

Evidence Review

Digital innovation in training role specific skills during COVID-19

Key messages

- The COVID-19 pandemic has resulted in the need for rapid adaptation of medical and clinical training practices including social distancing and digital solutions
- A HEE TEL community has been formed online for trainers to share solutions and practices in NHS settings
- The majority of papers published thus far have focussed on the experience of students and medical trainees around continued learning, assessment of skills and development of skills.
- Adaptations reported include teleconferencing software for teaching sessions, case study discussions, lecture, and OSCE assessments for medical students.
- Online solutions have mostly reported acceptability in assessing aspects of patient care including history taking, oral presentation, communication skills, alongside theoretical learning practices, however some surgical skills have involved online learning aspects, with trainees then recording their practices for assessment and/or to measure improvement.
- The literature highlights the need for more simulation-based solutions for training practices in the future, particularly those that may involve modular practices that can be assessed by trainers, however there is a lack of available research in this emerging area.



You asked

an evidence based search on Role specific Training Changing to Digital approach during Covid to find out if anyone else is doing this and to see if we can learn from anybody else

We found

The evidence contained in this review includes a substantial body of work published in response to the COVID-19 pandemic. Owing to the need for expedient publishing this means that these papers will not have gone through as rigorous a peer-review process compared to pre-pandemic times, which must be taken into account when reviewing the presented data.

The majority of published information around innovations in training prompted by the current pandemic have focussed on medical education and training, rather than clinical skills or role-specific training, however several common themes arise in the included literature.

Commonly used methods have included an increase in teleconferencing and telecommunication software, as well as utilising trainees' own smart technology, video recordings and procedures, social media and group-chat functions.

The majority of teaching reported included adapted didactic teaching, case discussions, lectures, journal clubs and other clinical-based discussions.

Several universities adapted medical student OSCEs (Objective Structured Clinical Examinations) to an online format. These involved students meeting the Standard Patient via teleconference, conducting history taking and the usual examination format and a directed basic physical examination. All papers report generally positive acceptability of this format in assessing communication, presentation and general diagnostic skills, completion and recording of information, but the physical examination element was seen by some as difficult and of limited accessibility.

Gallardo et al (2020) describe an interesting practical development of physical clinical skills through adaptation of clinical skills practices that may more normally be taught in clinical skills labs utilising easy-to-obtain materials for surgical trainees to practice precision skills.

The evidence base on online solutions particularly for physical practices of clinical skills is limited, although there does seem to be evidence of some acceptability for specific skill areas such as surgical practices. The literature however does suggest a generally positive acceptability of the use of teleconferencing for other forms of training and education.



The Evidence

1. HEE Future NHS Collaboration Platform

The HEE TEL team have set up a TEL/ sim community workspace on the Future NHS Collaboration Platform to enable the health and care workforce to share experiences and examples of education and learning during the COVID-19 pandemic relating to sim, TEL and digital resources. <https://future.nhs.uk/Covid19simulation/groupHome>

2. Chatziralli I, Ventura CV, Touhami S, Reynolds R, Nassisi M, Weinberg T, Pakzad-Vaezi K, Anaya D, Mustapha M, Plant A, Yuan M. Transforming ophthalmic education into virtual learning during COVID-19 pandemic: a global perspective. Eye. 2020 Jul

This study involved a “worldwide survey among physicians, who are actively involved in Ophthalmology-related education, between 3 and 14 April 2020” to examine the use of e-learning in ophthalmology during the current pandemic, as well as exploring how the current pandemic has affected clinical teaching and training. 321 people responded to the survey, which indicated that prior to the pandemic the majority of teaching involved traditional face to face teaching, lectures, grand rounds and journal clubs with 48% reporting no use of e-learning at all. Tools such as zoom, cisco webex, and Microsoft teams all saw an increase in use, although some reported that all training had been suspended during the pandemic. Whilst this adoption was seen as an acceptable and likely something that may continue into the future- particularly to support the theoretical aspects of training, it was noted that the lack of ability to offer hands-on-training for the surgical specialty was a significant barrier.





3. Dedeilia A, Sotiropoulos Mg, Hanrahan Jg, Janga D, Dedeilias P, Sideris M. Medical and Surgical Education Challenges and Innovations in the COVID-19 Era: A Systematic Review. In Vivo. 2020 Jun 1;34(3 suppl):1603-11.

