Resuscitation Council UK

Quality Standards: Acute care equipment and drug lists

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Introduction

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. These lists are categorised according to the clinical setting.

The equipment and drug lists on this page are in reference to the Acute Care Quality Standards.

The core standards for the provision of cardiopulmonary resuscitation across all healthcare settings are described in the Introduction and Overview to Quality Standards.

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

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. The sign can be downloaded here.

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 suction 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.** For example, in secondary or tertiary care specific locations 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 the 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 Committee or a designated resuscitation lead. Expert advice should also be sought locally from those commonly involved in resuscitation (e.g. resuscitation practitioners/resuscitation officers, emergency physicians, cardiac care unit staff, intensivists, anaesthetists, pre-hospital care physicians etc).
6. Resuscitation equipment should be single-patient-use and latex-free. 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, face mask, eye protection) and sharps boxes must be available based on a local risk assessment and national/local polices.
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,
    - difficult airway equipment (e.g. scalpel and bougie for cricothyroidotomy),
    - near-patient tests (e.g. blood glucose, blood gas analysis).
12. A formal procurement process that includes trialling of equipment before purchase is recommended. Trialling of resuscitation equipment can take place in actual care settings or in simulated clinical scenarios.
13. The precise availability of equipment and drugs should be determined locally. The equipment 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 resuscitation).
    - **b.** Accessible - available for prompt use when the need is determined by the resuscitation/emergency response team.
14. These lists are not exhaustive. Local experts should be consulted to ensure that the appropriate equipment and drugs are available when they are needed to enable the provision of high-quality attempted resuscitation.

Equipment and drug lists: adult

The equipment and drug lists in this chapter are for adult acute hospital care.

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

Airway and Breathing (Adult)

Acute Hospital Care - Adult

Airway and breathing

Item	Suggested Availability	Comments
Pocket mask with oxygen port	Immediate/accessible	According to local policy
Oxygen mask with reservoir (non-rebreather mask)	Immediate	
Self-inflating bag with reservoir (bag-valve-mask)	Immediate	
Clear face masks, sizes 3, 4, 5	Immediate	
Oropharyngeal airways, sizes 2, 3, 4	Immediate	
Nasopharyngeal airways, sizes 6, 7 (and lubrication)	Immediate	
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

Item	Suggested Availability	Comments
Oxygen cylinder (with key where necessary)	Immediate	
Oxygen tubing	Immediate	
Magill forceps	Immediate	
Stethoscope	Immediate	
Tracheal tubes, cuffed, sizes 6, 7, 8	Immediate/Accessible	This will depend on local policy and staff training.
Tracheal tube introducer (stylet)	Immediate/Accessible	This will depend on local policy and staff training. For example, there is no consensus on the role of a ‘stylet’
Laryngoscope handles (x 2) and blades (size 3 and 4) Spare batteries for laryngoscope and spare bulbs (if applicable)	Immediate/Accessible	This will depend on local policy and staff training.

Item	Suggested Availability	Comments
Syringes, lubrication and ties/tapes/scissors for tracheal tube, HME filter	Immediate/Accessible	This will depend on local policy and staff training.

Item	Suggested Availability	Comments
Waveform capnograph - with appropriate tubing and connector	Immediate	For use with supraglottic airways or tracheal tube. NAP4 - 4th National Audit Project of the Royal College of Anaesthetists and the Difficult Airway Society, March 2011. Standards of monitoring during anaesthesia and recovery. Association of Anaesthetist of Great Britain and Ireland, 2021. EBA Recommendation for the use of Capnography. European Board of Anaesthesiology, 2011.

