#### **Online Survey**

### Point To Area of Pain: A Clinically Useful Telehealth Physical Exam Technique for Focal Nociceptive and Neuropathic Pain

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**Background:** Chronic pain is a leading cause of disease burden and disability globally. The COVID-19 pandemic catalyzed a major paradigm shift in health care delivery with the universal adoption of telemedicine. Telehealth physical examination is particularly challenging and little guidance is available on this topic.

**Objectives:** We attempt to describe the Point To the Area of Pain (PTAP) test and establish a consensus regarding its utility for musculoskeletal examination (MSK) via telehealth.

Study Design: The authors drafted an online survey.

**Setting:** The survey was sent to physicians and nurse practitioners within the authors' respective departments and institutions who routinely use telemedicine to treat pain

**Methods:** Respondents (n = 61) were asked about their primary specialty, comfort level in evaluating patients in pain, use of the PTAP test and its perceived clinical relevance to patient management, and other relevant questions.

**Results:** Respondents were predominantly trained in Physiatry (47.5%), Anesthesiology (23%), Neurology (13.1%) and Family Medicine (11.5%); 67.2% of providers treat pain related diseases > 75% of the time; 50.8% of respondents were "somewhat comfortable" at performing a virtual MSK exam and 29.5% were "not comfortable"; 65.5% utilize the PTAP test and 88.5% agree or strongly agree that this test provides extrinsic clinically relevant information.

Limitations: The relatively small number of respondents.

**Conclusion:** PTAP tests should not replace the standard accepted in-person or virtual physical examination in practice, but in the absence of a hands-on exam, the PTAP test is a clear and concise test that can easily be performed in conjunction with other techniques via telehealth, and in the context of assessing pain provides useful clinical information that can help guide medical decision making.

Key words: Chronic pain, COVID-19, digital health, physical examination, telemedicine

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hronic pain is an extremely prevalent disease, with symptoms affecting 50 million people in the United States (US) (1). It remains one of the most common reasons adults seek medical attention (2). The Global Burden of Disease Study in 2016 confirmed that pain and pain-related diseases are the leading cause of disability and disease burden globally (3,4). Chronic pain costs an estimated \$635 billion annually in the US and an additional \$299 billion in lost productivity (5). Chronic pain is highly correlated with mental health conditions (6), diminished quality of life (7), poor perceived health (8), and decreased life expectancy (9). Despite the need for expert chronic pain care, access to pain specialists is limited by supply and demand, as well as geography. There are only approximately 7,000 physicians in North America who are subspecialty trained in Pain Medicine and most are located in urban areas (10). Over the last decade (preceding the COVID-19 pandemic) telemedicine has seen rapid expansion in the US health care system (4). Companies such as Teladoc and MDLive provide telehealth enabled primary care services, while others offer direct-to-consumer specialty medical services including, mens and womens reproductive health (Ro, Hims, Nurx), dermatologic care (Curology, MDacne), and mental health care (Ginger, Talkspace, Cerebral). Telemedicine for chronic pain care is a potentially attractive space where technology can be leveraged to improve specialty care access, enable scheduling flexibility, decrease overhead costs, reduce wait times and improve overall patient satisfaction.

The COVID-19 pandemic shook the US and global health care systems, resulting in devastating loss of life, morbidity, and astronomical social and economic consequences (11). Despite this, the COVID-19 pandemic has also served as a major catalyst for the current unfolding "digital health care revolution." Telemedicine, however, is far from perfect and can be challenging for both patients and providers to navigate. Diminished provider-patient relationship, loss of nonverbal cues, radically different physical examination techniques, technological barriers, and potential privacy issues are only a few such examples. Challenges aside, with proper training and education, telemedicine has a broad clinical scope, particularly in the practice of chronic pain medicine where large portions of clinical encounters focus on history taking, treatment planning, long term management, education, prevention, and psychosocial components, all of which are generally telehealth friendly.

