

AUSTRALIAN RESUSCITATION COUNCIL



NEW ZEALAND RESUSCITATION COUNCIL

Standards for Resuscitation: Clinical Practice and Education

A Resource for Healthcare

**Member organisations of the Australian Resuscitation Council
(in alphabetical order)**

• Australasian College for Emergency Medicine
• Australian & New Zealand Intensive Care Society
• Australian and New Zealand College of Anaesthetists
• Australian and New Zealand College of Anaesthetists
• Australian College of Critical Care Nurses
• Australian College of Nursing
• Australian Defence Force
• Australian Red Cross
• College of Emergency Nursing Australasia
• Council of Ambulance Authorities and Chairman SA Branch
• Heart Foundation
• Paramedics Australia
• Royal Australasian College of Surgeons
• Royal Australian College of General Practitioners
• Royal Life Saving Society Australia
• St John Ambulance, Australia
• Surf Life Saving Australia
• The Cardiac Society of Australia and New Zealand

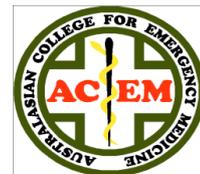
**Member organisations of the New Zealand Resuscitation Council
(in alphabetical order)**

• Australasian College for Emergency Medicine
• Australian & New Zealand Intensive Care Society
• Australian and New Zealand College of Anaesthetists
• CORE Instructors of New Zealand (CINZ).
• Heart Foundation
• New Zealand College of Midwives
• New Zealand Defence Force
• New Zealand Nurses Association
• New Zealand Red Cross
• Paediatric Society of New Zealand
• Private Emergency Care association of New Zealand
• Royal Australasian College of Surgeons
• Royal Australian College of Physicians
• Royal New Zealand College of Urgent Care
• St John, New Zealand
• Surf Life Saving New Zealand
• The Cardiac Society of Australia and New Zealand
• The Royal New Zealand College of General Practitioners

**THIS STATEMENT IS FORMALLY ENDORSED BY THE
FOLLOWING ORGANISATIONS**
(in alphabetical order)



Australian
College of
Nursing
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Australian College of Critical Care Nurses



Australian and New Zealand
College of Anaesthetists



Cardiac Society of Australia and
New Zealand



PARAMEDICS
AUSTRALASIA



The Royal Australasian
College of Physicians



Royal Australasian College of
Surgeons

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1. Introduction

This document provides guidelines for clinical practice and education for healthcare providers responsible for resuscitation services within healthcare institutions.

Health care institutions have a duty of care to provide an effective resuscitation service for patients, staff and visitors within the organisation and to ensure that their employees are educated to recognise and respond to acute deterioration.

This institutional responsibility includes the provision of related education, the allocation of human and material resources to support provision of resuscitation services, a process for evaluation of the quality of resuscitation and its improvement. The education should enable individual staff to develop and maintain a level of competence commensurate with their roles within their healthcare setting.

Timely and effective recognition and treatment of those whose condition is deteriorating is important for positive patient outcomes.

Standard 9 from the Australian Commission on Safety and Quality in Health Care (ACSQHC) National Safety and Quality Health Service (NSQHS) Standards (2011) is "*Recognising and Responding to Clinical Deterioration in Acute Health Care*". Standard 9 describes the systems and processes to be implemented by health services to respond effectively to patients when their clinical condition deteriorates.

Throughout this document, the term *healthcare institution* is used to designate an area where clinical care of patients is undertaken but is not limited to hospitals. These principles should be applied across the broad spectrum of health services. Health care institutions should base their resuscitation services on a detailed assessment of risk at their sites.