Circulation (Adult)

Acute Hospital Care - Adult

Circulation

Item	Suggested availability	Comments
Defibrillator Manual and/or automated external defibrillator Pacing function if needed	Immediate	Type of defibrillator, and locations determined by a local risk assessment. Available to enable shock within 3 minutes of collapse. Pacing function is recommended for cardiac units, cardiac catheter laboratories, emergency departments, intensive care units and operating theatres. It may also be appropriate for other settings, and this should be determined locally
Adhesive defibrillator pads	Immediate	Spare set of pads also recommended. Pads should be suitable for external pacing if needed
Razor	Immediate	

ECG electrodes	Immediate	
Intravenous cannulae (selection of sizes) and 2% chlorhexidine/alcohol wipes, tourniquets and cannula dressings	Immediate/Accessible	
Adhesive tape	Immediate/Accessible	
Intravenous infusion set	Immediate/Accessible	
0.9% sodium chloride (1000 mL)	Immediate/Accessible	Amount depends on availability of further supplies
Selection of needles and syringes	Immediate/Accessible	
Intraosseous access device	Accessible	
Central venous access - Seldinger kit, full barrier precautions (hat, mask, sterile gloves, gown) and skin preparation (2% chlorhexidine / 70% alcohol)	Accessible	Placed with ultrasound guidance, where possible
Ultrasound / echocardiography	Accessible	To identify and treat reversible causes of cardiorespiratory arrest

Other Items (Adult)

Acute Hospital Care - Adult

Other items

Item	Suggested availability	Comments
Clock/timer	Accessible	
Gloves, aprons, face masks, eye protection	Immediate	Further personal protective equipment may be required according to national/local policy
Nasogastric tube	Accessible	
Sharps container and clinical waste bag	Immediate	Sharps container must be immediately available wherever sharps used
Large scissors (e.g. heavy duty scissors)	Accessible	
2% chlorhexidine / 70% alcohol wipes	Accessible	
Blood sample tubes	Accessible	

Item	Suggested availability	Comments
IV extension set	Accessible	Types of connectors, ports, and caps to be determined locally
Pressure bags for infusion	Accessible	
Blood gas syringe	Accessible	
Blood glucose analyser with appropriate strips	Immediate/Accessible	According to local policy
Drug labels	Accessible	Guidance on colour coding for syringe labels
Manual handling equipment	Accessible	According to setting. See Guidance for safer handling during resuscitation in healthcare settings
Cardiorespiratory arrest record forms for patient records, audit forms, DNACPR/ReSPECT forms	Accessible	

Item	Suggested availability	Comments
Access to algorithms, emergency drug doses	Accessible	

CARDIAC ARREST DRUGS - FIRST LINE for intravenous use ! (Adult)

Acute Hospital Care - Adult

CARDIAC ARREST DRUGS - FIRST LINE for intravenous use !

Item	Suggested availability	Comments
Adrenaline 1mg (= 10 mL 1:10,000) as a prefilled syringe x 3	Immediate	Number of syringes depends on access to further syringes. 1mg needed for each 3-5 min of CPR
Amiodarone 300mg as a prefilled syringe x 1	Accessible	First dose required after 3 defibrillation attempts

CARDIAC ARREST & PERI-ARREST DRUGS for intravenous use ! (Adult)

Acute Hospital Care - Adult

CARDIAC ARREST & PERI-ARREST DRUGS for intravenous use !

Item	Suggested availability	Comments
Adenosine 6 mg x 5	Accessible	
Atropine - 1mg x 3	Accessible	
Adrenaline 1mg (= 10 mL 1:10,000) prefilled syringe	Accessible	Further syringes should be accessible for prolonged resuscitation attempts
Amiodarone 300mg x 1	Accessible	If decision is made to give further doses of amiodarone
Calcium chloride 10 mL 10% x 1	Accessible	Calcium gluconate can be used as an alternative. Note: 10 mL 10% Calcium chloride = 6.8 mmol Ca^{2+} 10 mL 10% Calcium gluconate = 2.26 mmol Ca^{2+}
Glucose for intravenous use	Immediate/Accessible	Volume and concentration according to local policy

Item	Suggested availability	Comments
20% lipid emulsion 500 mL	Accessible	For use in areas where large doses of local anaesthetic are used for regional blocks, according to Association of Anaesthetists Guidelines.
Lidocaine 100 mg x 1	Accessible	Inclusion to be determined locally
Magnesium sulphate (2 g = 8 mmol) x 1	Accessible	
Midazolam 5 mg in 5 mL x 1	Accessible	NPSA Alert
Naloxone 400 microgram x 5	Accessible	

