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

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Editor’s Note:
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.

BACKGROUND

Physical medicine and rehabilitation (PM&R) residency training may be the broadest of the 24 medical specialties in the United States, as it includes hospital, long-term acute care, and skilled nursing based consultations; inpatient care of individuals with disabling conditions from pediatrics to adults in both freestanding rehabilitation hospitals and hospital-based rehabilitation units; outpatient care involving neuromuscular and musculoskeletal conditions across the life span and procedures including (but not limited to) axial and joint injections, spasticity management including programmable pump refills and motor point injections, and electrodiagnostic studies. Further, over a billion people worldwide, or 15% of the world’s population, are thought to have a disability. The rates of disability are increasing in part due to aging populations and an increase in chronic health conditions. PM&R physicians are integral to the care and treatment for people with disabilities and chronic conditions.

Accreditation Council for Graduate Medical Education (ACGME) accredited fellowship programs available for PM&R trainees include spinal cord injury, pain, sports medicine, pediatrics, brain injury medicine, and neuromuscular medicine. Additional (nonaccredited) fellowships include comprehensive spine/musculoskeletal fellowships, electrodiagnosis, stroke, and neurorehabilitation. Historical challenges in PM&R residency training include providing adequate exposure to the breadth and depth of the specialty, as well as developing competence in delivering a broad range of procedures.

Before the COVID 19 pandemic, the biggest “disruption” to U.S. medical residency training occurred in 2007 when the ACGME began implementing the first Milestones for internal medicine and later for all specialty areas. Although this implementation was not technically disruptive to the medical trainees directly, it markedly affected program directors and later fellowship directors in relation to how residents were evaluated. Residents in PM&R programs were provided more objective feedback regarding required achievements in specific areas such as procedures, electrodiagnosis, and rehabilitation management. In the years before the implementation of the Milestones 1.0 program, directors met multiple times to learn from each other about this new resident evaluation methodology. It became apparent that there were many areas of uncertainty; thus, in 2019 and 2020, the PM&R Residency Review Committee (RRC) through the ACGME was working on finalizing Milestones 2.0 to inform expectations for training. These are scheduled to be implemented effective July 1, 2021. This means that the clinical competency committees that meet in December 2021 will use these milestones.

No other historical events, including the 9/11 attacks, have truly disrupted residency and fellowship training.
training as has the COVID-19 pandemic. In 2001, the AAPM&R annual assembly was scheduled to take place from September 13–16 in New Orleans. The terrorist attacks of September 11 resulted in cancellation of the assembly even though resident physicians and others were already on site for precourses. However, once PM&R residents from across the country were able to return to their home institutions, they received uninterrupted training and certification exams were administered on schedule.

**TOP 5 IMPACTS OF THE COVID PANDEMIC ON RESIDENCY TRAINING**

1. Outpatient specialties across the spectrum of health care, from sports medicine to oncology, demonstrated an inability to provide usual care for patients or usual training for residents and fellows attempting to learn the practice of outpatient care. In PM&R, the immediate and long-lasting impact was the loss of training in required skill acquisition in many areas such as pain management and injections, spasticity management, and electrodiagnostic procedures, and the application of these skills in clinical settings. The RRC for PM&R has established recommendations for minimal numbers of procedures prior to graduation including electromyography, axial injections, ultrasound-guided procedures, spasticity management including botulinum toxin injection, and baclofen pump refills. When outpatient clinics were closed or outpatient visits curtailed, these procedures could not be completed especially for residents finishing in June 2020. With at least 25% of the 2019–2020 academic year affected, and over 50% of the 2020–2021 academic year anticipated to be affected, graduating residents may not have had exposure to the procedures they need in order to be deemed competent as practicing physiatrists, as they may have lost up to 25% of total training time.

2. Minimizing direct contact with patients has resulted in a profound decrease in physical examination skill development and supervisory observations of resident–patient interactions. For example, telehealth visits have increased in the outpatient setting, physical patient examinations cannot be performed, which may ultimately lead to inaccurate diagnoses. Additionally, depending on which rotation that residents were assigned during periods of quarantine, they may have missed practicing examinations on entire subsets of rehabilitation populations (e.g., spinal cord injury, traumatic brain injury, orthopedic injuries, etc.). This effect may be immediately noticed with the PM&R residents who are starting in July 2021 as their last months of medical school and their year of internship was undoubtedly affected.