2. Summary of Recommendations

- Health care institutions should have, or be represented on, a resuscitation committee that is responsible for all issues of resuscitation and its governance for their institution.
- Policy documents should be available that support the role, function and standards for resuscitation and response systems within the healthcare institution.
- Every institution should have a resuscitation officer/coordinator to improve the quality of resuscitation procedures which may include participating in education in techniques of resuscitation and; collection and review of resuscitation data.
- Staff members in healthcare institutions who have direct contact with patients should be provided with access to regular education in resuscitation appropriate to their expected abilities and roles.
- Clinical staff should be provided with regular education which should include the recognition of the deteriorating patient and those at risk of cardiopulmonary arrest. This education should include escalation of treatment.
- Health care institutions admitting acutely ill patients must have access to a rapid response resuscitation system, or equivalent 24 hours a day that is applicable to the context of their institution.
- If an area does not have a dedicated resuscitation facility and/or staff to operate a facility, a specialised, external mobile team should be resourced to provide rapid on-site assistance.
- The institution should have an easily activated system to summon assistance in the event of a cardiopulmonary arrest or deterioration of a patient's clinical condition.
- Guidelines that outline the roles and responsibilities of the response team should be readily available in the healthcare setting.
- The process for activating teams to treat patients in cardiopulmonary arrest or whose condition is deteriorating should be clear, concise and readily available.
- Cardiopulmonary arrest should be managed according to current Australian Resuscitation Council / New Zealand Resuscitation Council guidelines.
- Resuscitation equipment, appropriate to the patient caseload and skills of the healthcare providers, should be available and maintained throughout the healthcare institution for clinical and for educational purposes (see Section 9: Resuscitation Equipment).
- Health care institutions must collect information about their recognition and response systems for deteriorating patients and resuscitation processes, provide feedback to the clinical workforce on recognition and response systems and resuscitation processes, and track outcomes and changes in performance over time (Australian Commission on Safety and Quality in Healthcare, 2012).
- Healthcare institutions should document any end-of-life care decisions including 'Do Not Attempt Resuscitation' or 'Not for Resuscitation' decisions. Such decisions should have been discussed with the patient wherever appropriate. The scope and reasons for such orders should be clearly documented and accessible to relevant staff. This process should be reviewed regularly.
- Funding should be allocated to support an effective resuscitation service.

3. Resuscitation Committee

Recommendations

1. Each healthcare institution should have, or be represented on, a resuscitation committee that has established terms of reference and whose purpose is to ensure leadership of the resuscitation service.
2. Membership of the resuscitation committee should have specialist knowledge in resuscitation and include representation from acute medical and nursing services and from a variety of disciplines across the healthcare setting. The number of representatives will depend upon local needs.
3. The resuscitation committee should implement organisational policies governing resuscitation. These policies should include the development and maintenance of standards for resuscitation; education and audit processes. The committee should have the authority to determine the level of resuscitation education required by individual staff members.
4. The chair of the resuscitation committee should have knowledge and skills in relation to resuscitation issues. The role should encompass a leadership ability to drive and implement change.
5. The resuscitation committee should take responsibility for:
 - Implementing national resuscitation guidelines and standards
 - Monitoring composition and function of the resuscitation team(s) whose responsibility is to treat cardiopulmonary arrest and to treat patients whose condition is deteriorating
 - Ensuring provision, maintenance and access to resuscitation equipment and medications
 - Determining access and requirements for education in resuscitation
 - Evaluating outcomes of resuscitation
 - Ensuring appropriate monitoring and reporting on advances in resuscitation
 - Developing and revising policies and procedures that support resuscitation
 - Reporting risk-related incidents in relation to resuscitation
6. The committee should have direct links to the senior executive or senior management committee within their healthcare institution. Ideally a member of the resuscitation committee should be from the executive structure.
7. Appropriate financial support should be supplied to the resuscitation committee to maintain its functions.
8. The resuscitation committee should develop and maintain a business plan which should indicate the resources required to maintain and upgrade clinical and education equipment throughout the healthcare institution and to provide appropriate staff and facilities for education in resuscitation.

4. Resuscitation Officers/Coordinators

Recommendations

1. Each healthcare institution should have an identified person who is responsible for coordinating the education and accreditation of staff in resuscitation. The number of resuscitation officers/coordinators should reflect the size and geographical distribution of their healthcare institution and the expected workload.
2. Persons acting in the role of resuscitation officer/coordinator should have received appropriate education and preparation for the role. This should include the possession of advanced life support and basic life support certification as well as educational qualifications/experience. In some healthcare institutions, other qualifications may be considered important for the role, for example obstetrics, paediatric or neonatal life support certification.
3. The resuscitation officer/coordinator should have access to an appropriately resourced space to conduct resuscitation education. Material resources should be appropriate to the level of education delivery. This may include multimedia teaching aides. Consideration should be given to the portability of this equipment for in-location and offsite teaching.
4. The resuscitation officer/coordinator should have access to appropriate office space, secretarial support and office furnishings. Storage appropriate for the level of equipment and programme materials should also be available.
5. The resuscitation officer /coordinator should ensure that all cardiopulmonary arrests are documented and audited using a standardised proforma (Utstein guidelines may guide the creation of this proforma, refer to section 16). Use or reporting of this data should adhere to privacy and confidentiality laws. Feedback should be actively sought from clinical staff in relation to rapid response systems and cardiopulmonary arrest.
6. The resuscitation officer/coordinator should be involved in a process for auditing staff performance during cardiopulmonary arrests with the capacity to provide feedback, debriefing and education following the resuscitation attempt.
7. Upgrading of knowledge and skills in the area of resuscitation should be a key performance indicator for the role of resuscitation officer/coordinator. This may involve external certification and currency in resuscitation teaching of programmes outside the healthcare institution.

