Learning in the Time of COVID-19: Key Lessons From the Pandemic for Medical Trainees

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Abstract

The COVID-19 pandemic has changed the face of education for undergraduate and graduate medical trainees. Lectures, clinical clerkships, and testing have all been impacted significantly because of patient care needs and concern for the health and safety of trainees. While traditional teaching strategies have been upended, the challenges posed by the pandemic have also created unique opportunities for trainees. In this article, the authors summarize lessons trainees can learn from the ongoing pandemic in the following areas: public health, disaster preparedness, and resource allocation; reinventing professional and personal roles to meet the needs of the health care system; flexibility in navigating testing, licensure, and certification; appraising scientific evidence quickly and accurately; balancing a physician's call to duty with fear for personal safety; combating moral injury; interprofessional collaboration; and advocating for oneself and one's colleagues. Focusing on these lessons can help educators steer their efforts to better prepare future physicians for unforeseen challenges that may come up in their personal and professional lives as well as in society as a whole.

The COVID-19 pandemic has turned the world upside down, and medical education is no exception. As patient care has rightfully taken precedence over didactics, medical trainees have experienced disruptions to their education.[1,2] Preservation of personal protective equipment (PPE) and concern for personnel safety have dictated that students be removed from direct patient care,[3] while residents and fellows shift from elective rotations to ward and intensive care unit (ICU) rotations. For trainees actively taking care of patients at the frontlines, safety concerns—along with the added volume and complexity of patient care—have changed what they would traditionally be learning. Although educators have attempted to maintain normalcy for their trainees through online lectures, video conferences, and involving trainees in the delivery of telehealth services,[1] interest in, and time for, academic conversations have waned in the face of the day-to-day realities of treating patients during the pandemic.

In these times of crisis, it is tempting to believe that medical education has been compromised for both undergraduate and graduate trainees. However, if we look closer, we see that over the course of the pandemic, an entire generation of medical trainees has been immersed in lessons that may have previously been hard to amass in a lifetime. While the trajectory of this pandemic is still uncertain, we, as educators, would be remiss if we did not reflect on the crucial lessons trainees have already learned. In this article, we discuss some key pragmatic lessons for medical trainees from the COVID-19 pandemic.

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Lessons for Trainees

Public health, disaster preparedness, and resource allocation

The dichotomy between the practice of health care and the state of public health in the United States has been brought to the forefront during this crisis. Medical trainees have now seen the practical implementation of key concepts in disease transmission and detection firsthand. Epidemiological and statistical concepts that were previously only mentioned in lecture halls and licensure exams—like reproductive number, case fatality rate, and predictive values of tests—are now being interpreted in trainees' day-to-day lives.[4,5] As this crisis lays bare the differences in patient outcomes that are driven by racial and economic disparities, it is even more important to emphasize social determinants of health in medical school curricula.[6] Parallels between the current pandemic and historical crises such as the flu epidemic in 1918 are excellent reminders of the importance of early, layered, and prolonged interventions in "flattening the curve" and will hopefully prevent the next generation of physicians from developing the amnesia that has led to poor crisis preparedness in the past.[7]

While most trainees are not active participants in the disaster planning occurring at institutional levels, they are witnessing how strategies to tackle these unprecedented challenges are constantly being implemented and improvised. Residents and fellows are learning about targeted approaches for rapid risk assessment, resource mapping, and collaborating with stakeholders outside of medicine. The value of concise and clear communication, prioritization and efficiency in patient care, and protocols to guide practice on national and international levels is becoming increasingly evident.

Resource constraints—both human and material—are currently ubiquitous, despite not usually being an issue in the United States.[8] Confronted by overwhelming numbers of patients, trainees in many states are discovering a new definition of triage driven by the scarcity of hospital beds, staff, PPE, and respiratory equipment. Those in other states are learning how to estimate, conserve, and demand these necessities as they build surge capacity.

Reinventing roles to meet needs

Although medical education inherently requires real-time needs assessment and innovation, we—educators and trainees—are most comfortable doing this in our

designated professional roles within the confines of our familiar environments. There is also a hierarchical allocation of responsibilities that makes students, residents, and fellows see the value in the roles assigned to them. However, during the pandemic, trainees' roles are being redefined both within and outside hospital walls.

Those designated as active caregivers on wards and ICUs are rapidly equipping themselves with the knowledge and skills needed for this role. Off-service residents are joining hands with palliative care staff to form communication teams and are seeing patients remotely via telehealth. Outside of the hospital, medical students are findings novel ways to contribute by leading efforts to source PPE, staffing patient call centers, providing child care for beleaguered physicians, volunteering at outreach programs, and screening hospital visitors for symptoms of the virus before they enter the premises.[9] A sense of community is more palpable than ever, and trainees are seeing the value in coming together for a common cause.

Beyond personal efforts, institutions are bringing physicians from all specialties to the frontlines and integrating incoming students into public health work on a national scale.[10] These actions are illuminating the broader and more traditional role of physicians in society for a generation of trainees that is accustomed to the boundary lines of subspecialization.

