



Quality standards for cardiopulmonary resuscitation practice and training

Primary care - minimum equipment and drug lists for cardiopulmonary resuscitation

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1. Introduction and scope

Healthcare organisations have an obligation to provide a high-quality resuscitation service, and to ensure that staff are trained and updated regularly to a level of proficiency appropriate to each individual's expected role.

As part of the quality standards for cardiopulmonary resuscitation practice and training this document provides lists of the equipment and drugs required for cardiopulmonary resuscitation in primary care. This document is referenced from, and is a component of, the Quality standards for cardiopulmonary resuscitation practice and training for primary care.

The core standards for the provision of cardiopulmonary resuscitation across all healthcare settings are described in:

Introduction and overview Quality standards for cardiopulmonary resuscitation practice and training

2. General points

1. All providers of primary care must ensure that their staff have immediate access to appropriate resuscitation equipment and drugs when needed. The standard AED sign should be used in order to reduce delay in a defibrillator in an emergency www.resus.org.uk/defibrillators/standard-sign-for-aeds/
2. All staff must have a means of calling for help (e.g. internal or external landline telephone, mobile telephone with reliable signal, alarm bell, or portable radio with reliable signal).
3. Staff should be trained to use the available equipment according to their expected roles.
4. It is recognised that planning for every eventuality is complex; therefore, providers of primary care must undertake a risk assessment to determine what resources are required in their local circumstances. Risk factors to consider are:
 - patient groups (e.g. adults, children,)
 - likelihood of cardiorespiratory arrest (more patients seen in out-of-hours home visits may be at higher risk than those seen in routine daytime visits)

- training of staff likely to be available to assist at any specific location
 - the response time for the ambulance service to be able to provide more advanced equipment and life support skills
5. This risk assessment should be overseen by a designated resuscitation lead. Expert advice should also be sought locally from those involved frequently in resuscitation (e.g. resuscitation officers, emergency physicians, ambulance services).
 6. Resuscitation equipment should be for single-patient use and latex-free, whenever possible. Where non-disposable equipment is used, a policy for decontamination between use in different patients must be available and followed.
 7. Personal protective equipment (e.g. gloves, aprons, eye protection) and sharps boxes must be available according to local policy.
 8. A reliable system of equipment checks and replacement must be in place to ensure that equipment and drugs are always available for use in a cardiorespiratory arrest. This process should be designated to named individuals, with reliable arrangements for cover in case of absence. The frequency of checks will depend upon local circumstances but should be at least weekly.
 9. The manufacturers' instructions must be followed regarding the use, storage, servicing and expiry of equipment and drugs.
 10. The precise availability of equipment and drugs should be determined locally. The lists below include recommendations on when equipment and drugs should be available:
 - Immediate - available for use within the first minutes of cardiorespiratory arrest (i.e. at the start of resuscitation).
 - Accessible - available for prompt use when the need is determined by those attempting resuscitation.
 11. These lists are not exhaustive. Local experts should be consulted to ensure that appropriate equipment and drugs are available when they are needed, to enable provision of high-quality attempted resuscitation.
 12. These lists refer *only* to equipment for the management of cardiorespiratory arrest. All organisations providing primary care should have appropriate equipment and drugs for managing other life-threatening emergencies (e.g. anaphylaxis).

3. Equipment and drug lists

Primary Care - Minimum suggested equipment

Item	Suggested availability	Comments
Protective equipment - gloves, aprons, eye protection	Immediate	
Pocket mask (adult) with oxygen port	Immediate	May be used inverted in infants
Oxygen cylinder (with key where necessary)	Immediate	
Oxygen tubing	Immediate	
Automated external defibrillator (AED)	Immediate	Preferably with facilities for paediatric use as well as use in adults. Type of AED and location determined by a local risk assessment.

Primary Care - Minimum suggested equipment

		AEDs are not intended for use in infants (less than 12 months old) and this should be considered at risk assessment.
Adhesive defibrillator pads	Immediate	Spare set also recommended
Razor	Immediate	
Stethoscope	Immediate	
Absorbent towel	Immediate	To dry chest if necessary

Primary Care - For skill sets covering patients at increased risk of cardiorespiratory arrest

(see **Notes**)

AIRWAY AND BREATHING

Item	Suggested availability	Comments
Protective equipment - gloves, aprons, eye protection	Immediate	
Pocket mask with oxygen port	Immediate	
Portable suction (battery or manual) with Yankauer sucker and soft suction catheters	Immediate	Airway suction equipment. NPSA Signal. Reference number 1309. February 2011
Oropharyngeal airways sizes 0,1,2,3,4	Immediate	
Self-inflating bag with reservoir (adult)	Immediate	
Self-inflating bag with reservoir (child)	Immediate	
Clear face masks sizes 0,1,2,3,4	Immediate	
Supraglottic airway device with syringes, lubrication, and ties/tapes/scissors as appropriate	Accessible	Choice of device (e.g. laryngeal mask airway, i-gel@laryngeal tube) and size will depend on local policy and staff training
Oxygen cylinder (with key where necessary)	Immediate	
Oxygen tubing	Immediate	
Stethoscope	Immediate	

**Primary Care - For skill sets covering patients at increased risk of cardiorespiratory arrest
(see Notes)**

CIRCULATION

Item	Suggested availability	Comments
Automated external defibrillator (AED)	Immediate	<p>Preferably with facilities for paediatric use as well as use in adults.</p> <p>Type of AED and locations determined by local risk assessment.</p> <p>AEDs are not intended for use in infants (less than 12 months old) and this should be considered at risk assessment.</p>
Adhesive defibrillator pads	Immediate	Spare set of pads also recommended.
Razor	Immediate	
ECG electrodes	Accessible	May use AED pads or ECG electrodes with ECG monitor, according to local policy.
Intravenous cannulae (selection of sizes) and 2% chlorhexidine/alcohol wipes, tourniquets and cannula dressings	Accessible	
Adhesive tape	Accessible	
Intravenous infusion set	Accessible	
Sodium chloride 0.9% (2 x 1000 ml)	Accessible	
Glucose 10% (500 ml)	Accessible	
Selection of needles and syringes	Accessible	
Intraosseous access device and / or needles suitable for infants, children and adults	Accessible	
IV extension set	Accessible	Types of connectors, ports, and caps to be determined locally
50 ml syringes x 2	Accessible	For intraosseous infusion
Adrenaline 1 mg (= 10 ml 1:10,000) as a prefilled syringe	Accessible	Number of syringes required will depend on anticipated time until ambulance arrives: 1mg needed for each 4-5 min of CPR
Algorithms, emergency drug doses, paediatric drug calculators	Immediate	According to local policy
Sharps container	Accessible	
Scissors	Accessible	
Glucose monitor	Accessible	

Notes

1. The list for those with enhanced skills or covering higher-risk patients, particularly, is for guidance only. Certain organisations may have practitioners whose skills can provide more advanced care than included on this list (tracheal intubation, arrhythmia management, other critical-care skills). Organisations employing those with such skills should ensure that provision is made so that these skills can be employed to ensure that patients receive optimal care.
2. Similarly, some organisations may have staff who are not familiar with certain equipment in which case a local decision should be made as to whether training is increased to cover such skills or whether such equipment is not required.

