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Demonstrating the vital role of physiatry throughout the health care continuum: Lessons learned from the impacts of the COVID-19 pandemic on pain management care

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This article is one of a series published in the June 2021 issue of PM&R that collectively form a White Paper describing the vital role of Physiatry throughout the healthcare continuum during the COVID crisis.

INTRODUCTION

Both able-bodied persons and those with various disabilities will inevitably suffer from acute and/or chronic pain at some point in their lives.[1] As such, physiatrists have been treating pain since the advent of the physical medicine and rehabilitation (PM&R) specialty. Many physiatrists who care for patients with musculoskeletal and spine pain are board certified in the subspecialty of pain medicine. According to data from the American Board of Physical Medicine and Rehabilitation (ABPMR), approximately 18% (1,759) of ABPMR diplomates are Pain Medicine certified.[2] There is no doubt that treating pain represents a large part of the PM&R specialty and this cohort of physiatrists were particularly susceptible to the impact to outpatient practices due to COVID-19.

Pain medicine physiatrists (PMPs) offer a spectrum of care to their patients including education regarding healthy lifestyles, prescribing physical therapy and psychological counseling, offering medication management strategies (including controlled substances and other medications), and performing interventional procedures (both diagnostic and therapeutic). PMP practices have been targeted for decreases in reimbursement schedules and have faced challenges because of systemic health care changes such as overlapping scope of practice with other specialists and unaffiliated advanced practice providers performing similar procedures, even before the onslaught of COVID-19. Decreasing reimbursement for outpatient procedures and changes to the Current Procedural Terminology (CPT) codes for evaluation and management were already leading to a decline in reimbursement for most PMP practices.[3] Conversely, there have been future growth opportunities for PMP that may counter these negative financial forces in the market. For example, regenerative medicine procedures are becoming more common and are gaining more evidence-based traction.[4] Major payers have also started to recognize the value of physiatrists as "gatekeepers" of spine care, reducing surgical rates while improving cost and maintaining patient satisfaction.[5]

There has never been an event as cataclysmic as COVID-19 regarding the impact on PMP practices. Previously, the most disruptive occurrence was the epidural fungal infection epidemic in 2012 caused by contaminated steroid preparations.[6] Although that tragic epidemic led to 64 deaths and 751 instances of fungal meningitis, stroke, and spinal or paraspinal infection, PMP practices were not suspended because of the epidemic, but practices were changed to enhance patient safety.[6] This article discusses adaptations that were undertaken following the onset of the COVID-19 pandemic, demonstrates the value and vital role of physiatry within health care, and presents potential changes to PMP practices to both insulate physiatrists from future health care disasters and also to ensure that PMPs thrive in coordinated systems of care.

SUMMARY OF TOP IMPACTS ON PMP CARE

PMP care was affected in immediate and long-lasting ways by the COVID-19 pandemic. The specialty responded immediately to the challenge and evolved quickly to provide care and support for patients, medical trainees, staff, and physicians despite the rapid and fluctuating circumstances. The most critical component of the adaptation was changes in the delivery of care. The steadfast focus on improving function and decreasing pain remained, but the tools, resources, and patient–physician interactions dramatically changed.

Changes in the delivery of care

Telehealth has been embraced as a primary and complimentary method of care by both practices proficient in and na ve to this technology. This necessitated the development of unique and efficient methods to perform telemedicine evaluations including modified physical examinations and acceptable ways to manage medications. All local, state, and national regulations and updates, as well as evolving insurer requirements, had to be considered before initiating telehealth care. The great majority of patients required education about telemedicine operability and limitations and had to give verbal permission as a proxy for informed consent. Many groups developed templated outlines for documenting telemedicine pain visits and although the ‘‘hands-on’’ physical examination was limited, the visual telemedicine components could still be leveraged to gain necessary clinical information and to meet billing requirements. Telemedicine presents treatment challenges including no or restricted access to pain management pathways and interdisciplinary care. For example, physical therapy was not available or limited for extended periods during the pandemic, minimally invasive interventional procedures were limited to those deemed critical (primarily to preserve personal protective equipment [PPE] and to reduce risk of exposure to medical personnel and patients), and other members of the pain care team (including spine surgeons) were unable to fully perform their roles owing to limitations on elective procedures. Although the initial weeks of the pandemic in the United States were overwhelming to many, this period fueled innovation and demonstrated the ability of PMPs to adapt and continue to provide non-COVID-related care. In time, telemedicine has become a valuable tool, injection procedures have been prioritized in a standardized and equitable manner, and PMPs have successfully created novel patient interaction and education platforms that are likely to remain an integral aspect of pain management care.

Health and safety of health care team and patients

Maintaining the safety of patients, staff, and physicians continues to be prioritized and requires adherence to state and local mandates. During the initial pandemic phase, many outpatient PMP offices and clinics shut down in an effort to minimize virus exposure and preserve limited PPE; only essential and emergent medical services continued with in-person care. With the shift to telemedicine and the inherent limitation in the physical examination, PMP had to be hypervigilant in assessing the signs and symptoms of emergent spinal conditions such as cauda equina syndrome. In questionable cases, this may have led to more imaging being ordered. Additionally, the cancellation of elective pain procedures and other services may have threatened patient safety in regard to possible opioid escalations (be they condoned or uncondoned), overuse of other medications, and substance abuse.

