JOURNAL OF Surgical Simulation

Journal of Surgical Simulation (2022) **9,** 138–144
DOI: https://doi.org/10.1102/2051-7726.2022.0018

ORIGINAL ARTICLE

Impact of redeployment on core surgical trainees in response to the COVID-19 pandemic: a regional survey

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Date accepted for publication: 13 July 2022

Abstract

Background: The COVID-19 pandemic necessitated a widespread redistribution of the medical workforce. This survey aims to quantify the extent to which core surgical trainees (CSTs) were redeployed, assess the training provided and evaluate the impact on training and wellbeing. **Methods:** An electronic survey was emailed to all CSTs in the north of England during the peak of the pandemic. The survey was live from 1 April 2020 to 15 April 2020 with a follow-up survey between 17 July 2020 and 31 July 2020. **Results:** Of 327 CSTs who were emailed, 135 responded (41%). Almost half had either been redeployed (26%) or were awaiting redeployment (22%). Redeployment was mostly to critical care (40%), acute medicine (25%) and COVID-19 wards (20%). Although some examples of good training were reported, 63% had no formal training before redeployment and only 14% felt fully prepared. Follow-up data revealed only 45% of redeployed trainees received induction and 31% believed they were asked to work above their competency level. 76% were worried about passing COVID-19 to family and friends, 63% reported low mood, 61% reported heightened anxiety and one trainee reported accessing psychological support services. Operative experience was reduced or absent in 98% regardless of redeployment status and 69% were worried about career progression. **Conclusion:** There was a high rate of redeployment of CSTs but provision of training was limited and most trainees reported a detrimental impact on training and wellbeing. These issues should be addressed should further redeployment be required. A focus on novel methods of surgical training is paramount should access to traditional operative experience continue to be reduced.

Keywords: *surgical; training; redeployment; COVID-19; wellbeing; education*

Background

The onset of the COVID-19 pandemic caused significant concern regarding the ability of the National Health Service (NHS) to cope with an overwhelming demand on emergency and critical care services. A range of measures were introduced in an attempt to expand treatment capacity, including the redeployment of staff into areas of anticipated high clinical need.

With the peak of clinical infection anticipated for April 2020,[1] many junior surgical trainees were redeployed into specialties in which they may have had little or no previous experience. With trainees already struggling to access sufficient exposure to surgical procedures, this was expected to have a marked impact on surgical training in the UK. Therefore, the aims of this survey were to study the extent to which core surgical trainees were redeployed, assess the training they had received to prepare them for this transition and to evaluate the impact on surgical training opportunities, trainee wellbeing and safety.

Methods

An email survey was sent to all core surgical trainees in the north of England (Appendix 1). The aim of the initial survey was to assess the level of preparation for redeployment heading into the first peak of the pandemic. Participants were asked a series of questions relating to their deanery, specialty, redeployment status and/or plans for future redeployment, previous experience in relevant settings, potentially transferable skills, whether they had received COVID-related training and, if so, how that training had been delivered. Further safety-related questions were asked with regards to whether trainees had been

taught to don and doff personal protective equipment (PPE) and had been properly fit tested for masks. The survey was live for 2 weeks from 1 April 2020 to 15 April 2020. To assess preparation for redeployment, the initial survey was planned to coincide with the time period immediately before the predicted peak in case load across much of the north of England. Only doctors in core surgical training were included in the survey.

A follow-up survey was distributed to all respondents 3 months after the initial survey from 17 July 2020 and 31 July 2020 (Appendix 2). The aim of this survey was to assess the impact of redeployment on trainees. The follow-up survey addressed whether trainees had been redeployed and, if so, to which specialty, for how long, and whether further training was given during their redeployment. A series of questions were posed relating to mood, anxiety, sleep, concerns about passing COVID to friends and family using a five-point Likert scale. The availability of psychological support, operative experience compared with the pre-pandemic era and development of new transferable skills while redeployed were also assessed.

Results

Of the 327 core surgical trainees who were sent the email survey, 135 responded (41%). Eighty-one responses were received from the northwest, 30 from Yorkshire and Humber and 24 from the northeast. Orthopaedic (25%), general surgery (24%), urology (12%) and ear, nose and throat (9%) trainees accounted for the majority of respondents. The remainder of the trainees represented a broad range of surgical specialties.

At the time of the survey, 26% of trainees had been redeployed, 22% were awaiting redeployment, 11% had been told that they would be staying in their normal post and 41% had not been informed whether they would be redeployed or not (Fig. 1). Of those already redeployed, critical care was the commonest destination (40%), followed by general medicine (25%), dedicated COVID-19 wards (20%), accident and emergency (6%), another surgical specialty (6%) and respiratory medicine (3%) (Fig. 2).