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Quality standards for cardiopulmonary resuscitation practice and training

Community hospitals cares - equipment and drug lists

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Drug tables for cardiac arrest are highlighted in the text with the symbol 

1. Introduction and scope

Healthcare organisations have an obligation to provide a high-quality resuscitation service, and to ensure that staff are trained and updated regularly to a level of proficiency appropriate to each individual's expected role.

As part of the quality standards for cardiopulmonary resuscitation practice and training this document provides lists of the minimum equipment and drugs required for cardiopulmonary resuscitation in settings that deliver mental healthcare. These lists are categorised according to the clinical setting.

This document is referred to by the standards documents pertaining to specific clinical settings. Links to these documents are provided below:

-  Acute care
-  Primary care
-  Primary dental care
-  Mental health inpatient care
-  Community hospitals care

The core standards for the provision of cardiopulmonary resuscitation across all healthcare settings are described in the document:

Introduction and overview to quality standards for cardiopulmonary practice and training

Throughout this document the term **Community hospitals** includes inpatients and all services held within those premises (e.g. speech and language therapists, physiotherapists, occupational therapists, podiatrists).

2. General points

1. All clinical service providers must ensure that their staff have immediate access to appropriate resuscitation equipment and drugs to facilitate rapid resuscitation of the patient in cardiorespiratory arrest. The standard defibrillator sign should be used in order to reduce delay in locating a defibrillator in an emergency www.resus.org.uk/defibrillators/standard-sign-for-aeds/
2. All settings must have a means of calling for help (e.g. landline telephone [internal or external], mobile telephone with reliable signal, or alarm bell).
3. Standardisation of the equipment used for cardiopulmonary resuscitation (including defibrillators and emergency suctioning equipment), and the layout of equipment and drugs throughout an organisation is recommended.
4. It is recognised that planning for every eventuality is complex, therefore, organisations must undertake a risk assessment to determine what resources are required given their local circumstances. Risk factors to consider include patient group (e.g. adults, children), incidence of cardiac arrest, training of staff, and access to expert help.
 - a. Community hospitals may need special provisions (e.g. for failed intubation, tracheostomy care, cardiac arrest in pregnancy etc.).
 - b. Some settings need a wide range of equipment immediately available (e.g. resuscitation room in emergency department). Suggested options include having basic equipment (and possibly drugs) available immediately (on a resuscitation trolley), and further equipment and drugs arriving with a resuscitation team (in a 'grab-bag'), or in some settings as part of an ambulance response.
 - c. Staff should be trained to use the available equipment according to their expected roles.
5. Depending on the organisation, this risk assessment must be overseen by a Resuscitation Service Structure or a designated resuscitation lead. Expert advice should also be sought locally from those regularly involved in resuscitation (e.g. resuscitation officers, emergency physicians, cardiac care unit staff, intensivists, anaesthetists, prehospital care physicians).
6. Resuscitation equipment should be single-patient-use and latex-free, whenever possible and appropriate. Where non-disposable equipment is used, a clear policy for decontamination after each use must be available and must be followed.
7. Personal protective equipment (e.g. gloves, aprons, eye protection) and sharps boxes must be available, based on a local risk assessment and local policies.
8. A reliable system of equipment checks and replacement must be in place to ensure that equipment and drugs are always available for use in a cardiac arrest. The frequency of checks should be determined locally.
9. It is recommended that equipment and drugs are presented in a clear and logical manner to enable easier use during an emergency.
10. The manufacturer's instructions must be followed regarding use, storage, servicing and expiry of equipment and drugs.
11. Further equipment and drugs may be needed to manage other types of emergencies that are likely to be encountered in a particular setting; this may include:
 - monitoring equipment (e.g. blood pressure, pulse oximetry, 3-lead electrocardiogram [ECG], temperature, waveform capnography);
 - 12-lead ECG recorder;
 - near-patient tests (e.g. blood glucose, blood gas analysis).
12. A formal procurement process that includes trialing of equipment before purchase is recommended. Trialing of resuscitation equipment can take place in actual care settings or in simulated patient scenarios.
13. The precise availability of equipment and drugs should be determined locally. The lists include a suggestion on the immediacy with which equipment and drugs should be available:
 - a. Immediate – available for use within the first minutes of cardiorespiratory arrest (i.e. at the start of the resuscitation).
 - b. Accessible – available for prompt use when the need is determined by the resuscitation team.These lists are not exhaustive. Local experts should be consulted to ensure the appropriate equipment and drugs are available when they are needed, to enable provision of high-quality attempted resuscitation.

3. Community Hospitals – ADULT

Community Hospitals – ADULT

AIRWAY AND BREATHING

Item	Suggested availability	Comments
Pocket mask with oxygen port, and oxygen tubing	Immediate	
Oxygen mask with reservoir	Immediate	
Self-inflating bag with reservoir	Immediate	
Clear face masks, sizes 3, 4, 5	Immediate	For use with self-inflating bag
Oropharyngeal airways, sizes 2, 3, 4	Immediate	
Nasopharyngeal airways, sizes 6, 7 (and lubrication)	Immediate	Will depend on local policy and staff training
Portable suction (battery or manual) with Yankauer sucker and soft suction catheters	Immediate	Airway suction equipment. NPSA Signal. Reference number 1309. February 2011
Supraglottic airway device with syringes, lubrication and ties/tapes/scissors as appropriate	Immediate/Accessible	Choice of device (e.g. laryngeal mask airway, i-gel®, laryngeal tube) and size will depend on local policy and staff training
Oxygen cylinder (with key where necessary)	Immediate	
Magill forceps	Immediate	Will depend on local policy and staff training
Stethoscope	Immediate	

