Review Article

Responding to COVID-19: Perspectives on Curricular Changes in a Rural Medical School

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Abstract: Coronavirus disease 2019 (COVID-19) rapidly led to global human devastation, including multiple deaths, sicknesses, and financial reverberations across many individuals and communities. As COVID-19 gained its foothold in the United States, medical school administrators, faculty, and students had to undergo rapid change to mitigate the disease spread, putting all parties in dubious situations. Medical school administrators had to make swift and judicious decisions that would best serve the student body and the diverse patient population at clinical sites. Medical schools with students practicing in rural, remote regions with a dearth of healthcare resources have even more complicated decisions to make in these unprecedented times. We provide an overview of rapid decision-making processes that can be used by curriculum leaders and medical school administrators to continue to meet accreditation requirements while attempting to keep medical students safe and prepared for graduation in response to the COVID-19 health crisis.

Key Words: COVID-19, curriculum, health education, medical education, pandemic

Coronavirus disease 2019 (COVID-19) has swiftly become a global health crisis leading to human devastation, including multiple deaths, sicknesses, and financial reverberations for many individuals and communities. Hospitals and academic health centers across the United States are in dire need of ventilators and other medical equipment, as well as more healthcare professionals and resources for cleaning and disinfecting, all while they continue to emphasize the importance of social distancing and handwashing to aid in disease mitigation.[1,2] Essentially, "flattening the curve," or slowing the spread of the virus, has been a shared responsibility, and those in medical education play a vital role in this process.[3] As such, medical school administrators, curriculum leaders, and faculty across the United States have experienced rapid and unprecedented change to keep medical students safe and on track to graduate, to meet specified learning objectives, and to determine their roles in prevention, mitigation, and containment amid the COVID-19 health crisis.[4]

Guidance for educating medical students comes from the Association of American Medical Colleges (AAMC), whose goal is to improve the health of patients, and the Liaison Committee on Medical Education (LCME), the accrediting body for US medical schools, who helps structure how curricula are organized.[5,6] These entities inform schools on how to create learning objectives from the foundational years to the design of clinical experiences that are informative and career shaping.[6] Although these guiding organizations help medical schools decide how curricular changes should be approached, the recommendations provided must be adapted to fit the nuanced context of medical schools.

Rural medical schools and their students may have different experiences than their counterparts at urban medical schools regarding actions required in a pandemic and subsequent responses.[7,8] Limited resources and staffing are only a few challenges faced by medical school personnel and clinicians in rural areas.[7] Furthermore, rural medical schools also may have less research support from the National Institutes of Health, fewer faculty, and smaller budgets.[7] These challenges can affect how rural medical schools respond to a global health crisis. There are, however, notable advantages to being located in rural areas. For instance, lower population density may cause a slower spread of disease, there may be greater opportunity to practice social distancing, there may be more time to prepare for crisis situations, and rural medical professionals and residents may have increased opportunities to learn from others affected before the crisis devastates their area.

Nevertheless, a challenge for medical schools during a rapidly evolving health crisis is knowing where to start when it comes to adjusting the curriculum and additional factors of medical education. This article, authored by professionals at a rural, community-based medical school, provides an overview of rapid decision-making processes that can be used by curriculum leaders

Key Points

- We outline strategic responses to challenges medical schools face during a health crisis.
- We advocate determining swift transitions in curriculum delivery and assessment.
- We establish a plan for continuity of care in rural communities that have healthcare provider shortages when having to remove medical students who have been supplementing clinical care provision to maintain the continuity of care in rural communities.
- Faculty and student mental health and well-being are attended to by mobilizing mental health resources.

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and medical school administrators to continue to meet accreditation requirements while attempting to keep medical students safe and prepared for graduation.

