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## Virtual Headache Screening: A Guide for Primary Care

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### A B S T R A C T

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Headache management is among the top presenting concerns for patients in primary care. Accurate diagnosis and treatment of headache disorders are vital to restoring quality of life and recognizing life-threatening conditions. Primary care providers have a critical role in headache assessment for patients' timely access to care. The COVID-19 pandemic was a challenge for nurse practitioners in the rapid uptake of virtual care, and more so for patients presenting with a headache. The purpose of this article is to present evidence-based information about the nurse practitioner's virtual headache assessment.

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Headaches are a global health concern with an increasing prevalence worldwide and are classified among the top 5 conditions afflicting those aged 10 to 49 years<sup>1</sup> and the leading cause of disability for females in this age category.<sup>2</sup> Headache is also noted as a common patient-reported complaint when seeking medical attention in primary care settings.<sup>3</sup> Similarly, headaches are 1 of the top 5 reasons that patients present to emergency departments in the United States.<sup>4</sup> Although the burden of pain associated with headache disorders is recognized and studied worldwide, no method exists to eliminate headache disorders from society. Therefore, there is an urgent need for proper assessment, treatment, and management of headaches.<sup>1</sup> Recently, timely access to health services for headache disorders was threatened by the global COVID-19 pandemic, highlighting the need for virtual visit assessments.<sup>5</sup> The purpose of this article is to address the knowledge gap in evidence-based virtual headache assessment and provide recommendations for performing a virtual headache screening.

### Background

There are hundreds of headache disorders, each characterized by its own unique features.<sup>6</sup> The International Classification of Headache Disorders, 3rd edition (ICHD-3) classifies primary headaches mainly as migraines, tension-type, trigeminal autonomic cephalgias (TACs), and other primary headache disorders with each category having various subtypes with their own diagnostic criteria. In addition, secondary headaches, facial pain, cranial neuropathies, and other headache disorders are identified as critical diagnoses to be considered in the setting of headache classification.<sup>7</sup> In the case of all headache disorders, a thorough physical examination is critical and needs to be adjusted for the virtual setting.<sup>8</sup> The unforeseen COVID-19 pandemic required nurse practitioners (NPs) to adapt

health care services rapidly and necessitated the use of virtual medical care for a multitude of issues.<sup>5</sup> Although the technology is not new, the unforeseen and expedited rollout of virtual assessments highlighted the inherent challenges of virtual care.<sup>9</sup> Because headache disorders remain a major global health concern, health care providers need to understand how to perform a virtual neurological examination to optimize patient outcomes. Providing patients access to convenient and prompt care remains imperative during critical times, such as a global pandemic.<sup>8,9</sup>

### Virtual Care

Access to a provider who specializes in headache medicine is a barrier to effective health care in Canada and the United States. The lack of appropriate specialists has led to a rise in telemedicine to address headaches.<sup>10</sup> Telemedicine is a division of telehealth that involves the use of technology to direct appropriate health care resources. Telemedicine encompasses the use of audio and visual technology to provide virtual video consultations.<sup>11</sup> Technological advances have allowed telemedicine to evolve and improve accessibility for patients requiring medical care.<sup>12</sup> Virtual video visits enable face-to-face interaction like an in-office visit but allow the NP to see patients in their own comfortable space, eliminating the need for travel.<sup>5,12</sup> Virtual assessment allows NPs to observe the patients' living situation, thereby adding a new element to the therapeutic relationship.<sup>5,12</sup> The new health care technology requires that primary care NPs have the required education to conduct a virtual visit.

