When considering the provision of anaesthesia, the Royal College of Anaesthetists recommends that the following areas should be addressed. The goal is to ensure a comprehensive, quality service dedicated to the care of patients and to the education and professional development of staff. The provision of adequate funding to provide the services described should be considered. These recommendations form the basis of the standard expected for departmental accreditation.
Chapter 8
Guidance on the Provision of Anaesthesia Services for Resuscitation 2016

Summary

- Early recognition of the deteriorating patient, escalation of care and prompt, effective treatment can prevent cardiac arrest, unplanned intensive care unit admission and death. Implementation of a ‘track and trigger’ tool, such as the National Early Warning Score, is fundamental to this strategy.
- Anaesthetists play a significant role in the resuscitation team and in the resuscitation training of doctors, nurses and paramedics.
- National standards for clinical practice and training in cardiopulmonary resuscitation have been published elsewhere.
- The majority of in-house resuscitation training in the UK is undertaken by resuscitation officers, but the instructor body on a Resuscitation Council (UK) course will usually include anaesthetists.
- All resuscitation attempts should be included in continuous audit, as part of quality improvement.
- The resuscitation services in a hospital should be co-ordinated by a resuscitation committee that includes a senior anaesthetist.

Introduction: the importance of anaesthesia services for resuscitation

- The incidence of in-hospital cardiac arrests attended by a resuscitation team is 1.5 per 1,000 admissions (data from the United Kingdom National Cardiac Arrest Audit). Survival is increased if the first monitored cardiac arrest rhythm is shockable, but this tends to occur in only about 17% of in-hospital arrests. Approximately 18% of in-hospital cardiac arrest patients survive to hospital discharge. One-third of cardiac arrest survivors admitted to the intensive care unit are discharged from hospital, and survival rates are improving. Most survivors have a good neurological outcome.
- A resuscitation attempt usually includes chest compressions and ventilation of the lungs, the delivery of electric shocks to restart the heart (defibrillation), and the injection of drugs.
- Anaesthetic departments make a considerable contribution to the resuscitation services in most hospitals. Anaesthetists are valuable members of the resuscitation team because they are highly skilled in most of the interventions used during a resuscitation attempt.
- Anaesthetists are often involved in training other doctors and nurses in advanced life support (ALS) techniques for both adult and paediatric cardiac arrest.
- Anaesthetists are often involved in training clinical staff to recognise patients at risk of cardiac arrest and to initiate preventative treatment.
- Anaesthetists are skilled in airway management and will be involved in teaching these skills to hospital staff and to paramedics.
- The chair of the hospital resuscitation committee is often a consultant anaesthetist.
Levels of provision of service

1 Staffing requirements

1.1 In many UK hospitals, the resuscitation team will include an anaesthetist or the resident doctor from the critical care unit. It is increasingly common for the critical care resident doctor to be an individual who has not undergone anaesthesia training and has not been trained in tracheal intubation. Each hospital must have an agreed plan for airway management during cardiac arrest. This may involve bag-mask ventilation for cardiac arrests of short duration, tracheal intubation if this is within the competence of members of the team responding to the cardiac arrest, or the use of supraglottic airway devices. If the airway role on the resuscitation team is undertaken by an individual who is not skilled in intubation, there should be a skilled intubator (usually an anaesthetist) available on site to back up the resuscitation team.

1.2 If a resuscitation attempt is initially successful, the patient will usually require transfer to the critical care unit. This transfer will normally be undertaken by an anaesthetist or another doctor from the critical care unit.

1.3 The majority of in-house resuscitation training in the UK is undertaken by resuscitation officers, but the instructor body on a Resuscitation Council (UK) ALS course will usually include anaesthetists.

1.4 Instructors need to maintain their knowledge and skills and need to teach regularly (three courses in two years) to maintain their instructor status.

1.5 The time needed for anaesthetists to teach on these courses should be taken into consideration as part of the job-planning process. It is inappropriate for instructors to be expected to use their own study leave to deliver resuscitation training, which is a mandatory requirement for many hospital doctors.

1.6 One consultant anaesthetist should take a lead role in resuscitation – this individual should be a member of the trust resuscitation committee and is often the chair. In large hospitals, this role may carry a significant workload and should be supported with appropriate administrative time.

2 Equipment, support services and facilities

Equipment

2.1 Relatively little equipment is required by the resuscitation team.

2.2 The defibrillator-monitor is central to the resuscitation attempt and must be located strategically to enable shock delivery within three minutes of a patient arrest anywhere in the hospital.

2.3 Waveform capnography should be available to confirm tracheal tube placement. The end-tidal carbon dioxide values may also provide feedback on the quality of chest compressions but data confirming the reliability of this function are awaited.

2.4 A comprehensive list of the equipment required for adult and paediatric resuscitation is given on the Resuscitation Council (UK) website [www.resus.org.uk].

2.5 Additional equipment (for example, transport monitor, ventilator) will be required for transferring the resuscitated patient to the critical care unit.

2.6 Equipment for training, including adult and paediatric manikins, airway management trainers, an electrocardiography monitor and rhythm simulator and at least one defibrillator dedicated for training should be available. Training equipment, including defibrillators, should be the same as the equipment used in the clinical areas of the institution.
Support services
2.7 Every hospital should have at least one resuscitation officer (or similar title, e.g. resuscitation services lead), who is responsible for co-ordinating the teaching and training of staff in resuscitation.
2.8 The role of the resuscitation officer and the facilities required to deliver resuscitation training are detailed in Quality standards for cardiopulmonary resuscitation and training.2
2.9 Other members of the resuscitation team will usually include general medical trainees and ward nursing staff.

