

Pedagogy in a pandemic – COVID-19 and virtual continuing medical education (vCME) in obstetrics and gynecology

The COVID-19 pandemic will go down in history as a global health crisis that caused significant loss of life and massive economic and social disruption. Many countries have enforced physical distancing and reduced social movement to minimise community spread. The greatly increased service demands and the initiation of team segregation to ensure continuity of care has resulted in both Specialty Trainee [ST] postgraduate training and wider academic congregation being cancelled.¹ For Asia-Pacific nations, such as Singapore, this is reminiscent of the Severe Acute Respiratory Syndrome [SARS] outbreak in 2003. At that time, specialty training was completely halted for six months, with resources prioritized for the outbreak.²⁻⁴ When our first case of COVID-19 was detected in late January 2020, we looked to lessons learned^{5,6} and moved our ST educational delivery from face to face didactic learning to a virtual domain. Our Obstetrics and Gynecology (OG) STs work on the frontline and need to be equipped with the knowledge to care for both COVID-19 and non-COVID-19 OG cases. With predictions that this pandemic may stretch into 2021, we share the promises, practices and pitfalls of our experience thus far.

1 | VIDEOCONFERENCING

Videoconferencing is not new and has been used pre-pandemic for meetings and training. In countries where STs work in remote and rural settings, it is a staple of distance learning. While its use has certainly increased during this time, certain factors are important when selecting an off-the-shelf platform:

- Stability over smartphones and computers with different operating systems so that educators and STs can participate at work, home or in commute.
- User-friendly “screen-sharing” and “voice-over” features to minimise technical difficulties. These are difficult to rectify remotely and quickly dampen the enthusiasm of both educator and learner.
- Online security by password protecting meetings, manually admitting guests, locking meetings and removing unknown participants.
- Text chat and icons.

Regardless of the security features, all patient identifiers need to be removed. The text and icon components can be used to to

pose and answer questions, agree or disagree with fellow participants, poll responses and extend appreciation. Asking the audience at the beginning of the session to mute their microphones will prevent our early experiences of children, pets and taxi drivers joining the session. Participants' backgrounds can be covered to maintain privacy. A program coordinator is invaluable to deal with operational issues, leaving the speaker, audience and senior to concentrate on the learning.

2 | CREATING A PROGRAMME

While COVID-19 may be seen as a major disruptor to postgraduate education, it is also an opportunity to refine existing distance learning techniques into a Virtual Continuing Medical Education [vCME] program. A vCME programme needs flexibility and must meet national and institutional requirements relevant to each system's educational needs. Acutely, COVID-19 related education covering critical care, workflows and “just-in-time” training for infection control skills such as Personal Protective Equipment [PPE] demonstrations, assumed high priority.⁷ Looking forward, as specialty examinations were postponed, we chose to blueprint several sessions to cover key components of our examination syllabi.

Every country has a different degree of team segregation depending on manpower resources and COVID-19 caseload. In Italy and China, high case numbers required a greater degree of segregation involving designation of entire sections of hospitals to the care of COVID-19 patients with many disciplines contributing HCPs to a dedicated manpower pool. Our department has been able to retain most staff, but they are segregated into teams looking after geographically separate care areas such as inpatient wards, operating theaters, clinics and delivery wards. These teams are further subdivided into shifts, thereby prohibiting the continuation of our daily, face-to-face, department-wide, education program. Finding a common time to reinstate the program was challenging but we settled on 0730hrs as STs are either pre-shift handover, in commute or awake off-duty. However, it is actually impossible to find a time when all STs are available due to service needs, secondment, rest-cycles or illness. Uploading recorded videos of vCME sessions on an accessible, secure cloud server allows for both easy access by absent STs and future revision for exams. This way, even seconded STs remain

attached to their core discipline and the wider Department can view at a time of convenience.

3 | FORMAT OF SESSIONS

Peer-teaching is a recognized and powerful tool in pedagogy⁸ and is useful for both examination preparedness and knowledge retention. Each ST selects one to two pre-assigned topics per month, reflecting personal knowledge gaps. Senior staff moderate each 30-minute presentation, with attendance and education hours tracked for accreditation purposes. Directed questions and case-based teaching enhance the quality of group discussion. Some presenters incorporate pre- and post-session quizzes to assess learner understanding, with scores later released to individual participants. E-learning material and videos published online by academic institutions and professional societies are also highlighted to enable parallel self-learning.

