

## Online Questionnaire

## Telemedicine Implementation in Pain Medicine: A Survey Evaluation of Pain Medicine Practices in Spring 2020

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**Background:** The COVID-19 pandemic resulted in a novel challenge for healthcare delivery and implementation in the United States (US) in 2020 and beyond. Telemedicine arose as a significant and effective medium for safe and efficacious physician-patient interactions. Prior to the COVID-19 pandemic, telemedicine while available, had infrequently been utilized in pain medicine practices due to difficulties with reimbursement, the learning curve associated with new technology usage, and the need for new logistical systems in place to implement telemedicine effectively. Given the unique constraints on the healthcare system during the COVID-19 pandemic, the ubiquitous utilization of telemedicine among pain medicine physicians increased, giving insight into potential future roles for the technology beyond the pandemic.

**Objectives:** To survey and understand the state of implementation of telemedicine into pain medicine practices across practice settings and geographical areas; to identify potential barriers to the implementation of telemedicine in pain medicine practice; and to identify the likelihood of telemedicine continuing beyond the pandemic in pain medicine practice.

**Study Design:** Online questionnaire targeting Pain Medicine physicians in the US. Participants were asked questions related to the use of telemedicine during the first peak of the COVID-19 pandemic.

**Setting:** Online-based questionnaire distributed to academic and private practice pain medicine physicians nationally in the United States.

**Methods:** A 34 web-based questionnaires were distributed by the American Society of Regional Anesthesia and Pain Medicine and the Spine Intervention Society to all active members. Data were analyzed using SAS v9.4

**Results:** Between December 3, 2020, and February 18, 2021, 164 participants accessed the survey with a response rate of 14.3%. Overall, academic physicians were more likely to implement telemedicine than private practice physicians. Telemedicine was also more frequently utilized for follow-up appointments rather than initial visits.

**Limitations:** Although our n = 164, the overall low response rate of 14.3% warrants further investigation into the utilization of telemedicine throughout the COVID-19 pandemic.

**Conclusions:** Telemedicine as an emerging technology for efficient communication played a key role in mitigating the adverse effects of the COVID -19 pandemic on chronic pain patients. The utilization of telemedicine remarkably increased after the start of the pandemic within 1 to 2 weeks. Overall, private hospital-based centers were significantly less likely to implement telemedicine than academic centers, possibly due to limited access to secure telemedicine platforms and high start-up costs. Telemedicine was used more frequently for follow-up visits than initial visit encounters at most centers. In spite of the unforeseen consequences to the healthcare system and chronic pain practices in the US from COVID-19, telehealth has emerged as a unique model of care for patients with chronic pain. Although it has flaws, telehealth has the ability to increase access to care beyond the end of the pandemic. Further identification of barriers to the use of telemedicine platforms in

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private practices should be addressed from a policy perspective to facilitate increased care access.

**Key words:** Pain medicine, fellowship, telemedicine, practice management, opioids, COVID-19, health policy**IRB Information:** Internal Review Board exemption by the University of Virginia #16046**Pain Physician 2022: 25:387-390**

**T**rends in the use of telemedicine, the remote provision of clinical care, changed drastically after the Center for Disease Control issued guidance on social distancing during the start of the COVID-19 pandemic (1). We surveyed pain medicine physicians on the implementation of telemedicine into their practices.

## METHODS

Reference literature on telemedicine implementation, delivery, and policy was queried from PubMed. A 34-question questionnaire was developed after consulting a group of pain experts. The questionnaire was entered into Qualtrics software, Copyright 2019 (Qualtrics, Provo, UT), available at <https://www.qualtrics.com>, and was confirmed for internal consistency on a sample of 15 participants. The questionnaire was distributed by the American Society of Regional Anesthesia and Pain Medicine and the Spine Intervention Society to all active members (who identified as chronic pain) via email with a web link after receiving an Internal Review Board exemption by the University of Virginia #16046. Participants were asked questions related to the use of telemedicine during the first peak of the Covid-19 pandemic. Topics questioned included: use of telemedicine, type of telemedicine platform, ease of implementation of telemedicine, the degree to which telemedicine was employed, types of patient visits in which telemedicine was used, degree and type of staff support for the use of telemedicine, and knowledge of billing/coding related to telemedicine (Appendix A). Data were analyzed using SAS Version 9.4 (SAS Institute, Inc., Cary, NC). A value of  $< 0.05$  was considered statistically significant.

## RESULTS

Between December 3, 2020, and February 18, 2021, 164 participants accessed the survey with a response rate of 14.3%. Thirty-two percent of participants belonged to an academic practice, 47.33% to private

practice, 12.67% to a private hospital, and 8.00% to a private hospital with an academic affiliation. Geographic regions represented: 21.85% in the North East, 17.22% in the Midwest, 34.44% in the South, 23.84% in the West, and 2.65% in Canada.