Community Hospitals – ADULT

CIRCULATION

Item	Suggested availability	Comments
Automated external defibrillator (AED)	Immediate	Type of defibrillator and locations determined by a local risk assessment (e.g. manual defibrillators for settings where general anaesthesia undertaken). Available to enable shock within 3 minutes of collapse
Adhesive defibrillator pads x 2 packs	Immediate	
Razor	Immediate	
ECG electrodes	Immediate	If monitoring devices are available
Tuff Cut Scissors	Immediate	
Intravenous cannulae (selection of sizes) and 2% chlorhexidine/alcohol wipes, tourniquets and cannula dressings	Immediate/Accessible	Will depend on local policy and staff training
Adhesive tape	Immediate/Accessible	
Intravenous infusion set	Accessible	Will depend on local policy and staff training
0.9% sodium chloride (1000 ml)	Accessible	Amount depends on access to further fluids
Selection of needles and syringes	Accessible	Will depend on local policy and staff training
Intraosseous access device	Accessible	Will depend on local policy and staff training
Dressing Pads x 2	Immediate	

Community Hospitals – ADULT

OTHER ITEMS

Item	Suggested availability	Comments
Clock/timer	Accessible	
Gloves, aprons, eye protection	Immediate	Further personal protective equipment may be required according to local policy
Sharps container and clinical waste bag	Immediate	Sharps container must be immediately available wherever sharps used
2% chlorhexidine / alcohol wipes	Accessible	
Blood sample tubes	Accessible	Usually in clinical room, must not delay transfer
Blood glucose analyser with appropriate strips	Accessible	According to local policy
Manual handling equipment	Accessible	According to setting. See Guidance for safer handling during resuscitation in healthcare settings
Cardiorespiratory arrest record forms for patient notes, Audit forms and DNACPR forms	Accessible	
Access to algorithms, emergency drug doses	Accessible	

Community Hospitals – ADULT

CARDIAC ARREST DRUGS – FIRST LINE for intravenous use

Item	Suggested availability	Comments
Adrenaline 1mg (= 10 ml 1:10,000) IV as a prefilled syringe x 3	Immediate	Number of syringes depends on access to further syringes. 1 syringe needed for each 4-5 min of CPR. Will depend on local policy and staff training
Amiodarone 300mg as a prefilled syringe x1	Accessible	First dose required after 3 defibrillation attempts. Will depend on local policy and staff training

Community Hospitals – ADULT

OTHER DRUGS

Item	Suggested availability	Comments
Adrenaline 1mg (1 ml 1:1000) IM	Immediate	First line for anaphylaxis – 0.5 mg intramuscular injection in adults
Chlorphenamine 10 mg IV / IM x 2	Accessible	Second line for anaphylaxis, can also be given intramuscularly. Will depend on local policy and staff training
Hydrocortisone 100 mg IM / IV x 2	Accessible	Second line for anaphylaxis, can also be given intramuscularly. Will depend on local policy and staff training
Aspirin 300 mg and other antithrombotic agents	Accessible	For acute coronary syndrome. Will depend on local policy and staff training
Furosemide 50 mg IV x 2	Accessible	Will depend on local policy and staff training
Flumazenil 0.5 mg IV x 2	Accessible	Will depend on local policy and staff training
Nalaxone 400 micrograms x 5 IM / IV	Accessible	Will depend on local policy and staff training
Midazolam 10 mg (1ml) Buccal	Accessible	Will depend on local policy and staff training
Glucagon 1 mg IM / IV x 2	Accessible	
GTN spray	Accessible	
Ipratropium bromide 500 microgram nebulules x 2 (and nebulizer device)	Accessible	Will depend on local policy and staff training
Salbutamol 5 mg nebulules x 2 (and nebulizer device)	Accessible	

NOTES: Community Hospitals – ADULT

1. A 999 ambulance must be called for any cardiorespiratory arrest unless there is a local Resuscitation team available.

Supporting information

1. Association of Anaesthetists of Great Britain and Ireland (AAGBI) Safety Guideline – Interhospital Transfer. 2009. www.aagbi.org
2. Intensive Care Society. Guidelines for the transport of the critically ill adult (3rd Edition 2011). www.ics.ac.uk

4. Community Hospitals – PAEDIATRIC

Community Hospitals – PAEDIATRIC

AIRWAY AND BREATHING

Item	Suggested availability	Comments
Pocket mask with oxygen port & oxygen tubing	Immediate	Will depend on local policy and staff training
Oxygen mask with reservoir & oxygen tubing	Immediate	Will depend on local policy and staff training
Self-inflating bag with reservoir & oxygen tubing	Immediate	Will depend on local policy and staff training
Oropharyngeal airways size 0, 1 and tongue depressor	Immediate	Will depend on local policy and staff training
Portable suction (battery or manual) with Yankauer sucker and soft suction catheters	Immediate	Soft suction catheters will be dependant on suction device available
Oxygen cylinder (with key if necessary)	Immediate	

Community Hospitals – PAEDIATRIC

CIRCULATION

Item	Suggested availability	Comments
Defibrillator - Manual defibrillator and/or automated external defibrillator (AED)	Immediate	Type of defibrillator and locations decided by a local risk assessment. AEDs are not suitable for infants (less than 12 months old) and this should be considered at risk assessment
Adhesive defibrillator pads – paediatric and adult sizes	Immediate	Spare set of pads also recommended
Intravenous cannulae (selection of sizes) and 2% chlorhexidine / alcohol wipes, tourniquets and dressings	Accessible	Will depend on local policy and staff training
Adhesive tape	Accessible	
Intravenous infusion sets (with and without incorporated burette)	Accessible	Will depend on local policy and staff training
IV extension set with 3-way taps and bungs	Accessible	Will depend on local policy and staff training
0.9% sodium chloride	Accessible	Will depend on local policy and staff training
10% Dextrose	Accessible	
Selection of needles and syringes	Accessible	
Intraosseous access device with needles suitable for children and adults	Accessible	Will depend on local policy and staff training

Community Hospitals – PAEDIATRIC

CARDIAC ARREST DRUGS – FIRST LINE for intravenous use

Item	Suggested availability	Comments
Adrenaline 1mg (= 10 ml 1:10,000) prefilled syringe(s)*	Immediate	According to local policy
Amiodarone 300 mg as a prefilled syringe x1*		