We were interested to find that 88% of our STs felt more comfortable raising questions through videoconferencing compared to traditional didactics. Reasons include increased comfort in the virtual environments,⁹ less public-speaking fear,¹⁰ peer support, less senior intimidation and a dismantlement of the traditional classroom physical space. While some imagination is needed, most educational material can be adapted to the videoconferencing medium. For example, examination skills can be honed by virtual Objective Structured Clinical Examination [OSCE] stations and distribution of exam-style questions through Google Forms[®].

An area of universal concern amongst the trainees is loss of procedural training opportunities¹ due to the deferment of non-urgent surgical cases¹¹ and team segregation of sonographic units. While the loss of this hands-on experience is not easily substituted, we have tried to address this through the use of archived videos¹² and live telementoring¹³ by experienced staff. Instead of one or two trainees benefiting by being in the right place at the right time, a larger group gains simultaneously, akin to the operating theater viewing galleries of the past. Furthermore, the taped sessions have future utility as a pre-procedural orientation tool. Methods such as high and low fidelity simulators and complementary self-learning via Youtube[®]-based skill exercises eg <https://www.youtube.com/watch?v=cjNDYILnxAM> can be used to continue hands-on practical work. Despite the reduction in procedures, we acknowledge that COVID-19 has opened other developmental opportunities in the areas of infection control, critical care management, public health, healthcare systems, health economics and leadership. These lessons are hard-learned but may make better STs in the long run.

4 | ADDITIONAL BENEFITS

The COVID-19 pandemic exploded exponentially in many countries and the early days were often characterized by confusion with frequent evidence updates and guideline changes.¹⁴ The regularity of

our vCME programme served a dual purpose as a forum to disseminate operational information and obtain feedback on-the-ground which helped coordinate departmental action, especially where STs may be dispersed to distant locations.

Mental health support for STs can also be embedded into a virtual CME program. Prolonged segregation and isolation can reduce the effectiveness of each ST's coping strategies. Anxiety, stress, mood disorders³ and even post-traumatic stress disorder¹⁵ were psychological impacts faced by HCPs during SARS. About 80% of our STs felt these sessions provided solidarity amongst fellow STs and a major source of peer support. Educational supervisors have used the videoconferencing platforms to meet-up with their STs and complete formative assessments of this unprecedented "rotation." We featured online resources supporting self-help during traumatic events (<https://www.liverpool.ac.uk/project-ares/preventingptsd/>) and our hospital offers in depth pastoral care through this modality.

5 | POST-PANDEMIC PEDAGOGY

The COVID-19 pandemic will eventually conclude and we will awake to a new post-COVID-19 era. The hard lessons learned from this experience should be incorporated into the everyday work of STs- hand hygiene, correct PPE usage, the civic responsibility of staying home when ill and the vital role of public health. The experience of adaptability and working together for the collective benefit of healthcare provision will mould the next generation of specialists in preparation for the next global pandemic.

This pandemic will also highlight the benefits of digital hyperconnectivity as a tool to solve problems and enhance education delivery. These include distance learning techniques to increase the reach of medical educators, re-evaluating how academic conferences are organized and transferring the learning of how to care to virtual platforms. It is the realization of finding a digital way to "keep in touch".

6 | CONCLUSION

The COVID-19 pandemic is a stress test that is uncovering traditional areas of neglect in each nation's healthcare systems. It is our opinion that when postgraduate education takes a backseat during a crisis, the downstream effect may not be immediately appreciable but significant in the long run. Increased use of distance learning techniques may help mitigate this and have complementary value in non-pandemic settings. A well-considered vCME programme may enhance knowledge and skills, whilst simultaneously supporting STs during an unprecedented, difficult period (Table 1). It remains for medical educators to gather evidence as to whether this approach is better, complementary or worse than traditional ways, in guiding future pedagogy. Our own experience suggests that vCME is an important strategy in the prolonged campaign against COVID-19, and may allow our STs to emerge on the other side of this pandemic, at the very least unscathed, and hopefully stronger.



TABLE 1 Adapting educational objective for Specialty Trainees (STs) for a pandemic and lessons that can be carried forward in the post-pandemic phase

