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Virtual teaching in the COVID era: Providing surgical core trainee teaching via online webinars and videoconferencing

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A B S T R A C T

Objective: During the COVID-19 pandemic, regular teaching for core surgical trainees (CSTs) in Northern Ireland was cancelled at short notice, leaving a significant gap in training. We aimed to develop an effective core surgical teaching programme, within the remit of government regulations, to ensure training was not negatively affected by COVID-19.

Design, setting and participants: A novel virtual teaching programme was designed and implemented regionally across Northern Ireland. One-year free Affiliate Membership to the Royal College of Surgeons of Edinburgh (RCSEd) was provided for Northern Ireland CSTs, allowing access to RCSEd online webinars. A weekly teaching schedule based on the Member of the Royal College of Surgeons (MRCS) exam curriculum and accompanied by a webinar was created and disseminated to trainees. Senior surgeons were recruited to conduct a virtual teaching session via videoconferencing.

Results: Ten teaching sessions were conducted over three months. Feedback was collated, with positive results and requests for virtual teaching to continue. As such, the Northern Ireland Medical and Dental Training Agency (NIMDTA) adopted the teaching programme as their new primary method of central teaching for Northern Ireland CSTs during the pandemic.

Conclusion: A novel, highly successful teaching programme was developed in Northern Ireland to meet the training needs of CSTs resulting in a sustained change to training. Virtual surgical teaching can be as effective as face-to-face didactic learning and may be imperative in a foreseeably socially distanced world.

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Introduction

In 2020, the COVID-19 pandemic turned the world upside down. Due to lockdown measures introduced in the United Kingdom on 23 March 2020, the Royal Surgical Colleges of the United Kingdom and Ireland decided to postpone educational and training courses. This included the cancellation of core surgical trainee (CST) face-to-face teaching. Didactic teaching has always been a crucial part of surgical training - especially at early stages - and is a staple part of the surgical core trainee curriculum. To overcome this deficit in the training of surgical doctors, national schools of surgery had to adapt quickly to provide appropriate alternatives for trainees to ensure they were not disproportionately affected by the loss of teaching.
Due to the government restrictions of social distancing, banning of non-essential travel, and shielding for vulnerable individuals, virtual alternatives to face-to-face surgical teaching quickly began to be implemented. This came at a time when many CSTs were also being redeployed to non-training posts and therefore losing out on critical practical training. Therefore, providing some form of surgical teaching content was invaluable when many surgical trainees were at risk of becoming de-skilled.

We aimed to develop a regional virtual teaching programme in Northern Ireland for all CSTs, in lieu of monthly teaching run by the Northern Ireland Medical and Dental Training Agency (NIMDTA). It utilised a combination of videoconferencing and online webinars to supplement the surgical education of CSTs adversely affected by COVID-19.

Methods

Acquiring Royal College of Surgeons of Edinburgh affiliate status and access to webinars

Webinars have been shown to be equal in efficacy to face-to-face didactic learning. Therefore, the first step in developing the teaching programme was to acquire access to a bank of high-quality surgical webinars. After review of relevant websites, the webinars on the Royal College of Surgeons of Edinburgh (RCSEd) website were chosen, specifically the series on Member of the Royal College of Surgeons (MRCS) exam preparation.

We contacted RCSEd membership department, and they provided one-year free affiliate membership for all Northern Ireland CSTs through an application process. Once this was completed, all subscribing core trainees had access to the RCSEd webinars for one year.

Designing teaching programme based on MRCS curriculum

Once this access was granted, teaching topics were selected with the assistance of NIMDTA, who had provided their original teaching timetable for the 2019–2020 CST cohort. The topics that were chosen covered relevant sections of the MRCS curriculum as per the Northern Ireland School of Surgery advice. The lead author then selected a relevant webinar from the RCSEd collection to match the teaching topic. It was decided that the teaching should be given on the same date each week for continuity for the learners. Senior registrars and consultants specializing in the chosen topics were contacted individually to give a lecture on the pre-arranged date.

A finalised teaching timetable was disseminated in May 2020 to all CSTs through a central e-mailing list. The date, time, topic, and teacher for each week were stated on the document, along with the link for the associated webinar and the videoconferencing platform.

Videoconferencing for didactic teaching

It was decided that Zoom® (Zoom Video Communications, Inc, San Jose, CA) was the most familiar platform for providing real-time videoconference teaching. A link was provided for the teachers and participants each week through a weekly reminder email. The trainees who attended the 40-min session were advised to keep their microphones on mute, to allow the teachers to provide their lecture uninterrupted. At the end of each session, there was opportunity for questions either based on the webinar or the teaching session given. With consent from the teachers, the sessions were recorded to be disseminated for revision purposes to the CSTs.