### The Virtual Visit

Virtual care is an evolving area of health care, allowing providers to access more patients in a shorter period of time.<sup>8</sup> To conduct a

thorough virtual physical examination, NPs must have access to a device with video capabilities and a proper Internet connection.<sup>13</sup> It is critical that NPs obtain consent and confirm the patient's identity before the start of a virtual visit.<sup>5,8,11</sup> The setting for the virtual encounter must include proper lighting, limit background distractions, and promote safety and confidentiality, including the identification of anyone present outside of the camera's view and anyone the patient would like to include when sharing sensitive information.<sup>5,13</sup> The patient should be instructed to face a light source for optimal viewing and to avoid distortion.<sup>14</sup> During a neurological exam, it can be helpful to have another person with the patient to assist with particular aspects of the exam, such as adjusting the camera to assess precise movements.<sup>8,15</sup> The flow of the conversation is also important; interruptions should be minimized or avoided, and the pace of the conversation should be maintained to allow appropriate thought processing.<sup>5</sup> Telemedicine allows providers to visualize and assess patients in their own comfortable space and expands health care to situations that were formerly inaccessible to contemporary medicine providers.<sup>12</sup> Other benefits of virtual video assessments include the ability to observe body language and physical symptoms, which cannot be accomplished through telephone visits.<sup>5</sup> In addition, telemedicine assessments allow patients to avoid new or different environments, which may reduce their chances of encountering common headache triggers, such as scents and intense lighting.<sup>9</sup>

### Challenges

A notable disadvantage of virtual visits is the physical disconnection between patient and provider, which can have a negative effect on the therapeutic relationship. There are several ways to enhance the therapeutic relationship during virtual encounters, including making eye contact, paying attention to facial expressions, monitoring body language, and smiling when appropriate. Proper eye contact entails being mindful to look into the camera periodically, rather than only at the screen.<sup>5</sup> It can also be more challenging to assess the acuity of virtual visits compared with those conducted in person.<sup>11</sup> Another current obstacle to virtual care is that there are currently no standardized tools for triaging patients assessed through telemedicine, which is a common practice used worldwide to sort patients and prioritize treatment in emergency departments.<sup>11,16</sup> Some patients will require an in-person assessment rather than a telemedicine consult, so NPs need to be familiar with medical red flags and how to recognize them on a virtual platform. In the case of headache assessment, NPs must be familiar with the clinical features of headaches and take special note of red flags identified in the patient's medical history and physical examination.

### Clinical Features of Headaches

Headaches can present as both primary and secondary diseases. Primary headaches can be divided into the following main categories: migraine headaches, tension headaches, trigeminal autonomic cephalgias (TACs), and other primary headache conditions. Secondary headaches present as a manifestation of another illness.<sup>6,7</sup> Migraines and tension headaches are the most common types of headaches encountered in primary care settings. Although tension headaches are more common, the debilitating nature of migraines highlights the need for accurate identification of headache disorders.<sup>17</sup> Many headache disorders overlap in symptomatology and require a well-informed understanding of the abnormal patterns or features that can signal a deeper issue.

### Migraine Headaches

Migraine headaches consist of two major types: migraine without aura and migraine with aura.<sup>7</sup> Migraine headaches are distinguished by their intensity, duration, and prodrome.<sup>18</sup> As per the ICHD-3, migraine without aura diagnostic criteria includes a headache lasting 4 to 72 hours if untreated or after failed treatment. Although both categories can be present, the headache must involve the presence of nausea and/or vomiting or the presence of photophobia and phonophobia. The diagnosis is further based on the presence of two of the following features: unilateral headache, pulsatile pain quality, moderate to severe intensity, and worsening symptoms related to physical activity or avoidance of the same. The cause of the headache should not be better explained by another diagnosis and requires a history of 5 similar attacks.<sup>7</sup> An aura is a neurological symptom disturbance, and if present, this should be the only time a neurological abnormality is noted within the patient's history and physical exam.<sup>6</sup> As per the ICHD-3, migraine with aura diagnostic criteria includes at least 1 aura symptom that is fully reversible related to vision, sensory disturbances, motor, speech and/or language, the brainstem, or the retina. In addition, at least 3 of the following aura features must be present: at least 1 aura manifestation spreads over 5 minutes, is unilateral, or is positive; there is a succession of at least 2 or more aura features; each aura symptom lasts between 5 and 60 minutes; and the aura is present with or within 60 minutes of the headache. The cause of the headache should not be related to another diagnosis and requires a history of 2 attacks satisfying the foregoing criteria.<sup>7</sup>