As offices reopened, a new normal was established to ensure safety including mask wearing, temperature checks, and self-quarantines if symptomatic, exposed to the virus, or traveling to high-risk states. Patients were instructed to enter the office alone, screened at the door, physically spaced out in waiting areas, and in some locales needed to be tested for COVID-19 before undergoing interventional procedures. PMPs employ oral steroids, epidural steroids, intraarticular steroids, and other steroid injections on a regular basis for pain relief. The immunosuppressive effects of steroids and opioids were considered among PMPs and discussed with patients. This discussion reviewed the potential increased risk of infection including COVID-19 with use of any steroid formulation or the use of systemic opioid therapy.

It is clear that patient and professional safety is not only a top concern in emergency departments and intensive care units. The transmission of COVID-19 from asymptomatic individuals requires safety protocols and risk mitigation in all health care environments, especially outpatient clinics.

Financial implications - immediate and intermediate

Many PMP practices completely shut down for a period of time to comply with COVID-19 state guidelines and safety measures. This time was used to ramp up or implement telemedicine as well as design new clinic patient flow plans (once green lighted), analyze financial implications, and determine staffing needs in a time of reduced clinic patient flow but expanded telehealth care. The cost of implementing hardware and software for telehealth was forbidding for many groups and decisions had to be made promptly. This period of limited to

no income, but with continued and expanded expenses, led to the demise of some practices and led others to resort to salary reductions, reduced hours, staff furloughs, and physician furloughs. After furloughs, some staff and physicians chose not to return because of finding employment elsewhere or changing family needs. This resulted in immediate and long-lasting financial implications for pain practices. Additionally, insurers were varied in their coverage of telemedicine visits with some not keeping reimbursements on par with pre-COVID-19 face-to-face visits. Upon opening offices, the financial burden of potentially seeing fewer patients (in order to maintain safety protocols with more spaced-out visits), deficits from the shutdown period, and PPE expenses continued to affect and overwhelm some practices.

The financial impact of furloughs, salary reductions, lack of bonuses, and hiring freezes will likely be felt for years post COVID. Yet, the need for pain management services has not abated and is even growing as some states have been reporting increased opioid abuse and overdose deaths during the pandemic.[7,8] There are many patients with acute pain who were not effectively treated, or treated at all during the initial pandemic phase, who subsequently presented with chronic pain. Referrals to PMPs remain high and may allow for partial financial recovery, and federal Small Business Administration loans, the Paycheck Protection Program, and Provider Relief Fund may have relieved some of the immediate financial burden and helped keep practices afloat.[9–11]

Training and education

Initially, training and live education programs were suspended to prevent the spread of COVID-19 and adhere to state and local safety guidelines. This minimized unnecessary viral exposures to trainees at all levels and helped preserve PPE for essential workers. A pause in hands-on learning gave the field the opportunity to reflect and innovate. Teaching resumed via online platforms and even introduced trainees to the use of telehealth. Novel online training videos were developed by residency programs and pain experts for virtual continuing medical education conferences to propel education and will likely be used in the future to enhance in-person teaching. Further, these resources may also be shared with training programs that may not be able to provide expert education on certain topics. Pain educational content dedicated to opioid prescribing during a pandemic including webinars and novel educational content at annual meetings was developed by the American Academy of Physical Medicine & Rehabilitation and other medical organizations. Additionally, cadaver courses were used to continue hands-on training while limiting viral exposure. This type of education adhered to safety guidelines by preventing trainee exposure to live patients with potential or known COVID-19 and allowed for social distancing among trainees. The pandemic also highlighted the question of risk stratification for trainees - do trainees need to treat high-risk patients? During the pandemic, PM&R trainees may have helped staff musculoskeletal urgent care centers, worked on in-patient rehabilitation floors with COVID-19 patients, consulted on such patients, or deployed to assist other overwhelmed services.[12] The balance of training future physicians and limiting excessive exposure is an important consideration.

Physician burnout and moral injury

Many PMPs in leadership roles spent countless hours developing new care models, strategies for financial survival, and safety guidelines. They experienced the administrative burden of the pandemic with insufficient knowledge about the novel coronavirus, limited PPE, no organized national effort or plan to limit viral spread, a daily barrage of information and data, and concerns about their own family's safety as well as personal financial stability. Furthermore, implementing office changes to ensure social distancing and adequate cleaning times and promoting financial recovery from temporary shutdowns resulted in increased physician in-clinic work hours including weekend clinics and the addition of scheduled slots reserved for telemedicine. Added work hours and responsibilities, PPE shortages, potential daily viral exposure, salary cuts, furloughs, and changing family dynamics all place physicians at an increased risk for burnout and moral injury. The pandemic has exacerbated this critical national issue and brought to light the urgent need for systematic change to ensure physician safety and survival.

