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Commentary: Zoom into the coronary anastomosis during coronavirus disease 2019 (COVID-19)

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Cardiothoracic surgery (CTS) training has been dramatically affected by the coronavirus disease 2019 (COVID-19) pandemic. Hospitals and residents have had to adapt to rapidly changing circumstances in which the focus has shifted from residents' participation in elective procedures, which form the bulk of their training, to using their services in dealing with the massive influx of patients with COVID-19.^{1,2} Added to this has been the cancellation or reduction of simulation training workshops or classes.³ At particular risk are the residents in their final years of training who are expected to perform the bulk of their solo cases toward the end of their training. Although program directors have not been worried about delaying the graduations of such residents, some residents still feel unprepared for the post-residency world, given current trends.^{1,4}

In response to these events, there has been a lot of development in adapting to remote learning methods. Conference, didactics, meeting, and lecture attendance has gone up in some cases due to the virtual format.⁴ Use of video-conferencing software such as Zoom (Zoom Video Communications, Inc, San Jose, Calif) has exponentially grown during this period as well. Although some institutions are currently adopting hybrid formats for these events, it is still unlikely that the virtual format will go away any time soon due to the unpredictable and evolving nature of COVID-19. Needless to say, development of virtual learning tools for residents is and will be direly needed.³

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	PRE-COVID	DURING COVID
OR TIME	ADEQUATE	INADEQUATE
CLINICAL EXPOSURE	ADEQUATE	INADEQUATE
EDUCATIONAL ACTIVITIES	IN-PERSON	ONLINE

Changes in CTS training due to the COVID-19 pandemic.

CENTRAL MESSAGE

Remote surgical simulation is a newer paradigm in cardiothoracic surgery training that needs further development and refinement for broader application.

There is no substitute for practice in the operating room⁵; however, given the nature of things, we have to learn to adapt as best as possible.

In this paper, Takahashi and colleagues⁶ demonstrated the feasibility of remote simulation training for CTS trainees. Trainees, especially those participating consistently, showed improvement in most of the assessed metrics for coronary anastomosis. The authors concluded that such faculty-supervised remote surgical training sessions helped trainees to achieve significant performance improvement and that it has wider implications for surgical training especially in light of the ongoing pandemic-related restrictions.

As the authors indicated, the raters (faculty) were not blinded with respect to trainee participation, which should be considered a limitation. Both organizers and participants of the simulation sessions want it to be successful, and there is a possible subconscious bias to score the final sessions greater just because they are final. While these remote sessions could be equivalent to conventional on-site simulation training, it is hard to predict whether/how this will translate into actual operative skills. In summary, the results are interesting and encouraging.

There is no substitute for hands-on training with human tissue in the operating room. However, we have to find the “next best” way to teach residents the essential skills they need to have as surgeons. This is a step forward in adapting CTS training to less-than-ideal training circumstances, for which the authors deserve credit. While this remote simulation exercise was undertaken for a very specific skill—coronary anastomosis, future sessions could

look at incorporating a broader range of technical skills needed in CTS.

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