The mobile units, equipped with modern, portable diagnostic equipment, and trained staff provided primary care services in remote areas, including screening, diagnostics, basic treatment of illnesses, and referrals to local health facilities for secondary or tertiary care. In 2016, the Mongolian government, with WHO support, expanded the use of mobile units across 21 provinces and six districts of the capital Ulaanbaatar. Further, coordination mechanisms were strengthened across the spectrum of service delivery settings, including mobile units, home visits and health facilities.

The mobile units brought health technology-driven primary care services closer to the community. By 2019, coverage of preventive health examinations had reached 90% of the population. The network of mobile units acted as a foundation for rapid expansion of outreach services during COVID-19, contributing to the country's pandemic management response (People in Need, 2016; WHO, 2021).

11.4 Conclusion

The evidence review and country illustrations presented show that health technology is a powerful enabler of the PHC approach, as it can support and strengthen primary care processes in diverse settings. From simple communication devices to complex imaging systems and decision support tools, technology assists both patients and providers in improving health outcomes and health care responsiveness, quality and safety, provided that other necessary inputs such as supplies, appropriate infrastructure and a skilled workforce are in place.

Digital technology is expected to significantly shape primary care in the future, showing greatest promise in supporting the shift of care from specialist to primary care settings, improving population health (for example, through better control of blood pressure and blood sugar) and enabling people-centred, close-to-community models of care (i.e. via telehealth).

As demonstrated in the country illustrations, health technology is used to support the delivery of primary care services, coordinate care across levels (including informal/home care settings), facilitate access to primary care services, and deliver health education, empowering patients and communities as engaged stakeholders in their own care. Key facilitators for successful implementation, as evidenced across the country settings, include a supportive policy environment with sufficient financial resources for primary care tools, the participation of stakeholders across different

government levels and sectors, investments in IT infrastructure, and digital and health literacy among community members.

Overall, both patients and providers perceive the use of health technology positively due to shorter waiting times for appointments, increased support for self-management, and additional time for patients. Nevertheless, patients and providers still face barriers in using health technology that relate to familiarity, willingness to seek help, trust in the technology and privacy concerns. Identifying and addressing these barriers needs to be key for future technology assessments.

Moreover, support services for health technology use and maintenance are necessary to fully realize the potential contributions of technology to a PHC-oriented health system. For example, integrating technology units into multidisciplinary teams at various levels of the health system throughout the country can be beneficial. This will require stronger policy and financial support, as well as improved stakeholder advocacy to promote the introduction of proven efficient technological innovations.

Technology has the capacity to bring health services, health professionals, patients and communities closer together for the benefit of overall health. However, significant information gaps remain regarding the long-term effects, acceptability, costs and risks of these health technology-based interventions. To enhance their effective utilization, it is important that the development and implementation of health technology and investment is driven by health and clinical needs. A holistic view that considers the specific tool's role in enabling a PHC approach within its environment and throughout its life-cycle is required. Future-proofing technology within a PHC-oriented system is also crucial, anticipating future community and provider needs and developing solutions accordingly, while staying abreast of developments in the fast-changing field of health technology, where innovations give rise to new and exciting options. This approach helps reduce the systemic lag between problem identification, solution development and deployment, and deriving the anticipated benefits of the technology.

REFERENCES

- Abdel-Aleem H et al. (2016). Mobile clinics for women's and children's health. *Cochrane Database Syst Rev*, 2016(8):CD009677.
- Abrokwa SK et al. (2022). Task shifting for point of care ultrasound in primary health-care in low- and middle-income countries – a systematic review. *eClinicalMedicine*, 45:101333. Available at: <https://linkinghub.elsevier.com/retrieve/pii/S2589537022000633> (accessed 28 June 2023).
- Andersen CA et al. (2019). Point-of-Care Ultrasound in General Practice: A Systematic Review. *Ann Fam Med*, 17(1):61–9. Available at: <http://www.annfammed.org/lookup/doi/10.1370/afm.2330> (accessed 28 June 2023).
- Andersen CA et al. (2021). Patients' experiences of the use of point-of-care ultrasound in general practice – a cross-sectional study. *BMC Fam Pract*, 22(1):116. Available at: <https://bmcfampract.biomedcentral.com/articles/10.1186/s12875-021-01459-z> (accessed 28 June 2023).
- Andtfolk M et al. (2022). Humanoid robots in the care of older persons: A scoping review. *Assist Technol*, 34(5):518–26. Available at: <https://www.tandfonline.com/doi/full/10.1080/10400435.2021.1880493> (accessed 28 June 2023).
- Bashshur RL et al. (2016a). The Empirical Foundations of Telemedicine Interventions in Primary Care. *TELEMED E-HEALTH*, 22(5):342–75. Available at: <https://www.liebert-pub.com/doi/10.1089/tmj.2016.0045> (accessed 28 June 2023).
- Bashshur RL et al. (2016b). The Empirical Foundations of Teleradiology and Related Applications: A Review of the Evidence. *TELEMED E-HEALTH*, 22(11):868–98.
- Bashshur RL et al. (2017). The Empirical Foundations of Telepathology: Evidence of Feasibility and Intermediate Effects. *TELEMED E-HEALTH*, 23(3):155–91.
- Bondaronek P et al. (2022). Barriers to and Facilitators of the Use of Digital Tools in Primary Care to Deliver Physical Activity Advice: Semistructured Interviews and Thematic Analysis. *JMIR Hum Factors*, 9(3):e35070.
- Carrillo de Albornoz S, Sia K-L, Harris A (2022). The effectiveness of teleconsultations in primary care: systematic review. *Fam Pract*, 39(1):168–82.
- Castro D, Pinto L (2019, 28 August). Mosquitamed: shortening distances through telemedicine. *Social Innovation in Health Initiative Case Collection*. [Online]. Geneva: World Health Organization. Available at: <https://socialinnovationinhealth.org/the-case-studies/> (accessed 3 August 2023).
- Chan A et al. (2022). Digital interventions to improve adherence to maintenance medication in asthma. *Cochrane Database Syst Rev*, 6(6):CD013030.
- Charlton PH et al. (2022). Wearable Photoplethysmography for Cardiovascular Monitoring. *Proc IEEE Inst Electr Electron Eng*, 110(3):355–81.
- Chuchu N et al. (2018). Teledermatology for diagnosing skin cancer in adults. *Cochrane Database Syst Rev*, 12(12):CD013193.
- Dawe J et al. (2019). Can social robots help children in healthcare contexts? A scoping review. *BMJ Paediatr Open*, 3(1):e000371.

- de Freitas MP et al. (2022). Artificial Intelligence of Things Applied to Assistive Technology: A Systematic Literature Review. *Sensors* (Basel, Switzerland), 22(21):8531.
- de Jongh T et al. (2012). Mobile phone messaging for facilitating self-management of long-term illnesses. *Cochrane Database Syst Rev*, 12(12):CD007459.
- Downs J et al. (2017). Linking health and education data to plan and evaluate services for children. *Arch Dis Child*, 102(7):599–602. doi: 10.1136/archdischild-2016-311656.
- Eland-de Kok P et al. (2011). A systematic review of the effects of e-health on chronically ill patients. *J Clin Nurs*, 20(21–22):2997–3010.
- Falconer E, Kho D, Docherty JP (2018). Use of technology for care coordination initiatives for patients with mental health issues: a systematic literature review. *Neuropsychiatr Dis Treat*, 14:2337–49.
- Ferrante di Ruffano L et al. (2018). Computer-assisted diagnosis techniques (dermoscopy and spectroscopy-based) for diagnosing skin cancer in adults. *Cochrane Database Syst Rev*, 12(12):CD013186.
- Fotteler ML et al. (2022). The Effectiveness of Assistive Technologies for Older Adults and the Influence of Frailty: Systematic Literature Review of Randomized Controlled Trials. *JMIR Aging*, 5(2):e31916.
- Gonçalves-Bradley DC et al. (2020). Mobile technologies to support healthcare provider to healthcare provider communication and management of care. *Cochrane Database Syst Rev*, 8(8):CD012927.
- Grigore B et al. (2020). Development, validation and effectiveness of diagnostic prediction tools for colorectal cancer in primary care: a systematic review. *BMC Cancer*, 20(1):1084.
- Horvath T et al. (2012). Mobile phone text messaging for promoting adherence to anti-retroviral therapy in patients with HIV infection. *Cochrane Database Syst Rev*, 2012(3):CD009756.
- Janjua S et al. (2021). Digital interventions for the management of chronic obstructive pulmonary disease. *Cochrane Database Syst Rev*, 4(4):CD013246.
- Jones OT et al. (2019). Dermoscopy for melanoma detection and triage in primary care: a systematic review. *BMJ Open*, 9(8):e027529.
- Kaner EF et al. (2017). Personalised digital interventions for reducing hazardous and harmful alcohol consumption in community-dwelling populations. *Cochrane Database Syst Rev*, 9(9):CD011479.
- Katoba J, Kuupiel D, Mashamba-Thompson TP (2019). Toward Improving Accessibility of Point-of-Care Diagnostic Services for Maternal and Child Health in Low- and Middle-Income Countries. *Point Care*, 18(1):17–25. Available at: <https://journals.lww.com/00134384-201903000-00003> (accessed 28 June 2023).
- Lanford D et al. (2022). Aligning healthcare, public health and social services: A scoping review of the role of purpose, governance, finance and data. *Health Soc Care Community*, 00:1–16. Available at: <https://doi.org/10.1111/hsc.13374> (accessed 3 August 2023).
- Leroy ZC, Wallin R, Lee S (2017). The Role of School Health Services in Addressing the Needs of Students With Chronic Health Conditions: A Systematic Review. *J Sch Nurs*, 33(1):64–72. doi:10.1177/1059840516678909.

- Lu L et al. (2020). Wearable Health Devices in Health Care: Narrative Systematic Review. *JMIR mHealth uHealth*, 8(11):e18907.
- McCabe C, McCann M, Brady AM (2017). Computer and mobile technology interventions for self-management in chronic obstructive pulmonary disease. *Cochrane Database Syst Rev*, 5(5):CD011425.
- Marcano Belisario JS et al. (2013). Smartphone and tablet self management apps for asthma. *Cochrane Database Syst Rev*, 2013(11):CD010013.
- Massoudi B et al. (2019). The effectiveness and cost-effectiveness of e-health interventions for depression and anxiety in primary care: A systematic review and meta-analysis. *J Affect Disord*, 245:728–43.
- Mohd Daud SMS et al. (2022). Applications of drone in disaster management: A scoping review. *Sci Justice*, 62(1):30–42.
- Mold F et al. (2018). The Impact of Patient Online Access to Computerized Medical Records and Services on Type 2 Diabetes: Systematic Review. *J Medical Internet Res*, 20(7):e235.
- Morgan B et al. (2020). Territorial community teams in El Salvador. Report to the Bill & Melinda Gates Foundation. University of Washington Strategic Analysis Research & Training Center. Available at: http://uwstartcenter.org/wp-content/uploads/2021/01/START-170_Final-Report_El-Salvador.pdf (accessed 3 August 2023).
- Müller R et al. (2022). Ethical, legal, and social aspects of symptom checker applications: a scoping review. *Med, Health Care Philos*, 25(4):737–55.
- Narasimhan M, Allotey P, Hardon A (2019). Self care interventions to advance health and well-being: a conceptual framework to inform normative guidance. *BMJ*:l688. Available at: <https://www.bmj.com/lookup/doi/10.1136/bmj.l688> (accessed 28 June 2023).
- National Academies of Sciences, Engineering, and Medicine et al. (2019). Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health. Washington (DC): National Academies Press, ch. 4, Leveraging Data and Digital Tools. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK552591/> (accessed 3 August 2023).
- Ndlovu Z, Ellman T (2021). Lay testing cadres and point-of-care diagnostic tests for HIV and other diseases: An essential combination in health service delivery. *PLOS Med*, 18(11):e1003867. Available at: <https://dx.plos.org/10.1371/journal.pmed.1003867> (accessed 28 June 2023).
- Orejana JR et al. (2015). Healthcare Robots in Homes of Rural Older Adults. In: Tapus A et al. (eds). *Social Robotics. Lecture Notes in Computer Science*, vol. 9388. Springer International Publishing, pp. 512–21. Available at: http://link.springer.com/10.1007/978-3-319-25554-5_51 (accessed 28 June 2023).
- Pal K et al. (2013). Computer-based diabetes self-management interventions for adults with type 2 diabetes mellitus. *Cochrane Database Syst Rev*, 2013(3):CD008776.
- Palmer MJ et al. (2018). Mobile phone-based interventions for improving adherence to medication prescribed for the primary prevention of cardiovascular disease in adults. *Cochrane Database Syst Rev*, 6(6):CD012675.

- Palmer MJ et al. (2020). Targeted client communication via mobile devices for improving maternal, neonatal, and child health. *Cochrane Database Syst Rev*, 8(8):CD013679.
- Penzel T, Schöbel C, Fietze I (2018). New technology to assess sleep apnea: wearables, smartphones, and accessories. *F1000Res*, 7:413. doi: 10.12688/f1000research.13010.1.
- People in Need (2016, 23 June). Czech mobile ambulances help herders in Mongolian steppes. Available at: <https://www.peopleinneed.net/czech-mobile-ambulances-help-herders-in-mongolian-steppes-3204gp> (accessed 27 March 2023).
- Persson M, Redmalm D, Iversen C (2022). Caregivers' use of robots and their effect on work environment – a scoping review. *J Technol Hum Serv*, 40(3):251–77. Available at: <https://www.tandfonline.com/doi/full/10.1080/15228835.2021.2000554> (accessed 28 June 2023).
- Planas R, Yuguero O (2021). Technological prescription: evaluation of the effectiveness of mobile applications to improve depression and anxiety. Systematic review. *Inform Health Soc Care*, 46(3):273–90. Available at: <https://www.tandfonline.com/doi/full/10.1080/17538157.2021.1887196> (accessed 28 June 2023).
- Poljak M, Šterbenc A (2020). Use of drones in clinical microbiology and infectious diseases: current status, challenges and barriers. *Clin Microbiol Infect*, 26(4):425–30.
- Rimland JM et al. (2016). Effectiveness of Non-Pharmacological Interventions to Prevent Falls in Older People: A Systematic Overview. The SENATOR Project ONTOP Series. *PLoS One*, 11(8):e0161579.
- Robertson C et al. (2011). Surveillance mammography for detecting ipsilateral breast tumour recurrence and metachronous contralateral breast cancer: a systematic review. *Eur Radiol*, 21(12):2484–91.
- Sapci AH, Sapci HA (2019). Innovative Assisted Living Tools, Remote Monitoring Technologies, Artificial Intelligence-Driven Solutions, and Robotic Systems for Aging Societies: Systematic Review. *JMIR Aging*, 2(2):e15429.
- Sarker S et al. (2021). Robotics and artificial intelligence in healthcare during COVID-19 pandemic: A systematic review. *Rob Auton Syst*, 146:103902. Available at: <https://linkinghub.elsevier.com/retrieve/pii/S0921889021001871> (accessed 28 June 2023).
- Sawmynaden P et al. (2012). Email for the provision of information on disease prevention and health promotion. *Cochrane Database Syst Rev*, 11:CD007982.
- Schmid KL et al. (2008). Targeting or tailoring? *Mark Health Serv*, 28(1):32–7.
- Schmieding ML et al. (2022). Triage Accuracy of Symptom Checker Apps: 5-Year Follow-up Evaluation. *J Medical Internet Res*, 24(5):e31810.
- Servaty R et al. (2020). Implementation of robotic devices in nursing care. Barriers and facilitators: an integrative review. *BMJ Open*, 10(9):e038650.
- Smailhodzic E et al. (2016). Social media use in healthcare: A systematic review of effects on patients and on their relationship with healthcare professionals. *BMC Health Serv Res*, 16(1):442.

- Smith C et al. (2015). Mobile phone-based interventions for improving contraception use. *Cochrane Database Syst Rev*, 2015(6):CD011159.
- Social Innovations in Health Initiative (2018). MosquitiaMed: Shortening Distances Through Telemedicine. Available at: <https://socialinnovationinhealth.org/case-studies/mosquitamed> (accessed 20 March 2023).
- Strøm JJ et al. (2020). Accuracy of lung ultrasonography in the hands of non-imaging specialists to diagnose and assess the severity of community-acquired pneumonia in adults: a systematic review. *BMJ Open*, 10(6):e036067. Available at: <https://bmjopen.bmj.com/lookup/doi/10.1136/bmjopen-2019-036067> (accessed 28 June 2023).
- Totten AM et al. (2016). Telehealth: Mapping the Evidence for Patient Outcomes From Systematic Reviews. Rockville (MD): Agency for Healthcare Research and Quality. AHRQ Comparative Effectiveness Technical Briefs. Available at: <http://www.ncbi.nlm.nih.gov/books/NBK379320/> (accessed 28 June 2023).
- Versluis A et al. (2022). Direct Access for Patients to Diagnostic Testing and Results Using eHealth: Systematic Review on eHealth and Diagnostics. *J Medical Internet Res*, 24(1):e29303.
- Wallace W et al. (2022). The diagnostic and triage accuracy of digital and online symptom checker tools: a systematic review. *NPJ Digit Med*, 5(1):118.
- Whittaker R et al. (2019). Mobile phone text messaging and app-based interventions for smoking cessation. *Cochrane Database Syst Rev*, 10(10):CD006611.
- WHO (2016). Priority Assistive Products list. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/priority-assistive-products-list> (accessed 3 August 2023).
- WHO (2018a). Digital technologies: shaping the future of primary health care. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/326573> (accessed 3 August 2023).
- WHO (2018b). Country case studies on primary health care: El Salvador: territorial community teams. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/326087> (accessed 3 August 2023).
- WHO (2018c). Country case studies on primary health care: Kazakhstan: use of mobile technologies in primary health care as part of state-run reforms in the health sector. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/326247> (accessed 3 August 2023).
- WHO (2019a). Primary health care: closing the gap between public health and primary care through integration. Geneva: World Health Organization. Technical series on Primary Health Care. Available at: <https://www.who.int/publications/i/item/primary-health-care-closing-the-gap-between-public-health-and-primary-care-through-integration> (accessed 3 August 2023).
- WHO (2019b). WHO guideline: recommendations on digital interventions for health system strengthening: evidence and recommendations. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/311980> (accessed 3 August 2023).

- WHO (2020). Implementing telemedicine services during COVID-19: guiding principles and considerations for a stepwise approach. WHO Regional Office for the Western Pacific. Available at: <https://apps.who.int/iris/handle/10665/336862> (accessed 3 August 2023).
- WHO (2021). Mongolia's mobile health clinics bring primary health care to vulnerable communities. Available at: <https://www.who.int/news-room/feature-stories/detail/mongolia-s-mobile-health-clinics-bring-primary-health-care-to-vulnerable-communities> (accessed 3 August 2023).
- WHO (2022a). WHO guideline on self-care interventions for health and well-being, 2022 revision. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/357828> (accessed 3 August 2023).
- WHO (2022b). Equity within digital health technology within the WHO European Region: a scoping review. Copenhagen: WHO Regional Office for Europe. Available at: <https://www.who.int/europe/publications/i/item/WHO-EURO-2022-6810-46576-67595> (accessed 3 August 2023).
- WHO (2022c). Norway: Use of eHealth tools in primary health care during the COVID-19 pandemic (2021). Geneva: World Health Organization. Available at: [https://www.who.int/europe/publications/m/item/norway-use-of-ehealth-tools-in-primary-health-care-during-the-covid-19-pandemic-\(2021\)](https://www.who.int/europe/publications/m/item/norway-use-of-ehealth-tools-in-primary-health-care-during-the-covid-19-pandemic-(2021)) (accessed 3 August 2023).
- WHO (2023). Medical devices: Definitions [web site]. Available at: <https://www.who.int/teams/health-product-policy-and-standards/assistive-and-medical-technology/medical-devices#:~:text=What%20is%20health%20technology%3F,with%20'health%20care%20technology> (accessed 28 June 2023).
- Yang TY et al. (2021). Diagnostic Accuracy of Ambulatory Devices in Detecting Atrial Fibrillation: Systematic Review and Meta-analysis. *JMIR mHealth uHealth*, 9(4):e26167.

HEALTH INFRASTRUCTURE

This fictional story visualizes how health infrastructure can impact and support the PHC approach and PHC-oriented models of care

During a first home visit to welcome them to a new neighbourhood, the family's community health worker noted that **Alma** was due for her regular breast and cervical cancer screening. Alma took the free public transport to her new assigned health centre and was pleased to discover the spacious and bright waiting area with comfortable chairs next to the reception area. She noted the access ramp and wide hallways that would make it easier for her mother-in-law whenever she needed to visit the centre. Posted on the wall at the entrance was a map of the entire neighbourhood under the care of this centre, with her own street highlighted in green, indicating that Alma's family was under the care of the "green team". Whilst waiting for her appointment, Alma looked at the signage (and wayfinding) that used

pictograms and two of the local languages to clearly indicate the areas and the different services of the health centre. She could see that the centre had a pharmacy, and specific rooms and areas dedicated to oral health, social services, well-baby care, preventive services (vaccination, inhalation), a meeting and health education room and even a room for swab collection. She learned from the women sitting next to her that a community garden and exercise equipment are available in the yard outside the health centre. A nurse called Alma into the mammography suite for her examination and then took her to Abi, one of the green team nurses, for her cervical cytology. Before Alma left the health centre, she was given the health centre's monthly patient information letter and was invited to book an in-person or virtual appointment with her usual primary care team when the need arose.



12

Health infrastructure

Stephen Wright, Sally Hall Dykgraaf, S Yunkap Kwankam and Miranda Deeves

Key messages

Infrastructure includes buildings and non-medical equipment, utilities and supply systems. Infrastructure needs and maintenance are sometimes neglected in primary care settings but patients care about the quality of primary health care (PHC) facilities. These have a direct impact on patient-provider interactions and patient satisfaction. They also significantly impact staff well-being and effectiveness.

- Basic requirements including water, sanitation and hygiene (WASH), solid waste management and reliable electricity and internet connections, are a fundamental prerequisite for high-quality, primary care.
- High-quality infrastructure and good (evidence-based) design (EBD) support the PHC approach, encouraging collaboration, staff and patient mental health and well-being. They facilitate efficiency and teamwork, and contribute to staff satisfaction, recruitment and retention. Infrastructure can also engage communities and build trust – but although this enables high-quality care, it cannot guarantee it.
- Investing in primary care infrastructure is typically less costly than hospital investment but still represents a major cost and has significant long-term implications, shaping provision for decades.
- Infrastructure investment must consider more than initial capital costs if it is to be appropriate and needs-responsive, by taking into account:
 - the medical and non-medical needs of individuals and communities
 - the likely pattern of future demand and of technological innovation
 - the implications of room layout and design
 - possible system shocks and how infrastructure might be adapted in response
 - reliability and maintenance costs over the whole life-cycle, including aspects of environmental impact (a more “value-based” approach).

12.1 Introduction

The provision and maintenance of adequate physical infrastructure are crucial investments in the early stages of implementing the PHC approach. The availability, reliability and appropriateness of infrastructure have a direct impact on care provision, patient satisfaction and the well-being and effectiveness of staff, although the latter is often overlooked when resources are limited. Responsive facility infrastructure that caters to the medical and non-medical needs of individuals and populations plays a vital role in building trust and engaging communities (WHO & UNICEF, 2020). Ensuring hygienic physical spaces and providing materials and equipment that support infection prevention and control are essential requirements for delivering primary care (WHO, 2016; Tomczyk et al., 2022). While high-quality infrastructure enables and supports high-quality primary care, it is important to note that it does not guarantee it. Specifically, it facilitates teamwork and communication (Karp et al., 2019, Lim et al., 2020, 2021, 2022), and influences the recruitment and retention of health workers (see Chapter 8).

In this chapter, infrastructure is defined as the “physical structures, including [...] supporting systems, needed to provide health care” (Papanicolas et al., 2022). This includes buildings and non-medical equipment; utilities and supply systems to make buildings and equipment functional, such as water and electricity; disposal systems for waste; and transport and logistics infrastructure (WHO & UNICEF, 2020b). Medical devices and health technology (including digital tools) are not included here and are dealt with in Chapters 11 and 13. However, the term “infrastructure” can also be applied more broadly, to include geographical features such as spatial distribution that can determine access.

As explained in Chapter 1, the PHC approach comprises three components – multisectoral policy and action, community engagement and empowerment, and primary care and public health as the core of integrated health services (WHO & UNICEF, 2018). This chapter focuses on the latter element, as that is where the need for physical infrastructure has been most explicitly examined, i.e., facilities and resources to support delivery of primary care and public health services. The multisectoral action and community engagement components are reflected in their application to planning, developing and assessing health system infrastructure in response to identified health needs to optimize its value – a concept referred to as “needs-responsive infrastructure”.

Appropriate, needs-responsive infrastructure is a foundational enabler for PHC, a necessary but not sufficient condition for optimal service delivery. This chapter aims to identify what infrastructure is required, and how it can best be distributed, used and adapted, to deliver a responsive PHC-oriented health system. The chapter examines evidence across five key infrastructure domains, although there is considerable interaction and overlap between them: 1) distribution and availability of primary care infrastructure; 2) change over time and adaptability of primary care infrastructure; 3) non-medical equipment requirements; 4) the role of utilities such as electricity, water and sanitation, and solid waste management; 5) and implications of EBD literature in primary care services. Many of the available studies are not specific to PHC nor to primary care so evidence has been extrapolated from hospital and tertiary care settings.

12.2 Evidence review: health infrastructure to strengthen the PHC approach

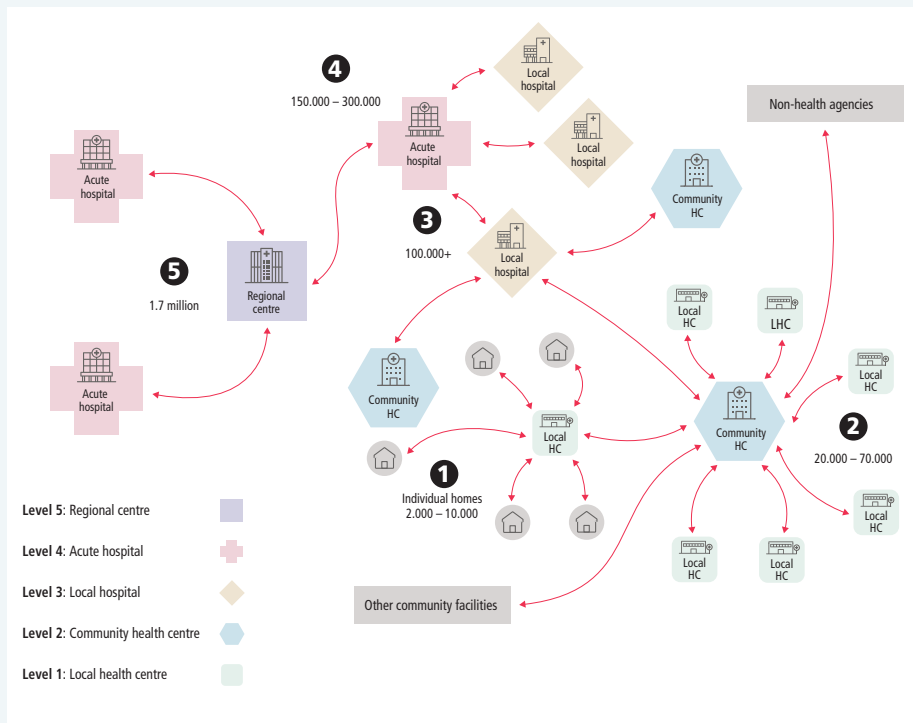
12.2.1 Distribution and availability of primary care infrastructure

Primary care infrastructure is not established based solely on need or demand but is ideally co-created with facilities for more specialized levels of care. The distribution of one type of facility is inherently connected to the distribution of others, and historical factors related to the development of a health system can add complexity to spatial planning. Strategic reviews have prompted attempts in various places to reconsider the distribution of facilities at the system level, taking into account population health needs. Examples include the use of instruments like the “*carte sanitaire*” used in northern African countries, as well as regional health master planning tools like the “*schemas regionaux d’organisation des soins*” in France (Ministère de la Santé, 2018; Jacquemot, 2020). These approaches help determine the optimal distribution of services based on population needs, evolving demographics and technical capacity to deliver care services. A similar mapping approach used in Northern Ireland is described in Box 12.1.

Box 12.1 The integrated service model in Northern Ireland

Health care services for a population of 1.7 million people in Northern Ireland were reconfigured around the year 2000 (Cole, 2009). This led to a spatial pattern with centralization of high-level (secondary and tertiary) care, and redevelopment of seven step-down facilities. In this model, 42 one-stop community health centres, together with “local health centres” (350 general practitioner (GP) practices, some co-located with other services), offer the bulk of primary care (see Fig. 12.1). The model has a pyramidal structure, adapted to the geographic situation of the province (Ahmed, Rajagopalan & Fuller, 2015).

Fig. 12.1 The five levels of the integrated service model



Source: DHSSPS, 2002

The spatial distribution and availability of facilities play a vital role in ensuring equitable access to health care (Levesque, Harris & Russell, 2013). However, this can intersect with patient perceptions of quality and their choices regarding service use. For example, a study conducted in Sierra Leone revealed that women in urban areas

would travel further for care (2.2km vs. 0.6km) owing to preferences for affordability and perceived quality (Fleming et al., 2016). Similarly, in Nepal, investing in the quality of health posts was deemed equally important, if not more important, than increasing their numbers (Acharya & Cleland, 2000). The presence of community-level outreach services also influenced utilization. These studies distinguish between the availability and acceptability of services, emphasizing that both factors can influence decisions about the use of primary care services.

In high-income countries (HICs) like the United States of America (USA), better metrics are needed to assess access in congested urban areas. The term “spatial accessibility” combines concepts of distance and supply and is used to evaluate access in these settings (Guargliardo, 2004; Fortney et al., 2005). In rural areas, additional factors, such as extended operating hours for primary care, may need to be considered owing to the limited availability of specialized services. While there may be less infrastructure available, a higher density of infrastructure supportive of PHC relative to the population is necessary (Al Saffer et al., 2021). Evidence from Northern Ireland following reconfiguration shows that more general practices per person are located in rural areas owing to higher levels of need measured by age and deprivation (Graham, 2018).

Innovative approaches to accessing capital, such as revolving loan funds, have been used to strengthen rural primary care infrastructure. These approaches also aim to enhance economic viability by integrating with other community development initiatives (Stewart et al., 2002). England’s Local Improvement Funding Trust is an example of a successful capital injection programme that mobilized investment through government-endorsed partnerships for long-term joint ventures in primary care facilities (Ibrahim, Price & Dainty, 2008). Networks of primary care facilities, coordinated through regional structures and public-private partnerships, have been implemented in rural settings in countries like Lebanon and Madagascar to engage communities in needs-responsive service development, promote person-centred care and strengthen PHC (Cordier et al., 2020; Hemadeh et al., 2020). In Australia, an evidence and consensus-based list of primary care services that rural and remote communities can expect to access has been developed to assist policy-makers in service planning and resource allocation, although outcomes have not yet been reported (Thomas, Wakerman & Humphreys, 2014).

Certain populations or groups with specific needs require special consideration to ensure their access to health care services. Examples include ensuring availability of post-abortion care (Bell et al., 2021), providing adequate facilities and staff for Lesbian, Gay, Bisexual, Trans, Queer, etc. (LGBTQ+) services (Jia, Polin & Sarin, 2020), and addressing the unique challenges faced by individuals with disabilities, where availability, acceptability, geography and affordability interact to limit access (Dassah et al., 2018). Additionally, during the COVID-19 pandemic, the location of temporary clinics for socially vulnerable populations became a critical issue that could be systematically mapped to address their specific needs (Mohagheghi et al., 2023).

12.2.2 Change over time and adaptability of health infrastructure

Physical infrastructure is often overlooked in discussions of primary care service delivery, as the cost of building and maintaining facilities may be a small fraction of spending relative to the operational cost of the health care services delivered from them. OECD data – mostly for HICs – indicate that overall “Gross Fixed Capital Formation” in the health care sector as a share of gross domestic product (GDP) is 0.5%, which broadly equates with around 5% of total health care expenditure. This figure is skewed towards hospitals, which are relatively capital-intensive in nature (Adema & Fron, 2019). On the other hand, just as with secondary and tertiary level settings, primary care facilities may determine or influence much about the delivery of services; legacy issues relating to infrastructure, once built, will be significant in shaping the nature and capacity of care delivery as facilities exist for decades. This section examines the flexibility of infrastructure to accommodate delivery of appropriate health care over time.

While acute care settings, such as hospitals, are typically complex facilities with multiple “layers” (Netherlands Board for Healthcare Institutions, 2007), primary care settings are generally less reliant on highly layered configurations of large and expensive equipment. However, while primary care services such as general practice have traditionally been accommodated in office space, in holistic comprehensive PHC-oriented health systems that meet various health care needs a range of imaging, diagnostic and investigative technologies and efficient clinical workspaces are increasingly important for the delivery of needs-responsive primary care services. For example, the scale-up of certain services such as human immunodeficiency virus (HIV) care and treatment in resource-limited settings required reliable laboratory infrastructure which was a major challenge for roll-out in many sub-Saharan countries (Abimiku et al, 2009). Indeed, medical laboratories in many countries suffer from infrastructure capacity weaknesses and require more investment and external funding (Elbireer et al., 2011). Other solutions include mobile laboratories to overcome infrastructure barriers and bring critical laboratory resources to hard-to-reach communities, and to strengthen national public health systems (WHO Regional Office for Europe, 2023).

The issue of infrastructure resilience to emerging developments and risks in contemporary society is an evolving field (Carthey et al., 2011; Olmsted, 2021; Mohagheghi et al., 2023). These issues include retrofitting of facilities to accommodate new equipment, technology and workflows; revenue generation; energy performance and environmental sustainability; and the possibility of future public health emergencies like the COVID-19 pandemic. Tools that have been developed to assess whether health care infrastructure can accommodate current operations and diagnostic tests as well as time-sensitive physical transformations include an “Optimized Flexibility Assessment Tool” (Brambilla et al., 2021) and a “knowledge map” to identify current knowledge gaps and critical research needs (Li et al., 2021). In general, deciding “how much” flexibility to invest in can be exceptionally difficult: not zero, but not infinite either. Forward looking, evolving medical diagnostics steered by disruptive technologies such

as use of artificial intelligence (AI) will also have an impact on primary care and laboratory infrastructure, by placing the laboratory specialist within health care settings.

Capital expenditure in the climate change context will focus on the shift to sustainable and low-carbon energy substitutes, such as solar panels and heat pumps with low subsequent running costs, particularly for facilities with currently high fossil fuel costs. Settings that are short of financial resources, particularly capital funding, will have difficulties investing in the approach to net zero and associated green technology. Even in HICs, where health systems rarely have proportionate funding and capital finance, affordability will be a constraining issue. However, if this initially expensive sustainable-energy capital expenditure can be made, less stress can be placed on subsequent operational expenditures as a result of lower future fuel costs and lower maintenance (WHO, 2023a, 2023b).

12.2.3 Equipment requirements

The provision of adequate and appropriate materials, consumable items and equipment, as well as their positioning in the clinical environment, are recognized as critical resourcing and ergonomic elements of health service delivery, which increase compliance with accepted clinical practice (WHO, 2016). Guidance documents offering recommendations and minimum requirements are available (Temple-Bird et al., 1995; Heimann & Issakov, 2001; Lenel et al., 2005; WHO, 2011), but there are relatively few peer-reviewed studies that overtly identify or evaluate equipment requirements. There is also little empirical evidence about how to ensure that the correct equipment is actually installed.

Attempts have been made to identify essential equipment lists, based on the services that facilities are expected to provide; examples include the World Health Organization (WHO) package of essential noncommunicable (WHO-PEN) disease interventions for primary care (WHO, 2020), and the Essential Healthcare Technology Package (WHO-EHTP) that identifies various resources needed to provide given interventions (Heimann & Issakov, 2001). Health facility assessment tools such as the WHO Service Availability and Readiness Assessment (SARA) also provide guidance on how to generate reliable information about basic equipment, amenities, and diagnostic and therapeutic capabilities (WHO, 2023b). The literature offers many applications of such tools, commonly in low- and middle-income countries (LMICs) (Fortney et al., 2005; Cadogan et al., 2016; Bedoya et al., 2017; Oyekale, 2017; Ssensamba et al., 2019; Hemadeh et al., 2020; Meiqari et al., 2020; Aghaji et al., 2021; Al Saffer et al., 2021; Bell et al., 2021; Bintabara & Shayo, 2021; Maruf et al., 2021; Mazigo et al., 2021; Ntoimo et al., 2021). As an example, the Nigerian standards for buildings and premises include details such as land area, colour of the building, clean water source and clear signposting within the facility (Ntoimo et al., 2021). However, the key factor in supporting actual implementation of these lists is the capacity to undertake preliminary and feasibility assessments, as well as planning, designing, building, commissioning, operating, maintaining and disinvesting across the infrastructure lifecycle.

Expanding primary care infrastructure and equipment, though cheap compared to hospitals, still imposes significant costs. In India, the cost of scaling up primary care to reach statutory levels of infrastructure, including human resources, was assessed at over US\$10 billion if executed over the period 2019–2023. This was more than 10% of current public expenditure on health, and just over one third was for construction (Singh et al., 2021). Increasingly, however, the discussion extends beyond costs to an examination of value. Value-based procurement of medical equipment is a framework that guides review and decision-making when purchasing medical devices. Value-based procurement takes into account the health care value equation (outcomes and related costs), and offers potential benefits for patients (lower costs and/or better outcomes), providers (greater efficiency), payers (stronger cost controls and reduced risks), suppliers (alignment of prices with outcomes), and society (reduced health care spending and better overall health) (Rahmani et al., 2021).

Equipment reliability and maintenance are important components of on-going value, especially in scenarios where overinvestment and cost overruns during construction lead to under-investment in operations and maintenance. One recent survey in LMICs showed that 40–70% of medical devices and equipment were broken, unused or unfit for purpose (Diaconu et al., 2017). Such problems are often attributable to shortcomings in procurement methods that do not take into account the total cost of ownership, although recruiting and retaining suitably skilled technical and engineering staff may also be challenging. Cost-effective procurement is one important component to ensure the appropriate costing of equipment ownership (see Box 12.2).

Box 12.2 Cost-effective procurement as part of lifecycle costing of equipment

Equipment procurement cost is only one component of the lifecycle costing process. Thorough planning of the total cost of ownership includes less obvious or hidden considerations such as: which services the equipment is expected to help provide, together with necessary supplies or consumables; the environment in which equipment will be installed, including necessary utilities; who the users will be and what skills they require to do so effectively and safely; and finally, how to ensure equipment performance and reliability through regular maintenance. Eight reliability attributes for cost-effective equipment procurement and management strategies have been identified to support these considerations: equipment features, function, maintenance requirements, performance, risks and safety, availability and readiness, utilization, and cost (Zamzam et al., 2021).

New approaches to equipment replacement have also been suggested, rather than traditional processes that kept equipment until the end of the expected lifetime, with system devaluation assumed based solely on accounting concepts of depreciation. Instead, it is possible to estimate prospective system values derived from anticipated operations, projected revenues, maintenance costs and the availability of new technology (Dickerson & Jackson, 1992). A promising approach uses multistage stochastic dynamic programming to conduct probabilistic assessments of a “Keep-Replace” sequence of highest returns and lowest costs (Altalabi, Rushdi & Tawfik, 2020), although further research is needed to identify more use cases where this approach yields benefits.

12.2.4 The role of utilities

Utilities such as reliable energy supply, WASH and waste management services are crucial for the delivery of safe, effective primary care and public health services and efficient facility operations (WHO & World Bank, 2015; WHO & UNICEF, 2020).

Electricity supply

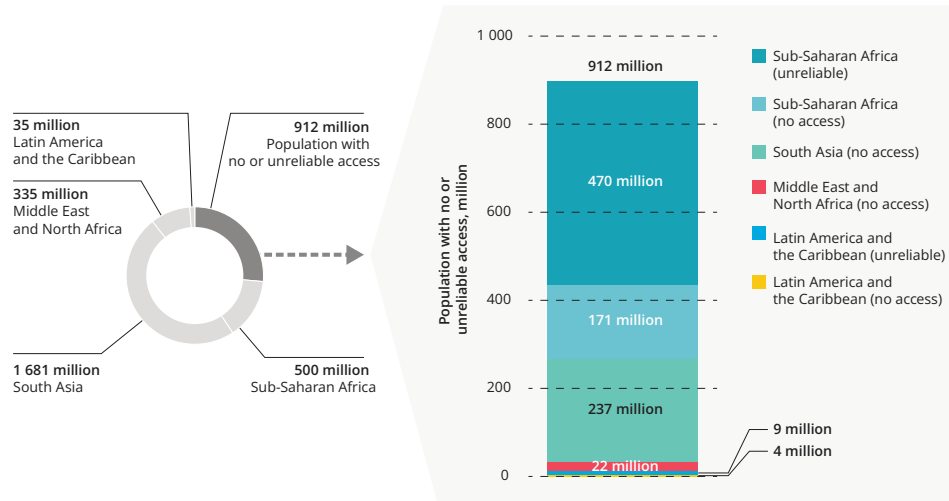
In addition to being a fundamental enabler of primary care and public health services, reliable electrical power in health and care facilities also enables community engagement. Communities benefit from increased access to reliable electricity and greater access to health services, and the quality and quantity of services provided improves. Provision of physical infrastructure can enhance trust in the health system and signal responsiveness to community needs (WHO & UNICEF, 2020). Trust, in turn, is a key concept in community social capital which reflects the density of cooperative networks within a community and has been positively associated with utilization of primary care services (Zhang et al., 2021).

A large study in Ghana and Uganda (Javadi et al., 2020) showed that reliable energy was important for increased service availability, appropriate storage of vaccines and medicines, and health workers' self-assessed ability to carry out maternal and child health-related tasks; it also improved community satisfaction with available health services. At the same time, multilevel stakeholder engagement was required to ensure suitable installation of energy infrastructure, community buy-in and participation. In this study, improving access to energy in health facilities was necessary, but would support overall health system strengthening through mechanisms such as workforce retention, access to medicines, equipment viability and digitization (Javadi et al., 2020). Electrical power is therefore critical to attainment of the United Nations Sustainable Development Goal 3 (SDG3) and its targets, focused on healthy lives and well-being across the lifespan (WHO, 2023a).

A reliable internet connection is equally important to implement telehealth and other digital solutions for ensuring access to primary care (see Chapter 11). However, in many countries, and especially rural areas, there is no stable internet connection that allows people to use digital health applications to engage in and manage their own health or take advantage of connecting more easily with health providers (PAHO, 2021; Hui et al., 2022).

Despite the demonstrated benefits, health care premises in LICs are often chronically underserved; for example, in South Asia and sub-Saharan Africa over 10% of health facilities lack access to electricity (WHO et al., 2023). Lack of reliable electricity supply has been associated with supply-side and quality factors such as reduced service provision and adverse effects on access to safe primary care services for women at Indian primary care centres (Shastry & Rai, 2021; WHO, 2023a). According to the WHO, close to a billion people, mostly in LMICs, receive their health care in facilities which have either no electricity or unreliable electricity (see Fig. 12.2). Because problems with reliable power make it difficult to capture, process and store information, the absence of basic data on energy access and requirements for health care facilities in many countries remains a challenge (WHO, 2023a).

Fig. 12.2 Estimated population served by health care facilities with no electricity access or with unreliable electricity, disaggregated by region



Source: WHO, 2023a

The growing global climate crisis will require profound changes across all energy systems – including in health care – and particularly focused on electricity. There is a need to expand the electricity supply in PHC in sustainable ways. This will almost certainly include simple strengthening of centralized transmission and distribution grids, although there will also be a need for mini-grids, stand-alone solar capability, batteries and other forms of storage, and adapted tariffs and other mechanisms to spread the necessary high up-front investment over the life of the equipment (WHO, 2023a).

Water, sanitation and waste management

The availability of safe water and WASH facilities in primary care, as in other health care settings, is an essential requirement for adequate infection prevention control (IPC) (WHO, 2016). Component #8 of the WHO core components for effective IPC programmes (see Box 12.3) refers to the built environment, materials and equipment for IPC at the facility level, recommending that patient care activities be undertaken in a clean, hygienic environment that facilitates practices related to the prevention of health care-associated infection and antimicrobial resistance. This includes all elements of WASH infrastructure and services, and availability of appropriate IPC materials and equipment (WHO, 2016).

Box 12.3 Core component 8: Minimum WASH requirement for primary care

- Water should always be available from an improved source on the premises to perform basic IPC measures, including hand hygiene, environmental cleaning, laundry, decontamination of medical devices and health care waste management.
- A minimum of two functional, improved sanitation facilities should be available on-site, one for patients and one for staff; both should be equipped with menstrual hygiene facilities.
- Functional hand hygiene facilities should always be available at points of care/toilets and include soap, water and single-use towels (or, if unavailable, clean reusable towels) or alcohol-based hand rub at points of care and soap, water and single-use towels (or, if unavailable, clean reusable towels) within 5 metres of toilets.
- Sufficient and appropriately labelled bins to allow for health care waste segregation should be available (less than 5 metres from point of generation); waste should be treated and disposed of safely via autoclaving, incineration and/or buried in a lined, protected pit.
- The facility layout should allow adequate natural ventilation, decontamination of reusable medical devices, triage and space for temporary cohorting/isolation/physical separation if necessary.
- Sufficient and appropriate IPC supplies and equipment (for example, mops, detergent, disinfectant, personal protective equipment and sterilization) and power/energy (for example, fuel) should be available for performing all basic IPC measures according to minimum requirements/standard operating procedures, including all standard precautions, as applicable; lighting should be available during working hours (usually, 8 am–5 pm) for providing care (WHO, 2016).