* These lists refer to drug availability and not to the doses used for the treatment of children. Correct dosing is available at www.resus.org.uk/resuscitation-guidelines/

Community Hospitals – PAEDIATRIC

OTHER ITEMS

Item	Suggested availability	Comments
Clock / timer	Accessible	
Gloves, aprons, eye protection	Immediate	
Manual handling equipment	Accessible	According to setting. See Guidance for safer handling during resuscitation in healthcare settings
Cardiac arrest record form for patient notes and audit forms	Accessible	

Community Hospitals – PAEDIATRIC

OTHER EMERGENCY DRUGS

Item	Suggested availability	Comments
Adrenaline 1mg (1 ml 1:1000) IM*	Immediate	First line for anaphylaxis for intramuscular use
Glucagon 1 mg IM x 2*	Accessible	
Salbutamol 5mg nebules x 2 (and nebulizer device)*	Accessible	
Chlorphenamine 10 mg IM x 2*		Second line for anaphylaxis, can also be given intramuscularly. Will depend on local policy and staff training
Hydrocortisone 100 mg IM / IV x 2*		Second line for anaphylaxis, can also be given intramuscularly. Will depend on local policy and staff training

* These lists refer to drug availability and not to the doses used for the treatment of children. Correct dosing is available at www.resus.org.uk/resuscitation-guidelines/

NOTES - Community Hospitals – PAEDIATRIC

1. A 999 ambulance must be called for any cardiorespiratory arrest unless there is a local Resuscitation team available.

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Quality standards for cardiopulmonary resuscitation practice and training

Primary dental care - equipment list

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1. Introduction and scope

Primary dental care facilities have an obligation to provide a high-quality resuscitation service, and to ensure that staff are trained and updated regularly to a level of proficiency appropriate to each individual's expected role.

As part of the quality standards for cardiopulmonary resuscitation practice and training this document provides lists of the minimum equipment required for cardiopulmonary resuscitation in primary dental care. This document is referenced from, and is a component of, the 'Quality standards for cardiopulmonary resuscitation practice and training for primary dental care'.

The core standards for the provision of cardiopulmonary resuscitation across all healthcare settings are described in: Introduction and overview Quality standards for cardiopulmonary resuscitation practice and training

2. General points

1. All clinical dental areas should have immediate access (within the first minutes of a cardiorespiratory arrest) to oxygen, resuscitation equipment for airway management including suction, and an automated external defibrillator (AED). The standard AED sign should be used in order to reduce delay in a defibrillator in an emergency www.resus.org.uk/defibrillators/standard-sign-for-aeds/
2. All primary dental care staff must have a means of calling for immediate help (e.g. internal or external landline telephone, mobile telephone with reliable signal, alarm bell).
3. Primary dental care staff should be trained to use the available equipment according to their expected roles.
4. Staff must be familiar with the location of all resuscitation equipment within their working area.
5. Resuscitation equipment should be for single-patient use and latex-free whenever this is feasible (e.g. bag-mask devices, oxygen masks and tubing).
6. Responsibility for checking resuscitation equipment rests with the staff at the dental facility where the equipment is held. This process should be designated to named individuals, with reliable arrangements for cover in case of absence. The frequency of checks will depend upon local circumstances but should be at least weekly. Checking should be the subject of local audit.
7. The manufacturer's instructions must be followed regarding the use, storage, servicing and expiry of equipment.
8. A planned replacement programme should be in place for disposable equipment items that have been used or that reach their expiry date.

9. Personal protective equipment (e.g. gloves, aprons, eye protection) must be available according to local policy.
10. AEDs reduce the mortality from cardiorespiratory arrest caused by ventricular fibrillation and ventricular tachycardia. The widespread deployment of such devices throughout the UK and the Department of Health's 'Public Access Defibrillation' programme has ensured that AEDs are now available in many public places and are in common use.
11. The general public expects AEDs to be available in every healthcare setting and primary dental care premises are no exception. The Department of Health Cardiovascular Disease (CVD) Outcomes Strategy promotes AED site mapping/registration, first responder programmes and ways of increasing the number of people trained in cardiopulmonary resuscitation (CPR) and use of AEDs. The Resuscitation Council (UK) recommends that all AEDs located in the community are registered with the local ambulance service, to facilitate prompt access to the nearest AED whenever one is needed.
12. The provision of an AED enables all dental staff to attempt defibrillation safely after relatively little training and should be immediately available within the first few minutes of a cardiorespiratory arrest occurring. These defibrillators should have internal data storage facilities and standardised consumables (e.g. adhesive electrode pads, connecting cables). Scissors may be required to remove items of clothing from the patient. Adult AEDs can be used safely on children over 8 years old. Some machines have paediatric pads or a mode that adjusts them to make them more suitable for use in children between 1 and 8 years of age. This type of AED should be considered, especially for practices that treat children. In cardiorespiratory arrest situations when paediatric pads or an adjustable AED are not available, a standard adult AED may be used in a child over 1 year old. Staff should be familiar with the device in use on their premises and its mode of operation.
13. Oxygen cylinders should be of such a size to be portable easily, but must also allow for an adequate flow rate (e.g. 15 l.min⁻¹) until the arrival of an ambulance (e.g. a full 'CD' size integral valve cylinder contains 460 l of oxygen and can deliver a flow rate of 15 l.min⁻¹ for approximately 30 min). Local policy should dictate whether a second cylinder is required in case the first one is at risk of running out. Published guidance from the British Thoracic Society on the use of high-flow oxygen has caused some concern and confusion regarding its safety. Current guidelines recommend that in any cardiorespiratory arrest the initial administration of high-flow oxygen (15 l.min⁻¹) is the correct course of action. If the patient regains a cardiac output and oxygen saturation levels can be measured accurately using a pulse oximeter (e.g. provided by the ambulance crew), then the concentration of inspired oxygen can be adjusted accordingly.
14. The precise availability of equipment should be determined locally. The lists below include recommendations on when equipment and should be available:
 - Immediate - available for use within the first minutes of cardiorespiratory arrest (i.e. at the start of resuscitation)
 - Accessible - available for prompt use when need is determined by those attempting resuscitation
15. These lists refer only to equipment for the management of cardiorespiratory arrest. Primary dental care facilities should also have appropriate equipment and drugs for managing other life-threatening medical emergencies (e.g. anaphylaxis) as recommended in the dental section in the British National Formulary.