Of those already redeployed, only 37% had received COVID-19-specific training (Fig. 3). Where available, training was delivered via a wide range of modalities. Lectures and small group or practical sessions were the modalities most commonly received but 1 in 10 were assigned to a period of shadowing in the critical care environment. Almost half reported that they were unaware of the range of educational online resources related to COVID-19.

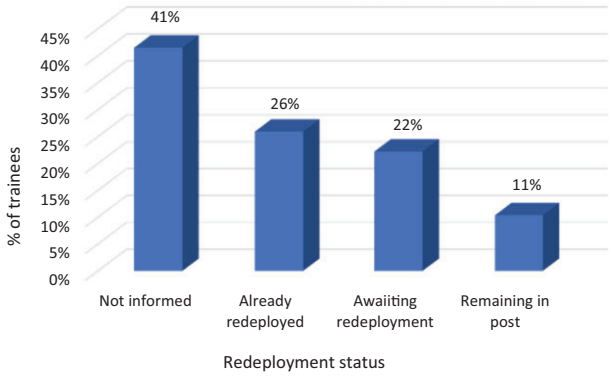

Figure 1. Redeployment status of trainees.

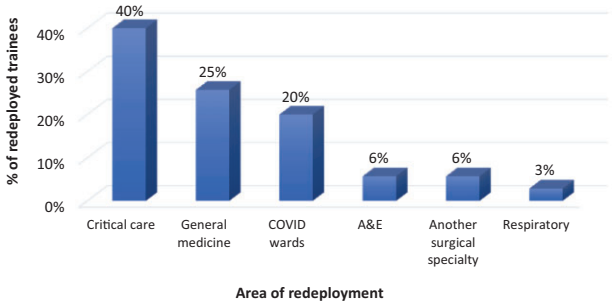

Figure 2. Area of redeployment (redeployed trainees, n = 35).

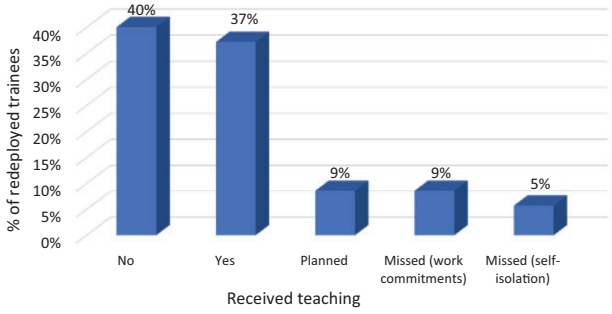

Figure 3. Proportion of redeployed trainees receiving formal training related to COVID-19.

With regard to personal safety, only 56% of trainees had been formally trained to don and doff appropriate PPE. Furthermore, 32% of trainees had not been successfully fitted for a respirator/FFP3 mask. Just 14% of trainees felt prepared for redeployment or potential redeployment with 45% feeling 'partially prepared' and 41% feeling 'inadequately prepared'.

The follow-up survey gained 52 responses from an initial 135 respondents to the first survey. The median length of redeployment was 5–8 weeks. Just 45% of redeployed

trainees received a formal induction; 32% of trainees felt that they were asked to work beyond their perceived level of competency during their redeployment. With regards to PPE, 37% reported this was always readily available, 53% reported occasional instances where inadequate PPE was available and the remainder reported seeing patients either weekly (5%) or daily (5%) with inadequate PPE.

A five-point Likert scale was used to assess operative experience. The majority of trainees reported receiving either slightly reduced (12%), significantly reduced (57%) or no operative experience (29%) since the onset of the pandemic; 2% of trainees reported that operative experience was unchanged and no trainees reported an increase. Just 14% of redeployed trainees reported that they had gained transferable skills relevant to surgical training and 68% were worried about career progression as a result of redeployment.

With regards to wellbeing, 53% worried about their own health and 76% worried about passing COVID-19 to family/friends. On a five-point Likert scale ranging from significantly better to significantly worse than baseline, 53% reported that their mood was slightly worse and 10% significantly worse than baseline. Similarly, 43% reported slightly worse and 18% significantly worse anxiety. One redeployed trainee reported accessing psychological services as a direct result of working during the COVID pandemic; 54% were unaware of whether psychological services were available at their trust.

Discussion

This study has demonstrated that core surgical trainees were redeployed in large numbers to tackle the COVID-19 crisis. Nearly half of all trainees had been redeployed or were awaiting redeployment at the time of the survey. Academy of Medical Royal Colleges' guidance released in March 2020 stressed the importance of early training and access to training resources before redeployment.[2] As should be expected, some of the trainees reported having access to a broad range of teaching opportunities; up to five different teaching modalities in some cases, including 1 in 10 who underwent shadowing in a critical care setting. However, there was clearly significant variation and, perhaps unsurprisingly, many trainees felt unprepared for redeployment.