APPLIED PROCESSES

PMPs are traditionally outpatient clinic-based physicians and many of the procedures and visits performed are considered "elective." In-person face-to-face clinic visits were deemed high risk for COVID-19 transmission and outpatient physicians in general were urged to consider telemedicine, or virtual visits, as a viable alternative. Most of the insurance payers as well as Medicare and other federally funded programs all rolled out plans to expand telehealth services during the COVID-19 emergency declaration. This included the U. S. Department of Health and Human Services (HHS), who issued guidance to allow for more flexibility in terms of the Health Insurance Portability and Accountability Act (HIPAA), allowing non-HIPAA compliant apps and technology use for these telehealth visits. These included FaceTime, Facebook Messenger,

Google Hangouts, Zoom, or Skype.[13] The Centers for Medicare and Medicaid Services (CMS) allowed physicians to deliver care across state lines to both new and established patients and bill for telehealth services as if they were provided in person.[14]

Most outpatient PMP had no prior experience with telemedicine. There was a rapid conversion throughout the country to provide telehealth visits, and the American Academy of Physical Medicine and Rehabilitation (AAPM&R) Phyzforum community platform, as well as other online communities, saw an increase in dynamic conversations about how best to implement telemedicine visits. Some of the more important changes included:

- Telemedicine platforms to use: Non-HIPAA compliant platforms were readily available to those who already used them for social media (nonmedical) purposes, but there was concern about privacy when using these applications despite the government's stipulation allowing these non-HIPAA compliant platforms to be used during the pandemic emergency. Many PMPs chose to perform their clinical evaluations at home as opposed to in the office for safety reasons. Several companies rolled out paid telemedicine platforms that allowed for more integration with emergency medical record systems, sharing of data, and electronic communication with patients. PMPs had to weigh the cost of these platforms and applications with the anticipated revenue from these telemedicine visits, as well as the postulated efficiency and efficacy of telemedicine visits for complicated chronic pain conditions.

- Communicating with patients about these visits: Barriers to care needed to be addressed, including some patients' limited access to technology or limited ability to use technology. Patients had to be contacted and counseled by staff to ensure their ability to access and use technology to participate in these visits. Information had to be collected from the patient about their available hardware/software as some platforms were not compatible with certain systems such as Apple iOS versus Microsoft. In some cases, if internet was not available, audio-only visits were performed. This led to increased time spent by staff on telehealth tasks, and most institutions were unable to support these changes centrally because of generalized decreased revenue production. These visits also undermined the ability of PMPs to engage patients in treatment plans. Chronic pain patients often require motivational interviewing to convince them to take part in physical therapy and personalized exercise, and it was more difficult to convince patients of the importance of this during telehealth visits. Patients were also hesitant to leave their houses to attend physical therapy because of fear of contracting COVID-19. Several practices modified their informed consent forms for procedures and visits to include risk of exposure to COVID-19. Corticosteroids, which are commonly used in injection procedures, could theoretically suppress the immune system, which initially was thought to increase risk for a more severe COVID-19 course - months later, corticosteroids (specifically dexamethasone) were used as a treatment option for COVID-19. Many physiatrists reported that their facilities required preprocedure COVID-19 testing as well as self-quarantine/isolation before and after procedures.

- Rethinking the flow of the office visit: The traditional flow of reviewing intake paperwork, taking a history, performing a physical exam, ordering and reviewing imaging, and formulating a treatment plan had to be restructured. In some cases, paperwork could not be completed in advance. Physical exam in the traditional sense had to be abandoned with more emphasis on visual inspection and patient observation on video. Imaging would have to be ordered with consideration for access to imaging facilities and the risk of COVID-19 exposure versus the information needed from imaging. Treatment was also limited depending on the local jurisdiction and whether elective procedures were permitted. Even if permitted, there still had to be a discussion about the risk of COVID-19 exposure with the performance of a procedure as well as use of health care resources in times of shortages. In the case of a technologically savvy patient, the visits were often shorter and therefore more efficient; with less savvy patients, the visits frequently were longer because of various technological barriers. When in-person physician visits were possible, many state and local regulatory agencies mandated COVID-19 risk reduction strategies such as mask wearing, temperature screening, and symptom questionnaires. The Centers for Disease Control & Prevention changed its guidelines as well as their list of COVID-19 common symptoms frequently, which necessitated several changes and adaptation of new screening processes. Risk stratification based on age, comorbidities, and exposure risk such as travel history and occupation was used by many practices and facilities to make decisions about in-person visits and procedures, as well as recommendations to test for COVID-19. All of these new processes came at a financial cost to individual practices, either in terms of more work hours for staff or purchase of more equipment. Access to PPE needed for in-person clinic visits were scarce earlier in the pandemic, making it difficult to have adequate supplies such as masks, gloves, and hand sanitizers. Additional safety purchases of items not used before were made, including face shields, sanitizing wipes for surfaces, plexiglass separators, and markers on the ground to denote the recommended 6 ft distance for social distancing.

- Controlled substances: The Drug Enforcement Administration and many state medical boards waived the need for in-person visit and allowed telemedicine visits to document the need for continuation of chronic opioid prescriptions for established chronic pain patients as well as initiating schedule II-V controlled

substance prescriptions as long as the HHS emergency declaration was still in effect, the practitioner was acting in accordance with federal and state laws, and the prescription was for a legitimate purpose.[15] Although this did not necessarily change the duration of prescriptions patients were receiving, it did change the frequency of follow-up appointments and urine drug screening assessments. Because of the relaxed restrictions, providers did not bring patients into clinic for urine drug screening as often, and the required monthly visits for renewal prescriptions of controlled substances were stretched out.