Targeted physical examination is an important component in chronic pain evaluation, as it can be used to develop a differential diagnosis, identify red flag symptoms, determine the need for further diagnostic testing, and may influence treatment decisions (12). The expedited shift of clinical care to telehealth services has rendered the physical examination one of the most challenging and limited portions of the clinical encounter. Safety concerns, instructing patients on self-performing maneuvers, camera and body positioning, setting, attire, and even screen resolution can be barriers to proper physical examination and hinder diagnostic accuracy. With the continued expansion of telemedicine, practitioners must not only rely heavily on a patient's subjectivity and accuracy in describing symptomatology, but also their ability to follow instructions by video to obtain a proper physical examination. In describing their symptoms, patients cannot always be accurate when characterizing pain of an afflicted limb, muscle, or dermatome. For example, shoulder and upper trapezius pain are both often referred to as neck pain. Lateral thigh pain is often referred to as hip pain. Furthermore, subtle nuances, such as the difference between lumbar paraspinal muscles, facet joint, and sacroiliac joints, usually cannot be ascertained. To address some of these issues, Wahezi et al (13), provides guidance on best practice musculoskeletal examination for telemedicine encounters.

In the context of assessing pain, the simplest, yet most direct approach may still prove to be the most effective. The Fortin finger test is one such example (14) and much like it, having a patient localize pain throughout the body by pointing to it during a telemedicine visit, while seemingly antiquated, provides a clear and concise approach to a virtual examination of a patient in pain. Herein, the authors seek to describe the Point To the Area of Pain (PTAP) test, establish a consensus regarding its utility and validity, and discuss how the PTAP test can provide data to improve the accuracy, quality, and outcomes in pain medicine telehealth.

#### **M**ETHODS

We conducted a 10-question survey, powered by Google Forms, of health care professionals (MD, DO, NP) from a variety of specialties that regularly practice telemedicine, regarding their perceived utility of the PTAP test. The survey instrument was developed by the corresponding author (JRH) and the co-authors. The survey was circulated to all physicians and nurse practitioners within the authors' respective departments. Survey participation was completely voluntary and respondents were provided with sufficient information to make an informed decision regarding participation. We did not re-contact the non-responders. Email addresses of respondents were collected to ensure no duplicate submissions were received, but responses were completely de-identified. Given the minimal risk research design, informed consent was not required. Data results from the survey were collected, tabulated and summarized using Microsoft Excel. This study was approved as an exempt protocol with a waiver of informed consent by the Albert Einstein College of Medicine IRB. Respondents answered the questions listed in Table 1.

#### RESULTS

One hundred potential respondents received an email requesting voluntary participation in the survey. The survey accepted responses during a 2-week period (February 8 to February 22, 2021). Sixty-one responses were received; all 61 respondents answered all 10 questions.

#### Demographics

All respondents were medical practitioners (MD/ DO/NP) from the US with a varying range of clinical experience.

#### Questions

## Question 1: What is your primary medical specialty?

Responses were received from practitioners across 7 medical specialties including, Physical Medicine and Rehabilitation (47.5%; n = 29), Anesthesiology (23%; n = 14), Neurology (13.1%; n = 8), Family Medicine (11.5%; n = 7), Orthopedic Surgery (1.6%, n = 1), Neurosurgery (1.6%; n = 1) and Oncology (1.6%; n = 1).

## Question 2: How long have you been practicing in your primary medical specialty?

Forty-one percent of respondents (n = 25) had less than 5 years of clinical experience in their respective primary medical specialty. The remaining 59% (n = 36) had > 5 years clinical experience, specifically 26.2% (n = 16) had 5-10 years, 13% (n = 8) had 10-20 years and 19.7% (n = 12) had > 20 years of clinical experience.

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Table 1. Survey	questionnaire with	response options.