Thirty-six percent of participants used telemedicine prior to COVID-19, with the majority (15.38%) conducting 1-3 visits per week; 3.85% of participants conducting 4-6 or 7-8 visits per week; and 13.09% conducting  $>10$  telemedicine visits per week. As a result of the pandemic, this number rose to 90%. Within 1-2 weeks after the start of the pandemic, the majority of respondents (73.08%) were able to implement some form of telemedicine (audio +/- visual). Most practices (69.54%) were able to utilize an audio + visual format during this time (1-2 weeks) (i.e., Doxy.me, Facetime, Zoom, Webex, etc.). Private hospital-based centers were significantly less likely (Pearson chi-squared = 15.19,  $P = 0.002$ ) to implement telemedicine than academic centers (Table 1).

## Patient Visit Types and Telemedicine Formats Used

Telemedicine was used more frequently for follow-up visits. Most practices (80%) used both audio/visual and audio-only formats to conduct the telemedicine visit. Information technology personnel from the health system or access staff were most likely to help clinicians with troubleshooting the telemedicine platform in 24.47% and 26.60% of cases, respectively.

Sixty-three percent of respondents conducted  $< 25\%$  of new patient visits via telemedicine; 13% conducted between 26 and 50%; 9% conducted between 51-75%; and 15% conducted  $> 75\%$  of new patient visits via telemedicine. In contrast, 42% of participants used telemedicine to conduct  $> 75\%$  of follow up visits; 27% between 51-75%; 22% between 26-50%, and 17% conducted  $< 25\%$  of follow up visits via telemedicine. Most practices (80%) used both audio/visual and audio-only formats to conduct the telemedicine visits, with 12% using audio/visual only and 6.92% using audio only.

Sixty-five percent of participants indicated they had a preferred telemedicine platform, with most (43.64%) reporting Doxy.me was their preference, followed by Zoom (20%). Information technology personnel from the health system or access staff were most likely to help clinicians with troubleshooting the telemedicine platform in 24.47% and 26.60% of cases, respectively.

**Logistics**

Most participants (67.37%) indicated front desk staff, including medical assistants, helped with scheduling the telemedicine visits for 17.89% of respondents. Medical assistants were most likely (36.96%) to set up the actual telemedicine connection with the patient, followed equally by front desk staff and the clinician themselves in 23.91% of cases. The majority of respondents indicated that staff spent between 0-10 minutes educating and setting up each patient’s telemedicine visit, with 41.53% stating staff spent between 11-15 minutes on these activities. Most respondents (61.6%) indicated this time was about the same as setting up an in-person visit; however, 29.75% indicated it took more time for staff to set up telemedicine visits than in-person visits.

**Number of Visits**

During the peak of the pandemic, most participants (40.50%) reported conducting between 6-10 telemedicine visits per day; followed by 22.31% conducting between 11-15 daily visits via telemedicine, 10% between 16-20, and almost 15% conducting > 20 of daily visits via telemedicine. The number of visits conducted did not significantly vary based on the practice setting.

**Opioids**

The majority of respondents (72.73%) did not initiate opioids during a telemedicine visit. Of those that did prescribe opioids via telemedicine, 45.45% indicated they used audio/visual platforms to do so.

**Physical Examination**

Most participants (80.99%) conducted a physical examination during the telemedicine visit; however, 94.85% of respondents reported they felt it was inferior to performing an in-person physical examination. Ninety-one percent of respondents scheduled a procedure following the telemedicine visit. Fifty-six percent of respondents did not find it difficult to schedule patients for the procedure visit during a telemedicine visit.

Table 1. *Telemedicine implementation in various chronic pain practice models in 2020.*

Q3	Academic	Private	Private Hospital Based	Private w/ Academic Aff.	Total
No	1	8	6	0	15
Yes	49	66	13	12	140
Total	50	74	19	12	155

Legend: Q3, corresponds to question 3 in appendix A of the supplemental materials. Aff, Affiliation.

**Billing**

Most respondents (78.33%) indicated they were aware of the Centers for Medicare and Medicaid Services billing policies related to telemedicine, and 17.5% reported they were not sure. Forty-eight percent of respondents did not bill at a lower rate for telemedicine visits, while 13% were not sure if they did or not. Of those who billed at a lower rate, 47.92% stated they did so because they were unable to perform a physical examination. Almost 20% reported that it was a combination of reasons, including the inability to perform a physical examination, inability to gauge the complexity of medical decision making, and insufficient time.

Seventy-five percent of respondents indicated they were aware of the Health Insurance Portability and Accountability Act rules as they relate to telemedicine visits, while 21% were not sure.

Over 90% of participants reported that their patients requested telemedicine visits after in-person visits resumed, and 55.46% indicated that telemedicine visits accounted for between 1-25% of visits after in-person visits resumed. Nineteen percent reported that telemedicine visits accounted for between 26-50% of patient visits, 12.61% reported between 51-75%, and 5.88% had telemedicine visits accounting for > 75% of their visits after in-person visits became available. Less than 7% indicated they no longer used telemedicine visits after in-person visits became available.