3. Rescheduling of the oral and written board exams has resulted in confusion and anxiety. Initially, residents and fellows who had graduated in 2020 were anxious because they were concerned that those who had been redeployed to care for patients with COVID-19 would not have time to prepare for the board exam. Residents were also concerned that delay of the exam may result in their having “lost” specialized learning, which was no longer a focus in their current job, if they were working. Ultimately, the oral exams changed their delivery method to virtual, but there was confusion with the written exam because the testing sites canceled and rescheduled tests. Recent graduates had to scramble and travel to find open seats for testing to maintain social distancing.

4. Audition rotations and audition interviews for jobs and fellowships have all been canceled, which affects residents’ ability to gauge the culture of the fellowship or job they seek and renders it harder to differentiate themselves as a desirable applicant.

5. Medical students have been unable to complete audition and elective rotations with the ease and frequency they previously were afforded. Many medical schools, particularly osteopathic medical schools, which train almost 25% of U.S. medical students, are not affiliated with a university. Therefore, there is no immediate access to PM&R elective rotations for these students. With mandated travel restrictions, many students were unable to obtain in-person electives and settled for virtual electives. Medical students are also not able to participate in in-person interviews, and although this afforded financial relief, it has created a barrier in determining whether or not specific residency programs are cultural fits for these students.

**FACILITATED PROGRAMMATIC AND PROCESS CHANGES**

Escalon et al published a paper titled “The Immediate Impact of the Coronavirus Pandemic and Resulting Adaptations in PM&R Medical Education and Practice” in *PM&R.* The authors conducted an anonymous survey to understand the immediate impact of the COVID-19 pandemic on PM&R medical education and practice as well as gain insights into how technology was leveraged for health care and education. The survey was completed by 501 individuals including 178 attending physicians, 202 residents and fellows, and 111 medical students. Overall, the authors concluded that although the COVID-19 pandemic strained almost every aspect of the health care system, new opportunities for work adaptation were quickly incorporated into medical education. This included introduction and adaptation of telehealth across the country and across specialties and
Although all accredited residency programs must heed the same training criteria as outlined by the ACGME, it is important to note that each PM&R residency training program is unique with different strengths and opportunities. For example, freestanding rehabilitation hospitals versus hospital-based rehabilitation units provide very different exposures, as do university/tertiary care hospital-based programs versus community-based programs. Some programs are renowned for developing expertise in electrodagnosis, ultrasound, or biologic-based therapies, whereas others are acknowledged to have robust experiences in traumatic spinal cord and brain injury rehabilitation. Some programs are rich in inpatient experience and others have recognized expertise in the outpatient environment. Because of this, programs responded differently during the first phase of the COVID-19 crisis (March through May 2020). For example, in New York City, patients at some teaching institutions were not being transferred to rehabilitation units. Rather, rehabilitation was occurring within the confines of the isolation rooms. Because some rehabilitation units were being used to house COVID-infected patients, PM&R resident and attending physicians were given the opportunity to work in the acute care hospitals. In Seattle, university hospital clinics were paused to preserve personal protective equipment and to decrease the risk of viral transmission and exposure. Thus, some residents were told to stay out the hospital but continue virtual studying. In the Chicago area, three of the four residency training programs are based at freestanding rehabilitation hospitals whose beds were not commandeered for COVID patients. These hospitals had the opportunity to develop COVID recovery units. The one rehabilitation residency program that was hospital based (i.e., not at a freestanding hospital) saw the rehabilitation unit close, reopen, and subsequently become repurposed, decreasing the number of general rehabilitation beds available for trainees’ clinical experience. In short, there was no uniform approach to graduate medical education in PM&R during the COVID pandemic.