Anticipate Swift Transitions

COVID-19 has disrupted medical education, shifting curricula to online formats in the first and second years of medical school and pulling third- and fourth-year students away from clinical experiences. This shift has special implications in schools that are rural. Small rural communities may have fewer physicians and fewer placement options for students in their clinical years of training. Moreover, smaller physician practices may be headed by a solo practitioner with few staff and limited access to resources and additional support in the time of crisis. Having to reschedule learners can present real challenges for smaller, rural medical schools because there may not be enough clinical opportunities to meet needs. The density of essential resources also can be lower in rural community practices. For example, medical students may have to be pulled from rural clinical placements because of the lack of availability of personal protective equipment for infection control. Essentially, curriculum leaders must move quickly in their decision making, with little guidance and knowledge/experience from national education leaders because of how rapidly medical crises unfold. The low availability of personal protective equipment is a key problem that can be magnified in underresourced rural communities.

Define Need by Year of Training

The first step in determining curriculum changes would be to analyze needs according to year of training. Medical schools could approach needed revisions in curricula by medical school year, recognizing that planning would differ depending on the year of medical school training. For example, in year 1 there may be additional small-group teaching, lectures, and problem-based learning. Transitioning to virtual or online teaching methods may be easier to accommodate. Year 2 includes the first step of the US Medical Licensing Examination (USMLE), which adds another level of need, further complicated by examination center challenges and test date changes. Because of the pandemic, testing centers across the country closed, creating angst and anxiety for second-year students regarding when they could take the USMLE. Medical schools were left struggling with how to prevent knowledge decay while waiting for testing centers to reopen. Students in years 3 and 4 have a different need for clinical training amidst a health crisis. Schools must be creative to determine how students will obtain clinical experience when they are not allowed in the hospital or clinic.

Categorize Work into Curriculum Delivery and Curriculum Assessment

Determining curriculum delivery is an important step to address in times of crisis. There must be an assessment of resources and capacity as well as a need to remain within accreditation guidelines and institutional learning objectives. The curriculum committee should be fully engaged and prepared to make various decisions quickly. For example, thought should be given to how to train faculty to deliver curriculum using alternative formats. Questions to consider are as follows: (1) Is there a need for faculty development in online learning? (2)What information technology is necessary? (3) Do all faculty and students have access to hardware such as laptops or tablets and software programs and access to the Internet? In some cases, an unexpected transition to virtual learning may cause student and faculty apprehension and distress, forcing them out of their comfort zones for learning and content delivery.

Curriculum assessment is an entirely different concern. Many schools use software packages that allow for the remote administration of quizzes and examinations. Schools must think about how to implement such options because there may be fees associated with them, or their parent university may have a contract with an existing company that may make remote proctoring of quizzes and examinations difficult. It is important for medical schools to appreciate the differences in structure and function from traditional undergraduate and graduate coursework and plan for how those structural differences may affect how assessments are conducted. For instance, evaluating clinical performance is a challenge because this assessment requires face-to-face interaction, and even in a virtual setting, it is impossible to demonstrate physical examination maneuvers, which are clerkship and USMLE requirements. Medical schools also must consider what courses can be shifted to pass-fail grading, what can become formative instead of summative, and the details as to how students would plan to take an examination in their homes.

Create New Courses

Medical schools can consider the creation of new courses. Creating new courses provides a transition for students moving into the clinical years of training and can be a stop-gap measure for learners who are not allowed in the clinical environment; thus, we recommend that medical school faculty and administrators consider developing pandemic-related courses. Some schools have created courses on pandemics to take advantage of teaching students about health crises and how healthcare professionals respond to those crises. It is imperative that medical students are trained in how to properly respond to illnesses and symptoms seen in health crises such as COVID-19. In the present situation, faculty may have to take a reactionary approach to develop these courses; however, moving forward, these courses could be already in place so that medical students are prepared in a pandemic. Such courses could cover content such as epidemiology, healthcare response, and the role of local and national governments in health crises. These courses should consider patients' primary needs based on geographic locale. In addition, courses on how to rapidly change teaching pedagogy in clinical and classroom spaces should be taught, including telehealth training and virtual care visits. Teaching clinical skills remotely or virtually adds another layer of complexity because with medical training, there is the

expectation of face-to-face contact, and the LCME requires such contact for the successful completion of clinical clerkships.

