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EXPERT OPINION

Sexual Medical Education Challenges During the COVID-19 Pandemic: Strategies for Academic and Community Based Clinicians

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Optimal medical care requires a foundation of competent and experienced healthcare professionals in sufficient numbers, armed with expertise across a wide range of therapeutic disciplines, providing timely care to those in need. To achieve these ideal outcomes, adequate infrastructure, resources, and sufficient numbers of well-trained individuals must be available at all times. The impact of the COVID-19 pandemic on sexual medicine education and training has been particularly challenging. The perceived elective nature of the therapeutic area resulted in a relatively greater loss of care and training during the most recent pandemic compared to other therapeutic areas. Sexual Health education suffered significant cuts during the COVID-19 pandemic as a consequence of reduced patient encounters, canceled educational events, conferences, and in-person interactions.

In this report, we review the impact of the pandemic on sexual medicine education focusing on male and female sexual concerns. While diverse opinions exist on the origins of COVID-19, there appears to be consensus that another pandemic is likely in all of our futures. To this end, we have targeted the recognized recent gaps in education and highlight the potential approaches to mitigate such losses that future pandemics may pose.

THE CONTEXT

On March 11 2020, the COVID-19 virus had disseminated widely to the extent that it was declared a global pandemic by the World Health Organization. The initial viral strain, with its indiscriminate targeting of all populations, combined with high virulence and rapid transmission led to closure of international borders, restricted travel and cancellation of many medical educational events and activities. The world-wide economy plunged into its worst economic downturn since the great depression. By October 2020, the International Monetary Fund (IMF) had pegged the financial toll at over 28 trillion dollars. As countries locked down their borders and restrictions in all social activities were enforced, healthcare systems prepared for a surge in patients with COVID-19 related illnesses - with expanded intensive care capacity, cancellation of elective operations, and closure of many outpatient clinics. A true war-like setting was being instituted globally with no clear unified central guidance or strategy identified.

Between the *shelter-in-place* induced social isolation, heightened overall stress, and reduced medical interactions, mental and sexual health may have been one of the true unforeseen casualties of this pandemic with reduced sexual activity and increased anxiety and depression.[1] Even short term social distancing and quarantining measures have been shown to correlate with increased psychological distress with elevated levels of depression, panic, and emotional distress.[2] The ability to develop new intimate relationships was hampered for many by the closures of bars and/or restaurants, sporting events, travel, reduced discretionary income, and restrictive governmental policies.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) estimates that 1.5 billion − more than 90% - of the world's learners were affected at the peak of the crisis.[3] However, few adult learners have been impacted as significantly, as those in the medical field. Traditionally, medical education is delivered through a primarily didactic and lab-based pre-clerkship, before entering the hospitals as clinical clerks, then graduating into the role of internship, and finally residency. Physician education does not stop at graduation from medical school or specialty training, but is needed throughout independent practice years, as advances in diagnostics and therapeutics continue to occur that must be understood and incorporated in patient care for optimal outcomes. Perhaps, more than any other group of medical learners, Post-Graduate learners experienced dramatic reductions in educational opportunities during the initial phases of COVID-19. Fewer elective patient encounters, cancellation of lunch and learn events, evening educational programs, medical conferences, and visiting lectureships were all canceled.

The development of electronic or virtual education tools pre-COVID, allowed for a relatively quick transition for medical students in the pre-clerkship years. However, the need for direct patient contact and hands on experience meant that adapting the clinical years training curriculum, and post-graduate training requirements represented a greater challenge.

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On March 17, 2020 The American College of Medical Colleges supported pausing all medical student clinical rotations.[4] Soon after a joint statement by the American Society for Reproductive Medicine, American College of Obstetricians and Gynecologists, American Association of Gynecologic Laparoscopists, American Society for Reproductive Medicine, the American Urogynecologic Society, the Society of Family Planning, the Society of Gynecologic Surgeons, the Society for Maternal-Fetal Medicine, and the Society of Gynecologic Oncology followed the recommendation by the American Surgeon General and advised suspending elective procedures, including in-person fertility treatment.[5] While medical and surgical education was impacted across all specialties, sexual health education was uniquely impacted as many patients delayed seeking treatment or attending follow up, and a disproportionate number *low priority* deemed procedures, addressing sexual dysfunction concerns were indefinitely delayed.[6,7]

In a Halstedian world of see one, do one, teach one, there suddenly was not much to see.

