

Orthopaedic Training

AMID COVID-19

Text by Dr Liang Zhen Chang



This ongoing COVID-19 crisis has hit us fast and hard. First reported in Wuhan, China, in late December 2019 as a cluster of pneumonia cases,¹ it has now spread to involve various countries across multiple continents. The World Health Organization has declared this COVID-19 outbreak a global pandemic, calling for an international effort to stem its burgeoning spread. Health services resources and manpower are focused on containing this outbreak. Inevitably, medical training will have to take a backseat, as critical resources are being channelled towards front-line efforts. Of these, procedural specialties, like orthopaedics, are perhaps the hardest hit. Dwindling outpatient clinics and cancelled elective surgeries have resulted in decreased educational opportunities for orthopaedic surgeons in training. Creative solutions will need to be sought to ensure the quality and continuity of orthopaedic training even in these trying times. In this commentary, I will share some insights

and practical solutions that can be adopted as we adapt orthopaedic training to this crisis.

Impact on orthopaedic training in Singapore

Singapore has been dealt a particularly hard blow by this ongoing COVID-19 pandemic. We were among the first countries to report confirmed COVID-19 infections outside of China. With confirmation of early community spread, the Ministry of Health, on 7 February 2020, raised the Disease Outbreak Response System Condition alert level to Orange.² With this, a number of disease control measures commenced, among which included mandatory twice-daily temperature screenings for all healthcare staff and two-week quarantines for staff with pertinent contact and travel histories to mainland China. Due to these restrictions, inter-hospital residency rotations, cross-hospital deployments and face-to-face teaching sessions

were stopped with immediate effect. In a bid to protect vulnerable patient populations and conserve hospital resources, non-urgent elective surgeries were cancelled. Outpatient clinic numbers were reduced, and non-urgent reviews deferred for three to six months to minimise hospital overcrowding.

In a procedural specialty like orthopaedics, which is heavily skewed towards elective work, this has inevitably affected the surgical caseload significantly and hence residents' operative experiences. The situation is compounded by the significant amount of uncertainty surrounding this viral crisis – in particular, how long will it last? To suspend training indefinitely is not a pragmatic move. We must therefore strive to ensure continuity of quality training in these difficult logistical times. We had to look beyond traditional resources to maintain training volume, progression, quality and standards.

Using technology to our advantage

This is thus an opportune time for orthopaedic educators to leverage upon technology to fulfil their residents' training needs. With the cancellation of physical meetings, technology can be harnessed to deliver teaching goals that could otherwise only be achieved with didactic sessions. To this end, didactic teaching sessions have been moved to online platforms using video-conferencing software. Faculty and residents are now able to conduct teaching sessions remotely for their learning, with case-based discussions being facilitated real-time.

Early feedback has been extremely encouraging. Residents have been observed to be more forthcoming with their questions. Two-way interaction between faculty and residents is simple and has been enhanced as a result. The video conferences can also be recorded and stored in our repository of educational materials for future teaching needs. Besides didactic sessions, video-conferencing technology can also be utilised to

demonstrate procedures, surgical techniques and even anatomical dissections for surgical approaches. This can be supplemented with instructional videos, webinars and online resources such as those available on the AO Trauma³ and VuMedi⁴ platforms. These can then be followed by faculty-led discussions to further help residents consolidate their learning. Innovative teaching modalities like these have been shown to be advantageous in facilitating learning⁵ and enhancing interactions⁶ compared to conventional teaching methods.

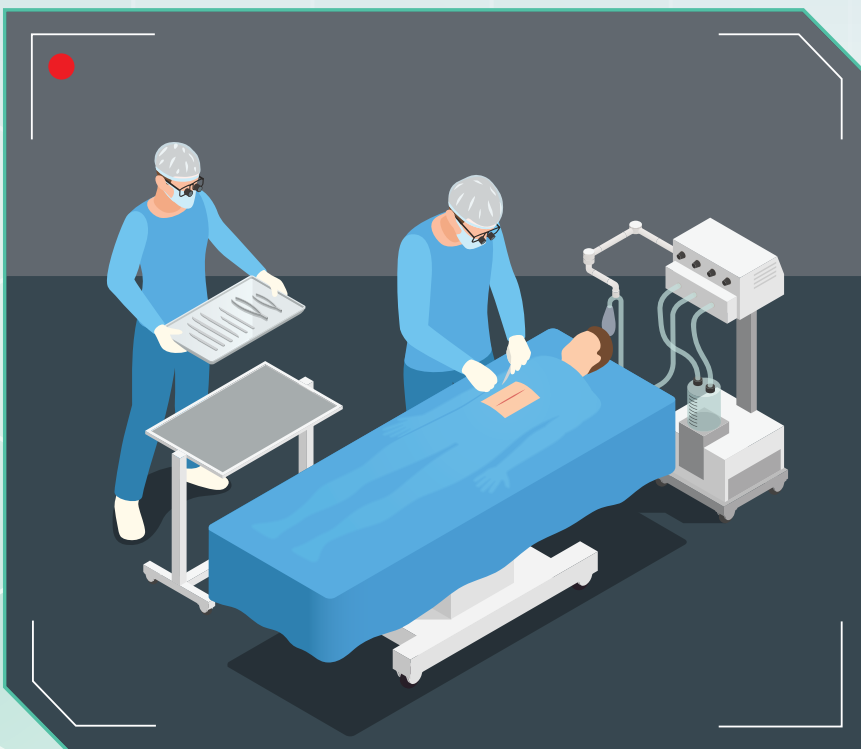
Orthopaedic surgery is uniquely implant- and equipment-centric, unlike most other specialties. Our implant choices can determine our patients' clinical and surgical outcomes.⁷ This relative reduction in clinical load due to the pandemic can be taken advantage of to better familiarise ourselves with the nuances of various implant designs and orthopaedic equipment. This can range from the simple compartment pressure monitors to the more complex (eg, femoral nail/total knee replacement designs, external fixators and even skeletal traction devices/pelvic clamps).

