



# COVID-19: The Impact on Internal Medicine Resident Training

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## Abstract

### Keywords

- COVID-19
- medical education
- residency training

The novel coronavirus disease 2019 (COVID-19) pandemic has impacted the lives of physicians at all levels. The workloads and working hours have increased tremendously which affected the time spent on administrative and academic duties. The COVID-19 pandemic imposed a lot of challenges on academic institutions in term of providing quality of care to patients and maintaining the quality of education for trainee. Herein, we discuss the challenges and impact of the pandemic on residents training.

## Introduction

The severe acute respiratory syndrome coronavirus 2 (coronavirus disease 2019 [COVID-19]) pandemic has changed the lives of the entire world drastically. Not only have we been affected by the growing number of cases and casualties but also our day-to-day lives have changed. This is true as well for medical trainees such as residents or fellows. For us trainees, not only did working conditions change but our training has also been impacted. During the following days after COVID-19 was declared a pandemic by the World Health Organization, our attention and focus shifted toward the care of our patients. Weeks into the pandemic we realized that the care we provided for patients was not the only thing that was different. Our training, lectures, conferences, patient flow, and the way we communicate with patients were not the same anymore. Human beings as a species have the capacity to adapt, and medical trainees are a great example of this. We have adapted to the new norms in our training. This article aims to highlight the changes and possible solutions to guarantee that future health care professionals and specialists are up to the task for the benefit of our patients.

## Medical Education

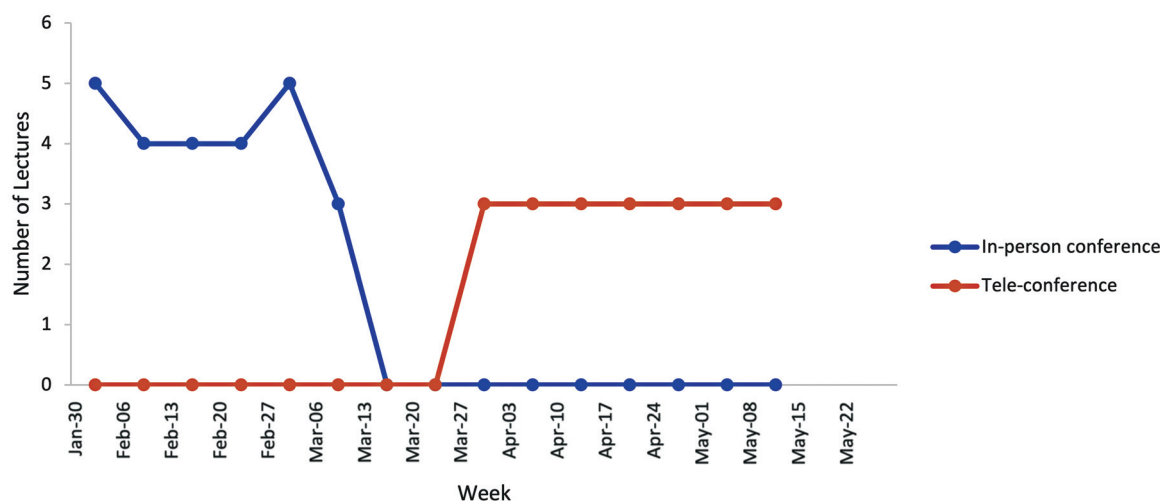
### Didactic Learning

As part of the pandemic mitigation efforts, social distancing led to immediate suspension of traditional in-person lectures and educational meetings that have been the cornerstone of medical education for decades.<sup>1,2</sup> Significant efforts were made to convert critical portions of the in-person educational curriculum to virtual learning platforms. A two-part solution to live interactive and on-demand virtual education emerged at our institution. Live and interactive virtual lectures now take place three times per week compared with five times per week in prepandemic times (►Fig. 1). These live virtual learning sessions are supplemented by on-demand prerecorded lectures, particularly for preparing for the United States Medical Licensing Exam (USMLE) or American Board of Internal Medicine exam. After experimenting with several virtual platforms, our institution selected WEBEX (Version WBS 40 by CISCO), which allows trainees to interact with the speaker via video, audio, or text-based means. Many other institutions adopted similar interventions to

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**Fig. 1** Number of conferences per week since the end of January to late May of 2020.

facilitate continued resident education during this challenging time.

