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See Article page 178.



## Commentary: From virtual to reality

Dawn S. Hui, MD, and Andrea J. Carpenter, MD, PhD

Olive and colleagues<sup>1</sup> share a global trainee perspective on the influence of coronavirus 2019 (COVID-19) on cardiothoracic surgery training and education. We commend these young trainees and surgeons for their reflection, focus, and leadership during this time of crisis. Their article clearly reflects the anxiety being expressed by students and residents about limitations on opportunities to experience cardiothoracic surgery and their concerns about opportunity to demonstrate their worthiness in search of residency or jobs.

The solutions they offer are practical, wide-ranging, and contemporary. Contemplation on the proposed answers allows us to reconsider the virtues of the way we have done things in the past, and perhaps potential for failings that have been ignored. For example, it is suggested that medical students and general surgery residents should pursue earlier exposure to cardiothoracic surgery in case of unforeseen barriers to elective clinical time. This recommendation not only addresses problems posed by the pandemic interruption but also strikes at the very heart of our workforce shortage. The duty should fall not on students or residents to seek out this experience but rather on programs to extend formal opportunities and encourage interest in our profession. We, as many other programs, do so through the avenues of research opportunities and medical student interest groups.

An interesting dichotomy arises between the trend toward virtualization that existed even before COVID-19 and the necessity of hands-on experience in surgical training and practice. Virtual solutions for didactics, academic conferences, and even clinical care are discussed.

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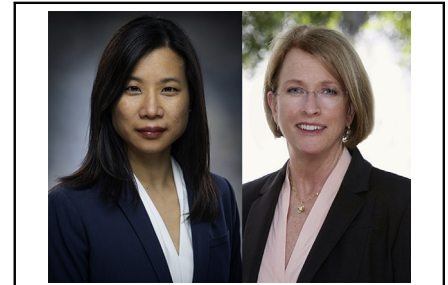
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### CENTRAL MESSAGE

Solutions addressing the influence of COVID-19 on training of cardiothoracic surgeons provide opportunities to reflect on the fundamentals of our field.

Although nowadays the term *virtual* most commonly means “being on or simulated on a computer,”<sup>2</sup> we note the difference between the Merriam-Webster Dictionary definition: “being such in essence or effect,”<sup>2</sup> and that of the Cambridge Dictionary: “almost a particular thing or quality.”<sup>3</sup> At what point does something cross from “essence” to “almost,” and what is lost in the gap? The virtualization of clinical care is, at this time, a necessity for public health safety. In the future, we (and/or patients) may be tempted to continue such modes of care out of ease and convenience. However, this risks eroding the clinical experience of trainees, as well as hampering the clinical judgment of physicians. One cannot virtually appreciate the water-hammer pulse of aortic insufficiency or bibasilar crackles.

Last, we wish to comment on a final aspect of the Young Surgeon’s Note.<sup>1</sup> It is urged that board organizations develop a “flexible but fair solution.” We ask, fair for whom? The only answer can be our patients. The focus on caseload requirements within a prescribed timeline has been a point of debate in the discussion of competency-based training. Objective measures of trainee competence continue to be developed in our field,<sup>4</sup> and we have shown that new trainees’ perception of readiness to independently operate differs significantly from that of experienced surgeons.<sup>5</sup>

At the time of this writing, the COVID-19 pandemic not only continues unabated but has affected some parts of the world in ways that some would consider unpredictable. The short-, mid-, and long-term effects on numerous institutions, including education at every level, remain to be seen.

As data-driven, evidence-based decision makers, we look forward to how institutions worldwide implement and study the various solutions proposed.

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See Article page 178.



## Commentary: Training in the time of coronavirus disease 2019 (COVID-19)

Frederick A. Tibayan, MD

As the coronavirus disease 2019 (COVID-19) virus spread around the world, no aspect of society was spared. Our medical systems strained to and in some cases beyond the breaking point, the effects of the pandemic on cardiothoracic surgery trainees could easily be overlooked. During the 1918 influenza epidemic, perhaps the most comparable historical reference point for the current crisis, little is known from the trainee perspective. Archives from Peter Bent Brigham Hospital mention that, "The Surgical Staff loaned to the Medical four of their house officers to care for influenza cases, and very generously the surgeons curtailed their work to a minimum,"<sup>1</sup> but there is a dearth of scholarship on the direct impact of the 1918 swine flu on surgical training.

In this issue of the *Journal*, Olive and colleagues<sup>2</sup> seek to ensure the same cannot be said of the coronavirus in 2020.

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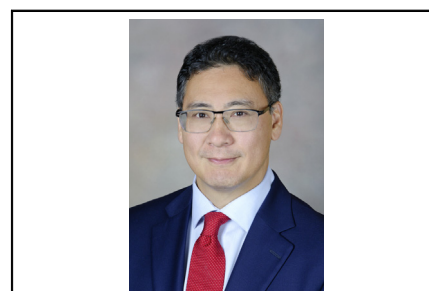
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### CENTRAL MESSAGE

COVID-19 affects every aspect of cardiothoracic surgical training. Proposed responses to these challenges will require flexibility, innovation, and mentorship.

In their Young Surgeon's Note, they give us a snapshot of how COVID-19 is changing academic curricula, operative experience, safety and wellness, and scheduling of examinations and interviews for prospective cardiothoracic surgeons around the world. They also propose strategies and solutions to the problems arising in the wake of the crisis. Virtual approaches to learning, credentialing, and job searching will be increasingly important. Programs and new partners will have to be flexible and innovative to balance education and the unprecedented demands on health care systems.

The authors paint a vivid, real-time picture of the early months of the pandemic, which underscores what we didn't, and couldn't, know at the time. It is still too early to measure the toll on the physical and psychological health and wellness the pandemic will have had on trainees. Now, just a few months down the road, the picture is more variable than ever, with cases rising in some countries and falling