Item	Suggested availability	Comments
Potassium chloride	Accessible	Formulation to be determined locally. Potassium chloride concentrate solutions. Patient safety alert. The National Patient Safety Agency. July 2002.
Sodium bicarbonate 8.4% or 1.26%	Accessible	Volume and concentration according to local policy

Other drugs (Adult)

Acute Hospital Care - Adult

Other drugs

Item	Suggested availability	Comments
Adrenaline 1mg (1 mL 1:1000) x2	Immediate	First-line treatment for anaphylaxis - 0.5 mg intramuscular injection in adults
Aspirin 300 mg and other antithrombotic agents	Accessible	For acute coronary syndrome according to local policy
Furosemide 50 mg IV x 2	Accessible	
Flumazenil 0.5 mg IV x 2	Accessible	
Glucagon 1 mg IV x 1	Accessible	
GTN spray	Accessible	
Ipratropium bromide 500 microgram nebules x 2 (and nebuliser device)	Accessible	
Salbutamol 5 mg nebules x 2 (and nebuliser device) and IV preparation for infusion	Accessible	
0.9% sodium chloride or Hartmann’s solution 1000 mL x 2 cooled to 4°C	Accessible	For temperature management as part of post-cardiorespiratory arrest care

Notes and supporting information (Adult)

Notes

1. Portable monitoring and other equipment for patient transfer should be readily available.
2. Staff must be aware of where to locate additional cardiac arrest drugs (if needed) as per local policy.
3. Further drugs for post-cardiac-arrest care (e.g. inotropes, vasopressors, anaesthetic agents, antibiotics) should be available readily, according to local critical care policies.
4. Keeping resuscitation drugs locked away - this problem was addressed in detail in 2005 by the Royal Pharmaceutical Society of Great Britain in a revision of the Duthie Report (1988) 'The Safe and Secure Handling of Medicines'. Resuscitation Council UK responded with a statement, along with an accompanying letter written to the CQC explaining the position.

Supporting information

1. Association of Anaesthetists of Great Britain and Ireland (AAGBI) Safety Guideline - Interhospital Transfer. 2009. http://www.aagbi.org
2. The faculty of Intensive Care Medicine and the Intensive Care Society. Guidelines on: The Transfer of the Critically Ill Adult (2019). http://www.ics.ac.uk/resource/transfer-critically-adult.html
3. The Hospital Management of Hypoglycaemia in Adults with Diabetes Mellitus https://www.diabetes.org.uk/Documents/About%20Us/Our%20views/Care%20recs/JBDS%20hypoglycaemia%20position%20(2013).pdf

Equipment and drug lists: paediatric

The equipment and drug lists in this chapter are for paediatric acute hospital care.

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

Airway and Breathing (Paediatric)

Acute Hospital Care - Paediatric

Airway and breathing

Item	Suggested availability	Comments
Pocket mask with oxygen port - paediatric and adult	Immediate	According to local policy
Oxygen mask with reservoir - paediatric and adult (non-rebreather mask)	Immediate	
Self-inflating bag with reservoir - paediatric and adult (bag-valve-mask)	Immediate	
Clear face masks, size 00, 0, 1, 2, 3, 4, 5	Immediate	
Oropharyngeal airways, sizes 00, 0, 1, 2, 3, 4	Immediate	
Nasopharyngeal airways, sizes 4.0, 4.5, 5.0, 5.5, 6.0, 7.0 (and lubrication)	Immediate	Uncuffed tracheal tubes of appropriate length may be used as an alternative according to local policy
Portable suction (battery or manual) with Yankauer sucker (paediatric and adult) and soft suction catheters, sizes 5, 6, 8, 10, 12, 14	Immediate	

