Medical education in the midst of pandemic and beyond

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In March 2020, Governor Kate Brown of Oregon declared a public health emergency due to Coronavirus disease 19 (COVID-19), a global pandemic caused by a novel coronavirus known as SARS-CoV-2. The governor subsequently issued additional executive orders that led to numerous restrictions across the state, including the cancellation of elective clinical procedures, preservation of personal protective equipment, and ordering institutions of higher learning to pivot towards remote methods of instruction.

Based on these executive orders, Oregon Health & Science University (OHSU) entered into modified operations which served as a mechanism for the institution to immediately reduce activity across all three of our missions: education, patient care, and research. In turn, the School of Medicine operationalized this directive by instituting a series of measures directly impacting the undergraduate medical education (UME) program. These included modification of instructional methods, alteration in our grading system, a dramatic increase in student participation in telehealth, reduction of clerkship length, reorganization of clerkship content, creation of new courses, and implementation of different types of assessments while ensuring that our students could still meet learning objectives and maintain their progression toward their degrees. Although COVID-19 disrupted nearly everything we knew and did, it also led to innovative changes and creative solutions so we could continue delivering medical education to our students. We are grateful for the ingenuity and tenacity of all parties involved in medical education at our university: students, faculty, administration, staff and community members.

On March 13, 2020, we pulled all clinical students from their rotations and related experiences regardless of where these were taking place, followed 1 week later by removing most PhD students from laboratories as research ramped down. On March 30, 2020, we transitioned all didactic and small group discussion to remote learning. Where possible, virtual simulation products were also used to continue clinical learning. To comply with the governor’s executive order, these changes were made by administrative leaders in the Dean’s Offices and the Provost’s Office over a 2-week period in March 2020.

1  |  CREATION OF NEW COURSES

Within 2 weeks of the executive order, academic leaders, faculty, and staff were able to convert the in-person didactics, small group sessions, and assessment exercises of the curriculum to virtual delivery. Initially, this only impacted first and second year students who were in the preclinical phase of our curriculum. However, restrictions on in-person didactic and small group learning impacted students in the clinical phase when Governor Brown extended her executive order through the end of June. In response, faculty members from various departments volunteered to create alternate learning experiences. Between spring and early summer, more than 30 new virtual elective courses were created for clinical curriculum phase students and spanned a wide variety of topics: COVID-19-related electives, virtual radiation oncology, ultrasound, dermatology, medical informatics, introduction to American Indian/Alaskan Native Health, family medicine, medical decision-making, narrative medicine, and various subspecialties in pediatrics. Nine of these offerings were specifically designed to not only teach students about the novel coronavirus...
but also allow them to contribute to communities in Oregon through participation in contact tracing, serving as a part of wellness concierge team and annotating coronavirus-related literature. We anticipate that some electives (e.g., “Dissection of the Coronavirus Pandemic Intersession” and “Virtual Radiation Oncology”) will continue to be offered on a permanent basis. The intersession elective was designed to weave together aspects of basic, clinical and health systems science. It linked back to content taught during the preclinical phase of the curriculum and allowed students to examine recent publications to understand viral characteristics, mode of transmission, host response, prevention, novel treatment, and response to the pandemic by public health officials. Medical students appreciated the elective because of its timeliness, pertinence, utility, and the wide range of topics that were included such as epidemiology, virology, vaccinology, narrative medicine, mental health impact of isolation, and use of social media to spread both false and accurate information.