### Tension Headaches

Tension headaches are characterized by their specific location, intensity, and quality of pain.<sup>6</sup> As per the ICHD-3, common tension type headaches can be further distinguished as infrequent or frequent episodic tension-type headaches or chronic tension-type headaches to specify those who may require medical treatment.<sup>7</sup> Infrequent episodic tension-type headache criteria consist of 10 or more headaches less than once a month or 12 days per year lasting 30 minutes to 7 days per episode. The diagnosis is based on the presence of 2 of the following features: bilateral, nonpulsatile, mild to moderate pain, and not worsened by physical activity.<sup>7</sup> The pain is described as a nonsevere dull pressure with a holocranial distribution.<sup>6</sup> Nausea or vomiting should not occur, and although either photophobia and phonophobia may be present, they should not be present together. Frequent episodic tension-type headaches differ in frequency, with episodes occurring 12 or more times per year but fewer than 180 days per year and fulfilling the same diagnostic criteria. Chronic tension-type headaches vary in the persistent presence of 15 or more days per month or 180 or more days per year. The headache can become persistent, and mild nausea is possible; however, photophobia or phonophobia cannot be present simultaneously. All the preceding headaches should not be better explained by another cause.<sup>7</sup> Because of the lack of symptom specificity for tension headaches, NPs should assess for features of secondary headaches that can present with identical qualities. The physical examination should also assess for neurological abnormalities, which can guide diagnosis and identify the need for further testing.<sup>19</sup>

### Trigeminal Autonomic Cephalgias

Trigeminal autonomic cephalgias (TACs) are a type of headache defined by the location and duration of pain as well as the presence of ipsilateral autonomic symptoms.<sup>6</sup> Typical features of TACs include unilateral conjunctival injection, rhinorrhea, congestion,

orbital pain, lacrimation, or ptosis that is ipsilateral to the pain location.<sup>6,20</sup> Although there are many types of TACs, the duration of an attack of severe pain typically lasts a few seconds to 3 hours and may occur several times per day, with cluster being the most common.<sup>6</sup> The ICHD-3 defines cluster headaches as severe unilateral orbital, supraorbital, and/or temporal pain that lasts from 15 to 180 minutes untreated. The presence of at least 1 of the following signs or symptoms is also indicative of TAC: ipsilateral conjunctival injection, lacrimation, rhinorrhea, nasal congestion, eyelid edema, facial sweating, miosis, ptosis, or the patient feeling restless or agitated. TACs are clustered in a pattern of once every other day, up to 8 per day with no other appropriate diagnosis. A diagnosis requires 5 or more attacks meeting the preceding criteria.<sup>7</sup>

### Additional Screening Tools

The diagnosis of headache conditions can be challenging due to the overlapping nature of symptoms. When conducting a virtual neurological history and exam, screening tools can help support an accurate diagnosis. For example, cluster headaches are the most common subclass of TACs. Parakramaweera et al developed the Erwin Test for Cluster Headache, which is a 3-question diagnostic screening tool that has a high sensitivity and specificity for diagnosing cluster headaches.<sup>21</sup> The ID Migraine Screener is a tool that also consists of 3 self-administered questions targeting nausea, photophobia, and disability related to migraines to improve detection in primary care.<sup>22</sup> In a virtual setting, these types of screening tools can streamline history-taking and help guide the physical exam.

