

## VIEWPOINT

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## The Transformational Effects of COVID-19 on Medical Education

**In 2010**, a Global Independent Commission on Education of Health Professionals for the 21st Century, composed of experts in public health and health care from around the world, asserted that the purpose of health professions education was to improve the health of communities.<sup>1</sup> The commission called for the educational institutions of health professions to design curricula to address the major causes of morbidity and mortality in their communities. The coronavirus disease 2019 (COVID-19) pandemic brought both clarity and urgency to this purpose and many academic health systems in the US have responded.<sup>2</sup>

While many will remember the COVID-19 pandemic as a source of disruption, it is likely that it will also be viewed as a catalyst for the transformation of medical education that had been brewing for the past decade. Educators across the country recognized that the physician workforce needed for the 21st century not only must embrace the enduring competencies of professionalism, service to patients, and personal accountability, but also must embrace new competencies that are better suited to addressing today's health challenges.<sup>3</sup> These emerging competencies include the ability to address population and public health issues; design and continuously improve health care systems; incorporate data and technology in service to patient care, research, and education; and eliminate health care disparities and discrimination in medicine.<sup>4</sup> Across the country, medical schools have embarked on curricular redesign to ensure that the physician workforce being trained is the workforce needed.<sup>5</sup> The pace of change has been steady but slow, constrained by concerns about balancing curricular time among the many important subject areas and legacy support for traditional courses and content.

The onset of the COVID-19 pandemic and the public health response required to minimize the catastrophic spread of the disease required an immediate change in the traditional approach to medical education and clearly amplified the need for expanding the competencies of the US physician workforce. Medical educators responded at the local and national levels to outline concerns and offer guiding principles so that academic health systems could support a robust public health response while ensuring that physician graduates are prepared to contribute to addressing current and future threats to the health of communities. While each school approached their response somewhat differently, several common themes have emerged.

### Support a Robust Public Health Response to the Pandemic

Shelter-in-place orders enacted by multiple public health organizations demanded that all educational institutions eliminate large gatherings. With only days to prepare, faculty and staff shifted all didactics, discussion

groups, and assessments to remote platforms. Learners were coached to serve as ambassadors for factual information about COVID-19, producing evidence reviews for clinical teams and public health leaders and preparing public service announcements in different languages for diverse communities. Electives were created to allow testing, case characterization, and contact tracing to become learning experiences while supporting the local public health response.

### Adapt Curriculum to Current Issues in Real Time

The pandemic provided an opportunity for learners to realize the dynamic nature of medical knowledge and appreciate how mastery of key concepts in human biology, sociology, psychology, and systems science are essential for physicians to respond to a novel threat to human health. Students were immersed in institutional learning experiences, demonstrating the commitment that physicians make to lifelong learning. Town halls led by basic, clinical, and translational scientists; epidemiologists and public health officials; and health systems leaders and frontline clinicians demonstrated to students how physicians with diverse skill sets and different disciplinary lenses come together to solve complex health care problems. Faculty used foundational knowledge in psychology, sociology, and humanities to analyze ethical challenges in rationing care; professionalism challenges of caring for patients during a pandemic; sociologic challenges of homelessness, food insecurity, and poor access to health care for many populations; and policy challenges of restriction of personal autonomy.

### Graduate a Class of Well-Prepared Physicians Each Year, on Time and Without Lowering Standards

A particularly challenging aspect of education during the pandemic was the substantial restriction of clinical learning experiences for medical students. Given the shortage of personal protective equipment, limited COVID-19 testing abilities, and uncertainty about how easily the virus could be spread, medical schools were reluctant to engage learners in care of patients with or suspected of having COVID-19. Further complicating the issue was the decline in numbers of patients seeking care for conditions other than COVID-19. Faculty and residents, coping with patient surges and novel care delivery methods such as telemedicine, had limited bandwidth for supervising medical students.

These restrictions on the usual medical education model of clinical workplace learning required medical educators to outline priorities for the limited clinical learning experiences and design different approaches to competency attainment. Guided by their established graduation competencies, schools prioritized clinical learning experiences for those students close to graduation, ensuring adequate preparation of the 2020 intern

workforce. Some schools graduated students early so they could join the workforce.<sup>6</sup>

In the absence of sufficient clinical learning sites, medical educators redesigned core clerkships to allow students to continue to advance their clinical knowledge through faculty-guided, remote learning strategies involving didactics, case conferences, and, in some instances, participation in videoconferences of inpatient and outpatient encounters. The pedagogical principles of competency-based, time variable education were quickly operationalized to enable schools to shorten traditional time-bound block clerkships without lowering performance standards.<sup>7</sup>

### Protect Limited Educational Resources and Treat Learners Equitably

Geographically variable travel and quarantine restrictions along with institutional challenges in identifying sufficient clinical training sites for their own students led many schools to suspend their usual practice of offering visiting rotations for senior students. The inconsistent availability of visiting rotations presented a threat to equity in residency selection because residency programs frequently use these rotations as an element in their selection process. In response, educators from across the country recommended that residency programs forgo the use of visiting rotations to select candidates for this residency cycle. The Coalition for Physician Accountability provided important support for this recommendation.<sup>8</sup>

### Engage in Crisis Communication and Active Change Leadership

Principled decision-making, change leadership, and crisis communication were essential to the educational response to the pandemic. Educational leaders, like their health systems counterparts, opened command centers to bring together experts on a daily basis to respond to the shifting environment, often working in concert with other health professions schools to share learning resources. Many schools held daily learner town halls in the early phase of the pandemic and regularly thereafter, using frameworks such as the Centers for Disease Control and Prevention's Crisis and Emergency Risk Communication approach to provide up-to-the-minute information (competency and expertise), acknowledge uncertainty (honesty and openness), demonstrate concern for the emotional stress of the situ-

ation (empathy and caring), and reassure all that people were working on their behalf (commitment and dedication).<sup>9</sup>

Professional organizations, accrediting bodies, licensing boards, and government agencies were important partners to medical schools during this pandemic response. Public health departments allowed health care institutions to define senior students as essential so that they could complete their rotations and graduate on time. The Liaison Committee on Medical Education accommodated changes in instructional methods as long as competency standards remained unchanged. State governments used regulatory statutes to enable early medical school graduates to work temporarily in the COVID-19 responses. Specialty societies supported decisions about visiting rotations and virtual interviews. The Association of American Medical Colleges issued national guidance documents reminding schools of the need to protect students from unreasonable personal risk and coercion but supporting deans of medical schools to make decisions based on their understanding of local circumstances and needs.

Despite the disruption of the pandemic, medical students not only continued to learn but, in many circumstances, accelerated their attainment of the types of competencies that 21st-century physicians must master to meet this pandemic and address other complex problems in health and health care. In supporting learning during these times, schools and learners pilot tested new methods of instruction, rethought their approach to assessment, identified different methods to build community, and adopted new strategies for recruitment and admission in a travel-constricted world. All of these new approaches have the potential to catalyze the modernization of US medical education that is underway, with faculty, learners, and staff increasingly recognizing that new approaches may be better than the old (eTable in the Supplement).

Decades from now, a student may ask, "Where were you in the pandemic of 2020? What was it like? What did you learn?" Students today will be able to answer that they were not on the sidelines but rather a part of the response when the medical profession proved its worth to a struggling country and learned so much about how to rise up and reach new levels of caring. These formative lessons are likely to be even more important and influential to today's medical students than they have been to the rest of the profession. There may be no better time in history to learn what it means to be a physician.

#### ARTICLE INFORMATION

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