A 2019 global survey of IPC in health care facilities revealed lower scores in primary care for core component 8 compared to other settings, though PC settings showed the greatest compliance (25.6%) with all minimum requirements (Tomczyk et al., 2022).

A success story from Ghana (WHO, 2022a) demonstrates that infrastructure investment increased compliance with WASH Facility Improvement Tool (WASHFIT) scores as well as IPC core components (WHO, 2022b). However, even when there is apparent compliance with WASH guidelines, significant problems can remain. A microbiological assessment of 50 government clinics in South Africa showed that one third to two thirds of taps had significant bacterial contamination and two thirds of clinics had no soap in washrooms (Potgieter et al., 2021). This highlights the importance of ongoing attention to processes for cleaning, management and maintenance. Poor WASH has also been a predictor of patient dissatisfaction, though not necessarily reduced utilization, in LMICs (Bouزيد, Cumming & Hunter, 2018).

Solid waste management

Solid waste management is a somewhat neglected subject in the literature. Whether and how materials are disposed of correctly and safely impinges on the wider community as much as on primary care services, although broader issues around waste

management processes after removal from PHC premises, such as cost and environmental impact of landfill or incineration methods, are beyond the scope of this chapter. Separation practices, to remove sharps and chemical, radiological and other biowastes from domestic wastes generated by primary care facilities, are a major concern. Separation, as part of waste management for hazardous materials, is often done badly (Mesdaghinia et al., 2009; Hangulu & Akintola, 2017), resulting in hazardous material entering standard waste streams or being dumped illegally in some countries (Hangulu & Akintola, 2017). At the same time, ordinary domestic waste often goes into hazardous waste streams, and is subsequently dealt with more expensively than needed (Alves et al., 2014). Home care and other community settings may be especially prone to poor waste segregation practices, particularly by lay-users as distinct from health care professionals (Alves et al., 2012). As more advanced technologies are transferred from hospitals into primary care settings, waste management practices may need careful consideration and expansion to accommodate novel hazards such as radioactive materials, for example related to the use of mobile PET and PET/CT (Chua et al., 2008).

12.2.5 Relevance and implications of evidence-based design for PHC

A significant body of research addresses the field of EBD in health care. EBD assumes that the built environment of health care facilities impacts not just on clinical processes, but also on patients' and health care workers' well-being (Casscells, Kurmel & Ponatoski, 2009). Despite this, design of the built environment in health care settings is not always well informed by evidence (Verderber & Kimbrell, 2005). While largely focused on hospitals and HIC, this literature increasingly includes primary care and community care facilities, though this evidence base is relatively small and narrow in focus. Consequently, the following discussion considers both PHC specific and generalized EBD evidence where appropriate.

For health care facilities in general, a number of environmental design categories have been proposed (Ulrich et al., 2008, 2010), including auditory, visual, safety enhancement, wayfinding, sustainability, patient rooms and family support spaces. Ulrich and colleagues suggest that improving these will result in desirable outcomes for patients, families, health care professionals, other staff and organizations, which can be measured via metrics such as hospital-acquired infections, medical errors, average length of stay, staff commitment and retention, absenteeism, fatigue, teamwork and even market share (Ulrich et al., 2010). The underlying concept is that health care settings create stress; EBD solutions then are largely conceived around stress reduction. While there have been compelling research results, not all authors accept that this framing of design-related mechanisms is comprehensive or dependable. A 2020 scoping review of EBD studies found 17 diverse theories relating to the impact of physical environments on adults in health care facilities, of which the "stress reduction" theory is only one; a fifth of studies avoided using any explicit theoretical base (Shannon et al., 2020).

There are, however, indications that stress reduction may be important in primary care settings, particularly in waiting areas, where seating arrangements as well as physical access, wayfinding and privacy are influential (Gulwadi, Joseph & Keller, 2009; Devlin, 2022). One complicating issue is that patients and communities may unwittingly use characteristics such as the attractiveness of the built environment as proxies for health care quality – in fact, this is a common feature of the way in which perceptions may focus on the “how” rather than the “what” in service industries generally (Hutton & Richardson, 1995; Becker, Sweeney & Parsons, 2008; Li et al., 2015; Wang et al., 2019). A survey of rural USA patients regarding Patient Centred Medical Home design found that privacy, extra chairs in the exam room for family, and space that supports information sharing and communication among patients, families and health care staff were the most important environmental factors (Cai et al., 2019). Other ambulatory care studies have found relationships between design and set-up of the consultation room and the experience of the clinical encounter including patient–clinician communication, information sharing and education (Almquist et al., 2009; Ajiboye et al., 2015; Matić et al., 2022).

There is mixed evidence for the relationship in hospitals between health care facility design and staff well-being. While efficacy in mobility, satisfaction and interprofessional interaction improved in response to design features, general well-being, burnout and intention to leave did not (Alvaro et al., 2016). Moreover, facility size, break rooms and decentralized workstations were linked by nurses to social, emotional/spiritual, physical, intellectual and occupational aspects of wellness (Raj et al., 2022), as well as staff mental health outcomes, including stress, fatigue, burnout, job-satisfaction and well-being (Jin et al., 2023). Notably, health care workers spend most of their working day within facilities that affect health-related quality of life and human behaviours, most recently demonstrated by evidence from the COVID-19 pandemic (Wingler & Hector, 2015; Gregory, 2021).

In primary care facilities, interior architecture, especially spatial proximity, visual relationships and shared space, has been found to be influential, affecting staff interaction and collaboration (Morgan et al., 2021), teamwork experience of both staff and patients (Lim et al., 2021; Stroebel et al., 2021) and the need for “backstage” communication (Lim et al., 2020). Other research on building and room layout in ambulatory care, mostly derived from experience in the USA, suggests a number of archetype models for layout – traditional linear (shared corridors, public workstations), onstage/offstage (separation of patients/visitors from staff), pod and centre-stage (different versions, with separate groups of patients and health care workers). These room arrangements involve various trade-offs between workflow improvement, intra-team and inter-team communication, and patient privacy (Freihoefer et al., 2018; Karp et al., 2019; Zook, Spence & Joy, 2021). However, mere co-location of disciplines within a building does not necessarily promote fruitful communication and collaboration (Astley, 2016; Morgan et al., 2021).

A scoping review of health-promoting building design identified a series of implications for EBD practice in the PHC context. These included: encouraging participation by both

individuals and communities; adopting social and cultural perspectives to health issues and problems; emphasizing equity and social justice; fostering intersectional collaboration across physical, mental, social and spiritual dimensions of health; focusing on enhancing health as well as preventing problems; and considering the ecological footprint of building design and use (Miedema, Lindahl & Elf, 2019).

In this context, the built environment is a “prominent component of the caring system and patient experience, as well as a contributor to the overall practice of patient-centred care”, where needs for physical, emotional, social, spiritual and information support can be addressed (Sadek & Willis, 2020). An example from cancer ambulatory care in the United Kingdom is “Maggie’s Cancer Caring Centres”, designed to foster well-being and a healing environment for patients with difficult diagnoses and prognoses. The buildings, often co-located with a tertiary hospital, are all unique, sometimes conceived by renowned architects, and oriented to the emotional and psychosocial experience of patients – something different from but complementary to a clinically conceived model of care (Annemans et al., 2012; Van der Linden, Annemans & Heylighen, 2015).

Overall, direct evidence for relationships between primary care infrastructure and processes or outcomes of care is rare. One cross-sectional study of 4300 facilities in eight LMICs as part of an international development programme found that structural inputs were poorly correlated with provision of evidence-based care (Leslie, Sun & Kruk, 2017). Well-equipped facilities often provided poor-quality care and poorly equipped facilities could provide high-quality care. These findings point to the causal complexity in improving health outcomes, and the difficulty in isolating independent effects of infrastructure. Quality of infrastructure is not necessarily a proxy for quality of care, and is best understood as a crucial enabler, more a necessary than a sufficient condition to ensure performance.

12.3 Country illustrations: health infrastructure supporting the PHC approach

12.3.1 Scotland: primary care infrastructure and changing models of care

Guidance for reference design for buildings was developed concerning “General Medical Practice Premises in Scotland” (Health Facilities Scotland, 2006), with parallel notes for dentistry and community pharmacy. The guidance draws an important distinction between prescriptive and performance specifications, both of which are used. The categories listed focus on flexibility, including adaptation or extension for future use; attractiveness to patients; procurement best value; the needs of those with disability; infection control; security; client/design professional engagement during development; and suitable external works for access. Space planning is not included in the guidance. Details are provided to facilitate heating, ventilation and air conditioning, tap water temperature, electrical interference, blue vs. white lighting, and sweep second-hand on clocks on the premises. A “Primary Care Reference Design project”

(Scottish Government et al., undated) shows how some of these ideas have panned out. It is not clear how much of the guidance is rule-of-thumb as distinct from evidence-based.

Four reference examples highlight the issues in the guidance for buildings that allow integration of health and social services:

1. Shields Centre that includes social work and community initiatives (Architecture & Design Scotland, 2017).
2. Aberdeen Community Health and Care Village (Architecture & Design Scotland, 2016) that ensures wayfinding across a range of associated clinical and non-clinical services.
3. West Centre Glasgow (Architecture & Design Scotland, 2010b) that offers a “one-stop shop” for medical and social support services arranged around family needs, including an arts strategy.
4. Renfrew Health and Social Care Centre project (Architecture & Design Scotland, 2010a), which is a unitary design and build procurement which offers its users a diverse range of services, including general practice, dental, physiotherapy, podiatry, audiology and speech therapy services. It also hosts Renfrewshire Council’s social work office, learning disabilities service and community health care team.

12.3.2 Ghana: driving action on infection prevention and control (IPC) and water, sanitation and hygiene

Ghana prioritized the built environment, materials and equipment for IPC Core Component 8 (see Box 12.3) to help ensure a clean and hygienic environment for health care delivery. It has also adopted a behaviour-change-led strategy, making changes in policies, standards, training curricula, programmes and monitoring.

A taskforce created in 2016 implemented WASHFIT, a quality improvement tool, and worked successfully to include IPC/WASH standards in key national strategies and policies, in particular the National Healthcare Quality Strategy (2017–2021).

In 2021, IPC and WASH policies were merged into a single policy document and a single programme with explicit linkages between IPC and antimicrobial resistance, patient safety, health worker safety, and others. IPC indicators were also defined in the national health information system.

Other accompanying measures implemented were:

1. Costed strategy on WASH in health care facilities, with a comprehensive blueprint for coordination and implementation, published in 2020. This strategy also links WASH in health care facilities to national activities to reduce maternal mortality, and specifically the work of the Quality of Care Network, which aims to improve quality of care for mothers and newborns in selected districts. Costs for IPC/WASH infrastructure are set out in the strategy.
2. Incorporating WASH into health care facility budgets.

3. New health facilities to have health care waste management systems and equipment; main and back-up water supply, including a reservoir, borehole or rain gutter system to harvest rainfall, and piped water from the Ghana Water Company.
4. Strengthened professional training and capacity building for IPC and institutionalization of monitoring and quality control.

This approach achieved clear improvements: the proportion of health facilities with basic water services increased from 48% in 2018 to 55% in 2021, while half of the health facilities had basic sanitation in 2021, up from only 38% three years previously. More than 20 partners collaborate within the National IPC/WASH programme and space, supporting various capacity building activities and using a behaviour-changed approach for implementation (WHO, 2022c).

12.4 Conclusion

There is limited empirical evidence regarding the role and impact of infrastructure in supporting the PHC approach. Often, the evidence is inconclusive or insufficient to draw definitive lessons. In the literature, primary care infrastructure is both “everywhere and nowhere”: it is central to service delivery yet not specifically examined in the vast majority of analyses of PHC performance. No direct correlation between the standard of primary care facilities and the output of health services has been found – perhaps because these relationships are complex and multifactorial. Yet the field of EBD in health care has identified some intriguing relationships between clinician and patient behaviours, workforce outcomes and health care delivery, and many of these can be extrapolated to PHC.

That said, infrastructure is important in the PHC approach. If infrastructure is in the wrong place or inappropriate, the quality of primary care will be affected. Many norms and guidelines have been developed, based on long-standing local and international experience, expert consensus and empirical evidence. Adequate infrastructure is a crucial enabler of high-quality care; however, infrastructure on its own cannot ensure performance – it is a necessary but not sufficient condition for the delivery of optimal primary care services.

These approaches have financial implications. Enhanced flexibility in infrastructure will likely mean providing a capital stock greater than that which is immediately required, which will be difficult especially for resource-poor settings. In addition, the more capital stock in place, the greater the lifetime maintenance costs that will be incurred. The broad range of contexts and resources across countries makes it difficult to draw generic or universal conclusions about an ideal specification of infrastructure for PHC, and what should be considered “adequate”.

A specific gap in the literature concerns what is known about the infrastructure that enables the PHC workforce to do its job better. Eventually, facilities – no matter how good or bad – only make sense as somewhere for service delivery. This will be highly

context-dependent, but implies that the development of facilities needs to be co-designed and co-delivered with patients and the workforce in mind, and looking forward over the full working lifetime of the facility.

Lessons learned include the importance of considering the distribution of primary care infrastructure relative to other levels of care. Distance alone is not a predictive factor for access or utilization, as patient-perceived quality also influences behaviour. Flexibility and adaptability over time are crucial features of primary care infrastructure, especially in the face of emerging risks like COVID-19 and climate change.

Appropriate and well-maintained equipment is critical for high-quality PHC services. However, better equipment does not necessarily mean better services. Reliable utilities such as power, water and sanitation are essential components. Renewable energy sources will become increasingly important, and may reduce long-term operational costs, but are likely to require substantial upfront capital investment.

Evidence-based design principles suggest that building design can influence care processes and outcomes. Design features of the built environment in primary care settings, including room and building layouts, may influence staff mental health and well-being, provider–patient interactions and staff collaboration and communication. While patients and others may inaccurately use perceptions of infrastructure quality as a proxy for health service quality, these perceptions can affect engagement and utilization.

Infrastructure offers a material sign of investment and resources, and a signal about what is important in a particular place. Primary care buildings and facilities are specifically localized in a way which is both closer to community and less obtrusive than other care settings. Both infrastructure and workforce become an integrated part of the wider community's stock of health care resources. Overall, therefore, while the literature on primary care infrastructure may have limitations, there is a clear recognition of its importance in delivering high-quality primary care and supporting the well-being of patients and health care workers. Further research is required to strengthen the evidence base and inform effective infrastructure planning and implementation.

REFERENCES

- Abimiku AG et al. (2009). Building laboratory infrastructure to support scale-up of HIV/AIDS treatment, care, and prevention: in-country experience. *Am J Clin Pathol*, 131(6):875–86.
- Acharya LB, Cleland J (2000). Maternal and child health services in rural Nepal: does access or quality matter more? *Health Policy Plan*, 15:223–9.
- Adema W, Fron P (2019). *The OECD SOCX Manual – 2019 Edition: A guide to the OECD Social Expenditure Database*. Paris: Organisation for Economic Co-operation and Development.
- Aghaji A et al. (2021). Primary health care facility readiness to implement primary eye care in Nigeria: equipment, infrastructure, service delivery and health management information systems. *BMC Health Serv Res*, 21:1360.
- Ahmed TMF, Rajagopalan P, Fuller R (2015). A Classification of Healthcare Facilities: Toward the Development of Energy Performance Benchmarks for Day Surgery Centers in Australia. *HERD*, 8:139–57.
- Ajiboye F et al. (2015). Effects of Revised Consultation Room Design on Patient–Physician Communication. *HERD*, 8:8–17.
- Al Saffer Q et al. (2021). The capacity of primary health care facilities in Saudi Arabia: infrastructure, services, drug availability, and human resources. *BMC Health Serv Res*, 21:365.
- Almquist JR et al. (2009). Consultation Room Design and the Clinical Encounter: The Space and Interaction Randomized Trial. *HERD*, 3:41–78.
- Altalabi WM, Rushdi MA, Tawfik BM (2020). Optimisation of medical equipment replacement using stochastic dynamic programming. *J Med Eng Technol*, 44:411–22.
- Alvaro C et al. (2016). Evaluating Intention and Effect: The Impact of Healthcare Facility Design on Patient and Staff Well-Being. *HERD*, 9:82–104.
- Alves SB et al. (2012). [Management of waste generated in home care by the Family Health Strategy]. *Rev Bras Enferm*, 65:128–34.
- Alves SB et al. (2014). The reality of waste management in primary health care units in Brazil. *Waste Manag Res*, 32:40–7.
- Annemans M et al. (2012). What makes an environment healing? Users and designer about the Maggie’s Cancer Caring Centre London. In: Brassel J, McDonnell J, Malpass M (eds). *Proceedings of the 8th International Design and Emotion Conference*, 11–14 September 2012. Central St Martins College of Art & Design, London.
- Architecture & Design Scotland (2010a). Renfrew Health and Social Care Centre [Online]. Available at: <https://www.ads.org.uk/case-study/renfrew-health-social-care-centre> (accessed 4 June 2023).
- Architecture & Design Scotland (2010b). The West Centre, Glasgow [Online]. Available at: <https://www.ads.org.uk/case-study/west-centre-glasgow> (accessed 4 June 2023).
- Architecture & Design Scotland (2016). Aberdeen Community Health and Care Village [Online]. Available at: <https://www.ads.org.uk/case-study/aberdeen-community-health-and-care-village> (accessed 4 June 2023).
- Architecture & Design Scotland (2017). The Shields Centre [Online]. Available at: <https://www.ads.org.uk/case-study/the-shields-centre> (accessed 4 June 2023).

- Astley P (2016). Book Review: Integrating care: The architecture of the comprehensive health centre. *HERD*, 10:174–5.
- Becker F, Sweeney B, Parsons K (2008). Ambulatory Facility Design and Patients' Perceptions of Healthcare Quality. *HERD*, 1:35–54.
- Bedoya G et al. (2017). Observations of infection prevention and control practices in primary health care, Kenya. *Bull World Health Organ*, 95:503–16.
- Bell SO et al. (2021). Post abortion care availability, facility readiness and accessibility in Nigeria and Côte d'Ivoire. *Health Policy Plan*, 36:1077–89.
- Bintabara D, Shayo FK (2021). Disparities in availability of services and prediction of the readiness of primary healthcare to manage diabetes in Tanzania. *Prim Care Diabetes*, 15:365–71.
- Bouزيد M, Cumming O, Hunter PR (2018). What is the impact of water sanitation and hygiene in healthcare facilities on care seeking behaviour and patient satisfaction? A systematic review of the evidence from low-income and middle-income countries. *BMJ Glob Health*, 3:e000648.
- Brambilla A et al. (2021). Flexibility during the COVID-19 Pandemic Response: Healthcare Facility Assessment Tools for Resilient Evaluation. *Int J Environ Res Public Health*, 18.
- Cadogan SL et al. (2016). General practitioner views on the determinants of test ordering: a theory-based qualitative approach to the development of an intervention to improve immunoglobulin requests in primary care. *Implement Sci*, 11:102.
- Cai H et al. (2019). A Regional Survey on Residents' Preferences on Patient-Centered Medical Home Design in Rural Areas. *HERD*, 12:187–205.
- Carthey J et al. (2011). Flexibility: Beyond the Buzzword – Practical Findings from a Systematic Literature Review. *HERD*, 4:89–108.
- Casscells SW, Kurmel T, Ponatoski E (2009). Creating Healing Environments in Support of the U.S. Military: A Commitment to Quality through the Built Environment. *HERD*, 2:134–45.
- Chua SC et al. (2008). Mobile PET in the UK: legislative, regulatory and cost-effectiveness considerations. *Nucl Med Commun*, 29:98–102.
- Cole J (2009). Strategic Planning of Health Facilities in Northern Ireland. In Rechel B et al. (eds). *Capital investment for health. Case studies from Europe. Observatory Studies Series No. 18.* Copenhagen: WHO Regional Office for Europe, European Observatory on Health Systems and Policies.
- Cordier LF et al. (2020). Networks of Care in Rural Madagascar for Achieving Universal Health Coverage in Ifanadiana District. *Health Syst Reform*, 6:e1841437.
- Dassah E et al. (2018). Factors affecting access to primary health care services for persons with disabilities in rural areas: a "best-fit" framework synthesis. *Glob Health Res Policy*, 3:36.
- Devlin AS (2022). Seating in Doctors' Waiting Rooms: Has COVID-19 Changed Our Choices? *HERD*, 15:41–62.
- DHSSPS (2002). *Designing better services: Modernizing hospitals and reforming structures.* Belfast: Department of Health, Social Services and Public Safety.
- Diaconu K et al. (2017). Methods for medical device and equipment procurement and prioritization within low- and middle-income countries: findings of a systematic literature review. *Glob Health*, 13:59.

- Dickerson ML, Jackson ME (1992). Technology management: a perspective on system support, procurement, and replacement planning. *J Clin Eng*, 17:129–36.
- Elbireer AM et al. (2011). Strengthening Public Laboratory Service in Sub-Saharan Africa: Uganda Case Study. *Lab Med*, 42(12):719–25. Available at: <https://doi.org/10.1309/LM2OBNYY9D0UXZJO> (accessed 4 August 2023).
- Fleming LC et al. (2016). Health-care availability, preference, and distance for women in urban Bo, Sierra Leone. *Int J Public Health*, 61:1079–88.
- Fortney JC et al. (2005). Are primary care services a substitute or complement for specialty and inpatient services? *Health Serv Res*, 40:1422–42.
- Freihoefer K et al. (2018). Setting the Stage: A Comparative Analysis of an Onstage/Off-stage and a Linear Clinic Modules. *HERD*, 11:89–103.
- Graham B (2018). Population characteristics and geographic coverage of primary care facilities. *BMC Health Serv Res*, 18:398.
- Gregory D (2021). Code Lavender: Designing Healthcare Spaces to Enhance Caregiver Wellness. *HERD*, 14:13–15.
- Guargliardo M (2004). Spatial accessibility of primary care: concepts, methods & challenges. *Int J Health Geogr* 3:3.
- Gulwadi GB, Joseph A, Keller AB (2009). Exploring the Impact of the Physical Environment on Patient Outcomes in Ambulatory Care Settings. *HERD*, 2:21–41.
- Hangulu L, Akintola O (2017). Health care waste management in community-based care: experiences of community health workers in low resource communities in South Africa. *BMC Public Health*, 17:448.
- Health Facilities Scotland (2006). Primary Healthcare Premises (SHPN 36) [Online]. NHS National Services Scotland. Available at: <https://www.nss.nhs.scot/publications/primary-healthcare-premises-shpn-36/> (accessed 4 June 2023).
- Heimann P, Issakov A (2001). The essential healthcare technology package: A new WHO tool for planning and managing resources for health interventions. Available at: https://www.researchgate.net/publication/228400847_The_essential_healthcare_technology_package_A_new_WHO_tool_for_planning_and_managing_resources_for_health_interventions (accessed 4 August 2023).
- Hemadeh R et al. (2020). The primary healthcare network in Lebanon: a national facility assessment. *East Mediterr Health J*, 26:700–7.
- Hui CY et al. (2022). Mapping national information and communication technology (ICT) infrastructure to the requirements of potential digital health interventions in low- and middle-income countries. *J Glob Health*, 12:04094. doi: 10.7189/jogh.12.04094.
- Hutton JD, Richardson LD (1995). Healthscapes: the role of the facility and physical environment on consumer attitudes, satisfaction, quality assessments, and behaviors. *Health Care Manage Rev*, 20:48–61.
- Ibrahim A, Price A, Dainty A (2008). Is the Local Improvement Finance Trust (LIFT) procurement initiative delivering the expected economies of scale? Results from three case studies. Available at: <https://core.ac.uk/download/pdf/288374128.pdf> (accessed 4 August 2023).

- Jacquemot P (2020). Les système de santé en Afrique mis à l'épreuve. Policy Center for the New South, Rabat, Maroc. Policy Brief 20 – 32. Available at: https://www.policycenter.ma/sites/default/files/PB_20_32_Jacquemot.pdf (accessed 4 August 2023).
- Javadi D et al. (2020). Implementation research on sustainable electrification of rural primary care facilities in Ghana and Uganda. *Health Policy Plan*, 35:ii124–36.
- Jia JL, Polin DJ, Sarin KY (2020). Ways to Improve Care for LGBT Patients in Dermatology Clinics. *Dermatol Clin*, 38:269–76.
- Jin H-Y et al. (2023). The Role of Healthcare Facility Design on the Mental Health of Healthcare Professionals: A Literature Review. *HERD*, 16:270–86.
- Karp Z et al. (2019). Influence of Environmental Design on Team Interactions Across Three Family Medicine Clinics: Perceptions of Communication, Efficiency, and Privacy. *HERD*, 12:159–73.
- Lenel A et al. (2005). "How to manage" Series for healthcare Technology. Lewes, UK: Ziken International.
- Leslie HH, Sun Z, Kruk ME (2017). Association between infrastructure and observed quality of care in 4 healthcare services: A cross-sectional study of 4,300 facilities in 8 countries. *PLOS Med*, 14:e1002464.
- Levesque J, Harris M, Russell G (2013). Patient-centred access to health care: conceptualising access at the interface of health systems and populations. *Int J Equity Health*, 12. Available at: <https://doi.org/10.1186/1475-9276-12-18> (accessed 4 August 2023).
- Li H et al. (2015). What are the similarities and differences in structure and function among the three main models of community health centers in China: a systematic review. *BMC Health Serv Res*, 15:504.
- Li L et al. (2021). Analyzing Healthcare Facility Resilience: Scientometric Review and Knowledge Map. *Front Public Health*, 9:764069.
- Lim L et al. (2020). Backstage Staff Communication: The Effects of Different Levels of Visual Exposure to Patients. *HERD*, 13:54–69.
- Lim L et al. (2021). The Representational Function of Clinic Design: Staff and Patient Perceptions of Teamwork. *HERD*, 14:254–70.
- Lim L et al. (2022). Clinic Design for Safety During the Pandemic: Safety or Teamwork, Can We Only Pick One? *HERD*, 15:28–41.
- Maruf F et al. (2021). Health facility capacity to provide postabortion care in Afghanistan: a cross-sectional study. *Reprod Health*, 18:160.
- Matić Z et al. (2022). Placing Users at the Center: Evaluating Exam Room Design for Improved User Experience. *HERD*, 15:152–66.
- Mazigo HD et al. (2021). Primary health care facilities capacity gaps regarding diagnosis, treatment and knowledge of schistosomiasis among healthcare workers in North-western Tanzania: a call to strengthen the horizontal system. *BMC Health Serv Res*, 21:529.
- Meiqari L et al. (2020). Strengthening human and physical infrastructure of primary healthcare settings to deliver hypertension care in Vietnam: a mixed-methods comparison of two provinces. *Health Policy Plan*, 35:918–30.

- Mesdaghinia A et al. (2009). Waste management in primary healthcare centres of Iran. *Waste Manag Res*, 27:354–61.
- Miedema E, Lindahl G, Elf M (2019). Conceptualizing Health Promotion in Relation to Outpatient Healthcare Building Design: A Scoping Review. *HERD*, 12:69–86.
- Ministère de la Santé (2018). Le schéma régional de santé. Available at: <https://www.ars.sante.fr/le-schema-regional-de-sante> (accessed 4 August 2023).
- Mohagheghi S et al. (2023). Identifying Optimal Locations for Potential Temporary Community Clinics During Public Health Emergencies. *HERD*, 16:113–30.
- Morgan S et al. (2021). Collaborative Care in Primary Care: The Influence of Practice Interior Architecture on Informal Face-to-Face Communication – An Observational Study. *HERD*, 14:190–209.
- Netherlands Board for Healthcare Institutions (2007). Building differentiation of Hospitals – Layers approach. Utrecht: Netherlands Board for Healthcare Institutions.
- Ntoimo LFC et al. (2021). Assessment of service readiness for maternity care in primary health centres in rural Nigeria: implications for service improvement. *Pan Afr Med J*, 40:151.
- Olmsted RN (2021). Reimagining Construction and Renovation of Health Care Facilities During Emergence from a Pandemic. *Infect Dis Clin North Am*, 35:697–716.
- Oyekale AS (2017). Assessment of primary health care facilities' service readiness in Nigeria. *BMC Health Serv Res*, 17:172.
- PAHO (2021). Connectivity and Bandwidth: Key Areas for Improving Public Health. Digital transformation toolkit. Pan American Health Organization. Available at: https://iris.paho.org/bitstream/handle/10665.2/54578/PAHOEIHIS21020_eng.pdf?sequence=4&isAllowed=y (accessed 4 August 2023).
- Papanicolas I et al. (2022). Health system performance assessment: a framework for policy analysis. Health Policy series 57. Geneva: WHO (acting as the host organization for, and secretariat of, the European Observatory on Health Systems and Policies). Available at: <https://apps.who.int/iris/handle/10665/352686> (accessed 4 August 2023).
- Potgieter N et al. (2021). WASH infrastructure and practices in primary health care clinics in the rural Vhembe District municipality in South Africa. *BMC Fam Pract*, 22:8.
- Rahmani K et al. (2021). Value-Based procurement for medical devices: A scoping review. *Med J Islam Repub Iran*, 35:134.
- Raj M et al. (2022). Influence of Evidence-Based Design Strategies on Nurse Wellness. *HERD*, 15:233–48.
- Sadek AH, Willis J (2020). Ways to harness the built environment of ambulatory cancer facilities for comprehensive patient support: A review of the literature. *Int J Nurs Stud*, 101:103356.
- Scottish Government et al. (n.d.). Quality and Efficiency: Value for money lessons and performance measures from the Primary Care Reference Design Project. Edinburgh.
- Shannon MM et al. (2020). Application of Theory in Studies of Healthcare Built Environment Research. *HERD*, 13:154–70.
- Shastry V, Rai V (2021). Reduced health services at under-electrified primary healthcare facilities: Evidence from India. *PLoS One*, 16:e0252705.

- Singh D et al. (2021). Cost of scaling-up comprehensive primary health care in India: Implications for universal health coverage. *Health Policy Plan*, 36:407–17.
- Ssensamba JT et al. (2019). Health systems readiness to provide geriatric friendly care services in Uganda: a cross-sectional study. *BMC Geriatr*, 19:256.
- Stewart MK et al. (2002). Enhancing rural economic development: crafting a health care revolving loan fund. *J Health Care Poor Underserved*, 13:425–42.
- Stroebel RJ et al. (2021). The impact of clinic design on teamwork development in primary care. *Health Care Manage Rev*, 46.
- Temple-Bird C et al. (1995). *Medical equipment in Botswana: a framework for management development*. Geneva: World Health Organization.
- Thomas SL, Wakerman J, Humphreys JS (2014). What core primary health care services should be available to Australians living in rural and remote communities? *BMC Fam Pract*, 15:143.
- Tomczyk S et al. (2022). The first WHO global survey on infection prevention and control in health-care facilities. *Lancet Infect Dis*, 22:845–56.
- Ulrich RS et al. (2008). A Review of the Research Literature on Evidence-Based Healthcare Design. *HERD*, 1:61–125.
- Ulrich RS et al. (2010). A Conceptual Framework for the Domain of Evidence-Based Design. *HERD*, 4:95–114.
- Van der Linden V, Annemans M, Heylighen A (2015). “You’d want an energy from a building”: User experience of healing environment in a Maggie’s Cancer Caring Centre. Proceedings of the 3rd European Conference on Design4Health, 13–16 July 2015, Sheffield.
- Verderber S, Kimbrell J (2005). The role of the architectural environment in community health: an evidence-based initiative. *J Public Health Manag Pract*, 11:79–89.
- Wang W et al. (2019). Evaluating Primary Health Care Performance from User Perspective in China: Review of Survey Instruments and Implementation Issues. *Int J Environ Res Public Health*, 16.
- WHO (2011). *Medical equipment maintenance programme overview*. WHO Medical Device Technical Series. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241501538> (accessed 17 April 2024).
- WHO (2016). *Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241549929> (accessed on 17 April 2024).
- WHO (2019). *Minimum requirements for infection prevention and control*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241501538> (accessed on 17 April 2024).
- WHO (2020). *WHO package of essential noncommunicable (PEN) disease interventions for primary health care*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240009226> (accessed 17 April 2024).
- WHO (2022a). *Global report on infection prevention and control*. Geneva: World Health Organization. Available at: [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/ipc/ipc-global-report/who_ipc_global-report_executive-summary.pdf](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/ipc/ipc-global-report/who_ipc_global-report_executive-summary.pdf) (accessed on 17 April 2024).

- WHO (2022b). Water and Sanitation for Health Facility Improvement Tool (WASH FIT): a practical guide for improving quality of care through water, sanitation and hygiene in health care facilities, 2nd edn. Geneva: World Health Organization. Available at: <https://www.who.int/publications-detail-redirect/9789240043237> (accessed on 17 April 2024).
- WHO (2022c). Global report on infection prevention and control. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240051164> (accessed 4 August 2023).
- WHO (2023a). Energizing health: accelerating electricity access in health-care facilities. Geneva: World Health Organization, the World Bank, Sustainable Energy for All and the International Renewable Energy Agency. Available at: <https://www.who.int/publications-detail-redirect/9789240066960> (accessed on 17 April 2024).
- WHO (2023b). Service availability and readiness assessment (SARA) [Online]. Geneva: World Health Organization. Available at: [https://www.who.int/data/data-collection-tools/service-availability-and-readiness-assessment-\(sara\)](https://www.who.int/data/data-collection-tools/service-availability-and-readiness-assessment-(sara)) (accessed 12 March 2023).
- WHO Regional Office for Europe (2023). Rapid Response Mobile Laboratories (RRML) Network: what's in a mobile laboratory? WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/bitstream/handle/10665/366110/WHO-EURO-2023-6964-46730-68041-eng.pdf?sequence=1&isAllowed=y> (accessed 4 August 2023).
- WHO, UNICEF (2018). A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. Geneva: World Health Organization/United Nations Children's Fund.
- WHO, UNICEF (2020). Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization/United Nations Children's Fund.
- WHO, World Bank (2015). Access to Modern Energy Services for Health Facilities in Resource-Constrained Settings. Geneva: World Health Organization.
- WHO et al. (2023). Energizing health: accelerating electricity access in health-care facilities. Geneva: World Health Organization, the World Bank, Sustainable Energy for All and the International Renewable Energy Agency. Available at: <https://www.who.int/publications/i/item/9789240066960> (accessed 17 April 2024).
- Wingler D, Hector R (2015). Demonstrating the Effect of the Built Environment on Staff Health-Related Quality of Life in Ambulatory Care Environments. *HERD*, 8:25–40.
- Zamzam AH et al. (2021). A Systematic Review of Medical Equipment Reliability Assessment in Improving the Quality of Healthcare Services. *Front Public Health*, 9:10.3389/fpubh.2021.753951.
- Zhang W et al. (2021). I Know Some People: The Association of Social Capital with Primary Health Care Utilization of Residents in China. *Front Public Health*, 9:689765.
- Zook J, Spence TJ, Joy T (2021). Balancing Support for Staff and Patient Centeredness Through the Design of Immediate and Relational Space: A Case Study of Ambulatory Care Center Layouts. *HERD*, 14:224–36.

INFORMATION SYSTEMS AND DIGITAL SOLUTIONS

This fictional story illustrates how information systems and digital solutions can enable PHC-oriented health systems

Marina, Alma and Jo's 12-year-old daughter, visited her cousins in a neighbouring town. While there, she fell ill with a cough, sore throat and fever. Her aunt took her to a private clinic and she was given an antibiotic. On her return home, she developed red and itchy patches over her entire body, although the sore throat and fever had gone. Worried about the rash, Alma and Jo took her to the neighbourhood's after-hours clinic. The clinical officer on duty consulted Marina's personal electronic health record, which was accessible throughout the public network. From the record, she noted that Marina was tested positive for a penicillin allergy and had a similar rash after being treated for an ear infection as a toddler. The clinical officer also noted from the record that Marina had not received the routine immunization typically given at her age and so administered

them. She explained to Marina and her parents how to access their health record remotely from their phone so this information would be available to them when they travel, reminding them that a future allergic reaction could be severe and dangerous. She urged Marina and her family to make an appointment with their regular primary care team in the near future for follow-up care, including a potential referral for allergy testing.



13

Information systems and digital solutions

Anna Schurmann, Ajil Joseph, Toni Dedeu and Girdhari Bora

Key messages

Health and digital information systems including eHealth, mHealth and artificial intelligence (AI), collect, store, process and distribute data. The assessment of digital solutions is ongoing, but it is already clear that they play a critical role in understanding health needs, outcomes and care processes, and inform health planning. They can also help engage individuals and communities across the care continuum. However, their impact is limited unless they are aligned with the broader health system infrastructure and integrated into routine workflows.

- High-quality, reliable and trusted data – that is analysed, shared and interpreted – offers policy-makers necessary insights to implement a primary health care (PHC) approach. Integrated services also depend on efficient flows of high-quality data.
- Ensuring data that is “good enough” to support all stakeholders’ decision-making and integration requires:
 - interoperable data systems with standardized data definitions
 - timely availability, which in turn means resourcing effective data entry and data pipelines
 - communicating the data in ways that are tailored to local decision-making processes, and which empower patients to participate in informed health care choices.
- E-registries, a unique identifier and automated quality checks are key tools in meeting system needs and fostering coordination and communication between patients, providers and decision-makers.
- Information and digital systems will best support a PHC approach when:
 - there is a comprehensive and resilient digital ecosystem in place
 - PHC objectives and a commitment to integration underpin the approach
 - this is developed and implemented mindful of inequalities in adoption and use.

13.1 Introduction

Timely access to reliable and actionable data is essential to facilitate and accelerate the process of data use, engaging communities and tracking patients across the care continuum. This strengthens primary health care service delivery, and the health system at large. This chapter explores how information systems and digital solutions can enable the implementation of the PHC approach. When data are not shared and used, decision-making lacks transparency, resources are wasted, medical errors may occur and reach is limited.

Digital health is an umbrella term that encompasses eHealth, mHealth, AI, machine learning and big data, and constitutes a key segment of the digital ecosystem. Digital health is closely related to health technologies, which are addressed in Chapter 11.

Digital health solutions promise a variety of concrete benefits at every level of the health system and across different health system stakeholders. These are primarily realized through efficient flow of high-quality data from capture, storage, analysis, access and use offered through digital solutions. They can create cost efficiencies, help address funding constraints and allow for more efficient use of resources (Saxena et al., 2012). These digital solutions can be easily scaled up to serve large numbers of patients, and provide a level of agility to address emerging health needs (Hudes, 2017). For example, the country illustration relating to MomConnect (Section 13.3) describes how an mHealth intervention for maternal and child health provided the framework for a robust COVID-19 response.

Health data alone are not transformative: it is important for the data to be analysed, shared, interpreted and used (Verschuuren & van Oers, 2018; Rendell et al., 2020; Byrne & Sæbø, 2022), as well as of a reliable quality to ensure and maintain trust and system engagement (Ouedraogo et al., 2019; Kebede, Adeba & Chego, 2020; Diallo et al., 2022; Meidani et al., 2022). The challenges to data quality are many, including burdensome and time-consuming data entry, the lack of data definitions, and a lack of perceived utility of data for local decision-making. A health information system (HIS) with e-registries, a unique identifier and automated quality checks as a backbone can address many of these challenges. However, many countries are still in transition and few have achieved a level of digital maturity that can assure data quality (Frøen et al., 2016; Monterde et al., 2020; Liaw et al., 2021)

While digitization of health systems has been under way for some time, with few exceptions progress towards digital maturity has been sluggish (Mash, Schouw & Fischer, 2022). The need for a coordinated response to the COVID-19 pandemic has provided a sudden acceleration of digital transformation efforts, and this should be leveraged and sustained (GAP, 2021). The Denmark eportal country illustration (Section 13.3) describes the expansion of existing digital solutions to meet population needs in a pandemic scenario.

The many benefits of digital transformation accelerate efforts towards implementing the PHC approach and achieving universal health coverage (UHC). Digital health is a dynamic field and we can expect these benefits to multiply with new innovations and information applications. However, this chapter suggests the future of digital health lies not only in novel applications (although they will come) but in creating a resilient ecosystem (see Fig. 13.1) and eliminating inequalities in adoption and use. When digital interventions are not implemented with a view towards integration, and a purposeful attention to PHC principles and objectives, they can burden rather than support health systems.

This chapter outlines information systems and digital technology and describes how they can enable the collection, sharing and analysis of health-relevant data to support high-performing PHC-oriented health systems (see Section 13.2). Section 13.3 offers country illustrations to better understand how many of the solutions have been implemented. Section 13.4 offers concluding reflections.

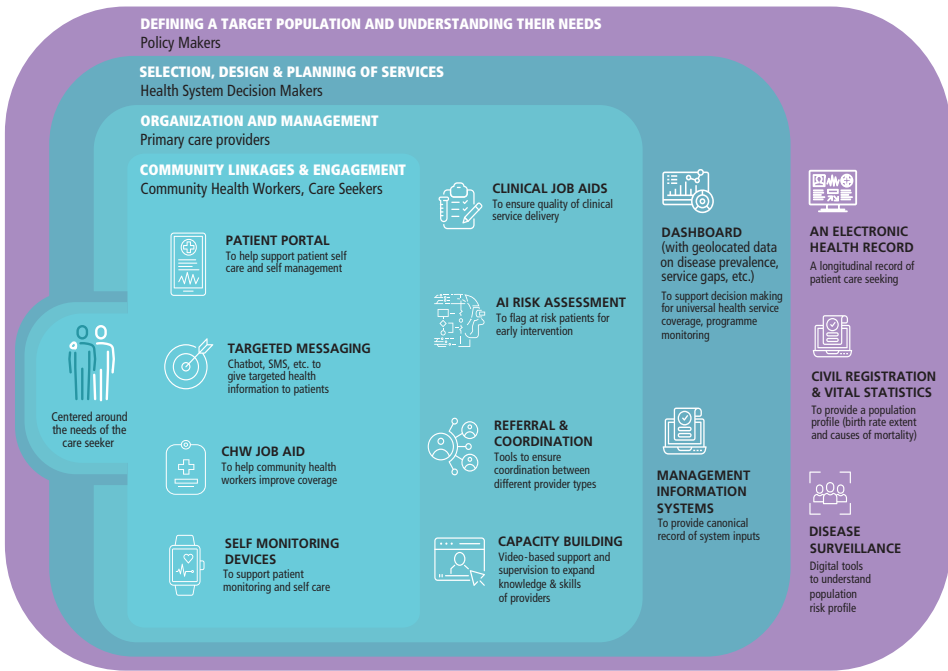
13.2 Evidence review: information systems and digital solutions to strengthen the PHC approach

Despite significant investments, evidence about the impact of digital solutions on advancing PHC remains inconclusive and is largely based on small case studies and pilots with findings that lack clear and explicit internal and external validity. The solutions described in the following sections are prioritized because they address key health system challenges and contribute towards an overall digital ecosystem that can support the PHC approach. Much of the available evidence is based in pilots, whereas real health impact and sustainability require solutions to be intentionally embedded within PHC and, more broadly, within an integrated digital ecosystem. This includes interoperable solutions which piece together to comprehensively meet the information needs of the PHC approach, as illustrated in Fig. 13.1.

Interoperability would ideally be supported by a health information exchange (HIE) or similar platform and data standards (typically Fast Healthcare Interoperability Resources (FHIR) or Health Level Seven (HL7)). The country illustration on data sharing (Section 13.3) describes the benefit of an HIE for primary health care quality outcomes. Ensuring interoperability requires governance and a robust enabling environment. Elements of this are described elsewhere (for example, WHO & ITU, 2012; WHO, 2019). It is important to note here that without an enabling policy environment, digital solutions are unlikely to be sustainable or impactful.

Fig. 13.1 depicts a layered PHC-oriented digital ecosystem to illustrate how information systems and digital solutions may link to the different domains of PHC-oriented models of care (as outlined in Chapter 6). It must be noted that many of the information systems and digital solutions can cover more than one domain as they are cross-cutting and used for various purposes.

Fig. 13.1 Delivering an integrated ecosystem of information systems and digital health solutions supports the PHC approach



Notes: The different information systems and digital solutions can be allocated to more than one layer of the figure as they are cross-cutting. For illustrative purposes, they have been allocated to only layer.

Source: Authors' compilation

A prerequisite for enabling reorientation towards PHC are information systems that define target populations and understand their health requirements, depicted as an overarching box. These information systems provide data foundations for all the model of care domains, including a unique identifier for each individual or patient, and a population denominator. The first model of care domain relates to data for selecting, planning and monitoring health care services. The following layers comprise tools that enable service design and organization and management for PHC-oriented services. The innermost layer includes data solutions for engaging patients and communities in their own care. All of these functional areas would ideally be oriented around the needs of the patient or care-seeker. The review of the evidence presented in this section is organized according to these mutually related model of care domains as presented in Chapter 6. Table 13.1 summarizes the various types of information systems and digital solutions presented in Figure 13.1, highlighting the importance of integrating digital solutions into a comprehensive digital ecosystem that can support comprehensive integrated service delivery. However, as mentioned above, most of the information system and digital tools depicted in Figure 13.1 and Table 13.1 and out-

lined in this chapter can be cross-cutting (e.g. electronic health records (EHRs) can improve care coordination (domain 'organization and management') and enhance self-care (domain 'community linkages and engagement').