### The Neurological Exam

The scope of the neurological exam is directed by comprehensive history-taking.<sup>8</sup> The SNOOP4 (systemic symptoms, neurological signs/symptoms, onset, older age of onset, pattern/prior headache history) mnemonic can be USING during history-taking to inquire about red flag conditions.<sup>23</sup> NPs need to assess the patient's history for the presence of any headache disorder red flags, such as being aged 50 years or older at the onset of symptoms;

developing the most acute headache in their lifetime; neurological changes; experiencing pain aggravated by activity or positional changes; observing changes in usual patterns of headache; and having a history of trauma, infection, pregnancy, or malignancy.<sup>17,23</sup> It is essential that the physical examination also assess for indications of a secondary cause of headaches, which would warrant immediate intervention.<sup>17</sup> Many secondary causes of headaches can be detected based on neurological changes observed during a thorough physical screening.<sup>20</sup>

### Virtual Neurological Screening

The virtual neurological exam for headaches requires examination of key areas that evaluate for any changes from the patient's baseline, including vital signs, a mental status exam, a cranial nerve (CN) exam, a motor exam, and sensory testing.<sup>8,11</sup> Vital signs, including blood pressure, can be obtained by using approved home devices, including wearable technology that can be recorded and shared.<sup>12</sup> A mental status evaluation is completed by asking the patient about time and place while they look into the camera, avoiding any external prompts within their setting. The patient's speech can be assessed for fluency during the virtual exam. In addition, the relevance of the patient's answers helps identify the presence of any confusion. Memory changes can be screened by inquiring about recent events, and attention can be examined by requesting that the patient recite the months of the year in backward order.<sup>8</sup> Once the patient's mental condition is assessed for concerning features, NPs can begin a comprehensive CN exam.

Cranial nerve I (CNI) can be screened through history-taking by inquiring about any changes in smell or through self-assessment, whereby the patient occludes 1 nostril at a time and smells ordinary household items to observe any difficulties detecting scent.<sup>8,24,25</sup> Assessment of CNII begins with examination of the eyes and assessment of visual acuity; this is not easy to accomplish during a virtual visit (see Table 1). Subjective changes in vision, such as diplopia, can be detected through history-taking. Alternatively, the NP may procure Snellen charts from a reputable online source that the patient can view themselves, or charts can be provided to the patient before the assessment.<sup>8,24</sup> An alternative

**Table 1**  
The Virtual Cranial Nerve Exam for the Nurse Practitioner

Cranial Nerve	Virtual Neurological Assessment <sup>8,13,14,24,25</sup>
<b>CNI</b>	<ul style="list-style-type: none"> <li>Defer testing or have the patient use common household items to assess for changes in smell</li> </ul>
<b>CNII</b>	<ul style="list-style-type: none"> <li>Assess pupillary response, including size and symmetry, by instructing the patient to move toward the screen while maintaining a central position</li> <li>Assess pupillary light reflex by informing the patient to dim the lighting in the room and then shine a light source, such as a cellphone flashlight, into each eye</li> <li>Assess visual fields by raising fingers to the camera and asking the patient to count the number of fingers, alternating between all 4 quadrants, to detect any visual limitation</li> <li>To increase the sensitivity of the test, repeat using a red object as opposed to fingers to detect red desaturation</li> </ul>
<b>CNIII, IV, VI</b>	<ul style="list-style-type: none"> <li>Assess the 6 cardinal fields of gaze by having the patient move their finger in the shape of an H and follow the finger with their gaze without moving their head; have the patient pause momentarily at each endpoint to test for nystagmus, deviation, and ptosis</li> <li>Assess saccades by directing the patient's gaze toward the edges of the virtual screen, both horizontally and vertically</li> <li>Test accommodation by instructing the patient to follow their finger with both eyes while moving it toward their nose, and take note of coordination</li> </ul>
<b>CNV</b>	<ul style="list-style-type: none"> <li>Instruct the patient to test the strength of their jaw by placing their closed fist under their chin and opening their mouth against resistance, then moving their jaw side to side against the same resistance; have the patient report any weakness</li> <li>Ask the patient to clench and release their jaw to assess for deviation</li> <li>Test sensory function by having the patient check their own sensation; have them apply a soft or cold object to the forehead, cheek, and lower lip to detect any changes</li> </ul>
<b>CNVII</b>	<ul style="list-style-type: none"> <li>Observe the patient's face for symmetry at rest</li> <li>Ask the patient to lift their eyebrows, close their eyes tightly, smile while showing their teeth, and puff out both cheeks to detect asymmetry</li> </ul>
<b>CNVIII</b>	<ul style="list-style-type: none"> <li>Assess hearing by having the patient rub their fingers in front of each ear to detect unilateral discrepancies</li> </ul>
<b>CNIX, X</b>	<ul style="list-style-type: none"> <li>Listen for voice changes, including hoarseness</li> <li>Take note of any visible swallowing difficulties</li> <li>Assess for symmetric palate elevation by asking the patient to open their mouth wide and vocalize sound</li> </ul>
<b>CNXI</b>	<ul style="list-style-type: none"> <li>Instruct the patient to raise their shoulders and then look side to side to assess muscle engagement</li> </ul>
<b>CNXII</b>	<ul style="list-style-type: none"> <li>Request the patient protrude their tongue to assess for deviation, fasciculations, or visible atrophy</li> </ul>

