Covid-19: using simulation and technology-enhanced learning to negotiate and adapt to the ongoing challenges in UK healthcare education

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INTRODUCTION

Covid-19 has changed the way we live, move and connect in the UK and this includes education settings. There are only four reasons that the government advises people to currently leave home.[1] These are:

1. Shopping for essential food or medicine.
2. Exercise or walking a pet but only with members of one's own household.
3. Medical appointments or as a carer for a vulnerable person.
4. Travel to and from work, if unable to work from home.

At all times people must follow social distancing rules when outside the home, so must remain at least 2 m apart, except when with those in the same household.[1]

This presents a unique challenge generally, but especially in healthcare educational institutions and settings across the country. This is particularly true for universities that provide healthcare-related courses, who traditionally gather learners together in face-to-face settings to practise skills and simulation learning.[2] This current crisis, therefore, presents three main challenges:

1. How do we continue to provide a positive learning experience and sense of community for learners, when they are unable to leave their homes?
2. How do we support teaching staff to continue supporting learners in these challenging times, when they may not have the experience or knowledge to teach wholly online?
3. How do we ensure minimal disruption to both teacher and learner mental health and well-being and promote resilience?

In an educational institution where face-to-face teaching is the standard form of education, the current global health

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emergency also impacts in ways not seen in non-healthcare courses. Most health-related courses are staffed by current or former clinicians, due to the need for appropriate professional registration.[3] This may cause significant conflict of interests. Some teaching staff may feel torn between returning to the healthcare system to reinforce a system that is experiencing pressures never been experienced before.[4] However, this is juxtaposed with these same staff needing to remain in their educational role to support the development of much needed healthcare learners that will become the future workforce. This has been already identified as both a risk and an opportunity in the wider healthcare simulation and technology-enhanced learning arena by our colleagues in China.[5]

There are also pressures and dilemmas for learners to ponder, as many are keen to support their colleagues on the healthcare front line, as demonstrated by the use of the temporary register created by the Health and Care Professions Council[6] and the Nursing and Midwifery Council.[7] Learners earlier in their educational journey are finding their courses interrupted or significantly altered as all material is now delivered online.[8] This has led to increased focus placed on the use of online and technology-enhanced learning, in other words technology within education and simulation, within an online platform.

UNIQUE CHALLENGES IN SIMULATION

Replicating or creating clinical situations and existing competency-based skills is common within healthcare education.[9] Learners are accessing specialist simulation settings such as mock wards, patient houses and intensive care surroundings. With the current restrictions in place this is no longer feasible. This therefore presents challenges in the use of simulated activity in teaching and assessment across a range of health and care courses.

The advancement and increased use of 360° field-of-view cameras in education

and training offer one possible solution, creating virtual settings or scenes that can prompt or guide learning.[10] These can use existing footage or clinical or simulation spaces to create material, while following social distancing restrictions and using key workers. It has been suggested that virtual or online simulation can be as effective as face-to-face role-play for learners' perception of tasks, as well as having the added benefit of being able to repeat the task or experience.[11] This would suggest that users are engaging with the material and having a meaningful learning experience. Of course, simulation does not have to involve expensive technology or specialist technologists; it can also take the form of written or video case studies. These have been shown to be suitable for learning, depending on the type of task and level of ability.[12] With learners currently located in geographically disparate locations, in a number of different time zones, engaging them in one place at one time in the current crisis is unrealistic. Simulation activity can allow a resource to be created and viewed at a time suitable to the individual. Several free and open-access websites and suitable clinician and educator-proof software can be used to allow discussion to take place.

SIM SHARE

In light of these unique challenges, a website was written, built and published to allow healthcare staff to better support learners across the sector. This site, called SIM Share (simulation share) http://covunisim. coventry.domains/simshare/, is a basic WordPress framework, providing an open-access platform for learner development. The resources on this site include embedded videos, links to videos on sharing sites, online learning courses, documents, webinars, websites, podcasts and links to other online resources. Two clinicians, with no specialist information technology input or support required, curate the site. The aim of SIM Share is to gather and place materials to facilitate the transition from mostly face-to-face learning to wholly online learning.