Navigating testing, licensure, and certification

Besides the changes in teaching and patient care brought about by the pandemic, trainees are also adjusting to changes in educational assessment. The United States Medical Licensing Examination exams, which were postponed in the early phase of the pandemic, have now resumed.[11] However, limited testing capacity has delayed exams by months for many students. The Step 2 Clinical Skills exam, a test students prepare uniquely for, has been suspended entirely.[12] Although they may not need these tests for immediate licensure purposes, medical students are accustomed to having them to help track their curricular progress and are now navigating their education without these tasks after months of preparation.

A concurrent challenge is teaching students the importance of flexibility and baseline preparedness—valuable skills for practicing medicine in a system where assessments of medical knowledge and skills are neither piecemeal nor attuned to timeliness of preparation.

Appraising evidence quickly and accurately

Evidence-based medicine is at the core of physicians' educational foundation. Traditionally, medical trainees learn to incorporate this into practice after significant synthesis and scrutiny. During this pandemic, however, they have been confronted with a barrage of new information. As evidence pours in at a pace faster than one person or institution can synthesize, trainees are actively seeking out shared sources of information, discussing the implications of incoming evidence, and watching experts deliberate about processes for generating evidence. Educators are already rising up to the challenge of helping trainees navigate nontraditional platforms, such as Twitter and other social media sites.[13] With guidance on the basic principles of interpreting evidence and a pathway to accessing what were previously considered unconventional resources, the changes brought by the pandemic could become tremendous opportunities for trainees to augment their understanding of how to appraise literature critically and efficiently.

Balancing the call to duty with fear for personal safety

Nothing about medical training is ordinary, least of all the people who choose to pursue it. Medical trainees are accustomed to stretching their physical, mental, and emotional selves in the pursuit of their goals—whether they are guided by self-serving interests or altruistic tendencies—or, more commonly, both.

However, during the pandemic, students, residents, and fellows in many parts of the country have been faced with the conflict between self-preservation and call to duty. And trainees are embracing their calling.[14] While currently practicing physicians charter paths for trainees to emulate, the next generation of physicians is internalizing new and changing definitions of professionalism and responsibility while acting with courage during the crisis.

Combating moral injury

Meeting the enemy at the frontlines is not without costs to health care workers. Beyond physical exhaustion, trainees are facing the challenges of communicating difficult and often sad news to patients' family members; witnessing the difficulties of patients who are isolated from loved ones because of the disease; and, on many occasions, watching colleagues fall ill with the very disease they are all fighting.

While dealing with these challenges, trainees are simultaneously learning to (1) acknowledge the emotional turmoil brought on by these issues, (2) communicate their distress to peers and superiors, (3) share the human experience of medicine with their fellow trainees, and (4) adapt to overcome the internal strife generated by external distress.[15] The national conversation on physician burnout is booming for good reason. While institutions must correct systems issues to prevent moral injury to the physicians who work for them, educators can also teach trainees skills that constitute the moral equivalent of survivorship on the battleground, which can better prepare them to tackle the stressors inherent to the practice of medicine.

Interprofessional collaboration

Despite the challenges related to the COVID-19 pandemic, our desire as physicians to deliver excellent care and achieve the best possible outcomes for our patients persists, unphased by the limitations in our knowledge and resources. To realize this goal, medical professionals in the clinical and research realms are crossing boundary lines of professional disciplines to fill gaps in evidence and capitalize on existing knowledge and skills.[16]

Leaders from all disciplines have had to pull together to create protocols, communication streams, and training modules to help navigate the pandemic.[17] ICUs are full of patients in need of advanced mechanical ventilation, prone therapy, nutrition, and physical therapy, which necessitates interdisciplinary interaction among physicians to optimize the delivery of care to these patients. Limitations on who can enter patient rooms have led to hallway discussions between physicians and

respiratory therapists, nursing staff, physical therapists, and nutritionists, which leads to better understandings of each other's roles and maximizes interprofessional learning. Trainees are both observing and participating in this new era of practice where everyone learns together to fight one common enemy. By witnessing real-life changes to how care is delivered to patients, trainees can learn about methods of interprofessional collaboration that go beyond traditional teaching methods and integrate them into their routine practice.

Advocating for self and colleagues

The qualities of professionalism and sense of responsibility that society appreciates in physicians and medical educators work to inculcate in trainees are based on the ground rule of putting others before oneself. While this has been taught to trainees and role-modeled by educators in medicine for generations, the real-life challenges that physicians face during and after their training have received less attention.

During the pandemic, it has been remarkable to see trainees advocate for themselves and their colleagues. They are recognizing the implications of their work and safety and asking the right questions to help the society they serve help them. Discussions regarding higher education loan forgiveness, hazard pay, and tax forgiveness for medical trainees are receiving national attention.[18] Boundary lines between the time that educators spend supervising trainees and their duty hours are being discussed. Professional organizations are calling for the physical and financial protection of trainees in the training environment.[19]

Conclusions

As we rise up to meet the challenges introduced by the COVID-19 pandemic, we are learning lessons that have the potential to change the future for physicians and the U.S. health care system. Medical trainees are neither untouched by these challenges nor missing in the response expected of them. In fact, many of the lessons we are learning during the pandemic constitute the core competencies of medical education.[20] As trainees and educators contemplate medical education's place in the grand scheme of health care during the pandemic, focusing on these lessons can help steer efforts to create a generation of physicians that is better prepared for the anticipated and unforeseen challenges in their personal and professional lives, as well as in society as a whole.

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