3. Suggested minimum equipment list

Primary Dental Care		
AIRWAY AND BREATHING		
Item	Suggested availability	Comments
Protective equipment - gloves, aprons, eye protection	Immediate	
Pocket mask with oxygen port	Immediate	

Primary Dental Care

Portable suction e.g. Yankauer	Immediate	Airway suction equipment. NPSA Signal. Reference number 1309. February 2011
Oropharyngeal airways sizes 0,1,2,3,4	Immediate	
Self-inflating bag with reservoir (adult)	Immediate	
Self-inflating bag with reservoir (child)	Immediate	
Clear face masks for self-inflating bag (sizes 0,1,2,3,4)	Immediate	
Oxygen cylinder (CD size)	Immediate	
Oxygen masks with reservoir	Immediate	
Oxygen tubing	Immediate	

Primary Dental Care

CIRCULATION

Item	Suggested availability	Comments
Automated external defibrillator (AED)	Immediate	Type of AED and location determined by a local risk assessment. Consider facilities for paediatric use, especially for practices that treat children.
Adhesive defibrillator pads	Immediate	Spare set of pads also recommended.
Razor	Immediate	
Scissors	Immediate	

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Quality standards for cardiopulmonary resuscitation practice and training

Primary dental care - Quality standards

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1. Summary

'A patient could collapse on any premises at any time, whether they have received treatment or not. It is therefore essential that ALL registrants are trained in dealing with medical emergencies, *including resuscitation*, and possess up to date evidence of capability'.

General Dental Council 'Scope of Practice' 2013

- Cardiorespiratory arrest is rare in primary dental practice.
- There is a public expectation that dental practitioners and all other dental care professionals should be competent in treating cardiorespiratory arrest.
- All primary care dental facilities should have a process for medical risk-assessment of their patients.
- Specific resuscitation equipment should be available immediately in all primary care dental premises. This equipment list should be standardised throughout the UK.
- All clinical areas should have immediate access to an automated external defibrillator (AED).
- Primary dental care providers, general dental practitioners and all other dental healthcare professionals should undergo training in cardiopulmonary resuscitation (CPR) including basic airway management and the use of an AED.
- Each primary dental care facility should have a plan for summoning assistance in the event of a cardiorespiratory arrest. For most practices this will mean calling 999 immediately.
- There should be regular practice and teaching using simulation-based cardiorespiratory arrest scenarios.
- Dental staff's knowledge and skills in resuscitation should be updated at least annually.

2. Introduction and scope

Healthcare providers have an obligation to provide resuscitation skills in the event of a cardiorespiratory arrest and to ensure that staff are trained and updated regularly to a level of proficiency appropriate to each individual's expected role. This document provides quality standards and supporting information for the aspects of cardiopulmonary

resuscitation practice and training relevant to the setting of primary dental care. The document does **not** include the resuscitation standards expected when 'Conscious Sedation' techniques are undertaken by dental practitioners as there is existing guidance for this specific area of practice from the Academy of Medical Royal Colleges (see Supporting information).

Furthermore, this document replaces the Resuscitation Council (UK) document 'Medical Emergencies in General Dental Practice' which will no longer be supported or available on the RC (UK) website. Those requiring information on medical emergencies encountered in dental practice (other than cardiorespiratory arrest) are referred to the relevant section in the [British National Formulary](#) (BNF). Further enquiries should be directed to the Dental Advisory Group of the BNF or the British Dental Association who contributed to the advice within the BNF.

The core standards for the provision of cardiopulmonary resuscitation across **all** healthcare settings are described in: Introduction and overview Quality standards for cardiopulmonary resuscitation practice and training

3. Resuscitation Equipment

Standards

There should be a standard list of equipment required for cardiopulmonary resuscitation within any primary dental care practice in the UK.

Equipment lists for specific healthcare settings are contained in the separate document; Minimum equipment list for cardiopulmonary resuscitation in primary dental care

4. Training of staff

Standards

Accurate documentation of any patient's medical history should allow most people at risk of certain medical emergencies and subsequent cardiorespiratory arrest to be identified in advance of any proposed treatment.

1. Dental practitioners and other dental care professionals must be trained in cardiopulmonary resuscitation (CPR) so that in the event of cardiorespiratory arrest occurring they can:
 - recognise cardiorespiratory arrest;
 - summon help immediately (dial 999);
 - start CPR, using chest compressions and providing ventilation with a pocket mask or bag-mask device and supplemental oxygen. (Evidence suggests that chest compressions can be performed effectively in a fully reclined dental chair);
 - attempt defibrillation (if appropriate) within 3 minutes of collapse, using an AED;
 - provide other advanced life support skills if appropriate and if trained to do so.
2. Dental practitioners and other dental care professionals who work with children should learn the differences in CPR (from CPR in adults) for use in children and practise these on paediatric manikins.
3. Dental practitioners and other dental healthcare staff should update their knowledge and skills in resuscitation at least annually.
4. A system must be in place for identifying which equipment requires special training, (such as AEDs, bag-mask devices and oropharyngeal airway insertion) and for ensuring that such training takes place.
5. All new members of dental staff should have resuscitation training as part of their induction programme.
6. Training can be undertaken locally within the dental practice or within local or regional training centres. Qualified trainers in resuscitation from within the dental practice staff should be encouraged to deliver 'cascade' training to other staff members (e.g. in Basic Life Support). Training in more advanced techniques may require a more advanced trainer (e.g. Resuscitation Officer) or attendance at a designated course.

7. For all staff, various methods to acquire, maintain and assess resuscitation skills and knowledge can be used for updates (e.g. life support courses, simulation training, mock-drills, 'rolling refreshers', e-learning, video-based training/self instruction). The appropriate methods should be determined locally. For example, the interactive film Lifesaver (<http://www.life-saver.org.uk/>), developed by the Resuscitation Council (UK), or brief videos aimed at lay people may be appropriate for non-clinical staff. 'Hands-on' simulation training and assessment is recommended for clinical staff.
8. Training in resuscitation must be a fundamental requirement for dental practitioners and other dental care professional qualifications. Undergraduate and postgraduate examinations for all dental practitioners and dental care professionals should include an evaluation of competency in resuscitation techniques appropriate to their role.
9. All primary dental care providers should recognise the need for and make provision for dental staff to have sufficient time to train in resuscitation skills as part of their employment.
10. All training should be recorded in a database.
11. Training and retraining should be a mandatory requirement for Continuing Professional Development and maintenance on professional healthcare registers. It may be appropriate for some retraining to be undertaken using 'e-learning'.