Objectives of an OG specialist training programme	During a pandemic	Post-pandemic
Academic		
Core competencies and exam preparation	<ul style="list-style-type: none"> • Videoconferencing sessions • Pre- and post-session questionnaires via online form delivery systems • Focus on COVID-19 related learning 	<ul style="list-style-type: none"> • Maintaining a virtual option • Expanding reach to distant sites • Using recorded sessions for future revision
Exam preparation	<ul style="list-style-type: none"> • Videoconferencing OSCE preparation • vCME sessions targeting exam topics • Exam questions via online form delivery systems 	
Research	<ul style="list-style-type: none"> • Cessation of recruitment for non-COVID-19 clinical research • Expanded COVID-19 and non-clinical research 	Resumption of recruitment for clinical research
Technical ie surgical, obstetric, ultrasound	<ul style="list-style-type: none"> • Archived videos with senior faculty sharing technical pointers • Low- and high-fidelity simulators • E-learning modules or online videos 	<ul style="list-style-type: none"> • Continuation for expand procedural mentoring to more STs at a time • Archival of sessions for future pre-procedural orientation
Professional development	<ul style="list-style-type: none"> • E-learning modules • Virtual clinical competence committee meetings • Virtual meetings with clinical supervisors 	Maintaining a virtual option if in-person meetings are not possible
COVID-19 lessons	<ul style="list-style-type: none"> • PPE and PAPR training • Hand hygiene • Care of critically-ill patients • Teamwork to prioritise healthcare provision • Staying home when sick • Continuity of care even in segregated environments 	Continued emphasis of these aspects

Abbreviations: OSCE, Objective Structured Clinical Examination; PAPR, Powered Air-Purifying Respirator; PPE, Personal Protective Equipment; vCME, Virtual Continuing Medical Education.

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Abhiram Kanneganti¹ 
 Karen M. X. Lim¹
 Grace M. F. Chan¹
 Soe-Na Choo¹
 Mahesh Choolani^{1,2}
 Ida Ismail-Pratt¹
 Susan J. S. Logan^{1,2} 

¹Department of Obstetrics and Gynecology, National University Hospital, Singapore

²Department of Obstetrics & Gynecology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Correspondence

Susan J. S. Logan
 Email: susan_logan@nuhs.edu.sg

ORCID

Abhiram Kanneganti  <https://orcid.org/0000-0002-5559-4534>
 Susan J. S. Logan  <https://orcid.org/0000-0002-2667-7146>

REFERENCES

1. Gallo G, Trompetto M. The effects of COVID-19 on academic activities and surgical education in Italy. *J Invest Surg*. 2020;1-2. [Epub ahead of print]. <https://doi.org/10.1080/08941939.2020.1748147>
2. Patil NG, Chan Y, Yan H. SARS and its effect on medical education in Hong Kong. *Med Educ*. 2003;37:1127-1128.
3. Rambaldini G, Wilson K, Rath D, et al. The impact of severe acute respiratory syndrome on medical house staff: a qualitative study. *J Gen Intern Med*. 2005;20:381-385.
4. Sherbino J, Atzema C. "SARS-Ed": severe acute respiratory syndrome and the impact on medical education. *Ann Emerg Med*. 2004;44:229-231.
5. Wilder-Smith A, Chiew CJ, Lee VJ. Can we contain the COVID-19 outbreak with the same measures as for SARS? *Lancet Infect Dis*. 2020;20:E102-E107.
6. Lim EC, Oh VM, Koh DR, Seet RC. The challenges of "continuing medical education" in a pandemic era. *Ann Acad Med Singapore*. 2009;38:724-726.
7. Li L, Xv Q, Yan J. COVID-19: the need for continuous medical education and training. *Lancet Respir Med*. 2020;8:e23.
8. Ten Cate O, Durning S. Peer teaching in medical education: twelve reasons to move from theory to practice. *Med Teach*. 2007;29:591-599.

9. Almarzooq Z, Lopes M, Kochar A. Virtual Learning during the COVID-19 Pandemic: A Disruptive Technology in Graduate Medical Education. *J Am Coll Cardiol*. 2020;75:2635-2638.
10. Valaitis R, Akhtar-Danesh N, Eva K, Levinson A, Wainman B. Pragmatists, positive communicators, and shy enthusiasts: three viewpoints on Web conferencing in health sciences education. *J Med Internet Res*. 2007;9:e39.
11. Carenzo L, Costantini E, Greco M, et al. Hospital surge capacity in a tertiary emergency referral centre during the COVID-19 outbreak in Italy. *Anaesthesia*. 2020. <https://doi.org/10.1111/anae.15072>.
12. Augestad KM, Lindsetmo RO. Overcoming distance: video-conferencing as a clinical and educational tool among surgeons. *World J Surg*. 2009;33:1356-1365.
13. Rosser JC Jr, Young SM, Klonsky J. Telementoring: an application whose time has come. *Surg Endosc*. 2007;21:1458-1463.
14. Liang H, Acharya G. Novel corona virus disease (COVID-19) in pregnancy: What clinical recommendations to follow? *Acta Obstet Gynecol Scand*. 2020;99:439-442.
15. Wu P, Fang Y, Guan Z, et al. The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. *Can J Psychiatry*. 2009;54:302-311.

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