Collating feedback and establishing long-term strategy

After the programme was completed in July 2020, a feedback survey was sent round to all the trainees. They were asked to comment on the structure and content of the programme, the quality of the teaching sessions, the positive aspects, and what improvements could be made.

NIMDTA felt the structure of teaching programme was sustainable in a socially distanced training environment and, therefore, adopted virtual teaching as the primary method of CST teaching going forward through the pandemic. They reverted to a full day of teaching each month, rather than weekly 1-h sessions. They also removed the webinar aspect of the teaching programme. A yearly timetable was authorised and disseminated to all the new and existing trainees at changeover in August 2020. This continues to be used as the primary central teaching method for surgical trainees in Northern Ireland.

Results

The results of the teaching programme were ten virtual teaching sessions conducted by consultants or senior registrars over 11 weeks (see Appendix A - Table 1). The sessions covered seven surgical specialties; one covered the importance of non-technical skills in surgery, and one was a rest week. Each facilitator received a certificate from NIMDTA in recognition of their contribution.

Attendance at the sessions was variable, with a range of between 2 and 12 trainees attending each session. Regardless of this, both facilitators and attendees reported to have valued the teaching sessions. Feedback was collected using a Likert-scale questionnaire based on the Royal College of Surgeons participant feedback questionnaire. The responses were overwhelmingly positive (see Figs. 1–4); suggestions to improve the course were used to develop the programme for the next cohort of CSTs.

Discussion

The severe disruption to surgical education worldwide due to COVID-19, has seen the advent of novel creative avenues to deliver essential training to surgical trainees. In Northern Ireland, this took the form of a trainee-led and RCSEd-supported virtual teaching programme, facilitated through NIMDTA, the central teaching agency for medical training. The programme was very successful overall.

Firstly, the topics selected were relevant to the level of the trainees attending – they matched NIMDTA’s pre-COVID
Fig. 1 – Feedback for preparation of teaching course.

Fig. 2 – Feedback for course content of teaching programme.
teaching schedule and were based around the MRCS exam, which a significant number of trainees were preparing to take. Second, free 1-year affiliation with the RCSEd allowed the trainees to have access to invaluable webinars and resources on the RSCEd website during lockdown. Thirdly, it allowed senior surgeons to contribute to teaching in a socially distanced capacity without contradicting government guidelines. Fourthly, it allowed trainees who were redeployed to medical wards during COVID-19 to have access to centrally provided surgical training, so as not to become significantly de-skilled during their redeployment.

There were, however, several limitations to the teaching programme. Firstly, the attendance numbers were low. This was attributed to the fact that it wasn’t mandatory, was held weekly rather than monthly, and was organised on short notice by one of the trainees rather than centrally. Feedback comments indicated that if the course was made mandatory, more trainees would have been incentivised to attend. This has been considered for the second cycle of virtual teaching.

Secondly, there were technical barriers such as a 40-min time limit to the videoconferencing platform, delays in access via web-links, and video and audio issues. This is
organised centrally and moved back to once-a-month, this for isolation of healthcare staff. Once the teaching was around COVID-19 affecting scheduling, and sickness or need the spontaneity of the course, the ever-changing situation the planning of the session. Again, this was likely to be due to impair the quality of the teaching content, but it did impact some topics, resulting in last-minute recruitment. This did not rectify any IT problems.

NIMDTA staff member throughout the teaching sessions to access through emailed web-links, and the presence of a professional Zoom account with no time limit, establishing easy are being addressed in our setting through use of a professional Zoom account with no time limit, establishing easy

barrier were education of learners and teachers in the use of information technology (IT), as well as a designated IT expert on hand to help with the problems that arose. These barriers are being addressed in our setting through use of a professional Zoom account with no time limit, establishing easy access through emailed web-links, and the presence of a NIMDTA staff member throughout the teaching sessions to rectify any IT problems.

Thirdly, there was difficulty in designating facilitators for some topics, resulting in last-minute recruitment. This did not impair the quality of the teaching content, but it did impact the planning of the session. Again, this was likely to be due to the spontaneity of the course, the ever-changing situation around COVID-19 affecting scheduling, and sickness or need for isolation of healthcare staff. Once the teaching was organised centrally and moved back to once-a-month, this issue has been much less of a problem.

Conclusion

Ultimately, the CST virtual teaching programme was highly impactful both formally and informally, despite having been organised and executed in a short space of time. Due to the positive feedback for the course and the value of virtual education, NIMDTA developed it into the primary central surgical teaching method for the CST cohort of 2020–2021. They took on board the feedback about the limitations of the course and created a mandatory teaching day, conducted over Zoom without a time-limit and ensured facilitators were informed significantly in advance. This has proven the sustainability of the novel virtual teaching programme developed during the first wave of COVID-19 in Northern Ireland.

Declaration of competing interest

None.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.surge.2022.03.007.

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