### Bedside Teaching

Bedside teaching has always played a significant role in resident education. Bedside teaching provides opportunities to hone essential skills that can only be obtained through practice such as medical history, physical exam, and patient-focused discussions.<sup>3</sup> Social distancing and local health care policy changes to reduce potential resident exposure to COVID-19 and conserve personal protective equipment (PPE) dramatically reshaped the inpatient medicine service. Patient rounding occurred in small groups of 1 to 3 people, supplemented with discussion of all patients on the teaching team (1 attending, three residents, up to 20 patients) in a location away from the patient care areas of the hospital or during a virtual team meeting.

Inpatient censuses were reduced by nearly 50% during the initial few weeks of the COVID-19 pandemic. These changes limited patient–trainee contact time, provided fewer opportunities to evaluate new patients, as well as fewer opportunities to demonstrate history taking or physical exam findings to the attending. Team members were also less familiar with all the patients on a team, which may have impacted patient satisfaction and continuity of care when a resident has a day off.

Critical patient and family discussions such as end of life care were dramatically impacted by COVID-19 restrictions that barred all visitors to the hospital for many weeks. Instead of being conducted in person, these discussions were held through video conferencing tools that were in short supply. This changed the character of these discussions and provided additional logistic and technical challenges to make them feasible.

The impact of the COVID-19 social distancing and PPE demands was felt much more acutely in the outpatient setting. All in-person clinic visits were canceled for several weeks, resulting in a 60% reduction in patient encounters

from baseline in the first 2 months of the COVID-19 pandemic at our institution and many others.<sup>4</sup> Fortunately, there was a rapid expansion of telemedicine visits facilitated by the unprecedented move by the Center for Medicare and Medicaid Services to facilitate the delivery of telemedicine services.<sup>5</sup> This new telemedicine initiative forced our faculty and trainees to rapidly adapt to a virtual patient encounter environment, so it was possible to reach out to vulnerable patients that were unable to be evaluated in person. While this change did lead to an increase in the number of patients residents were able to see, it still was lower than what the typical resident sees in years prior to COVID-19 era in our institution. We attribute this to the initial building of experience in our institute to help facilitate such visits, as well as that a large portion of our patient population (i.e., elderly) is used to in-person visits only and it was difficult for them to adapt to such change.

While the details of patient–physician interaction via telemedicine may vary depending on each institution, this has allowed trainees to continue to practice their clinical skills and assured that the critical intellectual exercise we sustain when staffing a patient with our attendings is not lost.<sup>6</sup> Having said that and understanding the worth of telemedicine has gained in these trying times, we must note that the value of an in-person patient encounter cannot be replaced and hope that we continue to use telemedicine when deemed necessary without displacing in-person visits.

## Academic Productivity

### Publications

The pandemic has brought along the most significant explosion of scientific literature in history. The flow of submissions has increased exponentially. Since January, one source has estimated that there have been 23000 scientific papers published on COVID-19, with a doubling time of 20 days.<sup>7</sup> This has translated into a significant increase in turnaround time as reviewers have found themselves overwhelmed with

the number of submissions. Besides the physicians' eagerness to find significant breakthroughs regarding this disease, and given the recent forced changes in curriculum, physicians have dedicated more time to research and publishing scientific papers. Trainees have found in research a way to invest their time while continuing to engage in academic activities.

The reduced patient care demands for many of our residents have enabled many to engage in research in many ways. Residents have had the time to submit case reports or quality improvement projects for publication, which is often not done due to regular clinical care responsibilities. New studies have been designed, investigated, and written during this timeframe.

