

# Training in cardiothoracic surgery: Another victim of COVID-19 pandemic

Naeem Yusuf MD, MSc<sup>1</sup>  | Nafisa Hussain<sup>2</sup> | Mohamed Sherif<sup>3</sup>  | Amer Harky MRCS, MSc<sup>4</sup> 

<sup>1</sup>Department of Surgery, University Teaching Hospitals, Lusaka, Zambia

<sup>2</sup>School of Medicine, University of Liverpool, Liverpool, UK

<sup>3</sup>Department of Cardiothoracic Surgery, Northern General Hospital, Sheffield, UK

<sup>4</sup>Department of Cardiothoracic Surgery, Liverpool Heart and Chest, Liverpool, UK

## Correspondence

Amer Harky, MRCS, MSc, Department of Cardiothoracic Surgery, Liverpool Heart and Chest Hospital, Thomas Drive, L14 3PE Liverpool, UK.

Email: [amer.harky@lhch.nhs.uk](mailto:amer.harky@lhch.nhs.uk)

## Keywords

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The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes coronavirus disease 2019 (COVID-19) initially emerged in the city of Wuhan, China, during December 2019.<sup>1</sup> Since its emergence, COVID-19 has gained rapid spread across the globe, with the World Health Organization declaring it a pandemic.<sup>2</sup> Although vaccination against the novel SARS-CoV-2 has accelerated in some countries, COVID-19 remains a global health risk, with over 176 million confirmed cases and more than 3.8 million deaths to date.<sup>3</sup> This pandemic has brought forth changes and challenges to the population and healthcare systems, both on a national and global scale.

The COVID-19 pandemic has pressurized healthcare systems to the breaking point, which forced significant reconfiguration and operational changes to provide safe and effective patient care.<sup>2</sup> One strategy was to cease certain services and redeploy staff to areas of greater need, and during the interim, it appeared to be successful. However, this approach negatively impacted particular areas of healthcare, such as surgical training.<sup>4,5</sup> Furthermore, cardiothoracic surgery training (CTS) was no exception, as training programs severely affected worldwide.<sup>5</sup>

The recent study by Smood et al.<sup>6</sup> explored CTS trainee perceptions of the impact of COVID-19 on CTS training and workforce utilization during the early months of the pandemic. A total of 748 surveys were distributed to members of the Thoracic Surgery Residents Association and other international CTS trainees, with responses recorded between June and August 2020. Overall, the response rate was 22.2% ( $n = 166$ ) and of these, 75.9% ( $n = 126$ ) met the inclusion criteria. Analyzed responses were from the following:

35.7% ( $n = 45$ ) from the United States (US) and 64.3% ( $n = 81$ ) from international trainees. International responses consisted of trainees from Australia/New Zealand (7/81, 8.6%), Canada (17/81, 21.0%), Asia (22/81, 27.2%), Europe (13/81, 16.0%), Africa (16/81, 19.8%), and South/Central America (6/81, 7.4%). The study reported that juniors were more likely to be reassigned to COVID-19 specific units in comparison to seniors (48% vs. 19.8%,  $p < .01$ ). Half of the trainees who participated in the survey ( $n = 63$ ) had more than 50% case volume reduction and US trainees were more likely to report reduced operative case volumes. In addition, 83% of the trainees ( $n = 104$ ) did not feel that their overall clinical acumen was adversely affected by COVID-19.

Surgical training includes operating skills and extensive non-operating, nontechnical skills such as preoperative assessment and perioperative management, something that has been lost out on due to the changes in the face-to-face outpatient clinics and reduced operative volumes.<sup>4,6</sup> Laloo et al.<sup>4</sup> reported that trainees faced a significant decline in face-to-face lectures, tutorials, ward-based teaching, morbidity and mortality meetings, operating theater sessions, conferences and simulation teaching sessions. However, despite the reduction in the aforementioned areas, doctors reported increased utilization of virtual learning platforms.

The Master Surgeon collaborative, one of the first international surveys that assessed the perceived impact of the COVID-19 pandemic on postgraduate training of doctors of all grades and specialties, demonstrated that 69.2% ( $n = 514$ ) of trainees reported a perceived overall negative impact on their training.<sup>4</sup> Similarly, Shafi et al.<sup>7</sup> highlighted that cardiac surgery activity got significantly

affected, ultimately affecting CTS training. Similarly, Smood et al.<sup>6</sup> have explored this impact in their study. Their findings reveal that 72.2% (n = 91) of the CTS trainees were removed from or got reduced exposure to CTS-related rotations. Moreover, they noted that 65.1% (n = 82) of trainees lost inpatient clinical time due to staffing/scheduling changes and/or quarantine requirements related to exposure and/or illness.