Didactic education has traditionally included bedside/gym rounds. Early in the COVID pandemic, these uniquely in-depth didactic rounds (with emphasis on understanding secondary issues and anticipating complications), for which the rehabilitation team is well known, were abandoned. In an effort to limit face-to-face contact with patients (even though all faces were masked), patient rounds were often conducted with a sense of urgency. Additionally, in Spring 2020, many of the geographic areas hit hardest by the COVID-19 pandemic saw significant declines in the typical admitting diagnoses within rehabilitation units, such as stroke, traumatic spinal cord injury, and brain injury. For example, there was a statistically significant decrease in final diagnosis of transient ischemic attack at all California hospitals and all West regional hospitals during the March-April 2020 window. Research from the Centers for Disease Control and Prevention found that in the 10 weeks after COVID-19 was declared a national emergency, emergency room visits declined 23% for myocardial infarctions and 20% for stroke. Paradoxically, once patients started to present to hospitals with stroke, other illnesses, or had survived their COVID-19 infection, they were often very sick, and the acute care settings were pushing harder than ever to move these patients out of the hospital to free up beds for more COVID patients. Thus, there was a range of PM&R resident experiences, from studying at home to heightened stress of working at the acute care hospitals and working in rehab units seeing very sick patients.

For many training programs, resident and fellow didactic education also includes protected time during the week during which residents attend lectures, journal club, grand rounds, and invited lectures. These are the opportunities for all residents from a single program to congregate, reinvigorating the concept of being part of the team. With the COVID pandemic and the need for social distancing, training programs quickly pivoted to web-based platforms such as Zoom, WebEx, and Microsoft Teams. This provided an opportunity to invite expert lecturers from across the country and to implement other late-breaking information sessions that historically were not available to them. These unique educational processes were nurtured and developed by individual program directors, by institutional administration, and by residents who organically became aware of opportunities through their peers. One example of a cooperative endeavor was the initiation of a lecture series for the Chicago area PM&R residency programs. Zoom links were shared when any of the programs had lectures or grand rounds scheduled, and residents were given the opportunity to participate. Subsequently, lecture schedules for most institutions returned to program specific topics as many programs have a 12- or 18-month rotating series of topics to ensure that the residents get exposed to the breadth of rehabilitation. However, this shift toward virtual learning platforms may provide residents across the country an opportunity for interactive learning collaboratively.

What has profoundly expanded is the use of telehealth services, including performance of remote inpatient consults and admissions (with the attending physician or residents using an electronic platform to visit with the patient), and the exposure of trainees to telehealth outpatient care. In addition to the residents’ ability to continue to counsel and educate patients, telemedicine services provide a look into patients’ homes that contextualizes safety and function and facilitates a greater understanding about how social determinants of health may be affecting their ability to optimize their health and quality of life. The
impact of physiatry can be extended geographically in ways that were not imagined before COVID.

OUTCOMES

As noted previously, the PM&R RRC has established specific criteria for numbers of procedures to be completed in order for a resident to be deemed as having successfully completed rehabilitation training. In general, academic programs are responsible for residents meeting these minimal numbers to assure development of competent rehabilitation physicians. When the COVID pandemic caused outpatient rotations to be canceled for residents effective in March 2020, meeting even this minimum expectation created angst for many residents. However, this existential challenge raised even greater issues about the value of these required procedural targets.

In April 2015, PM&R RRC sent a memorandum with updated minimum procedure criteria for PM&R trainees. These numbers were determined by reviewing data collected since 2009 to establish minimum expectations for resident performance of selected procedures. The minimum numbers ranged from performing five epidural steroid injections to 15 botulinum toxin injections to 200 electrodiagnostic studies (both observed and performed). Even before the pandemic, questions had been raised as to the value of these minimum numbers. Clearly, one could not conclude that after performing five epidural steroid injections, resident physicians would be considered competent in performing these procedures. The recognition that these minimum numbers do not confirm competency was further supported when the American Board of Physical Medicine and Rehabilitation (ABPMR) eliminated the requirement of attaining any of the identified numbers of procedures in order to enable residents to successfully graduate from a PM&R training program in 2020. Further, at a presentation for residency and fellowship program directors at the 2021 meeting of the Association of Academic Physiatrists, representatives of the PM&R RRC acknowledged that programs would not be cited as being out of compliance if residents did not achieve minimum numbers of procedures for the academic year ending 2021.

