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Lessons Learned from the COVID-19 Pandemic: A Call for a National Video-Based Curriculum for Urology Residents

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The novel coronavirus (COVID-19) pandemic has created many unique challenges in urology resident training. Urologists are operating at a fraction of normal volume to conserve personal protective equipment and prevent viral spread. Many residency programs have organized rotating skeleton crews to perform clinical duties while a portion of residents work from home. In some regions, urology residents have been deployed to emergency rooms, intensive care units, and medical floors to care for COVID-19 patients. With these interruptions in urologic education, many questions remain about how residents will proceed with their clinical and didactic training. During these unprecedented times, many residencies have transitioned their didactic sessions to video-based platforms, allowing educators to reach larger numbers of learners. This perspective addresses how innovative virtual education programs created during the pandemic can be developed into a national video-based curriculum for urology residents, incorporating both didactics and surgical skill training. (J Surg Ed 78:324–326. © 2020 Published by Elsevier Inc. on behal of Association of Program Directors in Surgery.)

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COMPETENCIES: Medical Knowledge, Interpersonal and Communication Skills, Practice-Based Learning and Improvement

The novel coronavirus (COVID-19) pandemic has transformed the urology resident experience across the country and disrupted traditional urologic education. However, from this disruption have come innovative pedagogical approaches to address trainee needs. In this perspective, we call on leaders in urology to develop a national video-based curriculum for urology residents.

Out of efforts to adhere to social distancing, many residency programs promptly replaced traditional in-person educational conferences, lectures, and tumor boards for online distance learning.1,2 Urologic educators from across the world have joined forces to create daily didactic lectures,3 deliberate difficult cases on expert panels, discuss groundbreaking research, and review surgical videos. For example, the University of California at San Francisco, the American Urological Association (AUA) New York Section, the Endourology Disease Group for Excellence (EDGE) Consortium (Table 1), and many other groups have recruited experts in the field to give live video lectures which are available to the public. Social media and word-of-mouth have popularized these lectures, which are viewed by hundreds of medical students, residents, fellows, attending urologists, and advanced practice providers around the globe each day.

With the creation of a national virtual video-based curriculum, we can continue to expand upon these new innovations to revolutionize resident education in the postpandemic period. To establish such a curriculum, professional urologic societies such as the AUA and the Society of Academic Urology should recruit subcommittees of experts and master urologic educators for specific topics. To guide trainees through the intricacies of a given topic, the expert subcommittee would curate a series of recorded video lectures including traditional didactics and guidelines, narrated surgical videos, and data-driven discussions on state-of-the-art topics and clinical trials. The majority of the curriculum would essentially operationalize the AUA Core Curriculum, focusing on genitourinary anatomy, disease presentation, diagnosis, management, treatments, medical decision-making, and research design/methodology. However, other pertinent topics outside of urology such as medical ethics, health care economics, public and global health, leadership, and telehealth should also be considered for inclusion. The expert groups could elect to include interactive modules or question-sets related to their...
content for participants to self-assess their understanding. They should revise or add videos as frequently as they deem appropriate. There may also be a role for urology residents to contribute to these committees and offer insight into content creation.

This curriculum should expand into the clinical training realm as well, particularly through the use of surgical simulation. Through the use of laparoscopic trainers, robotic simulators, and 3D printing of models, experts in surgical simulation should lead residents through guided tasks and surgeries. This curricular component would help residents to develop their surgical skills and learn how to perform cases that might not be performed at their institution. Simulation is especially valuable with the uncertain duration of the COVID-19 pandemic, as surgical volume is limited at most academic centers.

The proposed virtual curriculum is intended to supplement rather than replace individual residency educational programs and expands on existing AUA resources such as the Core Curriculum, Fundamentals in Urology Course, Annual Board Review Course, Oral Board Review Course, and Life Long Learning Course. The benefits of such a curriculum would be far-reaching. During the COVID-19 pandemic, there have been several options for engaging in virtual lecture series; a national video-based curriculum would allow master educators and clinical experts to combine and streamline their perspectives and expertise into one centralized location. This curriculum would be accessible to all residents, providing them with the most up-to-date information on urologic topics and surgeries for their personal review at any time.

For some residents, an interactive curriculum may be more engaging than reading print; to that end, video-based learning appeals to both visual and audio learners. Finally, expert committee members may value this opportunity to network and initiate new collaborations.

Video-based lectures have been successfully utilized by Canadian urology residents who watched a series of broadcasted didactic seminars given remotely by urologists at other centers. After the seminar series, residents reported that the remote lectures had acceptable picture and sound quality, allowed them to effectively communicate with the remote presenter, and would not have been improved if given in person. The authors highlighted that live video didactics may be a cost-effective way for residents to have training in urologic subspecialties that their programs lack.

Other surgical subspecialties have effectively integrated the use of video in clinical training with respect to learning procedures and assessing surgical performance. In one study, general surgery residents randomized to watch a narrated instructional video of a laparoscopic bowel resection performed objectively better intraoperatively than their counterparts who underwent standard preparation. In another randomized control trial by Soucisse et al., residents were randomized to perform a bowel anastomosis either with or without video playback coaching and debriefing. In their subsequent bowel anastomoses, residents in the video coaching group demonstrated greater improvement in their Objective Structured Assessment of Technical Skills (OSATS) scores. Moreover, a meta-analysis of the outcomes of video training in surgical residencies demonstrated that residents who have access to video-based training had improved knowledge, operative performance, and satisfaction.

| Organization(s) | Lecture Series | Access to Lectures |
|-----------------|----------------|--------------------|
| University of California at San Francisco | Collaborative Online Video Didactics (COVID) | URL: https://urologycovid.ucsf.edu/ Twitter Hashtag: #urologyCOVID |
| AUA New York Section | Educational Multi-Institutional Program for Instructing Residents (EMPIRE) | URL: https://nyaua.com/empire/ Twitter Hashtag: #EMPIREurology Twitter Hashtag: @NYSAUA |
| Albany Medical College, Queen’s University, SUNY* Upstate, University at Buffalo, University of Rochester | Urology Teaching Collaborative | |
| University of Southern California | Urology 60 Minutes | |
| University of California at San Francisco | Pediatric Urology Fellowship Lecture Series Online (PedsUroFLO) | URL: https://pedsuroflo.ucsf.edu/home Twitter Hashtag: #PedsUroFLO Twitter Handle: @EndoEDGE13 Twitter Handle: #EDGEtalks |
| EDGE Consortium | EDGE Talks | |
| AUA 2020 | AUA Virtual Experience | URL: https://www.aua2020.org/virtual_education Twitter Hashtag: @AmericanUrologicalTwitter Hashtag: #AUA20 |

* SUNY: State University of New York.
The COVID-19 pandemic has forced the worldwide urology community to rapidly adapt and adopt solutions to ensure high-quality resident training. While the lasting impacts of the COVID-19 pandemic on urology trainees remain to be seen, some of these innovations in distance education should be made permanent. We hope these new modalities in virtual education can be centralized and translate into a national video-based curriculum in which all urology residents can engage and benefit.

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**CONFLICTS OF INTEREST**

None.

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