Table 13.1 Information systems and digital solutions for a PHC-oriented model of care

Enabling orientation towards PHC	Tools	Contribution
Defining a target population and understanding their need	Digital Civil Registration and Vital Statistics (CRVS)	Captures whole population Population size, growth trends Provides denominator for whole population statistics
	Unique identifier	May integrate information across sectors/programmes
	Health Registries	Population-level health characteristics and needs
	Public Health and Disease Surveillance System	Specific sentinel conditions
Domain	Tools	Contribution
1 Selection, design and planning of services	Management Information Systems	Understand existing service utilization and gaps in service delivery and guides planning
	Dashboards and Spatial Analytics (GIS)	Actionable information Data informed design, resource allocation and management
2 Service design	Coordination and referral tools	Promote coordination and continuity of care
	Clinical decision support systems (CDSS)	Rapid access to evidence-informed care

Continued on next page

Domain	Tools	Contribution
3 Organization and management	Electronic Health Records (EHR)	Individual high-quality care Link to population-level interventions
	Digital Capacity Building tools	Education/training
4 Community linkages and engagement	Community Health Worker digital tools	Improved outreach and coverage, Quality service delivery
	Targeted Client Communication	Continuous engagement with communities

13.2.1 Enabling reorientation towards the PHC approach: digital solutions for defining the target population and understanding their needs

As a whole-of-society approach, PHC begins with an adequate characterization of the whole population, its size, distribution, sociodemographic characteristics and changes over time. In the first instance, a reliable estimate of population size and characteristics supports health systems to optimize resource allocation to improve the effectiveness and equity of health services (OECD, 2018). In Namibia, for example, improved calculation of denominator populations changed malaria incidence measures by more than 30% (Erbach-Schoenberg et al., 2016). Relying on outdated population figures such as census data can result in (for example) overstated vaccination rates, as seen in a multicountry study in Africa (Cutts, Danovaro-Holliday & Rhoda, 2021). Census or survey data may underreport excluded populations who do not have a stable abode (migrants, people in conflict areas) (Bremner, 2014; United Nations Office, 2014; Dowell, Blazes & Desmond-Hellmann, 2016; Wardrop et al., 2018; Tatem, 2022). Summarized data are limiting because they lack the ability to uniquely identify each individual and link them to economic, social, demographic, migration and health-related data. A more useful option is aggregable individual data. There are a number of digital interventions which capture population details that are then foundational for other digital solutions, including civil registration and public health surveillance.

Civil Registration and Vital Statistics

Civil registration refers to the continuous, permanent, compulsory and universal recording of births, marriages and deaths, including cause of death. Civil registration establishes the legal identity of individuals (typically confirmed through a certificate) and provides the basis for the production of vital statistics. The digitalization of the CRVS system is essential for timely, responsive and robust PHC-related planning. Globally, 60% of deaths are unreported, and one in four is attributed to unclear causes

(AbouZahr et al., 2015). Most low-income countries (LICs) still use paper-based CRVS, making it challenging to retrieve birth registration records, issue duplicate birth certificates, analyse and share civil registration data (WHO, 2019). When based on high-quality information, the digitization of CRVS systems can improve data access, quality and completeness, and standardizes cause of death data through use of the International Classification of Diseases (ICD) (Mikkelsen et al., 2015; WHO, 2018). For example, when Brazil digitized the birth registration process, it improved institutional coordination between states and at the national level and helped the health system post birth and death statistics online (Danel & Bortman, 2008).

Health registries

Data are typically collected through health registries. Interoperable health registries form the foundation of a digital infrastructure. Digital health registries assign standardized and unique identifiers to patients, health facilities, health workers and geographies in order to distinctly identify them across the health system (Thorell et al., 2019). When registries are integrated and interoperable, such as in Denmark, data can be shared providing a singular, reliable and up-to-date view of population health (see Section 13.3.). Standardized master registries provide building blocks for more cost-effective digital development. The creation of new digital tools using master registries has been found to reduce development and hosting costs (Balagurusamy et al., 2021).

Comprehensive registries enable population segmentation and risk stratification and provide a denominator from which to calculate prevalence and incidence (WHO, 2021a; Mcqueen et al., 2022). It enables flexible views of the population, including contextual segmentation and grouping by health characteristics, providing data inputs for planning and decision-making at multiple levels (Tshabalala & Taylor, 2016; Venkateswaran et al., 2018; Friberg et al., 2019; Isbeih et al., 2019; Giner-Soriano et al., 2022). For example, a study used data from the Catalan Health Department Surveillance System to measure multimorbidity to predict local primary health care service utilization. These data are useful for service planning and management decision-making (Monterde et al., 2020).

Integrating different health registry systems can provide tools to advance quality, efficiency and performance, and allows the foundation for research into new preventative care and treatments (Schmidt, Pedersen & Sørensen, 2014; Mainz, Hess & Johnsen, 2019; WHO, 2021c). These data could be sourced from different ministerial departments such as health, nutrition, education, migration, civil registration, road traffic accidents and environmental risks, and can be displayed through web and mobile-based dashboards, tabular and geospatial reports, graphs, charts and maps. For instance, in 2014, the Ministry of Health in Singapore implemented its National Health IT Masterplan (Koh, 2017). This comprehensive population health management initiative leverages data from multiple sources. The Ministry of Health collaborates with various sectors, including health care providers, public health agencies, community organizations and social services, to develop and implement targeted interventions. Population health management data are shared across these sectors to identify areas

of need, allocate resources effectively and coordinate efforts. Implementation of the National Health IT Masterplan is ongoing, with various initiatives and advancements in health care technology and data management since its initial launch.

Public Health and Disease Surveillance Systems

Disease surveillance is the systematic collection, analysis and interpretation of data to identify outbreaks before they become epidemics and to guide public health decision-making (see Chapter 5) (Thacker & Berkelman, 1988; Mboera, Rumisha & Kitua, 2001). The COVID-19 pandemic highlighted the need for the health system to identify and track new and emerging diseases and respond accordingly. Digital disease surveillance involves the use of technology, such as EHRs, social media data and mobile apps, to collect and analyse data on the spread of diseases in real time, enabling a more rapid response (Nielsen et al., 2017; Bhatt et al., 2022). For example, in Brazil the integration of data from the two systems provided an appropriate “denominator” for targeted health service delivery. Disease surveillance systems (SINAN) data and primary care information systems data were utilized to study the characteristics of syphilis-affected sub-cohorts among pregnant women to strengthen antenatal screening and treatment (Pereira et al., 2014).

Routine analysis of combined surveillance data from different sectors and information systems can highlight interdependencies, and therefore provide a basis for collaboration and cooperation. Evaluations of interventions can then span sectors, as demonstrated in climate change and health (Bordier et al., 2019). This requires collaboration between health care providers, public health agencies and other relevant sectors to coordinate response efforts. For example, Eum et al. examined patterns between climate variability and diarrheal illness in Papua New Guinea using national health information system data and national weather service data. They found that there was a strong relationship between climate and diarrhoea incidence (Eum et al., 2012).

13.2.2 Digital solutions supporting selection and planning of services

A second category of information systems and digital solutions primarily aims to optimize the performance of the health system through monitoring and evaluation. They gather, collate, analyse and display data, providing valuable insights into gaps in service delivery and can be used in the planning of integrated health services, including through public policies aimed at improving primary care at the system level (Carneiro, da Silva Vila & da Silva Vieira, 2021). Planning and performance monitoring are difficult when such information is missing or inaccurate, potentially leading to high costs, and inadequate coverage and quality (WHO, 2019). Three types of digital tools are described below: digital management information systems, dashboards and spatial analysis tools.

Management information systems

Prioritization and planning for primary care services require access to information on the available resources, their allocation and management. Unequal distribution of resources and misalignment with population needs pose challenges to the effective implementation of the PHC approach. Long-term historical data and trend analysis from these systems identify gaps in primary health care organization, planning, staffing and service delivery as demonstrated in the areas of diabetic care (Sahadew, Pillay & Singaram, 2022), pneumonia hospitalizations (Avelino et al., 2015) and cardiovascular conditions (Lentsck, Latorre & Mathias, 2015; Sarfo et al., 2022).

Management information systems (MIS) record data and information from various sources to inform decision-making. Health system inputs such as medicines and equipment, human resources and facilities are typically tracked through dedicated management information systems. Including management functions to the digitization of these MIS can help countries manage complex health sector resources (Higman et al., 2019). For example, health worker distribution, mix and migration data are needed for health system planning. An integrated human resources information system and digital repository can streamline the collection, maintenance and analysis of health worker data to ensure the timely availability of accurate and up-to-date information. This enables informed recruitment decisions, based on staffing gaps and a clear understanding of health worker distribution, mix and migration patterns (Nta et al., 2017).

Dashboards

While digital health tools are rich sources of data, the information they hold is not always optimally analysed, communicated and used to enable decision-making (Paltrinieri et al., 2009; Kabakama et al., 2016). Dashboards provide a clear visualization of key summary information and can help make high-quality data more accessible and actionable for different system actors at macro, meso and micro levels, especially in dynamic contexts such as in PHC. To be optimally actionable, dashboards need to be designed with a clear purpose and understanding of the target audience, and provide stakeholders with timely, reliable and focused information in simple and understandable formats. They provide visual representations of the effect of policy decisions over time and present a compelling storyline to guide appropriate decisions (Ivanković et al., 2021).

The District Health Information System II (DHIS2) is an open-source modular web-based health information system platform, often used in LMICs. One of the features of DHIS2 is its enhanced accessibility through a dashboard that brings together data from the multiple databases for in-depth analysis and visualization. Bangladesh's experience with DHIS2 presents a good example of the power of information systems and digital solutions for PHC.

Since 2009, Bangladesh has had a DHIS2-supported National Health Information System and is the largest deployer of the software globally. The DHIS2 dashboard has facilitated primary care managers' ownership of, and accountability for, their health

data. Since 2016, data review and use have become institutionalized through weekly video-conference meetings between the Director General of Health Services and the country's eight divisional and 64 district health managers where the dashboard data and any required follow-up are discussed. This provided a high level of system agility and resilience during the pandemic, ensuring that routine health services were restored as quickly as possible (Wangmo et al., 2021).

Spatial analysis tools

Successful PHC-oriented health systems are responsive to their local context. By visualizing health data in geographic context, health planners and policy-makers can gain valuable insights into the health needs of communities and design more effective programmes to meet those needs. Spatial analysis with a geographical information system (GIS) is a digital solution that can be used to map and visualize health data geographically. This can be useful for identifying patterns and trends in disease incidence, creating empanelment systems, mapping health service utilization by area and health facility utilization by distance, and for optimizing the location of new facilities to maximize coverage, responsiveness and efficiency (Tanser et al., 2001; Tanser, 2006; Shakiba, Haghdoost & Majdzadeh, 2008; Saxena et al., 2012; Rao et al., 2016; Tew et al., 2021; You, 2021). An example of successful GIS deployment is in polio eradication in Nigeria. Nigeria is one of the few remaining countries with active wild polio virus (WPV). A factor that had hampered its eradication is that some areas remain unreachable by vaccination and prevention efforts. To ensure comprehensive outreach, an intensive GIS mapping was done of affected areas. From this exercise, tools were created to support field teams, using georeferenced base maps to identify catchment areas and resource maps for microplanning. During the intervention period where these tools were used, a large reduction in WPV incidence was recorded (GAVI & UNICEF, 2020).

13.2.3 Digital solutions for service design

A third category of information solutions aims to improve the service design of PHC-oriented systems. This involves creating services that meet the needs of a well-defined community in terms of ensuring access to quality, integrated and coordinated health care (see Chapter 6). Within this domain the opportunities for digital transformation primarily lie with clinical decision support and referral systems, and coordination and referral tools.

Clinical decision support systems (CDSS)

Ensuring quality of care is a central goal of the PHC approach and can be enabled through the use of CDSS. Implementing guidelines and protocols in different service delivery settings can be challenging, especially in resource-constrained environments (see Chapter 6). Digital solutions can facilitate the process of health workers adopting clinical guidelines. Digital decision support systems include: clinical algorithms with prompts and alerts; checklists; and screening tools to identify at-risk patients. These can either be standalone tools or integrated with EHRs, as described below (Horner et

al., 2013; Haddad et al., 2020). AI tools can leverage EHR data to improve patient risk assessment and guide early intervention (Gorham et al., 2021; Abdulazeem et al., 2022; Fredriksson et al., 2022; Terry et al., 2022).

Research has shown that digital decision support can improve protocol adherence, leading to improved quality of care in areas such as maternal care, child health, kidney disease, mental health and tuberculosis (TB) (Bernasconi et al., 2018; Ugarte-Gil et al., 2020; Gorham et al., 2021; Venkateswaran et al., 2022). This guidance can support the process of task-shifting to other providers, extending access to and reach of services (Patel et al., 2022). A study of maternity care in the West Bank examined the impact of eRegQual, a customized DHIS2 application for case-based tracking data. DHIS2 Tracker supports direct monitoring and follow-up on individual cases as well as data analysis and reporting within a larger management information system. In this study, clinical decision support was associated with better adherence to protocols and improved the quality of antenatal care (Venkateswaran et al., 2022).

While evidence suggests that decision support tools contribute to patient satisfaction (Agarwal et al., 2021), acceptance of these systems varies among health workers. A qualitative synthesis found that health workers had a range of responses to phone-based digital decision support tools, from feeling that these tools threatened their clinical skills to a sense of information overload (Odendaal et al., 2017). The World Health Organization (WHO) recommends the use of digital health worker decision support in the context of tasks that are already defined as being within the scope of practice for these health workers (WHO, 2019).

Coordination and referral tools

Coordination of care for patients and their families is a core feature of quality primary care and contributes to the integration of health services, which is central to PHC-oriented health systems (see Chapter 6). Care coordination includes referrals to specialists in secondary and tertiary care, and counter-referrals back to primary care (Kringos et al., 2010; Akman et al., 2022). Referral with incomplete, fragmented and disorganized clinical communication undermines quality and continuity of care; is confusing for providers and patients; and contributes to medical errors (Taggart et al., 2021; Steyn, Mash & Hendricks, 2022). Digital solutions can enhance care coordination by facilitating the sharing of clinical information between different providers. This can be integrated within EHRs or as a standalone tool.

In South Africa, the Vula application supports communication between primary care providers and specialists in ophthalmology, cardiology and orthopaedics, and includes a function for referring burn patients. The app's functions include the ability to share images, protocol-driven structured collection of patient details, and a messaging function to provide primary care providers with specialist advice on specific cases. The app improves access to quality care onsite, preventing unnecessary long-distance and time-consuming hospital visits for patients; relieves the burden at busy referral hospitals; improves follow-up care; and provides capacity building support to primary care providers. A qualitative synthesis found that health workers appreciate connecting

with colleagues through mHealth tools and that this improved coordination and quality of care. However, overall they preferred face-to-face communication where possible (Odendaal et al., 2020).

Designing digital tools for coordination is a complex process requiring extensive consultation among stakeholders at multiple levels of the health system to map common care pathways for different disease areas, and to make them fit for purpose and use. Despite anticipated benefits, evidence of improved system functioning and health outcomes with the use of clinical referral and planning tools is inconclusive (Hasselberg et al., 2017; Taggart et al., 2021; Steyn, Mash & Hendricks, 2022).

13.2.4 Digital solutions for organization and management

PHC-oriented health systems prioritize high-quality primary care services that provide first contact access, comprehensive, continuous and coordinated care (WHO, 2018). Information systems and digital solutions can empower both providers and patients to improve the quality of care and self-care through longitudinal patient records (continuity). Data related to primary care service delivery and gathered from different digital sources can also be utilized in aggregate form for routine system monitoring and evaluation as well as for research (Fulcher et al., 2020; Godinho et al., 2020). Some of these solution areas are described below, including digital capacity building.

Electronic health records

Primary care services can be a rich source of data collected through the routine work of clinical care, with information brought together within EHRs. An EHR is a record of clinical care-seeking for each individual patient, typically maintained by the provider. By including a unique identifier, EHRs provide a digital record of a patient's interactions with health care providers over time, providing data to improve continuity of care and enhance the patient-provider relationship. In primary health care, this long-term relationship is especially important for managing noncommunicable diseases (NCDs) that endure for many years.

At the individual provider level, aggregated EHR data can be used to monitor provider performance and quality improvement using quality indicators captured in the course of routine care such as blood pressure measurements or specific investigations (see Chapter 5) (Byrne & Sæbø, 2022). When aggregated, data collected from individual health records in the course of routine clinical care can be a rich source of information for the providers, the local facility or health system, and more widely for planners across sectors. For example, EHRs can support health surveillance: the near real-time analysis of electronic medical records can support the early identification of threats and novel diseases. For instance, a rise in individual diagnoses of sexually transmitted infections (STIs) in a given population could trigger targeted population-based outreach and communication about the importance of protection.

An EHR enables health systems to transition from a focus on *indicators and reporting* (often the focus in low- and middle-income country (LMIC) health information systems)

to a focus on *patients and communities*, with indicators automatically generated through routine record-keeping (Byrne & Sæbø, 2022).

EHRs can also serve as building blocks for the integration of other patient and provider-oriented digital tools, such as decision support systems, prediction tools, referral tools and patient monitoring devices.

EHRs can result in reduced costs, increased access to care, improved workflow and efficiency and improved quality of care (Jilka et al., 2015; Yousef et al., 2020). However, EHR systems can also have adverse effects. They can distract providers from direct patient care, and be time-consuming to maintain. EHRs are often blamed for technology-induced stress, poor job satisfaction and provider burnout. A systematic review found that one of the key factors associated with burnout was after-hours EHR use, insufficient documentation time, high inbox or patient call messages, and negative perceptions of the EHR system (Yan et al., 2021). Anecdotally, provider experience with EHRs not only relates to the specific digital platform used, but also varies between countries according to clinical documentation requirements (Downing, Bates & Longhurst, 2018). Ensuring data formats are rationalized to avoid burden is key to system design.

Making an EHR available to patients through dedicated portals can also empower patients to be more engaged in their own care and self-care. There is some evidence that such access improves risk monitoring and access to preventive services (Ammenwerth et al., 2021). Conversely, access to one's own health information can increase anxiety and this needs to be considered in portal design (Jilka et al., 2015). In terms of patient access to EHR data, data privacy and security are important priorities in system design in order to build and maintain trust (Enaizan et al., 2020; Vimalachandran et al., 2020).

Digital capacity building tools

In addition to their potential direct impact on quality of care, digital solutions have also been applied to training for the purpose of enhancing competency and capacity. Uneven capacity within the primary care workforce can have a detrimental effect on the quality of care. Conventional capacity building strategies, such as training, are not always effective in addressing these disparities, and in-service training can disrupt service delivery, particularly in areas with health worker shortages. Digital solutions can address these challenges by identifying performance gaps and training requirements, as well as through delivery of onsite training and supervision through video-based tools (Godinho et al., 2020; Hicks et al., 2021). A study from Nigeria found that video-based training was both effective and well received by health workers. The drivers of adoption were the perceived utility of the training, ease of using the technology and cost effectiveness, while the barriers were electricity supply, connectivity and workload (Hicks et al., 2021). WHO recommends digital training for health workers in situations where it complements rather than replaces traditional approaches of in-service training and health education (WHO, 2019, 2021b).

13.2.5 Digital solutions for community linkages

In the PHC approach, efforts to improve health and well-being are ideally anchored in, and guided by, the community. Individuals and communities require access to information, resources and tools to address their specific health needs for self-care and caregiving and to support accountability. Digital solutions can help to empower individuals and communities through access to health information and to services, and through improved coordination with providers. This section outlines digital solutions that foster linkages with communities including community health worker tools, patient monitoring tools and targeted client communication.

Community health worker digital tools

Community health workers typically extend the reach of health services, building stronger relationships of trust between facilities and communities (see Chapters 2 and 8) (WHO, 2017; Adjekum, Blasimme & Vayena, 2018). Equipping community health workers with digital tools can enhance these efforts. It can result in more accurate and efficient data collection about the health of individuals and communities, enable use of digital decision support tools (see above) and improve supervision of community health worker activities. A community health worker's mobile device may include the following features: scheduling and task management; health promotion using multimedia; decision support for risk screening; and support and supervision (Modi et al., 2020; Wilson et al., 2020). Community health workers have been shown to adopt such tools based on their usefulness and novelty, as well as the status they confer (Odenaal et al., 2017). They have been found to be effective and cost-effective. For example, in tribal areas of Gujarat, India, an economic analysis of mobile devices used by community health workers to deliver maternal and child health services was found to save 11 newborn lives per 1000 live births, at a cost of US\$74 per life saved (Prinja et al., 2017; Modi et al., 2020).

Despite multiple pilot community health worker job aids implemented in different parts of the world since the early 2010s, few have successfully achieved scale, and little evidence exists for programmes at scale (Godinho et al., 2020). Scaling digital community health worker programmes faces several challenges, including the need for extensive monitoring and supervisory support, building digital and data literacy, and ensuring data quality. While digital tools can support community health worker programmes, they cannot replace the need for a well-functioning health system with adequate supervision (Neupane et al., 2014). The WHO recommends the use of such tools (with digital tracking combined with both decision support and targeted client communication) in settings where the health system can support intervention components in an integrated manner, where data privacy is assured and where the tasks are within the defined scope of the health worker (WHO, 2019).

Patient monitoring and self-care

mHealth and AI-enabled wearable devices are digital solutions that have helped patients manage their chronic conditions at home and in the community by providing real-time information and insights (Chapter 11). These tools can improve self-care and

compile key health information between clinical encounters. They can be particularly useful when integrated with EHRs (Coorey et al., 2019; Bhatt et al., 2022). One successful patient-monitoring digital tool implemented in Australia provided personalized cardiovascular disease risk scores, interactive goal setting and tracking functions, a social media chat function, and personalized motivational messaging. The tool's interactivity accounted for its success and resulted in improved patient–GP engagement (Coorey et al., 2019).

Targeted client communication

Leveraging information captured in EHRs, targeted messages such as alerts, reminders and support for preventive health behaviours can be sent to clients to engage them in self-care for a variety of health areas such as diabetes care and maternal and child health (see Chapter 11) (Gatwood et al., 2016; Andrikopoulou, Scott & Herrera, 2018; Bogale et al., 2020). For example, in refugee camps in the West Bank, tailored text messages were developed in collaboration with users to target clients with needs identified from EHR content. This “targeted client communication” resulted in improvements in antenatal care-seeking, institutional deliveries and improved detection of under-nourished children (Bogale et al., 2020; Ballout et al., 2021). Evidence suggests that tailored messaging is most effective for goal setting and appointment reminders (Kuo & Dang, 2016; Andrikopoulou, Scott & Herrera, 2018; Chan et al., 2018; Sanchez & Reynaldos-Grandon, 2022). These processes can be automated through the use of AI and Chatbots (Ni et al., 2017; Mash, Schouw & Fischer, 2022). WHO recommends digital targeted client communication for behaviour change around specific health topics (sexual, reproductive, maternal, newborn and child health) in circumstances where sensitive content and data privacy are adequately addressed (WHO, 2019).

13.3 Country illustrations: information systems and digital solutions to strengthen the PHC approach

This section provides country illustrations that describe implementation of strategies for digital transformation and their impact in specific contexts, including Denmark, the United States of America (USA) and South Africa.

13.3.1 Denmark: an eHealth Portal for provider coordination and patient engagement

In Denmark, as in other countries, the COVID-19 pandemic overloaded the health system and increased mortality. One response to this burden was to accelerate digitization. Digital health tools enabled rapid responsiveness, remote care delivery and coordination across sectors and levels of care. One of the risks of digitization is that it inadvertently increases existing inequalities driven by, among other factors, a lack of digital literacy (WHO, 2022b). One of Denmark's eHealth Portal's successes is how it addressed access barriers and worked to increase digital health literacy for the whole population.

Denmark already had both strong PHC and digital foundations in place, with a tradition of community-based service delivery. The Danish eHealth Portal (sundhed.dk) was established in 2001, leveraging the unique identification system which was established in 1967. In 2018, the Danish authorities started developing a strategy for increasing digital engagement in health. The aim was to provide opportunities for patients to participate in their own care through access to their own health records, and to promote more efficient ways to engage with the health system, through sharing information and improved coordination in service delivery.

Through this new strategy, all residents are required to digitally register with a general practitioner (GP) who provides primary care services and coordinates access to hospital and specialist care for a particular geographic area. Once registered, patients can access information on a wide range of health topics, including disease prevention tools, medicines, treatments, vaccinations and their rights. There is also a platform for video consultation.

Several elements support people with limited digital health literacy, such as a phone-based support team that responds to citizens' queries, guiding them in care-seeking and navigating the digital interface. Municipal offices and libraries provide access to devices for those who do not own a smartphone or computer. For those who need support in their care, a "power of attorney" function allows trusted relatives and caregivers to access patient records, enabling a higher level of support and care. The Portal allows providers to access guidance when a patient needs to be referred for treatment to a hospital or specialist and acts as a support tool for shared decision-making.

The urgency of the pandemic led to swift expansion of the Portal, incorporating data from municipalities, ensuring this local level of care could be factored into the emergency response. The Portal became instrumental in facilitating remote delivery of health services, including diagnostic results and vaccination records. It has also served as an information resource for making rapid decisions, for care-seekers and health care professionals. In 2020, active user testing made the site more accessible and useful and in the first three months of the pandemic, the number of active patient users more than doubled, while the number of provider users stayed stable, indicating that this was already a useful system.

Ultimately, the Portal has become instrumental in promoting digital health literacy. In 2021, more than 92% of the population over the age of 15 were familiar with digital communication for public services, including self-services. The Danish experience is that digitization can foster active citizen engagement contributing to the PHC approach, for individual and community benefit. Two strategies were key to this initiative's success: mandatory digital self-registration of all patients, and a centralized digital system of unique identification. Adequate investments in digital health literacy were also key to building trust and improving access for the whole population (WHO, 2022a).

13.3.2 United States of America: enhancing primary care outcomes through health information exchange

This country illustration explores the impact of sharing different data sources through a health information exchange platform in the Comprehensive Primary Care Plus (CPC+) programme in the USA. A HIE platform allows primary care providers to analyse health data from multiple sources to understand population health trends, disease prevalence and health care utilization. This information helps them identify at-risk populations, take preventive measures and tailor care to patients' needs. Clinical decision support systems within the platform provide evidence-based guidelines and alerts for informed decision-making, which leads to better treatment outcomes (Kierkegaard, Kaushal & Vest, 2014).

The CPC+ programme is the largest primary care payment and delivery reform effort tested in the USA to date. Launched by the Center for Medicare & Medicaid Innovation in 2017, it currently covers 2599 health facilities with 13 766 primary care providers, serving 17 million patients in 18 regions (Swankoski et al., 2022). The objective of the CPC+ programme is to enhance and incentivize primary care facilities to improve the quality of care through strengthening a number of key functions: improving access and continuity of care; case management; patient and caregiver engagement; and utilizing data to identify patient needs.

In the first two years of programme implementation facilities struggled to meet CPC+ service delivery targets for quality and efficiency. While there were gradual improvements across some indicators, the CPC+ programme did not generate sufficient savings to offset its costs. One factor that undermined programme success was limited digital capabilities, including access to comprehensive medical information, seamless information flow between providers and patients, and reliable analytics and information-processing tools (Peikes et al., 2019, 2021). Despite the CPC+ programme providing an economic incentive for medical facilities to use the dedicated platforms, not all medical facilities were doing so.

A study conducted in western New York examined the impact of CPC+ membership and platform utilization on 37 primary care facilities. The facilities were categorized into four groups based on their participation in CPC+ and utilization of health information exchange services. Primary care facilities that were members of both CPC+ and health information exchange platforms had stronger performance in various metrics. Compared to facilities that did not participate in either programme, CPC+ and platform members experienced a 24.1% reduction in risk-adjusted hospital admission rates and a 21.0% decrease in risk-adjusted outpatient surgery rates. Additionally, average lengths of hospital stays were 32.7% lower, and readmission rates were 30.4% lower in the CPC+ and health information exchange platform group (Porreca & Yaraghi, 2022).

These findings indicate that leveraging an interoperable and robust health information exchange system enables health facilities to access comprehensive medical data for data-informed decision-making and targeted and tailored service delivery. By adopting

these measures, primary care facilities can enhance care coordination and data-informed decision-making, resulting in improved quality, access and efficiency in primary care services.

13.3.3 South Africa: an mHealth application that fosters health information exchange

The South African National Department of Health (NDoH) launched MomConnect in 2014 with a coalition of public and private partners. At that time, maternal, newborn and child mortality rates were unacceptably high. The design of MomConnect was based on evidence that electronic data collection and mobile health (mHealth) interventions can improve health service delivery, and leveraged high mobile telephone coverage in South Africa. MomConnect sends free mobile telephone text messages in all eleven official languages to pregnant women who voluntarily register at any public health care facility in South Africa. MomConnect's objectives include registering pregnancies in the public sector, sending targeted, stage-based health promotion messages and providing mechanisms for interactive feedback on the services delivered. The messages are specifically designed to create an emotional connect with pregnant women and empower them with information on antenatal care visits, healthy and safe labour, and best practices in infant care (Peter et al., 2018).

In this programme, users either registered on the platform or were registered by a nurse or a community health worker. User-specific data were then verified and facility codes were validated with the facility registry. Once the registration was complete, the application triggered a suite of stage-based messaging for the mothers. A strong HIE layer facilitating interoperability then validated the suite of messages and placed them in queue to be sent to the users' mobile phone. Interoperability allowed the programme's application to be linked to DHIS2, which includes key health data and serves as a "pregnant women" registry. In this registry, each pregnant woman is uniquely identified using their South African National Identifier within a master patient index (Open Enterprise Patient Index), medical record system (i.e., OpenMRS) and a master facility index. The MomConnect programme also includes a virtual help desk that can be accessed by mothers registered with the programme to obtain additional information as required (Seebregts et al., 2016). Prior extensive investment in digital health architecture and an existing service package that includes digital and face-to-face components laid the groundwork for MomConnect's capabilities (Mehl et al., 2018).

Initially introduced as a short messaging service (SMS), MomConnect now includes WhatsApp messaging with chatbot, a health facility-based application to register pregnancies and a Road to Health application providing content around caring for children aged 0–5 years. The application currently reaches 95% of public health facilities in South Africa. MomConnect is one of the only antenatal digital health programmes in the world to have reached over 60% coverage of all pregnant women nationally (Mehl et al., 2018).

Inspired by the strategy, South Africa later adopted similar approaches in other key areas, for instance a suite of applications under HealthConnect to manage the COVID-19 pandemic (Exemplars in Global Health, 2021). There is also the Nurse Connect application, which provides information and motivational messaging (Fischer et al., 2019). This highlights the agility and responsiveness that a digital solution can provide, where the same technology can be easily redeployed to address new and emerging health system priorities.

MomConnect is a successful low-cost, simple to use, phone-based application. Similar approaches have been adopted in other system contexts, such as in Nigeria, Uganda, Bangladesh and India (Jhpiego, 2017; Mehl et al., 2018; Bashingwa et al., 2021; Mohan et al., 2022; Lefevre et al., 2023). In South Africa, a number of factors contributed to the application's success. In its early days, the application got support and visibility from the health system leadership. The health minister at the time would promote the application to health workers in his field visits, driving up registrations and engagement. In addition, donor support provided a level of financial support and agility that may have otherwise not been possible to secure. The transition from a SMS-based platform to leveraging WhatsApp application programming interface (API)'s chatbot capabilities led to improved cost-effectiveness and utility of the application (Exemplars in Global Health, 2021). The application contributes to South Africa's digital strategy vision, "better health for all South Africans enabled by person-centred digital health" (NDoH South Africa, 2019).

13.4 Conclusion

Digital health solutions are key to the implementation of PHC-oriented health systems and the delivery of PHC-oriented models of care. The chapter illustrates that a strong primary health care digital ecosystem can facilitate more efficient and equitable planning, extending the reach of the health system. Digital solutions can also empower and improve communication between different service delivery stakeholders to facilitate improved care and self-care. The evidence presented in this chapter is organized according to the models of care, or different functional areas of the health system.

While the chapter mostly focuses on standalone digital solutions, often pilots, and for specific health areas, there is a need to integrate them into a well-functioning health system. Establishing the efficacy of these solutions is just the first step; the ultimate goal is to demonstrate integration into routine workflows and alignment with the broader health system architecture. Further research is required to describe the process of integration including data standards creation, system integration, system engagement and decision-making processes enabled by the data. Concrete evidence in this regard would provide valuable guidance to decision-makers, envisioning a comprehensive and integrated system that breaks down information silos and spans across different reporting lines.

REFERENCES

- Abdulazeem H et al. (2022). A systematic review of clinical health conditions predicted by machine learning diagnostic and prognostic models trained or validated using real-world primary health care data. *MedRxiv*. Available at: <https://www.medrxiv.org/content/10.1101/2022.08.25.22279229v1> (accessed 1 September 2023).
- AbouZahr C et al. (2015). Civil registration and vital statistics: progress in the data revolution for counting and accountability. *Lancet*, 386(10001):1373–85.
- Adjekum A, Blasimme A, Vayena E (2018). Elements of trust in digital health systems: scoping review. *J Medical Internet Res*, 20(12):e11254.
- Agarwal S et al. (2021). Decision support tools via mobile devices to improve quality of care in primary healthcare settings. *Cochrane Database Syst Rev*, 7.
- Akman M et al. (2022). Organization of primary care. *Prim Health Care Res Dev*, 23:e49.
- Ammenwerth E et al. (2021). Adult patient access to electronic health records. *Cochrane Database Syst Rev*, 2:CD012707.pub2. Available at: <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD012707.pub2/full> (accessed 24 September 2023).
- Andrikopoulou E, Scott PJ, Herrera H (2018). Important design features of personal health records to improve medication adherence for patients with long-term conditions: protocol for a systematic literature review. *JMIR Res Protoc*, 7(6):e159. Available at: <https://doi.org/10.2196/resprot.9778> (accessed 1 September 2023).
- Avelino CC et al. (2015). Quality of primary health care: an analysis of avoidable hospitalizations in a Minas Gerais county, Brazil. *Cien Saude Colet*, 20(4):1285–93. Available at: <https://doi.org/https://dx.doi.org/10.1590/1413-81232015204.12382014> (accessed 1 September 2023).
- Balagurusamy VV et al. (2021). Universal Health Coverage Information Technology (UHC-IT) Platform, an approach to have a population as the denominator to establish a digital cohort of the State, Tamil Nadu, 2019. *Proceedings of FETP-ICON 2020 Conference, Chennai, India, 3–5 March 2020. Proceedings*, 15(S11):A18. Available at: <https://doi.org/https://dx.doi.org/10.1186/s12919-021-00223-6> (accessed 1 September 2023).
- Ballout G et al. (2021). The impact of e-health system implementation on UNWRA health services: an observational study. *Lancet*, 398:S17. Available at: <https://doi.org/https://dx.doi.org/10.1016/S0140-6736%2821%2901503-8> (accessed 1 September 2023).
- Bashingwa JJH et al. (2021). Assessing exposure to Kilkari: A big data analysis of a large maternal mobile messaging service across 13 states in India. In *BMJ Glob Health*, 6(S5). Available at: <https://doi.org/10.1136/bmjgh-2021-005213> (accessed 1 September 2023).
- Bernasconi A et al. (2018). The ALMANACH Project: Preliminary results and potentiality for Afghanistan. *Int J Med Inform*, 114:130–5. Available at: <https://pubmed.ncbi.nlm.nih.gov/29330009/> (accessed 1 September 2023).

- Bhatt P et al. (2022). Emerging Artificial Intelligence-Empowered mHealth: Scoping Review. *JMIR MHealth UHealth*, 10(6):e35053. Available at: <https://doi.org/https://dx.doi.org/10.2196/35053> (accessed 1 September 2023).
- Bogale B et al. (2020). Development of a targeted client communication intervention to women using an electronic maternal and child health registry: a qualitative study. *BMC Medical Inform Decis Mak*, 20(1):1–12.
- Bordier M et al. (2019). One health surveillance: a matrix to evaluate multisectoral collaboration. *Front Vet Sci*, 6:109.
- Bremner J (2014). Understanding population projections: assumptions behind the numbers. Population Reference Bureau.
- Byrne E, Sæbø JI (2022). Routine use of DHIS2 data: a scoping review. *BMC Health Serv Res*, 22:1234. Available at: <https://doi.org/10.1186/s12913-022-08598-8> (accessed 1 September 2023).
- Carneiro VSM, da Silva Vila VC, da Silva Vieira MA (2021). Trends in pediatric hospitalizations for ambulatory care sensitive respiratory diseases in Brazil. *Public Health Nurs*, 38(1):106–14. Available at: <https://doi.org/https://dx.doi.org/10.1111/phn.12818> (accessed 1 September 2023).
- Chan AHY et al. (2018). Digital interventions to improve adherence to maintenance medication in asthma. *Cochrane Database Syst Rev*, 2018(5):CD013030. Available at: <https://doi.org/10.1002/14651858.CD013030> (accessed 1 September 2023).
- Coorey G et al. (2019). Persuasive design features within a consumer-focused eHealth intervention integrated with the electronic health record: A mixed methods study of effectiveness and acceptability. *PLoS ONE*, 14(6):e0218447. Available at: <https://doi.org/https://dx.doi.org/10.1371/journal.pone.0218447> (accessed 1 September 2023).
- Cutts FT, Danovaro-Holliday MC, Rhoda DA (2021). Challenges in measuring supplemental immunization activity coverage among measles zero-dose children. *Vaccine*, 39(9):1359.
- Danel I, Bortman M (2008). An assessment of LAC's vital statistics system: The foundation of maternal and infant mortality monitoring. Health, Nutrition and Population Discussion Paper. Washington DC: World Bank.
- Diallo CO et al. (2022). Information System as part of epidemic management in Burkina Faso: from plan to reality (Field Findings). *BMC Public Health*, 22:1726. Available at: <https://doi.org/https://dx.doi.org/10.1186/s12889-022-14072-1> (accessed 1 September 2023).
- Dowell SF, Blazes D, Desmond-Hellmann S (2016). Four steps to precision public health. *Nature*, 540(7632):189–91.
- Downing NL, Bates DW, Longhurst CA (2018). Physician burnout in the electronic health record era: Are we ignoring the real cause? *ACP Ann Intern Med*, 169(1):50–1. Available at: <https://doi.org/10.7326/M18-0139> (accessed 1 September 2023).
- Enaizan O et al. (2020). Effects of privacy and security on the acceptance and usage of EMR: The mediating role of trust on the basis of multiple perspectives. *Inform Med Unlocked*, 21:100450. Available at: <https://doi.org/10.1016/j.imu.2020.100450> (accessed 1 September 2023).

- Erbach-Schoenberg E et al. (2016). Dynamic denominators: the impact of seasonally varying population numbers on disease incidence estimates. *Popul Health Metr*, 14(1):1–10.
- Eum JH et al. (2012). The effect of climate variability on diarrheal illness in Papua New Guinea. *Epidemiology*, 23(55). Available at: <https://doi.org/https://dx.doi.org/10.1097/01.ede.0000417186.60892.6b> (accessed 1 September 2023).
- Exemplars in Global Health (2021). Healthconnect in South Africa: a chatbot tool for pandemic response. Available at: <https://www.Exemplars.Health/Emerging-Topics/Epidemic-Preparedness-and-Response/Digital-Health-Tools/Healthconnect-in-South-Africa> (accessed 1 September 2023).
- Fischer AE et al. (2019). The MomConnect nurses and midwives support platform (NurseConnect): A qualitative process evaluation. *JMIR MHealth UHealth*, 7(2):e11644.
- Fredriksson A et al. (2022). Machine learning for maternal health: Predicting delivery location in a community health worker program in Zanzibar. *Front Digit Health*, 4. Available at: <https://www.frontiersin.org/articles/10.3389/fdgth.2022.855236/full> (accessed 1 September 2023).
- Friberg IK et al. (2019). Antenatal care data sources and their policy and planning implications: a Palestinian example using the Lives Saved Tool. *BMC Public Health*, 19(1):1–11.
- Frøen JF et al. (2016). eRegistries: Electronic registries for maternal and child health. *BMC Pregnancy Childbirth*, 16(1):1–15.
- Fulcher IR et al. (2020). Improving health facility delivery rates in Zanzibar, Tanzania through a large-scale digital community health volunteer programme: a process evaluation. *Health Policy Plan*, 35(10):1–11.
- GAP (2021). Supporting an equitable and resilient recovery towards the health-related Sustainable Development Goals. World Health Organization Global Action Plan. Available at: <https://www.who.int/publications/m/item/supporting-an-equitable-and-resilient-recovery-towards-the-health-related-sdgs> (accessed 1 September 2023).
- Gatwood J et al. (2016). The impact of tailored text messages on health beliefs and medication adherence in adults with diabetes: A randomized pilot study. *Res Social Adm Pharm*, 12(1):130–40.
- GAVI, UNICEF (2020). Improving Immunisation Coverage and Equity through the Effective Use of Geospatial Technologies and Data. GAVI, the Vaccine Alliance/United Nations Children's Fund. Available at: <https://cdn-auth-cms.who.int/media/docs/default-source/world-health-data-platform/geospatial-solutions-for-health/improving-immunisation-coverage-and-equity-through-the-effective-use-of-geospatial.pdf> (accessed 1 September 2023).
- Giner-Soriano M et al. (2022). Outcomes of the COVID-19 infection in people previously vaccinated against influenza: a population-based cohort study with primary health care electronic records. *JMIR Public Health Surveillance*, 8(11):e36712. Available at: <https://doi.org/https://dx.doi.org/10.2196/36712> (accessed 1 September 2023).

- Godinho MA et al. (2020). mHealth for Integrated People-Centred Health Services in the Western Pacific: A Systematic Review. *Int J Med Inform*, 142:104259. Available at: <https://doi.org/https://doi.org/10.1016/j.ijmedinf.2020.104259> (accessed 1 September 2023).
- Gorham G et al. (2021). POS-301 Improving the identification and management of kidney disease through an integrated clinical information platform and decision support tool. *Kidney Int Rep*, 6(4):S129. Available at: <https://doi.org/https://dx.doi.org/10.1016/j.ekir.2021.03.317> (accessed 1 September 2023).
- Haddad SM et al. (2020). Building a digital tool for the adoption of the World Health Organization's antenatal care recommendations: Methodological intersection of evidence, clinical logic, and digital technology. *J Medical Internet Res*, 22(10):e16355. Available at: <https://doi.org/https://dx.doi.org/10.2196/16355> (accessed 1 September 2023).
- Hasselberg M et al. (2017). A smartphone-based consultation system for acute burns – methodological challenges related to follow-up of the system. *Glob Health Action*, 10(S3):1328168.
- Hicks JP et al. (2021). Acceptability and potential effectiveness of eHealth tools for training primary health workers from Nigeria at scale: mixed methods, uncontrolled before-and-after study. *JMIR MHealth UHealth*, 9(9):e24182.
- Higman S et al. (2019). Designing interoperable health information systems using enterprise architecture approach in resource limited countries: a literature review. *Int J Health Plann Manage*, 34(1):e85–99.
- Horner V et al. (2013). An e-health decision support system for improving compliance of health workers to the maternity care protocols in South Africa. *Appl Clin Inform*, 4(1):25–36. Available at: <https://doi.org/https://dx.doi.org/10.4338/ACI-2012-10-RA-0044> (accessed 1 September 2023).
- Hudes MK (2017). Fostering innovation in Digital Health: a new ecosystem. 2017 Pan Pacific Microelectronics Symposium (Pan Pacific), 1–6.
- Isbeih M et al. (2019). Maternal and child health and care provision in Palestine: data from the national electronic maternal and child health registry (MCH eRegistry). *Lancet*, 393:S30.
- Ivanković D et al. (2021). Features constituting actionable COVID-19 dashboards: Descriptive assessment and expert appraisal of 158 public web-based COVID-19 dashboards. *J Medical Internet Res*, 23(2). Available at: <https://doi.org/10.2196/25682> (accessed 1 September 2023).
- Jhpiego (2017). Lessons from Country Programs Implementing the Mobile Alliance for Maternal Action (MAMA) Program in Bangladesh, South Africa, India and Nigeria, 2010–2016. Baltimore, MD: Jhpiego.
- Jilka SR et al. (2015). “Nothing About Me Without Me”: An Interpretative Review of Patient Accessible Electronic Health Records. *J Medical Internet Res*, 17(6):e161. Available at: <https://doi.org/10.2196/jmir.4446> (accessed 1 September 2023).