The government repeatedly emphasised the importance it attaches to the safety of frontline staff but the difficulties relating to the supply and distribution of PPE were frequently highlighted in the media and in the literature.[3] It was therefore disappointing to find that almost half of the core surgical trainees reported they had not been formally trained to don and doff PPE and almost one third had not been successfully fit tested for a respirator immediately before the peak of the pandemic. Furthermore, although the availability of PPE was good on the whole, there were some unacceptable examples of trainees regularly seeing patients without adequate PPE available.

The first wave of the COVID-19 pandemic imposed considerable pressure on NHS services and, in a rapidly changing situation, it is understandably difficult to manage the large-scale redistribution of the workforce to meet changing demand. However, the safety, training and morale of frontline staff is essential to maintain high level clinical care,[4] and this is undermined by a lack of clarity on what to expect and a lack of appropriate training before redeployment into unfamiliar areas and specialties.

Our survey has identified many examples of good practice but unfortunately also multiple instances of poor communication, limited educational initiatives and patchy safety training. With the passing of the multiple waves of the pandemic and possible further more significant waves in the future, we would suggest that trusts need to ensure that staff are informed of the potential for redeployment as soon as possible, are made aware of and have access to appropriate online training resources and have appropriate training for donning and doffing PPE. Feedback suggests formal induction and the opportunity to shadow before commencement of a redeployment role is greatly valued. Furthermore, given the stark impact on wellbeing demonstrated here, trainees should be supported and signposted towards psychological wellbeing services.

There has been an unprecedented ongoing impact on surgical training raising questions about contingency plans for progression of trainees into higher surgical training programmes. Operative numbers measured by logbook entries have declined by over 50% during the pandemic.[5] Solutions to the training shortfall must be explored to ensure the ongoing progression of trainees.

There are numerous published examples of evidence-based simulation exercises that have excellent trainee feedback. For example, Yang et al.[6] devised a simulated facial reconstruction training exercise in response to the COVID-19 training shortfall. They demonstrated statistically significant improvements in surgical skills in trainees who had received training on high-fidelity, low-cost 3D printed facial flap simulators versus a control group who used paper illustrations of the flap reconstruction technique. Both trainee-reported outcomes and blinded expert examination of

both groups revealed a marked improvement in trainees who had received simulation-based training over the controls. Several other plastic surgery simulation-based exercises have also shown promise.[7–10] Further examples of effective simulation-based training programmes have been seen in laparoscopic skills training[11] and ophthalmic surgery.[12]

A crucial barrier to the adoption of simulation in training is funding. Low-cost forms of simulation-based training using basic homemade equipment have proved effective both in basic surgical skills training for medical students and microsurgical technique for neurosurgical trainees.[13,14] Clearly, the development of training programmes that require more specialist equipment are going to lead to higher costs. Several examples of costed simulation programmes suggest that significant real-world cost savings may outweigh the expenditure required to develop these programmes,[8,12] aside from the benefit to trainees and the improvement in patient safety. Further evidence demonstrating the effectiveness of simulation-based surgical training may help to increase funding. Simulation-based training is not a substitute for hands-on surgical training, but it is an invaluable tool within a pandemic setting and a useful supplement to traditional training that is clearly valued by trainees.

Our survey has some limitations. It assessed only the perceptions of the core surgical trainees and did not address higher trainees. It focused on formally arranged teaching but training and supervision will have been provided by senior clinical staff during redeployment and this is, of course, unmeasured. Although the response rate for this survey is relatively modest, raising the possibility of selection bias, the return rate is within the expected range for web-based surveys.[15]

Conclusion

This study has shown that, in the north of England, there was a high rate of redeployment of core surgical trainees to help support the response to the first wave of the COVID-19 pandemic. Although our survey identified some examples of good practice, it also identified examples of poor communication, limited educational initiatives and inadequate safety training. There has been a marked impact on both trainee wellbeing and opportunities for surgical training. These factors must be addressed urgently should further redeployment be required. Surgical simulation should be further explored as a means of flattening the training curve in response to the training shortfall caused by the pandemic.