Onorati et al.<sup>8</sup> studied the effects of COVID-19 in cardiac surgery practice on a larger scale by sending out surveys to cardiac surgery centers worldwide. It was found that cardiac surgery case-load declined in 93.4% of centers, COVID-19 infections in cardiac surgery patients had a 41%–50% mortality in 9.5% of the centers, and 91%–100% mortality in 4.7% centers.<sup>8</sup> Another large-scale survey identified 50%–75% cardiac surgery reduction during the pandemic, with more than 50% reduction in ICU beds and cardiac theaters.<sup>9</sup> Also, Gaudino et al.<sup>9</sup> conducted an international survey report which found that only about half of CTS training facilities gave access to trainees to carry out procedures during the early phases of the pandemic. Likewise, Smood et al. highlighted those trainees experienced a reduction in their operative case volumes since the beginning of the COVID-19 pandemic.

## 2 | LOW-MIDDLE-INCOME COUNTRY VERSUS HIGH-INCOME COUNTRY

Direct supervision of trainees by consultants while performing operations in low-middle-income countries (LMICs) is not routinely done due to several reasons. Laloo et al.<sup>4</sup> in their study mention that 47.8% of surgical trainees working in LMICs compared to high-income countries (HICs), reported inadequate supervision while performing procedures under regional and general anesthesia. Furthermore, Smood et al. mention in their discussion that this is the first study to evaluate the global impact of the COVID-19 pandemic on CTS education from the perspective of both US and international trainees. However, it would have been a truly globally inclusive representation of CTS trainees had they explored the perceptions of trainees in LMICs, in addition to drawing a comparison with that of trainees in HICs.

CTS is highly demanding and requires enormous commitments. The ongoing COVID-19 pandemic adds to the existing challenges faced by the trainees in terms of their education, health, safety, and overall well-being<sup>10</sup>. Therefore, professionalism and social responsibility shown by trainees should be a source of pride for the surgical society and medical profession at large. Moreover, CTS trainees have advanced skills in managing acutely ill patients, which are in demand in global disasters such as the COVID-19 pandemic. It was interesting in Smood et al. study to find out that 25% of a trainee who assigned to COVID related areas were assigned to drive through COVID swabbing. It is not the best

utilization of highly trained doctors in the middle of the pandemic, and it is an area to be explored further so we can learn from this pandemic and utilize our human resources to enhance surge capacity during pandemics.

### CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

### ORCID

Naeem Yusuf  <http://orcid.org/0000-0002-1874-6738>

Mohamed Sherif  <http://orcid.org/0000-0001-5544-3528>

Amer Harky  <http://orcid.org/0000-0001-5507-5841>

### REFERENCES

- Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020; 395(10223):497-506.
- Harky A, Harrington D, Nawaytou O, et al. COVID-19 and cardiac surgery: a perspective from United Kingdom. *J Card Surg*. 2021; 36(5):1649-1658.
- World Health Organization. WHO Coronavirus (COVID-19) Dashboard [Internet]. <https://covid19who.int>. Accessed June 16, 2021.
- Laloo R, Santhosh Karri R, Wanigasooriya K, et al. The perceived global impact of the COVID-19 pandemic on doctors' medical and surgical training: an international survey [published online ahead of print May 1, 2021]. *Int J Clin Pract*. 2021:e14314. <https://doi.org/10.1111/ijcp.14314>
- Fudulu DP, Angelini GD. The COVID-19 crisis: reflections on cardiothoracic surgery training. *J Card Surg*. 2020;35(8):1765-1766.
- Smood B, Spratt JP, Mehaffey H, et al. COVID-19 and cardiothoracic surgery: effects on training & workforce utilization in a global pandemic. *J Card Surg*. 2021.
- Shafi AMA, Atieh AE, Harky A, Sheikh AM, Awad WI. Impact of COVID-19 on cardiac surgical training: our experience in the United Kingdom. *J Card Surg*. 2020;35(8):1954-1957.
- Onorati F, Myers P, Bajona P, Perrotti A, Mestres CA, Quintana E. Effects of COVID-19 pandemic on cardiac surgery practice in 61 hospitals worldwide: results of a survey. *J Cardiovasc Surg*. 2020; 61(6):763-768.
- Gaudino M, Chikwe J, Hameed I, Robinson NB, Fremes SE, Ruel M. Response of cardiac surgery units to COVID-19: an internationally-based quantitative survey. *Circulation*. 2020;142(3):300-302.
- Harky A, Harrington D, Nawaytou O. COVID-19 and cardiac surgery: a perspective from United Kingdom. *J Card Surg*. 2021;36(5): 1649-1658. <https://doi.org/10.1111/jocs.15039>

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