- Kabakama S et al. (2016). Assessment of four common underfive children illnesses Routine Health Management Information System data for decision making at Illemela Municipal Council, Northwest Tanzania: A case series analysis. *Int J Med Inform*, 93:85–91. Available at: <https://doi.org/https://dx.doi.org/10.1016/j.ijmedinf.2016.06.003> (accessed 1 September 2023).
- Kebede M, Adeba E, Chego M (2020). Evaluation of quality and use of health management information system in primary health care units of east Wollega zone, Oromia regional state, Ethiopia. *BMC Medical Inform Decis Mak*, 20(1):107. Available at: <https://doi.org/https://dx.doi.org/10.1186/s12911-020-01148-4> (accessed 1 September 2023).
- Kierkegaard P, Kaushal R, Vest J (2014). Applications of Health Information Exchange Information to Public Health Practice. *AMIA ... Annual Symposium Proceedings/AMIA Symposium*. AMIA Symposium, 2014:795–804.
- Koh D (2017). Singapore unveils national Health IT Master Plan (HITMAP). *OpenGov Asia*. Available at: <https://opengovasia.com/singapore-unveils-national-health-it-master-plan-hitmap/> (accessed 1 September 2023).
- Kringos DS et al. (2010). The breadth of primary care: a systematic literature review of its core dimensions. *BMC Health Serv Res*, 10:1–13.
- Kuo A, Dang S (2016). Secure Messaging in Electronic Health Records and Its Impact on Diabetes Clinical Outcomes: A Systematic Review. *Telemed E-Health*, 22(9):769–77. Available at: <https://doi.org/10.1089/tmj.2015.0207> (accessed 1 September 2023).
- Lefevre AE et al. (2023). Cost-effectiveness of a direct to beneficiary mobile communication programme in improving reproductive and child health outcomes in India. *BMJ Glob Health*, 6(S5). Available at: <https://doi.org/10.1136/bmjgh-2022-009553> (accessed 1 September 2023).
- Lentsck MH, Latorre M, Mathias TA (2015). Trends in hospitalization due to cardiovascular conditions sensitive to primary health care. *Rev Bras Epidemiol [Brazilian Journal of Epidemiology]*, 18(2):372–84. Available at: <https://doi.org/https://dx.doi.org/10.1590/1980-5497201500020007> (accessed 1 September 2023).
- Liau S-T et al. (2021). Primary care informatics response to Covid-19 pandemic: adaptation, progress, and lessons from four countries with high ICT development. *Yearb Med Inform*, 30(01):44–55.
- Mcqueen D et al. (2022). Towards applying the essential public health functions for building health systems resilience: A renewed list and key enablers for operationalization. *Front Public Health*, 10. Available at: <https://www.frontiersin.org/articles/10.3389/fpubh.2022.1107192/full> (accessed 1 September 2023).
- Mainz J, Hess MH, Johnsen SP (2019). The Danish unique personal identifier and the Danish Civil Registration System as a tool for research and quality improvement. *Int J Qual Health Care*, 31(9):717–20.

- Mash R, Schouw D, Fischer AE (2022). Evaluating the Implementation of the GREAT4Diabetes WhatsApp Chatbot to Educate People With Type 2 Diabetes During the COVID-19 Pandemic: Convergent Mixed Methods Study. *JMIR Diabetes*, 7(2):e37882.
- Mboera LEG, Rumisha SF, Kitua AY (2001). Strategic approach for strengthening national and regional disease surveillance system: The East African example. *Tanzan J Health Res*, 3(2):6–9.
- Mehl GL et al. (2018). Digital health vision: could MomConnect provide a pragmatic starting point for achieving universal health coverage in South Africa and elsewhere? *BMJ Glob Health*, 3(S2):e000626.
- Meidani Z et al. (2022). Development and testing requirements for an integrated maternal and child health information system in Iran: A design thinking case study. *Methods Inf Med*, 61(S2):e64–72. Available at: <https://doi.org/https://dx.doi.org/10.1055/a-1860-8618> (accessed 1 September 2023).
- Mikkelsen L et al. (2015). A global assessment of civil registration and vital statistics systems: monitoring data quality and progress. *Lancet*, 386(10001):1395–1406.
- Modi D et al. (2020). Costing and cost-effectiveness of a mobile health intervention (ImTeCHO) in improving infant mortality in tribal areas of Gujarat, India: cluster randomized controlled trial. *JMIR MHealth UHealth*, 8(10):e17066.
- Mohan D et al. (2022). Optimising the reach of mobile health messaging programmes: an analysis of system generated data for the Kilkari programme across 13 states in India. In *BMJ Glob Health*, 6(S5). Available at: <https://doi.org/10.1136/bmjgh-2022-009395> (accessed 1 September 2023).
- Monterde D et al. (2020). Multimorbidity as a predictor of health service utilization in primary care: a registry-based study of the Catalan population. *BMC Fam Pract*, 21:1–9.
- NDoH South Africa (2019). National digital health strategy for South Africa 2019–2024. National Department of Health, Pretoria, South Africa.
- Neupane S et al. (2014). Comparing a paper based monitoring and evaluation system to a mHealth system to support the national community health worker programme, South Africa: an evaluation. *BMC Medical Inform Decis Mak*, 14:69. Available at: <https://doi.org/https://dx.doi.org/10.1186/1472-6947-14-69> (accessed 1 September 2023).
- Ni L et al. (2017). Mandy: Towards a smart primary care chatbot application. *Knowledge and Systems Sciences: 18th International Symposium, KSS 2017, Bangkok, Thailand, November 17–19, 2017. Proceedings* 18:38–52.
- Nielsen RC et al. (2017). Social media monitoring of discrimination and HIV testing in Brazil, 2014–2015. *AIDS Behav*, 21:114–20.
- Nta IE et al. (2017). Status of primary health workforce in a Nigerian state: Findings from enrollment into a digital health workforce registry. *Ann Glob Health*, 83(1):122–3.

- Odendaal W et al. (2017). Using mHealth to strengthen continuity of care in primary health care services in low-income settings: A case study from rural South Africa. *BMC Proc*, 11(6). Available at: <https://dx.doi.org/10.1186/s12919-017-0074-9> (accessed 24 September 2023).
- Odendaal WA et al. (2020). Health workers' perceptions and experiences of using mHealth technologies to deliver primary healthcare services: a qualitative evidence synthesis. *Cochrane Database Syst Rev*, 3.
- OECD (2018). Population. Paris: OECD Publishing. Available at: <https://doi.org/https://doi.org/10.1787/d434f82b-en> (accessed 1 September 2023).
- O'Hara MT, Watson RT, Kavan CB (1999). Managing the three levels of change. *Inf Syst Manag*, 16(3):63–70.
- Ouedraogo M et al. (2019). A quality assessment of Health Management Information System (HMIS) data for maternal and child health in Jimma Zone, Ethiopia. *PLoS ONE*, 14(3):e0213600. Available at: <https://doi.org/https://dx.doi.org/10.1371/journal.pone.0213600> (accessed 1 September 2023).
- Paltrinieri G et al. (2009). The health management information system of Zanzibar: Potentially more than a national repository of health data. *Trop Med Int Health*, 14:110.
- Patel V et al. (2022). EMPOWER: toward the global dissemination of psychosocial interventions. *Focus*, 20(3):301–6.
- Peikes D et al. (2019). Independent Evaluation of Comprehensive Primary Care Plus (CPC+) First Annual Report (No. 0bbb8a28b6b44622aa58dd9bf15eaa6d). Mathematica Policy Research. Available at: <https://downloads.cms.gov/files/cmimi/cpcplus-first-ann-rpt.pdf> (accessed 1 September 2023).
- Peikes D et al. (2021). Independent Evaluation of Comprehensive Primary Care Plus (CPC+): Third Annual Report. Mathematica Policy Research. Available at: <https://innovation.cms.gov/data-and-reports/2021/cpc-plus-third-annual-eval-report> (accessed 1 September 2023).
- Pereira G et al. (2014). Determinants of congenital syphilis from national surveillance data analysis in Brazil. *Sex Transm Dis*, 41:S84.
- Peter J et al. (2018). Taking digital health innovation to scale in South Africa: ten lessons from MomConnect. *BMJ Glob Health*, 3(S2):e000592.
- Porreca D, Yaraghi N (2022). The Impact of Population Health Analytics on Health Care Quality and Efficacy Among CPC+ Participants. Milbank Memorial Fund Report. Available at: <https://www.milbank.org/publications/the-impact-of-population-health-analytics-on-health-care-quality-and-efficacy-among-cpc-participants/> (accessed 1 September 2023).
- Prinja S et al. (2017). Impact of m health application used by community health volunteers on improving utilisation of maternal, new born and child health care services in a rural area of Uttar Pradesh, India. *Trop Med Int Health*, 22(7):895–907.

- Rao HX et al. (2016). Spatial transmission and meteorological determinants of tuberculosis incidence in Qinghai Province, China: A spatial clustering panel analysis. *Infect Dis Poverty*, 5(1):45. Available at: <https://doi.org/https://dx.doi.org/10.1186/s40249-016-0139-4> (accessed 1 September 2023).
- Rendell N et al. (2020). Factors That Influence Data Use to Improve Health Service Delivery in Low- and Middle-Income Countries. *Glob Health, Sci Pract*, 8(3):566–81. Available at: <https://doi.org/https://dx.doi.org/10.9745/GHSP-D-19-00388> (accessed 1 September 2023).
- Sahadew N, Pillay S, Singaram VS (2022). Diabetes in the Western Cape: An eight-year profile. *Journal of Endocrinology, Metabolism and Diabetes of South Africa*, 27(1):14–19. Available at: <https://doi.org/https://dx.doi.org/10.1080/16089677.2021.1969156> (accessed 1 September 2023).
- Sanchez C, Reynaldos-Grandon K (2022). HTA36 Benefits of Mobile Telephony in Health Care for Rural Health Service Users. *Value Health*, 25(7):S510. Available at: <https://doi.org/https://dx.doi.org/10.1016/j.jval.2022.04.1168> (accessed 1 September 2023).
- Sarfo FS et al. (2022). Nationwide rates of outpatient clinic attendance by stroke survivors in Ghana: Analysis by region and facility. *J Neurol Sci*, 437:120250. Available at: <https://doi.org/https://dx.doi.org/10.1016/j.jns.2022.120250> (accessed 1 September 2023).
- Saxena R et al. (2012). A spatial statistical approach to analyze malaria situation at micro level for priority control in Ranchi District, Jharkhand. *Indian J Med Res*, 136(5):776–82. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3573598/> (accessed 1 September 2023).
- Schmidt M, Pedersen L, Sørensen HT (2014). The Danish Civil Registration System as a tool in epidemiology. *Eur J Epidemiol*, 29:541–9.
- Seebregts C et al. (2016). MomConnect: an exemplar implementation of the health normative standards framework in South Africa. *S Afr Health Rev*, 2016(1):125–35.
- Shakiba M, Haghdoost AA, Majdzadeh SR (2008). The application of geographical information system in explaining spatial distribution of low birth weight; a case study in north of Iran. *Iran J Med Sci*, 33(4):220–5. Available at: https://ijms.sums.ac.ir/issue_4587_4591.html (accessed 1 September 2023).
- Steyn L, Mash RJ, Hendricks G (2022). Use of the Vula App to refer patients in the West Coast District: A descriptive exploratory qualitative study. *S Afr Fam Pract*, 64(1):5491.
- Swankoski K et al. (2022). Independent Evaluation of Comprehensive Primary Care Plus: Fourth Annual Report – Findings at a Glance. Baltimore MD: Centers for Medicare and Medicaid Services. Available at: <https://innovation.cms.gov/initiatives/comprehensive-primary-care-plus/> (accessed 1 September 2023).

- Taggart J et al. (2021). Challenges and solutions to sharing a cancer follow-up e-care plan between a cancer service and general practice. *Public Health Res Pract*, 31(2):33942047.
- Tanser F (2006). Methodology for optimising location of new primary health care facilities in rural communities: A case study in KwaZulu-Natal, South Africa. *J Epidemiology Community Health*, 60(10):846–50. Available at: <https://doi.org/https://dx.doi.org/10.1136/jech.2005.043265> (accessed 1 September 2023).
- Tanser F et al. (2001). New approaches to spatially analyse primary health care usage patterns in rural South Africa. *Trop Med Int Health*, 6(10):826–38. Available at: <https://pubmed.ncbi.nlm.nih.gov/11679131/> (accessed 1 September 2023).
- Tatem AJ (2022). Small area population denominators for improved disease surveillance and response. *Epidemics*, 41:100641.
- Terry AL et al. (2022). Is primary health care ready for artificial intelligence? What do primary health care stakeholders say? *BMC Medical Inform Decis Mak*, 22(1):237. Available at: <https://doi.org/https://dx.doi.org/10.1186/s12911-022-01984-6> (accessed 1 September 2023).
- Tew MM et al. (2021). Geospatial analysis of distribution of community pharmacies and other health care facilities providing minor ailments services in Malaysia. *J Pharm Policy Pract*, 14(1):24. Available at: <https://doi.org/https://dx.doi.org/10.1186/s40545-021-00308-9> (accessed 1 September 2023).
- Thacker SB, Berkelman RL (1988). Public health surveillance in the United States. *Epidemiol Rev*, 10(1):164–90.
- Thorell L et al. (2019). Working towards a master patient index and unique identifiers to improve health systems: the example of Myanmar. *WHO South-East Asia Journal of Public Health*, 8(2):83.
- Tshabalala AM, Taylor M (2016). Disaggregated data to improve child health outcomes. *Afr J Prim Health Care Fam Med*, 8(1):e1–7. Available at: <https://doi.org/https://dx.doi.org/10.4102/phcfm.v8i1.1221> (accessed 1 September 2023).
- Ugarte-Gil C et al. (2020). Implementing a socio-technical system for computer-aided tuberculosis diagnosis in Peru: A field trial among health professionals in resource-constrained settings. *Health Informatics J*, 26(4):2762–75. Available at: <https://doi.org/https://dx.doi.org/10.1177/1460458220938535> (accessed 1 September 2023).
- United Nations Office (2014). Principles and recommendations for a vital statistics system (Issue 19). United Nations Publications.
- Venkateswaran M et al. (2018). eRegQual – an electronic health registry with interactive checklists and clinical decision support for improving quality of antenatal care: Study protocol for a cluster randomized trial. *Trials*, 19(1):54. Available at: <https://doi.org/https://dx.doi.org/10.1186/s13063-017-2386-5> (accessed 1 September 2023).

- Venkateswaran M et al. (2022). A digital health registry with clinical decision support for improving quality of antenatal care in Palestine (eRegQual): a pragmatic, cluster-randomised, controlled, superiority trial. *Lancet Digital Health*, 4(2):e126–36. Available at: <https://doi.org/https://dx.doi.org/10.1016/S2589-7500%2821%2900269-7> (accessed 1 September 2023).
- Verschuuren M, van Oers H (2018). *Population Health Monitoring: Climbing the Information Pyramid*. Springer International Publishing. Available at: <https://doi.org/10.1007/978-3-319-76562-4> (accessed 1 September 2023).
- Vimalachandran P et al. (2020). Improving accessibility of the Australian My Health Records while preserving privacy and security of the system. *Health Inf Sci Syst*, 8(1). Available at: <https://doi.org/10.1007/s13755-020-00126-4> (accessed 1 September 2023).
- Wangmo S et al. (2021). Maintaining essential health services during the pandemic in Bangladesh: the role of primary health care supported by routine health information system. *WHO South-East Asia Journal of Public Health*, 10(3):93.
- Wardrop NA et al. (2018). Spatially disaggregated population estimates in the absence of national population and housing census data. *Proc Natl Acad Sci USA*, 115(14):3529–37.
- WHO (2005). Resolution wha58.28. ehealth. Geneva: Fifty-Eighth World Health Assembly, 16–25. Available at: https://apps.who.int/gb/ebwha/pdf_files/WHA58/WHA58_28-en.pdf
- WHO (2008). *Health information systems: Toolkit on monitoring health systems strengthening*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/m/item/health-information-systems> (accessed 17 April 2024).
- WHO (2017). *WHO community engagement framework for quality, people-centred and resilient health services*. Geneva: World Health Organization. Available at: <https://iris.who.int/bitstream/handle/10665/259280/WHO-HIS-SDS-2017.15-eng.pdf?sequence=1> (accessed 17 April 2024).
- WHO (2018). *Classification of digital health interventions v1. 0: a shared language to describe the uses of digital technology for health*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/WHO-RHR-18.06> (accessed 17 April 2024).
- WHO (2019). *WHO guideline: recommendations on digital interventions for health system strengthening*. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241550505> (accessed 17 April 2024).
- WHO (2021a). *Can the essential public health functions make a difference?* Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240038929> (accessed 17 April 2024).
- WHO (2021b). *Global strategy on digital health 2020–2025*. Geneva: World Health Organization. Available at: <https://www.who.int/docs/default-source/documents/gS4dhdaa2a9f352b0445bafbc79ca799dce4d.pdf> (accessed 17 April 2024).

- WHO (2021c). SCORE for health data technical package: global report on health data systems and capacity, 2020. Geneva: World Health Organization. Available at: <https://who.int/publications-detail-redirect/9789240018709> (accessed 17 April 2024).
- WHO (2022a). Denmark: How a national ehealth portal enabled a fast and inclusive response to the COVID-19 pandemic. Geneva: World Health Organization. Available at: <https://www.who.int/europe/publications/m/item/denmark-how-a-national-ehealth-portal-enabled-a-fast-and-inclusive-response-the-the-covid-19-pandemic> (accessed 17 April 2024).
- WHO (2022b). Equity within digital health technology within the WHO European Region: a scoping review. Geneva: World Health Organization. Available at: <https://www.who.int/europe/publications/i/item/WHO-EURO-2022-6810-46576-67595> (accessed 17 April 2024).
- WHO, ITU (2012). National eHealth strategy toolkit. Geneva: World Health Organization/International Telecommunication Union. Available at: <https://apps.who.int/iris/handle/10665/75211> (accessed 1 September 2023).
- Wilson K et al. (2020). Jamii ni Afya: using digital tools to scale integrated services to mothers and children in Zanzibar. *Early Childhood Matters*. Available at: <https://earlychildhoodmatters.online/2020/jamii-ni-afya-using-digital-tools-to-scale-integrated-services-to-mothers-and-children-in-zanzibar/> (accessed 1 September 2023).
- Yan Q et al. (2021). Exploring the relationship between electronic health records and provider burnout: A systematic review. *In J Am Med Inform Assoc*, 28(5):1009–21. Available at: <https://doi.org/10.1093/jamia/ocab009> (accessed 1 September 2023).
- You N (2021). Assessing equity of the spatial distribution of primary health care facilities in Fuzhou City, China: A comprehensive method. *PLoS ONE*, 16(12):e0261256. Available at: <https://doi.org/https://dx.doi.org/10.1371/journal.pone.0261256> (accessed 1 September 2023).
- Yousef CC et al. (2020). Adoption of a Personal Health Record in the Digital Age: Cross-Sectional Study. *J Medical Internet Res*, 22(10):e22913. Available at: <https://doi.org/https://dx.doi.org/10.2196/22913> (accessed 1 September 2023).

PART III

The PHC approach: impact on performance



14

The impact of PHC on efficiency and quality of care

Susanne Carai, Minhye Park, Anna Schurmann, Joao Breda, Natasha Azzopardi-Muscat and Martin Weber

Key messages

Quality and efficiency are closely linked. Reforms that align health systems to the primary health care (PHC) approach also foster efficiency and quality including its dimensions of effectiveness, safety, satisfaction and trust.

- PHC can enhance quality because its focus on community engagement ideally helps identify health problems early, address them equitably and ensure continuity of care, improving outcomes and user satisfaction.
- The PHC approach encourages generalist-led, multidisciplinary teams, which helps to coordinate health and care workers and specialists, strengthening patient safety and encouraging a rationalized use of complex tests and treatments.
- Efficiency is boosted by a PHC orientation because PHC fosters public health, prevention and health promotion, all of which reduce the call for unnecessary, costly and potentially harmful specialist care and hospitalization.
- The PHC approach promotes more efficient resource allocation and utilization, while the impact on health outcomes and patient safety also contains costs.
- By improving relationships between facilities and communities, the PHC approach can enhance perceptions of quality and boost user satisfaction, increasing population trust in the health system and helping investments translate into better population health.
- Country experiences highlight tools for quality and efficiency within PHC such as:
 - ensuring a combination of well-remunerated and trained health and care workers and allied health professionals
 - using PHC as a platform for priority areas such as mental health or nutrition
 - establishing effective communication between primary care teams and specialists, clear division of tasks and referral pathways
 - applying clinical decision support and electronic health records (EHRs) in PHC.

14.1 Introduction

PHC plays a pivotal role in building a high-quality health system. PHC reforms aim to enhance the quality and accessibility of health care by reorganizing health systems to prioritize primary care as the initial point of contact for people and communities. These reforms emphasize providing care in proximity to the people they serve, ensuring continuity of service provision, and encompassing preventive and promotive health services, thereby improving health outcomes and controlling costs (WHO & UNICEF, 2020). Many countries have implemented PHC reforms with the aim of achieving better health outcomes, reducing health disparities and ensuring a more equitable distribution of health care resources (Starfield, Shi & Macinko, 2005; Starfield, 2012; WHO & UNICEF, 2020). Central to the PHC approach is the efficient delivery of clinically effective, safe and patient-centred care. However, not all primary care currently adheres to high-quality standards or aligns with the principles of PHC (Das, Hammer & World, 2005; Kruk et al., 2018; Das et al., 2022).

This chapter examines the impact of reforms and specific interventions aimed at aligning health systems to the PHC approach on the effectiveness, user experience and safety of care (Papanicolas et al., 2022), which are the key components of quality of care. Efficiency as one important health system objective is also covered, given that improving quality of care can have significant impact on the balance between the inputs and outputs to the health system (see Box 14.1). It must be noted that the concepts of quality and efficiency are closely interconnected.

Box 14.1 Definition of key terms

Quality of care: is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes. Quality health care should be safe, effective and people-centred (Institute of Medicine, 2001; WHO, 2024).

Efficiency: Relationship between a specific product (output) of the health system and the resources (inputs) used to create the greatest output in terms of health system goals (health outcomes, responsiveness and improving fair financial contribution) (Papanicolas et al., 2022). Efficiency must not be confused with cost containment.

Effectiveness: Extent to which a service achieves the desired results or outcomes, at the patient, population or organizational levels (WHO & UNICEF, 2020b).

Safety: Extent to which health care processes avoid, prevent and ameliorate adverse outcomes or injuries that stem from the processes of health care itself (Papanicolas et al., 2022)

User experience: Extent to which the service user perspective and experience of health care is measured and valued as an outcome of service delivery (Papanicolas et al., 2022).

Quality and efficiency are assessed in this chapter as performance goals. This chapter *does not* evaluate specific PHC-oriented interventions focused on quality improvement, as these are covered in Part II of this Primer dedicated to the implementation of PHC for the areas of workforce, governance, financing, etc. Instead, this chapter answers the question of whether investing in PHC is effective in enhancing quality and efficiency of care as fundamental objectives of the health system. It reviews the existing literature to determine the extent to which PHC-oriented interventions and reforms have positively influenced the overall quality of care and efficiency at the systems level.

The evidence reviewed in this chapter focuses on primary care and public health services, one of the three components of PHC outlined in the Declaration of Astana (see Chapter 1). Where relevant, the significance of multisectoral action and community engagement is also highlighted.

14.2 Evidence review: the impact of PHC on efficiency and quality of care

This section presents evidence on the impact of PHC on effectiveness, safety and user experience as dimensions of quality as a system-level goal, and efficiency as a core outcome (WHO, 1978, 2018a; Papanicolas et al., 2022).

14.2.1 Effectiveness

Effectiveness in PHC refers to the ability to achieve positive health outcomes by delivering evidence-based services to those who would benefit from them.

Strong primary care is associated with lower all-cause mortality and cause-specific premature mortality, even after accounting for sociodemographic factors (Gulliford, 2002; Macinko, Starfield & Shi, 2003). This relationship holds true in low- and middle-income countries (LMICs) as well (Macinko, Starfield & Erinosh, 2009).

Primary care providers that subscribe to the 4Cs of first contact, continuous, comprehensive and coordinated primary care improve health outcomes

Robust evidence supports the notion that PHC significantly improves health outcomes when characterized by the provision of comprehensive health services by well-trained generalists (for example, first contact care provided by a general practitioner (GP), or family doctor in collaboration with nurses or midwives) who ensure continuity of care, coordination with specialists, and community engagement (see Chapter 3). Having a primary care provider (team) specifically tasked to fulfil the 4Cs is thus associated with lower mortality rates, reduced health disparities and increased healthy life expectancy (Doorslaer, Wagstaff & Rutten, 1993; Macinko, Starfield & Shi, 2003; Friedberg, Hussey & Schneider, 2010; OECD, 2020).

In countries where primary care is more accessible, emphasizing continuity of care and providing financial support when needed, individuals report better health status,

and social disparities across income brackets are reduced (Shi et al., 2002; Cookson et al., 2017; OECD, 2020). For instance, in England the implementation of effective primary care interventions for secondary prevention of cardiovascular disease, diabetes and other chronic conditions led to a reduction in the socioeconomic gap in mortality amenable to health care (Cookson et al., 2017).

In essence, health systems with primary care as an organizing principle are linked to strong preventive and promotive care, as well as improved management of both acute and chronic conditions, including both noncommunicable and infectious diseases. A regular, trusted first contact care provider (as usual source of care) facilitates early detection and timely treatment, with the resulting care continuity, coordination and improved access collectively contributing to better health outcomes, fewer years lost to ill health and a reduction in mortality rates (Starfield, Shi & Macinko, 2005; Starfield, 2012; Rao & Pilot, 2014; WHO, 2018b; WHO & UNICEF, 2018). The evidence base is particularly strong for chronic conditions such as ischaemic heart diseases, cerebrovascular diseases, asthma, bronchitis and emphysema (Doorslaer, Wagstaff & Rutten, 1993; Macinko, Starfield & Shi, 2003; Macinko, Starfield & Erinosh, 2009; Friedberg, Hussey & Schneider, 2010; Kringos et al., 2013; OECD, 2020), with findings holding across countries with different income levels (Kringos et al., 2013; Trivedi, 2017; OECD, 2020). Not surprisingly, improved disease management with a first contact primary care provider is associated with reduced hospitalizations, particularly for chronic conditions (Shi, 2012; Gibson, Segal & Mcdermott, 2013; Kringos et al., 2013; Van Loenen et al., 2016; Wolters, Braspenning & Wensing, 2017; Kim & Cheng, 2018; Selman & Siddique, 2022).

A greater variation of health workers in primary care enhances effectiveness of care

Barbara Starfield's landmark study examined relative numbers of primary care physicians in the United States of America (USA) and found that higher primary care physician rates per capita were associated with lower rates of heart disease, cervical cancer, cerebrovascular stroke, hospital admissions (chronic and acute), low birth weight, teenage pregnancies and better self-reported health (Starfield, Shi & Macinko, 2005).

When primary care physicians and nurses collaborate with an expanded role for nurses, quality of care can be improved, with, for example, better blood pressure management and reduced hospitalizations (Matthys, Remmen & Van Bogaert, 2017). For the management of some ongoing conditions, nurse-led service delivery, when coupled with adequate training and remuneration, can produce equal or even superior results compared to care provided by physicians (see also Chapter 8) (Laurant et al., 2018).

Although the evidence base is still mixed, good collaboration between generalist primary care physicians and allied health workers trained in specific medical areas may improve overall health outcomes. Mental health indicators, including for depression and anxiety, have shown marked improvements with interventions such as case man-

agement, care coordination and self-care support by such mixed multidisciplinary teams (see also Chapter 8) (Conejo-Ceron et al., 2017; Trivedi, 2017). On the other hand, a comparative systematic review of a small study pool examining standard GP care vs. mental health workers integrated into primary care found insufficient evidence to assert superiority of one approach over another in terms of clinical effectiveness and cost (Woods et al., 2020). Overall, it seems that while generalist primary care is effective in many aspects of care, skill-mix innovations for the management of chronic diseases and multimorbidity such as primary care teams with expanded roles for nurses or pharmacists reveal overall positive impacts on health outcomes (Winkelmann et al., 2022).

What remains undisputed is that adequate remuneration and pre-service training, ongoing professional education and access to the required equipment and medications are essential for any provider to deliver comprehensive high-quality primary health care (Carai et al., 2021).

Community-based primary care can enhance health prevention, promotion and disease management

When primary care facilities are closer to communities and offer a wide range of health services, there is evidence of reduced child and maternal mortality, as well as lower rates of all-cause and cause-specific premature mortality (Macinko, Starfield & Shi, 2003; Gulliford et al., 2004; Starfield, Shi & Macinko, 2005; Macinko, Starfield & Erinosh, 2009; Kruk et al., 2010; Kringos et al., 2013).

Community-based primary health care interventions have been shown to contribute to improving preventive and promotive care in maternal, neonatal and child health (Jennings et al., 2017). Expanding primary care interventions to include antenatal care, exclusive breastfeeding support and other preventive measures significantly reduces maternal and child mortality (Bhutta et al., 2008).

A scoping review across 14 LMICs demonstrated that community-based approaches within a primary health care framework, supported by governmental policies and adequate financing, promote better population health outcomes in various areas, including disease prevention, reproductive health, childhood illnesses, infectious diseases, noncommunicable diseases (NCDs), mental health and palliative care (Bitton et al., 2019).

To sum up, the consistent association across multiple studies and the significant impact on health outcomes make a compelling case for the importance of strong primary care (Gulliford, 2002; Macinko, Starfield & Shi, 2003; Gulliford et al., 2004; Starfield, Shi & Macinko, 2005; Macinko et al., 2006; Bhutta et al., 2008; Macinko, Starfield & Erinosh, 2009; Kruk et al., 2010; Kringos et al., 2013; Conejo-Ceron et al., 2017; Trivedi, 2017; Stenberg et al., 2019). However, evidence on the positive impact of primary care on mortality for high-risk populations with complex care needs is less clear (Edwards et al., 2017).

14.2.2 Efficiency

Often studies explore the impact of implementing the PHC approach on quality of care in terms of its impact on the intertwined and complementary goals of effectiveness and efficiency. For this reason, they have been brought together here. Quality and efficiency in health care are closely interconnected, as interventions aimed at strengthening PHC often achieve both goals simultaneously (Doorslaer, Wagstaff & Rutten, 1993; Forrest & Starfield, 1996; Shi et al., 2002; Kruk et al., 2010; WHO, 2010; Kutzin, 2013; Pettigrew et al., 2015; Chotchoungchatchai et al., 2020). Efficiency refers to achieving the best health outcomes for a given level of resources or the minimum resources required to attain specific health outcomes (Doorslaer, Wagstaff & Rutten, 1993; Friedemann-Smith et al., 2019).

PHC has the potential to improve the efficiency of health systems in several ways. Primary care plays a vital role in the early identification and management of health problems, which reduces the burden of disease and leads to improved health outcomes (Forrest & Starfield, 1996; Shi et al., 2002; Kruk et al., 2010; WHO, 2010; Kutzin, 2013; Pettigrew et al., 2015; Chotchoungchatchai et al., 2020). By addressing health issues at an early stage, primary care reduces the need for more expensive and specialized care, thus reducing demand for more expensive and resource-intensive hospital-based, specialized and complex care (Doorslaer, Wagstaff & Rutten, 1993; Carter et al., 2016).

Examples of inefficient resource utilization in health systems are avoidable hospitalizations for ambulatory care sensitive conditions (ACSCs) that could have been prevented with timely and effective primary care (Gibson, Segal & Mcdermott, 2013; Rosano et al., 2013; Li et al., 2016; Van Loenen et al., 2016; Auraaen, Slawomirski & Klazinga, 2018; Kim & Cheng, 2018; OECD, 2020) and unnecessary hospitalizations of conditions that could be safely managed at an outpatient level if primary care was available and trusted by patients (Box 14.2) (Jullien et al., 2023b). Although in-patient hospital care has an important and unique role in PHC-oriented health systems, better access to quality primary care leads to lower rates of both avoidable hospitalizations for ACSCs and common conditions (Rosano et al., 2013; Van Loenen et al., 2016; Wolters, Braspenning & Wensing, 2017; Jullien et al., 2023b).

Another example of inefficiency in health systems is the inappropriate prescription of antibiotics and other medications (Jullien et al., 2023a, 2023b; OECD, 2017) (see Box 14.2 and Chapter 10). In many Organisation for Economic Co-operation and Development (OECD) countries, 45% to 90% of all antibiotic prescriptions in general practice are deemed inappropriate (OECD, 2017, 2020). This is not only a waste of resources but also contributes to the growing threat of antimicrobial resistance (WHO, 2018a). High-quality primary care that employs evidence-based diagnostic tools to ensure appropriate antibiotic use and leverages relational continuity to provide patient education on the proper usage and consequences of misuse can help reduce these rates (Carai et al., 2021).

Enhanced coordination between different levels of care also improves efficiency by reducing duplicated services, optimizing care pathways and minimizing the risk of adverse events (Forrest & Starfield, 1996; Fontaine et al., 2010; Rosano et al., 2013; Wolters, Braspenning & Wensing, 2017; Baxter et al., 2018; Barbazza et al., 2019; Berkman et al., 2021; Li, Tang & Liu, 2023). This not only improves the effectiveness, safety and user satisfaction dimensions of care quality but also enhances the overall efficiency of the health system.

Box 14.2 Unnecessary hospitalizations and lengths of stay among children in Romania and Tajikistan indicators for efficiency of primary care? Or: Impact of primary care quality on health system efficiency

Recent studies conducted in Romania and Tajikistan (Jullien et al., 2023a, 2023b) revealed that children with common conditions such as pneumonia or diarrhoea were often hospitalized without proper reasoning, thereby contributing to inefficiencies in the health system.

In Tajikistan, 40.5% of children and 69.2% of pregnant women were categorized as unnecessarily hospitalized. Children had a median hospitalization duration of eight days and 63% of children who required hospitalization were kept in the hospital for an unnecessary length of time.

In Romania, 57.9% of children and 56.2% of pregnant women were unnecessarily hospitalized. The median duration of hospitalization for children was four days, and for pregnant women two days. Among necessary hospitalizations, 44.4% of children were kept for an unnecessary length of time, and 23.3% of women were kept in the hospital longer than needed.

Qualitative assessments of health system bottlenecks to child health services (WHO Regional Office for Europe 2020c, 2021) in both countries demonstrated that primary care was often bypassed in favour of hospital-level care. Reasons included the perceived low quality of primary care. For example, in Tajikistan, due to a shortage of primary care providers, specialists were hastily retrained for primary care but reported to the assessment team that they did not feel entirely confident with many of conditions they were treating. In Romania, key informants reported poor communication skills of primary care providers, especially for children and adolescents, and the frequent referrals made to hospitals.

Unnecessary hospitalizations may be an interesting indicator for whether primary care is fulfilling its function as the first contact level where comprehensive, continuous and coordinated care is provided. In the case of Tajikistan and Romania, the high levels of unnecessary hospitalizations suggested bypassing of primary care due to quality-of-care challenges.

14.2.3 Safety

Safety as a dimension of quality refers to reducing harm related to the delivery of health services. Patient safety is a fundamental principle of good quality health care (WHO, 2023a). A breach in safety can potentially occur at every point in the process of caregiving as a certain degree of unsafety is inherent in any health care provision

(WHO, 2023b). Therefore, it is best to avoid unnecessary care and put measures in place to minimize harm. Failures in patient safety kill as many people as tuberculosis (TB) or malaria globally. It is estimated that safety failures also account for 15% of hospital costs in OECD countries (Institute of Medicine, 2001; Kruk, Pate & Mullan, 2017; Berwick et al., 2018; WHO & UNICEF, 2018; OECD, 2020). The literature suggests that strong PHC can enhance safety through a number of strategies, discussed below.

Well-trained generalist primary care providers can improve patient safety

In PHC-oriented health systems, well-trained and trusted primary care providers can contribute to improving patient safety by reducing the risk of adverse events, including adverse drug events, as well as by avoiding duplication of services and other medical errors (WHO, 2016a; WHO, 2016b). Conversely, evidence from countries with weaker and distrusted primary care shows high rates of unnecessary hospitalization and inappropriate use of medicines (OECD, 2017, 2020; WHO, 2018b; Jullien et al., 2023a, 2023b).

The development of a therapeutic relationship over time with a primary care provider is at the heart of a PHC-oriented health system. This holistic and person-centred approach to patient care enhances safety through timely and continuous care that allows for knowledge and information about a patient to be centralized in a primary care provider, rather than being dispersed across a fragmented series of specialists.

Purposeful and specialized training of primary care providers in comprehensive general medicine can thus enhance diagnostic accuracy and evidence-based treatment and care. As experts in the management of often still undiagnosed, undifferentiated conditions, generalist providers are trained to determine when a patient should be referred to a specialist or hospital and when the treatment is within the realm of the primary care level. Through effective coordination with specialists and a well-functioning emergency care system, they can minimize safety errors (Panagioti et al., 2015).

Clinical decision support and electronic health records can reduce the frequency of medical errors

Despite their potential to improve patient safety, primary care providers are not immune to making errors. Medical errors that occur in primary care are less well studied than those that occur in hospitals (Panesar et al., 2016; Cooper et al., 2018). One systematic review investigated the frequency and harmful outcomes related to adverse patient safety incidents in primary care. In 109 studies from countries with different income levels, between <1 and 24 patient safety incidents took place per 100 consultations (median: 2.5) and between <1% and 44% (median 4%) of incidents were estimated to be associated with severe harm, defined as significantly impacting a patient's well-being, including long-term physical or psychological issues or death (Panesar et al., 2016).

As a subset of medical errors, the risks of diagnostic errors and delays are salient for primary care physicians who need to balance judicious watchful waiting and the appropriate investigation of health issues early in their manifestation, while still undifferentiated and evolving (WHO, 2016a). In some studies, diagnostic errors account for 4% to 45% of reported patient safety incidents (Teagarden et al., 2005; Hoffmann et al., 2008; Ilboudo, Chou & Huang, 2012; Panesar et al., 2016), with 58% of these errors resulting in harm (Hoffmann et al., 2008; Panesar et al., 2016). Various strategies have been proposed to mitigate the risk of medical errors including clinical pathways, job aids, checklists and electronic record systems with prompts and controls (Royal et al., 2006; Ludwick & Doucette, 2009).

Clinical decision support tools, in electronic or paper format, have been shown to mitigate diagnostic and therapeutic errors. Especially when integrated within EHR systems, these tools impact positively on safety and efficiency by generating clinical reminders, providing decision support, and tracking preventive and ongoing services (Chaudhry et al., 2006; Campanella et al., 2016). They thus have the potential to enhance overall care quality by promoting compliance with guidelines and enabling appropriate protocol-informed care (see Chapter 13).

On the other hand, clinical decision support tools can compromise safety when they indiscriminately and excessively decrease opportunities for face-to-face communication (Daker-White et al., 2015). Further investigation is needed to understand the circumstances under which these approaches, guidelines or protocols either compromise or improve patient safety (Daker-White et al., 2015). However, a review of seven countries found no significant impact on the quality of care, patient safety or provider/patient relations with the implementation of electronic medical records in primary care (Daker-White et al., 2015). Privacy protection and liability considerations may also affect the impact of digital record systems on diagnosis and management, although literature on these aspects is limited (Ludwick & Doucette, 2009).

The scale of medication errors in primary care needs further research

While little evidence is available regarding medication errors in primary care, they are suspected to be significant given their overall prevalence across the health system (Royal et al., 2006; Garfield et al., 2009; WHO, 2016b; Hodkinson et al., 2020). Various strategies have been proposed to mitigate medication errors, including electronic patient records, peer-led medication reviews, pharmacist prescription reviews and nurse-led medication reviews for chronic diseases. The effectiveness of pharmacist review alone in reducing preventable drug-related morbidity remains uncertain (Royal et al., 2006; Ludwick & Doucette, 2009; Phillips et al., 2010; Lawati et al., 2018). However, when combined with improved health literacy and patient education, which are core to PHC, these measures have been shown to have a substantial impact on reducing medication errors (Daker-White et al., 2015; Lang, Velasco & Heintze, 2016) (see Chapter 10).

Communication is central to improving safety for patients with complex multimorbidity

Effective communication between the primary care team and specialists, swift referral pathways and clear division of tasks among care providers are crucial to safety in the context of complex multimorbidity, especially in view of timely diagnosis of complications and the delivery of palliative care (Epstein et al., 2017). This is especially the case when individuals with multimorbidity also have a mental health condition as the risk of adverse events is higher (Panagioti et al., 2015). In the context of cancer, the combination of several strategies that enable coordination, including explicit referral guidelines and clear referral pathways to specialized clinics when needed, can mitigate missed or delayed cancer diagnosis and treatment (Car et al., 2016; Friedemann-Smith et al., 2019; Hanna et al., 2020).

Communication failures between health care team members contribute to safety incidents, particularly related to medication and diagnosis, suggesting the need for regular team meetings, EHRs and specific alerts (Royal et al., 2006; Phillips et al., 2010; Lawati et al., 2018). Human elements, including effective face-to-face communication and prompt referral access, play a crucial role in patient safety, while electronic tools and job aids can serve as valuable complements to enhance safety efforts (Daker-White et al., 2015).

The literature also highlights that safety in primary care is influenced by the level of training of health workers, access to essential medicines and technologies, teamwork, the quality of the built environment and a functioning referral- and back-referral mechanism (WHO, 2016a, 2016b, 2023a) (see also Part II). Further study is required to better understand patient safety in primary care, including through patients' perceptions of safety and quality (Lang, Velasco & Heintze, 2016).

14.2.4 User experience

Having a regular primary care provider contributes to higher patient satisfaction

The quality of user experience is integral to the quality of the health system. In PHC-oriented health systems, placing the patient at the centre of health service delivery includes utilizing user experience data to inform policies and facility improvements and ultimately deliver more responsive and satisfactory health services.

There is a clear correlation between robust primary care and higher levels of self-reported user satisfaction. A comprehensive study across 17 countries in Latin America and the OECD revealed that patients who had a regular place of care that was familiar with their medical history were able to effectively communicate with their primary care team, and received coordinated care were 12% less likely to perceive the need for major health system changes and almost 30% more likely to view their usual provider as offering high-quality care (Guanais et al., 2018; OECD, 2020). Additionally, patients whose physicians provided clear explanations and spent adequate time during consultations were 8.6% less likely to perceive the need for major health system changes and 69.6% more likely to perceive their usual provider as offering high-quality

care (Guanais et al., 2018; OECD, 2020). Furthermore, compared to adults without a primary care provider, adults with one reported better experiences in terms of improved communication with physicians and the feeling of having received high-value care (Levine, Landon & Linder, 2019).

Care coordination and a seamless flow of information have a positive impact on user experience

Effective coordination of care, crucial for patient safety, also correlates with a positive user experience (Matthys, Remmen & Van Bogaert, 2017). To achieve this, seamless information flow and consistent decision-making are essential across various levels of care, including primary care, specialist settings, hospitals, rehabilitation and palliative services. Integrated care models implemented in the United Kingdom have demonstrated tangible benefits such as reduced waiting times and outpatient appointments, leading to increased patient satisfaction (Baxter et al., 2018). Conversely, inadequate coordination results in patients redundantly providing their medical history, undergoing duplicate tests and receiving conflicting instructions. Suboptimal transitions between providers, particularly during hospital discharge and referrals back to primary care, have been associated with adverse effects as well as dissatisfaction (Couturier, Carrat & Hejblum, 2016; OECD, 2020).

Patient-reported data reveal the frequency of care coordination problems between primary care, specialists and hospitals, with 29% to 51% of individuals across 11 OECD countries reporting such challenges (OECD, 2020). These problems include unavailable medical tests during appointments, test duplication, insufficient information exchange between GPs and specialists, and contradictory information provided by different providers. These are all issues which a PHC-approach is meant to address. Limited data from non-OECD countries hamper comprehensive assessments of health system performance in this area. However, one study of patients with multimorbidity, a systematic review of 17 studies from seven countries, showed that those whose care was coordinated by primary care teams were more likely to report accessible, affordable and culturally acceptable care, as well as the ability to establish long-term relationships with their health care providers (Li, Tang & Liu, 2023).

While various models and interventions – such as telehealth, nurse-led care and shared medical appointments – have been employed to improve access as a determinant of positive user experience in primary care settings, their transferability to different contexts remains uncertain. However, the literature clearly points to the need to consider multiple factors including adequate training and remuneration of health and care workers, financing and governance of the health system in order to sustainably improve user experience as a dimension of quality (Bunn, Byrne & Kendall, 2004; Boggan et al., 2020). An innovative example of including the people's experience into health system measurement is the People's Voice Survey (see Box 14.3), which provides a representative view of the whole population capturing also non-users' perception of the health system, while the Patient-Reported Indicator Surveys (PaRIS) initiative focuses on providing information on the experience of patients with chronic conditions (Box 14.4).

Box 14.3 The People's Voice Survey

People's perceptions of the health system and their experience of care are currently not captured systematically during health systems assessments.

The People's Voice Survey is a new instrument to integrate people's voices into health system measurement and to understand whether better health and trustworthy clinical performance are delivered to all people. The People's Voice Survey focuses on population health needs and expectations as well as people's perspectives on processes of care and confidence in the health system. The easy-to-implement and relatively low-cost telephone survey with live interviewers using random digit dialling allows for routine implementation, for example, every two to three years. It can be complemented with face-to-face household surveys in areas with low telephone ownership. Currently the survey has been run in a number of countries in different regions, with the aim to progressively cover regions over the next few years.

Cognitive interviews, pre-testing and piloting of ~50 telephone surveys per country ensure content and cross-cultural validation. The fielding includes ~2000 interviews per country to collect population-representative data to answer the following questions:

- What do people expect from their health system?
- Does the population endorse the current health system, in word and in action?
- Do individuals trust the care available to them? Do individuals have confidence in public primary care to deliver core health services?
- What are people's health system utilization patterns? Bypassing patterns? Who are the non-users of health services?
- Are health care users treated respectfully?
- What is the self-rated health of the population?
- Equity: how do these answers vary across population sub-groups?

Initial findings from 14 countries across different income levels around the world show that primary care is underutilized. For example, 25% of respondents lack a regular place of care where they usually go to receive health care. Of those, only 41% reported that their regular place of care is a public primary care facility. Having a regular place of care was associated with higher utilization of key preventive services, such as blood pressure and blood glucose tests, mammogram, cervical cancer screening, etc. At least 25% of respondents in the participating countries consider the quality of care provided in the public primary care system for pregnant women, sick children, chronic conditions and mental health services as fair or poor. Mental health care was rated worst of all with 46% rating it as fair or poor across all countries. Improving quality of care at primary care facilities could extend the use of preventive care services, while increasing user satisfaction.

