

Running a cardiac surgery advanced life support course

Samena Chaudhry describes how she and colleagues provide a successful and potentially life saving course

Advice for clinicians considering starting a course

- Identify a subject suitable for a course. This is usually a subject where there is an established expertise but wider knowledge of this expertise may be of benefit
- Identify a group of clinicians who are likely to benefit from the course and who will be able to get leave and funding to come on a course. Make sure that this cohort is large enough, or has a high enough turnover, to sustain a course in the long term
- Concentrate on creating the course content and write the lectures and ancillary material in as much detail as possible, as soon as possible. Do not get side tracked into course set up until the course content is robust and show this informally to colleagues to gain several views on the subject. Try to avoid controversial subjects or taking a view on such subjects
- Make your priority the professional running of the first course. Invite people on this course and get it finished before you concentrate on widespread advertising. Feedback may be invaluable and on the first course a large number of ideas and opinions will be discussed in far greater detail than you expect. After the first and possibly a second course, you may make many changes, but you will be left with a robust and well polished final product
- Once you have these first courses under your belt it is time to present the course as a final product. You will already have thought of many ideas to promote your course, and ideas such as surveys of need, initial experience of the course, discussions at conferences, going to professional bodies, and word of mouth can now be pursued to the full
- People with experience of other courses either as candidates, instructors, or organisers are invaluable and should be consulted at an early stage. However, the first writing of a course and the first drafts were much better written by a small number initially with consultation at a later stage

We initially identified a need for improvement in the quality of resuscitation for patients following cardiothoracic surgery in 2002. Observing that cardiac arrests on medical wards and, more recently with advanced trauma life support (ATLS), resuscitations in the emergency room are well ordered and well managed, we decided to run a cardiothoracic advanced life support course. Over three days the course teaches all aspects of management of patients who arrest or are peri-arrest. This includes chest reopening, internal cardiac massage, internal defibrillation, intra-aortic balloon pumping, emergency tracheostomy management, and many other specialist techniques required for patients who have undergone cardiac surgery. Unique to advanced life support courses, we video all moulage scenarios before and after teaching to establish and quantify the benefits of our novel course.

Identifying the need for a protocol

In our experience, the potentially stressful situation of dealing with a cardiac arrest on a medical ward is invariably well ordered and managed owing to the training that clinicians receive during basic and advanced cardiac life support courses. Thus all members of the arrest team are aware of, and well practised at, not only their own role but also the roles of other members of the team. When the need for defibrillation, intubation, intravenous access, and drug administration occurs, all members of the team know that this is about to happen.

Similarly, in recognition of the fact that the resuscitation of multiply injured trauma patients was a complex and stressful situation, ATLS courses were quickly established internationally for all clinicians concerned with trauma resuscitation. Patients who have undergone cardiac surgery who have a cardiac arrest are initially treated in a similar way to non-surgical patients who arrest. However, when the patient fails to respond to defibrillation or initial drug treatment, protocols for resuscitation of these patients break down. A senior cardiothoracic surgeon is able to continue the resuscitation with urgent chest reopening, internal cardiac massage, possibly with internal defibrillation, or return to cardiopulmonary bypass. Thus patients with tamponade, severe hypovolaemia, or graft occlusion will often be saved by timely chest reopening.

However, chest reopening is a complex task requiring a large amount of equipment, and any delays in getting this to the surgeon will inevitably reduce the chances of success. Nursing and junior medical staff are often unsure what to do during the arrest and are left waiting for orders. This leads to delays and adds to the stress of ancillary members of the resuscitation team. In the past, senior registrars were resident in the intensive care unit and available at a moment's notice. However, more recently, with new limits on junior doctors' hours and the marked reduction in specialist registrar training

posts, anaesthetists or very junior registrars are increasingly required to be the first person on call for the intensive care unit. These people may never have witnessed a chest reopening, and will have no knowledge of how to perform this vital life saving procedure.

Creating a protocol

We felt that the need for a well recognised and regularly practised protocol was overwhelming. A group of four interested people was quickly formed: a registrar in cardiac surgery, who drew up the initial protocols and concept, a consultant cardiothoracic surgeon, who put these initial ideas into the framework of a full three day course, together with peri-arrest teaching protocols; and two consultant anaesthetists, who wrote many of the lectures and scenarios and provided valuable expertise and experience in advanced life support teaching.

Learning from experience on other courses, we turned the cardiac arrest protocol into a comprehensive course that covers all aspects of care of the critically ill cardiothoracic patient, teaches many key practical skills such as intra-aortic balloon pump insertion, treatment of critically ill patients with a tracheostomy, and chest re-opening, and practises these skills on mannikins. Over a year, we turned the protocols into an interactive course, heavily emphasising practical stations and hands-on patient simulation rather than didactic lectures.

From concept to reality

By early 2004 we had a robust course with well researched protocols. The next step was to identify a group of people who would benefit most from this course and then find help with the financial and logistical issues of setting up the course.

