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Development of a One Health and Comparative Medicine Curriculum for Medical Students

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Abstract : Introduction: The One Health initiative promotes recognition of the interrelatedness between people, animals, plants, and their shared environment. The field of comparative medicine studies the similarities and differences between humans and animals for the purpose of advancing medical sciences. Currently, medical school education is narrowly focused on human anatomy and physiology, but as the COVID-19 pandemic has demonstrated, a holistic understanding of health requires comprehension of the interconnection between health and the lived environment. To prepare future physicians for unique challenges from emerging zoonoses to climate change, medical students can benefit from exposure to and experience with One Health and Comparative Medicine content. Methods: In January 2020, an elective course for medical students on One Health and Comparative Medicine was created to provide medical students with the background knowledge necessary to understand the applicability of animal and environmental health in medical research and practice. The 2-week course was continued in January 2021, with didactic and experiential activities taking place virtually due to the COVID-19 pandemic. In response to student feedback, lectures were added to expand instructional content on zoonotic and wildlife diseases for the second iteration of the course. Other didactic sessions included interprofessional lectures from 20 physicians, veterinarians, public health professionals, and basic science researchers. The first two cohorts of students were surveyed regarding One Health and Comparative Medicine concepts at the beginning and conclusion of the course. Results: 16 medical students have completed the comparative medicine course thus far, with 87.5% (n=14) completing pre-and post-course evaluations. 100% of student respondents indicated little to no exposure to comparative medicine or One Health concepts during medical school. Following the course, 100% of students felt familiar or very familiar with comparative medicine and One Health concepts. To assess course efficacy, questions were evaluated on a five-point Likert scale. 100% agreed or strongly agreed that learning Comparative Medicine and One Health topics augmented their medical education. 100% agreed or strongly agreed that a course covering this content should be regularly offered to medical students. Conclusions: Data from the student evaluation surveys demonstrate that the Comparative Medicine course was successful in increasing medical student knowledge of Comparative Medicine and One Health. Results also suggest that interprofessional training in One Health and Comparative Medicine is applicable and useful for medical trainees. Future iterations of this course could capitalize on the inherently interdisciplinary nature of these topics by enrolling students from veterinary and public health schools into a longitudinal course. Such recruitment may increase the course's value by offering multidisciplinary student teams the opportunity to conduct research projects, thereby strengthening both the individual learning experience as well as sparking future interprofessional research ventures. Overall, these efforts to educate medical students in One Health topics should be reproducible at other institutions, preparing more future physicians for the diverse challenges they will encounter in practice.

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