virtual option is to request that the patient have a publication with small print, such as a newspaper, available to read with 1 eye, while covering their other eye. Glasses should be left on during the examination.<sup>24</sup> To assess pupillary response, the patient needs to ensure the camera is at eye level and that they can move toward the screen while maintaining a central position. The NP can then observe the size and symmetry of each pupil for any abnormalities. At this point, the room should be dimmed while the patient shines a light source, such as a cellphone flashlight, into each eye to check the pupillary light reflex. The patient may choose to have a support person to assist with this portion of the assessment. An alternative option is to have the patient simply close and then open their eyes, allowing the NP to take note of the symmetric constriction of the pupils upon opening the eyes.<sup>13,14</sup>

The visual field exam requires that the patient be capable of covering each eye in succession while focusing on the NP's nose. While 1 eye is covered, the patient should be able to see the NP's nose and mouth in their entirety, allowing the NP to screen for any central scotoma. The NP can then proceed with raising fingers and asking the patient to count the number of fingers, alternating through all 4 quadrants of the visual field to detect any limitations.<sup>14</sup> To increase the sensitivity of this test, the NP can repeat the test using a red object, rather than their own fingers, to detect red desaturation.<sup>13,14</sup> For patients who are already aware of limitations in their visual field, this portion of the examination should be completed by asking the patient to draw the area of discrepancy on a plain piece of paper that is then held in front of the affected eye(s).<sup>14</sup>

CNs III, IV, and VI are evaluated through extraocular movements, which can be directed and assessed on camera, beginning with the 6 cardinal fields of gaze.<sup>12</sup> The patient should be instructed to move 1 finger in the shape of an H and follow this finger with their eyes while keeping their head still.<sup>24</sup> The patient should pause momentarily at each endpoint, so the NP can assess for nystagmus, proper eye alignment or deviation, and ptosis. If abnormalities are observed, the NP needs to document whether they are bilateral and take note of the direction of the discrepancy.<sup>8,13,24</sup> The assessment of saccades involves directing the patient's gaze toward the edge of the virtual screen, both horizontally and vertically.<sup>8,13</sup> Accommodation can be tested by having the patient extend 1 arm and raise their index finger to eye level. The patient is then instructed to follow their finger with both eyes while moving it toward their nose; during this test, the NP takes note of eye coordination.<sup>24</sup>

The following portion of the neurological exam involves the face, neck, and shoulders. To test the motor function of CNV, the patient should be instructed to test the strength of their jaw by placing their closed fist under their chin and opening their mouth against resistance, then moving their jaw side to side against the same resistance; the movements should feel strong and even.<sup>24</sup> The patient can then be asked to clench and release their jaw while the NP assesses for deviations.<sup>8,13</sup> The sensory function of CNV can be tested virtually by demonstrating the areas of its innervation and having the patient test sensation bilaterally in these areas, using a soft or cold object. The areas that need to be tested include the forehead, cheek, and lower lip.<sup>8,24</sup>

