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Article type : Commentary

Title: Our Education, Our Concerns: Medical Student Education Impact due to COVID-19

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Word Count: 965

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/MEDU.14181](https://doi.org/10.1111/MEDU.14181)

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March 2020, it seemed as if my world was turned upside down. I opened an email from my medical school dean of student affairs stating: Match Day, cancelled. The day that would determine where we trained as postgraduate residents, the day my class had worked towards for 4 years, cancelled due to this new virus that we seemed to know so little about: COVID-19. However, as important as that day was to my fellow 4th year medical students and I, we quickly learned that the impact was much larger. What about our electives, our mandatory rotations, and even the Sub-Internship's students still had to complete? Not just that, but "what can we do to help," became a common statement echoed by all students. We don't want to see this as a detriment to our education but a learning experience. A learning experience for how to be best prepared to help now, and in the future. One way to help is to make changes in medical education to ensure all students are still getting

the absolute best level of education possible. This starts with recognizing the options we have and utilizing all of the tools at our disposal, despite the boundaries created by COVID-19.

In terms of clinical rotations, the climate has changed so that rotations around the world had to remove all forms of patient contact and switch to online learning. Many of us wonder the impact this has on our education, not just for 4th years but all fellow students. How can one complete medical school without completing a core rotation that includes patient interaction? E-learning has been shown to help foster self-learning and to be as successful as traditional didactics. It has also been reported that many medical students find e-learning enjoyable.^{1,2} However, completely losing all patient contact, but still receiving full credit for a core clinical rotation sounds concerning; especially for 3rd year medical students who were planning to attend away rotations in the next year. What will we do, and what will the medical system do with us, if we do not have exposure to specific types of patients prior to an away rotation due to the loss of direct clinical contact?

Telehealth has become a big factor in delivering healthcare across the globe.³ It has become even more apparent now that there are significant benefits to having doctors utilize telehealth and that it can be utilized widely in medicine. Given its use, the engagement of medical students in this realm seems not only highly beneficial to the student, but also to patients in need of care. Through telehealth, students can be invited in the virtual room to participate in history taking, observe virtual physical examination, and be a part of decision-making, patient/family counseling, and plan implementations. Completing telehealth interactions along with the supplement of e-learning would help create a new blended learning model that still promotes patient involvement. Thus, making the learning experience real versus the sometimes very impersonal and almost inauthentic e-learning experiences that exist in place of clinical rotations.

Now it's clear that there is not just an effect on the core clinical rotations for medical students, but also on the experiences important for early medical student education including problem-based-learning interactions, in-person anatomy dissections, group learning sessions, local exams, and licensing requirements. Accompanying uncertainty and the wide variety of change has enough of an effect, let alone the thought of the lost hands-on experiences that countless medical students before were able to experience. This again raises the concern of what is being done to replace these courses.

The utilization of newly developed resources including virtual anatomy dissection, WebEx and Zoom conferences, and continued online communication may be the key to helping to ensure that the many nuances that would be learned through these experiences are not completely lost. Of course these things will not be the same, but it has been shown with applications such as VR4Health that students feel it facilitated their learning of the various anatomical structures and their relationships with one another.⁴ Feedback from teachers is invaluable, but that can be achieved with the use of online video-communication services in which the teacher can utilize screen-sharing options to walk students through the anatomy on any online forum. Some schools already include virtual anatomy in their courses, but this is about adapting and collaborating as a whole to optimize our medical education broadly. More actions need to be taken to make similar resources available to all students.

Overall, it is reassuring that there are a wide variety of tools at our fingertips. While many medical students seem to be concerned and even unsure if they will graduate on time, what is most important at this moment is transparency, communication, and the use of the wide variety of online resources that exist to help promote our learning in the best ways possible. All medical schools need to work together to adapt and accomplish this. We as medical students chose to go to medical school: we want to be educated, we want to be prepared, and we want to learn all that is necessary to be ready to play a role on the front-line when we are needed. Now we need everyone to use the current circumstances as a learning experience. Learning about what other tools they have to teach, what other ways there are to learn, and how to best be prepared for any future circumstances where in-person communication and clinical practice could be hindered. We are the future and we want to learn absolutely everything we can to be the best doctors we can be.

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5 Pull Out Quotes from Our Education, Our Concerns: Medical Student Education Impact due to COVID-19

1. “Many of us wonder the impact this has on our education...”
2. “...changes in medical education to ensure that all students are still getting the absolute best level of education...”
3. “...recognizing the options we have and utilizing all of the tools at our disposal, despite the boundaries created by COVID-19.”
4. “...telehealth interactions along with the supplement of e-learning would help create a new blended learning model...”
5. “...we want to be educated, we want to be prepared...to be ready to play a role on the front-line...”