In addition to the loss of training time for residents and fellows, oral boards were postponed and then given on three separate weekends using a remote platform, and the written boards were also postponed. Speculation had arisen about whether there would be a change in the pass rate of the part I board exam based on “loss of experience.” There was so much concern on the part of postgraduate year 4 trainees (those scheduled to complete the residency June 30, 2020) that the AAPM&R PHIT (Physiatrist in Training) Council distributed a nationwide survey in April 2020 regarding concerns about the established test date of August 2020 for part I of the ABPMR boards; 79% of residents had indicated they wanted to take the test as scheduled. However, as of April 2020, 18% of respondents had been reassigned to non-PM&R duties, and over 21% of respondents from 18 different training programs wanted to postpone the part I board exam, feeling that they had not been able to adequately prepare for the examination. Interestingly, some people did have the option to take the board exam November 9, 2020. There were some people displaced from the August 3, 2020 date because the Pearson Vue centers could not accommodate everybody based on social distancing requirements and some people had to travel to different sites. In 2020, ABPMR data on the board pass rate indicates that of 408 first-time candidates, 391 (95.8%) passed. In 2019, the part I examination was administered in August and of 410 first-time candidates, 388 (95%) passed. In 2018, 388 of 412 first-time candidates (94%) passed. Therefore, it does not appear that circumstances related to COVID-19 resulted in an adverse effect on the board pass rate for the part I exam.

In contrast, the pass rate for the part II exam in 2020 did appear to change. In 2020, ABPMR continued the part II oral examination. In all prior years, candidates had to travel to Rochester, Minnesota in May the year after they passed the written exam for the administration of the part II exam. In 2020, the first ever virtual administration of the part II examination occurred in September, October, and November to 442 candidates overall, including 416 first-time candidates. Of the first-time candidates, 345 (83%) passed. This is actually a lower pass rate than in the two previous years. In May 2019, the part II exam was administered to 418 first-time candidates and of these 405 candidates (97%) passed. In 2018, 362 (89%) of the 406 first time candidates passed. The ABPMR does not feel that the pass rate for the part II 2020 exam (83%) was markedly different from prior years. Rather, it was felt that the very high pass rate in May 2019 was the exception. The ABPMR is committed to administering the part II oral examination virtually again in 2021.

FEEDBACK RELATED TO PHYSIATRIC SYSTEMS, PROGRAM CHANGES AND DELIVERY OF CARE

Policy and payment system changes may have long-term impacts on the practice trajectories for residents and fellows. The Centers for Medicare & Medicaid Services has been flexible on policy requirements for the types of patients admitted to inpatient rehabilitation (e.g., relaxing the 60% rule and eliminating the 3-hour therapy requirement). This has resulted in hospitals seeing a different type of patient mix, which has changed residents’ and fellows’ experiences. Through the COVID
pandemic, now in the second wave, insurance companies and ongoing modification of the Centers for Medicare & Medicaid Services criteria recognize the importance of frequent physician presence in postacute care (physiatrist). This reflects the understanding that the inpatient rehabilitation setting is the only postacute setting that relies on the integrated knowledge by the physician of the medical and exercise needs of patients and is coordinated with skilled therapies. COVID-19 has highlighted the importance of cardiopulmonary rehabilitation together with rehabilitation for persons with critical illness and encephalopathy. In a communication on November 25, 2020 from the American Hospital Association, it was noted that “HHS seeks input on making COVID-19 regulatory flexibilities permanent.” The Department of Health and Human Services (HHS) sought and received comments for 30 days from health care providers and other stakeholders on the need to make permanent any regulatory flexibilities the agency has implemented in response to the COVID-19 public health emergency. Effective January 21, 2021 HHS renewed the COVID-19 public health emergency, extending regulatory flexibilities that include Medicare telehealth reimbursement, higher rates for COVID-19 hospitalizations through April, and waiving the inpatient rehabilitation facility 3-hour rule for all providers. The waiver of the 3-hour rule acknowledges the need for interdisciplinary care and physiatrist oversight that cannot be provided in a skilled nursing setting.

PROJECTIONS RELATING TO FUTURE EVENTS – THREATS AND OPPORTUNITIES

The COVID-19 pandemic has revealed threats to the education and training of residents in the United States during times of national crises. In particular, these threats have included varied and often fragmented training schedules for residents and fellows across the United States in terms of procedural-based experiences, hospital- and clinic-based rotations, and the often arbitrary determination of “competence.” Especially concerning is that because specialty boards determined that these gaps in training did not have to be completed (made up), a valid question is raised as to how trainees’ clinical competency should be judged now and into the future.

These challenges also affect medical students’ experiences and career pathway decisions. The restricted opportunities for medical students to be exposed to elective rotations may ultimately result in a decreased number of competitive applicants for certain specialties, or applicants who do not fully understand or appreciate the specialty to which they apply. Lesser-known specialties, such as physiatry, are at greater risk for such applicant attrition or for receiving applicants who may be at greater risk for burnout because of choosing a personality-incompatible specialty pathway.