Item	Suggested availability	Comments
Oxygen cylinder (with key if necessary)	Immediate	
Oxygen tubing	Immediate	
Magill forceps (adult and paediatric sizes)	Immediate	
Stethoscope	Immediate	
Supraglottic airway device with syringes, lubrication and ties/tapes/scissors as appropriate	Accessible	Choice of device and size will depend on local policy and staff training
Tracheal tubes, uncuffed sizes 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6	Accessible	Cuffed paediatric tubes according to local policy
Tracheal tubes, cuffed sizes 3, 3.5, 4, 4.5, 5, 5.5, 6, 7, 8,	Accessible	
Tracheal tube introducer (stylet) small and medium	Accessible	
Intubating bougie - 5 Ch & 10 Ch	Accessible	

Item	Suggested availability	Comments
Laryngoscope handles (x 2) and blades - straight (Miller) 0, 1, 2, 3. Curved (Macintosh) 1, 2, 3, 4 Spare batteries for laryngoscope and spare bulbs (if applicable)	Accessible	
Syringes, lubrication and ties/tapes (e.g. Elastoplast® / Hypofix ® /ribbon gauze/tape) and scissors	Accessible	
Waveform capnograph - with appropriate tubing and connector (battery-operated)	Immediate	NAP4 - 4th National Audit Project of the Royal College of Anaesthetists and the Difficult Airway Society, March 2011

Circulation (Paediatric)

Acute Hospital Care - Paediatric

Circulation

Item	Suggested availability	Comments
Defibrillator - Manual and/or automated external defibrillator (AED)	Immediate	Type of defibrillator and locations decided by a local risk assessment. AEDs are not intended for use in infants (less than 12 months old) and this should be considered at risk assessment Availability of pacing function according to local policy
Adhesive defibrillator pads - paediatric and adult sizes	Immediate	Spare set of pads also recommended. Pads should be suitable for external pacing if needed
ECG electrodes (paediatric & adult sizes)	Accessible	
Intravenous cannulae (sizes 14, 16, 18, 20, 22, 24 G) and 2% chlorhexidine / 70% alcohol wipes, tourniquets and dressings	Immediate	
Adhesive tape	Immediate	
Intravenous infusion sets (with and without incorporated burette)	Accessible	

Item	Suggested availability	Comments
IV extension set with 3-way taps and bungs	Accessible	
0.9% sodium chloride	Accessible	Amount depends on access to further fluids
10% Dextrose	Accessible	
Selection of needles and syringes	Immediate	
Intraosseous access device with needles suitable for neonates, children and adults	Immediate	
Colloid solution for IV infusion[1]	Accessible	According to local policy
Central venous access - Seldinger kit, full barrier precautions (hat, mask, sterile gloves, gown) and skin preparation (2% chlorhexidine / 70% alcohol)	Immediate	Sizes and type according to local policy. Placed with ultrasound guidance, where possible
Ultrasound / echocardiography	Immediate	To identify and treat reversible causes of cardiorespiratory arrest

Acute Hospital Care - Paediatric

Other items

Item	Suggested availability	Comments
Clock / timer	Accessible	
Gloves, aprons, eye protection	Immediate	
Urinary catheter, sizes 6-14	Accessible	
Nasogastric tube, sizes 6-14	Accessible	
Sharps container and clinical waste bag	Immediate	Sharps container must be immediately available wherever sharps are used
Large scissors	Accessible	
2% chlorhexidine / 70% alcohol wipes	Accessible	
Blood sample tubes	Accessible	
Pressure bags for infusion	Accessible	
Blood gas syringe	Accessible	
Blood glucose monitor with appropriate strips	Immediate/Accessible	

Item	Suggested availability	Comments
Drug labels	Accessible	Guidance on syringe labels
Manual handling equipment	Accessible	According to setting. See Guidance for safer handling during resuscitation in healthcare settings
Cardiorespiratory arrest record form for patient records and audit forms. DNACPR/ReSPECT forms appropriate for children.	Accessible	
Access to algorithms, emergency drug doses, paediatric drug dose calculators (e.g. Broselow tape)	Immediate	According to local policy

CARDIAC ARREST DRUGS - FIRST LINE for intravenous use ! (Paediatric)

Acute Hospital Care - Paediatric

CARDIAC ARREST DRUGS - FIRST LINE for intravenous use !