PMPs throughout the country took the lead to adapt to the new health care delivery model. The AAPM&R compiled resources on their website, developed new educational content, and created a new Phyzforum community for how to "Deliver Care in the Time of COVID-19." On the Phyzforum, sample visit templates were shared as were videos on how to perform a physical exam during a telemedicine visit (Appendix A). Information was exchanged between peers about how to bill for these visits and federal funding sources to help with the increased cost of delivering services. PMPs also discussed how to help prioritize procedures and surgeries that would minimize use of much needed PPE and prevent emergency department visits. Physiatrists publicized their availability to primary care providers and urgent care facilities that were being inundated with COVID-19 related patient symptoms to help divert those with musculoskeletal injuries and pain from emergency department and urgent care facilities by providing fast and efficient care via telemedicine and, later, in person visits. Physiatrists worked with facilities and hospitals to assess the supply of PPEs and local need for COVID-19 and non-COVID-19 related care to decide on optimal timing of interventional procedures and diagnostic testing. Physiatrists were uniquely skilled and positioned to be able to triage the truly urgent surgical cases (ie, cauda equina syndrome, unstable fractures), order diagnostic testing while weighing the urgent need of those studies and its impact on surgical decision making, delay less urgent surgical cases with medications and injection procedures, and provide nonsurgical patients with appropriate treatment options, education, and counseling.

Outcome data

Two of the coauthors (A.N. and A.M.) of this article work in Texas. Texas Governor Greg Abbott issued an executive order on March 22, 2020 (subsequently extended to May 8, 2020) that all licensed health care professionals and facilities must "postpone all surgeries and procedures that are not immediately medically necessary to correct a serious medical condition of, or to preserve the life of, a patient who without immediate performance of the surgery or procedure would be at risk for serious adverse medical consequences or death, as determined by the patient's physician."[16]

An online survey by the Texas Medical Association in May 2020 found that 58% of practicing physicians had cut their work hours, and 62% had their salaries reduced.[17] In a sample multispecialty orthopedic practice in Texas, a reduction to 50% of normal volume in overall clinic visits (including telemedicine visits only for a 5-week period in March and April) and a reduction of 66% in surgical volume was realized. This led to a 50% reduction in net clinic revenue for April, May, and June of 2020. The only surgeries that continued were urgent trauma cases, mostly referred through the emergency department. As of September 2020, this clinic was back to about 85% pre-COVID capacity in both office visits and surgical volume but anticipated a significant decline in January 2021 when patient deductibles reset, and unemployment and other financial strain on families may increase, not even considering the impact of the "second wave" of COVID-19 infections in the United States.[18]

In a sample university-based interventional pain clinic in Texas, there was a 4-week period without any "in-person" visits. All procedures were canceled with the exception of those declared "emergencies," which were on the order of one procedure per week, dramatically reduced from pre-COVID-19 volume of an average of 69 procedures per week. There was rapid conversion to telemedicine visits with 75% of visits during the first 2 weeks of the emergency declaration done via telephone visit and 25% audiovisual (ie, telemedicine visits). This university quickly converted its electronic medical record system to accommodate for telehealth visits within a 1-week time frame. After 4 weeks, when procedures were resumed, they were at 50% capacity to ensure that there was sufficient time between procedures for thorough disinfecting all of the surfaces in the room. After 7 weeks, PMP faculty elected to bring all new patient evaluations into clinic for a full evaluation but to default to keep the vast majority of follow-up patients scheduled via telemedicine visits. Telephone-only visits were abandoned because faculty felt that these visits were ineffective in improving patient outcomes.[18]

Data from the AAPM&R member survey indicates similar trends. When asked to rank relative impacts upon member practices during the pandemic, the highest ranked distribution response was "restriction/inability to perform procedures," with "telemedicine" being the second highest in rank distribution. About 84.5% ($N = 82$) of the survey participants reported having zero telemedicine implemented in their practice before the pandemic. After the pandemic, only 27.7% ($N = 26$) of participants stated that they had 0% of their new patient visits as telemedicine visits and only 5.3% ($N = 5$) stated that they had 0% of their follow-up visits as telemedicine

visits. This represents a rapid change to medical practice in the ambulatory setting that is unlike any seen previously in modern American medicine.

There are clearly limitations to the use of telemedicine. Only 17.9% (N = 17) of the survey respondents reported that telemedicine offered satisfactory care 100% of the time. These data demonstrate that over 80% of respondents felt that there was at least some amount of dissatisfaction about the care that they were delivering using telemedicine. This is corroborated by the responses to the question "To what extent do you believe this statement: 'I believe telemedicine visits are as effective as in-person visits?'" The response breakdown was as follows: Strongly disagree (17.5%, N = 17), Disagree (33.0%, N = 32), Neutral (22.7%, N = 22), Agree (24.7%, N = 24), and Strongly agree (2.1%, N = 2) (Figure 1). Future research should explore the differences between the telemedicine practices of those who responded that they "agree" or "strongly agree" from those who responded "strongly disagree" or "disagree," and as to whether or not outcomes in PMP practices worsened with telehealth visits.