**Opinion**

Most respondents (41.67%) reported they believe telemedicine to be less effective than in-person visits, while 25.83% indicated they were as effective. Only 2.5% indicated they were more effective than in-person visits. Other respondents (24.17%) indicated more work was involved in telemedicine than in-person visits. Most respondents will continue to use telemedicine after the pandemic ends (Fig. 1).

The most frequent barrier to implementing telemedicine was patients’ inability to effectively use tele-

medicine (patients did not know how) (49.22%), while reimbursement issues (17.97%), inaccessibility to wi-fi (6.25%), and lack of administrative support (7.81%) comprised the rest.

## DISCUSSION

The COVID-19 pandemic has created unique challenges along with extraordinary pressure on the healthcare system. Due to social distancing requirements, travel restrictions, and community lockdown, patients' ability to access health care facilities in person drastically declined. Telemedicine, as an emerging technology for efficient communication, played a key role in mitigating the adverse effects of the COVID

-19 pandemic on chronic pain patients (2). We evaluated the implementation of telemedicine into pain medicine practices in the academic and private practice setting. The utilization of telemedicine remarkably increased after the start of the pandemic within 1 to 2 weeks. However, private hospital-based centers were significantly less likely to implement telemedicine than academic centers, possibly due to limited access to secure telemedicine platforms and high start-up costs. Telemedicine was used more frequently for follow-up visits than initial visit encounters at most centers. This finding might be related to the challenge of managing complex chronic pain conditions or potentially prescribing opioids over a novel medium without traditional

in-person visits and physical examination. In spite of the unforeseen consequences to the healthcare system and chronic pain practices in the US from COVID-19, telehealth has emerged as a unique model of care for patients with chronic pain. Although it has flaws, telehealth has the ability to increase access to care beyond the end of the pandemic. It is essential that the government and funding agencies consider identifying barriers to the use of telemedicine platforms in private practices, financial or otherwise, and help address those from a policy perspective to facilitate increased care access.

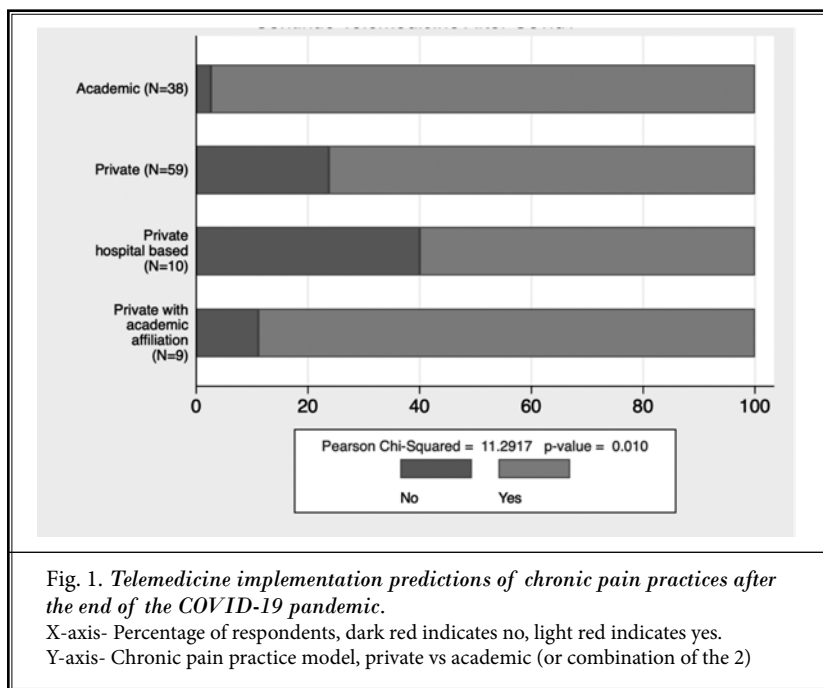


Fig. 1. Telemedicine implementation predictions of chronic pain practices after the end of the COVID-19 pandemic.

X-axis- Percentage of respondents, dark red indicates no, light red indicates yes.  
Y-axis- Chronic pain practice model, private vs academic (or combination of the 2)

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## REFERENCES

1. Koonin LM, Hoots B, Tsang CA, et al. Trends in the use of telehealth during the emergence of the COVID-19 pandemic — United States, January-March 2020. *MMWR Morb Mortal Wkly Rep* 2020; 69:1595-1599.
2. Patel SY, Mehrotra A, Huskamp HA, Uscher-Pines L, Ganguli I, Barnett ML. Trends in Outpatient Care Delivery and Telemedicine During the COVID-19 Pandemic in the US. *JAMA Intern Med.* 2021; 181(3):388-391.