The People's Voice Survey enables rapid assessment of health system performance from the population perspective to inform health system planning for UHC and monitor policy implementation towards UHC, including cross-country and subnational comparisons to increase accountability. The results can

inform health system design and financing to maximize positive health outcomes and inform community demand for improvement.

It is hoped that the survey will be implemented globally at regular intervals and that future versions will be able to capture adolescents' views and experiences as well (Kruk et al., 2023).

Box 14.4 The Patient-Reported Indicator Surveys (PaRIS) initiative

The PaRIS initiative, developed by the OECD, aims to support quality assurance in primary care by implementing standardized indicators known as patient-reported outcome measures (PROMs) and patient-reported experience measures (PREMs). These indicators are collected through an international survey focused on individuals with chronic conditions, addressing crucial aspects such as access to care, waiting times, pain management and overall well-being.

Some examples of PROMs:

- **To assess mental health status**, for example, a summary score is used which includes patient-reported indicators on: anxiety and symptoms of depression, amongst others.
- **To assess social health status**: a summary score is used which includes patient-reported indicators on: ability to participate in social activities, limitations when participating in social activities; satisfaction with participation in social roles, etc.

Some examples of PREMs:

- **To assess user experience in terms of communication**: time given for consultation, whether the patient perceived themselves to be treated with respect, opportunity to ask questions, etc.
- **To assess shared decision-making**: discussion of patient goals and priorities for their care, patient involvement in developing the treatment plan, etc.
- **To assess care continuity and coordination**: frequency of being cared for by the same person, review of medication use by pharmacist or PHC professional together with patient, etc.

Twenty-one countries have committed to implement the PaRIS survey (2021–2023): Australia, Belgium, Canada, Czechia, England (United Kingdom), France, Greece, Iceland, Israel, Italy, Luxembourg, The Kingdom of the Netherlands, Norway, Portugal, Romania, Saudi Arabia, Slovenia, Spain, Switzerland, the USA and Wales (United Kingdom).

Possible output of the PaRIS Survey. With the data collected from the PaRIS survey, numerous questions can be answered and country comparisons can be made. For example:

- scores on anxiety and symptoms of depression scale among people who were diagnosed with cancer in the past five years, by country
- % of patients with two or more chronic conditions who had a medication review in the previous year (review of all medication used) by country

- % of patients with two or more conditions who reported to have one provider who is coordinating all care, by country or region
- confidence in managing one's own care among people with chronic conditions by country and age group
- geographical differences within countries in the extent to which people with chronic conditions experience access problems
- trust in the health system among people with chronic conditions broken down by socioeconomic status and country.

By collecting patient-reported data, the PaRIS survey provides valuable insights for policy-makers and health providers. These data aim to offer a comprehensive understanding of users' care experiences, the perceived effectiveness of provided care in improving health outcomes, the outcomes that matter most to individuals, and areas where quality improvements should be directed. The ultimate objective is to improve the quality of care and promote people-centred primary care services (OECD, 2019, 2022; de Boer et al., 2022).

Trust is central to improving the user experience

The perception of service quality among patients plays a crucial role in shaping their trust in health services, and conversely, trust can also influence their perception of care quality (Ai et al., 2022; Chang, Chen & Lan, 2023). Several studies have highlighted instances of patient distrust in primary care, which can be attributed to various factors, including inadequate quality of care (Das, Hammer & World Bank, 2005; Das, Hammer & Leonard, 2008; Das et al., 2016), limited availability of necessary services and resources, insufficient staffing including absenteeism (Banerjee, Glennerster & Duflo, 2008; Iles, 2019; Tumlinson et al., 2019; Zhang, Fink & Cohen, 2021; Odii et al., 2022), provision of unnecessary care (Brownlee et al., 2017), informal payments (Zandian et al., 2019), and a perceived lack of concern or empathy from health care providers. These studies underscore the significant role of quality of care as integral to patient trust in primary care. Trust is therefore also key to generating the demand and utilization of services, especially preventive care, which is central to the PHC approach. However, distrust in primary care providers is still a significant issue in many countries (Box 14.5).

Addressing the underlying causes of distrust, by, for example, expanding the availability of necessary services and tackling staffing and resource-related issues, can lead to stronger primary care, resulting in increased user satisfaction. As user experiences improve, the trust of the population in primary care also increases, allowing primary care to fully realize its potential in improving health outcomes.

Box 14.5 Applied health systems assessment for quality of primary care and trust in primary care providers

Applied health systems assessment in 10 countries in Europe, Central Asia and Africa evaluated which health services are available in the context of universal health coverage for mothers, children and adolescents, what they entail, whether they reach those they are intended for and, if so, at what cost. Only a small set of services were used as tracers to assess the health system performance in-depth, but these tracers were able to provide information on quality of care, available resources, general utilization and affordability of services, referral pathways, and the government's commitment to health, as well as the population's overall trust in the health institutions and systems.

In all 10 countries patients were found to frequently bypass the primary care facility in their communities and directly present to hospitals or private specialists.

Reasons for choosing the hospital over primary care for non-emergency care included:

- perception that the quality of care is higher at the hospital level (8 out of 10 countries)
- lack of access to examinations, equipment and diagnostics at the primary care level leading to multiple referrals rather than the ability to sort everything out in one visit at the hospital (9 out of 10 countries)
- lack of trust both in the capacity of the primary care physicians and the access to the required examination or treatment at this level (all countries).

Reasons for choosing the private sector were reported from fewer countries, while private sector utilization seems to be increasing in all countries:

- the private facilities are more comfortable and the results of tests are available more quickly than in public facilities
- greater accessibility of the private sector, for example longer opening hours
- higher trust in medications and vaccines available in the private sector.

In all 10 countries the profession of the primary care physician has a relatively low status both among other medical specialties as well as society at large, which is also reflected in the remuneration as well as the relative unpopularity of this career specialty among new graduates in many countries (WHO Regional Office for Europe, 2020a).

Key informants working within the health sector echoed the low levels of trust of the general population in their own public health system, with patients resorting to seeking care in the private sector or even other countries for more serious health concerns.

Equipping primary health care providers with competencies, tools and equipment to fulfil their crucial role, and raising their status and remuneration will improve health outcomes and safety for the patients, contain costs and increase the efficiency of the health system, but will also ultimately earn the trust of the population.

14.3 Country illustrations: leveraging PHC to improve quality of care

14.3.1 Slovenia: strengthening the PHC approach has improved health outcomes

PHC in Slovenia is primarily delivered through a network of 63 public community-based primary health care centres, serving as crucial entry points to the health system (Polin et al., 2022). These centres operate under the control of local governments and employ multidisciplinary teams that offer a wide range of preventive, diagnostic, therapeutic, palliative and health promotion services under one roof. Additionally, approximately 25% of PHC-based physicians practise privately under contracts with the Health Insurance Institute of Slovenia (WHO Regional Office for Europe, 2020b).

Slovenia has implemented various strategies to improve the quality of primary care, focusing on enhancing effectiveness, safety and user satisfaction. In the 1990s, the University of Ljubljana made family practice a compulsory subject in medical school and developed family medicine as a specialized area with a four-year residency programme. This initiative contributed to building strong and effective PHC in Slovenia by fostering familiarity with the purpose and function of strong primary care among doctors. It enabled the “PHC approach” to be integrated across the health system and strengthened the skills and competency of health and care workforce (Johansen, Vracko & West, 2020).

In 2002, health promotion centres were established in the community primary care centres and the introduction in 2004 of large-scale NCD screening programmes for all adults further enhanced the effectiveness of PHC in Slovenia (Johansen, Vracko & West, 2020; Polin et al., 2022). These community-based approaches promoted population health and counselling, and facilitated access to the health system for vulnerable populations. Most of the disease burden in Slovenia is attributable to NCDs, with a significant proportion being preventable through behavioural, metabolic and environmental risk factor interventions (WHO Regional Office for Europe, 2020b).

NCD screening programmes in PHC centres allow for regular rescreening every five years and appropriate referral of individuals with risk factors to family physicians for follow-up. In 2011, the introduction of nurse practitioners into family practice teams expanded the screening programme to cover a wider range of diseases, including COPD, asthma, diabetes, heart failure, depression, lower back pain, arterial hypertension and chronic kidney diseases (Susič et al., 2018).

Slovenia’s commitment to improving health outcomes is evident through various indicators. The Healthcare Access and Quality (HAQ) Index, which measures access to and quality of health services, ranks Slovenia with a score of 91 out of 100, surpassing the United Kingdom and closely following France (WHO Regional Office for Europe, 2020b). The country has achieved a rapid decline in premature mortality due to cardiovascular diseases, particularly among men, through aggressive screening and treatment programmes. Slovenia has also demonstrated a reduction in estimated premature mortality from chronic disease risk factors compared to the European Union average.

Furthermore, preventive health services for expectant mothers and children have contributed to low infant and under-5 mortality rates. Slovenia has also made progress in improving both the effectiveness and efficiency of its health system, as is evident from declining rates of avoidable hospitalizations for ambulatory care-sensitive conditions (OECD, 2023).

Safety and user experience have been key priorities in Slovenia's Ministry of Health. In 2021, a new system for managing safety deviations and safety risks was established, enabling health care workers, colleagues and patients to actively participate in ensuring patient safety based on the International Classification for Patient Safety framework (Government of Slovenia, 2021; Polin et al., 2022). The involvement of patients in the system has enhanced their knowledge of patient safety and improved their overall user experience. Additionally, a study identified a robust culture of safety within Slovenia's PHC system, with high survey ratings for teamwork and patient tracking (Tevzic, Poplas-Susic & Klemenc-Ketis, 2021).

Despite these successes, challenges remain for PHC in Slovenia's health system. Patient satisfaction levels have remained low, despite efforts to provide person-centred care (WHO Regional Office for Europe, 2020b; Tevzic, Poplas-Susic & Klemenc-Ketis, 2021). Quality improvement initiatives have stalled, and there is a shortage of medical graduates choosing family medicine as a career. While these challenges are common to health systems in the region and globally, opportunities to improve accountability and capacity to address them in Slovenia remain, so these strong PHC advantages can be maintained and expanded.

14.3.2 China: expanding coverage of PHC to improve its effectiveness, efficiency and user satisfaction

From the 1980s to early 2000s, the Chinese government reduced public financing of health care (Li et al., 2020). This led to the privatization of curative care and a deterioration of preventive care because it was poorly remunerated (Li et al., 2020). PHC institutions relied heavily on user fees, gradually putting China towards the bottom of the ranking of 191 countries in terms of equitable financial protection in the World Health Report in 2000 (WHO, 2000; Li et al., 2020). In response to these challenges, China began a process of PHC reform in 2009.

The reform efforts resulted in significant improvements in population health through enhanced health promotion, chronic disease management, preventive and curative care, health education and health financing (see Chapter 9). However, the quality of care provided by PHC institutions remained subpar, with several key challenges identified. These challenges included inadequate education and training in generalist care for PHC practitioners, excessive utilization of secondary and tertiary care bypassing primary care, and over-prescription of antibiotics. In response, targeted measures were implemented to improve the quality of PHC, including health reform initiatives, increased health expenditure and policy interventions (Wu et al., 2022):

- expansion of PHC institutions nationwide, both in urban and rural areas;
- establishment of alliances between hospitals and PHC institutions to promote collaboration in disease prevention, treatment and rehabilitation across the life course;

- expansion of insurance coverage for up to 95% of the population to include PHC services;
- increased government subsidies for public health services to enable PHC facilities to provide free services;
- strengthening the capacity and competency of the health workforce through reforms in undergraduate medical education, development of postgraduate training systems and continuous medical education for PHC; and
- provision of substantial financial incentives to encourage health care professionals to work in PHC, including salary increases and measures to improve job satisfaction.

These efforts resulted in improved access and equity in PHC services and increased utilization of primary care. Between 2012 and 2021, the number of PHC institutions increased by 7.1%, adding a total of 978 000 more facilities (Wu et al., 2022). The average annual increase in patient visits to PHC institutions between 2015 and 2019 was 0.6%, and by 2018, 90% of families could reach the nearest PHC institution within 15 minutes compared to 84% in 2013 (Wu et al., 2022). The number of visits to PHC outpatient departments also increased by 12.5% per year (Wu et al., 2022). The availability of insurance coverage incentivized people to utilize primary care services rather than bypassing them, leading to a shift in preference towards PHC facilities, with 87.4% of individuals stating their willingness to visit PHC facilities in 2018 compared to 80% in 2013 (Wu et al., 2022).

Increased investment in PHC resulted in improved effectiveness of PHC services, leading to better health outcomes. Accessible and affordable PHC played a crucial role in providing increasing coverage for antenatal care from 80.9% in 2009 to 92.7% in 2019 (Wu et al., 2022). Consequently, maternal and child health indicators improved, with the under-5 child mortality rate decreasing by 58.8% (from 17 per 1000 live births in 2009 to 7 in 2021) (UNICEF, 2023), and the maternal mortality rate decreasing by 32.3% (from 34 per 100 000 live births in 2009 to 23 in 2020). Additionally, the utilization of PHC services for chronic conditions improved significantly, with around 120 million individuals with hypertension (74.5%) and Type 2 diabetes (73.8%) seeking care in PHC institutions in 2020 (Wu et al., 2022). Prior to the PHC reform, these chronic diseases were not covered by insurance and were managed separately without integrated and coordinated care.

Efficiency in PHC delivery has been enhanced through the allocation of more health workers to underserved areas, particularly rural regions, and the implementation of EHRs. The number of primary care personnel has increased in both urban and rural areas, with the rate of doctors per 1000 people rising from 1.25 in 2013 to 1.3 in 2021 in rural settings (Wu et al., 2022). In 2019, EHRs were filled at a rate of 86.8%, while the use of paper health records stood at 55.3% (Wu et al., 2022). Primary care providers have reported that EHRs have aided in decision support for diagnosis and treatment, facilitated information sharing across different providers, improved work efficiency and allowed for real-time knowledge support (Xia et al., 2020). However, there is still room for improvement as the full implementation of EHRs across primary care facilities throughout the country has yet to be achieved.

User satisfaction, including views on the cost of services, the attitudes and competency of health workers, and waiting times, had been persistently low in China prior to the reform (Li et al., 2016; He, Li & Bian, 2018; Li et al., 2020). To address this, the government has provided quality of care training and financial incentives for primary care providers to enhance their capacity and skills in delivering high-quality services. In 2016, overall patient satisfaction with primary care was reported at 91.5% (Qin et al., 2018). Patients in rural settings reported higher satisfaction with the first point of care, accessibility, continuity and community orientation compared to those in urban settings (Chen et al., 2020). The presence of a family doctor or a usual provider of care was associated with better perceived quality of primary care in terms of continuity of care, comprehensiveness in meeting patient needs and increased trust in health services (Du et al., 2015; Li et al., 2018; Xu et al., 2022).

The quality challenges in China primarily stemmed from a lack of investment in health and increasing demands for a better health system owing to the growing burden of diseases. However, over the past decade, China has made progress in meeting the demand for more affordable and accessible health care services through PHC reforms, addressing governance, service delivery, financial aspects and population health needs.

14.4 Conclusion

In conclusion, the orientation of health systems towards PHC can yield improvements in both the quality and efficiency of health services overall. By prioritizing primary care as the organizing principle for health services, PHC reforms address key quality dimensions: effectiveness, safety and user satisfaction, while also optimizing resource utilization.

PHC's emphasis on comprehensive, continuous and coordinated first contact (primary) care is key to early identification and management of health problems. Improving collaboration between primary care physicians and allied health professionals, with a strong connection to communities, reduces in turn the need for costly specialized treatments, resulting in better health outcomes and cost savings, as well as improvements in patient safety. It also prevents unnecessary hospitalizations and promotes a more efficient allocation of resources. The coordination among multiple health and care workers focusing on individual patients ensures a safer and better health care experience. It also allows access to specialized care, for advanced diagnostic tests and complex treatments, when needed.

Patient safety improvements are driven by well-trained generalists who are appropriately aided by clinical decision support tools and EHRs and prescription tools. Effective communication between different providers, patients and communities is also decisive in reducing patient safety incidents.

PHC reforms can not only improve quality from the perspective of people but also enhance their trust in the health system. Users appreciate the improved access to services, comprehensive care and enhanced continuity of care, which fosters broader utilization of PHC. Moreover, PHC can empower patients through education, engagement and involvement in decision-making, further enhancing their overall health care experience.

Overall, implementing a PHC approach, which includes interventions to improve health governance, workforce and financing, among other system-level issues, can lead to substantial reductions in morbidity and mortality rates. By promoting prevention, early detection and evidence-informed management of health issues, PHC can contribute to improved population health and reduced complications.

REFERENCES

- Ai Y et al. (2022). Determinants of patients' satisfaction and trust toward healthcare service environment in general practice clinics. *Front Psychol*, 13.
- Auraaen A, Slawomirski L, Klazinga N (2018). The economics of patient safety in primary and ambulatory care. Paris: Organisation for Economic Co-operation and Development. Available at: <https://www.oecd.org/health/health-systems/The-Economics-of-Patient-Safety-in-Primary-and-Ambulatory-Care-April2018.pdf> (accessed 9 August 2023).
- Banerjee AV, Glennerster R, Duflo E (2008). Putting a Band-Aid on a Corpse: Incentives for Nurses in the Indian Public Health Care System. *J Eur Econ Assoc*, 6:487–500.
- Barbazza E et al. (2019). Improving clinical practice in primary care for the prevention and control of noncommunicable diseases: a multi-actor approach to two regional pilot projects in Kazakhstan. *Cardiovasc Diagn Ther*, 9:129–39.
- Baxter S et al. (2018). The effects of integrated care: a systematic review of UK and international evidence. *BMC Health Serv Res*, 18:350.
- Berkman ND et al. (2021). Management of High-Need, High-Cost Patients: A “Best Fit” Framework Synthesis, Realist Review, and Systematic Review. Rockville (MD).
- Berwick DM et al. (2018). Three global health-care quality reports in 2018. *Lancet*, 392:194–5.
- Bhutta ZA et al. (2008). Alma-Ata: Rebirth and Revision 6 Interventions to address maternal, newborn, and child survival: what difference can integrated primary health care strategies make? *Lancet*, 372:972–89.
- Bitton A et al. (2019). Primary healthcare system performance in low-income and middle-income countries: a scoping review of the evidence from 2010 to 2017. *BMJ Glob Health*, 4:e001551.
- Boggan JC et al. (2020). Effectiveness of Acute Care Remote Triage Systems: a Systematic Review. *J Gen Intern Med*, 35:2136–45.
- Brownlee S et al. (2017). Evidence for overuse of medical services around the world. *Lancet*, 390:156–68.
- Bunn F, Byrne G, Kendall S (2004). Telephone consultation and triage: effects on health care use and patient satisfaction. *Cochrane Database Syst Rev*, CD004180.
- Campanella P et al. (2016). The impact of electronic health records on healthcare quality: a systematic review and meta-analysis. *Eur J Public Health*, 26:60–4.
- Car LT et al. (2016). Preventing delayed diagnosis of cancer: clinicians' views on main problems and solutions. *J Glob Health*, 6:020901.
- Carai S et al. (2021). The integrated management of childhood illness (IMCI) and its potential to reduce the misuse of antibiotics. *J Glob Health*, 11:04030.
- Carter R et al. (2016). The impact of primary care reform on health system performance in Canada: a systematic review. *BMC Health Serv Res*, 16:324.
- Chang CS, Chen SY, Lan YT (2023). Service quality, trust, and patient satisfaction in interpersonal-based medical service encounters. *BMC Health Serv Res* 13, 22 . Available at: <https://doi.org/10.1186/1472-6963-13-22> (accessed 9 August 2023).

- Chaudhry B et al. (2006). Systematic review: impact of health information technology on quality, efficiency, and costs of medical care. *Ann Intern Med*, 144:742–52.
- Chen A et al. (2020). Comparison of Patients' Perceived Quality of Primary Care Between Urban and Rural Community Health Centers in Guangdong, China. *Int J Environ Res Public Health*, 17.
- Chotchoungchatchai S et al. (2020). Primary health care and sustainable development goals. *Bull World Health Organ*, 98:792–800.
- Conejo-Ceron S et al. (2017). Effectiveness of Psychological and Educational Interventions to Prevent Depression in Primary Care: A Systematic Review and Meta-Analysis. *Ann Fam Med*, 15:262–71.
- Cookson R et al. (2017). Primary care and health inequality: Difference-in-difference study comparing England and Ontario. *PLoS One*, 12:e0188560.
- Cooper J et al. (2018). Classification of patient-safety incidents in primary care. *Bull World Health Organ*, 96:498–505.
- Couturier B, Carrat F, Hejblum G (2016). A systematic review on the effect of the organisation of hospital discharge on patient health outcomes. *BMJ Open*, 6:e012287.
- Daker-White G et al. (2015). Blame the Patient, Blame the Doctor or Blame the System? A Meta-Synthesis of Qualitative Studies of Patient Safety in Primary Care. *PLoS One*, 10:e0128329.
- Das J, Hammer J, Leonard K (2008). The quality of medical advice in low-income countries. *J Econ Perspect*, 22:93–114.
- Das J, Hammer JS, World Bank (2005). Money for nothing: the dire straits of medical practice in Delhi, India. Washington DC: World Bank, Development Research Group, Public Services Team.
- Das J et al. (2016). Quality and Accountability in Health Care Delivery: Audit-Study Evidence from Primary Care in India. *Am Econ Rev*, 106:3765–99.
- Das J et al. (2022). Two Indias: The structure of primary health care markets in rural Indian villages with implications for policy. *Soc Sci Med*, 301:112799.
- de Boer D et al. (2022). Assessing the outcomes and experiences of care from the perspective of people living with chronic conditions, to support countries in developing people-centred policies and practices: study protocol of the International Survey of People Living with Chronic Conditions (PaRIS survey). *BMJ Open*, 12(9):e061424. doi: 10.1136/bmjopen-2022-061424. PMID: 36123114; PMCID: PMC9486339.
- Doorslaer EKAV, Wagstaff A, Rutten FFH (1993). Equity in the finance and delivery of health care: an international perspective. Commission of the European Communities. New York: Oxford University Press.
- Du Z et al. (2015). Usual source of care and the quality of primary care: a survey of patients in Guangdong province, China. *Int J Equity Health*, 14:60.
- Edwards ST et al. (2017). Effectiveness of Intensive Primary Care Interventions: A Systematic Review. *J Gen Intern Med*, 32:1377–86.

- Epstein RM et al. (2017). Effect of a Patient-Centered Communication Intervention on Oncologist-Patient Communication, Quality of Life, and Health Care Utilization in Advanced Cancer: The VOICE Randomized Clinical Trial. *JAMA Oncol*, 3:92–100.
- Fontaine P et al. (2010). Systematic review of health information exchange in primary care practices. *J Am Board Fam Med*, 23:655–70.
- Forrest CB, Starfield B (1996). The effect of first contact care with primary care clinicians on ambulatory health care expenditures. *J Fam Pract*, 43:40–8.
- Friedberg MW, Hussey PS, Schneider EC (2010). Primary care: a critical review of the evidence on quality and costs of health care. *Health Aff (Millwood)*, 29:766–72.
- Friedemann-Smith C et al. (2019). General practitioner referrals to one-stop clinics for symptoms that could be indicative of cancer: a systematic review of use and clinical outcomes. *Fam Pract*, 36:255–61.
- Garfield S et al. (2009). Quality of medication use in primary care – mapping the problem, working to a solution: a systematic review of the literature. *BMC Med*, 7:50.
- Gibson OR, Segal L, Mcdermott RA (2013). A systematic review of evidence on the association between hospitalisation for chronic disease related ambulatory care sensitive conditions and primary health care resourcing. *BMC Health Serv Res*, 13:336.
- Government of Slovenia (2021). Health Care Security. Government of Slovenia. Available at: <https://www.gov.si teme/varnost-zdravstvenega-varstva/> (accessed 24 September 2023).
- Guanais F et al. (2018). From the Patient’s Perspective: Experiences with Primary Health Care in Latin America and the Caribbean. Inter-American Development Bank. Available at: <http://dx.doi.org/10.18235/0001255> (accessed 9 August 2023).
- Gulliford MC (2002). Availability of primary care doctors and population health in England: is there an association? *J Public Health Med*, 24:252–4.
- Gulliford MC et al. (2004). Availability and structure of primary medical care services and population health and health care indicators in England. *BMC Health Serv Res*, 4:12.
- Hanna TP et al. (2020). Mortality due to cancer treatment delay: systematic review and meta-analysis. *BMJ*, 371:m4087.
- He X, Li L, Bian Y (2018). Satisfaction survey among primary health care outpatients in the backward region: an empirical study from rural Western China. *Patient Prefer Adherence*, 12:1989–96.
- Hodkinson A et al. (2020). Preventable medication harm across health care settings: a systematic review and meta-analysis. *BMC Med*, 18:313.
- Hoffmann B et al. (2008). Every error counts: a web-based incident reporting and learning system for general practice. *Qual Saf Health Care*, 17:307–12.
- Ilboudo TP, Chou YJ, Huang N (2012). Assessment of providers’ referral decisions in rural Burkina Faso: a retrospective analysis of medical records. *BMC Health Serv Res*, 12:54.

- Iles RA (2019). Government doctor absenteeism and its effects on consumer demand in rural north India. *Health Econ*, 28:475–91.
- Institute of Medicine (2001). *Crossing the quality chasm: a new health system for the 21st century*. Washington DC: National Academies Press.
- Jennings M et al. (2017). Comprehensive review of the evidence regarding the effectiveness of community-based primary health care in improving maternal, neonatal and child health: 2. maternal health findings. *J Glob Health*, 7:010902.
- Johansen AS, Vracko P, West R (2020). The evolution of community-based primary health care, Slovenia. *Bull World Health Organ*, 98:353–9.
- Jullien S et al. (2023a). Unnecessary hospitalisations and polypharmacy practices in Romania: A health system evaluation for strengthening primary health care. *J Glob Health*, 13:04039.
- Jullien S et al. (2023b). Unnecessary hospitalisations and polypharmacy practices in Tajikistan: a health system evaluation for strengthening primary healthcare. *Arch Dis Child*, 108(7).
- Kim H, Cheng SH (2018). Assessing quality of primary diabetes care in South Korea and Taiwan using avoidable hospitalizations. *Health Policy*, 122:1222–31.
- Kringos DS et al. (2013). Europe's strong primary care systems are linked to better population health but also to higher health spending. *Health Aff (Millwood)*, 32:686–94.
- Kruk ME, Pate M, Mullan Z (2017). Introducing The Lancet Global Health Commission on High-Quality Health Systems in the SDG Era. *Lancet Glob Health*, 5:e480–1.
- Kruk ME et al. (2010). The contribution of primary care to health and health systems in low- and middle-income countries: a critical review of major primary care initiatives. *Soc Sci Med*, 70:904–11.
- Kruk ME et al. (2018). High-quality health systems in the Sustainable Development Goals era: time for a revolution. *Lancet Glob Health*, 6:e1196–1252.
- Kruk ME et al. (2023). *The People's Voice Survey: Measuring people's views on health system performance* [Unpublished raw data].
- Kutzin J (2013). Health financing for universal coverage and health system performance: concepts and implications for policy. *Bull World Health Organ*, 91:602–11.
- Lang S, Velasco GM, Heintze C (2016). Patients' views of adverse events in primary and ambulatory care: a systematic review to assess methods and the content of what patients consider to be adverse events. *BMC Fam Pract*, 17:6.
- Laurant M et al. (2018). Nurses as substitutes for doctors in primary care. *Cochrane Database Syst Rev*, 7:CD001271.
- Lawati M et al. (2018). Patient safety and safety culture in primary health care: a systematic review. *BMC Fam Pract*, 19:104.
- Levine DM, Landon BE, Linder JA (2019). Quality and Experience of Outpatient Care in the United States for Adults With or Without Primary Care. *JAMA Intern Med*, 179:363–72.
- Li M, Tang H, Liu X (2023). Primary care team and its association with quality of care for people with multimorbidity: a systematic review. *BMC Prim Care*, 24:20.

- Li J et al. (2016). Patient satisfaction between primary care providers and hospitals: a cross-sectional survey in Jilin province, China. *Int J Qual Health Care*, 28:346–54.
- Li L et al. (2018). Effect of family practice contract services on the quality of primary care in Guangzhou, China: a cross-sectional study using PCAT-AE. *BMJ Open*, 8:e021317.
- Li X et al. (2020). Quality of primary health care in China: challenges and recommendations. *Lancet*, 395:1802–12.
- Ludwick D, Doucette J (2009). Adopting electronic medical records in primary care: lessons learned from health information systems implementation experience in seven countries. *Int J Med Inform*, 78:22–31.
- Macinko J, Starfield B, Erinoshio T (2009). The impact of primary healthcare on population health in low- and middle-income countries. *J Ambul Care Manage*, 32:150–71.
- Macinko J, Starfield B, Shi L (2003). The contribution of primary care systems to health outcomes within Organisation for Economic Co-operation and Development (OECD) countries, 1970–1998. *Health Serv Res*, 38:831–65.
- Macinko J et al. (2006). Evaluation of the impact of the Family Health Program on infant mortality in Brazil, 1990–2002. *J Epidemiol Community Health*, 60:13–9.
- Matthys E, Remmen R, Van Bogaert P (2017). An overview of systematic reviews on the collaboration between physicians and nurses and the impact on patient outcomes: what can we learn in primary care? *BMC Fam Pract*, 18:110.
- Odi A et al. (2022). Absenteeism in primary health centres in Nigeria: leveraging power, politics and kinship. *BMJ Glob Health*, 7.
- OECD (2017). *Tackling Wasteful Spending on Health*. Paris: OECD Publishing. Available at: <https://doi.org/10.1787/9789264266414-en> (accessed 9 August 2023).
- OECD (2019). *Measuring What Matters: the Patient-Reported Indicator Surveys*, Patient-reported indicators for assessing health system performance, 2019 Status Report. Paris: OECD Publishing. Available at: <https://www.oecd.org/health/health-systems/Measuring-what-matters-the-Patient-Reported-Indicator-Surveys.pdf> (accessed 9 August 2023).
- OECD (2020). *Realising the Potential of Primary Health Care*. OECD Health Policy Studies. Paris: OECD Publishing. Available at: <https://doi.org/10.1787/a92adee4-en> (accessed 9 August 2023).
- OECD (2022). *Patient-Reported Indicator Surveys (PaRIS)*. Available at: <https://www.oecd.org/health/paris/> (accessed 9 August 2023).
- OECD (2023). *Health quality indicators, primary care*. OECD Statistics Database.
- Panagioti M et al. (2015). Multimorbidity and Patient Safety Incidents in Primary Care: A Systematic Review and Meta-Analysis. *PLoS One*, 10:e0135947.
- Panesar S et al. (2016). How safe is primary care? A systematic review. *BMJ Qual Saf*, 25:544–53.
- Papanicolas I et al. (eds). (2022). *Health system performance assessment: a framework for policy analysis*. Geneva: World Health Organization.

- Pettigrew LM et al. (2015). Primary health care and the Sustainable Development Goals. *Lancet*, 386:2119–21.
- Phillips C et al. (2010). Can clinical governance deliver quality improvement in Australian general practice and primary care? A systematic review of the evidence. *Medical J Aust*, 193:602–7.
- Polin K et al. (2022). Primary health care reforms in Slovenia: leveraging existing structures to expand care. *Eur J Public Health*, 32.
- Qin J et al. (2018). Patient Satisfaction with Primary Care in Highly Focused Districts/Counties during the Comprehensive Reform of Primary Care System in China. *Chinese Gen Pract Med*, 21.
- Rao M, Pilot E (2014). The missing link – the role of primary care in global health. *Glob Health Action*, 7:23693.
- Rosano A et al. (2013). The relationship between avoidable hospitalization and accessibility to primary care: a systematic review. *Eur J Public Health*, 23:356–60.
- Royal S et al. (2006). Interventions in primary care to reduce medication related adverse events and hospital admissions: systematic review and meta-analysis. *Qual Saf Health Care*, 15:23–31.
- Selman S, Siddique L (2022). Role of Primary Care in Health Systems Strengthening Achievements, Challenges, and Suggestions. *Open J Soc Sci*, 10.
- Shi L (2012). The impact of primary care: a focused review. *Scientifica (Cairo)*, 2012:432892.
- Shi L et al. (2002). Primary care, self-rated health, and reductions in social disparities in health. *Health Serv Res*, 37:529–50.
- Starfield B (2012). Primary care: an increasingly important contributor to effectiveness, equity, and efficiency of health services. *Gac Sanit*, 26(1):20–6.
- Starfield B, Shi L, Macinko J (2005). Contribution of primary care to health systems and health. *Milbank Q*, 83:457–502.
- Stenberg K et al. (2019). Guide posts for investment in primary health care and projected resource needs in 67 low-income and middle-income countries: a modelling study. *Lancet Glob Health*, 7:e1500–10.
- Susič AP et al. (2018). Upgrading the model of care in family medicine: a Slovenian example. *Public Health Panorama*, 04:550–5.
- Teagarden JR et al. (2005). Dispensing error rate in a highly automated mail-service pharmacy practice. *Pharmacotherapy*, 25:1629–35.
- Tevcic S, Poplas-Susic A, Klemenc-Ketis Z (2021). The Safety Culture of The Ljubljana Community Health Centre's Employees. *Zdr Varst*, 60:145–51.
- Trivedi D (2017). Cochrane Review Summary: Interventions for improving outcomes in patients with multimorbidity in primary care and community settings. *Prim Health Care Res Dev*, 18:109–11.
- Tumlinson K et al. (2019). Understanding healthcare provider absenteeism in Kenya: a qualitative analysis. *BMC Health Serv Res*, 19:660.

- UNICEF (2023). Data Warehouse. United Nations Children's Fund.
- Van Loenen T et al. (2016). The impact of primary care organization on avoidable hospital admissions for diabetes in 23 countries. *Scand J Prim Health Care*, 34:5–12.
- WHO (1978). Declaration of Alma-Ata. World Health Organization. Available at: https://cdn.who.int/media/docs/default-source/documents/almaata-declaration-en.pdf?sfvrsn=7b3c2167_2 (accessed 9 August 2023).
- WHO (2000). The World Health Report 2000: Health systems: improving performance. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/924156198X> (accessed 17 April 2024).
- WHO (2010). The World Health Report: Health systems financing: the path to universal coverage. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241564021> (accessed 17 April 2024).
- WHO (2016a). Technical Series on Safer Primary Care: Diagnostic errors. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241511636> (accessed 17 April 2024).
- WHO (2016b). Technical Series on Safer Primary Care: Medication errors. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789241511643> (accessed 17 April 2024).
- WHO (2018a). Declaration of Astana. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.61> (accessed 17 April 2024)
- WHO (2018b). Technical Series on Primary Health Care: Quality in primary health care. Technical Series on Primary Health Care. Geneva: World Health Organization. Available at: <https://www.who.int/docs/default-source/primary-health-care-conference/quality.pdf>
- WHO (2023a). Patient safety [Online]. Available at: https://www.who.int/health-topics/patient-safety#tab=tab_1 (accessed 9 August 2023).
- WHO (2023b). Primary health care [Online]. Available at: https://www.who.int/health-topics/primary-health-care#tab=tab_1 (accessed 9 August 2023).
- WHO (2024). Quality of care [Online]. Available at: https://www.who.int/health-topics/quality-of-care#tab=tab_1 (accessed 12 January 2024).
- WHO Regional Office for Europe (2020a). Assessments of sexual, reproductive, maternal, newborn, child and adolescent health in the context of universal health coverage in six countries in the WHO European Region: a synthesis of findings from the country reports. Copenhagen: WHO Regional Office for Europe. Available at: <https://www.who.int/europe/publications/i/item/9789289054874> (accessed 17 April 2024).
- WHO Regional Office for Europe (2020b). Integrated, person-centred primary health care produces results: case study from Slovenia. Copenhagen: WHO Regional Office for Europe. Available at: <https://iris.who.int/handle/10665/336184> (accessed on 17 April 2024).

- WHO Regional Office for Europe (2020c). Assessment of sexual, reproductive, maternal, newborn, child and adolescent health in the context of universal health coverage in Romania. Copenhagen: WHO Regional Office for Europe. Available at: <https://www.who.int/europe/publications/i/item/9789289054720> (accessed 17 April 2024).
- WHO Regional Office for Europe (2021). Assessment of sexual, reproductive, maternal, newborn, child and adolescent health in the context of universal health coverage in Tajikistan. Copenhagen: WHO Regional Office for Europe. Available at: <https://www.who.int/europe/publications/i/item/9789289055680> (accessed 17 April 2024).
- WHO, UNICEF (2018). A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. Geneva: World Health Organization and United Nations Children's Fund. Available at: <https://www.who.int/docs/default-source/primary-health/vision.pdf>
- WHO, UNICEF (2020). Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization and United Nations Children's Fund. Available at: <https://www.who.int/publications/i/item/9789240017832>
- Winkelmann J et al. (2022). Chronic conditions and multimorbidity: skill-mix innovations for enhanced quality and coordination of care. In: Maier CB, Kroezen M, Busse R, Wismar M (eds), *Skill-mix Innovation, Effectiveness and Implementation*. Cambridge University Press, pp. 152–220.
- Wolters RJ, Braspenning JCC, Wensing M (2017). Impact of primary care on hospital admission rates for diabetes patients: A systematic review. *Diabetes Res Clin Pract*, 129:182–96.
- Woods J et al. (2020). Clinical effectiveness and cost effectiveness of individual mental health workers colocated within primary care practices: a systematic literature review. *BMJ Open*, 10:e042052.
- Wu Y et al. (2022). Primary health care in China: a decade of development after the 2009 health care reform. *Health Care Science*, 1:146–59.
- Xia Z et al. (2020). Perceived Value of Electronic Medical Records in Community Health Services: A National Cross-Sectional Survey of Primary Care Workers in Mainland China. *Int J Environ Res Public Health*, 17.
- Xu J et al. (2022). Primary Health Institutions and Service Quality in China: Implications for Health Policy. *Int J Environ Res Public Health*, 19.
- Zandian H et al. (2019). Strategies to reduce informal payments in health systems: a systematic review. *East Mediterr Health J*, 25:914–22.
- Zhang H, Fink G, Cohen J (2021). The impact of health worker absenteeism on patient health care seeking behavior, testing and treatment: A longitudinal analysis in Uganda. *PLoS One*, 16:e0256437.

15

The impact of PHC on equity, access and financial protection

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Key messages

Despite global commitments to both PHC and to providing all people with quality, affordable and accessible health care, more than half of the world's population is not covered by essential health services, and paying out-of-pocket for health services causes widespread and severe financial hardship. Primary health care (PHC) is a key strategy in enhancing equity, access and financial protection.

- Equitable access can be strengthened by effective PHC because:
 - it is rooted in the local area, offering services where people are and without long travel times
 - it understands communities and the way they use services, making it possible to tailor coverage to cultural, linguistic and socioeconomic contexts, and to include marginalized groups.
- PHC reforms have the potential to significantly reduce financial hardship policies but need careful consideration and to include:
 - comprehensive health benefit packages
 - essential health services, essential medicines and public health interventions.
- PHC is also an effective vehicle for publicly funded coverage for vulnerable groups. Specific interventions can tackle the affordability aspects of access for them.
- Country experience has identified PHC strategies that enhance access and equity, including:
 - organizing health services around first contact primary care – which works if individuals are assigned to a primary care provider (or 'empaneled')
 - including community health workers and managers, and task-shifting in multi-disciplinary teams
 - making care more approachable and acceptable and therefore more available through community-based approaches such as mobile clinics and outreach services
 - using new technologies such as telemedicine to help bring comprehensive first contact care to remote and rural areas.

15.1 Introduction

Primary health care (PHC) remains the most inclusive, effective and efficient approach for supporting countries on their path to UHC (WHO, 2018a, 2020). Its key principles of solidarity and the right to health mean that all people, whether rich or poor, young or old, healthy or sick, are covered by health services that reflect their needs (see Chapter 1) (WHO, 2018b). The PHC approach increases equity by facilitating the provision of services that improve the health of *all* population groups. This requires a particular focus and strategies for reaching disadvantaged groups whose health outcomes are generally poorer and for whom targeted policies are needed to increase access and financial protection (WHO, 2018b, 2020).

The implementation of the PHC approach is highly context-dependent. Unpacking the concrete ways through which PHC interventions have had a positive impact on the dimensions of equity, access and financial protection can support countries, and their health systems, to develop their own evidence-based approach. This chapter is organized in four parts. After a first section describing the fundamental concepts and their interrelations, this chapter then provides insight into the evidence base on the impact of PHC on equity, access and financial protection (see Section 15.2). The role of context is reflected in the country illustrations presented in Section 15.3. Finally, lessons learned and key insights for implementation are presented in the Conclusion.

15.1.1 Definitions

Equity in health is the absence of systematic and potentially avoidable, unfair and unjust differences in health outcomes between social groups, and is a key health system goal (Box 15.1) (Whitehead, 1991; Braveman & Gruskin, 2003; Starfield, 2011; WHO, 2018a). These differences, also called health inequities, can be assessed through disaggregated data on sociodemographic dimensions such as economic status, place of residence, age, sex, education, occupation, ethnicity, religion, caste, migratory status, displacement and disability, among others (Allan et al., 2022; WHO, 2022b). Health inequities translate into unmet need, increased costs within the health sector, and worse health outcomes for individuals and their families (Richard et al., 2016). Addressing them requires actions that ensure not only equitable access to care but also equity in the delivery and processes of care. These actions must guarantee horizontal equity, which means providing treatment to everyone equally regardless of their social position or group; as well as securing vertical equity, which addresses the particular needs of certain individuals or social groups such as maternal health services for women (Starfield, 2011).

Box 15.1 Definitions of key terms

Universal health coverage (UHC): ensures everyone can use quality health services (including medicines and medical devices) without experiencing financial hardship.

Equity in health: the absence of systematic and remediable differences in health status, access to health care and health-enhancing environments, and treatment, in one or more aspects of health across populations or population groups defined socially, economically, demographically, geographically or by other dimensions of inequality (such as sex, gender, ethnicity, disability or sexual orientation) within and across countries. Health equity is achieved when everyone can attain their full potential for health and well-being.

Access to health services: the ability, or perceived ability, to reach and obtain health services or health facilities in terms of location, timeliness and ease of approach in situations of perceived need for care.

Financial protection: is closely linked to health coverage and can be undermined by gaps in the breadth (universality), scope (range of benefits) and depth (out-of-pocket payments) of coverage, as well as by the quality and timeliness of service delivery. Financial protection is achieved when: (a) there are no financial barriers to access; and (b) direct payments required to obtain health services are not a source of financial hardship (WHO & World Bank, 2021). Financial hardship occurs when health service utilization comes at the expense of other necessities in life (WHO & World Bank, 2021).

It must be noted that the concepts of access and financial protection are closely interconnected as financial protection strongly impacts access to health services.

Access to health services encompasses both supply and demand factors (Levesque, Harris & Russell, 2013). Supply-side factors include approachability, or that users can reach the services when they need them; availability, meaning services are delivered in a physical and timely manner, affordability which refers to the financial and timely capacity to use services; cultural and social acceptability; and appropriateness, or the fit between the need for services and obtaining them (Levesque, Harris & Russell, 2013; Khanassov et al., 2016). Demand-side barriers refer to population characteristics that limit their ability to perceive health care needs, to seek and reach care, to pay for it, and to engage with the health system to make it more responsive to their needs (see Table 15.1) (Levesque, Harris & Russell, 2013). Examples of such population characteristics include language, cultural sensitivity, background, sex, impaired physical functions, communication skills and the social determinants. The supply dimension is commonly measured through indicators of affiliation, coverage, avoidable hospitalization and frequency of visits to health facilities, as well as the use of medical procedures, services or commodities like emergency departments, vaccinations or diabetes treatment (Khanassov et al., 2016). From the demand-side, indirect indicators around health service utilization, unmet needs and other access barriers are generally used (Khanassov et al., 2016; Cu et al., 2021). However, information about the underlying and multiple dimensions of users and providers, like ethnicity, language, gender, disability and the larger social determinants, is not usually collected (Khanassov et al., 2016; Cu et al., 2021).

Financial protection is a core dimension of health system performance, and is central to UHC. People are not financially protected when out-of-pocket payments create a financial barrier to access, resulting in unmet need for health care, or lead to financial hardship among people using health services (Thomson, Cylus & Evetovits, 2019; WHO, 2021b). Out-of-pocket spending includes formal and informal payments made at the point of using any health care good or service and can either be payments for non-covered services or additional charges for covered services. Financial hardship is typically measured using two indicators: (1) catastrophic health spending, defined as out-of-pocket payments that are large in relation to household consumption or capacity to pay for health care; and (2) by impoverishing health spending, defined as out-of-pocket payments that push households below the poverty line or make households already living below the poverty line even poorer. In this chapter, we will focus on the impact of PHC policies and reforms on financial hardship. It must be noted that the concepts of access and financial protection (Box 15.1) are closely interconnected as financial protection strongly impacts access to health services.

15.2 Evidence review: the impact of PHC on equity, access and financial hardship

There is widespread international agreement that enhancing PHC services, especially for disadvantaged populations, is important for reducing inequities in health, improving access and ensuring financial protection (WHO, 2021b; WHO & World Bank, 2021). This section evaluates that notion, presenting the latest evidence on how PHC interventions have indeed impacted equity, access and financial hardship.

15.2.1 Health equity

The implementation of PHC policies can have positive, and equitable, impacts on the health of people in all income contexts. Its benefits for socially vulnerable groups and the overall population hold even for fragmented and weak health systems (Macinko, Starfield & Erinosh, 2009; Bitton et al., 2019; Haque et al., 2020).