5. Transfer of patients

Standards

1. In the event of cardiorespiratory arrest, emergency services should be summoned immediately by calling 999. A local protocol should include clear directions on how to find the dental care facility and whether or not there may be a difficult access point. Primary dental care practices should identify clearly all access points and patient removal routes.
2. Ambulance personnel will provide equipment, expertise, practical help and a range of treatments supplementary to those available in the dental surgery.
3. Written documentation containing details of the dental procedure (if any), medical emergency, any treatment given and the name of the Dental Practitioner should all accompany the patient to hospital.
4. Relatives or carers should be informed about the transfer of a patient, but should not expect to travel with the patient in the ambulance. Contact details should be obtained by the ambulance personnel.

6. Audit

Standards

1. To ensure a high-quality service, primary care dental facilities should audit:
 - weekly (as a minimum) checks of the resuscitation equipment;
 - other elements of health and safety (e.g. manual handling).
2. Audit should always include a full 'debriefing' of staff after any cardiorespiratory arrest. This allows them to reflect on the treatment given and permits discussion of whether anything might have been done differently.
3. Where audit identifies deficiencies, steps must be taken to correct these.

7. Decisions relating to cardiopulmonary resuscitation

Standards

Dental practitioners and other dental healthcare providers may treat patients who have a 'Do Not Attempt Cardiopulmonary Resuscitation' decision or who possess a legal document (Advance Decision to Refuse Treatment) specifying that they do not want CPR in the event of a cardiorespiratory arrest. Management of such patients must comply with the law and should follow national guidance 'Decisions Relating to Cardiopulmonary Resuscitation - A Joint Statement by the British Medical Association, Resuscitation Council (UK) and the Royal College of Nursing', and further guidance issued by the General Medical Council.

8. Supporting information

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3. Standards for the Dental Team. General Dental Council, London 2013. <http://www.gdc-uk.org/Dentalprofessionals/Standards/Documents/Standards%20for%20the%20Dental%20Team.pdf>
4. Scope of Practice. General Dental Council, London 2013. <http://www.gdc-uk.org/Newsandpublications/Publications/Publications/Scope%20of%20Practice%20September%202013.pdf>
5. Preparing for Practice. General Dental Council, London 2011. <http://www.gdc-uk.org/Newsandpublications/Publications/Publications/GDC%20Learning%20Outcomes.pdf>.
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19. Emergency Oxygen Use in Adult Patients (2008). <http://www.brit-thoracic.org.uk/guidelines/emergency-oxygen-use-in-adult-patients.aspx>

20. Guidance from the British Medical Association, the Resuscitation Council (UK), and the Royal College of Nursing. 2014. <http://www.resus.org.uk/dnacpr/decisions-relating-to-cpr/>
21. Treatment and care towards the end of life: good practice in decision making. General Medical Council (2010) http://www.gmc-uk.org/End_of_life.pdf_32486688.pdf
22. Cardiovascular Disease Outcomes Strategy: Improving outcomes for people with or at risk of cardiovascular disease. Department of Health. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/141273/9387-2900853-CVD-Outcomes_web1.pdf
23. Standards for Conscious Sedation in the Provision of Dental Care. Report of the Intercollegiate Advisory Committee for Sedation in Dentistry 2015 <http://www.rcseng.ac.uk/fds/publications-clinical-guidelines/docs/standards-for-conscious-sedation-in-the-provision-of-dental-care-2015>

9. Acknowledgements

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Quality standards for cardiopulmonary resuscitation practice and training

Primary care - Quality standards

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1. Introduction and scope

Healthcare organisations have an obligation to provide a high-quality resuscitation service, and to ensure that staff are trained and updated regularly to a level of proficiency appropriate to each individual's expected role.

In this document, primary care refers to the services provided by General Practitioners (GPs) and their practices as well as walk-in centres and out-of-hours service providers. These quality standards also apply to all other healthcare professionals who contribute to the delivery of primary care services. Separate quality standards for cardiopulmonary resuscitation practice and training in primary dental care are available.

Each section of this document contains the quality standards and supporting information and, where appropriate, supporting tools for each specific aspect of cardiopulmonary resuscitation in primary care.

The core standards for the provision of cardiopulmonary resuscitation across all healthcare settings are described in:

Introduction and overview Quality standards for cardiopulmonary resuscitation practice and training

2. Background

Dealing with a cardiorespiratory arrest is a rare event for the individual primary care clinician. The circumstances and skills available to assist at such a time may vary widely, as may the equipment available. However, excellent results of resuscitation by GPs have been reported when defibrillation is carried out promptly, with survival rates exceeding 50% under favourable circumstances.

Since the publication of "Cardiopulmonary Resuscitation: Guidance for clinical practice and training in Primary Care" in 2001, the delivery of primary care in the UK has changed. The provision of primary care "in hours" and "out of hours" is now clearly demarcated. The patients have very different characteristics, and are attended by professionals with varying skill sets. Doctors working with a higher-risk patient case-load, or GPs with an extended role in Urgent and Emergency Care, may have more skills in resuscitation than those working purely in daytime practice or who have other special interests. Individual doctors' skill sets are also dictated by factors such as working in remote and rural areas or responding to requests for assistance from the ambulance service. Even the equipment required by a clinician on call for emergencies from a surgery will differ from that needed for routine home visits.

These guidelines do not define the skill sets or equipment required for each area of practice. They aim to provide standards that can be tailored to the needs of the individual practitioner or healthcare organisation, and allow decisions to be made about the skill sets and equipment that are required for the patients under their care.

Supporting information

1. Resuscitation Council (UK). Cardiopulmonary Resuscitation Guidance for clinical practice and training in Primary Care. 2001 <http://www.resus.org.uk/archive/archived-quality-standards/cpr-guidance-for-clinical-practice-and-training-primary-care/>
2. Royal College of General Practitioners. Guidance and competences for the provision of services using practitioners with special interests (PwSIs) - Urgent & Emergency care. 2008.
3. Colquhoun MC. Resuscitation by primary care doctors. *Resuscitation* 2006; 70: 229-237

3. Resuscitation Officers

Standards

All providers of primary care should have ready access to advice about resuscitation practice and training. This is best led by a dedicated, adequately trained Resuscitation Officer (RO) whose prime responsibility is for the coordination of all matters pertaining to resuscitation including training, audit and overseeing equipment. However, this may be difficult to organise in some primary care settings and some or all of the responsibilities could be delegated to providers outside the NHS or other providers such as the ambulance service. If a dedicated RO post is not commissioned, the responsibilities for the role should be undertaken by people or organisations of at least an equal level of training and experience in resuscitation, and their expected roles must be clearly defined. An RO in the community might be expected also to cover other healthcare provision outside acute hospitals such as clinics or community hospitals.

