COVID Corner
Association of Surgical Education, Surgery Clerkship Directors Committee Resources

Virtual Education

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With pandemic-induced major interruption of undergraduate medical education in March of 2020, American medical schools were thrust into uncharted territory of managing clinical education without in-person clinical experiences, and for an unknown expected period of time. As the medical student administration and clerkship directors at various institutions wrestled with how long to postpone student return to clinical environments, they quickly developed plans for shortened courses in the upcoming academic year. This action was supported by the LCME statement advocating for schools to determine how students can successfully meet required learning objectives regardless of the time spent doing so. While not condoned as replacement for clinical experiences, the LCME supported the inclusion of virtual education. Many institutions began furiously compiling digital resources and making plans for offering virtual instruction during quarantine and subsequent social distancing. Compiling and offering digital resources though is not enough, as a full scale revision of the curriculum and learning objectives may be needed. Once this is accomplished, either integrating or completely switching to virtual options is possible.

While clinical education in American medical schools has historically been dominated by in-person experiences in clinics, hospital wards and operating rooms, there has been concerted effort to develop teaching methods and tools making use of ever-increasing technological advancement. A review of medical literature over the last fifteen years demonstrates a wide variety of tools developed and studied, from 'home-grown' e-learning modules [1,5,7,14,17] to proprietary internet accessible computer aided learning systems [2,3,8,9,10,13]. These materials include both medical knowledge and clinical decision-making concepts that often take the form of case studies, many of which are interactive. Even more materials, such as podcasts [12] and open-access platforms [6,15] have been studied, often in comparison to traditional textbook learning or face-to-face lecturing [4,11,16]. There is clear evidence to support that electronic learning modalities can offer equivalent or even superior results than 'traditional' methods, and that students appear to find many of these experiences satisfactory, sometimes rating them more favorably than textbook learning or lecture experiences. [1-5, 7-9, 11-14, 16, 17]. These different options must be considered within the learning objectives set by the clerkship.

As so many medical educators struggled to conceive weeks to months of virtual learning experiences, many digital resources became more widely available, with products such as WISE-MD from Aquifer offering open access for a period of time and companies such as iHuman offering discounted institutional subscriptions. Surgical clerkship teams at some institutions developed detailed guided curricula of combined readings, online modules and widely accessible surgical videos. Other institutions offered pre-existing online electives and/or newly created virtual courses on COVID. At Indiana University, in conjunction with leadership from other required clinical clerkships, we developed a five-week Knowledge in Clinical Clerkships (KICC Start) virtual course to introduce critical medical knowledge and clinical decision-making content for multiple specialties. Our surgery clerkship team delivered sixteen hours of synchronous online content, via Zoom, covering core general surgery topics, closely

following the ACS/ASE Medical Student Core Curriculum. A similar virtual experience was developed for senior medical students at Indiana University, combining core content of Sub-Internship, Emergency Medicine and Critical Care courses into a collaborative effort delivered over two weeks. The course includes forty-two hours of material, of which fifteen hours is synchronous content divided between specialty specific Sub-Internship sessions (such as Surgery) and multi-specialty led sessions focusing on more universal advanced clinical topics.

Collaborative efforts, such as our ARISE (Awesome Restart Into Senior Experiences) and KICC Start courses, and those between institutions and among clinical educators have been welcomed during this novel time. Efforts to utilize electronic learning, both synchronous and asynchronous, have allowed for some programs to have a relatively seamless progression of clinical medical education during the Covid-19 pandemic. While many of these tools were designed to supplement clinical education, we are now able to evaluate them in a new light, and potentially bring such tools and methods even more to the forefront of clinical medical education in surgery and beyond. In the future, many forms of virtual education may stay if they are felt to be better than the traditional teaching.

It is also worth noting that the most highly studied electronic learning in medical education thus far has been of asynchronous format, while it appears that there is a fair amount of synchronous virtual teaching taking place during the current pandemic. This may present a ripe area of future study in medical education.

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