Primary health care's proximity to people and communities enables better outreach and understanding, benefiting population groups with poorer outcomes. This is reflected in the specific drivers found in the literature behind PHC's impact on health equity – targeted policies for strengthening the first contact level of care, that is, primary care; multidisciplinary teams as they usually include a team member dedicated to community work (such as community health workers); the assigning of responsibility to provider teams for a defined population, also known as empanelment; and explicit coverage with public funding for vulnerable groups combined with an expansion in the number and distribution of facilities. These strategies particularly enhance equity for marginalized populations and address overall issues related to geographical isolation (Bitton et al., 2019). These are explained below.

Primary care as an organizing principle for delivering services promotes equity in health

The strongest evidence for improving equity, especially in terms of access and coverage of PHC, points to the use of primary care as a strategy for organizing and delivering services (Kringos et al., 2015; PAHO & WHO, 2018). Comprehensive implementation of primary care has been associated with reduced socioeconomic inequality and improved continuity of care, particularly for lower socioeconomic status populations (Macinko, Jimenez & Cruz-Peñate, 2015; Edelman et al., 2021). Moreover, strong primary care promotes a more equitable distribution of resources, including the health workforce, as observed in Spain. The country's resource allocation is weighted by age, rurality and disease prevalence, effectively improving equity in primary care provision by sending more resources where there is greater need (Kringos et al., 2013, 2015) (see Section 15.3.2).

In middle- and lower-income settings, primary care interventions related to women's health literacy, antenatal care, vaccinations, oral rehydration therapy, nutrition, and water and sanitation had positive effects on maternal health and led to an average reduction in under-5 mortality by 40% (Macinko, Starfield & Erinosh, 2009). Hence, strong primary care provides a robust foundation for overtly tackling inequities in health through targeted actions that focus on those most vulnerable or at risk. However, those targeted actions need to be a policy priority for the robust foundation to bear fruit in terms of equity.

Public funding and explicit coverage for vulnerable groups improves equity

Evidence suggests that equity-informed financing models that prioritize public spending, require payment based on "ability to pay", and distribute the cost burden and benefits according to need, are associated with better outcomes and greater equity (see also Chapter 4) (Edelman et al., 2021). These financing approaches enable strong primary care as the organizing principle for delivering health services, integrated with robust public health at the community level (PAHO, 2007; PAHO & WHO, 2018; Bitton et al., 2019). The literature points to equity gains through the expansion of access to publicly financed coverage across all three dimensions: service coverage, population coverage and cost coverage (see Chapter 9). When publicly financed health systems cover the whole population, including people in vulnerable situations, equity is improved by, for example, basing entitlement on physical residence rather than legal residence or affiliation to a scheme or to payment of contributions (Watson, Yazbeck & Hartel, 2021). Coverage also needs to be adequately financed to minimize out-of-pocket spending (Thomson, Cylus & Evetovits, 2019).

When the expansion of all three dimensions of coverage is linked to the expansion and distribution of facilities, this can improve equity and increase affordable access to health care for people in vulnerable situations, including people with low incomes, people in precarious work, minority ethnic groups and geographically isolated populations. In 2014, the Peruvian government declared that all indigenous peoples living in Peruvian Amazonia were recognized to be living in extreme poverty and included

them in the inclusive health insurance programme (Sandes et al., 2018). As a result, thousands of people gained access to services free of charge. Despite improved access, indigenous children still had lower vaccination rates and 78% continued to live in extreme poverty. However, this measure contributed to an increase in population coverage from 28% in 1999 to 43% in 2014.

Pan American Health Organization (PAHO)'s regional report on the situation of PHC in the Americas documented that 19 countries have incorporated the right to health into their legal frameworks and 31 reported advances in orienting their health systems towards a PHC approach, also through public funding and expanding service coverage. These efforts have led to remarkable reductions in childhood deaths due to vaccine-preventable diseases, malaria incidence, dengue mortality, mother-to-child transmission of human immunodeficiency virus (HIV), and tuberculosis (TB). Additionally, deaths related to noncommunicable diseases have decreased, and diseases like rubella have been eliminated from the region (PAHO & WHO, 2018).

Mexico expanded access through the Popular Health Insurance Model, relieving about 50% of the population from user fees and out-of-pocket expenses (Frenk, 2006). Through focusing on increasing access for families in the poorest quintile, as well as on vertical coverage, the country expanded the number of priority interventions. As a result, by 2015, 83.3% of the population was covered through some type of public insurance. This led to a marked reduction in catastrophic health expenditure among the poor, and health disparities went down considerably (Frenk, 2006; Knaul et al., 2012; CONEVAL, 2021). In addition, 12 more countries implemented pooled funding mechanisms, to protect populations from financial hardship. However, even though the majority of the population was covered by such mechanisms – 98% in Chile and Uruguay, 95% in Colombia and 73% in Peru – all coverage levels were lower for families with the highest poverty levels, and more access barriers reported by a higher percentage of this group (PAHO & WHO, 2018). This highlights the importance of automatic, universal eligibility for people who know their entitlements to improve health equity (Watson, Yazbeck & Hartel, 2021; WHO & World Bank, 2023).

Empanelment improves equity as it assigns explicit responsibility to underserved populations

Empanelment is a dynamic and iterative process that involves the identification and allocation of populations to specific health care facilities, care teams or primary care providers who have a responsibility to know their assigned population and to proactively deliver coordinated primary care (see also Chapter 6) (WHO, 2020; Özçelik et al., 2021; Gizaw, Astale & Kassie, 2022). Empanelment fosters dedicated outreach based on population needs with its inherent allocation of responsibility to providers, regardless of their health status. It facilitates the provision of optimal care by adapting services to a deeper understanding of patients, their families and their community environment, fostering a holistic approach. In turn, this also improves patient satisfaction (Özçelik et al., 2021). An example of this is Türkiye's Family Health Programme-facilitated empanelment, which led to a notable increase of 9.5% in primary care as the preferred option over a span of seven years. This positive shift can

be attributed to the increased proximity (14.9%) and higher satisfaction (up 11.8%) experienced with primary care services. With empanelment, low-income urban populations had a consistently high utilization rate (Hone et al., 2017). In Argentina, empanelment initiatives have demonstrated improvements in access, coverage and equity levels for indigenous people, despite enduring geographical, cultural and language barriers which persist in the country and throughout South America and pose obstacles in delivering care to indigenous communities (Sandes et al., 2018; Bearden et al., 2019; Gizaw, Astale & Kassie, 2022). One way to address these challenges is the introduction of special cadres, like Brazil's indigenous health agents. They provide primary care services in villages and incorporate traditional medicine practices that align with cultural beliefs surrounding health and disease and have been brought into multidisciplinary teams who are assigned responsibility for a target population (see the following sections). A multipronged approach is needed to make real progress on equity as health outcomes of vulnerable groups have not always progressed at the same pace as those of their non-vulnerable counterparts – a case in point is the enduring higher rates of low weight for age in Brazilian indigenous children compared to the national average (Sandes et al., 2018).

The broad skill-set offered by decentralized, close-to-community, multidisciplinary teams contributes to reductions in health disparities

Family Health Programmes implemented in Brazil, Portugal and Türkiye present strong evidence for how a combination of multidisciplinary teams, patient empanelment, community engagement, primary care and public health integration can help overcome inherent fragmentation within health systems to provide more continuous care, especially for underserved communities (Özçelik et al., 2021; Pereira et al., 2022). Family Health Programmes have also demonstrated improved availability and access to services, and improved health outcomes, leading to a reduction in health disparities (Gizaw, Astale & Kassie, 2022). The decentralized provider structures in such programmes are especially crucial to ensuring that communities and other stakeholders can effectively tailor policies to local contexts (Langlois et al., 2020; Özçelik et al., 2021).

In 1990, the Brazilian government began implementing a decentralized model for their Family Health Programmes using multidisciplinary teams comprising a physician, a nurse, a nurse assistant and a small team of four or five community health workers (see Chapter 5). These teams are responsible for providing a wide range of health services, including preventive and community services, to catchment areas with populations ranging from 3400 to 4500 people. The impact of this approach was significant: the prevalence of stunting declined between 1996 and 2007 in the poorer and more geographically isolated regions of the country (Guanais, 2010) and overall health outcomes improved (see Chapter 4). Moreover, the expansion of PHC through the Family Health Programme was associated with a two-fold greater reduction in mortality from ambulatory-care-sensitive conditions in black and pardo Brazilians compared to white Brazilians. The expansion of Family Health Teams was particularly prioritized within poorer municipalities, which led to increased utilization and reduced unmet need for black and pardo populations (Hone et al., 2017).

Community health workers who provide a trusted link between the health system and their communities extend care to underserved populations

Community health workers play an important role in the delivery of PHC and enjoy renewed support because of their ability to bridge health services and populations (Gizaw, Astale & Kassie, 2022). Their position and monitoring activities within communities facilitate insight into the implementation of policies, and for reliably identifying where programmes fail to work for the disadvantaged social groups they tend to serve (Ruano et al., 2012; Ahmed et al., 2022). Community health workers are uniquely positioned to extend care to disadvantaged populations that experience social and geographical isolation and marginalization (Ruano et al., 2012; Ahmed et al., 2022). For example, Brazil's indigenous health agents provide primary health care services in villages and incorporate traditional medicine practices that align with cultural beliefs surrounding health and disease (Sandes et al., 2018). Moreover, community health workers play an advocacy and activist role, challenging the *status quo* of inequities, protecting the rights of patients, and calling for health system reform in a way that addresses the social, political and structural problems that lie at the root of health inequities (Flores & Ruano, 2014; Ahmed et al., 2022).

Community health workers have been shown to reduce health disparities across a range of country contexts, including in India, Ethiopia, Turkey and Brazil. While community health worker programmes can help reduce barriers to health care access among hard-to-reach populations, particularly if combined with other policy measures to overcome structural social determinants of health, such as poverty and geographic segregation (Ruano et al., 2012). As mentioned previously, a multipronged, holistic approach is required over the long term to sustainably address equity. Investment in community health workers and their training is one important component to maximize equity gains of PHC reforms (see Chapter 8).

15.2.2 Access

Access to high-quality care is one of the most important performance dimensions for all health systems. Evidence indicates that PHC interventions have a key role to play in ensuring that individuals, families and communities are able to access the services they need (Starfield, Shi & Macinko, 2005; Khanassov et al., 2016). Interventions to improve access include outreach services, establishing health centres close to communities, increasing the supply of community health workers, co-locating health workers with various professional and cultural backgrounds, introducing patient advocates like patient navigators, providing tailored information through call centres or short messaging services (SMS), instituting multidisciplinary teams, and providing broad service coverage for basic health needs, for example by including commonly used outpatient medicines, medical products and dental care in the package of benefits (Bitton et al., 2019). In this section, specific PHC interventions that have improved access are examined with the lens of Levesque, Harris & Russell's (2013) access framework. Both supply and demand dimensions of access are analysed, specifically in regard to approachability, acceptability, availability, affordability and appropriateness (see Table 15.1).

Community-based approaches enhance approachability and availability of primary care

PHC improves the *approachability* of care through outreach services like mobile clinics, provided through local health facilities. Mobile clinics can provide a wide variety of services including food and housing, education and job counselling very close to where vulnerable communities live (Attipoe-Dorcoo et al., 2020). By collaborating with churches, community health centres and hospitals, mobile clinics can create strong community links and a culture of respect and inclusivity, ensuring approachability for patients (see Chapter 12) (Malone et al., 2020).

One way to improve the *acceptability* of primary care and public health services is through using culturally sensitive approaches. One widely studied approach, which has shown to be effective, is the deployment of community health workers. This is especially true when community health workers are part of a community, such as indigenous community health workers working in their communities, and/or have a deep understanding of the community they serve. Their unique position within both the health system and their communities enables them to provide culturally appropriate care to marginalized populations (Ruano et al., 2012; Ahmed et al., 2022). Yet the positive change community health workers can bring about hinges on their role and scope, training and connection to their designated community. When their scope of service remains limited, their capacity is low, and/or there is little system support, community health worker programmes may not be able to realize their full potential (Alhassan et al., 2016; Macinko et al., 2016). For example, when community health workers are unable to adequately engage with, or enjoy a trustful relationship with, rural and remote residents, they may fail to persuade them to seek care within the formal health system because a community health worker's own unconscious biases, which can include racism and discrimination, may hinder their ability to act as a link in providing timely PHC services. This difficulty is further compounded in contexts with active conflicts, in rainy seasons, or with groups such as children, people with disabilities and/or pregnant women (Ahmed et al., 2022).

Evidence from Guatemala reveals the persistent discrimination faced by indigenous peoples and other ethnic minorities. This includes the way that language barriers and health beliefs not aligned with the traditional biomedical paradigm result in indigenous people being denied care at public health care facilities (Ruano et al., 2014; Cerón et al., 2016). When discrimination and racism are addressed head-on with measures such as dedicated government policy frameworks and community-based services for vulnerable populations, this can have a tangible effect on access (WHO, 2022b). An important example is the joint agreement between the governments of Peru and Bolivia in 2022 to protect health care for indigenous communities in the border region. These measures include safeguarding indigenous medical practices and developing contingency plans to ensure the health protection of highly vulnerable indigenous peoples (ACTO, 2022).

Table 15.1 Examples of PHC interventions per access dimension (supply-side and demand-side)

Supply-side access determinants		Examples of supply-side PHC interventions	Demand-side access determinants		Examples of demand-side PHC interventions
Approachability	<i>"People facing health needs can actually identify that some form of services exists, can be reached, and have an impact on the health of the individual"</i>	Outreach programmes and educational sessions in communities on prevention and screening, home visits, navigation	Ability to perceive	<i>"Ability to perceive need for care [...] determined by [...] health literacy, knowledge about health and beliefs related to health and sickness"</i>	Health and service literacy
Acceptability	<i>Cultural and social factors determining the possibility for people to accept the aspects of the service [...] and the judged appropriateness for the persons to seek care"</i>	Indigenous nurse, information customized to literacy, gender diversity sensitive practices, use of interpreters, dedicated funding to provide service to vulnerable groups, cultural competency of providers	Ability to seek	<i>"Personal autonomy and capacity to choose to seek care, knowledge about health care options and individual rights that would determine expressing the intention to obtain health care"</i>	Education and self-management coaching, peer support workers
Availability	<i>"Health services (either the physical space or those working in health care roles) can be reached both physically and in a timely manner"</i>	After-hour services, same day/walk-in GP appointments, telehealth, mobile technology, patient navigator, expanded scope of practice	Ability to reach	<i>"Personal mobility and availability of transportation, occupational flexibility, and knowledge about health services"</i>	Transportation options to access services (e.g. public transportation)
Affordability	<i>"The economic capacity for people to spend resources and time to use appropriate services"</i>	Carefully designed benefits package with coverage of essential medicines, low or no co-payments, universal entitlement with automatic enrolment in coverage schemes, suitable and affordable transport	Ability to pay	<i>Out-of-pocket payments do not create a financial barrier to access or result in financial hardship (impoverishing or catastrophic health spending)</i>	No out-of-pocket costs for patients
Appropriateness	<i>"The fit between services and [the] client's need, its timeliness, the amount of care spent in assessing health problems and determining the correct treatment and the technical and interpersonal quality of the services provided"</i>	Good range and co-location of providers with different skills (specialists and allied health professionals), patient navigators, primary care network	Ability to engage	<i>"Participation and involvement in decision-making and treatment decisions which is determined by capacity and motivation to participate in care"</i>	Proactive role and participation of patients and carers

Sources: Levesque, Harris & Russell, 2013; Richard et al., 2016; Ward et al., 2018

PHC interventions increase availability and affordability of services

PHC interventions play a vital role in ensuring the *availability* of health services through the establishment of health centres in communities, and ensuring well-trained and competent health and care staff who provide services in a timely fashion (Ward et al., 2018). In Saint Lucia, in the Caribbean, strong political commitment to PHC translated into an expanded network of first-level health centres, all within 5km of home or work (PAHO & WHO, 2018). In addition, new professional roles like those of patient navigators were found to improve access and timeliness of care for vulnerable patients, including those from ethnic minorities. They do so by improving appointment scheduling with specialists and reducing waiting times (Budde et al., 2021).

Mobile clinics largely improve the availability of services by overcoming geographical remoteness. When this is coupled with technology, these clinics bring more than first contact services, providing access to needed specialist care (see Chapter 12) (Attipoe-Dorcoo et al., 2020; Malone et al., 2020). In Malawi, the “Health Centre by Phone” project established in 2017 includes two *mHealth* components aimed at increasing access to free, timely and quality health information and at linking patients to services in health facilities, with a strong focus on underserved communities (see Chapter 11). The call centre is run by local government district hospitals and offers a toll-free way to provide answers to general health inquiries. In addition, an opt-in text and voice messaging system provides women of childbearing age, pregnant women and care-takers of young children with tailored information (SIHI, 2021; Van Niekerk et al., 2023). In Australia, an after-hours general practitioner (GP) service increased availability, particularly in areas with health workforce shortages (Ward et al., 2018).

Offering universal entitlement to a carefully designed benefits package that includes primary care services and commonly prescribed medicines to the whole population at a lower cost (or no cost) compared to specialty care or hospital visits can largely increase the *affordability* of services and is at the centre of the PHC approach (see also Section 15.2.3). PHC policies that ensure affordable and suitable transportation and short distances to providers are important to enhance affordability (Syed, Gerber & Sharp, 2013).

Multidisciplinary teams and co-location of providers enhance appropriateness of care

Deploying multidisciplinary teams is among the most effective strategies for enhancing the *appropriateness* of care in PHC interventions. These teams have demonstrated their ability to improve equity and access by leveraging a wide range of collective skills to address diverse health needs. In the United States of America (USA), team-based primary care, consisting of medical assistants, nurses and lay staff, has been found to deliver a higher quantity and quality of services compared to traditional practices. The inclusion of a diverse range of team members enables targeted and tailored responses to different health needs, thereby enhancing appropriateness. For instance, medical assistants can provide preventive care or health coaching, while nurses can offer face-to-face interventions (Wagner et al., 2017).

In Australia, innovative models of care that incorporate team-based approaches and provide services beyond regular working hours have been associated with higher levels of appropriateness and acceptability. Additionally, patient navigators play a crucial role in supporting patients to connect with the right health providers, further contributing to the overall appropriateness of care (see also Chapter 8) (Peart et al., 2018).

15.2.3 Financial hardship

PHC reforms and interventions have immense potential to reduce financial hardship, especially in primary care settings where people frequently seek essential services and may face significant out-of-pocket spending. For this and many other reasons, a key component of the PHC approach is the explicit provision of a broad health service package that covers essential health services, including medicines and public health interventions. Notably, outpatient care treatments contribute significantly to financial hardship, with out-of-pocket spending on over-the-counter and outpatient medicines being a major driver of financial hardship (WHO & World Bank, 2021). In Europe, an average of 38% of out-of-pocket payments is spent on outpatient medicines in households with catastrophic health spending (WHO & World Bank, 2023).

Despite improved access to care for the world's population and reductions in reliance on out-of-pocket payments to finance health systems at the global level, empirical evidence suggests that financial protection against out-of-pocket spending has deteriorated in many countries (Wagstaff et al., 2018; WHO & World Bank, 2021; WHO, 2022a). Across the world, studies show that poorer households face more financial hardship when seeking care, irrespective of other factors such as the care setting or specific conditions (Saksena, Smith & Tediosi, 2014; Oyando et al., 2019; Thomson, Cyrus & Evetovits, 2019; Madden et al., 2021; Balla et al., 2022). Unemployment, illiteracy, older age and female-headed households are associated with lower financial protection, even after controlling for other factors (Dalui, Banerjee & Roy, 2020; Dastan et al., 2021; Madden et al., 2021). Moreover, individuals living with chronic diseases, which should ideally be addressed through PHC, experience worse financial protection (Palladino et al., 2023).

These findings underscore the urgent need for PHC reforms that fully embrace the PHC approach, with carefully designed policies to ensure financial protection for the most vulnerable populations. One effective option for reducing financial hardship is to implement an explicit health service package that removes user charges or limits out-of-pocket spending on outpatient care, as well as publicly financing outpatient medicines, particularly in community settings (see Chapters 9 and 10). Other potential avenues within PHC for reducing financial hardship are analysed below.

PHC policies and their impact on financial hardship

PHC policies and reforms that have sought to improve access to primary care services and enhance health equity have had mixed impacts for financial hardship. Reasons could lie in the specific detail of benefits package design, changing health-seeking behaviour with increased income and economic development, and the variations in implementation of PHC policies. In addition, methodological differences across studies can lead to unintuitive results with regards to certain characteristics (see Box 15.2).

A positive example comes from Mexico, where the expansion of public health insurance to cover low-income households, including primary care services, resulted in decreased financial hardship (Frenk, 2006; Knaul et al., 2012). Similarly, the expansion of coverage for vulnerable children in Mexico was associated with reduced out-of-pocket payments, decreased financial hardship and better health outcomes (Celhay et al., 2019). In rural areas of India, villages with primary care facilities demonstrated decreased financial hardship compared to villages without such facilities (Dalui, Banerjee & Roy, 2020). Several studies indicate that out-of-pocket payments are lower when care is available closer to home. For example, in Bangladesh, the costs for patients seeking antenatal care at the community level through community health workers were approximately one third of the costs for seeking care at the facility level (Jo et al., 2019). Similarly, longitudinal studies in Türkiye have shown decreased financial hardship with the implementation of the Health Transformation Project and related reforms (Tirgil, Dickens & Atun, 2019; Kockaya, Oguzhan & Çalskan, 2021). In India, the expansion of coverage for maternity care has resulted in decreased financial hardship (Balla et al., 2022).

In China, one study identified positive associations between PHC, essential medicines, health financing reforms and absence of financial hardship (Liu et al., 2019). Another study demonstrated that out-of-pocket expenditure on diabetes had decreased over time as coverage for the condition expanded, along with lower total costs of treating acute diabetes episodes at tertiary hospitals (Zhang & Yang, 2020). However, other studies from China present mixed results regarding the impact of PHC-oriented reforms, such as expanding public financing and service coverage, on financial hardship. One study examining the integration of different health insurance schemes in China demonstrated unforeseen effects, with higher catastrophic expenditures in some areas (Liu et al., 2019). A further study found that out-of-pocket expenditure decreased with a higher density of primary care infrastructure but increased with government health expenditure (Zhang et al., 2019). Another study using similar data, however, found a negative association between the density of health infrastructure, including primary care facilities, government health expenditure and financial hardship (Tang et al., 2021). These unexpected results may be caused by insufficient and misdirected government health expenditure relative to need.

Box 15.2 Financial hardship metrics

Impoverishing and catastrophic health spending are measured in different ways. Some commonly used metrics of catastrophic health expenditure are problematic for equity as they tend to increase with time as well as with household income. Indeed, the global trends of financial protection look less alarming when the more poverty-centric approaches are used (WHO & World Bank, 2021). In this regard, there is substantial criticism of some of the indicators for monitoring progress on financial hardship, including the indicators used in the global Sustainable Development Goals (SDG) monitoring framework (Grépin, Irwin & Trakinsky, 2019). When looking for causal or correlations between PHC and financial hardship, choosing metrics that give a magnified result for richer people is particularly problematic as PHC hopefully benefits vulnerable populations more in all contexts. The choice in some publications to systematically treat out-of-pocket payments by people who are already living below the poverty line as financial hardship is an excellent step in this direction and needs to be applied more consistently (WHO & World Bank, 2021). Additionally, metrics which introduce more equity-oriented denominators for catastrophic health expenditure continue to be suggested (Thomson, Cylus & Evetovits, 2019).

The content and context of PHC policies and changing health-seeking behaviours is at the nexus of equity, access and financial protection

Policy-makers put in place a wide range of different policies to strengthen PHC and move towards health system goals such as financial protection. Examples aligned with the broad concept of PHC range from expansion of access to health facilities, moving treatment modalities to people's home environments, bringing preventive measures more systematically to the community level, lowering or removing co-payments, and many more. However, unintended negative consequences in terms of out-of-pocket expenditures may result when context and content are not fully considered and when financing of services is insufficient.

Evidence from Georgia emphasizes the importance of considering context, content and sufficient financing. The introduction of the Universal Health Care Programme met its policy goal of increasing the share of the population with publicly financed health coverage, from 20% to 90% between 2008 and 2013. This led to reduced unmet need, with general increases in health service utilization. Access and coverage of inpatient care also improved, yet the Universal Health Care Programme did not sufficiently cover outpatient medicines. This meant that increased ambulatory care service use led to increased out-of-pocket payments and greater financial hardship. Combined with unregulated medicine prices, households faced catastrophic health spending in primary care and decreased out-of-pocket spending on inpatient care (Thomson, Cylus & Evetovits, 2019; Goginashvili, Nadareishvili & Habicht, 2021). The result has thus not necessarily led to strengthened PHC, despite its many successes, and has not served the policy goal of financial protection as intended.

The issue, it seems, is in the detail of the PHC policy itself and how it is implemented. In Cambodia, a programme aimed at increasing health-seeking behaviour and reducing user fees at primary care facilities for poor people did not have a significant impact on household health expenditures nor on the percentage of households resorting to coping strategies to finance health care costs. This could be explained by the fact that private provider consultations were still preferred owing to their perceived higher quality compared to services at public facilities. Moreover, low user fees at public health centres were not the primary access barrier, as larger distances to these facilities and associated indirect costs played a larger role (Korachais et al., 2019). In addition, a study on the expansion of maternal and child health services in Viet Nam found that staff were ruder in lower-level facilities when bribes were not offered, leading to communities preferring to seek care elsewhere (Heo et al., 2020). It is therefore important to appraise the context and details of policy changes to understand how and why, and with which expenses, people seek care in order to improve financial protection. Learning from other settings, especially those with counterintuitive results and unintended consequences, can help avoid similar outcomes.

Finally, there is strong evidence that health-seeking behaviour increases with economic growth and ageing populations, as well as improved health literacy and access to care (Li et al., 2020; Ng'ambi et al., 2020; WHO, 2021a; Chilot et al., 2022). However, as people frequently seek essential services at the primary care level, service availability and public coverage may not always keep pace owing to lack of sufficient health workforce which can lead to higher out-of-pocket payments (as people seek care outside the public system).

15.3 Country illustrations: leveraging PHC to improve equity, access and financial protection

15.3.1 Thailand: transitioning towards a PHC-oriented system improved equity, access and financial protection

With the explicit policy goal of UHC, Thailand introduced the Universal Coverage Scheme (UCS) in 2002. Its major objectives were to ensure equitable access to health services with financial protection, in particular for poor populations, informal sector workers and other vulnerable subgroups. The UCS covers all Thai citizens and makes them eligible for a comprehensive package of services regardless of their ability to pay. A strong focus on strengthening PHC was a pillar of this scheme, marking an important step in the Thai government's ambition to achieve the health system goals of equity, access and financial protection (Tangcharoensathien et al., 2014; WHO, 2017). Today, Thailand has a well-organized network of region-based health systems and full population coverage. Overall, the UCS has greatly improved health care access and utilization since its initial introduction in 2002.

Equity

Evidence clearly demonstrates that the UCS has made significant strides in enhancing equity in health financing, particularly through taxation. One notable impact is the improved vertical equity in access to care, where individuals in the lowest income groups have benefited by receiving a greater number of services from designated facilities compared to the wealthiest quintile. Additionally, they have incurred lower costs for both inpatient and outpatient services. This pro-poor utilization of health services is primarily attributed to the easily accessible district health system, which operates as the contracted provider network. Furthermore, the UCS's financing mechanism relies on progressive general taxation, contributing to a more equitable distribution of health care funding (Tangcharoensathien et al., 2010, 2013; Jongudomsuk, 2015; Paek, Meemon & Wan, 2016).

Access

During the 1970s and 1980s, Thailand implemented reforms to enhance the accessibility and acceptability of primary care, particularly in rural areas. To achieve this, the government redirected funds initially allocated for urban hospitals towards constructing rural district hospitals and health centres (WHO, 2017). They also incentivized doctors to work in rural regions through financial support and increased educational opportunities, while introducing community health volunteers responsible for health promotion, basic care and communicable disease control. These efforts, coupled with the establishment of multidisciplinary teams, resulted in a comprehensive network of primary care units and community hospitals across the country, significantly improving access to care. In fact, the unmet health care needs for both inpatient and outpatient services are now comparable to those in Organisation for Economic Co-operation and Development (OECD) countries (Tangcharoensathien et al., 2018). Additionally, the National Health Fund directly contracts with district health systems for primary care services, enabling easy access for underserved populations due to the proximity of contracted facilities to their homes (Jongudomsuk, 2015).

Financial protection

Before the implementation of the UCS in 2002, Thailand gradually introduced a series of financial protection measures aimed at different population groups, which were consolidated under the UCS in that same year (Tangcharoensathien et al., 2010). Since the establishment of the UCS, significant advancements have been made in terms of financial protection against catastrophic health expenditures and health-induced impoverishment. This improvement can be attributed to the comprehensive coverage of health services and the minimal co-payments required at the point of service. As a result, out-of-pocket spending by households has decreased from 34% of current health expenditure in 2000 to 11% in 2017. The incidence of catastrophic health spending has also declined, dropping from 6% in 1995 to 2% in 2015. Furthermore, the occurrence of households experiencing impoverishment due to health payments has decreased approximately six-fold during the same period (Tangcharoensathien et al., 2020).

15.3.2 Spain: strong PHC policy contributes to low levels of inequity and financial hardship, as well as good access to services

The Spanish National Health System (SNS) was established in 1986 with the core principles of universal access, free health care at the point of delivery, and financing through taxes (Bernal-Delgado et al., 2018). Decentralization, completed in the early 2000s, further reinforced these principles. One of the key features of the SNS is its emphasis on primary care around which health services are organized. Public primary care centres have been developed across the country, ensuring equal distribution between urban and rural areas, high-density areas and underserved populations, etc. These centres serve as the initial point of contact for patients and offer a wide range of services, including general practice, nursing care, paediatrics and social services. Coordinating with other levels of care and specialists, they provide comprehensive care for patients. Most services are free of charge at the point of use, except for dental care and medicines (Durán, Lara & Van Waveren, 2006). GPs act as gatekeepers, and primary care teams deliver acute and chronic care, as well as health promotion and preventive services for the entire population. The integrated nature of care across all levels reduces fragmentation and enables continuity of care. This integrated care approach allows for locally tailored service provision and better responsiveness to local health needs.

Spain thus boasts one of the strongest primary care systems in Europe, as evidenced by low prevalence of chronic conditions and low rates of avoidable hospital admissions for diabetes and congestive heart failure. These indicators demonstrate that the integrated care approach supports effective management of patients with multiple chronic diseases (OCED & EOHSP, 2021).

Equity

Spain's primary care system prioritizes preventive measures and health promotion activities, aiming to achieve equity in health care. This equity-focused approach has contributed to Spain having one of the lowest levels of unmet health needs in Europe (Garcia-Subirats et al., 2014). The difference in unmet needs for medical examinations between the lowest and highest income groups is negligible, indicating a more equitable distribution of health care services (Bernal-Delgado et al., 2018). A study examining the use of GP services among individuals aged 50 and over in the country reveals that pro-poor inequality in access and frequency of GP visits is primarily influenced by a higher prevalence of health issues among the economically disadvantaged (Crespo-Cebada & Urbanos-Garrido, 2012). Additionally, an analysis based on data from the 2006 National Health Survey indicates that the use of public GPs and specialists in Spain favours the most disadvantaged populations, demonstrating pro-poor horizontal equity. However, the highest socioeconomic group tends to rely more on private health services, which constitute a significant proportion of care providers in Spain (Lostao et al., 2014).

Access

Spain demonstrates good access to health care services, as indicated by low rates of unmet medical care needs. In 2019, only 0.2% of the population reported unmet needs for health care related to cost, distance or waiting times, compared to the European Union (EU) average of 1.7%. This achievement can be attributed to Spain's extensive network of health centres, universal coverage that ensures primary care for all residents, and comprehensive benefits package (OECD & EOHSP, 2021; Urbanos-Garrido et al., 2021). Access to non-emergency primary care is particularly commendable, with 86% of appointments taking place within two days of the request, and 36% of individuals receiving care on the same day (Bernal-Delgado et al., 2018).

However, it is important to acknowledge that unmet needs for migrants have worsened compared to the native population (Bernal-Delgado et al., 2018). A study conducted in the Basque country revealed that women from sub-Saharan regions face significant access barriers to appropriate health care due to institutional barriers such as lack of entitlement, difficulties in fulfilling legal access conditions and lack of documentation. Structural racism also plays a role in impeding their access to health care services (Pérez-Urdiales et al., 2019). Moreover, unmet need for dental care is very high as oral health services are largely excluded from National Health Service (NHS) coverage. For people in the poorest income quintile, unmet need for dental care doubled between 2006 and 2019 due to the financial crisis (Urbanos-Garrido et al., 2021).

Financial protection

In Spain, only a small share of households (1.6%) experience financial hardship when using health services as many services are free at the point of use and do not require co-payments but also because people's entitlement to NHS coverage is based on residence. Unmet needs for health care due to financial reasons is one of the lowest in Europe (0.1% compared to 1.0% EU average in 2021), while it is high for dental care (4% compared to 2.6% EU average in 2021) (Eurostat, 2023). The financial crisis in 2008 led to an increase of out-of-pocket payments in health spending from 19.0% in 2009 to 21.8% in 2019 and had a significant effect on people's ability to pay for health services, in particular for poorer households. Between 2008 and 2014 catastrophic health spending increased by 0.8 percentage points but fell after the crisis in 2016 (Urbanos-Garrido et al., 2021).

15.4 Conclusion

The PHC approach can be a driver for health systems to reach overall goals such as equity, better access and stronger financial protection. By prioritizing preventive care, multidisciplinary teams, new service delivery models that include outreach and community health workers, as well as community engagement, PHC-oriented strategies with explicit equity goals can address health disparities and ensure that everyone has fair and affordable access to quality health services. Health equity can be enhanced through targeted interventions that address the unique needs of marginalized com-

munities. Strategies such as community outreach programmes, culturally sensitive care and the recruitment of diverse health professionals that work together in multi-disciplinary teams have been successful in reaching underserved populations and reducing disparities. By tailoring services to specific cultural, linguistic and socioeconomic contexts, PHC can ensure that everyone has an equal opportunity to access and receive quality health care.

Access to health care can be improved by adopting innovative delivery models. For example, telemedicine and mobile health units have proven effective in reaching remote and rural areas, bringing health care services to individuals who face geographical barriers. Furthermore, strengthening health infrastructure, ensuring a sufficient health care workforce and implementing task-shifting approaches can enhance accessibility. By expanding service coverage and reducing travel and waiting times, PHC can facilitate timely and convenient access to care, especially for those in need.

PHC reforms can drive gains in financial protection with the caveat that expanding access goes hand in hand with extending population, cost *and* service coverage, including for medicines and preventive health interventions. Outpatient medicines especially are a key driver of out-of-pocket payments worldwide because they are frequently not covered with public or pooled funding in primary care, and out-of-pocket spending on medicines can limit financial protection. Additionally, there are secular trends in population demographics and household health expenditures. Ensuring that PHC reforms and financial protection consistently go hand in hand needs to focus on understanding specific contexts and social and individual needs in designing and refining policies and their implementation. Overall, vulnerable populations are more susceptible to financial hardship and thus addressing socioeconomic factors, and reducing health inequities through PHC reforms, is critical.

In conclusion, the implementation of PHC is a powerful strategy that has huge potential to improve equity, access and financial protection. By prioritizing preventive care, reaching underserved populations, providing comprehensive services and implementing equity-focused financing mechanisms, PHC can address health disparities, improve access to health and ensure that individuals are protected from financial hardship.

REFERENCES

- ACTO (2022). A basic document is agreed for the health care of indigenous peoples of the Bahuaja Sonene parks (Peru) and the Madidi park (Bolivia) [Online]. Available at: <http://otca.org/en/a-basic-document-is-agreed-for-the-health-care-of-indigenous-peoples-of-the-bahuaja-sonene-parks-peru-and-the-madidi-park-bolivia/> (accessed 20 June 2023).
- Ahmed S et al. (2022). Community health workers and health equity in low-and middle-income countries: systematic review and recommendations for policy and practice. *Int J Equity Health*, 21:49.
- Alhassan RK et al. (2016). Assessing the Impact of Community Engagement Interventions on Health Worker Motivation and Experiences with Clients in Primary Health Facilities in Ghana: A Randomized Cluster Trial. *PLoS One*, 11(7):e0158541. doi: 10.1371/journal.pone.0158541.
- Allan M et al. (2022). The World Health Organization COVID-19 surveillance database. *Int J Equity Health*, 21:167.
- Attipoe-Dorcoo S et al. (2020). Mobile health clinic model in the COVID-19 pandemic: lessons learned and opportunities for policy changes and innovation. *Int J Equity Health*, 19:1–5.
- Balla S et al. (2022). Distress financing in coping with out-of-pocket expenditure for maternity care in India. *BMC Health Serv Res*, 22:1–14.
- Bearden T et al. (2019). Empanelment: A foundational component of primary health care. *Gates Open Research*, 3.
- Bernal-Delgado E et al. (2018). Spain: health system review. *Health Systems in Transition*, 20(2):1–179.
- Bitton A et al. (2019). Primary healthcare system performance in low-income and middle-income countries: a scoping review of the evidence from 2010 to 2017. *BMJ Glob Health*, 4:e001551.
- Braveman P, Gruskin S (2003). Defining equity in health. *J Epidemiology Community Health*, 57:254–8.
- Budde H et al. (2021). The role of patient navigators in ambulatory care: overview of systematic reviews. *BMC Health Serv Res*, 21:1–12.
- Celhay P et al. (2019). Long-term effects of public health insurance on the health of children in Mexico: a retrospective study. *Lancet Glob Health*, 7:e1448–57.
- Cerón A et al. (2016). Abuse and discrimination towards indigenous people in public health care facilities: experiences from rural Guatemala. *Int J Equity Health*, 15:1.
- Chilot D et al. (2022). Factors associated with healthcare-seeking behavior for symptomatic acute respiratory infection among children in East Africa: a cross-sectional study. *BMC Pediatr*, 22:662.
- CONEVAL (2021). Treinta años de evolución de las carencias sociales a partir de instrumentos censales y la Encuesta Intercensal, 1990–2020. In: Coneval (ed.). Mexico DF: Coneval.
- Crespo-Cebada E, Urbanos-Garrido RM (2012). Equity and equality in the use of GP services for elderly people: the Spanish case. *Health Ppolicy*, 104:193–9.

- Cu A et al. (2021). Assessing healthcare access using the Levesque's conceptual framework – a scoping review. *Int J Equity Health*, 20:116.
- Dalui A, Banerjee S, Roy R (2020). Determinants of out-of-pocket and catastrophic health expenditure in rural population: A community-based study in a block of Purba Bardhaman, West Bengal. *Indian J Public Health*, 64:223.
- Dastan I et al. (2021). Measurement and determinants of financial protection in health in Afghanistan. *BMC Health Serv Res*, 21.
- Durán A, Lara J, Van Waveren M (2006). Spain: Health system review. *Health Systems in Transition*. European Observatory on Health Systems and Policies, 8:8–15.
- Edelman A et al. (2021). Modified scoping review of the enablers and barriers to implementing primary health care in the COVID-19 context. *Health Policy Plan*, 36:1163–86.
- Eurostat (2023). Unmet health care needs statistics. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Unmet_health_care_needs_statistics (accessed 24 September 2023).
- Flores W, Ruano A (2014). Empowering marginalized indigenous communities through the monitoring of public health care services in Guatemala. In: CHSJ (ed.) COPASAH series on social accountability (New Delhi, India: COPASAH Global Secretariat).
- Frenk J (2006). Bridging the divide: global lessons from evidence-based health policy in Mexico. *Lancet*, 368:954–61.
- García-Subirats I et al. (2014). Changes in access to health services of the immigrant and native-born population in Spain in the context of economic crisis. *Int J Environ Res Public Health*, 11:10182–201.
- Gizaw Z, Astale T, Kassie GM (2022). What improves access to primary healthcare services in rural communities? A systematic review. *BMC Prim Care*, 23:1–16.
- Goginashvili K, Nadareishvili M, Habicht T (2021). Can people afford to pay for health care? New evidence on financial protection in Georgia. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/342815> (accessed 24 September 2023).
- Grépin KA, Irwin BR, Trakinsky BS (2019). On the Measurement of Financial Protection: An Assessment of the Usefulness of the Catastrophic Health Expenditure Indicator to Monitor Progress Towards Universal Health Coverage. *Health Syst Reform*, 6.
- Guanais FC (2010). Health equity in Brazil. *BMJ*, 341.
- Haque M et al. (2020). Strengthening primary health care services to help prevent and control long-term (chronic) non-communicable diseases in low-and middle-income countries. *Risk Manage Healthc Policy*, 13:409.
- Heo J et al. (2020). Maternal, neonatal, and child health systems under rapid urbanization: a qualitative study in a suburban district in Vietnam. *BMC Health Serv Res*, 20:1–10.
- Hone T et al. (2017). Effect of primary health care reforms in Turkey on health service utilization and user satisfaction. *Health Policy Plan*, 32(1):57–67.
- Jo Y et al. (2019). Antenatal care in rural Bangladesh: current state of costs, content

- and recommendations for effective service delivery. *BMC Health Serv Res*, 19:1–13.
- Jongudomsuk P (2015). The Kingdom of Thailand health system review. WHO Regional Office for the Western Pacific.
- Khanassov V et al. (2016). Organizational interventions improving access to community-based primary health care for vulnerable populations: a scoping review. *Int J Equity Health*, 15:1–34.
- Knaul FM et al. (2012). The quest for universal health coverage: achieving social protection for all in Mexico. *Lancet*, 380:1259–79.
- Kockaya G, Oguzhan G, Çalskan Z (2021). Changes in catastrophic health expenditures depending on health policies in Turkey. *Front Public Health*, 8:614449.
- Korachais C et al. (2019). The impact of reimbursed user fee exemption of health centre outpatient consultations for the poor in pluralistic health systems: lessons from a quasi-experiment in two rural health districts in Cambodia. *Health Policy Plann*, 34:740–51.
- Kringos D et al. (2013). The strength of primary care in Europe: an international comparative study. *Br J Gen Pract*, 63:e742–50.
- Kringos DS et al. (2015). Building primary care in a changing Europe. WHO Regional Office for Europe.
- Langlois EV et al. (2020). Measures to strengthen primary health-care systems in low- and middle-income countries. *Bull World Health Organ*, 98:781.
- Levesque J-F, Harris MF, Russell G (2013). Patient-centred access to health care: conceptualising access at the interface of health systems and populations. *Int J Equity Health*, 12:1–9.
- Liu H et al. (2019). Catastrophic health expenditure incidence and its equity in China: a study on the initial implementation of the medical insurance integration system. *BMC Public Health*, 19:1–12.
- Li X et al. (2020). Effect of socioeconomic status on the healthcare-seeking behavior of migrant workers in China. *PLoS One*, 15:e0237867.
- Lostao L et al. (2014). Socioeconomic patterns in use of private and public health services in Spain and Britain: implications for equity in health care. *Health Place*, 25:19–25.
- Macinko J, Jimenez G, Cruz-Peñate M (2015). Primary care performance in Dominica. *Rev Panam Salud Pública*, 37:104–12.
- Macinko J, Starfield B, Erinosho T (2009). The impact of primary healthcare on population health in low- and middle-income countries. *J Ambul Care Manage*, 32:150–71.
- Macinko J et al. (2016). Gaps In Primary Care And Health System Performance In Six Latin American And Caribbean Countries. *Health Aff (Millwood)*, 35(8):1513–21. doi: 10.1377/hlthaff.2015.1366.
- Madden JM et al. (2021). Affordability of medical care among Medicare enrollees. *JAMA Health Forum, American Medical Association*, e214104.
- Malone NC et al (2020). Mobile health clinics in the United States. *Int J Equity Health*, 19:1–9.

- Ng'ambi W et al. (2020). Factors associated with healthcare seeking behaviour for children in Malawi: 2016. *Trop Med Int Health*, 25:1486–95.
- OECD, EOHSP (2021). Spain: Country Health Profile 2021. State of Health in the EU. Brussels: OECD Publishing.
- Oyando R et al. (2019). Patient costs of hypertension care in public health care facilities in Kenya. *Int J Health Plann Manage*, 34:1166–78.
- Özçelik EA et al. (2021). A Comparative Case Study: Does the Organization of Primary Health Care in Brazil and Turkey Contribute to Reducing Disparities in Access to Care? *Health Syst Reform*, 7:e1939931.
- Paek SC, Meemon N, Wan TT (2016). Thailand's universal coverage scheme and its impact on health-seeking behavior. *Springerplus*, 5:1–16.
- PAHO (2007). Renewing primary health care in the Americas: a position paper from the Pan American Health Organization. Washington DC: Pan American Health Organization.
- PAHO, WHO (2018). Regional Report. Primary Health Care 40 years of Alma-Ata. Situation of the Americas. Washington DC: Pan American Health Organization.
- Palladino R et al. (2023). Multimorbidity and out-of-pocket expenditure on medicine in Europe: Longitudinal analysis of 13 European countries between 2013 and 2015. *Front Public Health*, 10:1053515.
- Peart A et al. (2018). Patient navigators facilitating access to primary care: a scoping review. *BMJ Open*, 8:e019252.
- Pereira A et al. (2022). Healthcare equity and commissioning: a four-year national analysis of Portuguese primary healthcare units. *Int J Environ Res Public Health*, 19:14819.
- Pérez-Urdiales I et al. (2019). Sub-Saharan African immigrant women's experiences of (lack of) access to appropriate healthcare in the public health system in the Basque Country, Spain. *Int J Equity Health*, 18:1–11.
- Richard L et al. (2016). Equity of access to primary healthcare for vulnerable populations: the IMPACT international online survey of innovations. *Int J Equity Health*, 15:1–20.
- Ruano AL et al. (2012). "It's the sense of responsibility that keeps you going": stories and experiences of participation from rural community health workers in Guatemala. *Arch Public Health*, 70:18.
- Ruano AL et al. (2014). Making the post-MDG global health goals relevant for highly inequitable societies: findings from a consultation with marginalized populations in Guatemala. *Int J Equity Health*, 13:57.
- Saksena P, Smith T, Tediosi F (2014). Inputs for universal health coverage: a methodological contribution to finding proxy indicators for financial hardship due to health expenditure. *BMC Health Serv Res*, 14:1–10.
- Sandes LFF et al. (2018). Atencao primaria a saude de indigenas sul-americanos: revisao integrativa da literatura/Atencion primaria en salud a indigenas de America del Sur: revision integrativa de la bibliografia [Primary health care for South-American indigenous peoples: an integrative review of the literature]. *Rev Panam Salud Publica*, 42.