Regarding the "restriction/inability to perform procedures" rank distribution response described previously, the data from the survey were supplemented by qualitative remarks as follows:

- "Unable to do procedures for two months, limited office hours"
- "Initially during COVID-19 pandemic, my practice setting was affected due to state/territory government restrictions of non-emergency medical practices operations for 3-4 weeks."
- "Early on it was getting approval to do procedures. Now it's making sure we have enough masks and we have an increased percentage of same day cancellations due to possible symptoms of COVID 19."
- "In our practice it was that we had to cease doing EMGs since elective procedures were closed."
- "Procedures being cancelled–limits ability to deliver care"
- "Cancellation, unsure about billing changes, unable to do procedures since patients prefer not to do injections and come in for doctors visit due to copay or lost their insurance, jobs etc."

Another important factor regarding operational changes due to COVID-19 has been the training of residents and fellows. When surveyed, trainees listed hospital-based outpatient clinics (86.5%, N = 32) as the most likely training sites to be affected by the COVID-19 pandemic. This was chosen with much higher frequency than the second most likely training sites to be affected, hospital-based inpatient rehabilitation facilities (48.6%, N = 18). In response to the question "What concerns you regarding the consequences of COVID-19 pandemic on your training?" the most commonly selected response was "fewer outpatient rotations" (77.1%, N = 27).[19] These data clearly demonstrate that the operations of ambulatory clinics were most likely to be completely halted during the time of the pandemic, most commonly because this form of care was determined to be elective in nature; indeed, there are likely residents who will graduate from PM&R residencies without having been exposed appropriately to interventional pain procedures.

In the sample university clinic, fellows participated in a survey asking them questions about how they felt their education was affected. Medical education was severely affected by the COVID-19 pandemic with a median score of 7.5 (+4) on an 11-point Likert scale.

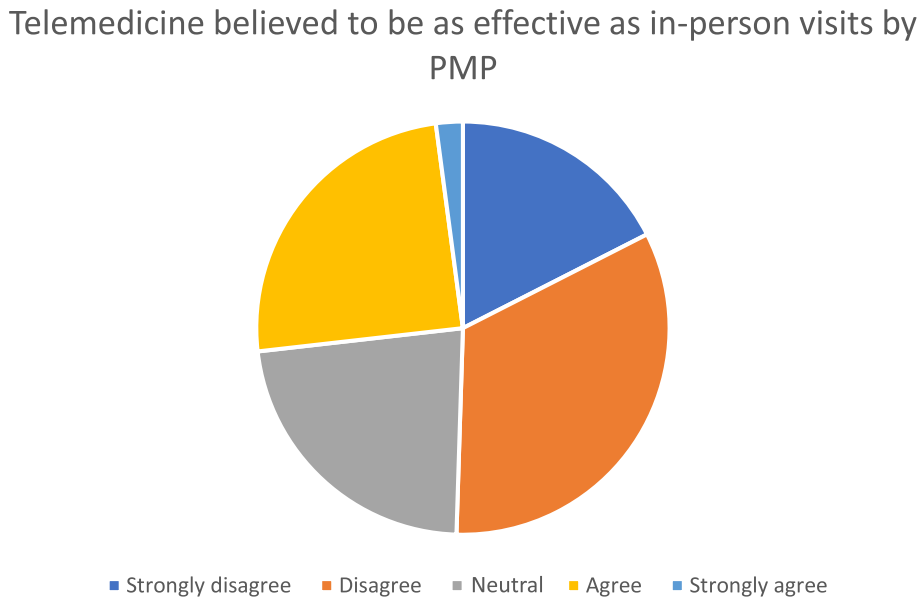

FIGURE 1 Survey pain medicine physiatrist (PMP) response to effectiveness of telemedicine versus in-person visits

Patient care was perceived to be moderately affected by the pandemic (6.5 + 1.75), whereas the suspension of elective procedures was perceived to severely affect those in training (8.5 + 1.75). Interestingly, all of the fellows reported web-based lectures to be equally as educational as in-person didactics.[19] These data are commensurate with the data from the national survey.

FEEDBACK FROM EXTERNAL STAKEHOLDERS

The pandemic resulted in PMPs working closely with hospital leadership and the local physician community to effectively triage and manage patients in pain. The primary concerns early in the pandemic were limited supplies (ie, PPE and ventilators), hospital and emergency department capacity, staffing, and minimizing virus exposure. Hospital administrators were forced to shut down elective surgeries resulting in significant financial loss. There was scrutiny of inpatient, emergency, and intensive care bed availability as local restrictions were altered. Institutional administrators were very concerned about making sure that urgent orthopedic and spine-related surgical cases were continuing to be cared for and appropriately triaged. Many PMPs served on committees with institutions to help assess whether these cases met medical board and state regulation criteria for emergency surgery. PMPs were also able to support spine surgeons' delay of nonemergent surgeries associated with severe pain by providing interventional procedures and prescribing medications to help reduce pain temporarily. Some hospital executives and administrators were specifically able to help offset financial losses with continued chronic pain procedures. The majority of hospitals were able to acquire sufficient PPE to weather further COVID-19 surges and thereafter collaborated with PMPs to ensure that these important procedures would continue.

