

# Unmasking Challenges and Boosting Innovation: the Impact of the COVID-19 Pandemic on Medical Education



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In March of 2020, news headlines across the USA announced the closure of K-12 schools and many undergraduate universities as a drastic but necessary response to the emerging threat of COVID-19. However, medical schools and residency programs did not have the option to shut down completely. Medical schools switched from classroom-based to virtual learning to preserve some facets of education.<sup>1</sup> Residency programs were focused on how to maintain clinical care in the hospital while keeping their residents safe and continuing their own educational mission with virtual learning and telemedicine in clinics with limited staff; this shift was endorsed by the Accreditation Council for Graduate Medical Education.<sup>2</sup> The COVID pandemic impacted medical education in countless ways: it forced educators to rapidly adapt curricular approaches to provide remote learning and adjust clinical experiences in unique ways not seen in our generation. In this special medical education issue of *JGIM*, four articles highlight the flexibility and creativity of medical educators in the face of the challenges wrought by the COVID pandemic.

In their manuscript, “Reimagining Undergraduate Medical Education in a Post-COVID Landscape,” Guo et al. provide a medical student and medical educator perspective on the impact of COVID on undergraduate medical education, particularly as it relates to health disparities. Many medical schools provided opportunities for self-directed learning prior to the pandemic, but COVID accelerated the rate of adoption and increased the acceptability of alternative modes of teaching and learning, such as virtual and asynchronous learning. Guo et al. highlight these changes as an opportunity to update the content of undergraduate medical education (UME) curricula,

specifically recommending inclusion of ways to recognize and address systemic bias in healthcare. Dubbed “twin pandemics”<sup>3</sup> COVID-19 and structural racism are inextricably linked, and Guo et al. provide a compelling case for leveraging change driven by COVID into change in how we teach undergraduate medical students about systemic bias.

Guo et al. raise important questions for medical educators about the shift to virtual and asynchronous learning during COVID. Prior to the pandemic, classroom attendance in the preclinical years was already declining, and the availability of asynchronous learning was increasing (perhaps begrudgingly on the part of medical schools). Virtual and asynchronous learning is now likely a permanent feature of preclinical undergraduate medical education. These educational changes raise fundamental questions about how to develop course content that is engaging in the virtual environment, measure student engagement with course material, and determine the impact that these changes will have on the culture and community of medical schools, as well as the individual student experience.

The educational effects of modified medical student clinical experiences during the COVID pandemic are still being assessed. In “Innovation and Missed Opportunities in Internal Medicine Undergraduate Education During COVID-19: Results from a National Survey,” Alexandraki et al. report the results of a national survey of internal medicine clerkship directors on how their clerkships changed at the onset of COVID as well as changes once medical students returned to clinical rotations. Over 100 clerkship directors responded to the survey; of those, only two schools continued all in-person clinical activities during the pandemic. Overall, students were away from in-person learning for a median of 85.5 days. Even as students returned to in-person clinical learning, changes persisted: the length of both inpatient and ambulatory rotations decreased from before the pandemic to the Fall of 2020, as did the number of clinical sites available to students. Concomitantly, most schools (66%) did not require additional internal medicine clinical experiences to replace the internal medicine clinical time that was missed during COVID.

Both of these studies offer a snapshot of some of the many ways that COVID affected undergraduate medical education,

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as well as how COVID accelerated the pace of change. It will be essential for medical educators to continue to measure the impact of COVID on these medical students as they progress through residency, fellowship, and beyond.

Graduate medical education was also significantly impacted by the COVID pandemic. Two articles in this special issue highlight that the pandemic exposed gaps in resident training and inspired medical educators to create ways to address them. First, in their manuscript “Using Telemedicine to Preserve Internal Medicine Residency Continuity Clinic During the COVID-19 Pandemic: Results from a National Survey,” Kearns et al. report on a survey of internal medicine program directors (PDs) about telehealth during the pandemic. While only 13% of PDs had established telemedicine curricula in their programs prior to the pandemic, nearly 92% used it during the COVID pandemic, and most planned to continue using telehealth moving forward. The sea change around telemedicine, particularly in internal medicine, will likely be a lasting legacy of the pandemic. Medical educators have had to create novel curricula and faculty development around telemedicine, leading to further innovation.

Finally, in “‘I don’t trust it’: Use of a routine OSCE to identify core communication skills required for counseling a vaccine hesitant patient,” Wilhite et al. describe the results of an observed structured clinical exam (OSCE) of residents in an internal medicine residency program focused on counseling a vaccine hesitant adult during a video visit. Overall, only 55% of residents performed well in their ability to educate the standardized patient about vaccines. While the authors created this OSCE in response to vaccine hesitancy specifically related to the COVID vaccines, they note that internal medicine physicians must be effective in addressing vaccine hesitancy outside of the context of COVID. The results of this OSCE suggest that addressing vaccine hesitancy is a gap in our current medical education, and that curricula should directly address this lack of knowledge through skills-based learning.

The COVID pandemic has altered medical education for over two years—for some medical students, the entirety of their clinical years in medical school, and for internal medicine residents, the majority of their time in residency. The four articles selected for this special issue highlight innovative responses to the pandemic at both the undergraduate and graduate medical education levels. However, the impact of the COVID pandemic on learners has yet to be well-described, particularly in terms of their clinical skills at the time of medical school graduation, their burnout levels entering and throughout residency, and whether any gaps in their knowledge need to be filled by specific clinical skills development. Will the negative educational effects of the COVID pandemic be felt by these students and residents into their attending years? While we hope that that is not the case, we are confident that students, residents, and medical educators will continue to innovate and creatively respond to the ever-changing challenges that the ongoing pandemic has created.

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