# Train hospital doctors with cardiac arrest simulations

With cardiac arrest becoming rare in hospital, staff need more in situ simulation, argues

**Daniel Furmedge**

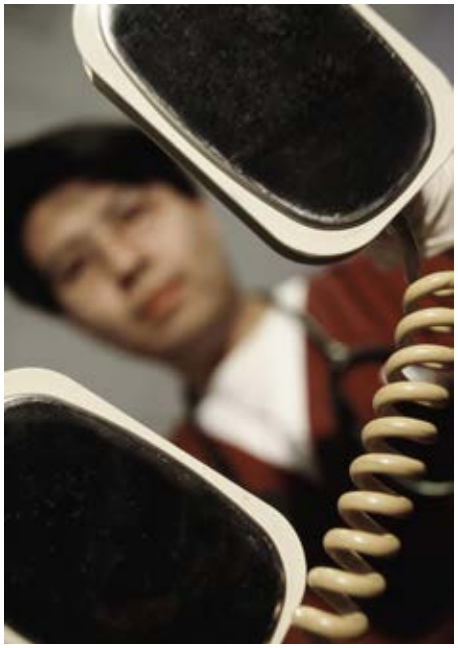
The "crash call" for cardiac arrest has long been a staple activity for doctors and nurses working in hospitals, not least for on-call medical and anaesthetic teams. It is the call for which everything else can wait. Good resuscitation requires thorough training, excellent teamwork, advanced life support algorithms, and strong leadership, from the recognition of cardiac arrest through to care after resuscitation—or death.

Improved patient safety, early warning scores, critical care outreach teams, and the appropriate use of resuscitation and escalation decisions have meant that the occurrence of cardiac arrest in hospital is in freefall.[1 2] This is a huge achievement, but it raises one serious issue: it is now possible for foundation year 1 doctors to complete their entire first year as a doctor without ever attending a cardiac arrest. Even doctors who frequent the "crash team" rota rarely get called to an arrest in some hospitals, and, accordingly, some inpatient wards have not seen a cardiac arrest in well over a year. Nurses, often first responders, therefore also have reduced exposure.

Simulation as a method of learning has grown exponentially in the past decade, with a growing body of literature to support it. The importance of feedback and repetition in learning, among many other factors, has meant that simulation based medical education improves learner outcomes and is here to stay.[3-5] Simulation is already a core component of teaching and assessment in resuscitation training courses, and all doctors must pass these courses to demonstrate their competence to progress. Simulation is used more and more, for example, in courses for managing acutely unwell patients or an acute stroke.

Several studies worldwide have looked at the performance of teams during simulated cardiac arrest in hospital and have identified several areas of concern. The first response to cardiac arrest was often inadequate, with a lack of recognition of cardiac arrest by nurses, inadequate basic life support, or poor leadership and communication.[6] Differences between first responders and the cardiac arrest team were evident, improving after the arrival of the arrest team, although subsequent cardiopulmonary resuscitation was still suboptimal.[7] Paediatric cardiac arrest is much rarer than adult cardiac arrest, and evaluations of simulation have identified multiple areas for improvement.[8] It is clear, then, that management of cardiac arrest in hospital still requires work.

In addition to resuscitation courses and laboratory based simulation training, some areas now also use in situ or "point of care" simulation—that is, simulation in the real clinical environment. This is used more often in places with rare but potentially devastating cardiac arrest, such as maternity and paediatric units or in drug trial centres; it is a rarity on adult medical or surgical wards. These simulations have many benefits, including staff engagement and the advance identification of problems such as a lack of equipment or necessary drugs,[9] and, unlike standardised courses, they can be adapted to local environments with local clinical guidelines and practice. One study reported that in situ simulation provided a realistic pedagogical environment and training for those who needed it but who might not otherwise be able to access it—and, by using mobile devices such as portable manikins, it can be done almost anywhere in clinical space. This adds value, because the learning experience has context and relevance; learners are learning in their everyday place of work.[10]



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My experience of these simulations stems from my time working in a phase I trials unit. We ran regular scenarios of simulated in situ cardiac arrest, with group debriefing and feedback after each one. These increased my confidence in leading the response to a cardiac arrest in an unfamiliar area and increased effective teamwork. Crucially, our nurses were so familiar with cardiac arrest that they were able to initiate intermediate life support effectively and confidently while awaiting the crash team of senior nurses and a doctor—a key area for improvement in UK hospitals. Returning to hospital practice, I could never understand why this exercise was not widespread.

