

Developing an Asynchronous COVID-19 Course in Response to the Pandemic at the University of Colorado

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BACKGROUND

In March 2020, the COVID pandemic spread rapidly through the United States. With constrained personal protective equipment, medical schools around the country paused in-person clinical experiences for students. As a result, there was an urgent need for students to be equipped with current scientific knowledge regarding SARS-CoV-2 and related clinical management. At the University of Colorado School of Medicine, we developed a novel COVID-19 course to both learn about COVID-19 and to meet the needs of our community through a virtual setting.

OBJECTIVE

To design and implement an interactive COVID-19 elective that allowed students to both virtually learn about SARS-CoV-2 and to meet the needs of students, patients and communities affected by the virus.

METHODS

A four-week course was developed by student and faculty leadership consisting of nine required online modules, weekly synchronous expert panel video discussions, and an applied learning component. The asynchronous modules aimed to increase the students' knowledge base surrounding the pathogenesis and clinical presentation of COVID-19 along with how social determinants of health, bioethics, and medical humanities interplay in public health emergencies. Students self-selected one of four applied pillars, including Bioethics and Medical Humanities, Service-Learning, Research, and Education, which allowed for further engagement with the COVID-19 pandemic response. Students evaluation consisted of knowledge tests and a Likert-based post-pre survey probing COVID-19 specific attitudes. Statistics were determined using independent-samples t-test with a significance of p-value of <0.05.

RESULTS

A total of 336 third- and fourth-year medical students enrolled in the course. Students demonstrated significant improvement in knowledge regarding the biology of COVID-19 when comparing the pre-test to the post-test result (66.0% from 88.9%, $p < 0.0001$). Students also reported that they felt more supportive of their community, family and other health professions during the COVID-19 outbreak (4.28 vs. 5.00, $p < 0.0001$). Examples of projects that students engaged in include: education regarding virology for K-12 students, online published creative writing and reflective pieces, connection to >30 research projects across campus alongside multiple volunteering opportunities including mental health hotlines and PPE distribution.

DISCUSSION

Students and faculty at the CUSOM combined to rapidly create and successfully implement a COVID-19 course that allowed students to both learn about the novel SARS-CoV-2 coronavirus, the resulting disease, COVID-19, and to meet a myriad of clinical and community needs related to the pandemic. The curricular structure was unique in that it allowed learners to select one of four central pillars, Bioethics and Medical Humanities, Service-Learning, Research, and Education, and craft personalized goals to ensure knowledge was applied to real-world experience that was unique and meaningful to each individual learner. Additionally, this work highlighted the positive impact of medical student involvement in curriculum development. Ultimately, the inclusion of medical students in course design and the application of experiential learning opportunities may be utilized for future curriculum development to better engage students involved in asynchronous learning modalities.