The website was launched at 13:30 on Tuesday, 31 March 2020, and this editorial was written on 15 April 2020; therefore, the total number of days that data have been collected for is n=14. In these 2 weeks, the site has been accessed n=6343. The website was shared initially within the university school, then regionally, then nationally. The link has been published on the social media platform Twitter (@CovUniSim); it also is part of the Association for Simulated

Table 1 Total number of visits to individual pages on SIM Share site from 31 March 2020 to 15 April 2020

	Name of page	Total visits to page
Heading	Online learning	291
Subheading	How to use online learning	120
	360° pictures	95
	Links to tips and software	76
Heading	Covid-19	699
Subheading	Critical/intensive care	115
	Hand hygiene	117
	PPE	207
	NHS resources	123
	Skills for health and eLFH	137
Heading	General anatomy and physiology	440
Subheading	Respiratory and cardiovascular	191
	Assessment and management	149
	Collections	100
Heading	Skills	698
Subheading	Airway and breathing*	129
	Ventilators**	31
	Drugs and fluids	135
	General	275
Heading	Help and support	n/a***
	Sim sites and apps	135
	Kids Zone	65
	Mental health and well-being	128

***Airway and breathing and ventilators pages were previously combined
***Help and support pages were not previously combined under this heading.
eLFH, e-Learning for Healthcare; n/a, not applicable; NHS, National Health Service; PPE, personal protective equipment.

Practice in Healthcare's national upskill project repository.[13] This resource is part of a global effort to provide online simulation material at a time when it is being used by an audience on a larger scale. This can be seen in a wealth of shared resources originating in Europe and the USA especially.[14 15]

In the n=14 days since the site was launched, table 1 outlines the number of visits to each health and subheading topic. The themes were identified based on the subject matter of the resources gathered.

ANALYSIS

When analysing the number of visits to SIM Share, some topics have clearly been more popular than others. There are n=18 subheadings to date, with the single most accessed being general skills. Whether this is due to the non-specific title, encompassing a universal heading for any skills that do not sit under any heading, has yet to be determined. This may also suggest that it is skills-based resources that healthcare staff require but they are unsure of the specific skill or may be looking for a range of skills. The second most accessed subheading is personal protective equipment. This is maybe unsurprising, given the nature of the Covid-19 risk. The next most accessed

subheadings were respiratory and cardiovascular, followed by assessment and management, both anatomy and physiology resources rather than specific skills. Of particular interest was the simulation sites and applications subheading that was the sixth most visited page, suggesting the increased awareness of simulation and its importance in the current and future healthcare education climate more than ever.

CONCLUSION

These early figures suggest common themes in retrieve information from the SIM Share website and the need for clear, easy-to-access support. This is equally important for either staff potentially returning to practice or staff advising and educating learners volunteering or undertaking a clinical placement. To support staff to continue to provide an enriching educational experience to learners, SIM Share is created intentionally to engage the viewer while not overcomplicating the material. It focuses on the educational message, the psychology behind the pedagogical tools and, perhaps most important, to keep Covid-19 learning accessible to all.

Collaboration between academic staff, learning technologists, all forms of non-

teaching staff and healthcare clinicians has allowed a resource to grow from an idea with potential. This idea has become a resource that is directly influencing those in a position to educate the future and current healthcare workforce and implement meaningful clinical interventions themselves. With the current demands on the healthcare system, staff are potentially being redeployed to areas they do not feel competent working in. SIM Share allows an easily accessible training when and where needed. However, this site is only as effective and current as the resources on it and this editorial closes with a plea for help. Please keep sending resources to the site, your support matters.

Check for updates

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