Institution-based policies on continuing controlled substance prescriptions were necessary given the inability to see most patients "in person." PMPs were looked at as leaders in this space and thus were added to the decision-making team, along with hospital executives, practice managers, and other administrators in setting up processes to ensure that patients had adequate access to their prescriptions to avoid withdrawal, without compromising care. This included defining those patients who were appropriate for telemedicine, developing telemedicine protocols, and risk stratifying patients regarding their risk of severe disease in the event of exposure to SARS-CoV-2. PMPs were also deemed to be decision makers when it came to determining whether intrathecal pump management would be considered "emergent," that is, requiring in-person visits for refills so as to avoid withdrawal in this population as well.

PMPs were community leaders during the early stages of the pandemic and made themselves available to outpatient physicians for their patients with acute and chronic pain to help "decompress" overrun clinics. This allowed patients to avoid unnecessary emergency department visits. As well, PMPs were available for "curbside consults" from physicians who needed help managing pain in patients, sharing resources on appropriate medication management and documentation in addition to directly providing care. Online platforms allowed physicians of various specialties to share their expertise. PMPs became more visible in the virtual physician community as those with the knowledge base and skill set needed to help appropriately manage pain and triage urgent surgical symptoms. Ultimately, PMPs emerged as institutional, virtual, and community leaders in the design and implementation of pain triage and management pathways.

PROJECTIONS RELATING TO FUTURE UNIVERSALLY IMPACTFUL EVENTS - THREATS AND OPPORTUNITIES

The COVID-19 pandemic has identified several important threats to the physiatric subspecialty ambulatory practice of interventional and noninterventional pain management. PMPs were labeled as "nonessential" and services were halted nationally. There was a dramatic unmet need that occurred during the first phase of the pandemic based upon PMP site of service closures.[20] In fact, reasonable speculation has suggested that COVID-19 infections may lead to a greater need for PMPs.[21] Yet, the focus of the national discourse at that time seemed to reflect the inability for pain management practices to financially survive the long-term impact as practices across the country were forced to close or truncate their services. Subsequently, patients were unable to access PMPs and thus suffered. An immeasurable downstream effect may occur going forward owing to a decreased number of providers, which will lead to diminished access for patients.

Another threat that was unmasked by the pandemic is the duplication of services that occurs within the field of pain medicine. Indeed, the majority of practitioners who perform these procedures are anesthesiologists, but there are also radiologists, neurologists, psychiatrists, family medicine physicians, and other specialists who commonly treat patients with pain-related conditions. In fact, several states now allow advanced practice providers to perform interventional spine and pain procedures. To outside stakeholders, this duplication of services is another method by which PMPs might be indistinguishable in their offerings and, therefore, be further deemed as nonessential.

COVID-19 has led to increased scrutiny for the utility of the procedures performed by PMPs. Relative

value units have decreased for these procedures over time, and the pandemic may cause payers to analyze and reduce relative value units further.[3] This is compounded by a dearth of prospective cohort studies and randomized controlled trials in support of these procedures.

There are opportunities for augmenting our services and our viability as a subspecialty that are based upon "lessons learned" during this pandemic. Four tenets can be used to demonstrate the value that PMPs who practice interventional and noninterventional pain management bring to patients and society.

1. PMPs' ability to adapt: Physiatrists have always paved the way for adaptation in health care. This specialty was among the first to embrace value-based care models, team-based approaches to treatment, and the use of technology in the medical care of the disabled. As the future unfolds, PMPs will embrace telemedicine and virtual education and in fact should be leaders in this endeavor. PMPs should develop validated virtual health methods of safe opioid prescribing, evaluating and treating patients with chronic pain, and determining suitability for a variety of procedures. Telehealth also presents an opportunity for PMPs to incorporate and highlight the biopsychosocial approach to evaluating and treating patients with chronic pain. This comprehensive approach to chronic pain is a strength of PMPs, and thus visibility and patient accessibility to maximal care is enhanced by PMPs' adaptability. In the future, PMPs should focus efforts on separating themselves from their counterparts in their ability to improve function by utilizing comprehensive treatment.
2. Demonstrate PMP capability to improve function: This is what sets physiatrists apart from most other medical specialties and is a key feature in distinguishing PMP services. Indeed, the value of a physiatrist in the treatment of pain is the focus on improvement of function through the mitigation of the pain itself. In future health care crises, physiatrists must be highlighted for their ability to aid patients during times in which standard procedures may not be available, in ways that other specialists are not trained or skilled. Patients may be willing to accept a world without access to procedures if they instead have access to PMPs who can effectively engage them in the biopsychosocial model of pain management and provide them a comprehensive and contemporary plan on how to improve their function and quality of life using whatever available resources they have at the time.

There are several examples of PMPs treating patients with chronic pain during the pandemic that led to minimized suffering. By being part of the decision-making team that allowed for risk stratification of patients, PMPs were able to decisively convince all stakeholders that patients with intrathecal pumps required in-person management of their chronic pain. This lessened the potential for withdrawal in this population. PMPs also were able to determine which patients required procedures as a medical necessity (ie, epidural steroid injections for acute radiculopathy). This led to decreased emergency department use and decreased distress for patients. Also, as mentioned previously, PMPs are the experts in engaging patients in the biopsychosocial model of pain. Via telemedicine, the quality of care did not decline for chronic pain patients treated by PMPs because of the ability to counsel patients on treating the psychological and social determinants of their pain. PMPs used motivational interviewing coupled with these counseling skills to educate patients on the value of treatment options such as meditation and biofeedback. PMPs must emphasize this distinction in our skill set when describing the care that PMPs provide for chronic pain as opposed to our colleagues from other specialties.