CNVII is assessed virtually by observing for facial asymmetry. The NP first observes the patient's face at rest, followed by having them lift their eyebrows, close their eyes tightly, smile while showing their teeth, and puff out both cheeks. Patients should also be asked about any changes in taste they have noted.<sup>8,13,24</sup> Assessment of unilateral hearing changes associated with CNVIII dysfunction is limited during the virtual exam because the Weber and Rinne tests are needed and can only be conducted in person. The NP can inquire about changes in hearing during history-taking and observe for hearing difficulties during the exam. Either the patient or support person can test for unilateral changes by rubbing

their fingers outside of each ear, one at a time, to evaluate for discrepancies in hearing.<sup>8,13,24</sup> Assessment of CNIX and CNX involves listening for changes in the patient's voice, particularly hoarseness, as well as any swallowing issues. The symmetry of palate elevation can be observed on video by having the patient open their mouth and vocalize sound.<sup>8,24</sup> Evaluation of CNXI requires that the patient's shoulders be uncovered and visible on camera. The NP observes for muscle engagement as the patient raises their shoulders and looks side to side; unfortunately, muscle power cannot be properly assessed on a virtual exam.<sup>8</sup> Finally, CNXII requires that the patient protrude their tongue, so that the NP can evaluate for any deviation, fasciculations, or atrophy; the power of the muscles cannot be reliably assessed on video.<sup>24</sup>

Additional neurological assessments that should be completed during a headache exam include examinations of motor and sensory function, coordination, reflexes, and gait. Virtual motor testing begins by inspecting for abnormal movements at rest, muscle fasciculations, and muscle proportions, which are best observed if the patient is wearing shorts and short sleeves, so their extremities are visible.<sup>8</sup> Although tone cannot be assessed on a virtual exam, power can be assessed relative to gravity as opposed to using a traditional grading scale. Upper extremity power is tested by having the patient perform shoulder abduction, elbow extension and flexion, wrist and finger extension, and wrist and finger flexion while holding a weighted object. Lower extremity power is assessed by directing the patient to cross their arms and then stand from a sitting position, followed by both heel and toe raises. When the patient is able to complete these exercises, their strength is greater than antigravity.<sup>8,26</sup> Sensory testing of the dermatomes is not reliably performed on a virtual platform.<sup>8</sup> Coordination is assessed by using rapid alternating movements and heel-to-shin testing; this test is limited by the fact that the patient's legs must be raised high enough to be seen on camera.<sup>8</sup> Deep tendon reflexes are challenging to elicit if the patient is alone during the consultation and may need to be deferred; a support person can assist, if available, or the patient can be directed to test their patellar and biceps reflexes bilaterally, using their fingertips to evaluate upper and lower extremity responses.<sup>26</sup> Finally, assessment of the patient's gait requires that the NP observe the patient during regular ambulation and tandem gait. The patient needs to walk from one side of the room to the other, then away and toward the camera, to provide a complete view of their gait.<sup>8</sup> In the absence of abnormal findings, neurological imaging is rarely needed; however, treatment may still be indicated.<sup>17</sup>

### Virtual Red Flags

NPs can use virtual examinations to assess patients for headache-related symptoms that warrant further investigation or workup.<sup>20</sup> In the inpatient setting, those presenting with headaches often undergo routine diagnostic imaging.<sup>27</sup> In the virtual setting, diagnostics are not readily available. Therefore, it is critical that NPs recognize acute changes on the virtual exam to ensure proper diagnosis and referral to inpatient care when necessary, where imagining can be considered if symptoms are not consistent with a primary headache or abnormalities are noted during the history and physical.<sup>27,28</sup>