This review looked at “the challenges imposed on medical and surgical education by the COVID-19 pandemic, and the proposed innovations enabling the continuation of medical student and resident training”. The review found that the lack of hands-on bedside teaching and training is a cause for concern in terms of practical capabilities and assessments in medical and surgical education. The review found evidence of positive innovations in theoretical teaching, including a large increase in the use of videoconferencing for didactic and clinical education in: lectures, teaching sessions, morning/evening reports, case and journal club discussions and updates in policy or Q&A sessions on every day practice. The use of flipped classroom and other models which have been common in academic institutions were reported as facilitating an easy transition to online format, converting small group discussions to video conferences. With regards to clinical education examples were found in imperial college London providing access to the online video library of patient encounters, online teaching delivered by clinicians from the hospital were possible, video libraries of surgical or other practices and online multimedia tools and podcast discussions or videos including commentary from clinicians were also listed as potentially useful teaching tools. The paper also discusses the use of virtual patient discussions, in which students perform video-based encounters with live patients, aiding in triage remotely, or participate in virtual care from home. The paper discusses the potential use and growing interest in the use of simulation programmes at home, but innovation in this area – and assessment- requires further study.





4. Gallardo FC, Clara M, Andrea TG, Luis BJ, Nuñez M, Enrique FS. Home programme for acquisition and maintenance of Microsurgical Skills during the Covid-19 Outbreak. World neurosurgery. 2020 Jul 23.

This paper describes an innovative practice to train and assess improvements in surgical trainees practicing microsurgery skills, utilising basic materials and their own smartphones. The trainees performed 5 exercises “colouring grids, grouping colours, unravelling of a gauze, knots 12 with suture threads, Hanoi tower” over four weeks and improvement was demonstrated over time. Descriptions of the individual exercises and assessment process are included in the article along with discussion on the potential of this practice in supporting the development of hands-on skills during the pandemic.



Gallardo et al home
programme for micr

5. Chan MM, Yu DS, Lam VS, Wong JY. Online clinical training in the COVID-19 pandemic. The Clinical Teacher. 2020

This article describes the use of online tools to facilitate teaching for nursing students due to the pandemic. It discusses alterations to adapt teaching style to allow discussion and interaction online, in place of face-to-face work as well as the value of the use of simulation tools.



chan et al 2020
online clinical traini



6. Gaber DA, Shehata MH, Amin HA. Online Team-Based Learning Sessions as Interactive Methodologies During The Pandemic. Medical Education. 2020

This short report discusses a change in practice in which combined pre-reading/videos with zoom breakout rooms and multiple choice questionnaires, along with team whatsapp groups to assist in medical education during the current pandemic.



Gaber et al online
team based learning

7. Lara S, Foster CW, Hawks M, Montgomery M. Remote Assessment of Clinical Skills during COVID-19: A Virtual, High-Stakes, Summative Pediatric OSCE. Academic Pediatrics. 2020

This paper describes the implementation of zoom-based teleOSCEs for students 7 students were tested per day over 7 days, via zoom. The short report describes the ways in which the OSCE simulation was adapted to the online setting, and found that statistically the results of the teleOSCE were comparable to student results over the past 3 years.



Lara et al 2020
Remote assessment



8. Hannon P, Lappe K, Griffin C, Roussel D. Objective Structured Clinical Examination: From Exam Room to Zoom Breakout Room. Medical Education. 2020.

This paper describes an innovation in US training in which students completed online OSCE training using zoom and breakout online rooms to complete training sessions. The paper describes general positive acceptability for training elements including history-taking, clinical reasoning, documentation but also discussed the need for adaptability to the medium, such as allowing extra time for computer lag and technical issues, and found that physical examination elements were limited and 53% of found the remote OSCE not as good for clinical skills compared to face-to-face experience.



Hannon et al 2020
an OSCE examinatio



9. Hodgetts JM, Claireaux HA, Naumann DN. Remote training for combat medics during the COVID-19 era: lessons learnt for future crises?. BMJ Mil Health. 2020

This paper reports on survey-collected data around the use of remote learning in the current pandemic in training medics within the armed forces. The majority of training reported including the use of teleconferencing, webinars and the use of smaller group online sessions.

Table 1 Pros and cons of remote learning techniques for combat medical technicians, medical assistants and Royal Air Force Medic education

Topics	Pros	Cons
Logistical factors	<ul style="list-style-type: none"> ▶ Social distancing maintained ▶ Reduced time used travelling to deliver/receive training ▶ Reduced travel cost burden to unit ▶ Reduced environmental impact of unnecessary travel ▶ Fewer challenges with audiovisual equipment ▶ Fewer administrative hurdles, for example, room bookings 	<ul style="list-style-type: none"> ▶ Not suited to teaching all elements of clinical care, for example, practical skills ▶ Reliant on individuals having their own personal electronic devices and strong internet connection
Continuity of training	<ul style="list-style-type: none"> ▶ Deployed CMTs/MAs/RAFMs can be involved in clinical training ▶ Reduced impact of essential unit work on clinical training that can be caught up on or attended remotely ▶ Trainers are able to teach more frequently and build relationships and rapport with learners allowing tailoring of lessons to their needs 	<ul style="list-style-type: none"> ▶ May be harder to spot non-verbal cues that a learner needs more support
Training value	<ul style="list-style-type: none"> ▶ Better trainer to learner ratios possible as more trainers can engage with training ▶ Learners may more readily ask questions on webinar than in full lecture theatre ▶ Diverse electronic resources such as quizzes may be used ▶ Prerecorded webinars can be studied at a time and pace suited to work schedule and learning needs 	<ul style="list-style-type: none"> ▶ May be harder to engage distractible learners using teleconferencing ▶ More difficult for senior clinicians to validate training if several sessions happening at once via teleconferencing platforms