Conflict of interest

The authors have no conflicts of interest to declare.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Appendix 1: Redeployment of trainees initial questionnaire

1) Which deanery do you work in?
2) Which specialty do you work in currently?
   Breast/ Cardiothoracic/ ENT/ General Surgery/ Neurosurgery/ Orthopaedics/ Plastics/ Urology/ Vascular/ Other
3) Have you been redeployed to a specialty other than the specialty in which you usually work in response to the COVID-19 crisis?
   a. Yes b. No
4) If so, which specialty?
   a. Critical care b. Emergency department c. Dedicated COVID-19 wards d. Medicine
   e. Other (please state)
5) If not yet redeployed, are there any plans for you to be redeployed to another specialty?
   a. Yes b. No c. I have not been made aware d. I have already been redeployed
6) If yes, which specialty will you be redeployed to?
   a. Critical care b. Emergency department c. Medicine d. Other (please state) e. Don't know yet
7) Have the trainees above your grade (registrars) been redeployed at your trust?
8) Have the trainees below your grade (foundation doctors) been redeployed at your trust?
9) Will you be expected to care specifically for COVID-19 positive patients over the coming months (excluding patients on your home team who may become COVID positive during their inpatient stay)?
   a. Yes b. No c. Unsure
10) Have you received any formal training in preparation for this (for example managing acute respiratory failure / ARDS / general ITU management of patients)?
    a. Yes
    b. Yes but I was unable to attend (work commitments)
    c. Yes but I was unable to attend (self-isolating)
    d. Not yet but this has been organised
    e. No
11) If yes, which forms of teaching have you received / were organised?
    a. Lecture-based sessions
    b. Practical sessions (i.e. leading a proning team/intubation/insertion of lines)
    c. Small group sessions (managing respiratory failure/ventilated patients/ITU support)
    d. Online training packages provided by your local trust / deanery
    e. Shadowing in ITU
    f. Other
12) Have you been successfully fit-tested for a respirator/FFP3 mask?
    a. Yes b. No
13) Have you been given formal training in donning and doffing PPE?
    a. Yes b. No
14) Do you have any of the following skills / experience?
    a. Placement in critical care / anaesthesia at SHO level or above
    b. Placement in respiratory medicine
    c. Ability to intubate patients
    d. Ability to insert central lines independently / with minimal supervision
    e. Ability to insert arterial lines independently / with minimal supervision
15) Are you aware of any self-directed COVID-19 related learning resources (i.e. e-LFH online modules)?
    a. Yes b. No
16) Do you feel prepared for redeployment to as far as could reasonably be expected during a time of crisis?
    a. Yes b. No
17) If so, which resources have you been using?
18) Please list below if any other preparations have been made in expectation of your potential involvement in managing the COVID-19 crisis?
19) What additional training do you feel is necessary to aid in redeployment?

Appendix 2: Redeployment of trainees follow-up questionnaire

1) Which deanery do you work in?
2) Were you redeployed in order to help manage the COVID-19 pandemic?
3) Yes:
    a. Which specialty were you working in prior to redeployment?
        i. Breast / Cardiothoracics / ENT / General Surgery / Neurosurgery / Orthopaedics / Plastics / Urology / Vascular / Other
    b. Which specialty were you redeployed into?
        i. Critical care
        ii. Emergency Department
        iii. Dedicated COVID-19 wards
        iv. Medicine
        v. Other (please state)
    c. Have you been de-escalated back to your original specialty?
    d. How long were you redeployed for?
    e. Did you receive an induction?
    f. Did you receive any COVID-19 specific training / formal training regarding redeployment into your new specialty?
    g. Was this training adequate?
    h. Was this before or after you started seeing patients after being redeployed?
    i. Did you feel adequately supported by seniors during your redeployment?
    j. Were you ever put in a situation where you had to act beyond your competency level?
4) No:
    a. Were you involved in the clinical care of surgical patients with COVID?
    b. Did you receive any formally organised training for this?
5) What was the provision of PPE like at your trust?
    Always readily available / A few instances where appropriate PPE not available but always able to source PPE prior to seeing patient / Occasionally (once per month) had to see patients with inadequate PPE / Frequently (once per week) seeing patients with inadequate PPE / regularly (daily) seeing patients with inadequate PPE
6) Were the instructions at your trust clear with regards to what PPE should be used in which setting?

Wellbeing

7) How much stress have you experienced due to the COVID-19 pandemic?
    Significantly more / Slightly more / Similar levels / Slightly less / Far less
8) How has your sleep been during the COVID-19 pandemic compared with usual?
9) Have you worried about your own health during the pandemic?
10) Have you worried about passing the infection to family / friends?
11) Are there any psychological support services available at your trust?

    Yes and easy to access / yes but difficult to access / don't know / no
12) Have you accessed any psychological help services during the pandemic?
13) Have you felt that your mood has been low due to the pandemic?

Impact on training:

14) How much operative experience were you able to get during the COVID pandemic?

    More / same / slightly less / significantly less / none
15) Have you been able to develop skills you would not ordinarily have had as much access to (such as significant exposure to critical care environment / line insertion etc)