1. Every primary care organisation should have access to guidance and training in resuscitation.
2. As a guide, in hospitals one RO is required for every 750 clinical members of staff (See Acute care document for further information).
3. Depending on geography and numbers needing training more than one RO (or people undertaking the duties of an RO) may be required in some places, or adjacent commissioners may consider sharing a post in others.
4. An RO (or people undertaking the duties of an RO) should be mobile, with a commitment to visit practices and urgent-care facilities to provide training and to advise on equipment.
5. Because of geography, the RO (or people undertaking the duties of an RO) for an area will require a local, named resuscitation lead in smaller organisations such as some General Practices. This person should be accountable for adherence to quality standards within their organisation and should ensure that basic tasks such as checking equipment are done routinely.
6. ROs (or people undertaking the duties of an RO) should be adequately trained and credible. At least one such clinical trainer should be an Advanced Life Support (ALS) provider (or equivalent) at a minimum and preferably an ALS Instructor or holder of another qualification in teaching/training, so that they can support and train clinicians with extended skill sets and those caring for high-risk patients.
7. The accommodation required for resuscitation training will vary according to local arrangements. An RO (or people undertaking the duties of an RO) must have an office base with computer facilities, internet access, a telephone and secure filing for confidential documents. There must be adequate storage space for training equipment. The venues where training is delivered must have adequate space for training using a manikin and appropriate electronic teaching aids should also be available.
8. An RO (or people undertaking the duties of an RO) should have adequate administrative support.
9. Equipment for training will vary according to local needs. Adult, paediatric and newborn manikins should be available as should a training AED, ECG monitor and rhythm simulator. Airway management manikins may be required in some settings or for some groups of professionals. Equipment should be portable so that it can be taken to training venues. To ensure that training is of maximum relevance, whenever possible equipment (especially defibrillators) used in training should be the same model as that used in actual clinical practice.
10. Adequate financial provision should be made for staffing, equipment and accommodation for such resuscitation training when contracts are being negotiated.
11. An RO (or people undertaking the duties of an RO) has a responsibility to maintain his/her own education in

resuscitation. In order to achieve this, teaching on resuscitation courses outside their own organisation is recommended. In addition, regular attendance at professional meetings must be supported with a budget for study expenses. They should consider clinical attachments in acute settings, in particular to provide opportunities for clinical involvement in resuscitation attempts, in order to maintain clinical credibility.

Supporting information

1. Council For Professionals as Resuscitation Officers (contact rocouncil@gmail.com)
2. Scottish Resuscitation Group. <http://www.srg.scot.nhs.uk/>

4. Training of staff

Standards

1. All staff in a primary care organisation, including non-clinical staff, should undergo regular training in resuscitation of both adults and children to the level appropriate to their role.
2. Staff should undergo such training at induction and at appropriately frequent, regular intervals thereafter to maintain knowledge and skills.
3. According to Resuscitation Council (UK) guidelines, training must be in place to ensure that clinical staff can undertake cardiopulmonary resuscitation (CPR). Training and facilities must ensure that, when cardiorespiratory arrest occurs, as a minimum all clinical staff can:
 - recognise cardiorespiratory arrest;
 - summon help;
 - start CPR;
 - attempt defibrillation (if appropriate) with an automated external defibrillator (AED) with the minimum of delay, whenever possible within 3 minutes of collapse.
4. Clinical staff should have at least annual updates.
5. Training and updates that include an assessment are recommended for clinical staff.
6. Non-clinical staff generally should have annual updates also. However, a local risk assessment may be undertaken to assess the likelihood of them encountering a patient requiring resuscitation (for example a driver for an out-of-hours doctor's car may be required to assist at a cardiorespiratory arrest more frequently than a secretary in some daytime General Practices).
7. As a minimum, non-clinical staff must be trained to:
 - recognise cardiorespiratory arrest;
 - summon help;
 - start CPR using chest compressions.
8. For all staff, various methods to acquire, maintain and assess resuscitation skills and knowledge can be used for updates (e.g. life support courses, manikin/simulation training, mock-drills, 'rolling refreshers', e-learning, video-based training/self instruction). The choice should be determined locally. For example, training materials such as Lifesaver (<http://www.life-saver.org.uk/>), developed by the Resuscitation Council (UK), or very brief videos aimed at lay people may be appropriate for non-clinical staff. Hands-on training using simulation and including assessment is recommended for clinical staff.
9. A system must be in place for identifying any resuscitation equipment that requires special training, and for ensuring that such training takes place.
10. The RO or resuscitation lead should organise and co-ordinate resuscitation training for staff. However, in order to achieve training targets, the RO may need to delegate some aspects of training.
11. All primary care providers should make provision for staff to have sufficient time to train in resuscitation skills as part of their employment.
12. Specific training for cardiorespiratory arrests in special circumstances (e.g. resuscitation of children or the newborn) should be provided for medical, nursing and other clinical staff where appropriate.
13. All training must be recorded (e.g. in an organisation's training database).

Supporting information

1. Resuscitation Guidelines 2010. Resuscitation Council (UK). <http://www.resus.org.uk/resuscitation-guidelines/>
2. Soar J, Monsieurs KG, Ballance JH, et al. [European Resuscitation Council Guidelines for Resuscitation 2010. Section 9. Principles of education in resuscitation.](#) Resuscitation. 2010; 81: 1434-44.
3. Soar J, Mancini ME, Bhanji F, et al; Education, Implementation, and Teams Chapter Collaborators. [Part 12: Education, implementation, and teams: 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations.](#) Resuscitation. 2010 Oct;81 Suppl 1:e288-330.
4. Quality and Outcomes Framework 2012-2013 Guidance for PCOs and practices March 2012. BMA and NHS Employers http://www.nhsemployers.org/Aboutus/Publications/Documents/QOF_2012-13.pdf

Supporting tools

1. Lifesaver. An interactive film by Martin Percy. 2013. <http://www.life-saver.org.uk/>

5. The team approach to resuscitation

1. Each practice should plan for the need to attempt resuscitation. Staff should have an understanding of what role they would be expected to undertake in those circumstances.
2. In primary care the availability at any one time of particular resuscitation skills and the numbers of people available to assist may vary. This should be borne in mind when planning the response to a collapsed patient and team members must be prepared to be flexible about their role within the boundaries of their own skill level.
3. All those trained to participate in resuscitation should know where essential drugs and equipment can be accessed immediately.