CMTs/MAs/RAFMs, Combat Medical Technicians, Medical Assistants and Royal Air Force Medics.

The feedback highlighted pros and cons of these methods of training in ensuring continuity of training and development in times when physical meetings are not possible, although the focus again is on the use of training via clinical discussion and theory, rather than practical skills measures.



Hodgetts et al 2020
Remote training for



10. Kiely DJ, Posner GD, Sansregret A. Health care team training and simulation-based education in obstetrics during the COVID-19 pandemic. Journal of Obstetrics and Gynaecology Canada. 2020

This short paper discusses the use and developments needed in simulation based clinical skills training during the current pandemic. As part of the discussion in how to train whilst social distancing the authors discuss: spatial social distancing in training rooms, videoconferencing, temporal social distancing and video-recording (in which the participant performs one at a time and team leaders review and discuss based on the video recording) and virtual training such as computer-based simulations online where and if available.



Kiely et al 2020
Health care team tra

11. Mooney CJ, Peyre SE, Clark NS, Nofziger AC. Rapid transition to online assessment: practical steps and unanticipated advantages. Medical education. 2020.

This paper describes a university-implemented practice in which 2nd year medical students' patient interactions were assessed online utilising Zoom as the recording medium. Students were assessed on interviewing, clinical reasoning, supporting patient emotion, counselling, explanation of diagnostic test results, and oral and written presentation. The authors discuss the benefits and drawbacks of the rapid transfer to the online setting.



Mooney et al 2020
Rapid transition to c



12. Murdock HM, Penner JC, Le S, Nematollahi S. Virtual Morning Report During COVID-19: A Novel Model for Case-Based Teaching Conferences. Medical Education. 2020

This short report describes the introduction of virtual morning reviews for medical students to gain case-based knowledge during the pandemic. Overall the use of the virtual medium was acceptable although the authors also describe drawbacks including technical issues and 'zoom bombers'/web security difficulties.



Murdock et al 2020
Virtual morning rep

13. Blankenburg R, Poitevien P, del Rey JG, Degnon L. Virtual Cafes: An Innovative Way for Rapidly Disseminating Educational Best Practices and Building Community During COVID-19. Academic Pediatrics. 2020.

This paper describes the use of zoom and online communication amongst medical educators, who have developed new ways of communicating and sharing practices due to the COVID-19 panic. The focus of the sessions are for educators to share new and collaborative methods of working which can then be implemented in supporting training.



Blankenburg et al
Virtual Cafes.pdf



14.Jarry Trujillo C, Achurra Tirado P, Escalona Vivas G, Crovari Eulufi F, Varas Cohen J. Surgical training during COVID-19: a validated solution to keep on practicing. British Journal of Surgery. 2020

This letter published in the British Journal of Surgery, describes the use of an online clinical-skills training for laparoscopic surgeons that had originally been developed to assist in training in rural locations. The letter describes the format which includes instructional videos which the trainee then performs via video to be assessed by the educator team.



letter Surgical
training during COV

Indicative search strategy

Role specific; training; learning; medical educat*; clinical educat*; clinical skills; nurs*
train*; staff train*; clinical train*
remote; online; digital;
COVID-19; pandemic*; SARS-COV*; coronavirus;

Sources searched

Medline; CINAHL; Pubmed; AMED; Emcare
An email request to NHS library & information professionals across the UK was distributed requesting any in-trust examples or unpublished innovations
A structured public domain search for unpublished research.

Did this help?

We'd love to know if this information helped you.

Let us know at: library@merseycare.nhs.uk




This review is a summary of the best available evidence that has been selected using expert searching in order to answer a specific query. It may not be representative of the entire body of evidence available. No responsibility can be accepted for any action taken on the basis of the information presented herein.



[BMJ Best Practice](#)

Clinical decision making tool
and app



You've got access to this 

Please log in with your MCFT OpenAthens account. If you don't have an account please request one at library@merseycare.nhs.uk

LOGIN

Brought to you by the Mersey Care Evidence Service - part of the Centre for Perfect Care.

Questions/request access - library@merseycare.nhs.uk

For quick access to full-text articles- use the Chrome browser on a MCFT device or download the [Library Access extension](#)