There are disadvantages and challenges, of course. Simulations themselves are costly, requiring equipment and facilitators for feedback and debriefing. Space in clinical areas can be limited, and NHS clinicians are busy, so the potential interruption of clinical duties makes planning critical. Unlike dedicated simulation sessions, staff may be unfamiliar with what is required of them, and simulation in clinical areas may alarm other patients or visitors. It is important, therefore, to forewarn and reassure bystanders.[10]

But despite these challenges, in situ simulation of cardiac arrest delivered within the clinical environment is feasible and essential if we are to provide high quality, effective resuscitation in the face of fewer real life situations. Many parallels have been drawn between aviation industry practices and rare or critical clinical events. Cardiac arrest is another example where practice and simulation in a realistic environment can minimise risk.

With the reducing occurrence of in-hospital cardiac arrest, we must revisit our training and ask whether the current system is adequate, particularly for general inpatient ward nurses and doctors. Decreasing exposure and practice mean that we must learn from those places where cardiac arrest is rare and from the growing evidence in favour of repeated simulation. There is a compelling argument to introduce in situ simulated cardiac arrest throughout our hospitals to improve quality, safety, teamwork, and—potentially—patient outcomes.

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# Think about the care in healthcare

Separating care from health may help raise its standing, says **Jonathan Benger**

You can find the word "healthcare" everywhere. It is often used to describe the broad range of health related services provided to patients in the developed world. On the face of it, the word seems intuitive. We wish the services that we offer to combine both "health" (an improvement in physical, mental, and social wellbeing as a result of specific interventions) and "care" (the provision of support, compassion, and personal assistance). Recent events in the United Kingdom—exemplified by the problems in Mid Staffordshire[1]—suggest that although we may be skilled in providing health interventions, we sometimes fail to provide the care that people need.

To examine this further it may be instructive to divide health from care, and consider them as separate entities rather than one unified package. Health is traditionally the domain of doctors, who are accorded high status in society and substantial salaries as a result. Health is a highly valued commodity, enshrined in the National Health Service (interestingly, not the National Healthcare Service), and is of such importance to the public that its budget has been protected by politicians in a time of national austerity.

Care, on the other hand, is accorded no such privileges. Care may be provided by skilled nurses, but they are still seen as having a lower standing than doctors (making care subservient to health). All too often care is delegated to the lowest status and lowest paid workers, who may not even be recompensed for travel time between domiciliary visits. As a result between 160 000 and 220 000 direct care workers in the United Kingdom are estimated to be paid less than the legal minimum wage.[2] Care services are afforded no special protection during times of austerity, with recent budget cuts of at least 15%.[3]

It seems that we are willing to value and protect health, but not the care that inevitably follows—for patients whose life has been preserved by cutting edge health interventions, for example, or for those with long term conditions, or advancing years. Perhaps the promise of something better makes health more attractive than care, yet from my conversations with patients it is clear that when health declines and age increases it is care that we want, and good quality care that we actually need.

Working in emergency medicine, I often encounter patients who need care but find themselves in an emergency department because this care does not exist, or cannot be accessed in a timely way. I have no care (outside hospital) to offer, unfortunately, and so I offer health (hospital admission) instead. Trying to provide health instead of care, however, is not a good substitution for either the patient or the system.

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Modern hospitals are designed principally to deliver health not care, and are an expensive way of supporting somebody who needs a little extra care while they recover from an infection or a fall. Hospitals are not without risk and, aside from causing further infections and falls, patients admitted to them needing care may find themselves burdened by unnecessary tests, additional diagnoses, new drugs, and "too much medicine." Many of the health interventions being delivered in acute hospitals could be readily achieved in community settings (supported at home or in nursing homes or community hospitals) where they are convenient to the patient, and where an emphasis can be placed on care.

We should ask why healthcare can't be delivered as a whole package, and we should certainly strive to ensure that hospitals provide both excellent health outcomes and excellent patient care. Skilled care for high dependency patients is essential to recovery from major health interventions such as surgery. In seeking to reform and improve the system, however, it may be helpful to consider each patient's needs and wishes under the two separate headings—to determine whether health or care dominates—and therefore the best approach for that individual.

The ongoing Urgent and Emergency Care Review, led by Professor Sir Bruce Keogh, places an emphasis on management outside hospitals for patients wherever possible.[4] Such patients will have care needs that predominate, with simple health interventions (such as antibiotics) delivered at home, and transfer to a hospital only for a defined purpose (such as computed tomography), with a return to a community based facility as soon as this has been completed. Such an approach, and shift in thinking, has the potential to achieve the goals of the Keogh review but requires radical changes in system behaviour and approach.

Current initiatives to integrate health and social care may go some way to tackle the current imbalance. However, because better care is clearly required, and total budgets are fixed, this may inevitably result in less health and more care. Such a change will be challenging to achieve in terms of organisational culture, professional status, and service provision, but it may well prove to be the right choice for all our futures, come the time when health can no longer be improved, and what we really need is care.