3. Embrace value-based health care systems: PMPs have a vast toolbox of assessment and treatment options that optimizes their ability to deliver value-based care. In future health care crises, effective value-based care will be given priority if the global economic impact that COVID-19 has caused is any indication of future disasters. As team leaders, PMPs are the most well positioned practitioners in this space to lead the specialty of pain medicine into the future by using procedures judiciously and utilizing an interdisciplinary approach to pain care. PMPs also have the "big picture" systemic understanding of the health care system and can deliver cost-effective care that provides high value both to patients and other stakeholders. Value-based care will prioritize payment for patient outcomes, as opposed to the quantity of patients seen, or the level of difficulty of decision-making on a case-by-case basis. Payment will also be prioritized for those who are able to demonstrate that they are able to save the health care payer and system from undue financial burden. The skills of PMPs listed here and previously (comprehensive approach to pain management, health care system understanding, ability to act as team leaders) position PMPs as the best option for treating chronic pain patients in a value-based model of care.
4. Providing a "one-stop shop" for pain-related conditions: Many PMPs can effectively manage patients through the continuum of care. PMPs' ability to participate in the immediate triage, workup (imaging, nerve conduction studies/electromyography, physical examination), conservative treatment, interventional management, heightened patient education and empowerment, and co-decision making with surgical

colleagues for patients with pain symptoms strongly demonstrates PMPs as the most efficient and effective providers of care to this patient population. When available, it will be worthwhile to evaluate retrospective data from 2020 from the care of PMPs in regard to opioid overdoses, delays to surgical care, and the burden of spine and pain care in emergency department settings, to change the perception of PMPs from "nonessential" to "necessary."

CONCLUSION

PMPs are integral and essential in the treatment of patients with acute and chronic pain who seek care in an ambulatory setting. PMPs separate themselves from colleagues who also treat chronic pain by their ability to work in teams, focus on functional outcomes, and use a comprehensive approach and skill set for diagnosis and treatment of painful conditions. The treatment of chronic pain in an outpatient setting was marginalized during the pandemic and determined to be "elective," and PMPs must take steps to demonstrate the value and need for their services so as to ensure that patients with pain do not suffer a gap in their critical health care needs during future catastrophic events.

DISCLOSURES

None.

REFERENCES

1. *Relieving Pain in America*. Washington, DC: National Academies Press; 2011:55–112.
2. Personal communication ABPMR, March 18, 2021.
3. American Society of Interventional Pain Physicians. 2021 FINAL - physician payment rates rates compared to 2020 rates. https://asipp.org/wp-content/uploads/2020/12/2021PhysicianF.pdf.
4. Sanapati J, Manchikanti L, Atluri S, et al. Do regenerative medicine therapies provide long-term relief in chronic low back pain: a systematic review and metaanalysis. *Pain Physician*. 2018;21(6):515-540. https://doi.org/10.36076/ppj.2018.6.515.
5. Haig A, Uren B, Loar S, et al. The impact of a complex consulting process with physiatry on emergency department management of back pain. *J Int Soc Phys Rehabil Med*. 2019;2(2):77–87. https://doi.org/10.4103/jisprm.jisprm_1_19.
6. Kauffman CA, Malani AN. Fungal infections associated with contaminated steroid injections. *Emerging Infections 10*. Vol 4. Washington, DC: American Society of Microbiology; 2016:359-374. https://doi.org/10.1128/microbiolspec.ei10-0005-2015.
7. Friedman J, Beletsky L, Schriger DL. Overdose-related cardiac arrests observed by emergency medical services during the US COVID-19 epidemic. *JAMA Psychiatry*. 2020. https://doi.org/10.1001/jamapsychiatry.2020.4218.
8. American Medical Association. Issue brief: reports of increases in opioid- and other drug-related overdose and other concerns during COVID pandemic. https://www.ama-assn.org/system/files/2020-12/issue-brief-increases-in-opioid-related-overdose.pdf.
9. U.S. Small Business Administration. Coronavirus (COVID-19): small business guidance & loan resources. https://www.sba.gov/page/coronavirus-covid-19-small-business-guidance-loan-resources.
10. U.S. Small Business Administration. Paycheck protection program. https://www.sba.gov/funding-programs/loans/coronavirus-relief-options/paycheck-protection-program.
11. U.S. Department of Health & Human Services. CARES act provider relief fund. https://www.hhs.gov/coronavirus/cares-act-provider-relief-fund/index.html.
12. Escalon MX, Raum G, Tieppo Francio V, Eubanks JE, Verduzco-Gutierrez M. The immediate impact of the coronavirus pandemic and resulting adaptations in physical medicine and rehabilitation medical education and practice. *PM R*. 2020;12(10):1015–1023. https://doi.org/10.1002/pmrj.12455.
13. U.S. Department of Health & Human Services. Telehealth: delivering care safely during COVID-19. https://www.hhs.gov/coronavirus/telehealth/index.html.
14. Centers for Medicare & Medicaid Services. Physicians and other clinicians: CMS flexibilities to fight COVID-19. https://www.cms.gov/files/document/covid-19-physicians-and-practitioners.pdf.
15. U.S. Drug Enforcement Administration. COVID-19 information page. https://www.deadiversion.usdoj.gov/coronavirus.html.
16. Abbott G. Executive order by the governor of Texas. https://gov.texas.gov/uploads/files/press/EO-GA_09_COVID-19_hospital_capacity_IMAGE_03-22-2020.pdf?utm_content=&utm_medium=email&utm_name=&utm_source=govdelivery&utm_term=.
17. Rubin R. COVID-19's crushing effects on medical practices, some of which might not survive. *JAMA*. 2020;324(4):321–323. https://doi.org/10.1001/jama.2020.11254.
18. Personal communication.
19. Mojica J, Eckmann M, Bickelhaupt B, et al. Pain medicine fellowship education during the COVID-19 global pandemic: experiences from a single institution. 19th Annual Pain Medicine Meeting, Abstract #1349. 2020.
20. Deer TR, Sayed D, Pope JE, et al. Emergence from the COVID-19 pandemic and the care of chronic pain: guidance for the interventionalist. *Anesth Analg*. 2020;131(2):387-394. https://doi.org/10.1213/ANE.0000000000005000.
21. Kemp HI, Corner E, Colvin LA. Chronic pain after COVID-19: implications for rehabilitation. *Br J Anaesth*. 2020;125(4):436-440. https://doi.org/10.1016/j.bja.2020.05.021.