Facilities
2.10 Resuscitation trainers must have access to a designated training room and all the relevant training equipment.

3 Areas of special requirement

Paediatric resuscitation
3.1 The typical causes of cardiac arrest in children are different from those of adults and there is some variation in the resuscitation techniques used in children and neonates. Ideally, organisations should have a separate paediatric resuscitation team – an anaesthetist will be a key member. At least one member of a resuscitation team that may be expected to resuscitate children must have completed a national paediatric resuscitation course [European paediatric life support [EPLS]/advanced paediatric life support [APLS]] successfully. In addition, all staff with regular involvement in paediatric resuscitation must be encouraged to attend national paediatric resuscitation courses (e.g. EPLS, APLS, newborn life support [NLS]). Anaesthetists comprise a significant proportion of the faculty on these courses.

Trauma resuscitation
3.2 Any hospital designated as a major trauma centre [MTC] or a trauma unit [TU] must have a trauma team for the resuscitation of seriously injured patients (this is mandated in the trauma network designation criteria). Airway management can be particularly challenging in these patients and the anaesthetist has a vital role to play in the trauma team. Anaesthetists will also be responsible for intra- and inter-hospital transfer of injured and critically ill patients – this can involve considerable resources in terms of time and personnel. The implementation of trauma networks has increased the need for secondary transfer from a TU to an MTC. Anaesthetists who are expected to resuscitate patients with major injuries should have received advanced trauma life support (ATLS) or equivalent training. Senior anaesthetists are frequently involved in trauma training for doctors of all disciplines.

Prevention of in-hospital cardiac arrest
3.3 The majority of patients sustaining in-hospital cardiac arrest show signs of physiological deterioration in the hours leading up to the event. If these critically ill patients are recognised and treated promptly, many cardiac arrests could be prevented. Many hospitals have established rapid response systems in which experienced nurses and/or doctors are called to patients showing signs of deterioration. Anaesthetists/intensive care physicians are frequently members of these teams and are also involved in training doctors and nurses in the recognition and treatment of critically ill patients.

Ethics
3.4 Every hospital should have a policy for ethical resuscitation. This is usually based on the document Decisions relating to cardiopulmonary resuscitation.3,4 Anaesthetists/intensive care physicians usually make a significant contribution to the preparation of the local policy for ethical resuscitation.
4 Training and education

4.1 All anaesthetists in training are expected to undertake specific training in resuscitation. For the majority, this means undertaking courses in ALS, ATLS and APLS/EPLS, followed by annual updates. A variety of methods can be used to maintain resuscitation skills and knowledge (for example, life support courses, simulation training, in-house training, drills in theatre, ‘rolling refreshers’, e-learning). Obstetric anaesthetists should undergo specific training in resuscitation of the pregnant patient, for example, advanced life support in obstetrics (ALSO), managing obstetric emergencies and trauma (MOET) or equivalent local multiprofessional courses, and should consider acquiring training in newborn life support (NLS). All anaesthetists should be aware of their organisation’s ‘do-not-attempt cardiopulmonary resuscitation’ (DNACPR) policy, especially in relation to peri-operative care.

4.2 Life-support courses are normally funded through budgets for study leave, but funding for study leave is diminishing and it is not uncommon for trainees to fund these courses themselves. The provider certificates are valid for four years. Regular updating of resuscitation knowledge is required; this may be achieved by completing another course or attending a specific revalidation course, or by in-house training.

4.3 Anaesthetists frequently teach on these life-support courses – this represents a considerable workload for the average anaesthetic department and must be taken into account when planning requirements for permanent staff.

4.4 Most pre-hospital resuscitation in the UK is undertaken by paramedics. These individuals require training in intravenous cannulation and airway management. Paramedics are often taught these skills by anaesthetists during elective surgical lists.

5 Research, audit and quality improvement

5.1 All resuscitation attempts should be included in continuous audit. There are international recommendations for the core data that require collection to enable meaningful audit of resuscitation practice. Participation in the National Cardiac Arrest Audit (NCAA) is recommended – this enables comparison of local cardiac arrest rates and outcomes with national data. NCAA is included in the Department of Health’s Quality Accounts as a recognised national audit. As members of the resuscitation team, anaesthetists will participate in resuscitation audit. The resuscitation committee is responsible for evaluating and presenting resuscitation audit data and the anaesthetic lead for resuscitation will feed the results of the audit back to the anaesthetic department.

5.2 Anaesthetists are encouraged to participate in resuscitation research and they are responsible for many of the UK studies published in this field.

6 Organisation and administration

6.1 The resuscitation services in a trust are co-ordinated by a resuscitation committee, which typically meets quarterly. The anaesthetic lead for resuscitation will be a key member of this committee and is often the chair. In large trusts this will represent a significant time commitment and should be recognised as supporting professional activities (SPA) activity in job planning. Much of the day-to-day resuscitation training will be delivered by resuscitation officers but more advanced training, especially for the rapid response systems, is often delivered by anaesthetists.

7 Patient information

7.1 A model information leaflet that accompanies the Decisions about cardiopulmonary resuscitation document has been produced by the BMA, Research Councils UK and Royal College of Nursing. Many trusts have produced their own patient information leaflets based on the national document.
Chapter 8
Guidance on the Provision of Anaesthesia Services for Resuscitation 2016

References