- SIHI (2021). Chipatala Cha Pa Foni: Health Centre by Phone. Social Innovation in Health Initiative [Online]. Available at: <https://socialinnovationinhealth.org/case-studies/chipatala-cha-pa-foni-health-centre-by-phone/>: SIHI (accessed 20 June 2022).
- Starfield B (2011). The hidden inequity in health care. Springer.
- Starfield B, Shi L, Macinko J (2005). Contribution of primary care to health systems and health. *Millbank Q*, 83:457–502.
- Syed ST, Gerber BS, Sharp LK (2013). Traveling towards disease: transportation barriers to health care access. *J Community Health*, 38(5):976–93. doi: 10.1007/s10900-013-9681-1.
- Tang S et al. (2021). Can health service equity alleviate the health expenditure poverty of Chinese patients? Evidence from the CFPS and China health statistics yearbook. *BMC Health Serv Res*, 21.
- Tangcharoensathien V et al. (2010). Universal coverage scheme in Thailand: Equity outcomes and future agendas to meet challenges. Background paper, 43.
- Tangcharoensathien V et al. (2013). Promoting universal financial protection: how the Thai universal coverage scheme was designed to ensure equity. *Health Res Policy Syst*, 11:1–9.
- Tangcharoensathien V et al. (2014). Monitoring and evaluating progress towards universal health coverage in Thailand. *PLoS Med*, 11:e1001726.
- Tangcharoensathien V et al. (2018). Health systems development in Thailand: a solid platform for successful implementation of universal health coverage. *Lancet*, 391:1205–23.
- Tangcharoensathien V et al. (2020). Framework for managing the COVID-19 infodemic: methods and results of an online, crowdsourced WHO technical consultation. *J Medical Internet Res*, 22:e19659.
- Thomson S, Cylus J, Evetovits T (2019). Can people afford to pay for health care? New evidence on financial protection in Europe. WHO Regional Office for Europe.
- Tirgil A, Dickens W, Atun R (2019). Effects of expanding a non-contributory health insurance scheme on out-of-pocket healthcare spending by the poor in Turkey. *BMJ Glob Health*, 4:e001540.
- Urbanos-Garrido RM et al. (2021). ¿ Se puede permitir la gente pagar por la atención sanitaria? Nueva evidencia sobre la protección financiera en España. WHO Regional Office for Europe.
- Van Niekerk et al. (2023). From idea to systems solution: enhancing access to primary care in Malawi. *BMC Health Serv Res*, 23:547.
- Wagner EH et al. (2017). Effective team-based primary care: observations from innovative practices. *BMC Fam Pract*, 18:1–9.
- Wagstaff A et al. (2018). Progress on catastrophic health spending in 133 countries: a retrospective observational study. *Lancet Glob Health*, 6:e169–79.
- Ward B et al. (2018). Context matters for primary health care access: a multimethod comparative study of contextual influences on health service access arrangements across models of primary health care. *Int J Equity Health*, 17:1–12.

- Watson J, Yazbeck AS, Hartel L (2021). Making Health Insurance Pro-poor: Lessons from 20 Developing Countries. *Health Syst Reform*, 7(2):e1917092.
- Whitehead M (1991). The concepts and principles of equity and health. *Health Promot Int*, 6:217–28.
- WHO (2017). Primary health care systems (PRIMASYS): case study from Thailand: abridged version. Geneva: World Health Organization.
- WHO (2018a). The Declaration of Astana. Global Conference on Primary Health Care, 25–26 October 2018, Astana, Kazakhstan. Available at: <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.61>
- WHO (2018b). A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. Geneva: World Health Organization. Available at: <https://www.who.int/docs/default-source/primary-health/vision.pdf>
- WHO (2020). Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240017832> (accessed 17 April 2024).
- WHO (2021a). Global expenditure on health: public spending on the rise? Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240041219> (accessed 17 April 2024).
- WHO (2021b). Primary health care on the road to universal health coverage: 2019 global monitoring report. Geneva: World Health Organization. Available at: <https://www.who.int/publications-detail-redirect/9789240029040> (accessed 17 April 2024).
- WHO (2022a). Global spending on health: rising to the pandemic's challenges. Geneva: World Health Organization. Available at: <https://www.who.int/publications/i/item/9789240064911> (accessed 17 April 2024).
- WHO (2022b). Primary health care measurement framework and indicators: monitoring health systems through a primary health care lens. Web annex: technical specifications. Available at: <https://www.who.int/publications/i/item/9789240044210> (accessed 17 April 2024).
- WHO, World Bank (2021). Tracking Universal Health Coverage: 2021 Global Monitoring Report. Geneva: World Health Organization/World Bank.
- WHO, World Bank (2023). Tracking universal health coverage: 2023 global monitoring report. Geneva: World Health Organization/World Bank.
- Zhang X, Yang S (2020). Analysis of medical expenses of inpatients with diabetes: China's Eastern, Central, and Western regions (2013–2015). *Public Health*, 185:167–73.
- Zhang R et al. (2019). What Has Driven the Spatial Spillover of China's out-of-Pocket Payments? *BMC Health Serv Res*, 19.

16

The impact of PHC on health system resilience including in the face of climate change

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Key messages

Resilience is the ability to absorb, adapt and transform to cope with shocks and is critical to maintaining health system performance under stress. Resilience to climate change in the health system context implies addressing the health impacts of climate change and the impact the system itself has on the environment. Primary health care (PHC) can be at the core of both.

- PHC's contribution to the health system's resilience revolves around its inherent strengths, including that:
 - PHC integrates primary care and essential public health, and supports actions on social and environmental determinants of health
 - linkages and networks across communities and sectors confer an ability to mobilize local and societal solidarity
 - PHC is already embedded in the communities most impacted by environmental, economic and health shocks – including the marginalized – and can support the harder-to-reach.
 - the tradition of multidisciplinary teams working across boundaries offers a wide range of delivery options in an emergency
 - PHC fosters 'environmentally friendly' prevention and self-care; it uses resources efficiently by treating close to the community and prefers lower environmental impact technologies and interventions so reduces the health system's carbon footprint.
- Investing in PHC will allow governments to bolster access to health services, reducing population vulnerability to shock and mitigating disruptions when shocks do occur.
- PHC provides efficient, local responses to extreme weather events, crisis-induced disease outbreaks and other climate change created health problems.
- Adapting prescribing and cutting emissions and waste can reduce PHC's own carbon footprint.
- PHC can use the trust it inspires in communities to raise awareness of links between behaviour and environmental impact, and promote action.

16.1 Introduction

Health systems are increasingly faced with shocks and public health emergencies, such as extreme weather events, climate-sensitive health hazards, increasing noncommunicable diseases (NCDs), pandemics, energy and cost-of-living crises, and ageing populations. These persistent and novel threats and challenges require improved health system resilience, an increasingly crucial component of which is climate resilience.

PHC and its three core components (see Chapter 1) play an important role in building resilience including in the face of climate change (Hone, Macinko & Millett, 2018; Tumusiime et al., 2020). Through actions on social and environmental determinants of health, PHC integrates policies that promote preventive and low-carbon environments that contribute to more resilient and climate-friendly health systems (Hone, Macinko & Millett, 2018). By health system resilience, we refer to the ability of health systems to constructively anticipate, adapt to and respond to a wide variety of shocks and stressors, with climate resilience being a key consideration (see Box 16.1) (WHO 2015; Thomas, Sagan & Larkin, 2020). PHC can contribute to mitigating the impact of a shock, to adaptation and learning during emergencies (Lugten et al., 2023), to addressing health care backlogs and scaling up routine services when demand surges (van Ginneken et al., 2022; Lal & Schwalbe 2023) and to enable equitable and efficient access to health services (see Chapter 4). Through the essential public health functions (EPHFs), PHC supports emergency preparedness and response (for example, early surveillance and climate-informed early warning systems, effective case management, appropriate triaging) and population health improvements through prevention, promotion and sustained focus on upstream determinants of health (see Chapter 5) (McDarby et al., 2023; WHO, 2023).

Box 16.1 Definition of health systems resilience

The World Health Organization (WHO) operationalizes **health systems resilience** as “the process of strengthening health systems to deliver quality individual and population health services [...] by embedding considerations for resilience within all health system elements” (McDarby et al., 2023). Resilience is built over time, and can be demonstrated across all stages of shocks, from prevention, preparation, absorption and recovery, to adaptation and learning (Thomas et al., 2013; de Milliano et al., 2015; OECD, 2023). A resilient health system minimizes the negative consequences of disruptions, recovers as quickly as possible, and adapts by learning lessons from the experience to become even better performing and more prepared (de Milliano et al., 2015; WHO, 2022b; OECD, 2023). Moreover, **climate-resilient health systems** are “capable of anticipating, responding to, coping with, recovering from, and adapting to climate-related shocks and stress, to bring about sustained improvements in population health, despite an unstable climate”, as well as seeking to minimize negative environmental impacts (WHO 2015, 2023).

PHC is a key pillar in strengthening climate resilience of health systems, both by addressing climate-related health and equity risks and impacts, and by reducing the health sector's climate footprint (Pencheon & Wight, 2020; Romanello et al., 2022; Van Daalen KR et al., 2022, WHO, 2023). As such, a resilient health system can also be seen as one of the outcomes of strengthened PHC (Bitton et al., 2017), making resilience an important area for measuring, monitoring and continual improvement (WHO & UNICEF, 2022; McDarby et al., 2023; Rajan et al 2023).

This chapter focuses on the role of PHC in strengthening health system resilience although the ongoing process of doing so requires sustained action beyond PHC, including the need for learning health systems (McDarby et al., 2023). Section 16.2 describes evidence on the mechanisms by which PHC can strengthen health system resilience, with attention paid to the COVID-19 pandemic and climate change, and Section 16.3 illustrates country experiences. Section 16.4 summarizes the lessons learned and implementation challenges.

16.2 Evidence review: PHC's impact on health system resilience including in the face of climate change

Responses to shocks such as health emergencies and climate-sensitive health hazards can be supported by strong PHC, given its multidisciplinary teams and emphasis on multisectoral action, integrated public health functions, strong connections to local communities, and potential to rapidly adapt through new technologies and low-carbon solutions (WHO, 2022c, 2023).

Empowered communities strengthen trust and adaptability – pivotal elements for health system resilience and climate resilience

Failure to deliver effective emergency responses has been linked to lack of clear PHC orientation. For example, in Liberia, the Ebola virus outbreak in 2014–2015 led to significant disruptions to health services, and public health responses lacked community engagement (Simen-Kapeu et al., 2021). Facilities were closed due to health worker absenteeism, fear of becoming infected and community distrust of health services. These experiences led to the development of a new national policy on Community Health Services, with a stronger community orientation, including the scale-up of the role of community health assistants, and the introduction of a community-event-based surveillance system (Simen-Kapeu et al., 2021). Community engagement was also noted as important, but lacking, in the response to Ebola in the Democratic Republic of Congo (DRC) (Mayhew et al., 2021).

The community orientation of PHC can strengthen the responses to stressors and emergencies, and helps protect the most vulnerable groups. A scoping review of effective strategies for health system resilience identified the importance of community engagement and of leveraging community resources to address crises (Forsgren et al., 2022). Community engagement needs to go beyond seeking to understand community needs and perceptions to also involving communities in decision-making during

emergency responses (Mayhew et al., 2021). The unwillingness to concede decision-making power to communities by the national and international agencies was associated with a failure to build trust between communities and providers (Mayhew et al., 2021).

Resilience of health systems in conflict-affected settings is particularly challenging; experts underscore the importance of strengthening community health and community engagement through building trust and empowerment during and after conflicts (Atallah et al., 2018; WHO, 2021a). A study of Arab communities in Israel showed that PHC supported the ability of communities to cope with health service changes and disruptions during the COVID-19 pandemic and identified a correlation between satisfaction with and confidence in primary care services and community resilience (Cohen et al., 2020). Proximity to communities can also support tailored education and awareness campaigns. For example, an intervention using community volunteers led by PHC staff focused on preparing for natural disasters such as earthquakes and floods in Iran led to increases in emergency preparedness (Ardalan et al., 2013).

The holistic community-oriented approach of PHC that emphasizes well-being, prevention, patient empowerment and a healthy environment strengthens adaptability to shocks and public health emergencies. These holistic approaches include the practice of social prescribing that supplements medical treatment with prescriptions that connect people to activities, groups and services in their community to meet their practical, social and emotional needs. Examples of social prescribing include: access to employment support and debt reduction; social clubs; participation in physical activities, nutrition and arts classes; and weight management sessions. Social prescribing has the potential to improve population health and well-being while also reducing health care utilization (British Medical Association, 2020), thereby strengthening health system resilience. Furthermore, PHC has an important role in building resilient health systems given its holistic, interdisciplinary and longitudinal approach to patients, communities and the environment (Gonzalez-Holguera et al., 2022).

A multiprofessional and well-trained health and care workforce is the bedrock for resilient health systems

PHC-oriented service delivery helps to mitigate care disruptions related to shocks and challenges associated with economic crises, epidemics and climate change, and to maintain essential services including vaccination, chronic condition management and mental health services (Barış et al., 2022). Several countries have increased the range of PHC providers during crises and public health emergencies such as pandemics.

Experiences from Zimbabwe suggest that the rapid deployment of health workers to rural areas allowed for continued delivery of services in harder-to-reach areas during the economic downturn between 1997 and 2008 (Mashange et al., 2019). During the economic crisis in Cuba in the 1990s, family physicians were central in reducing demand for hospital care, which helped to sustain capacity and minimize acute care disruptions (Foroughi et al., 2022).

The deployment of community health workers (CHWs) proved central in countries' responses to public health emergencies. During the 2014 Ebola epidemic in West Africa, CHWs were more effectively able to carry out Ebola-related activities than outsiders (Miller et al., 2018). CHWs and allied primary care professionals were also critical after the earthquake in Pakistan in 2005, and in refugee camps in the United Republic of Tanzania following the 1994 Rwanda genocide (Amiri et al., 2022). CHWs support emergency responses by communicating with the public in ways that are more culturally appropriate, understood, accepted and trusted (Boyce & Katz, 2019), contributing to the health literacy needed for the adoption of preventive measures to minimize viral transmission during epidemics (Boyce & Katz, 2019; Ballard et al., 2020). During the COVID-19 pandemic, in Viet Nam, village health workers were key to building community awareness of viral transmission as well as for contact tracing via local health stations (Nguyen et al., 2020). In Slovenia, the United Kingdom and the United States of America (USA) CHWs provided home-based care during the COVID-19 pandemic (OECD, 2023). In the USA, home health aides were formally integrated into primary care teams and took on expanded roles, especially in the care of veterans, providing a range of medical and emotional support (Franzosa et al., 2022). During the H1N1 pandemic, community pharmacists worked closely with public health agencies to strengthen prevention and to support vaccination (Rosenfeld et al., 2011), a strategy that was subsequently implemented during COVID-19 (OECD, 2023). Indeed, several countries expanded the role of pharmacists to provide COVID-19 testing and vaccines (OECD, 2023) (see Chapter 10).

Moreover, the inclusion of a range of health professionals, including CHWs and allied health professionals, in multidisciplinary primary care teams contributes to meeting the needs of harder-to-reach communities, particularly those living in rural areas, and broadens the range of accessible delivery options (Bhaumik et al., 2020) (see also Chapter 8). In Australia, primary care practices that included general practitioners (GPs), nurses and other allied health providers provided essential primary care services to their patients for both preventive care as well as care for chronic conditions (Desborough et al., 2020). Similar observations were noted in COVID-19 in the Eastern Mediterranean Region (Khalil, Mataria & Ravaghi, 2022). Given their strong relationships with communities and knowledge of local context, they proved key to an effective COVID-19 response (Haldane et al., 2021), for example by undertaking COVID-19 case management and contact tracing in Nigeria and South Africa (Bariş et al., 2022).

Professionals in primary care and public health can support climate-resilient health systems through promoting healthy behaviours and policies with low environmental impact, supporting intersectoral action to mitigate the greenhouse gas (GHG) emissions of health systems and society as a whole, and undertaking research and education on climate change and health (Haines & Ebi, 2019).

Health workers in primary care are being encouraged to address their own environmental impact, to prepare facilities for disaster situations and to promote health co-benefits tied to lifestyles (WONCA-PHA, 2019). Primary care providers are recognized for their trust within communities and can exert influence to support favourable policies and create health co-benefits, and can also exert influence on health policy

and planning to adapt systems to climate change and transform health education, research and training (Xie et al., 2018).

Most health professionals understand that climate change is happening and is affecting the health of those they care for. A 2020 online survey among 11 physician associations and one nurse association in 11 middle- and high-income countries (MHICs), and among members of an international organization, found that most respondents have a basic understanding of the fact that climate change is happening and that it is caused by humans. Most participants showed a high degree of engagement with the issue and believe that health professionals have a responsibility to bring the health effects of climate change to the attention of the public and politicians (Kotcher et al., 2021). A 2018 literature review on physician knowledge and attitudes to climate change found that these professionals have insufficient knowledge. Among USA physicians, most are convinced that climate change is happening and is already beginning to affect the health of some of their patients, yet political polarization may be associated with stauncher resistance from practitioners who deny climate change. Among Ethiopian health science students, Indian medical residents, Cambodian health professionals, Chinese hospital-based nurses and Chinese public health professionals, a large majority perceived that climate change is harmful to health, but their self-assessed knowledge was low and their perceived need to learn more was high (Hathaway & Maibach, 2018). A review of the literature on the role of health professionals in strategies to address climate change on health found only two papers reporting on interventions aiming to improve their capabilities, and neither focused specifically on PHC (Dupraz & Burnand, 2021).

Training health professionals on the health impacts of climate change is beginning to gain impetus, focusing for now on curricular development and the launching of initial mass online courses. Faculties of medicine have integrated climate change and health within existing public health, clinical medicine, preventive health and global health courses (Green et al., 2009). Environmental literacy training has been proposed as an extension of occupational and environmental medicine disciplines, as well as rural and remote medical education and training (Bell, 2010). While many online courses are now available on climate change and human health, the extent to which they adequately cover the contribution of health services to GHG emissions as well as the extent to which they address the adaptation of health services need to be analysed.

Integration of primary care and essential public health functions is decisive for health system's resilience

The integration of EPHFs and primary care (see Chapter 5) improves emergency preparedness, emergency response and recovery from shocks (Tumusiime et al., 2020; Lugten et al., 2023). However, few health systems have effectively achieved this integration (Kinder et al., 2021), whereby PHC contributes to public health data collection to implement infectious diseases surveillance (for example, to identify and contain outbreaks), and to carry out population health assessments. During the COVID-19 pandemic, for example, in Spain and India, primary care providers' involvement in public health operations supported surveillance, contact tracing and case manage-

ment (Kinder et al., 2021). In Colombia, North Macedonia and Viet Nam, COVID-19 surveillance integrated with national information systems facilitated local surveillance and contact tracing (Bariş et al., 2022).

Closer collaboration of primary care and public health can also foster new strategies for prevention, health promotion and care to tackle changing patterns of morbidity that are evolving through changing climate, extreme weather events related to global warming, and other environmental changes. For example, “integrating emergency surveillance with routine health data at the PHC level can support to identify disease hotspots and inform future research and development efforts so that pandemic countermeasures are appropriate for the communities they intend to serve” (Lal & Schwalbe, 2023). PHC will thus need to cope with the direct effects of climate change, such as heat waves, air pollution and water shortages, and their related challenges and health risks, including infectious diseases, food insecurity and pollution. Furthermore, PHC will be where surges and changes in health service demand largely take place owing to climate change, particularly among vulnerable groups, in low- and middle-income countries (LMICs) and in remote rural areas. PHC also plays a central role in creating healthy societies and environments through health promotion strategies that can mitigate negative impacts on the environment and contribute to lifestyle changes. PHC can contribute to co-benefits for population health and the environment, through health promotion and prevention at the community level (for example, diets, active transport, behavioural risk factors, emissions and air quality, etc.) as well as awareness raising (Haines, 2017; WONCA-PHA, 2019; Gonzalez Holguera, Niwa & Senn, 2020).

Technical solutions in PHC at the heart of transformation towards resilient health systems

The significant disruptions to essential health services because of COVID-19 represented an unprecedented opportunity for adaptation and rapid learning for PHC. One of the most rapid and transformative changes seen was the shift from in-person to remote care. In the European Union (EU), over 40% of the population reported having received physician care online or by telephone in 2021 (OECD, 2023). While remote care options often relied on conventional telephone calls, digital tools were also implemented, including smart phone applications, patient portals, interactive chatbots, bedside video consultations, crisis and help lines, etc. (Matenge et al., 2022) (see Chapter 11).

However, challenges in the use of remote care in an emergency context were experienced in various countries, regarding coordination across primary care, public health and secondary care, as well as technical challenges and inadequate attention to equity, diversity and patient-centredness (Wong & Rigby, 2022). Concerns about the lack of patient-centredness were noted in the Canadian province of Quebec, where the experiences and preferences of patients were not at the forefront of implementation of remote care, although satisfaction with remote care options was high among patients with chronic conditions (Poitras et al., 2022). Inequitable access to services through telehealth were particularly evident in LMICs, for example in Colombia about

one third of the population did not have access to broadband internet when the government introduced telehealth as part of the COVID-19 response (Turner, 2022).

Technical innovations and low-carbon solutions in PHC are also critical to strengthening climate resilience. In Sweden, for example, use of telehealth reduced GHG emissions between 40- and 70-fold by avoiding transportation to treatment centres (Holmner et al., 2014). Combined with artificial intelligence (AI), telemedicine in primary care has the potential to further decrease health care's GHG emissions as systems are deployed to monitor patients with chronic conditions or to perform emergency assessment (triage) of patients seeking medical attention at an acceptable level of accuracy and safety (Tsagkaris et al., 2021). To enable telehealth solutions, sustainable electrification will also be critical to reduce the GHG emissions of the health sector, particularly in low-income countries (LICs) now lacking electricity (Dalglish, Poulsen & Winch, 2013). Technical solutions in PHC toward climate resilience include the need to shift toward the sustainable prescription of pharmaceuticals, considering the relative carbon footprint of different medications, discouraging stockpiling and overconsumption, and regularly reviewing repeat prescriptions, which can help to reduce waste (Rasheed et al., 2021). Community pharmacies can contribute to sustainable prescription and reduction of wastage by collaborating in the therapeutic education, by delivering small quantities at the start of treatment, by ensuring professional stock management and by committing to the return of drugs for destruction. Many of these can be supported by technologies. Patients can also contribute through proper management of their medicine stocks (Schneider, Sommer & Senn, 2019).

The PHC pillar of multisectoral action is key for resilient health systems

The multisectoral component of PHC enables and focuses action on upstream determinants of health, and supports a whole-of-government, integrated and mainstreamed approach to supporting population health and reducing GHG emissions.

Policies to reduce GHG emissions from housing and the built environment, transportation, agriculture and food systems can have important health co-benefits through their impact on disease prevention and health improvement (Haines & Ebi, 2019). The PHC approach can therefore champion environmental policies while framing their health co-benefits in terms of community values, traditional knowledge and the precepts of Indigenous traditional knowledge systems, which in many cases address health and the environment as an integrated whole (Redvers, 2021). Many countries have developed national health and climate policies and adaptation plans with a key priority of strengthened intersectoral collaboration.

Within health systems, the focus of GHG abatement has so far been at the hospital level and, to a lesser extent, on pharmaceutical production. Strategies in the USA are currently centred on voluntarily reducing hospital emissions, spearheaded by specific hospital chains, while in Scandinavia and the Kingdom of the Netherlands efforts are under way to increase the use of electrical vehicles by hospitals (Health Care Without Harm, 2019). England's National Health Service (NHS) was the first national health service to commit to a carbon net zero health system in 2020 and was later supported by

the first piece of health legislation committing the health sector to net zero GHG emissions. In Latin America, hospitals are also leading the way in measuring their climate footprints and making commitments towards reduction. In Africa and Asia, the electrification of health centres with solar arrays has been reported for India, South Africa, South Korea and Zimbabwe, among other countries (Health Care Without Harm, 2019). Importantly, some pharmaceutical supply-chain companies have committed to 100% renewable electricity in their operations by 2050 or earlier (Health Care Without Harm, 2019).

16.3 Country illustrations: leveraging PHC to improve resilience

Reviewing the experiences during the COVID-19 pandemic offers a compelling illustration of the critical role of PHC in fostering health system resilience. The Mexico example demonstrates how a weak primary care system led to low levels of resilience during the COVID-19 pandemic. The Canada illustration points to ways in which PHC can support a more climate-resilient health system.

16.3.1 Mexico: PHC and health system resilience during the COVID-19 pandemic

Countries with stronger primary care and public health systems are generally better placed to cope with public health emergencies, such as the COVID-19 pandemic (Sagan et al., 2021). Mexico was one of the countries that was hit most severely by the COVID-19 pandemic. The high transmission rates were primarily attributed to delays in implementing physical distancing measures, mixed reactions towards stay-at-home orders, a phased reopening of the country (Tariq et al., 2021), and the low per-capita COVID-19 testing rates (Pérez Ortega, 2020). Despite a moderately successful COVID-19 vaccination campaign (González-Block, Gutiérrez-Calderón & Sarti, 2022), Mexico had the fourth highest number of excess deaths due to COVID-19 globally, after India, the USA and the Russian Federation (798 000 excess deaths) (Wang et al., 2022). Nearly half of individuals diagnosed with COVID-19 had at least one co-morbidity, with hypertension (20.1%) and diabetes (16.4%) being the most prevalent (Hernández-Galdamez et al., 2020). The greatest increase of cause-specific mortality during the pandemic was observed for diabetes, respiratory infections, ischaemic heart disease and hypertensive diseases, emphasizing the vulnerability of the population groups with these NCDs (Health Metrics and Evaluation, 2023).

Weaknesses of the primary care system may in part explain the high infection and mortality rates observed during the COVID-19 pandemic in Mexico. Primary care in Mexico is highly fragmented, as separate schemes funded by the federal government fund and provide health services for private sector employees, public employees and those not enrolled in public insurance. Insurers and providers replicate functions in parallel subsystems according to the population contributory status, thus introducing structural inequalities. This mix of private and public care leads to discontinuity and

poor monitoring of home-based care and prevents orderly referrals from primary to hospital services, most importantly in the treatment of NCDs. There is thus very little coordination and integration between subsystems and scope to introduce patient-centred integrated models of care is limited (OECD, 2022). In addition, the fragmented nature of the health system, compounded by workers moving in and out of the informal labour market, generates gaps in coverage over time (OECD, 2022; UCSF, 2021).

Challenges in primary care relating to this care fragmentation in Mexico result in weak follow-up of chronic patients as well as lack of coordination and integration of primary care units and specialists in hospitals (OECD, 2022). Some patients are referred to secondary care unnecessarily, while other patients' referrals are delayed (González-Block, Gutiérrez-Calderón & Sarti, 2022). In particular, primary care for diabetes patients is underperforming as indicated by high hospitalization rates and avoidable hospital admission rates, the latter being almost double the Organisation for Economic Cooperation and Development (OECD) average (UCSF, 2021; OECD, 2022). During the first two years of the pandemic, the number of people who received a diabetes blood test decreased by about 30% compared to pre-pandemic levels (World Bank, 2023).

In addition to these shortcomings that revealed essential gaps in care for chronic patients, shortages of health professionals, limited working hours and lack of emergency care in primary care units are major barriers to access to primary care (González-Block, Gutiérrez-Calderón & Sarti, 2022). Due to limited opening hours of solo practices, most patients seek first contact care in hospital emergency departments or pharmacies that provide physician consultations. Thus, primary care is often not the first point of care (OECD, 2022). In addition, there exist 65 different electronic health record (EHR) systems in the public system, limiting health monitoring and management of health crises. These weaknesses in public health response, care coordination across providers and payers, access to primary care, plus the highly fragmented patient care pathway (González-Block, Gutiérrez-Calderón & Sarti, 2022) may in part explain the cause-specific excess mortality observed during the COVID-19 pandemic. Indeed, hospital deaths related to diabetes and ischaemic heart disease decreased by 46% and 47%, respectively, during the pandemic compared to the pre-pandemic period (Palacio-Mejía et al., 2022), indicating that excess mortality occurred at home.

During the pandemic, the Mexican Social Security Institute (IMSS), the public provider and insurance scheme for private sector employees (covering half the population), significantly reduced the provision of primary care services, as resources (including facilities, health workers and funding) were allocated towards COVID-19 care but also to reduce congestion in health facilities and prevent COVID-19 transmission among high-risk groups, including older health workers. In 2020, an estimated 8.74 million patient visits were lost, leading to a drop by two thirds in breast and cervical cancer screenings (79% and 68% of the total expected, respectively) and to a reduction in over half of consultations for sick child care and female contraceptive services. One third of consultations for diabetes, hypertension and antenatal care were not provided. The pandemic severely affected patient outcomes, with the percentage of diabetes and hypertension patients who were well managed declining by 22% and 17%, respectively

(Doubova et al., 2021, 2022). Similar disruptions in health services were observed across the public health sector, resulting in a 47% reduction in consultations (Fundar, Oxfam & CIEMP, n.d.).

On a positive note, Mexico has platforms to integrate public health and primary care. For example, primary care facilities with more than 10 to 19 physicians have a public health catchment area staffed with public health nurses, CHWs and one epidemiologist. During the COVID-19 pandemic, specialized brigades reached out to underserved communities to follow up suspected cases in high-risk populations. They closely coordinated with primary care clinics and health promotion brigades to reach the more isolated communities (OECD, 2022).

During the pandemic, health technologies such as teleconsultations were increasingly implemented and used by primary care physicians for remote monitoring of COVID-19 patients in rural areas. This clinical remote monitoring enabled many patients to receive hospital-level care at home, reducing visits to hospital emergency services and, consequently, hospitalizations (OECD, 2022; Ordoñez-González & Basurto, 2023). Moreover, call centres were set up in which specialists conducted follow-up to refer patients to the different levels of care (World Bank, 2023).

In April 2021, the IMSS implemented a policy to recover from the effects of the pandemic including, among other strategies, adjusting health services governance, optimizing service delivery, organizing weekend health services, implementing telemedicine in select clinics, and strengthening preventive services and health promotion activities. In November 2021, consultations for sick children and contraceptive use visits had recovered to only 49% and 64% of pre-pandemic levels, respectively, while cervical and breast cancer screening recovered or even exceeded pre-pandemic levels. Consultations for patients with controlled diabetes and hypertension attained 88% and 93% of pre-pandemic levels, respectively. The effects of the recovery policy on service levels were mixed (Doubova et al., 2022), which highlights the importance of strategies to resume essential services and catch up on missed preventive care in primary care. Overall, more incentives for public providers to prioritize population health and to provide proactive, preventive and coordinated care (which are too often lost because primary care does not act as the first point of care) are needed to strengthen resilience for future health crises.

16.3.2 Canada: PHC and health system resilience in the face of climate change

In Canada, efforts to strengthen the climate resilience of health systems are gaining momentum. Canada is a high-income country known for its universal health coverage (UHC), its strong primary care foundation that has been the focus of ongoing investment and reform efforts, and its comparatively good health outcomes (Marchildon, Allin & Merkur, 2020). The federal government has taken a lead role in raising the collective consciousness on the need for climate action, and in monitoring and decreasing GHG emissions. Yet it was not until the COP26 Health Program in 2021 when the Government of Canada, along with about 60 other countries, identified the critical role of

the health sector in moving towards a low-carbon economy. These efforts were in part inspired by achievements in the United Kingdom, specifically the reduction of carbon dioxide emissions by 18.5% in the NHS in a short time (2007–2017). Also, estimates (from 2014) suggested that Canada’s GHG emissions were considerably higher (per capita) than the OECD average (Xie et al., 2021); health services are estimated to contribute about 5% of Canada’s total annual emissions (Pétrin-Desrosiers et al., 2022).

In Canada’s decentralized federation, the provincial governments are primarily responsible for administering and financing their own health systems, and there are variations in the extent to which the different provinces are measuring the environmental impacts of their health systems and seeking to mitigate these impacts. The westernmost province of British Columbia has longstanding climate change legislation which, although not specific to health care, sets ambitious emissions reduction and infrastructure standards. Since 2019, the provincial commitment to addressing climate change has been extended to health systems by outlining high-level requirements for health authorities to develop and report on strategies for minimizing GHG emissions and managing climate change risk in health care (Allin et al., 2022). However, there is limited, and inconsistent, data available to measure and track progress on environmental impacts of health systems.

There are notable efforts across Canada that leverage partnerships between researchers, practitioners and governments to support progress towards climate-resilient health systems. For example, the Canadian Coalition for Green Health Care has been active since 2000 to support hospitals and other health organizations to reduce the environmental impact of health care, with capacity building efforts and routine reporting on trends in making health systems more environmentally sustainable (Canadian Coalition for Green Health Care, 2021). The Government of Canada recently invested in Creating a Sustainable Canadian Health System in a Climate Crisis (CASCADES). CASCADES launched in 2021 with the broad aim of providing evidence-based guidelines and professional development activities to support the health care community to transition health systems to net-zero emissions (CASCADES, 2023). Among other things they have developed a guide for sustainable PHC, building on the work of the United Kingdom (Centre for sustainable healthcare, 2022), as well as detailed “playbooks” to support climate-conscious inhaler prescribing and sustainable virtual care. As medicines are the second largest polluters behind hospitals, contributing to more than a quarter of all estimated GHGs in health systems in Canada (Eckelman, Sherman & MacNeill, 2018), these have been a key target for climate action in health care.

Overuse of medicines and health care is a major concern in Canada. Canada is one of the top users of prescribed medications globally (OECD Indicators, 2021). Also, there is considerable overuse of inappropriate health interventions in Canada, although some progress has been made in recent years: over the period 2015–2020 there was about a 10% decline in the volume of tests and treatments used/prescribed that were considered potentially unnecessary or “low value” (Canadian Institute for Health Information, 2022). These improvements may reflect the work of partnerships and initiatives such as Choosing Wisely Canada, funded by provincial medical associations and professional colleges, as well as governments, which have developed recommen-

dations, reports and toolkits for family medicine (College of Family Physicians of Canada, 2022) and other specialties. Other pan-Canadian initiatives seek to address over- and inappropriate prescribing in Canada, such as the Canadian Medication and Appropriateness Deprescribing Network, funded by the federal government health research agency (Canadian Institutes for Health Research) (Canadian Medication Appropriateness and Deprescribing Network, 2017).

Social prescribing has also been gaining increased attention in Canada, again taking inspiration from the United Kingdom, with a diverse array of initiatives under way across the country (Current state of social prescribing in Canada, 2022). The Government of Canada, through the Public Health Agency of Canada, recently funded the establishment of a Canadian Institute for Social Prescribing to support and “share practices that connect people to community-based supports and services” (Canadian Institute for Social Prescribing, 2022), which has potential to strengthen environmental sustainability in Canada’s health system. Although this and other initiatives under way in Canada show some promise, there has been limited monitoring and evaluation of their impacts, and it is too soon to tell whether and by how much Canada is strengthening climate resilience and progressing toward net-zero emissions in health care.

16.4 Conclusion

The PHC approach has potential to improve population health and strengthen health system resilience. Experiences during COVID-19 provided numerous compelling illustrations of the ways in which PHC was integral to effective, efficient and equitable responses to the pandemic. As uncovered in our evidence review, and exemplified by the country illustration of Mexico, the tragic health impacts of the pandemic might have been mitigated in many countries had governments made more sustained progress towards the PHC approach prior to the pandemic. Yet, disentangling the unique aspects of the components of the PHC approach on health system resilience is not straightforward, and conceptual and performance monitoring frameworks are only just starting to consider how to explicitly incorporate measures of resilience within ongoing monitoring and evaluation (McDarby et al., 2023; Rajan et al 2023). Moreover, PHC is critical to strengthening climate resilience, both by reducing carbon emissions and in addressing the health risks and impacts of climate change (Haines & Ebi, 2019; WHO, 2023). The literature on PHC’s contributions to climate-resilient health systems is growing, and concrete examples of these contributions include the reduction and adaptation of prescribing patterns, reducing waste and inappropriate care, emphasis on prevention and health promotion, increasing the use of virtual care, and strengthening social prescribing (British Medical Association, 2020). Further, the multi-sectoral orientation of PHC, including advocating for and promoting the health co-benefits of environmental policies and of societal and lifestyle changes, offers promise in strengthening resilience.

It is critical to focus monitoring of carbon emissions at the primary care level as well as to assess the role that health professionals and communities can play in adapting health systems to climate change. The 26th United Nations Climate Change Conference

(COP26) in 2021 led to a commitment by 64 countries to achieve low-carbon sustainable and resilient health systems, with 22 of them committing to achieve net-zero GHG emissions between 2030 and 2050 (WHO, 2022a). Furthermore, a WHO survey found that 67% of countries had conducted, or are conducting, a climate change and health vulnerability and adaptation assessment in 2021, while 75–77% of them have national health and climate change plans and multisectoral collaboration on policies and programmes (WHO, 2021b). In spite of these commitments, most countries face insufficient financing for their implementation, and few countries have developed specific interventions and emission targets.

There is a growing evidence base on the importance of PHC to strengthening health system resilience, although further measurement and evaluation efforts are required to inform how to rebuild, learn and recover from shocks, to better prepare for future crises and ongoing threats due to climate change, and to inform the ongoing efforts to strengthen health systems with PHC at their core.

REFERENCES

- Allin S et al. (2022). Sustainability and Resilience in the Canadian Health System. London: LSE Consulting. Available at: https://www3.weforum.org/docs/WEF_PHSSR_Canada_2022.pdf (accessed 20 September 2023).
- Amiri M et al. (2022). Health System Resilience in the Eastern Mediterranean Region: Perspective on the Recent Lessons Learned. *Interact J Med Res*, 11(2):e41144. Available at: <https://doi.org/10.2196/41144> (accessed 20 September 2023).
- Ardalan A et al. (2013). Effectiveness of a Primary Health Care Program on Urban and Rural Community Disaster Preparedness, Islamic Republic of Iran: A Community Intervention Trial. *Disaster Med Public Health Prep*, 7(5):481–90. Available at: <https://doi.org/10.1017/dmp.2013.93> (accessed 20 September 2023).
- Arksey H, O'Malley L (2005). Scoping studies: towards a methodological framework. *Int J Soc Res Methodol*, 8(1):19–32. Available at: <https://doi.org/10.1080/1364557032000119616> (accessed 20 September 2023).
- Atallah DG et al. (2018). Developing Equitable Primary Health Care in Conflict-Affected Settings: Expert Perspectives From the Frontlines. *Qual Health Res*, 28(1):98–111. Available at: <https://doi.org/10.1177/1049732317738972> (accessed 20 September 2023).
- Ballard M et al. (2020). Prioritising the role of community health workers in the COVID-19 response. *BMJ Glob Health*, 5:e002550. Available at: <https://gh.bmj.com/content/5/6/e002550> (accessed 20 September 2023).
- Bariş E et al. (2022). Walking the Talk: Reimagining Primary Health Care after COVID-19. World Bank. Available at: <https://doi.org/10.1596/978-1-4648-1768-7> (accessed 20 September 2023).
- Bell EJ (2010). Climate change: what competencies and which medical education and training approaches? *BMC Medical Educ*, 10(31). Available at: <https://doi.org/10.1186/1472-6920-10-31> (accessed 20 September 2023).
- Bhaumik S et al. (2020). Community health workers for pandemic response: a rapid evidence synthesis. *BMJ Glob Health*, 5(6):e002769. Available at: <https://doi.org/10.1136/bmjgh-2020-002769> (accessed 20 September 2023).
- Bitton A et al. (2017). Primary Health Care as a Foundation for Strengthening Health Systems in Low- and Middle-Income Countries. *J Gen Intern Med*, 32(5):566–71. Available at: <https://doi.org/10.1007/s11606-016-3898-5> (accessed 20 September 2023).
- Boyce MR, Katz R (2019). Community Health Workers and Pandemic Preparedness: Current and Prospective Roles. *Front Public Health*, 7:62. Available at: <https://doi.org/10.3389/fpubh.2019.00062> (accessed 20 September 2023).
- British Medical Association (2020). Sustainable and environmentally friendly general practice. Available at: <https://www.bma.org.uk/media/2570/bma-sustainable-and-environmentally-friendly-general-practice-report-june-2020.pdf> (accessed 20 September 2023).

- Canadian Coalition for Green Health Care (2021). The green health care report 2020–2021. Canadian Coalition for Green Health Care. Available at: <https://greenhealthcare.ca/wp-content/uploads/2021/06/The-Green-Health-Care-Report-2020-21.pdf> (accessed 20 September 2023).
- Canadian Institute for Health Information (2022). Overuse of Tests and Treatments in Canada — Progress Report. Canadian Institute for Health Information. Available at: <https://www.cihi.ca/sites/default/files/document/overuse-of-tests-and-treatments-in-canada-report-en.pdf> (accessed 20 September 2023).
- Canadian Institute for Social Prescribing (2022). what matters to you. Canadian Institute for Social Prescribing. Available at: <https://www.socialprescribing.ca/> (accessed 20 September 2023).
- Canadian Medication Appropriateness and Deprescribing Network (2017). Do I still need this medication? Available at: <https://www.deprescribingnetwork.ca/> (accessed 20 September 2023).
- CASCADES (2023). CASCADES supports Canada’s health care community to transition towards an environmentally sustainable (net zero carbon emission) and resilient health system. CASCADES. Available at: <https://cascadescanada.ca/about/> (accessed 20 September 2023).
- Centre for sustainable healthcare (2022). What we do, guided by the principles of sustainable clinical practice. Centre for sustainable healthcare. Available at: <https://sustainablehealthcare.org.uk/what-we-do> (accessed 20 September 2023).
- Cohen O et al. (2020). Health-Care Services as a Platform for Building Community Resilience among Minority Communities: An Israeli Pilot Study during the COVID-19 Outbreak. *Int J Environ Res Public Health*, 17(20):7523. Available at: <https://doi.org/10.3390/ijerph17207523> (accessed 20 September 2023).
- College of Family Physicians of Canada (2022). Thirteen Test and Treatments to Question. *Family Medicine*. Available at: <https://choosingwiselycanada.org/recommendation/family-medicine/> (accessed 20 September 2023).
- Current state of social prescribing in Canada (2022). Summary Report. Available at: <https://www.bridgeable.com/wp-content/uploads/Bridgeable-CISP-Social-Prescribing-Phase-1-Summary-Report.pdf> (accessed 20 September 2023).
- Dalglis SL, Poulsen MN, Winch PJ (2013). Localization of health systems in low- and middle-income countries in response to long-term increases in energy prices. *Glob Health*, 9(1):56. Available at: <https://doi.org/10.1186/1744-8603-9-56> (accessed 20 September 2023).
- de Milliano C et al. (2015). Resilience: The Holy Grail or Yet Another Hype? In Gibbons P, Heintze H-J (eds). *The Humanitarian Challenge*. Cham: Springer International Publishing, pp. 17–30. Available at: https://doi.org/10.1007/978-3-319-13470-3_2 (accessed 20 September 2023).
- Desborough J et al. (2020). Australia’s national COVID 19 primary care response. *Med J Aust*, 213(3):104. Available at: <https://doi.org/10.5694/mja2.50693> (accessed 20 September 2023).