Item	Suggested availability	Comments
Adrenaline 1mg (= 10 mL 1:10,000) prefilled syringe(s)[1]	Immediate	Number of syringes depends on ease of access to further syringes if needed
Amiodarone 300mg prefilled syringe(s)	Accessible	

CARDIAC ARREST & PERI-ARREST DRUGS for intravenous use ! (Paediatric)

Acute Hospital Care - Paediatric

CARDIAC ARREST & PERI-ARREST DRUGS for intravenous use !

Item	Suggested availability	Comments
Adenosine 6 mg	Accessible	
Atropine 1 mg	Accessible	ALERT: Atropine is available in various concentrations
Adrenaline 1mg (= 10 mL 1:10,000)	Accessible	
Amiodarone 300 mg[1]	Accessible	
Calcium chloride 10 mL 10%	Accessible	Calcium gluconate may be used as an alternative. Note: 10 mL 10% Calcium chloride = 6.8 mmol Ca^{2+} 10 mL 10% Calcium gluconate = 2.26 mmol Ca^{2+}
Midazolam and/or Lorazepam	Accessible	For treatment of status epilepticus. Agent, dose and route of administration according to local policy
Glucose	Accessible	Concentration according to local policy
20% Lipid emulsion	Accessible	For local anaesthetic toxicity

Item	Suggested availability	Comments
Lidocaine 100 mg	Accessible	
Magnesium sulfate (2 g = 8 mmol)	Accessible	
Midazolam 5 mg in 5 ml	Accessible	NPSA Alert
Morphine	Accessible	According to local policy
Naloxone 400 microgram	Accessible	
Potassium chloride	Accessible	Potassium chloride concentrate solutions. Patient safety alert. The National Patient Safety Agency. July 2002.
Sodium bicarbonate 8.4% or 1.26%	Accessible	Concentration and preparation according to local policy

OTHER EMERGENCY DRUGS (Paediatric)

Acute Hospital Care - Paediatric

OTHER EMERGENCY DRUGS

Item	Suggested availability	Comments
Adrenaline 1mg (1 mL 1:1000)	Immediate	First-line treatment for anaphylaxis. Can be part of an ‘anaphylaxis kit’ so that it is not mixed / confused with cardiorespiratory arrest drugs
Furosemide 50 mg IV	Accessible	
Flumazenil 0.5 mg IV	Accessible	
Glucagon 1 mg IV	Accessible	
Ipratropium bromide 500 microgram nebules (and nebuliser device)	Accessible	
Salbutamol 5mg nebules (and nebuliser device)	Accessible	
Salbutamol 1mg/mL for IV infusion	Accessible	

Notes (Paediatric)

1. The volume and/or quantities of the listed fluids and drugs stored and their location should be determined by local policy. This should ensure that there is sufficient availability to manage a paediatric resuscitation according to Resuscitation Council UK resuscitation guidelines without undue delay.
2. Portable monitoring and other equipment for patient transfer should be readily available.
3. Staff must be aware of where to locate additional cardiac arrest drugs (if needed) as per local policy
4. Further drugs for post-cardiac-arrest care (e.g. inotropes, vasopressors, anaesthetic agents, antibiotics) should be readily available according to local critical care policies.
5. All interventions (e.g. drug therapy, practical procedures, discussions with other staff or relatives) should be documented with date and time and signed by an identifiable member of staff.
6. Personal protective equipment (e.g. gloves, aprons, face mask, eye protection) and sharp boxes must be available based on local risk assessment and national/local policies.
7. Keeping resuscitation drugs locked away - this problem was addressed in detail in 2005 by the Royal Pharmaceutical Society of Great Britain in a revision of the Duthie Report (1988) 'The Safe and Secure Handling of Medicines'. Resuscitation Council UK responded with a statement, along with an accompanying letter written to the CQC explaining the position.

Related content

Quality Standards: Acute Care

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