Impact on Didactics

Didactic learning was likely the least impacted by the changes enacted to mitigate COVID-19 spread, as most medical communities found innovative solutions. Departments attempted to minimize the impact of the pandemic on resident education with virtual grand rounds, conferences, and journal clubs as most in-person teaching sessions were cancelled. Web-based and virtual platforms like Zoom and Citrix Webex quickly became household names and flourished, with 53% of programs reporting increased didactic lectures in some centers of excellence.[8]

Within the International Society for Sexual Medicine, rapid transition and expansion of our virtual platform and website to include monthly webinars, online and hybrid annual meetings, development of the *Ask the Expert Program* providing a virtual visiting Professor format were instituted within months of the pandemic. The Webinar topics covered included male and female sexual dysfunction, transgender issues, onco-sexuality, effects of SSRI's on sexual function, sexual distress and sexual distraction among many others. The ISSM University that provides online modules containing many topics of interest continues to expand and as a consequence of the recognized need to enhance virtual programming, accelerated additional content was added.

Beyond the Society for Sexual Medicine, multiple general and subspecialty virtual lecture series were developed. The University of California San Francisco's *Collaborative Online Video Didactics* (COViD) series and the New York section of the American Urology Association's *Educational Multi-institutional Program for Instructing Residents* (EMPIRE) provide case-based, guideline-based, and surgical technique-based lectures from renowned faculty to trainees across the country.[8(p),9] These lectures provide residents and medical students, as well as some midlevel providers and practicing physicians, access to live lectures and the opportunity to interact with prominent urologists from across the country. These series have a strong representation of sexual medicine lectures including multiple lectures on gender affirmation surgery, male infertility, and erectile dysfunction.[8]

Impact on Clinical Exposure

As the pandemic progressed, clinical volumes plummeted as patients avoided nonurgent visits with patient volumes decreasing by 16−73% across the United States.[10] While clinicians have worked to pivot to online platforms for virtual visits with mixed levels of success, integration of learners into this new normal has lagged. At its peak, 92% of training programs in the United States reduced resident presence in the hospitals through reduced hospital activities and cohorting. On average, resident weekly clinical time fell from 4.7 to 2.1 days per week.[11] Overall volume of inpatient consults decreased with programs opting to manage non-urgent consults in an outpatient manner and while many residents were involved in virtual clinics, many felt unprepared, with less than 20% receiving proper training on performing effective virtual visits.[12,13]

Telemedicine has been shown to be effective, safe, and satisfactory to patients, however results from patients attending sexual medicine clinics are less positive, with low rates of reassurance and a general dissatisfaction with the service.[14,15] While the cause of this disparity is not totally clear, the sensitive nature of the issues discussed likely plays an integral role. Dooley et al identified patients most amenable to successful virtual visits, where a physical exam, procedure, or intervention is not needed.[16]

Now, more than 2 years into the pandemic, most clinicians have their preferred virtual platform, however integrating trainees into these clinics can often be seen as more trouble than it is worth. The endocrinology program from Ann Arbor Veterans Affairs (VA) Health Care System adapted a novel approach where an attending physician can liaise with multiple learners in clinic using Zoom's breakout rooms (Figure 1).[17] Using this approach the clinic was able to match pre-pandemic patient volumes, albeit at numbers much lower than typically seen in a conventional surgical practice.

