Staying SHARP in times of crisis – The impact of COVID-19 on anaesthesiology residency

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Abstract

The COVID-19 pandemic is an unprecedented crisis that has taken the world by storm, and it has taken an especially immense toll on the healthcare sector. Although much effort has been made to make changes in key areas such as clinical practice, national policy and research, we believe that it is just as important to evaluate the impact of the crisis on postgraduate medical training. To this end, we would like to share our experience within an anaesthesiology residency programme in Singapore, the SingHealth Anaesthesiology Residency Programme, which we hope will benefit other training programmes and anyone involved in postgraduate medical education as a whole. Key challenges identified include restrictions on teaching events, difficulties in completing core posting requirements, changes in clinical workload, postponement of examinations, exposure risk (particularly in relation to aerosol-generating procedures) and psychological burden. Strategies that have been implemented to tackle these challenges are also described, including the use of online platforms, modifications to posting and promotion requirements, manpower adjustments, provision of protective equipment and training in infectious disease protocols. Ultimately, we believe that a supportive work environment is essential to ensure the wellbeing of residents in times of crisis.

Keywords
COVID-19, anaesthesia, anaesthesia residency, postgraduate medical education, pandemic

Introduction

Singapore confirmed its first case of the novel coronavirus (COVID-19) on 23 January 2020.1 The nation raised its disease outbreak response system condition (DORSCON) risk assessment level to orange 13 days later.2 This was aimed at arresting community spread as the number of COVID-19 cases continued to rise. The impact of surging demands on our hospitals and healthcare systems resulted in dynamic and swift changes in manpower deployment, policies and practices.3–5

The SingHealth Anaesthesiology Residency Programme (SHARP) is nested within the largest public healthcare group in Singapore, with residents and faculty distributed between four hospitals and nine specialty centres. In the light of this pandemic, major issues in residency training surfaced, due to restrictions in movement of staff between hospitals, suspension of in-person teaching sessions, redistribution of medical personnel and unpredictable changes to workflows. Residents and faculty alike are faced with the challenges of coping with increased service demands and disruption to education and training. In addition, anaesthesiologists are frequently exposed to aerosol-generating procedures.6,7 This makes it crucial that they should adapt to changes in clinical practice and infection control measures.

This article aims to describe the impact of COVID-19 on SHARP and the changes we made in response to this pandemic.
Background to SHARP

SHARP is one of three sponsoring institutions offering postgraduate anaesthesiology residency training in Singapore, and the programme includes three years of junior residency (JR) followed by two years of senior residency (SR) training. This five-year training programme entails systematic rotation of residents across the major hospitals and specialty centres within the Singapore Health Systems (SingHealth) cluster (Figure 1). Progression in training involves the successful completion of core rotations as well as assessments of the core competencies in accordance with the Accreditation Council for Graduate Medical Education International (ACGME-I) guidelines. Junior residents are required to pass the intermediate examination before they can progress to SR. Subsequently, completion of SR training and an exit examination are required to be conferred as an anaesthesiology specialist.

The impact of COVID-19 on residency training

Drawing from its prior experience of the severe acute respiratory syndrome (SARS) outbreak in 2003, Singapore immediately adopted a strategy of active detection and aggressive containment to reduce the transmission of COVID-19. The concern about nosocomial and intrahospital transmission resulted in heightened hospital surveillance to minimize the risk of spread and the depletion of hospital staff due to quarantine. Significant events that affected residency training are summarized in Table 1.

Education and teaching

Teaching for SHARP traditionally relied on classroom-style lectures. However, with imposed measures restricting movement between hospitals and forbidding gatherings in large groups, all departmental and residency programme teaching events were cancelled. The programme shifted all lecture-style teaching to e-learning and videoconferencing methods. Online videoconferencing platforms such as Zoom and Cisco Webex were utilized, and teaching was also recorded and uploaded for e-learning. Residents and faculty alike had to familiarize themselves with and learn to be proficient in using such tools for education. A small proportion of teaching that could not be converted to online alternatives initially included simulation training and procedural-based training such as airway or ultrasounds workshops.

Minimizing impact on teaching and education for residents has been challenging internationally. The effectiveness of e-learning as compared with in-person teaching still needs to be evaluated, and there are several limitations to online teaching such as limited opportunities for interaction in a large group setting and the inability to teach procedural skills, which
are critical to anaesthetic training. Funding, security issues and the need to avoid compromising patient data when using online platforms are among other concerns.

Resident core postings and effects on curriculum

Residents were not allowed to move between the different institutions to complete their core rotations. Team segregation strategies were also employed throughout the SingHealth anaesthesiology cluster to minimize contamination and the necessity of quarantining whole departments in the event of an infection. Manpower from the department was deployed to essential services such as the emergency department, staff clinic and COVID-19 ICU wards. At the same time, non-urgent elective procedures and surgeries were rescheduled. The changes that were implemented affected learning in the clinical environment, and limited both the quality and quantity of clinical training.

Examinations, evaluation and progression

Professional examinations are an important checkpoint in progression to residency because ‘medical knowledge’ is one of the key core competencies.\(^{10}\) However, both the Master of Medicine (Anaesthesiology) Intermediate Examination and the Anaesthesiology Exit Examination were postponed amidst the pandemic.