Question	Response Options
What is your primary medical specialty?	Internal Medicine Family Medicine Rehab Medicine Neurology Anesthesiology Orthopedic Surgery Neurosurgery Other
How long have you been practicing in your medical specialty?	< 5 years 5-10 years 10-20 years > 20 years
What percentage of patients in your clinic present with acute and/or chronic pain?	< 25% 25-50% 50-75% > 75%
Approximately what percentage of your clinical encounters are conducted via video telemedicine post COVID-19?	< 25% 25-50% 50-75% 75-100%
Has your use of telemedicine increased or decreased over the last 6 months (August 2020 - January 2021)?	Increased Decreased Unchanged
How would you rate your overall ability to evaluate and treat a patient in pain via Telehealth?	Excellent Good Average Fair Poor
How comfortable are you at performing a virtual musculoskeletal exam?	Very comfortable Somewhat comfortable Not comfortable
During your physical exam how often do you ask your patient to point to area of pain (PTAP)?	Never < 25% 25-50% 51-75% > 75%
Do you think the PTAP test provides extrinsic clinically relevant information?	Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree
Why do you think PTAP test is useful? (Select all that apply)	To identify a specific area of interest ie: the location or site of pain To perform follow up targeted physical exam maneuvers To develop a differential diagnosis For treatment planning I do not think the PTAP is a useful test Other (option to add in)

#### **Pain Experience**

## Question 3: What percentage of patients in your clinic present with acute and/or chronic pain?

Sixty-seven-point-two percent of respondents (n = 41) reported > 75% of the patients they treat in clinic present with acute or chronic pain; 14.8% (n = 9) reported 50-75%, 11.5% (n = 7) reported 25-50% and 6.6% (n = 4) reported < 25%.

#### Telemedicine

## *Question 4: Approximately what percentage of your clinical encounters are conducted via video telemedicine post COVID-19?*

Forty-four-point-three percent of respondents (n = 27) conduct < 25% of encounters via telemedicine. Only 6.6% (n = 4) of respondents report 75-100%, while 34.4% (n = 21) conduct 25-50% and 14.8% (n = 9) conduct 50-75% of current visits via telemedicine, respectively.

#### Question 5: Has your use of telemedicine increased or decreased over the last 6 months (August 2020-January 2021)?

Sixty-two-point-three percent of respondents (n = 38) reported an increase in telemedicine encounters,

24.6% (n = 15) reported a decrease in telemedicine visits and 13.1% (n = 8) reported steady or unchanged number of visits.

# *Question 6: How would you rate your overall ability to evaluate and treat a patient in pain via Telehealth (excellent, good, average, fair, poor)?*

Forty-three-point-six percent of respondents (n = 26) responded "good" and 9.8% (n = 6) "excellent"; 32.8% (n = 20) responded average and 16.8% (n = 10) fair. No respondents answered "poor."

#### Question 7: How comfortable are you performing a virtual musculoskeletal exam (very comfortable, somewhat comfortable and not comfortable)?

Fifty-point-eight percent of respondents (n = 31) were "somewhat comfortable" and 29.5% (n = 18) were "not comfortable"; 21.3% (n = 18) were very comfortable (Fig. 1).

#### **PTAP Test**

#### Question 8: During your physical exam how often do you ask your patient to point to area of pain (PTAP)?

The majority of respondents (65.6%, n = 40) per-



form this test during > 75% of telehealth visits. The remaining 13.1% (n = 8) ask this question during 25-50% of visits, 9.8% (n = 6) < 25%, and 6.6% (n = 4) during 51-75% of visits; 4.9% (n = 3) do not routinely ask patients to point to area of pain (Fig. 2).

## Question 9: Do you think the PTAP test provides extrinsic clinically relevant information?

The majority (88.5%) of respondents "strongly agree" (47.5%; n = 29) or "agree" (41%; n = 25). The remaining 11.5% (n = 7) neither agree nor disagree. No respondent disagreed or strongly disagreed (Fig. 3).

## Question 10: Why do you think the PTAP test is useful (select multiple)?

Many respondents (95.1%, n = 58) selected "To identify the specific area of interest i.e.: the location or pain site" 88.5% (n = 54) responded, "To develop a differential diagnosis"; 78.7% (n = 48) responded, "To perform follow up targeted physical exam maneuvers"; 63.9% (n = 39) responded, "For treatment planning"; 1.6% (n = 1) suggested, "Can assist to determine if patient needs in person evaluation"; 1.6% (n = 1) responded, "I do not think PTAP is useful."

The authors present a table with images of PTAP test and a provide a non-exhaustive differential diag-

nosis associated with the specific body part indicated (Table 2).