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EDITORIAL, p 6

**NO HOLDS BARRED** Margaret McCartney

# Courage is treating patients with Ebola

Sheik Umar Khan, a doctor in Sierra Leone, knew the risks. "I am afraid for my life, I must say, because I cherish my life," he said. "Health workers are prone to the disease because we are the first port of call for somebody who is sickened by the disease. Even with the full protective clothing you put on, you are at risk."[1]

His words came before he contracted Ebola virus and died on 29 July.[2] Three nurses he worked with had already died from the disease.[3] And the World Health Organization has described this as the worst Ebola outbreak ever, with more than 660 deaths in Guinea, Sierra Leone, and Liberia.[4] This highly infective virus is likely to cause death, with no vaccination and little other than supportive treatment available.

Samuel Muhumuza Mutooro, a Ugandan doctor in Liberia, died from Ebola on 1 July after likely transmission from a nurse, Esther Kesselley, who had been infected from a patient.[5]

Previous outbreaks have also resulted in the deaths of healthcare staff. In 2000 another doctor, Matthew Lukwiya, died in Uganda after an outbreak overwhelmed his hospital with cases. At that point some healthcare staff had already died, but Lukwiya encouraged his staff to try to manage the risk using protective clothing, and he stayed at the front line. Previously, in the hospital, he had once offered himself to a gang of local rebels as a hostage, rather than his nurses.[6] An annual lecture is given in his honour. It's not just deep respect that I have for these doctors, but unending admiration.

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- News: Two doctors die from Ebola and lives of others under threat in West Africa (*BMJ* 2014;349:g4895)
- News: Health ministers in west Africa hold crisis talks on Ebola virus (*BMJ* 2014;349:g4478)

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Another example is Benjamin Black, an obstetrician gynaecologist who writes a blog for Médecins Sans Frontières from Sierra Leone (http://blogs.msf.org/en/staff/authors/benjamin-black). His first shift, in July of this year, was horrendous not simply for the tough, quick decisions on obstetric emergencies that he had to make, but also for the difficulties in dealing with Ebola. He ends, matter-of-factly, "Balancing the care of obstetric patients against screening and protecting ourselves from Ebola and Lassa will continue to be a challenge, but this is the current context in which we are working."[7]

I can understand that some nurses are reportedly striking: I would likely feel just as afraid. Some definitions of heroism or bravery call on notions of concomitant fearlessness. But surely it is the people who feel fear, yet choose to accept risk or hardship, who deserve these descriptions. In Harper Lee's novel *To Kill a Mockingbird*, the protagonist Atticus Finch tells his children, "I wanted you to see what real courage is, instead of getting the idea that courage is a man with a gun in his hand. It's when you know you're licked before you begin, but you begin anyway and see it through no matter what."

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**FEATURE, p 14**

**BMJ BLOG OF THE WEEK** Johanna Hanefeld and Richard Smith

## Charging for health tourism

The UK government recently announced that it will charge migrants from outside the European Economic Area (EEA) and foreign visitors a 150% fee for service when using the NHS. This is to recoup the estimated costs incurred when patients from abroad use services without entitlement. The justification for the surcharge of 50% on top of the cost of treatment is that it will incentivise hospitals to implement this type of cost recovery.

This is troubling on several fronts. Firstly, just as the surcharge may act as an incentive for hospitals to implement this, it will surely also act as a disincentive for patients needing care—and in doubt over their entitlement—to seek the treatment. Rather than raising additional resources, it is likely to result in fewer seeking treatment where they need it. This is not good for individual or public health.

Secondly, some of our past research on the issue of medical tourism—where patients travel with the intention of accessing treatment abroad—highlighted that a growing number of UK patients travel abroad for treatment. It showed the number of patients travelling out of the UK with the explicit purpose of seeking medical treatment is greater than the number of those travelling in. We also found that those travelling for treatment did so with the intention to pay, and that incoming foreign patients using the NHS privately were a lucrative source of income.

As with medical tourism where patients intend to pay, it could well be that more UK citizens are accessing services abroad than non-UK patients within the UK. If this is true and other countries follow the route of charging, it could be counterproductive to the UK. We may actually benefit overall from this sort of activity: there is not enough evidence to tell.

Thirdly, health secretary Jeremy Hunt stated: "We have no problem with international visitors using the NHS as long as they pay for it—just as British families do through their taxes." Part of implementing the scheme from autumn 2014 onwards entails a clearer registration process and IT system, to identify who is eligible for treatment and to ensure payment.

In addition to the ethical questions raised by charging migrants over the odds for treatment, these systemic changes pave the way for a more common use of charging within the NHS. Once systems are in place, using them for other charges seems


the logical next step. Even Hunt's statement explicitly refers to payment by "British families," rather than evoking the solidarity based vision of a national health service. This raises the question: who will be charged next?

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