Subsequently, the Division of Graduate Medical Studies made changes to allow the intermediate examination to proceed at a later date with restrictions, such as segregating candidates by institution and then according to cohort to take the written examination, and converting the objective structured clinical examination (OSCE) to a videoconferencing format. To help residents prepare for the changes, a preparatory course was held that incorporated a mock OSCE with a similar format. Online tutorials and virtual viva sessions were also organized. Apart from the postponement of milestone examinations and being unable to continue to compile case logs and complete core rotations, SHARP residents also found it challenging to complete compulsory assessments such as chart stimulated recall evaluations, which require them to meet with faculties from other institutions. Mandatory workshops were also postponed indefinitely. Despite the residents’ inability to fulfill previous training requirements, the SHARP Clinical Competency Committee (CCC) recognizes that their progression should be compromised as little as possible. Residents have been encouraged to keep an active log of cases and procedures carried out, and rotations have been rearranged to prevent loss of training, with each institution adjusting their curriculum to provide residents with adequate exposure to core posting sub-specialties.

In addition, the Ministry of Health (MOH) and the Joint Committee on Specialist Training suggested shifting from rotation-based to competency-based progression during the COVID-19 pandemic. At the same time they have also allowed the progression of junior residents to provisional senior residents, to allow a clinically competent JR who has yet to complete the intermediate examinations to take on added responsibilities as an exception during this time. As a result, the SHARP CCC met to review each resident’s progress on a case-by-case basis and used a series of tools and evaluation procedures such as the competency evaluation form, 360 feedback from peers/faculty/allied health colleagues, the SHARP SR readiness survey form and the ACGME-I milestone assessment form to determine if a resident has met the competencies required to progress to the next level of training. COVID-19 has presented us with an opportunity to reevaluate competency-based education and assessments.

Resident preparedness and support

Anaesthesiologists are constantly exposed to aerosol-generating procedures. Therefore, all SHARP residents had to undergo compulsory training in the use of personal protective equipment (PPE), which includes the N95 mask and the powered air-purifying respirator. Eye protection was provided to all residents. Thermometers were issued by the MOH for compulsory training in the use of personal protective equipment (PPE), which includes the N95 mask and the powered air-purifying respirator. Eye protection was provided to all residents. Thermometers were issued by the MOH for compulsory training in the use of personal protective equipment (PPE), which includes the N95 mask and the powered air-purifying respirator. Eye protection was provided to all residents. Thermometers were issued by the MOH for compulsory training in the use of personal protective equipment (PPE), which includes the N95 mask and the powered air-purifying respirator. Eye protection was provided to all residents. Thermometers were issued by the MOH for compulsory training in the use of personal protective equipment (PPE), which includes the N95 mask and the powered air-purifying respirator. Eye protection was provided to all residents. Thermometers were issued by the MOH for compulsory training in the use of personal protective equipment (PPE), which includes the N95 mask and the powered air-purifying respirator. Eye protection was provided to all residents.
Discussion

Apart from the impact on clinical training and education, there are many other sources of anxiety and concern that can arise among residents during a pandemic, and these can affect morale greatly. The SARS experience has shown us that there are some key aspects that residency programmes should focus on to develop strategies that will assist their residents to cope with the stressors of clinical practice and training during a pandemic situation. Important resident concerns that should be addressed by programmes include ensuring personal safety, balancing pressures of duty with care, minimizing impact on training and education, and safeguarding the residents’ emotional wellbeing.

Prompt, unambiguous communication and dissemination of information and instructions are essential in minimizing uncertainty among residents during times of crisis. SHARP residents are kept updated with daily emails on changes to hospital COVID-19 protocols. However, frequent changes made to practice and training, an increased workload due to a relative shortage of manpower and limited ability to take leave, coupled with the need for social distancing, can result in fatigue and feelings of isolation and loss of control. SHARP residents may also find themselves in clinical situations that lead to a higher risk of exposure to COVID-19. Although healthcare professionals are thought to have given implied consent to risks associated with caring for patients, the fear of contracting a novel disease and potentially infecting loved ones can take a significant toll on their emotional wellbeing. A supportive work culture is vital in maintaining the resilience of our residents during this crisis. We suggest developing a wellness support system, enabling residents to voice concerns and give feedback openly so that solutions to potential problems can be implemented promptly. In addition, there should be regular checks to monitor residents’ health and look for signs of burnout.

Despite limitations to training, the COVID-19 outbreak has given SHARP residents the opportunity to learn to be adaptable and resilient. Residents have developed technical skills to change their anaesthetic practice to minimize aerosolization and spread to OT staff, as well as non-technical skills associated with resource conservation, management of an outbreak, protocol creation and infection control measures. Such opportunities for innovation and the development of problem-solving skills will undoubtedly benefit both residents and their departments in the future.

Conclusion

COVID-19 will have a long-lasting and profound effect on anaesthesiology training globally. Apart from having to implement changes in training and education, it is important for residency programmes to place a strong emphasis on the psychological wellbeing of their residents. Together with appropriate modifications and new education strategies, we hope that sharing our difficulties with SHARP can serve as a guide for others operating training programmes during this pandemic in the hope that these will emerge at the other side with a stronger foundation.
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