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APPENDIX

Telemedicine Flow

HPI: How is your pain? Where is it? Numbness/tingling/weakness/bowel/bladder issues?

What have you done treatment wise?

COVID 19 risk assessment:

Age > 60 Diabetes Cardiac condition Lung condition Immunocompromised

Quarantine/exposure risk:

How long have they been at home?Any outside contacts? Any high risk person in household?

Physical Exam: (please put your phone/device on a counter so I can see you).

Cervical:

- Neck range of motion **facing device** (bring your chin to your chest, look up, rotate to left/right) - any of that hurt? If so where?
- Shoulder range of motion - please bring both arms up to the ceiling - anything hurt? Restricted?
- Spurling's - please turn your head to the side then look back - any shooting pain down the arm or into the shoulder?
- Palpation - **please turn around** and push on your neck - starting from back of head/skull then work down. Any areas of tenderness?
- Triceps strength - please do a push up on the wall - is there an arm that feels weaker? (Can do one arm at a time if strong)
- Sensation - please run your hand down the other arm, then do the other side. Any numb spots? How about in your hand?

Thoracic:

- Please take your shirt off and turn around with **back towards your device** (ok to keep bra on)
- Please bring your arms back like you are itching your back (note inferior edge of scapula - T7)
- Palpation - show me where your pain is - approximate level based on T7
- Sensation - any numbness around your ribcage or radiating pain around the front?
- Take a deep breath in and out - does that hurt? How about coughing?

Lumbar:

- lumbar range of motion **facing the side** (lateral view) - touch your toes, bend back, now while bending back rotate left/right (facet loading), side bend left/right. Any of that hurt? If so where?
- Palpation - please take your shirt off **- please turn around** and put your hands on your waist at the top of your hip bone (L4 - top of iliac crest) - ok - show me where you hurt (approximate level), push up and down your back and into the buttocks - any areas of tenderness?
- Strength - sit to stand (please sit down then stand up), please walk on your toes take a couple steps, walk on your heels. Do a squat
- Sensation - please run your hand down both legs. Any numb spots? How about in your feet?
- Slump sit - please sit facing the side, slump forward with bad posture, bring your head down. Now bring right leg out in front of you - does that hurt? Where? Now do the left.
- Hip ROM/FABER - please sit facing device. Bring right leg up and put your right foot on your left knee - push your right knee down. Does that hurt? Where? (butt, groin, etc.)

CRPS:

- Based on color change, vasomotor change, allodynia (lightly touch it), skin/hair change

Plan:

- MRI? CT? (CT myelogram would be high risk and only if surgery needed) - ARA? - what are you going to do with results?
- Injection - high/low risk? Acuity? - wait list. "we'll call you once procedures are getting scheduled again"
- Meds: Gabapentin (preferable over nortriptyline or pregabalin) Muscle relaxers - cyclobenzaprine, methocarbamol, tizanidine, baclofen
- Pain meds: acetaminophen with codeine #3, acetaminophen with codeine #4, tramadol
- Could do 2 week - 1 month supply of schedule II - but likely will have to pick up physically - counsel - opioids over time can also reduce immune response and cause hormonal imbalance
- Counseling: oral steroids (if low risk of COVID and good stay at home plan) - discuss risk of immune suppression for 1-2 weeks and increased risk of not being able to fight off COVID 19 and other infections during that time.
- Counseling: NSAIDs (if low risk of COVID) - discuss limited studies showing possible worse complications if they get COVID. Impact on kidneys - use sparingly, better to use acetaminophen (Up to 3 g/day)
- PT - can see if any outside PTs open. "treat your own back/neck" books by Robin McKenzie
- Red flag symptoms - utilize portal - keep us updated!
- 2-4 week follow up by telemedicine depending on situation

All Rx refills - should have telemedicine visit.

All MRI results and other imaging results - telemedicine visit.

All lab results - telemedicine visit.

Utilize portal - make sure they know how to use it!