This increase in the definitive proof of academic accomplishment, the peer-reviewed article, is likely to have career-long benefits for the residents that have been able to take advantage of this time of increased flexibility and decreased responsibility due to the COVID-19 pandemic.

## Regional and National Conferences

Conferences are a traditional way for residents to present the results of academic activity and network. Scholarly activity, such as case reports and research results, can be shared with a larger audience to gain recognition and further career development. The networking potential for these conferences is also significant and has been seen as a good strategy for increasing competitiveness for fellowship and job prospects. Nearly all of these conferences have been canceled, though some have converted to virtual conferences that have some of the potential benefits of an in-person conference. A good example of this was the annual meeting of the American College of Cardiology shifting to a virtual platform that allowed presenters and attendees to still enjoy the program despite the pandemic. This change was found to have a significant value to learners compared with in-person national conferences in one study.<sup>8</sup> We foresee that these changes will become the new normal in the immediate future.

## Post-Residency Careers

### Fellowship Candidates

Candidates for subspecialty training have had the in-person interviews, networking with faculty and fellows in other training programs, and travel to potential training sites delayed or deferred due to COVID-19-related travel restrictions and social distancing. Some interviews have been done via virtual platforms reducing some of the stress, uncertainty, and expenses of the fellowship application process.<sup>9,10</sup> The Association of American Medical Colleges strongly encourages all training programs to embrace this new methodology of interview and has provided resources to support them in the transition.<sup>11</sup>

In our opinion, the migration to virtual platforms may give a significant advantage to applicants from the local area because the faculty that will rank them for the fellowship

match process have been able to meet them in person and perhaps work with them on clinical rotations.

### Job Search

The COVID-19 pandemic and associated travel and social distancing responses occurred at a critical time for residents finalizing employment arrangements. The demand for physicians compared with job offers had always been high until now.<sup>12</sup> Prior recessions had not affected the health care system in this magnitude; however, COVID-19 has changed this as well.<sup>13</sup> In some institutions such as ours, there was a reduction in salary as well as an employment freeze. This added to the uncertainty of graduating trainees in need to pay off their loans. Those who had secured positions may come to find out the position is no longer available as job cuts have been implemented. This year, we noted an increased interest in keeping our local graduates from both applicants and the program's side across the different subspecialties of internal medicine. We think this may become a norm for at least a few years.

## Future Residents

### USMLE Testing

COVID-19 has also posed an unparalleled challenge for the residency application 2020 to 2021. For most 4th year medical students this means a delay in testing to be able to complete their application. Routinely, the typical process for selecting residency candidates starts in the early fall, when candidates submit their application online and wait for interview opportunities. American Medical Graduates traditionally submit their application having only taken STEP 1 and clinical skill exams.<sup>14</sup> Due to the intrinsic nature of how close personal contact must be between actors and students during the latter, this was initially postponed until further notice, followed by cancellation of the exam and opting for a replacement.<sup>15</sup>

### Immigration and Travel Restrictions

Another concern on the horizon is that a significant number of residents due to start July 1st of the current year are international medical graduates currently outside of the United States and in need of visa sponsorship. Given the current traveling restrictions, there is uncertainty regarding if they will be able to start residency training on time. If this is not the case, programs will face a shortage of residents, and workload and responsibilities will need to be redistributed among the ones currently in training.<sup>3</sup>

## Conclusions

While we recognize that clinical responsibilities are paramount during residency, we would like to highlight the critical role of education during training. The capacity we have to adapt has been tested during this pandemic by bringing along changes in medical education, patient care, procedures, and recruitment. It has made evident opportunities for innovation in medical training.

**Disclosures**

All authors take responsibility for all aspects of the reliability and freedom from bias of the data presented and their discussed interpretation.

**Conflict of Interest**

None.

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