6. Resuscitation equipment

Standards

Equipment lists for specific healthcare settings are contained in the separate document: Equipment and drug lists for cardiopulmonary resuscitation in Primary Care

7. Decisions relating to cardiopulmonary resuscitation

Standards

1. Healthcare professionals must be familiar with and follow published guidance, including in particular "Decisions relating to Cardiopulmonary Resuscitation, a joint statement by the British Medical Association, the Resuscitation Council (UK), and the Royal College of Nursing" and the General Medical Council's current guidance on 'Treatment and care towards the end of life: good practice in decision making'. The detailed guidance in the Joint Statement should be used as the main source of reference to guide clinical practice.
2. Healthcare professionals must be familiar with and must comply with the law as it applies to decisions about CPR. There are some differences in the law among countries of the United Kingdom. Healthcare provider organisations must ensure that their staff receive appropriate information and training regarding these laws.
3. It is essential to identify:
 - patients for whom cardiorespiratory arrest is an expected part of the process of dying and in whom CPR is inappropriate;
 - patients who do not wish to receive CPR.

4. It is important to identify:

- patients at risk of dying for whom advance care planning, including decisions about CPR, may avoid inappropriate treatment, including inappropriate resuscitation attempts.

The Confidential Inquiry into premature deaths of people with learning disabilities (CIPOLD) 2013 identified a number of pitfalls for GPs regarding do-not-attempt-CPR (DNACPR) decisions:

- Incomplete documentation, especially unclear recording of the reason for not attempting CPR.
- “Blanket” policies concerning DNACPR in some care homes.
- Premature decisions not to attempt CPR.
- Failures to inform family and/or carers of decisions.

Supporting information

1. Guidance from the British Medical Association, the Resuscitation Council (UK), and the Royal College of Nursing. 2014. <http://www.resus.org.uk/dnacpr/decisions-relating-to-cpr/>
2. Recommended standards for recording decisions about cardiopulmonary resuscitation. Resuscitation Council (UK). Revised 2015. <http://www.resus.org.uk/dnacpr/do-not-attempt-cpr-model-forms/>
3. Treatment and care towards the end of life: good practice in decision making, General Medical Council. May 2010. http://www.gmc-uk.org/guidance/news_consultation/7046.asp
4. The Confidential Inquiry into premature deaths of people with learning difficulties (CIPOLD) 2013. <http://www.bris.ac.uk/cipold/fullfinalreport.pdf>
5. Adults with incapacity (Scotland) Act 2000 Part 5 Code of Practice. <http://www.scotland.gov.uk/Publications/2008/06/13114117/0>
6. Mental Capacity Act 2005 (England and Wales). <http://www.legislation.gov.uk/ukpga/2005/9/contents>

Supporting tools

1. The Resuscitation Council (UK) provides model DNACPR forms for use in adults and children respectively. <http://www.resus.org.uk/dnacpr/do-not-attempt-cpr-model-forms/>
2. The National End of Life Care Programme provides a DNACPR web resource: <http://www.endoflifecare.nhs.uk/search-resources/dnacpr-web-resource.aspx>
3. Scotland has a single DNACPR policy. For more information including supporting tools see: <http://www.scotland.gov.uk/Topics/Health/Quality-Improvement-Performance/Living-Dying-Well/DNACPR>

8. Audit and reporting

The audit and reporting of resuscitation attempts in primary care presents some logistical challenges due to the relative rarity of such events in any one practice. Nevertheless, for this very reason, it is important to capture as much information as possible to allow review of the response and improve patient outcome in subsequent cases.

Standards

1. Audit should always include a full ‘debriefing’ of staff after any cardiorespiratory arrest. This allows them to reflect on the treatment given and permits discussion of whether anything might have been done differently. When appropriate, a root cause analysis should be undertaken and the action plan implemented. This may be done locally as a practice ‘significant event’ or by studying all the events in the locality, collated by the lead for resuscitation.
2. Patient safety incidents (any unintended or unexpected incident which could have led or did lead to harm for one or more patients receiving NHS-funded healthcare) should be reported to the National Reporting Learning System.
3. Audit of DNACPR policies is mandatory (Health Services Circular 2000/028).

Supporting information

1. National reporting learning system:
<http://www.nrls.npsa.nhs.uk/report-a-patient-safety-incident/healthcare-staff-reporting/>
2. NHS Executive. Health Services Circular 2000/028 - Resuscitation Policy
<http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/>

9. Research

Despite significant advances in recent years, there remains substantial scope for research to improve best practice in resuscitation science, training and clinical practice. Research to further the evidence base concerning resuscitation in primary medical care should be encouraged. Research is a core activity of the NHS [NHS Constitution Key Principle 3] and should be supported whenever possible.

Standards

1. Research must be conducted in accordance with the NHS Research Governance Framework. Research involving human participants, their organs, tissue or data require NHS Research and Development approval. Such research may also require approval from a Research Ethics Committee. If in doubt advice should be sought from the local Research and Development Office in the first instance or NHS Research Ethics Advice Service.
2. Research involving patients who lack capacity must also comply with relevant legislation (e.g. UK Medicines for Human Use [Clinical Trials] Regulations 2004; Mental Capacity Act 2005 [England and Wales]; Adults with Incapacity [Scotland] Act 2000).

Supporting information

1. NHS Constitution 2010
<http://www.nhs.uk/choiceintheNHS/Rightsandpledges/NHSConstitution/Documents/nhs-constitution-interactive-version-march-2010.pdf>
2. National Research Ethics Service <http://www.nres.nhs.uk/EasysiteWeb/getresource.axd?AssetID=355&type=full&servicetype=Attachment>
3. National Research Ethics Service Does my project require review by a Research Ethics Committee?
<http://www.nres.nhs.uk/EasySiteWeb/GatewayLink.aspx?allid=134016>

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