5. Education of Staff

Recommendations

1. All staff should undergo regular resuscitation education to a level appropriate for their clinical responsibilities (Australian Resuscitation Council Guideline 10.1; Australian Commission on Safety and Quality in Healthcare, 2012).
2. Health care institutions should have a process that assists staff to identify patients who are critically-ill or deteriorating and therefore at risk of cardiopulmonary arrest. This process may include track and trigger observation charts, early warning scores or other criteria that alerts staff to patient deterioration. The process should also include protocols for escalation of care.

3. Staff should receive education and practice in the recognition of, and response to, patients at risk of acute deterioration and cardiopulmonary arrest. This should include education in the process for initiating appropriate therapeutic interventions and escalation of care as an important component of minimising morbidity and mortality.
4. A process of education should be in place to ensure that staff can undertake cardiopulmonary resuscitation. Learning objectives for training must include the following: (Australian Resuscitation Council Guideline 10.1):
 - recognition of an emergency,
 - ability to call an emergency response number,
 - chest compressions,
 - rescue breathing,
 - perform automated external defibrillation if manual defibrillation cannot be provided rapidly,
 - and, emotional preparation for the capability to act in an emergency.
5. The optimal interval for retraining has not been established, but repeated refresher training is needed for individuals who are not performing resuscitation on a regular basis. All those trained in CPR should refresh their skills at least annually (Australian Resuscitation Council Guideline 10.1).
6. All staff members should receive education in recognition of deteriorating patients, escalation of care and resuscitation as a component of their induction programme.
7. Health care institutions should provide time and resources for staff to attend resuscitation education and evaluation as a component of their employment.
8. Specialised education in cardiopulmonary resuscitation should be provided for medical and nursing staff in the relevant specialties for example, paediatrics, newborn, pregnancy and trauma.
9. All clinical staff should have the opportunity to attend a multidisciplinary program of education that has recognition, monitoring and management of the deteriorating patient.
10. All staff education should be recorded in a central database with audit reports made available to clinical areas.
11. Health care institutions should have a system in place for ensuring access at all times to at least one clinician, either on-site or in close proximity, who can provide advanced life support. These clinicians should have access to a higher level of resuscitation education. This may be provided in the form of external resuscitation courses.
12. There should be access to appropriate equipment for education purposes. As a minimum, this should include access to adult and paediatric manikins, task trainers such as airway management manikins, rhythm monitoring and arrhythmia simulation facilities.
13. There should be a defined budget allocated to supporting the resuscitation role. This enables the resuscitation officer/coordinator to maintain, upgrade and purchase new equipment for patient use and education purposes.

6. Cardiopulmonary Arrest Prevention

Recommendations

1. The healthcare institution should have early warning systems in place for the recognition of deteriorating patients, and response systems that ensure specialised and timely care is available to patients whose condition is deteriorating. (Australian Commission on Safety and Quality in Healthcare, 2012). Early warning systems should include measurement and documentation of observations, escalation of care, establishment of a rapid response system, and communication about clinical deterioration (Australian Commission on Safety and Quality in Healthcare, 2012).
2. The healthcare institution should have a Medical Emergency Team (MET), rapid response system or designated outreach service that has the capacity to respond to deteriorating patients identified by early warning systems.
3. The healthcare institution should have a patient data collection system that facilitates the regular measurement and recording of physiological parameters according to the National Consensus Statement, and provides guidance for escalation of care for deteriorating patients
4. The healthcare institution should have policies and procedures that support the process for escalation of care and for calling expertise to assist during medical emergencies. These policies should outline the roles and responsibilities of the staff in attendance and the staff responding.
5. A process of identifying, reporting, investigating and remedying adverse events related to cardiopulmonary arrest and its prevention should be in place in institutions.