A similarly novel approach was taken by the geriatric psychiatry program at Massachusetts General hospital where decreased in hospital volumes led to the development of a "virtual rotation" with a combination of virtual clinics, Zoom lectures, and summative projects and presentations.[18]

Impact on Operative Exposure

While didactic teaching can be modified and clinics can be adapted, there really is no true substitute for operative hands-on experience. It is estimated that 28 million operations were cancelled in the first 3 months of the pandemic − nearly a 50% reduction.[19] Resident participation in the operative theatre was

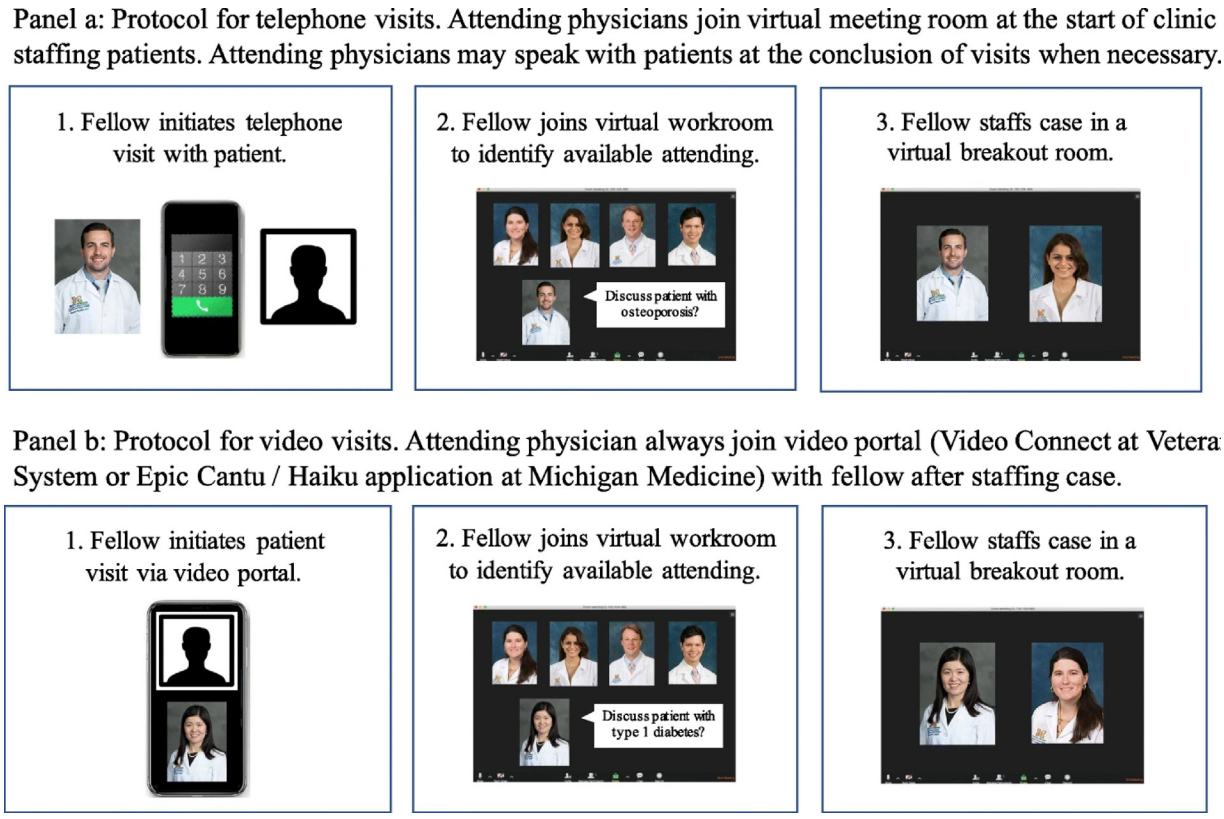

Figure 1. Telephone (Upper panel) and video (Lower panel) virtual teaching clinic model developed by endocrinology program from ann arbor veterans affairs (va) health care system to better integrate trainees into virtual clinics during covid-19 pandemic.[18].

reduced for 3 main reasons; (i) limited personal protective equipment, (ii) in an attempt to reduce trainee exposure, and (iii) to optimize operative times.[20] Due to reduced caseloads, 60% of American urology programs raised concerns that residents would not be able to fulfill required case counts by the end of residency.[11] A total of 80% of urology residents reported the pandemic negatively impacted their surgical training, with 51% raising concerns of competency upon completion of residency.[21] In response to these concerns American, Canadian, and United Kingdom accrediting bodies opted to reduce curriculum requirements and encouraged programs to explore alternative means of education.[22] Similarly, 78% of General Surgery and Obstetrics and Gynecology residents expressed concerns that their surgical training has been diminished by the pandemic.[23] Though these changes were a necessary response, its impact on surgical training and competence is yet to be seen.

