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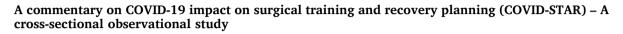


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Commentary



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The coronavirus disease (COVID-19) continues to have a worldwide impact. To date, there have been over 170 million cases and over 3 million deaths reported, with some countries still reporting increasing numbers of cases [1]. This global health crisis has placed huge demand on healthcare systems and the prioritisation of surgical services has shifted. Non-urgent elective surgical cases have been cancelled, outpatient clinics have dramatically reduced and there has been a reduction in the number of patients presenting as an emergency. Only the most urgent elective cases have been performed and conservative management is increasingly being recommended for some emergency presentations. There is a need to quantify the scale of disruption to surgical training to mitigate the adverse effects of lost training opportunities and deficiencies in experience. COVID-STAR Collaborative Study Group [2] conducted a survey study involving 810 participants, including surgical specialists and medical professionals/students, to assess the impact of COVID-19 on surgical training. They found that 69.5% of respondents reported complete loss of surgical training, and 67.3% lost contact with patients, so that a catastrophic negative impact on participants could be perceived. It was also observed that a percentage reported the idea of abandoning medicine (3.3%) and cancelling participation in apprenticeship programs (60%).

COVID-19 has a negative impact across all surgical specialities and this has been felt worldwide. A majority of studies reported a decrease in operative volume and experience for trainees with some reporting concerns over trainees' ability to meet training requirements [3,4]. There was a trend towards decreased time spent in the hospital across studies and the use of telemedicine for remote consultations. With the pandemic still ongoing and the surge of a second wave, the way we deliver surgical training needs to change. Some suggestions to mitigate the loss of experience during the pandemic include a personalised approach for additional training, intake assessments of trainees to identify deficiencies and enable targeted interventions and updating curricula to reflect the loss in opportunities. Surgical simulation may also play a role in allowing trainees to gain some practical experience outside of the operating theatre, thereby minimising the risk of

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transmission of infection.

To quantify the true impact of COVID-19 and to make recommendations for the future provision of training, further studies using operative case volume and assessment data are required. Delivery of surgical training in the ongoing pandemic will need to move away from traditional models of learning to ensure trainees are competent and well supported.

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Commentary, internally reviewed.

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Yueping Xu: comment the paper. Xiaofei Li: review.

Declaration of competing interest

No conflict of interest.

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None.



Commentary

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None.

Guarantor

Yueping Xu.

References

- [1] J.R. Bloem, C. Salemi, COVID-19 and conflict, World, Dev 140 (2021), 105294.
- [2] COVID-19 impact on Surgical Training and Recovery Planning (COVID-STAR)-A cross-sectional observational study, Int. J. Surg. 88 (2021), 105903.

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- [3] G.K. Upadhyaya, V.K. Jain, K.P. Iyengar, M.K. Patralekh, A. Vaish, Impact of COVID-19 on post-graduate orthopaedic training in Delhi-NCR, J. Clin. Orthop. Trauma. 11 (2020) S687–S695.
- [4] R. Dattani, C. Morgan, L. Li, K. Bennett-Brown, R. Wharton, The impact of COVID-19 on the future of orthopaedic training in the UK, Acta Orthop. 91 (2020) 627–632.

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