Although NPs can identify major red flags through comprehensive history-taking, it can be more challenging to detect red flags on the virtual neurological exam. Common physical red flags that NPs may encounter include fever, a neurological nerve deficit, and papilledema.<sup>20</sup> Testing of body temperature is achievable in a home setting and easily shared via virtual assessment.<sup>12</sup> In isolation of other symptoms, fever does not constitute a red flag when it accompanies a headache. However, if the patient exhibits further

systemic issues, such as neck stiffness, an altered level of consciousness, or a neurological abnormality, the NP should be suspicious of a neuroinfection; in this case, it would be prudent to provide an emergent referral for further investigation to rule out the differential diagnosis of meningitis, encephalitis, or abscess.<sup>20</sup>

A major barrier encountered during a virtual neurological exam is the inability to perform a funduscopy. The role of funduscopy is to assess for papilledema, which can lead to vision loss and is a common indicator of an intracranial anomaly associated with headache. Therefore, patients presenting with a new onset of vision changes and an associated headache should be referred for an in-person assessment.<sup>8,20</sup> Furthermore, any headache that presents with a history of repeated pain on the same side of the head warrants neuroimaging to exclude the differential diagnosis of an intracranial lesion on the affected side.<sup>27</sup>

Auras are the most common neurological abnormality associated with headaches. Although auras present differently in each patient, they follow a similar course, often beginning before the onset of the headache and resolving as it dissipates but can present after the headache pain begins or persist into the headache phase.<sup>6,7</sup> Conversely, a sudden onset of neurological deficits is suggestive of a differential diagnosis of ischemia and is a medical emergency.<sup>6</sup> Any neurological deficits, other than auras, identified during headache evaluation can be indicative of a stroke and always require additional workup.<sup>20</sup> It is critical that the NP understand how to administer a virtual neurological exam to detect neurological red flags and mitigate negative outcomes. If concerns exist regarding the accuracy of the virtual diagnostic tests performed, the patient should be referred for further examination.

### The Role of the NP

An essential part of the virtual visit is for the NP to maintain a therapeutic relationship with each patient.<sup>5</sup> NPs are uniquely positioned to use and hone their interpersonal skills through years of patient interaction. Strong interpersonal skills allow NPs to best support their patients within a constantly evolving health care system. In the United States, there is a shortage of physicians specializing in headache care.<sup>9</sup> Long wait times for headache management specialists pose a challenge for patients to access appropriate care for headache disorders. The prevalence of migraines and severe headaches among disadvantaged socioeconomic classes makes them more likely to suffer from the adverse effects of migraines compared with those with more privileged socioeconomic status.<sup>4</sup> This inequity is related to the fact that patients with lower socioeconomic status tend to have reduced access to health care, increased exposure to social settings with headache-provoking stimuli, and a reduced ability to manage the prohibitive costs of headache treatments.<sup>4</sup> In the future, NPs could use telemedicine to increase the accessibility of headache care for patients from all socioeconomic levels. As new headache treatments emerge, NPs need to remain educated and informed about available options, so they can optimize their patients' health outcomes.

### Conclusion

Headache disorders are among the top disabling conditions worldwide and one of the most common complaints among patients seeking primary care.<sup>1,3</sup> Headache disorders have been designated as a leading global health concern that affects patients' quality of life. Since the COVID-19 pandemic, primary virtual care is more common, yet there is a need to provide virtual headache assessments to diagnose and manage the problem. The proficient use of telemedicine can improve the delivery of health care services, and with headache disorders being a common complaint,

virtual assessment tools are needed. More specifically, NPs must adapt neurological exams to the virtual space for primary care, given the current uptake of virtual services or a future pandemic. It is imperative that NPs develop and incorporate virtual neurological assessments for headache disorders in a timelier fashion during future global pandemics.

### CRedit authorship contribution statement

**Britt Ludkiewicz:** Writing – original draft. **Elsie Duff:** Writing – review & editing.

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