Consult with the LCME for Major Curriculum Changes

Working within the framework of existing policies and procedures is essential in a time of crisis. Medical schools have existing policies and procedures that need to be followed and the LCME will have accreditation standards that will also need to be adhered to. Pandemics are fast paced, unpredictable, and unprecedented, so it is not unusual that policies and procedures may need to be revised. It is important to plan any deviations to policy or procedures carefully and engage the curriculum committee, school administrators, and other leaders when such deviations are warranted. Called meetings of the curriculum committee to discuss and approve curricular changes are needed to ensure that all are equally informed and that there is a record of decisions made. Institutional learning objectives, graduation requirements, and accreditation body guidelines must be considered when any curricular changes are discussed. In certain instances, small changes can be made without contacting the LCME, but if any major changes are made to the curriculum and if accepted learning objectives are going to be amended, then the secretariat of the LCME should be contacted and those changes discussed before being implemented. Medical schools should understand that in times of duress, the LCME is working to make decisions rapidly and is willing to work with medical schools around needed responses to healthcare crises.

Seek Ongoing Guidance from the AAMC and Sister Medical Schools

The AAMC provides discussion boards and webinars to assist in health crises. AAMC leadership knows that medical schools need recommendations regarding how to adjust curricula; however, advice or recommendations from the AAMC or sister schools must be considered in light of the particular medical school, its resources, and abilities. Knowledge of how sister schools are managing the crisis can provide perspectives and encouragement to fatigued curriculum leaders. Defining a sister school may be a challenge for some schools. Considerations to help with decision making include schools with similar missions, rural focus, similar size, or those governed by the same leadership body as in medical schools in the same state. Most important in considering advice and recommendations from the AAMC and sister schools is that the recommendations and advice are time-limited. Pandemics can move rapidly, with rampant infection, transmission, and uncertainty. Recommendations shared in the morning can be obsolete by the evening or the next day. Medical schools must be nimble in their communication to ensure that up-to-date information is shared. E-mails and briefings work well. Trying to perfect a video may be time-consuming and lead to the sharing of old information. Communications with curriculum leaders, school administrators, faculty, staff, and students should include the willingness of all individuals to make quick adjustments because information can change quickly and without warning.

Maintain Continuity of Care in Rural Communities

A challenge in an evolving health crisis is identifying who is prioritized among patients and students. The care and well-being of the patient should be of the utmost priority and working to ensure patients are treated properly is the priority of our healthcare system. Students are brought into the space of care delivery and as such, it is imperative that the healthcare needs of the community are met before students are introduced. Establishing a plan for continuity of care in rural communities that have healthcare provider shortages is imperative when having to remove medical students who have been supplementing clinical care provision. Where rapid removal of medical students is required, it is essential for medical school administrators and clinical supervisors to work with the physicians and other healthcare leaders to devise ways to continue high-quality, comprehensive patient care.[9] Suggestions for continuity of care may include telehealth services, which will put the patient in contact with the student provider.

Mobilize Mental Health Resources for Medical Students and Faculty

Attending to faculty and student mental health and well-being during a pandemic is paramount. Despite their roles, medical faculty and students are subject to increased distress as a result of factors such as rapid clinical placement changes, programmatic changes, relocation, swift restructuring of lifestyle (eg, assuming parental caretaking responsibilities because of school closures), loss of support systems and structures, the threat of exposure to illness, and various other psychosocial stressors during a pandemic.[10] Accordingly, medical school personnel should consider ways to identify those in need of supportive services and ways to mobilize mental healthcare resources.[11] For instance, universities and medical schools can partner with human resources to connect faculty to resources such as ComPsych or other employee assistance programs and link students to online resources and services provided by staff in designated university student development and counseling centers.

Conclusions

Certainly there are aspects in addition to those presented above for medical schools to consider in response to pandemics and similar situations that disrupt normal academic functions. Administrators may consider whether it is necessary to extend the academic year for students to gain required hours. Furthermore, medical schools may encounter requests from officials in local, state, or national governments for medical students to assist in response to a pandemic. It is imperative for medical school personnel to consider students' acquired knowledge base, training,

and licensure level in response to these requests and ways that students can contribute services based on any governing guidelines.

The points made in this article do not provide an exhaustive overview of all changes that are needed or required in medical schools in a global pandemic. Nevertheless, the information outlined provides important factors to consider by those who need a starting point when such events occur that affect medical services in rural, underserved communities.

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