#### DISCUSSION

We surveyed health care professionals (MD, DO, NP) from a variety of specialties in hopes of gaining perspective on the PTAP test and its perceived clinical relevance amongst medical experts. Respondents (n = 61) were mostly physicians and predominantly Physiatry trained (47.5%), but some included specialties such as, Anesthesiology (23%), Neurology (13.1%), Family medicine (11.5%), Orthopedic Surgery (1.6%), Neurosurgery (1.6%), and Oncology (1.6%). Most respondents (59%) had more than 5 years of clinical experience.

Pain remains a highly prevalent and disabling condition in the community and is one of the more common reasons a patient may see a provider among the specialties we surveyed. In fact, over two-thirds of our respondents (67.2%) reported that > 75% of the patients they treated in the clinic presented with symptoms of acute or chronic pain in addition to many seen via telemedicine. In surveying these providers on their transition to telemedicine, the majority of respondents (62.3%) reported an increase in telemedicine encounters from August 2020 to January 2021, despite being at the tail end of the first COVID-19 wave. This





is particularly interesting, as evidence suggests that telemedicine will outlive the current pandemic and is likely here to stay.

Despite the high prevalence of telemedicine use during the pandemic, when asked how comfortable providers were in performing a virtual MSK exam, 50.8% responded "somewhat comfortable" and 29.5% were "not comfortable." Only about one in five providers (21.3%) were "very comfortable" with performing a virtual musculoskeletal exam. This finding suggests that providers are still lacking the necessary tools and practice guidelines to conduct telemedicine evaluations in good confidence.

An important component of telehealth visits is determining the location of pain which helps guide diagnostic and therapeutic interventions. When asked how often providers determine pain locales by having a patient point to the pain affected area, the vast majority of respondents (65.6%) already utilized this strategy in > 75% of telehealth visits. The overwhelming majority of respondents "strongly agreed" or "agreed" (88.5%) that the PTAP provided extrinsically clinically relevant information. The most common reasons were that this was a concise, timely, and easy way to determine a specific location of interest and helped providers develop a differential diagnosis. Of the respondents included, 78.7% of providers believe that using this test helped to determine their next steps within the clinical encounter, such as performing targeted physical exam maneuvers to further elicit information about the exact type and etiology of the pain. This information in turn can help guide treatment planning and whether there is a need for an in-person evaluation.

#### Limitations

The authors would like to point out several limitations to this study, including the relatively small sample size of 61 respondents, of whom the majority were trained in physical medicine and rehabilitation, the subjective nature of the study questionnaire, and the authors inability to assess the reliability of the questionnaire.

#### **C**ONCLUSIONS

Accelerated by the COVID-19 pandemic, telemedicine has revolutionized health care delivery to chronic pain sufferers by providing a safe, convenient, and effective means for diagnosis and treatment of disease. Telemedicine is not without its limitations, but is especially useful for serving those with reduced geographic access to high quality health care and limited mobility. Procedural pain medicine is not amenable to telehealth per se, but interventional treatments can certainly be scheduled via telemedicine. Recently, Shaparin et al (15), were the first to use video telemedicine to help guide a patient through the application of an 8% capsaicin patch for the treatment of post-herpetic neuralgia, a procedure previously only ever performed in office under the direct supervision of a qualified health care provider.

Body Part	Specific Location	Picture	Differential Diagnosis
Neck	Below occiput above shoulder		Arthropathic: Cervical facet Myofascial: Cervical paraspinals
	Between neck base and shoulder above scapular		Myofascial: Upper trapezius
Shoulder	Anterior middle shoulder		Arthropathic: Glenohumeral or acromioclavicular Myofascial: Capsulitis, biceps tendinitis
	Anterior superior shoulder		Arthropathic: Glenohumeral or acromioclavicular Myofascial: Upper trapezius, supraspinatus tendonitis Bursitis: Subacromial
	Lateral shoulder		Arthropathic: Acromioclavicular Myofascial: biceps tendinitis Bursitis: Subacromial, sub deltoid

Table 2. Examples of PTAP test as they relate to various body parts along with non-exhaustive list of differential diagnoses which may be applicable to a wide range of health care professionals including physicians, nurse practitioners and physician assistants with or without advanced training in musculoskeletal disorders.