- Dobova SV et al. (2021). Disruption in essential health services in Mexico during COVID-19: an interrupted time series analysis of health information system data. *BMJ Glob Health*, 6(9):e006204. Available at: <https://doi.org/10.1136/bmjgh-2021-006204> (accessed 20 September 2023).
- Dobova SV et al. (2022). The road to recovery: an interrupted time series analysis of policy intervention to restore essential health services in Mexico during the COVID-19 pandemic. *J Glob Health*, 12:05033. Available at: <https://doi.org/10.7189/jogh.12.05033> (accessed 20 September 2023).
- Dupraz J, Burnand B (2021). Role of Health Professionals Regarding the Impact of Climate Change on Health—An Exploratory Review. *Int J Environ Res Public Health*, 18(6):3222. Available at: <https://doi.org/10.3390/ijerph18063222> (accessed 20 September 2023).
- Ebi KL et al. (2008). Effects of Global Change on Human Health. Washington, DC: US Climate Change Science Program and the Subcommittee on Global Change Research, US Environmental Protection Agency (Analyses of the effects of global change on human health and welfare and human systems).
- Eckelman MJ, Sherman JD, MacNeill AJ (2018). Life cycle environmental emissions and health damages from the Canadian healthcare system: An economic-environmental-epidemiological analysis. *PLOS Med*, 15(7):e1002623. Available at: <https://doi.org/10.1371/journal.pmed.1002623> (accessed 20 September 2023).
- Foroughi Z et al. (2022). Hospitals during economic crisis: a systematic review based on resilience system capacities framework. *BMC Health Serv Res*, 22(1):977. Available at: <https://doi.org/10.1186/s12913-022-08316-4> (accessed 20 September 2023).
- Forsgren L et al. (2022). Health systems resilience in practice: a scoping review to identify strategies for building resilience. *BMC Health Serv Res*, 22(1):1173. Available at: <https://doi.org/10.1186/s12913-022-08544-8> (accessed 20 September 2023).
- Franzosa E et al. (2022). Home Health Aides' Increased Role in Supporting Older Veterans and Primary Healthcare Teams During COVID-19: a Qualitative Analysis. *J Gen Intern Med*, 37(8):1830–7. Available at: <https://doi.org/10.1007/s11606-021-07271-w> (accessed 20 September 2023).
- Fundar, Oxfam, CIEMP (n.d.). La Vacuna contra la desigualdad. Available at: <https://lavacunacontraladesigualdad.org/> (accessed 20 September 2023).
- Godin K et al. (2015). Applying systematic review search methods to the grey literature: a case study examining guidelines for school-based breakfast programs in Canada. *Syst Rev*, 4(1):138. Available at: <https://doi.org/10.1186/s13643-015-0125-0> (accessed 20 September 2023).
- González-Block MÁ, Gutiérrez-Calderón E, Sarti E (2022). COVID-19 Vaccination Hesitancy in Mexico City among Healthy Adults and Adults with Chronic Diseases: A Survey of Complacency, Confidence, and Convenience Challenges in the Transition to Endemic Control. *Vaccines*, 10(11):1944. Available at: <https://doi.org/10.3390/vaccines10111944> (accessed 20 September 2023).

- Gonzalez Holguera J, Niwa N, Senn N (2020). Health & Environment Co-benefits: concepts and recommendations for clinical practice. *Health Environ* [Preprint]. Available at: https://www.revmed.ch/view/727724/5691286/RMS_714-2_5.pdf (accessed 20 September 2023).
- Gonzalez-Holguera J et al. (2022). Translating Planetary Health Principles Into Sustainable Primary Care Services. *Front Public Health*, 10:931212. Available at: <https://doi.org/10.3389/fpubh.2022.931212> (accessed 20 September 2023).
- Green EIH et al. (2009). Preparing Australian medical students for climate change. *Aust Fam Physician*, 38(9):726–9.
- Guerra G et al. (2018). Loss of job-related right to healthcare associated with employment turnover: challenges for the Mexican health system. *BMC Health Serv Res*, 18(1):457. Available at: <https://doi.org/10.1186/s12913-018-3283-7> (accessed 20 September 2023).
- Haines A (2017). Health co-benefits of climate action. *Lancet Planet Health*, 1(1):e4–5. Available at: [https://doi.org/10.1016/S2542-5196\(17\)30003-7](https://doi.org/10.1016/S2542-5196(17)30003-7) (accessed 20 September 2023).
- Haines A, Ebi K (2019). The Imperative for Climate Action to Protect Health. *N Engl J Med*, 380(3):263–73. Available at: <https://doi.org/10.1056/NEJMra1807873> (accessed 20 September 2023).
- Haldane V et al. (2021). Health systems resilience in managing the COVID-19 pandemic: lessons from 28 countries. *Nat Med*, 27(6):964–80. Available at: <https://doi.org/10.1038/s41591-021-01381-y> (accessed 20 September 2023).
- Hathaway J, Maibach EW (2018). Health Implications of Climate Change: a Review of the Literature About the Perception of the Public and Health Professionals. *Curr Environ Health Rep*, 5(1):197–204. Available at: <https://doi.org/10.1007/s40572-018-0190-3> (accessed 20 September 2023).
- Health Care Without Harm (2019). Health Care's climate footprint. ARUP. Available at: <https://www.arup.com/perspectives/publications/research/section/healthcares-climate-footprint> (accessed 20 September 2023).
- Health Metrics and Evaluation (2023). Global Burden of Disease (GBD). Health Metrics and Evaluation (IHME). Available at: <https://www.healthdata.org/gbd> (accessed 20 September 2023).
- Hernández-Galdamez DR et al. (2020). Increased Risk of Hospitalization and Death in Patients with COVID-19 and Pre-existing Noncommunicable Diseases and Modifiable Risk Factors in Mexico. *Arch Med Res*, 51(7):683–9. Available at: <https://doi.org/10.1016/j.arcmed.2020.07.003> (accessed 20 September 2023).
- Hickel J, Slameršak A (2022). Existing climate mitigation scenarios perpetuate colonial inequalities. *Lancet Planet Health*, 6:e628–31.
- Holmner Å et al. (2014). Carbon Footprint of Telemedicine Solutions – Unexplored Opportunity for Reducing Carbon Emissions in the Health Sector. *PLoS ONE*, 9(9):e105040. Available at: <https://doi.org/10.1371/journal.pone.0105040> (accessed 20 September 2023).

- Hone T, Macinko J, Millett C (2018). Revisiting Alma-Ata: what is the role of primary health care in achieving the Sustainable Development Goals? *Lancet*, 392(10156):1461–72. doi: 10.1016/S0140-6736(18)31829-4. PMID: 30343860.
- Institute of Medicine's Quality of Health Care in America (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academies Press, p. 10027. Available at: <https://doi.org/10.17226/10027> (accessed 20 September 2023).
- Khalil M, Mataria A, Ravaghi H (2022). Building resilient hospitals in the Eastern Mediterranean Region: lessons from the COVID-19 pandemic. *BMJ Glob Health*, 7(Suppl 3):e008754. Available at: <https://doi.org/10.1136/bmjgh-2022-008754> (accessed 20 September 2023).
- Kinder K et al. (2021). Integrating primary care and public health to enhance response to a pandemic. *Prim Health Care Res Dev*, 22:e27. Available at: <https://doi.org/10.1017/S1463423621000311> (accessed 20 September 2023).
- Kotcher J et al. (2021). Views of health professionals on climate change and health: a multinational survey study. *Lancet Planet Health*, 5(5):e316–23. Available at: [https://doi.org/10.1016/S2542-5196\(21\)00053-X](https://doi.org/10.1016/S2542-5196(21)00053-X) (accessed 20 September 2023).
- Kulkarni MA, Duguay C, Ost K (2022). Charting the evidence for climate change impacts on the global spread of malaria and dengue and adaptive responses: a scoping review of reviews. *Glob Health*, 18(1):1. Available at: <https://doi.org/10.1186/s12992-021-00793-2> (accessed 20 September 2023).
- Lal A, Schwalbe N (2023). Primary health care: a cornerstone of pandemic prevention, preparedness, response, and recovery. *Lancet*. Jun 3;401(10391):1847. doi: 10.1016/S0140-6736(23)00963-7. Epub 2023 May 19. PMID: 37216957; PMCID: PMC10198674.
- Lenzen M et al. (2020). The environmental footprint of health care: a global assessment. *Lancet Planet Health*, 4(7):e271–9. Available at: [https://doi.org/10.1016/S2542-5196\(20\)30121-2](https://doi.org/10.1016/S2542-5196(20)30121-2) (accessed 20 September 2023).
- Lugten E et al. (2023). From fragility to resilience: A systems approach to strengthen primary health care. *Front Public Health*, 10:1073617. Available at: <https://doi.org/10.3389/fpubh.2022.1073617> (accessed 20 September 2023).
- McDarby G et al. (2023). A synthesis of concepts of resilience to inform operationalization of health systems resilience in recovery from disruptive public health events including COVID-19. *Front Public Health*, 11:1105537. Available at: <https://doi.org/10.3389/fpubh.2023.1105537> (accessed 20 September 2023).
- MacNeill AJ, McGain F, Sherman JD (2021). Planetary health care: a framework for sustainable health systems. *Lancet Planet Health*, 5(2):e66–8. Available at: [https://doi.org/10.1016/S2542-5196\(21\)00005-X](https://doi.org/10.1016/S2542-5196(21)00005-X) (accessed 20 September 2023).
- Marchildon GP, Allin S, Merkur S (2020). Canada: Health System Review. *Health Systems in Transition*, 22(3):1–194.
- Mashange W et al. (2019). Flexibility of deployment: challenges and policy options for retaining health workers during crisis in Zimbabwe. *Hum Resour Health*, 17(1):39. Available at: <https://doi.org/10.1186/s12960-019-0369-1> (accessed 20 September 2023).

- Matenge S et al. (2022). Ensuring the continuation of routine primary care during the COVID-19 pandemic: a review of the international literature. *Fam Pract*, 39(4):747–61. Available at: <https://doi.org/10.1093/fampra/cmab115> (accessed 20 September 2023).
- Mayhew SH et al. (2021). Responding to the 2018–2020 Ebola Virus Outbreak in the Democratic Republic of the Congo: Rethinking Humanitarian Approaches. *Risk Manag Healthc Policy*, 14:1731–47. Available at: <https://doi.org/10.2147/RMHP.S219295> (accessed 20 September 2023).
- Miller NP et al. (2018). Community health workers during the Ebola outbreak in Guinea, Liberia, and Sierra Leone. *J Glob Health*, 8(2):020601. Available at: <https://pubmed.ncbi.nlm.nih.gov/30023054/> (accessed 20 September 2023).
- Morris M, Boruff JT, Gore GC (2017). Scoping reviews: establishing the role of the librarian. *J Med Libr Assoc*, 104(4). Available at: <https://doi.org/10.5195/jmla.2016.156> (accessed 20 September 2023).
- Mortimer F et al. (2018). Sustainability in quality improvement: redefining value. *Future Healthc J*, 5(2):88–93. Available at: <https://doi.org/10.7861/futurehosp.5-2-88> (accessed 20 September 2023).
- Nguyen NPT et al. (2020). Preventive behavior of Vietnamese people in response to the COVID-19 pandemic. *PLoS One*, 15(9):e0238830. Available at: <https://doi.org/10.1371/journal.pone.0238830> (accessed 20 September 2023).
- OECD (2022). *Primary Health Care for Resilient Health Systems in Latin America*, OECD Health Policy Studies, OECD Publishing, Paris, <https://doi.org/10.1787/743e6228-en>.
- OECD (2023). *Ready for the Next Crisis? Investing in Health System Resilience*. Paris: OECD (OECD Health Policy Studies). Available at: <https://doi.org/10.1787/1e53cf80-en> (accessed 20 September 2023).
- OECD Indicators (2021). *Pharmaceutical consumption*. *Health at a Glance 2021*. Paris: OECD. Available at: <https://www.oecd-ilibrary.org/sites/5689c05c-en/index.html?itmld=/content/component/5689c05c-en> (accessed 20 September 2023).
- Ordoñez-González I, Basurto MA (2023). La atención primaria a la salud durante la pandemia COVID-19 en México [Primary health care during the COVID-19 pandemic in Mexico]. *Rev Med Inst Mex Seguro Soc*. 61(4):509-515. Spanish. doi: 10.5281/zenodo.8200527.
- Ouzzani M et al. (2016). Rayyan – a web and mobile app for systematic reviews. *Syst Rev*, 5(1):210. Available at: <https://doi.org/10.1186/s13643-016-0384-4> (accessed 20 September 2023).
- Palacio-Mejía LS et al. (2022). Leading causes of excess mortality in Mexico during the COVID-19 pandemic 2020–2021: A death certificates study in a middle-income country. *Lancet Reg Health – Am*, 13:100303. Available at: <https://doi.org/10.1016/j.lana.2022.100303> (accessed 20 September 2023).
- Papanicolas L et al. (2022). *Health system performance assessment: a framework for policy analysis*. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/bitstream/handle/10665/352686/9789240042476-eng.pdf?sequence=1&isAllowed=y> (accessed 20 September 2023).

- Paul J, Criado AR (2020). The art of writing literature review: What do we know and what do we need to know?. *Int Bus Rev*, 29(4):101717. Available at: <https://doi.org/10.1016/j.ibusrev.2020.101717> (accessed 20 September 2023).
- Pencheon D, Wight J (2020). Making healthcare and health systems net zero. *BMJ*, 368:m970. Available at: <https://doi.org/10.1136/bmj.m970> (accessed 20 September 2023).
- Pérez Ortega R (2020). Mexico's coronavirus czar faces criticism as COVID-19 surges. *Scienceinsider*, 9 December. Available at: <https://www.science.org/content/article/mexico-s-coronavirus-czar-faces-criticism-covid-19-surges> (accessed 20 September 2023).
- Pétrin-Desrosiers C et al. (2022). Policy brief for Canada. *Lancet Countdown on Health and Climate Change*. Available at: https://cpha.ca/sites/default/files/uploads/advocacy/2022_lancet/2022_Lancet_Countdown_Canada_Policy_Brief_e.pdf (accessed 20 September 2023).
- Poitras M-E et al. (2022). Chronic conditions patient's perception of post-COVID-19 pandemic teleconsulting continuation in primary care clinics: a qualitative descriptive study. *BMJ Open*, 12(12):e066871. Available at: <https://doi.org/10.1136/bmjopen-2022-066871> (accessed 20 September 2023).
- Rajan D et al. (2023). Health system performance assessment. A renewed global framework for policy-making. Policy Brief 59. WHO (acting as the host organization for, and secretariat of, the European Observatory on Health Systems and Policies). Available at: <https://eurohealthobservatory.who.int/publications/i/health-system-performance-assessment-a-renewed-global-framework-for-policy-making> (accessed 27 February 2024).
- Rasanathan K, Evans TG (2020). Primary health care, the Declaration of Astana and COVID-19. *Bull World Health Organ*, 98(11):801–8. Available at: <https://doi.org/10.2471/BLT.20.252932> (accessed 20 September 2023).
- Rasheed FN et al. (2021). Decarbonising healthcare in low and middle income countries: potential pathways to net zero emissions. *BMJ*, 375:n1284. Available at: <https://doi.org/10.1136/bmj.n1284> (accessed 20 September 2023).
- Redvers N (2021). Patient-Planetary Health Co-benefit Prescribing: Emerging Considerations for Health Policy and Health Professional Practice. *Front Public Health*, 9:678545. Available at: <https://doi.org/10.3389/fpubh.2021.678545> (accessed 20 September 2023).
- Romanello M et al. (2022). The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. *Lancet*, 400(10363):1619–54. Available at: [https://doi.org/10.1016/S0140-6736\(22\)01540-9](https://doi.org/10.1016/S0140-6736(22)01540-9) (accessed 20 September 2023).
- Rosenfeld LA et al. (2011). Extending the Reach: Local Health Department Collaboration with Community Pharmacies in Palm Beach County, Florida for H1N1 Influenza Pandemic Response. *J Public Health Manag Practice*, 17(5):439–48. Available at: <https://doi.org/10.1097/PHH.0b013e31821138ae> (accessed 20 September 2023).
- Sagan A et al. (2021). Health systems resilience during COVID-19 lessons for building back better. Copenhagen: WHO Regional Office for Europe.

- Schneider MP, Sommer J, Senn N (2019). [Sustainable drug prescription: shared perspectives between physicians and pharmacists]. *Revue Medicale Suisse*, 15(650):942–6.
- Simen-Kapeu A et al. (2021). Strengthening the community health program in Liberia: Lessons learned from a health system approach to inform program design and better prepare for future shocks. *J Glob Health*, 11:07002. Available at: <https://doi.org/10.7189/jogh.11.07002> (accessed 20 September 2023).
- Tariq A et al. (2021). Transmission dynamics and forecasts of the COVID-19 pandemic in Mexico, March–December 2020. *PLoS One*, 16(7):e0254826. Available at: <https://doi.org/10.1371/journal.pone.0254826>.
- Thomas S, Sagan A, Larkin J (2020). Strengthening health systems resilience. Copenhagen: WHO (acting as the host organization for, and secretariat of, the European Observatory on Health Systems and Policies). Available at: <https://apps.who.int/iris/bitstream/handle/10665/332441/Policy-brief%2036-1997-8073-eng.pdf?sequence=1&isAllowed=y> (accessed 20 September 2023).
- Thomas S et al. (2013). A framework for assessing health system resilience in an economic crisis: Ireland as a test case. *BMC Health Services Research*, 13(1):450. Available at: <https://doi.org/10.1186/1472-6963-13-450> (accessed 20 September 2023).
- Tsagkaris C et al. (2021). Using telemedicine for a lower carbon footprint in healthcare: A twofold tale of healing. *J Climate Change Health*, 1:100006. Available at: <https://doi.org/10.1016/j.jocl.2021.100006> (accessed 20 September 2023).
- Tumusiime P et al. (2020). Building health system resilience in the context of primary health care revitalization for attainment of UHC: proceedings from the Fifth Health Sector Directors' Policy and Planning Meeting for the WHO African Region. *BMC Proc*, 14(S19):16. Available at: <https://doi.org/10.1186/s12919-020-00203-2> (accessed 20 September 2023).
- Turner S (2022). “We are all vulnerable, we are all fragile”: COVID-19 as opportunity for, or constraint on, health service resilience in Colombia? *Public Manag Rev*. Available at: <https://doi.org/10.1080/14719037.2022.2052944> (accessed 20 September 2023).
- UCSF (2021). Mexico’s response to COVID-19: a case study. Institute for Global Health Science. Available at: <https://globalhealthsciences.ucsf.edu/wp-content/uploads/2024/02/mexico-covid-19-case-study-english.pdf> (access 12 February 2024).
- Van Daalen KR et al. (2022). The 2022 Europe report of the Lancet Countdown on health and climate change: towards a climate resilient future. *Lancet Public Health*, 7(11):e942–65. Available at: [https://doi.org/10.1016/S2468-2667\(22\)00197-9](https://doi.org/10.1016/S2468-2667(22)00197-9) (accessed 20 September 2023).
- Van Ginneken et al. (2022). Addressing backlogs and managing waiting lists during and beyond the COVID-19 pandemic. Policy Brief 47. WHO (acting as the host organization for, and secretariat of, the European Observatory on Health Systems and Policies). Available at: <https://iris.who.int/bitstream/handle/10665/358832/Policy-brief-47-1997-8073-eng.pdf?sequence=1> (accessed 27 February 2024).

- Wang H et al. (2022). Estimating excess mortality due to the COVID-19 pandemic: a systematic analysis of COVID-19-related mortality, 2020–21. *Lancet*, 399(10334):1513–36. Available at: [https://doi.org/10.1016/S0140-6736\(21\)02796-3](https://doi.org/10.1016/S0140-6736(21)02796-3) (accessed 20 September 2023).
- WHO (2015). Operational framework for building climate resilient health systems. Geneva: World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/189951> (accessed 29 May 2023).
- WHO (2017). Environmentally sustainable health systems: a strategic document. Copenhagen: WHO Regional Office for Europe. Available at: <https://www.who.int/publications/i/item/WHO-EURO-2017-2241-41996-57723> (accessed 20 September 2023).
- WHO (2021a). Building health systems resilience for universal health coverage and health security during the COVID-19 pandemic and beyond: WHO position paper. Geneva. Available at: <https://www.who.int/publications-detail-redirect/WHO-UHL-PHC-SP-2021.01> (accessed 20 September 2023).
- WHO (2021b). WHO health and climate change global survey report. Geneva. Available at: <https://apps.who.int/iris/bitstream/handle/10665/348068/9789240038509-eng.pdf;sequence=1> (accessed 20 September 2023).
- WHO (2022a). Alliance for Transformative Action on Climate and Health (ATACH). Available at: <https://www.who.int/initiatives/alliance-for-transformative-action-on-climate-and-health/country-commitments> (accessed 20 September 2023).
- WHO (2022b). Health systems resilience toolkit: a WHO global public health good to support building and strengthening of sustainable health systems resilience in countries with various contexts. Available at: <https://www.who.int/publications/i/item/9789240048751> (accessed 20 September 2023).
- WHO (2022c). Primary health care: making our commitments happen. Realizing the potential of primary health care: lessons learned from the COVID-19 pandemic and implications for future directions in the WHO European Region. Copenhagen: WHO Regional Office for Europe. Available at: <https://reliefweb.int/report/world/primary-health-care-making-our-commitments-happen-realizing-potential-primary-health-care-lessons-learned-covid-19-pandemic-and-implications-future-directions-who-european-region> (accessed 20 September 2023).
- WHO (2023). WHO Operational framework for building climate resilient and low carbon health systems. Geneva: World Health Organization. Available at: <https://iris.who.int/bitstream/handle/10665/373837/9789240081888-eng.pdf?sequence=1> (accessed 10 February 2024).
- WHO, UNICEF (2022). Primary health care measurement framework and indicators: monitoring health systems through a primary health care lens. Available at: <https://www.who.int/publications/i/item/9789240044210> (accessed 20 September 2023).

- WONCA-PHA (2019). Declaration calling for family doctors of the world to act on planetary health. Available at: https://www.icgp.ie/speck/properties/asset/asset.cfm?type=Document&id=CA708B09-F3D6-4191-BE7B265B3CE8DA9D&property=document&filename=2019_Planetary_health_-_WONCA.pdf&revision=tip&mimetype=application%2Fpdf&app=icgp&disposition=inline (accessed 20 September 2023).
- Wong ZS-Y, Rigby M (2022). Identifying and addressing digital health risks associated with emergency pandemic response: Problem identification, scoping review, and directions toward evidence-based evaluation. *Int J Med Inform*, 157:104639. Available at: <https://doi.org/10.1016/j.ijmedinf.2021.104639> (accessed 20 September 2023).
- World Bank (2023). Building Resilient Health Systems in Latin America and the Caribbean : Lessons Learned from the COVID-19 Pandemic - Executive Summary (English). Washington, D.C. : World Bank Group. Available at: <http://documents.worldbank.org/curated/en/099211501232328344/P17829906c6e390c30ab6e0e7e3bfac32ba> (accessed 10 January 2024).
- Xie E et al. (2018). Challenges and opportunities in planetary health for primary care providers. *The Lancet Planetary Health*, 2(5):e185–e187. Available at: [https://doi.org/10.1016/S2542-5196\(18\)30055-X](https://doi.org/10.1016/S2542-5196(18)30055-X).
- Xie E et al. (2021). Acting on climate change for a healthier future: Critical role for primary care in Canada. *Can Fam Physician*, 67(10):725–30. Available at: <https://doi.org/10.46747/cfp.6710725> (accessed 20 September 2023).
- Yale Center on Climate Change and Health (2023). Lancet Commission on Sustainable Healthcare (LCSH). Available at: <https://ysph.yale.edu/yale-center-on-climate-change-and-health/healthcare-sustainability-and-public-health/lancet-commission-on-sustainable-health-care/> (accessed 20 September 2023).

17

Implementing the PHC approach: summary and conclusion

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Key messages

Strengthening primary health care (PHC)-oriented health systems is an essential step towards achieving universal health coverage (UHC). However, translating commitments into action requires an understanding of health systems and health system performance as well as the levers for change. Analysis of the evidence and country experiences offer practical lessons on how to implement PHC.

- The history and foundations of PHC help explain its potential, in particular:
 - the importance of integrating public health and primary care
 - its role in integrating health services for more holistic, equitable, person-centred care
 - the added value of links to people and communities, and the scope to empower them as co-creators of their health
 - its privileged position in terms of working across sectors and on the wider determinants of health.
- The operational levers are key to incentivizing a stronger PHC orientation with:
 - governance, including decentralized decision-making and leadership, to support the service integration and community engagement
 - workforce policies having a central role in enabling team working and fostering responsive care
 - well-designed financing mechanisms offering the means to prompt change
 - medicines, technologies, infrastructure and information systems all being powerful enablers of the PHC approach.

Reorienting health systems towards a PHC approach delivers huge benefits for overall health system performance and in particular for quality, access, and equity and for resilience.

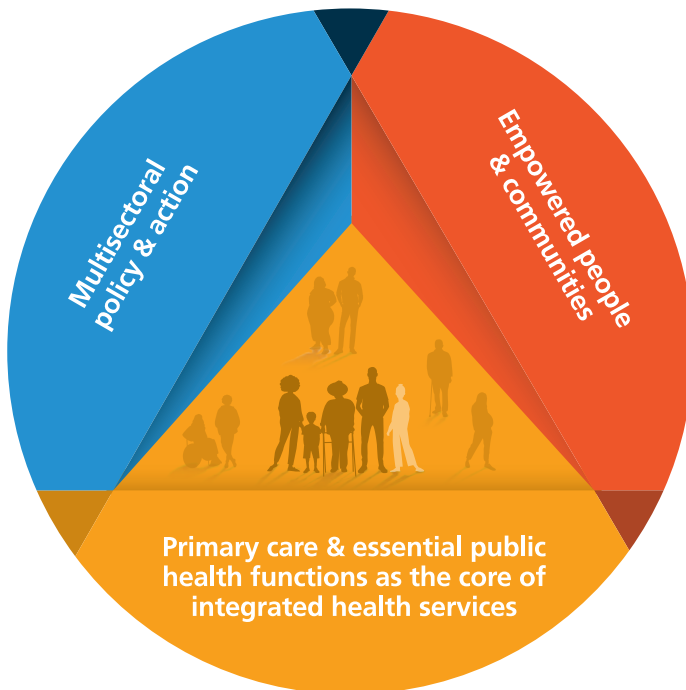
17.1 Introduction

This Primer is the first of two publications that constitute the World Health Organization (WHO) PHC Global Report. It clarifies the concept of the primary health care (PHC) approach in the contemporary global context and presents evidence related to its implementation and impact on health systems performance.

The Primer presents PHC as a whole-of-society approach to health, depicted as a triangular pyramid where the three core components come together as an integral and indissociable whole (Fig. 17.1). At the centre of the pyramid, representing its heart and ultimate purpose, are people as individuals and communities. Each side of the triangle represents these three interrelated and synergistic core components of PHC:

- 1) Primary care and essential public health functions as the core of integrated health services with the aim to meet people's health needs throughout their lives.
- 2) Addressing the broader determinants of health through multisectoral policy and action.
- 3) Empowering individuals, families and communities to co-produce health.

Fig. 17.1 The PHC approach as a triangular pyramid



Source: Authors, adapted from WHO & UNICEF, 2020

The Primer is divided into three parts. Part I provides an in-depth introduction to PHC, laying out the historical background, definitions and conceptual frameworks, and the rationale of the PHC approach. In particular, it fleshes out the different ways in which the terms “primary health care” and “primary care” are and have been used, and proposes the consistent and appropriate use of PHC terminology which is important to align efforts across national and global health actors. Part I also addresses the relationship of primary care and essential public health functions at the core of all integrated health services in PHC-oriented health systems, and outlines the fundamental features of models of care which are congruent with, and operationalize, the PHC approach. Part II then summarizes evidence on how various PHC operational levers can be implemented to align with the PHC approach. It outlines successful efforts and knowledge gaps with a focus on implementation, and points to practice implications through in-depth country illustrations. Lastly, Part III examines the impact of PHC on key dimensions of health system performance, namely: quality and efficiency, equity, access, financial protection and resilience. It is emphasized here that this PHC Primer is not meant to be normative. A plethora of narrative reviews and country illustrations, with their respective limitations (see Chapter 1), were examined from the perspective of a policy-maker aiming to implement the PHC approach. The focus of this Primer has thus been to gain an understanding of the practical implementation evidence which, in turn, will feed into a normative document.

This concluding chapter draws together the main findings from Parts I, II and III in order to address the main question implicit in the title of the Primer: in particular, how to advance and implement the PHC approach and provide salient implementation lessons for policy-makers. This chapter also aims to pave the way for a subsequent publication by WHO which will analyse PHC capacity, performance, and impact at regional and global levels, using empirical evidence, implementation research, and econometric modelling.

17.2 Key evidence to advance PHC

17.2.1 Part I: the PHC approach – foundations, history, definitions and concepts

While the global commitment to PHC has been strained over the past decades by surging demand and multiple crises, never has the fulfillment of PHC’s promise for better health, greater equity and optimal value been so urgently needed. As such, the current challenges of rising disease burden, climate change and health system shocks present an unprecedented opportunity to invest substantially and decisively in PHC to purposefully drive towards universal access to essential services for all while building the necessary resilience to absorb shocks in various forms (Chapter 1).

Heeding the lessons learned over more than four decades of PHC-related efforts is essential to effectively confront present challenges and shape future implementation. The historical evolution of PHC has been shaped by divergent interpretations influenced by globalization, medicalization, colonialism and neoliberalism. Amidst diverse viewpoints and an evolving global context, one thing has remained clear: the successful implementation of PHC demands an unwavering commitment and sustained efforts. Achieving its expected outcomes and impact will thus require leaders and policy-makers to skillfully navigate a country's political economy (Chapter 2).

While the fundamental principles and PHC-related concepts established in the Declarations of Alma-Ata and Astana provide shared reference points, the implementation of PHC, by definition, reflects the local context and therefore necessarily varies across settings. The diverse expressions of PHC as a whole-system and whole-of-society approach reflect different priorities, interpretations and approaches. These differences are also reflected in, and to some extent explain, the lack of uniformity in the language of PHC, including the terms, definitions and frameworks used to outline PHC and primary care (Chapter 3).

The case for investment in PHC is compelling, as demonstrated by ample scientific evidence and experiences from diverse settings over four decades. Despite evidence gaps and limitations, a wide range of literature has consistently shown PHC-oriented health systems to be associated with improved health outcomes, better equity and enhanced value. Further research is intended to better understand how to optimize multisectoral action and community participation to contribute to the vision of PHC. The political drivers that determine investments in PHC are complex, but the evidence clearly shows that PHC itself is a valuable investment rather than an expense and that its long-term benefits outweigh its costs. Moreover, existing evidence eloquently confirms that immediate action to strengthen PHC policies is not only necessary but also feasible (Chapter 4).

Fundamental to PHC as a whole, and to effective integrated health services specifically, is the complementarity of primary care services and essential public health functions to advance health protection, promotion, disease prevention and surveillance. PHC emphasizes a person-centred approach and the integration of primary care and public health to address social, political and commercial determinants of health. In PHC-oriented health systems, efforts to assess population health needs, empower individuals, mobilize communities and advocate for multisectoral policies that improve health are integrated and occur seamlessly (Chapter 5).

The integration of health services is tangibly informed by models of care. There is no single "correct" model of care that is fully aligned with the principles of PHC and several models of care can co-exist in the same integrated health system. Different countries have in fact adopted diverse approaches to incorporate elements of PHC into their models of care. Reorienting models of care towards PHC requires a complex, long-term and iterative process. It involves analysing current models of care, designing and implementing a more PHC-oriented approach, and periodically reviewing and improving upon it. Despite undeniable challenges, many countries are already taking steps

to shift towards more PHC-oriented models of care, with the aim to deliver more efficient, effective and equitable health services (Chapter 6).

In short, commitment to the fundamental principles of the PHC approach remains high, PHC's expected outcomes of improved health system performance are more urgently needed than ever, and four decades of efforts to implement PHC-oriented health systems have confirmed its favourable return on investment, its contribution to health system performance and its eminent feasibility.

17.2.2 Part II: the PHC approach – implementation

Part II of this Primer presents evidence related to various PHC operational levers and some strategic levers and how they may be implemented to align with PHC orientation, with an analysis of the current evidence on implementation – what has worked well and less well.

First among them is consideration of the crucial strategic lever of governance. The evidence synthesized for this text reveals that in addition to the obvious role of governance at the macro level, decision-making autonomy at the micro level is vital to PHC's operationalization as it constitutes one of the mechanisms through which community voices and participation are operationalized. Therefore, balancing local and facility autonomy with central direction is crucial to optimize responsiveness while preventing adverse regional disparities. Decentralized service delivery, community engagement and clear leadership were found to amplify equity, efficiency and accountability. Lessons from different countries emphasize this local governance capacity for decentralization to result in locally responsive PHC. For example, community engagement, as a core component of PHC, is especially important to ensure inclusive participation in decision-making. Its added value in improving service delivery, however, hinges on the capacity of health authorities to meaningfully engage the community.

With regards to policy and legal frameworks, the evidence reviewed highlighted that service integration mediated by coherent rules and policies which are understood by different stakeholders is key to successful PHC. When policy frameworks and visionary leadership motivate stakeholders to collaborate and involve communities, a culture of quality is fostered, along with sustainable change. Governance arrangements that translate the principles of PHC therefore enable equitable, effective and people-centred health systems (Chapter 7).

PHC, as a whole-system approach, requires a diverse workforce able to fulfil a wide range of clinical, technical, managerial, administrative, leadership and policy roles. The health workforce is of defining importance for all components of PHC but particularly in the delivery of integrated health services because they contribute directly to the relational, technical and decisional elements that together constitute the services of health and care. Developing such a workforce is a complex and sustained process which can be approached as three distinct but complementary strategies. First, conducting a comprehensive analysis of the health labour market helps identify gaps in the supply, demand and needs of health workers, enabling strategic planning of the

primary care workforce. Second, foundational health workforce training and education and life-long learning programmes equip the workforce with the knowledge and skills required to deliver high-quality primary care services and impart adaptable competencies that can evolve to meet changing population and patient needs. Thirdly, attractive working conditions, supportive environments and protective measures are crucial for staff recruitment and retention in primary care and public health. Collaboration and coordination among various stakeholders, including educational institutions, professional bodies, regulators and funders, are necessary to create and maintain an enabling environment to implement these strategies (Chapter 8).

Financing is a key lever to incentivize a stronger PHC orientation to health systems. Increasing and/or maintaining public spending on PHC is crucial, especially in low- and middle-income countries (LMICs). Purposefully designed financing arrangements can drive the organization of health services around primary care, ensure community linkages and foster multisectoral action. Effective financing is multifaceted and involves resource allocation, coverage policies, purchasing arrangements and provider payment mechanisms. Strengthening financing mechanisms for PHC requires the development of system capacities and the consideration of political and economic factors. Further evidence is needed to better understand and optimize financing as related to the multisectoral and community elements of PHC. Exploring budgeting mechanisms and co-financing approaches can help finance interventions that impact multiple sectors (Chapter 9).

PHC-oriented health systems prioritize equitable access to medicines, vaccines and pharmaceutical services in primary care but often face important challenges in regard to affordability, availability, acceptability and appropriateness. Strategies to address these challenges will ideally include the following: (i) guarantee medicines coverage through public financing; (ii) ensure the supply of medicines and pharmaceutical services close to patients and communities through safe storage and skills in stock management, adequate counselling and dispensing; (iii) engage users and communities in decision-making and distribution of medicines; and (iv) promote responsible prescribing and use of medicines including use of standard treatment guidelines. Multisectoral policies and actions that involve engagement with various sectors such as education, agriculture and the environment are required to support the integration of community pharmacies and improve access to essential treatments (Chapter 10).

Health technologies, or the application of organized knowledge and skills in the form of (digital or non-digital) devices or procedures, are a powerful enabler of the PHC approach, including in supporting primary care processes and improving health outcomes. Promising evidence points to technologies that enable a shift of services to primary care settings, for example, for diagnostics which can be easily administered by non-physician health professionals where, traditionally, complex methods and training were required. Health technologies also act as powerful drivers of care co-production through remote monitoring and self-care, contributing to patient empowerment. Successful implementation of technologies for health requires an enabling policy environment, adequate financial resources, stakeholder involvement and health literacy, as well as addressing barriers to utilization, such as lack of familiar-

ity with technology and privacy concerns. Support services and a holistic approach are essential for the effective utilization of technologies for health. Long-term outcomes and impact require further research. Future-proofing technology is crucial for anticipating needs and deriving anticipated benefits (Chapter 11).

PHC infrastructure serves as a tangible sign of investment and constitutes a significant community health care resource. While adequate infrastructure is widely recognized as being an important determinant of high-quality primary care, limited empirical evidence is available on the role and impact of specific aspects of infrastructure on the delivery of primary care. Acknowledged to be crucial for the availability, quality and sustainability of primary care services, appropriate infrastructure alone cannot ensure optimal performance and other factors such as workforce and patient engagement are also needed. Flexible and adaptable facilities, co-designed with patients and health care workers, are important because design features of the built environment influence care processes and outcomes. Access to reliable utilities and well-maintained equipment is also essential. Affordability, environmental sustainability and long-term planning for growing capacity are ongoing challenges. Further research is required to strengthen the evidence base and inform effective infrastructure planning in PHC-oriented settings including primary care facilities (Chapter 12).

And lastly, information systems and digital health solutions have the potential to address communication and coordination challenges in PHC and thereby strengthen the overall health system. With optimal design and implementation, they can improve planning, extend the reach of the health system, empower stakeholders and enhance communication and care delivery. However, integration of these solutions into routine workflows and the broader health system architecture is crucial for their effectiveness. Further research is needed to explore the process of integration, including data standards, stakeholder engagement, governance and decision-making processes. Actionable evidence in this regard is sparse but growing; it is sorely needed to provide valuable guidance to decision-makers in creating a comprehensive and integrated PHC-oriented health system (Chapter 13).

17.2.3 Part III: the PHC approach – impact on performance

Part III of the Primer examines the impact of PHC on key dimensions of health system performance and presents evidence related to quality and efficiency, equity, access, financial protection and health system resilience including in the face of climate change.

Orienting health systems towards PHC can yield significant improvements in the quality and efficiency of health systems. PHC reforms improve overall quality of care by improving its effectiveness, safety and user satisfaction, ultimately contributing significantly to better health outcomes. PHC-oriented health systems with a robust core of high-quality primary care and essential public health functions reduce the need for specialized treatments, prevent unnecessary hospitalizations and promote efficient resource allocation. They also enhance user experience and trust in the health system through improved access, comprehensive care and patient empowerment. By reducing

complications and improving management of chronic conditions, implementing the PHC approach thus enhances the quality and efficiency of health systems (Chapter 14).

PHC is also essential for driving health systems towards equity, improved access and financial protection, goals inherent to UHC. With a focus on preventive care, multidisciplinary teams, close-to-patient service delivery models and community engagement, PHC-oriented health systems can effectively address health disparities and ensure that everyone has fair and affordable access to quality health care. By tailoring services to meet the specific needs and demands of populations and communities, prioritizing those most in need, leveraging innovative delivery models and expanding service coverage, PHC can enhance access to, and utilization of, health care, especially for underserved populations. Additionally, PHC reforms can contribute to financial protection by extending coverage and reducing financial barriers to care. Existing evidence nonetheless points to a need for further research to develop a nuanced understanding of equity, access and financial protection, and better capture their complex consequences beyond simplistic quantitative metrics. Overall, the implementation of PHC is crucial for building sustainable and inclusive health systems that prioritize the well-being of all individuals and promote health equity (Chapter 15).

In addition, the PHC approach holds the potential to effectively address pressing contemporary policy concerns such as health system resilience including in the face of climate change. The COVID-19 pandemic highlighted the integral role of PHC in resilience through its proximity and understanding of communities, its emphasis on multisectoral action, multidisciplinary teams' skills addressing a broad range of preventive health needs, and the integration of public health and primary care.

PHC can also contribute to strengthening climate resilience of health systems through interdisciplinary partnerships and sustainable practices. Recommendations to that end include engaging stakeholders committed to PHC in promoting climate-resilient health care facilities, reducing harmful gas emissions, clearly and purposefully advocating for clean energy, and systematically promoting the health co-benefits of environmental policies. Both low-income countries (LICs) and high-income countries (HICs) share a responsibility to take steps to improve environmental efficiency and reduce wasteful practices in health care. Measurement, evaluation and further research will help to strengthen the evidence base and inform the design and implementation of effective PHC reforms and strategies (Chapter 16).

17.3 Salient implementation lessons for policy-makers

Amidst the rich evidence reviewed throughout this volume, a number of common barriers and enablers have emerged and are summarized in Table 17.1. While not exhaustive, these findings deserve the attention of policy-makers committed to the implementation and strengthening of well-performing PHC-oriented health systems.

Table 17.1 Common enablers of and barriers to PHC-oriented health systems

Enablers	Barriers
<ul style="list-style-type: none"> • Strong political commitment and leadership are crucial enablers. Without them, health systems do not naturally align with a PHC orientation and PHC's expected outcomes and impact cannot be expected. 	<ul style="list-style-type: none"> • Inconsistent policies, conflicting priorities, and frequent policy changes disrupt the implementation of effective PHC strategies. • Excessive bureaucracy and administrative processes can slow down policy implementation and hinder the efficient implementation of PHC and the effective delivery of services. • Sociodemographic disparities and inequalities in access to care can hinder the effectiveness of PHC policies, as certain populations may face barriers to accessing services. • Resistance from health providers, communities or policy-makers to adopt new policies or change existing practices can impede the strengthening of the PHC approach.
<ul style="list-style-type: none"> • Engaging communities in the planning, implementation and evaluation of PHC efforts can help tailor services to local needs, improve acceptance and uptake, and ultimately enhance their effectiveness. 	<ul style="list-style-type: none"> • Cultural beliefs, social norms and attitudes toward health can influence the acceptability and utilization of primary care and other services.
<ul style="list-style-type: none"> • A well-trained and motivated health workforce remains a cornerstone of PHC-oriented health systems and the primary care workforce is crucial to deliver PHC's expected outcomes and impact. Providing training, incentives and career development opportunities can attract and retain skilled health care professionals in primary care. 	<ul style="list-style-type: none"> • Insufficient numbers of trained health care professionals, including (generalist) doctors, nurses and community health workers, limit the reach and quality of all PHC-oriented services, including primary care.
<ul style="list-style-type: none"> • Adequate, purposeful and equitable funding and allocation mechanisms can ensure that PHC-aligned services, including high-quality primary care and essential public health functions, are accessible to all segments of the population. 	<ul style="list-style-type: none"> • Insufficient funding and/or allocation, and inadequate infrastructure, medical supplies and human resources hinder the effective delivery of PHC-oriented services, including core primary care services.
<ul style="list-style-type: none"> • Integrated health information systems with capacity for effective data collection, analysis and reporting systems are needed to inform decision-making, monitor progress and identify areas for improvement within PHC-oriented health systems. 	<ul style="list-style-type: none"> • Inadequate health information systems and data collection methods can hinder evidence-based decision-making and evaluation of policy outcomes.

Continued on next page

Enablers	Barriers
<ul style="list-style-type: none"> Strategically integrating the core of primary care services with other services such as public health, specialized care, mental health and social services is integral to the delivery of comprehensive and coordinated patient care. 	<ul style="list-style-type: none"> Lack of coordination between different levels of care and health care providers can lead to inefficiencies, duplication of services and gaps in patient care.
<ul style="list-style-type: none"> The PHC-informed use of digital health tools, telemedicine and electronic health records can improve access, communication and data management. 	<ul style="list-style-type: none"> Lack of proper health care facilities, equipment and transportation can hinder the delivery of quality PHC, especially in remote or underserved areas.

17.4 Conclusion

This Primer paves the way for a subsequent text in the WHO Global PHC report, which will build on the evidence synthesized in the Primer to present a global overview of PHC performance and impact using the PHC Operational Framework and the PHC Monitoring Framework and Indicators (PHCMFI) developed at the request of Member States to support implementation efforts following the renewed global commitment to PHC in Astana in 2018. Global and regional PHC situational analysis will be presented using data triangulation. Indicators from the PHCMFI will be supplemented by implementation research findings and econometric modelling. Using the PHC approach, recommendations will be made to address the critical health system weaknesses identified at the global, regional and country levels.

PHC-oriented health systems will help to achieve the triple objectives of UHC, health security and better health and well-being. Sustained progress will require improved performance and impact measurement to support evidence-based decision-making and ongoing efforts to strengthen the delivery of integrated health services with strong community engagement and multisectoral action.

In well-performing PHC-oriented health systems, models of care aligned with PHC's fundamental principles result in integrated health services that prioritize high-quality primary care, are able to deliver first contact access, continuous, comprehensive, coordinated and person-centred care to all, enabled, complemented and driven by empowered people and PHC-informed multisectoral policy and action. Such PHC-oriented health systems, in turn, lead to better outcomes, greater equity, improved cost-efficiency and flexibility in health care delivery.

Beyond its foundational principles, definitions and frameworks, beyond its evidence, enablers and challenges, PHC is first and foremost about fulfilling every person's fundamental right to health. That ultimate goal provides guidance and motivation to our collective efforts.

Primary health care (PHC) has values – around treating people close to home, continuity and coordination. It stands as the principal interface between the health system and communities – the locus where the formalized system meshes with people’s lives. More than that, primary health care can shape and reshape health systems to make them more accessible, more integrated and more sustainable.

Despite the lessons of the pandemic, the efficiency PHC offers, and the potential it has to achieve Sustainable Development Goals, it continues to grapple with insufficient resources. This Primer or policy textbook was produced by the European Observatory on Health Systems and Policies with the WHO Special Programme on Primary Health Care. Dozens of experts have come together to support policy-makers in addressing the challenges. It consolidates the global evidence on implementation and is a guide on the “how” of PHC, combining, as it does, best practices, and the tacit knowledge that countries have generated, with more formal research and analysis.

The Primer is organized in three parts:

- **Part I** explains the PHC approach, its history, core concepts and rationale, and draws out lessons for transformation.
- **Part II** addresses operational and strategic levers that make PHC work. It covers governance, financing and human resources for health, medicines, health technology, infrastructure and digital health, and their role in implementing change.
- **Part III** concludes with a cross-cutting view of the impacts of PHC on the health system, efficiency, quality of care, equity, access, financial protection and health systems resilience, including in the face of climate change.

This publication will serve as a tool that will help policy-makers to make the case for investing in primary care, deliver change in practice and move towards universal health coverage and Health for All.