7. The Resuscitation Team

Recommendations

1. The institution should have a team(s) that is activated immediately in response to a cardiopulmonary arrest and in timely manner to clinical deterioration
2. The exact composition of the team(s) will vary between institutions, although the team responding to cardiopulmonary arrest should have the following capabilities:
 - Advanced airway management including endotracheal intubation
 - Vascular and intraosseous access
 - Defibrillation (advisory and manual) and cardioversion
 - Administration of resuscitation medications
 - The ability to undertake other advanced resuscitation skills (e.g. external cardiac pacing, pericardiocentesis, intercostal catheter insertion)
 - Skills required for post- resuscitation care
3. The institution's resuscitation committee should determine the composition of the resuscitation team. The development of a Medical Emergency Team (MET) or similar service to treat a patient whose condition is deteriorating is strongly encouraged.
4. The resuscitation team should be responsible for issues relating to the management of relatives during resuscitation (who may or may not wish to be present), post resuscitation, transfer and debriefing.

5. The resuscitation team should be summoned to cardiopulmonary arrests by the use of a common telephone number throughout their institution and have a backup system in the event of a failure in the primary communication system. A protocol for information should be supplied, such as:
 - Which Building (e.g. A, B, C)
 - Which Ward or area (e.g. Ward/floor 2C, Engineering, Kitchen)
 - Which Bed area (e.g. Room 12)
 - Which Service, e.g. Adult/Paediatric/Neonatal/Trauma
6. The institution must ensure that the resuscitation alert system is activated within 30 seconds of the call for help. This system should be tested regularly.
7. Basic Life Support must commence immediately and the resuscitation team should be at the patient's location as soon as possible. Ideally, in major acute care hospitals, resuscitation teams should be at the patient's location within 3 minutes. All institutions should have a system in place for ensuring access at all times to at least one clinician, either on-site or in close proximity, who can practise advanced life support (Australian Commission on Safety and Quality in Healthcare, 2012).
8. The resuscitation team should have a leader who is responsible for:
 - Directing and co-ordinating the resuscitation
 - Ensuring the safety of the resuscitation team
 - Leading end-of-life decisions with the resuscitation attempt in consultation with admitting teams and significant others
 - Ensuring that documentation (including audit forms) and communication with relatives and other healthcare professionals involved in the patient's management is accurate
 - Organising resuscitation team debriefing
9. The institution should ensure that a complete and detailed record of the cardiopulmonary arrest is retained within the patient's clinical record. This data should also be recorded on a central database.
10. In institutions where appropriate staff and facilities are not available for a resuscitation team, policies on the scope of resuscitation practice by staff must be available. In such situations coordination of a rapid response may be achieved with a local ambulance service. Provision of this service must be organised with the ambulance service.

8. Resuscitation of Newborn, Infants, Children, Pregnant Women and Trauma Victims

Recommendations

Different conditions apply to the resuscitation of newborn, infant, children, pregnant women and trauma victims. In all cases it is imperative that staff with the appropriate education and experience are involved in resuscitation. In cases where appropriate staff, equipment and facilities are not available, consideration should be given to early involvement of an appropriate retrieval service for advice and transport of the victim to definitive care.

Newborns, Infants and Children

1. For resuscitation of a newborn, infant or child in cardiopulmonary arrest, the team leader, but ideally all members of the team, should have expertise in the resuscitation of these specific patient groups.

2. Specialised equipment and drug doses are required. Drug doses are usually based on weight. If a child's weight is not available, the use of paediatric resuscitation charts, based on the length of the child or the child's weight based on age is encouraged. For newborn infants, exact or approximate gestation provides a reasonable basis on which to estimate weight (see chart, page 2 Australian Resuscitation Council Guideline 13.5).
3. Two people should be responsible for calculating, drawing up and administering all drugs.
4. Ideally, institutions which admit or treat children should have a separate paediatric resuscitation team. In facilities that are not large enough to designate a paediatric resuscitation team, sufficient training and education in paediatric resuscitation should be provided to members of the generic resuscitation team. At least one member of the resuscitation team should have formal training in advanced paediatric resuscitation. All staff working in areas where newborns, infants and children are critically-ill should have training in paediatric resuscitation, particularly in advanced paediatric life support.
5. The presence of parents during the resuscitation of newborns, infants and children is encouraged. A member of staff should be delegated to stay with them and liaise with the team on their behalf (Australian Resuscitation Council Guideline 10.5).
6. Early identification of the infant and child whose condition is deteriorating through a specific early warning scoring system or other clinical indicators, assists in the prevention of cardiopulmonary arrest. Assessment of fetal well-being during pregnancy and intra-partum should be used to identify the infant at high risk of needing neonatal resuscitation.

