Virtual training in the practical management of emergencies in primary care: Making a virtue out of necessity.

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The COVID pandemic has significantly impacted on doctors' education and opportunities for professional development with almost all education now offered on virtual platforms. Houghton et al. (1) have outlined how this poses a particular challenge for teaching the practical aspects of medicine compared to theoretical, declarative knowledge. However, in their article they encourage medical educators to embrace these changes and '*make a virtue out of necessity*'. We share an example where being forced to move to a virtual platform improved doctors' training in the practical management of medical emergencies in the community, and has led to a permanent change in how we will deliver this training in future years.

General Practitioners (GPs) have a responsibility to provide prompt and effective care when attending to life threatening emergencies in their surgeries. These are relatively uncommon and previous research has shown this is an area where some doctors lack confidence and competence [2-4]. In the current NHS crisis, with stretched resources, it is particularly important that GPs are equipped to manage time critical emergencies, because GP surgeries are deemed a place of safety and 999 ambulances can be redirected to other emergencies, thereby delaying transfer to secondary care for patients in GP settings.

In previous years, the Dorset GP training scheme provided classroom based training in managing medical emergencies for all final year GP trainees. However, in 2020 all GP education moved online and we trialled the feasibility of in-house training for managing emergencies, such as meningitis, anaphylaxis, hypoglycaemia and asthma. Five experienced GP medical educators ran workshops for 33 GP trainees. The trainees were asked to be in their surgeries during the training session, if possible, and have access to the emergency equipment in their building. Their GP trainers were also informed in case a real emergency occurred during the session. Unfortunately due to practical constraints (e.g. trainees shielding, GP practices not having adequate space on the training day) only 16/33 (49%) trainees were in their surgeries and the others joined from home. Trainees participated in groups with at least 1 GP trainee working from their surgery.

Scenarios were introduced using role-play (e.g. a severely asthmatic patient, febrile child with purpuric rash), and participants were requested to demonstrate how they would manage the emergency using the equipment that was actually available in their surgery. For example, if a trainee said “I would give a nebuliser” they were asked to show the group how their nebuliser would be set up and medication administered. Educators facilitating each workshop also had access to medication and equipment, and trainees working from home were asked to talk the facilitator through the steps required to, for example, set up a nebuliser, turn on oxygen, administer benzylpenicillin or put someone in the recovery position.

In the week before and after the training, participants were asked to rate their confidence on three questions on a 9 point Likert scale:

1. Overall, how confident are you in the practical management of emergencies if they occurred within your GP practice? (1 =no confidence, 9 = very confident).

2. We would like to understand how confident you are in certain areas. Firstly, do you know 'in theory' how to manage these emergencies? i.e. if you were asked in an exam, would you know what you should do and what medication you should give? (1 = no confidence in my knowledge, 9 = very confident in my knowledge.

3. Do you have the ability to practically manage these emergencies? i.e. if they actually happened in your surgery, and you were the only GP there, would you be able to find the equipment you need and administer emergency treatment? (1 = no confidence in my ability to practically manage this emergency, 9 = very confident in my ability to practically manage this emergency).

Overall, GP trainees rated themselves more confident in the practical management of emergencies after (7.3/9) compared to before the training (5.3/9), Unpaired T test, $p < 0.01$. Trainees’ confidence improved in their theoretical knowledge (7.0 to 8.0/9) and practical abilities (6.1 to 7.8/9). 91% participants rated the training as good/very good and 100% rated it as relevant/very relevant. GP

trainees were asked ‘what was useful?’ and their qualitative feedback highlighted the practical aspects of the training. Representative feedback included:

“To be able to run through the scenarios as if they happened in real life”

“Looking at how the oxygen cylinders, nebulisers, etc work was very useful”

“Finding all the bits at the practice. Practical advice on what to do for certain emergencies”

“Knowing basic things like what plugs into what and where , preparation of drug dose rather than flapping around”

“Good scenarios and practical tips (even for those of us at home)”

GP trainees were also asked ‘what was less useful?’. 27% referred to doing it virtually rather than face-to-face and others highlighted that more advanced notice would have been helpful. Our experience mirrors Houghton et al’s (1) suggestions that making expectations clear, being prepared for things to go wrong (e.g. facilitators having back up equipment) and personalising the approach are essential for the success of virtual training, particularly in the practical aspects of medicine.

Overall, GP trainees felt that virtual training had educational value, particularly as it gave them the opportunity to practice using their own equipment in their own environments. We have argued previously (2,3) that in-house, simulation based training is the gold standard for managing emergencies in the community (4,5). The only means to offer this simultaneously to groups of clinicians, working in a different surgeries, is via a virtual platform.

Necessity has led to a positive change in our GP curriculum. Rather than the previous classroom based teaching, we will continue running in-house, simulation based teaching for medical emergencies via a virtual platform every year. Training within the environments where emergencies actual occur is the best way to highlight organizational, equipment and system issues that may prevent the delivery of rapid and effective care.

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