2 | TELEHEALTH

Even before the pandemic, telehealth and related digital health strategies were predicted to play a key role in meeting the nation’s health professional shortage.1-3 As such, telemedicine was already the focus one of our program objectives that students had to learn before earning their medical degree. To mitigate the impact of COVID-19 pandemic on medical education, expansion of medical student involvement in telehealth was therefore explored in the spring and early summer of 2020. Guidelines (see Supporting Information for our inpatient setting guideline), protocols, and training materials for both students and clinical supervisors were developed, and permission to access new digital telehealth platforms was obtained for learners in both ambulatory and inpatient care settings in August 2020. Examples of what we did to prepare for student participation in telehealth included: the development of student scripts to help patients clearly know the student’s role in each patient encounter, standardized phrases created by our compliance department to help attending faculty physicians utilize content contained within student notes in the electronic medical record, and uniform workflows to maintain efficiency in both ambulatory and inpatient settings. This expansion of telehealth services allowed students to learn the benefits and barriers associated with telehealth delivery, communication, ethics, and professionalism while experiencing it in an authentic environment rather than a simulated setting.

3 | CORE CLINICAL EXPERIENCE GRADING SYSTEM

In-person clinical rotations resumed on June 29, 2020. To accommodate lost rotations, we decided to decouple asynchronous learning and clinical care associated in all seven required clinical experiences (i.e., clerkships). This allowed students to participate in the didactic components embedded in each core clerkship while they were restricted from direct, in-person patient care activity in the spring and early summer. This effectively allowed the students to maintain progress toward their degree despite the restrictions required by the governor’s executive order. Although these shortened clerkships helped the students maintain degree progression, many faculty members and students soon voiced concern about the fairness of assigning tiered clerkship grades when the time spent observing students on each rotation had decreased. In response, the UME Curriculum Committee (UMECC), the School of Medicine’s Faculty Council, and the Provost’s Office all approved a grading system change from a tiered grading system (A, B, C, D, and F) to a Pass/No Pass grading system for all seven required clerkships during the modified COVID-19 rotation schedule. Of note, this helped accelerate a transition that had been in the works for several years after our program had implemented a competency-based assessment framework that allowed students to obtain a passing grade once they had demonstrated predefined, discreet behaviors associated with each program objective. Tiered grading that relies on norm-referencing within a student cohort is incompatible with a competency-based assessment framework. As such, the modifications put in place to navigate the pandemic’s restrictions accelerated and catalyzed the change towards a Pass/No Pass grading system in the clinical phase of our curriculum. This temporary change has subsequently been permanently approved through faculty governance processes.

4 | MEDICAL KNOWLEDGE ASSESSMENTS IN THE CLINICAL CURRICULUM PHASE

Our UME program underwent a major curriculum transformation that was implemented in 2014. At that time, we decided to remove subject examinations created by the National Board of Medical Examiners (NBME) from core clerkships and not have them contribute to clerkship grades. Rather, we created standalone testing intersession courses in which students have dedicated time to study and take these examinations in a proctored environment. As the COVID-19 pandemic progressed and the campus moved to modified operations in March 2020, we were no longer able to offer NBME subject examinations on campus; therefore, our UME Assessment Team approved an alternative that would allow students to partake in NBME self-assessments using the same content specifications as NBME subject examinations. Initially, UMECC approved this change on a temporary basis until in-person assessments could resume. However, the committee made this change permanent after it reviewed
evidence surrounding this alternative method of assessment related to knowledge associated with the clerkships in family medicine, internal medicine, neurology, pediatrics, psychiatry, surgery, and obstetrics and gynecology. The traditional shelf examinations have thus been replaced by NBME self-assessment instruments for all seven required clerkships.

5 | OHSU LEARNING COMMUNITY

Change is hard, especially when we are all thrown into uncharted territory. We could not rely on past experiences as no medical school in recent history had to confront and address problems of such magnitude. We had to be creative in our thinking and make decisions even when evidence was scarce, then adapt to new ways in a very rapid manner. The changes described above were possible because of the learning community we have; everyone who was involved in medical education came together to troubleshoot, raise potential pitfalls, and generate solutions. Together, we all pitched in to successfully ensure the continuity of UME in the midst of a global pandemic.

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SUPPORTING INFORMATION
Additional supporting information may be found online in the Supporting Information section.

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