Pregnant Women

1. Early involvement of an obstetrician and neonatologist or paediatrician is strongly recommended when dealing with cardiopulmonary arrest in a pregnant woman.
2. Particular attention should be paid to minimising vascular compression caused by the gravid uterus and to early advanced airway intervention.
3. After mid-gestation, peri-mortem Caesarean section may have to be undertaken for which equipment should be immediately available.

Trauma Victims

1. Institutions receiving patients with major injuries should have access to a multidisciplinary trauma team.
2. Access to blood services should be readily available.
3. Management of the airway may be complicated by the trauma and should be undertaken by an individual skilled in rapid sequence induction and tracheal intubation.
4. Resuscitation of the patient with major injuries may include the need for immediate surgery.

9. Resuscitation Equipment

Recommendations

1. The choice of resuscitation equipment should be defined by the resuscitation committee and will depend on the anticipated workload, availability of equipment from nearby departments and specialised local requirements. Single use equipment and infection control issues should be considered.
2. Ideally, the equipment used for cardiopulmonary resuscitation (including defibrillators) and the layout of equipment and drugs on resuscitation trolleys should be standardised throughout the institution.
3. In specialist areas, such as paediatrics and neonatal areas, the equipment on the resuscitation trolley should specifically meet the needs of these patient groups. (Further information on suggested equipment for Neonatal, Paediatric, Adult and Primary Care Facilities is located at the end of this section)
4. Staff must be familiar with the location and function of all resuscitation equipment within their working area.
5. Consideration should be given to the provision of resuscitation equipment in non-clinical areas of the institution (e.g. car park, kitchen, engineering) in accordance with workplace health and safety requirements.
6. Portable oxygen and suction devices should be available at emergency response incidents, unless piped or wall oxygen and suction are at hand.
7. Staff in all clinical areas should have access to resuscitation drugs, equipment for airway management, circulatory access and fluid administration. In certain circumstances, this may require the use of portable items and these should be standardised throughout the institution. Institutions may stock immediate resuscitation equipment in all clinical areas whilst having more advanced items brought to the resuscitation by a medical emergency team.
8. To aid in the management of a deteriorating patient, clinical areas should have immediate access to equipment for measuring blood pressure and blood glucose and to equipment for pulse oximetry, capnography, and 12-lead electrocardiography.
9. Deployment of Automated External Defibrillators (AEDs) reduces morbidity and mortality secondary to cardiopulmonary arrest caused by ventricular fibrillation and ventricular tachycardia. The provision of AEDs enables all staff to attempt defibrillation safely with minimal training. These defibrillators should have recording facilities and standardised consumables. If AEDs are placed in paediatric areas in lieu of manual defibrillators, they should be able to deliver paediatric defibrillation energy levels.
10. Ideally, the defibrillators should be standardised throughout the institution and staff should be familiar with the device, in its use and the mode of operation. Manual defibrillators should include the option of paediatric pads/paddles in areas where children may be treated. Defibrillators with an external pacing facility and synchronised cardioversion should be strategically located.
11. Resuscitation equipment should be maintained ready for use at short notice. A party responsible for checking resuscitation equipment should be determined. Ideally this should be a department where the equipment is located. Where two or more clinical areas share resuscitation equipment, responsibility for checking should be rotated so that all staff become familiar with the location and layout of the equipment. Equipment should be checked daily.

12. A programme of planned replacement of equipment, medications and consumables should be undertaken and funded accordingly.
13. Signage that reflects national guidelines should be prominently placed to indicate the closest access point for resuscitation equipment and defibrillators.
14. All equipment should be latex-free and intravenous equipment selected to minimise risk of needle-stick injury.
15. Additional information regarding equipment to manage the airway is available at <http://www.anzca.edu.au/resources/professional-documents/pdfs/ps56-2012-guidelines-on-equipment-to-manage-a-difficult-airway-during-anaesthesia.pdf>.

Suggested Minimum Equipment

Neonatal Resuscitation

General equipment

- Firm, padded resuscitation surface
- Overhead warmer
- Light for the area
- Clock with timer in seconds
- Warmed towels or similar covering
- Polyethylene bag or sheet, big enough for a baby less than 1500g birth weight.
- Stethoscope, neonatal size preferred
- Pulse oximeter plus neonatal probe.