Body Part	Specific Location	Picture	Differential Diagnosis
	Posterior shoulder		Arthropathic: Glenohumeral or acromioclavicular Myofascial: Upper and middle trapezius, periscapular, supraspinatus tendonitis Bursitis: Subacromial
Upper Back	Middle		Arthropathic: Cervical/thoracic facet Myofascial: Thoracic paraspinal, periscapular
	Paraspinal between scapula and spine		Arthropathic: Thoracic facet Myofascial: Thoracic paraspinal, periscapular, middle/lower traps Referred: Shoulder
Lower back	Above the buttock		Arthropathic: Lumbar facet, discogenic Myofascial: Lumbar paraspinal, quadratus lumborum Referred: Sacroiliac joint, hip arthropathy
	Below the buttock		Arthropathic: Sacroiliac joint, lumbar facet, discogenic Myofascial: Lumbar paraspinal, gluteal, quadratus lumborum Bursitis: Ischial bursitis Referred: Hip

Table 2 (cont.). Examples of PTAP test as they relate to various body parts along with non-exhaustive list of differential diagnoses which may be applicable to a wide range of health care professionals including physicians, nurse practitioners and physician assistants with or without advanced training in musculoskeletal disorders.

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Body Part	Specific Location	Picture	Differential Diagnosis
Нір	Groin		Arthropathic: Hip Referred: Sacroiliac joint
	Lateral thigh		Myofascial: Gluteal Bursitis: Greater trochanteric
Knee	Center anterior		Arthropathic: Knee, patellofemoral Myofascial: Patellar tendinitis Bursitis: Prepatellar bursitis, infrapatellar bursitis
	Lateral joint line		Arthropathic: Knee, lateral meniscus Myofascial: Iliotibial band tendinitis
	Medial joint line		Arthropathic: Knee, medial meniscus Bursitis: Pes anserine

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Body Part	Specific Location	Picture	Differential Diagnosis
	Posterior joint line		Arthropathic: Knee Bursitis: Painful baker's cyst

Table 2 (cont.). Examples of PTAP test as they relate to various body parts along with non-exhaustive list of differential diagnoses which may be applicable to a wide range of health care professionals including physicians, nurse practitioners and physician assistants with or without advanced training in musculoskeletal disorders.

The near-term future of virtual pain management will likely involve technologies beyond video based or asynchronous telehealth visits. Virtual reality (VR) is currently being used, outside of pain management, for surgical planning, patient education, medical training and research purposes (16). VR can manage chronic pain symptoms and has shown to reduce pain intensity in patients with complex regional pain syndrome and fibromyalgia (17). Other technological advances in pain medicine include mobile app-based data collection that can be used for self-monitoring or preventative purposes in pain management (18,19). Furthermore, telehealth services can help to facilitate physical therapy, deliver public health services, and provide education on nutrition, exercise, or provide psychological services to help patients cope with chronic pain symptoms.

Acute and chronic pain is a prevalent and debilitating disease symptom affecting 1 in 5 Americans and millions worldwide. A broad range of medical specialists are responsible for evaluating and treating patients in pain, many of which are frequently practicing via telemedicine. More research, clinical consensus and guidelines on best practice virtual physical examination is needed to better understand and serve the chronic pain patient population. Providers also need to be educated on how to best identify red flags during a telemedicine visit and when to refer for in-person or emergency room evaluations when faced with uncertainty. Specifically, in regard to telemedicine, but also broadly speaking, the PTAP test for focal pain appears to be ubiquitously accepted, frequently utilized, and a highly effective physical exam technique that can help clinicians formulate a differential diagnosis and devise an appropriate treatment plan. PTAP test is only one of many important physical exam techniques that can be utilized in the assessment of chronic pain, and therefore should not replace other standard accepted in-person or virtual exam techniques. In instances where live in-person evaluations are not possible, such as during the COVID-19 pandemic or for distance care in medically underserved areas, PTAP along with existing virtual physical exam techniques may also be useful for initial patient evaluations. A pain diagnosis should only be made by medical professionals who have been trained in the contextual importance of the PTAP test in light of a comprehensive patient evaluation.

The visuals provided can enhance the information obtained from a video visit and help clinicians formulate appropriate differential diagnoses and therapeutic regimens (Table 2).

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