With these threats, the pandemic has also identified opportunities to enhance medical training procedures, trainees’ experiences, and governing bodies’ regulatory processes related to determination of competency and professionalism. To that end:

1. Redefining procedural competency
   The ACGME RRC and the ABPMR should bridge any disconnection and mutually agree that the attainment of arbitrarily defined minimal numbers of procedures should not determine competency. New guidelines for residency training procedural competency should include knowledge assessments that demonstrate resident physicians’ ability to identify the indications and contraindications for a particular procedure, but that successful completion of the residency training program does not require demonstration of performance competence in all procedures. Supervising attending physicians should also be able to decide whether a resident has demonstrated performance competence, such as an electrodiagnostic procedure, without the resident necessarily obtaining an established minimum number. A clear rubric for competency criteria can help standardize assessment. This elimination of arbitrary criteria to confirm competency should remain active even beyond the end of the pandemic, relieving unnecessary burden on physician academicians and resident trainees.

2. Reimagining the PM&R residency experience
   Perhaps the mandate should be that all of the nearly 100 PM&R residency programs in the United States incorporate similar core components, but that programs are then differentiated by the various procedures to which residents are exposed, and that a fellowship year is only necessary if the trainee has not had hands-on access to procedures or demonstration of competence (as noted previously) during the residency. Further, creating more stringent and objectively measurable competency requirements to inform credentialing bodies would also bolster the unique skill sets of physicians and would raise the bar for nonphysician practitioners seeking credentialing for performance of similar procedures. The development of regional and/or national educational banks, with online accessible materials including evaluations (quizzes or other e-learning options) would create more equitable learning opportunities across training programs.

3. Integrating medical and rehabilitative care
   The COVID pandemic has also highlighted opportunities for PM&R residents in managing patients with complex medical conditions, in addition to focusing on rehabilitation. We know that the patients cared for by physiatrists often have complex needs, but
there is enormous variability in how much direct responsibility attending physicians and PM&R resident physicians have for the medical (non-rehabilitative) care of patients. Perhaps the demonstration of the integration of medical care required in patients with chronic sequelae from COVID infection who are undergoing rehabilitation supports the idea of physiatrists being the team leader for medical homes for persons with disabilities. These patients’ experiences have focused new interest in chronic disability, including the importance of the language of function into the evaluation of effective health care in the United States, with multiple competitive research funding opportunities through the National Institutes of Health including Availability of Emergency Competitive Revisions for the Clinical and Translational Science Award (CTSA) Program to Address COVID-19 Public Health Needs, and, Neurological and Neurocognitive Sequelae from SARS-CoV-2 Infection and COVID-19 in Aging and Age-Related Neurodegeneration.15

4. Enhancing the medical student experience
   It is important to take into consideration the medical student experience. During the COVID-19 pandemic, medical students have had decreased opportunity to shadow PM&R programs, which will ultimately decrease interest and number of qualified applicants. The reevaluation of elective rotations, particularly audition rotations, for students interested in PM&R must occur. As of the autumn 2020, the Liaison Committee on Medical Education guidelines are that students who do not have an elective experience available through their home training program should be afforded the opportunity to travel for elective rotation.16 The creation of a more robust virtual experience for student exposure would be optimal, which would then give students, especially those in medical schools without PM&R rotations, the ability to meaningfully participate in a single elective rotation.

CONCLUSION

The need for specialists in rehabilitation medicine is only growing, and the COVID-19 pandemic has greatly raised the awareness of disability and disabling conditions. The COVID-19 pandemic upended graduate medical education and undergraduate medical education in ways that had not been predicted at all by the ACGME, the Liaison Committee on Medical Education, or any of the other regulatory bodies focused on training physicians. The opportunity to reimagine core PM&R training, including reassessment of “competence” in procedures has been forced upon us. Additionally, this pandemic highlighted health and socioeconomic inequalities that must be addressed as part of the overall medical education paradigm.

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How to cite this article: Gittler MS, Hamilton RG. Demonstrating the vital role of physiatry throughout the health care continuum: Lessons learned from the impacts of the COVID-19 pandemic on graduate medical education. PM&R. 2021;13:599–604. https://doi.org/10.1002/pmrj.12612