Airway management equipment

- Suction apparatus and suction catheters (6F, 8F, and either 10F or 12F)
- Oropharyngeal airways (sizes 0 and 00)
- Intubation equipment:
 - o Laryngoscopes with infant blades (00, 0, 1)
 - o Spare bulbs, and batteries
 - o Endotracheal tubes (sizes 2.5, 3, 3.5, and 4 mm ID, uncuffed, no eye)
 - o Endotracheal stylet or introducer
 - o Supplies for fixing endotracheal tubes (e.g. scissors, tape)
- End-tidal carbon dioxide detector (to confirm intubation)
- Meconium suction device (to apply suction directly to endotracheal tube)
- Magill forceps, neonatal size (optional)
- Laryngeal Mask airway, size 1
- Capnography

Breathing support equipment

- Face masks (range of sizes suitable for premature and term infants, not Rendell Baker type)
- Positive-pressure ventilation device, either:
 - a T-piece device
 - flow-inflating bag with a pressure safety valve and manometer
- and
- self-inflating bag (approximately 240 ml) with a removable oxygen reservoir
- Medical gases:
 - A source of medical oxygen (reticulated and/or cylinder, allowing flow rate of up to 10 L/min) with flow meter and tubing
 - A source of medical air plus air/oxygen blender
- Feeding tubes for gastric decompression (e.g. size 6 & 8F)

Additional item

- Staff personal protective equipment: gloves/goggles/aprons
- Audit forms
- Sharps container and clinical waste bag
- Scissors
- Antiseptic skin prep wipes (preferably non-alcohol)
- Blood sample bottles / blood gas bottles
- Blood glucose monitoring
- Drug labels/plain labels
- Resuscitation algorithm

Circulation Equipment

Umbilical venous catheter (UVC) kits including

- UVC size 5F
- Syringe – 5 or 10 mL
- 3 way stopcock
- 0.9% sodium chloride for injection
- Scalpel blade
- Umbilical tape
- Dressing pack
- Blood gas sample syringe

Peripheral IV cannulation kit including

- 2, 3 or 5 mL syringe
- Low dead-space IV extension set
- Adhesive tape
- 25 gauge IV cannulas

- skin preparation solution suitable for newborn skin
- tapes/devices to secure UVC/IV cannula
- syringes and needles (assorted sizes)
- Intraosseous needles – 50 mm length /drill

Drugs and fluids

- Adrenaline: 1:10 000 concentration (0.1 mg/mL)
- Volume expanders:
- Normal saline.
- Blood suitable for emergency neonatal transfusion needs to be readily available for a profoundly anaemic baby

Documentation

- Resuscitation record sheet

Paediatric Resuscitation

Airway

- Non-rebreather oxygen masks – paediatric and adult
- Pocket mask – paediatric and adult +/- face shields
- Oropharyngeal airways - sizes 00, 0, 1, 2, 3, 4
- Self-inflating bag valve mask systems
 - paediatric with pressure relief valve and reservoir
 - adult with reservoir
- Face masks – sizes 00, 0/1, 2, 3, 4
- Soft suction catheters – 6,8,10,12,14Fr
- Yankauer sucker – adult and paediatric
- Oxygen and Medical Air (either wall-piped or portable)
- Suction (either wall-piped or portable)
- Endotracheal tubes: un-cuffed tubes 2.5 – 6 mm internal diameter; cuffed sizes 4,5,6,7,8
- Syringes for endotracheal cuff inflation
- Tracheostomy tube – cuffed sizes 4 - 6
- Laryngeal masks - sizes 1, 1½, 2, 2½, 3
- Laryngoscope handles, spare batteries and globes
- Laryngoscope blades – straight sizes 0, 1; curved sizes 2, 3, 4
- Stethoscope
- End-tidal Carbon Dioxide detectors (paediatric and adult) or capnography
- Nasogastric tubes – sizes 6, 8, 10, 12
- Intubating stylets or introducers – small, medium and large
- Gum elastic bougies – 5Fr, 10Fr
- Magill forceps – paediatric and adult
- Lubricating gel
- Adhesive tapes, cotton tie
- Scissors
- Tongue depressors
- Pulse oximeter and various probes