Large numbers of senior nurse practitioners, critical care practitioners, and surgical assistants are now involved in clerking patients, harvesting saphenous veins, performing daily ward rounds, and reviewing postoperative patients on the ward and in clinics. We envisage that in the future they may be the people who will be called first to patients who become critically ill on the ward when cardiothoracic surgeons are not available. These clinicians, together with a senior house officer or anaesthetist, form a large group who would greatly benefit from a comprehensive course in all aspects of resuscitation and care of critically ill patients and became our target "audience."

A professional businesswoman with considerable experience in running cardiothoracic surgery courses joined the group. She was able to secure sponsorship quickly and rapidly created the infrastructure needed for a professional course, including course manuals and a course venue with catering and promotional material.

The first course

The date for the first course was set for October 2004. Before the course a considerable amount of work was put into practising the lectures and scenarios so that the final product would seem professional and to ensure that all conceivable clinical issues had been addressed. Twelve clinicians were invited on to the course: they included equal numbers of non-medical nurse practitioners and surgical assistants, senior house officers

and registrars, and also a consultant cardiothoracic anaesthetist with no prior knowledge of the course content.

We ran an hour of test scenarios simulating critically ill patients, using simulated monitors and mannikins, and asked candidates to treat patients with their current knowledge. We videoed the results, intending to use these as a baseline both to test the course and so that the candidates could see themselves improve.

Lectures were given on our vision of protocols for patients with low blood pressure, respiratory failure, and renal failure, addressing assessment, investigation, and timely treatment. Finally, we simulated a full cardiac arrest, before any teaching on our protocol for a cardiac arrest. Candidates were in groups of six and provided with thoracotomy trays, surgical gowns, gloves, drapes, and defibrillation equipment in addition to all conventional resuscitation equipment.

On the second day, we gave comprehensive lectures on the cardiac arrest protocol, which centres on providing early chest reopening after defibrillation or when one minute of cardiac massage fails. At the end of the second morning we demonstrated our vision of a rapid chest reopening following arrest, with a silent run through and then a detailed narrated run through. We then took the candidates through this step by step.

We gave additional lectures on intra-aortic balloon pump (IABP) management and a lecture on what to do for a critically ill or arrested patient with a tracheostomy, and these were followed by practical sessions learning how to place an IABP, tracheostomy management, and further practice with critically ill patient scenarios using mannikins.

The third day was given over entirely to post course testing. Critically ill patient scenarios were set up and videoed under exam conditions for each candidate, followed by two further cardiac arrest moulages. We ended with detailed feedback from the candidates about the course content and training.

Lessons from the first course

Very gratifyingly, the course feedback was excellent. The heavy emphasis on practical sessions rather than lectures was appreciated, and even though the pretest moulages on the first day were mainly for ourselves to evaluate the improvements made by the course, most candidates enjoyed "getting stuck in" straightaway and found it gratifying that they could measure their own improvement at the end of the course by repeating these scenarios after training.

The future

We have now successfully conducted two courses, and are convinced of the benefits both in terms of giving confidence to junior cardiothoracic clinicians and also in considerably reducing the time taken to reopen the chest of a patient with a cardiac arrest. We hope to take this course to the next level and to make it a standard part of all clinicians' training before caring for cardiothoracic surgical patients. We plan to do this by publishing the results of our video recording of the scenarios before and after the course and by publishing a survey on clinicians' experiences and attitudes to cardiac arrest in cardiothoracic intensive care. We are currently in discussion with the resuscitation council regarding how we might be able to establish these protocols with them in future resuscitation council publications. ■

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Off the wall solutions for on the ball doctors

Problem: Evidence based medicine is losing its influence

Solution: Anecdote based medicine

When asking a medical colleague for their advice on a clinical issue, an answer starting, "The evidence suggests . . ." invariably inspires confidence; this doctor knows their stuff and their decision making is guided by current best evidence. But can someone who has simply read the results of a meta-analysis really advise on what is best for a patient they have not even seen? More importantly, do any doctors actually remember the answer?

Our evidence suggests that doctors use evidence based medicine very poorly. We at **solutions.doc** have calculated that 25 doctors would need to read five meta-analyses each for one of them to

change their practice, giving a number of doctors needed to teach (or NDNT) of 125.

We at **solutions.doc** propose that doctors should only use treatments on which no research has been done. Clearly, such treatments are so effective that clinical trials have been deemed unnecessary. The moment a trial is conducted on a treatment, it becomes riddled with controversy, and is best avoided. Also, most clinicians only read abstracts, which bear as much resemblance to the original research as tabloid headlines do to news items. When so much research is understood by so few we question the ethics of conducting so many trials, and propose that it is no more ethical to try out new drugs on people than it is to test cosmetics on animals.

We propose replacing evidence with a good anecdote. Anecdotal medicine has been used for centuries; by definition it is directly related to personal experience, and remains much more powerful at influencing behaviour. How many clinicians, for example, would continue to use a drug that was proved to be safe and effective in trials, but caused spontaneous combustion in the one patient for whom they prescribed it?

Life as a doctor would become far more interesting if advice on a clinical issue commenced with, "Well let me tell you a funny story . . ." ■

solutions.doc (An independent think tank of two practising NHS doctors) (V Mohan and A O'Brien)