To this end, we can work with external equipment vendors to organise these implant demonstration sessions. With regard to trauma teaching, sawbone workshops can be organised to further enhance our proficiency in fracture reduction and fixation.⁸ Arthroscopic simulators can also be utilised to hone our arthroscopy skills in a stress-free environment. In addition, given that a significant proportion of orthopaedic injuries can be conservatively managed, masterclasses in cast setting and application have been organised for residents to further hone their skills in this art that is often deemed "long-lost".^{9,10}

An all-rounded doctor

A highly skilled surgeon does not necessarily make a good doctor. In addition to domain-specific knowledge and skills, non-cognitive attributes like teamwork are equally important as well. This COVID-19 crisis presents a unique opportunity for us to be taught rich lessons in these non-cognitive attributes, beyond what books and residency rotations can offer. Orthopaedic residents have been rostered for shifts in the emergency department (ED) seeing non-orthopaedic patients. This fosters camaraderie between the orthopaedic residents and their ED colleagues and alleviates ED manpower difficulties at the same time. It also delivers powerful lessons in courage, versatility and leadership as we learn to adapt to fluid situations at the forefront of this COVID-19 battle, and it provides us with the opportunity to revisit our general medical skills, which can sometimes be lost after years of specialised orthopaedic training. This allows us to develop into more holistic medical professionals, standing us in good stead as the orthopaedic surgeons of tomorrow.

Even with a reduced elective caseload, this COVID-19 crisis presents us with unique learning opportunities that we can capitalise on, to develop values and skill sets beyond what textbooks and rotations can offer. Be comfortable with utilising technology and emphasise on improving the "softer" skillsets. That should be the way forward. ◆



AO Trauma

Founded in Switzerland in 1958, Arbeitsgemeinschaft für Osteosynthesefragen (AO; German for Association for the Study of Internal Fixation) runs training courses in surgery and medical care. AO is a not-for-profit organisation that focuses on education and research in orthopaedics. Their global community has established five specialty areas, including AO Trauma, and they regularly hold courses internationally for orthopaedic surgeons.

Currently billed as the world's largest global trauma and orthopaedic community, AO Trauma focuses on the surgical management of trauma and disorders of the musculoskeletal system. With the impact of COVID-19, AO Trauma has transformed their usually face-to-face events into online webinars to complement their existing collection of webinars and webcasts. They also have a library of online videos and learning tools including lectures, practical exercises and instructional videos. Most interestingly, AO Trauma has their Surgical Reference repository, an online tool containing clinical reports and step-by-step surgical procedures based on up-to-date evidence that is constantly being updated.

VuMedi

A healthcare education platform for clinicians, VuMedi's mission is to help doctors make optimal patient care decisions via comprehensive video education. VuMedi prides themselves as a "YouTube" platform for medical practitioners, hosting one of the largest numbers of educational videos from a wide range of sources including hospitals, manufacturers and key opinion leaders. Up-to-date materials include webinars, surgical videos and case studies.

Founder Roman Giverts was inspired by his girlfriend's father, an orthopaedic surgeon, watching a DVD of a rarely performed surgical technique. After speaking with him, Giverts realised the potential a surgical video-sharing website could bring to doctors the world over, and thus VuMedi was born.

As technology advances, doctors are finding new ways to gather the information they need. VuMedi, a physician-only community, provides a platform for surgeons to view and upload surgical videos. The community allows for discussion on posted videos, fostering a healthy forum for sharing of medical techniques.

The COVID-19 landscape has seen VuMedi expanding into new specialties due to the urgent need for physicians to learn as much about COVID-19 as possible in a situation where physically seeking out information can be difficult.

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