Despite these challenges, programs and residents worked to supplement their education. Many surgical trainees turned to video-based surgical education with increasing rates of both in-house, collaborative, and peer reviewed surgical libraries.[22] "Teleteaching" has been shown to be an effective modality to deliver surgical education — especially for unusual cases in some subspecialties that may not be present at every institution.[24] Given their necessity and success, there are growing calls for a national video library.[25] Additionally, independent and proctored surgical simulation is likely to play a growing role in ensuring trainee competency. Hoopes et al. aptly summarize key resources available to obstetric and gynecology (though many apply to all surgical specialties) in order to prevent skills decay, including homemade low-cost trainers and simulation models.[26]

Future Directions

As restrictions are lifted, we must ask ourselves — what does medical education look like in the post-pandemic world, and how do we future-proof ourselves from the next one. As Osmond-Johnson et al. succinctly stated, "What conditions need to be in place for students to learn and for teachers to teach, and how will leaders across the system adapt to support these conditions?"[27]

Collaborative didactics have provided virtual access to world thought leaders to at home learners across the world on an accessible, on-demand platform giving unprecedented access and education. The camaraderie, ingenuity, and adaptiveness shown during these projects were truly remarkable. What remains to be seen is whether these virtual platforms and videos serve as a substitute or as a supplement to traditional in-person lectures. Perhaps some blended curriculum of live, virtual, and recorded didactics can capture the best of each through increased accessibility, engagement, and retention, ultimately best preparing our learners for their future careers.

The ISSM and our regional affiliate societies have developed and expanded our virtual program mix extensively over the past 24 months to reflect the needs of our membership. These include monthly webinars covering topics as diverse as vulvodynia, sexual distress, sexual distraction, Post SSRI sexual dysfunction among others. A novel program that offers direct small group interaction with world leaders, is the Ask the Expert Program. Topics covered to date include: Best care practices for Transgender and gender diverse individuals, Optimizing testosterone, Vulvar Dermatoses and Vestibular Pain Syndromes: What You Need to Know, with many others scheduled. Offering hybrid scientific meetings, the ISSM university on line and the ESSM Sexual Medicine course in-person are all examples of the diverse set of sexual medicine educational products available to our members and learners worldwide.[28,29]

The shift from in-person to virtual visits markedly decreased learner involvement in clinics. Integrating learners into virtual clinics can be arduous though novel solutions like Ann Arbor's VA endocrinology clinic, show it can be done with proper motivation. How well these solutions work in higher volume clinics remain to be seen. This lack of exposure is especially detrimental in sexual medicine where the art of the clinical exam, the interactions with the patients/partner and the connections we make cannot be properly simulated on platforms other than live and in person. While clinical volumes have slowly returned to their usual levels in most teaching institutions, returning educators should begin preparation for how best to integrate learners into virtual clinics should another wave or another pandemic strike.

Finally, drastically reduced surgical volumes over the past many months, may have left us with a *lost generation* of surgeons whose formative senior and chief years were deficient of many elective "low priority" surgeries. Without adequate exposure there was no way for these trainees to gain proper competence and confidence managing these procedures.

While accrediting bodies reduced curriculum requirements, this was out of desperation rather than design. The impact these decisions will have on this cohort of surgeons and their patients is yet to be seen. Whether we find ways to supplement with virtual learning or simulation, a better solution needs to be found to combat these periods of restricted surgical case loads and variety during times of crisis, to ensure competency of future graduates.

These seemingly endless months have changed the way we teach and changed the way we learn. While it is easy to focus on the darkness this pandemic has brought, it has also showcased our adaptability and resilience as clinicians and teachers in the field of sexual medicine. The utility of virtual programming, the improved access they can provide and the evolution of these teaching technologies will likely serve us all well into the next pandemic. As we begin to see normal life slowly returning, it would be wise to heed the lessons learned and find ways to emerge better prepared for possible future similar challenges.

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