Additional items

- BLS and ALS algorithms
- Clock
- Staff personal protective equipment: gloves/goggles/aprons
- Audit forms
- Sharps container and clinical waste bag
- Scissors
- Alcohol wipes
- Blood sample bottles
- Blood gas syringes
- Blood glucose monitoring
- Drug labels/plain labels
- Resuscitation recording chart
- Resuscitation flowcharts
- Slide sheet or other device for safe transfer

Circulation Equipment

- Biphasic defibrillator (shock advisory module and/or external pacing facility to be decided by local policy)
- Defibrillator pads: paediatric and adult
- ECG electrodes: adult and paediatric
- IV cannulae – 14, 16, 18, 20, 22, 24g
- Intra-osseous needles/drill
- Syringes – 1, 2, 5, 10, 20 and 50ml
- Selection of needles
- Ampoules of 0.9% saline
- Arm boards
- Back board
- Paediatric blood pressure cuffs
- Extension set with 3-way taps and bungs
- Tape, occlusive dressing for dressing cannula
- IV administration sets (burette and blood giving set)

Drugs and Fluids

- Colloid solution or 0.9% saline (1000 mL)
- 50% or 10% Glucose
- 1:10,000 Adrenaline
- 1:1000 Adrenaline
- Amiodarone and 5% Glucose
- Sodium bicarbonate 8.4%
- 50% Glucose
- 20% Mannitol
- Other drugs
 - Adenosine
 - Atropine
 - Salbutamol
 - Calcium chloride
 - Midazolam
 - Morphine
 - Magnesium
 - Naloxone

Adult Resuscitation

Airway Equipment

- Self-inflating resuscitation bag-valve-mask system with oxygen reservoir and tubing (with filter if not disposable)
- Clear face masks - sizes 3, 4, 5
- Oropharyngeal airways - sizes 2, 3, 4, 5
- Nasopharyngeal airways - sizes 6, 7
- Suction (either piped or portable)
- Yankauer Suckers
- Tracheal suction catheters - sizes 12Fr, 14Fr
- Laryngeal mask airways - sizes 4, 5
- Magill forceps
- Endotracheal tubes – oral, cuffed sizes 6 – 9mm internal diameter
- Intubating stylet
- Laryngeal masks – sizes 3, 4, 5, 6
- Tracheostomy tubes – cuffed sizes 6 –10 mm internal diameter
- Gum elastic bougie or equivalent
- Lubricant gel
- Laryngoscope handles
- Laryngoscope blades (standard and long)
- Spare batteries and spare bulbs (if applicable)
- Fixation for tube (ribbon gauze/tape)
- Non-rebreathing oxygen mask
- Oxygen (piped or portable)
- Stethoscope
- End Tidal Carbon Dioxide detector/monitor
- Nasogastric tubes
- PEEP Valve
- Pulse oximeter and various probes

Additional Items

- BLS and ALS algorithms
- Clock
- Staff personal protective equipment: gloves/goggles/aprons
- Audit forms
- Sharps container and clinical waste bag
- Scissors
- Alcohol wipes
- Blood sample bottles
- Blood gas syringes
- Blood glucose monitoring
- Drug labels/plain labels
- Resuscitation recording chart
- Slide sheet or other device for safe transfer

Circulation Equipment

- Biphasic defibrillator (shock advisory module and/or external pacing facility to be decided by local policy)
- Defibrillator pads: paediatric and adult
- ECG electrodes
- Selection of IV cannulae
- Intraosseous needles/drill
- Selection of syringes and needles
- Cannula fixing dressings and tapes
- Central venous catheter kit
- Intravenous infusion sets- rapid infuser
- 0.9% sodium chloride – 1000ml x 2
- Tourniquets

Drugs

First line drugs

- Adrenaline 1mg (1:10,000) x 4
- Atropine 1mg x 1
- Amiodarone 150mg ampoules x2 and 5% Glucose
- Lignocaine 100mg

Intravenous medications

- Adenosine 6mg x 10
- Adrenaline 1 mg (1:10,000) x 4
- Adrenaline 1 mg (1:1000) x 2
- Amiodarone 150mg ampoules x2
- Calcium chloride 10% 1g/10ml (6.8mmol/10ml) x1
- Diazepam 10mg/2ml
- Glucose 50% x 1
- Magnesium Sulphate 2.5g/5ml
- Midazolam 10mg
- Naloxone 400mcg x 1
- Potassium Chloride
- Propofol 200mg/20mls
- Sodium bicarbonate 8.4% 100ml x1
- Vasopressin 20units/ml

Other Medications/equipment

- Salbutamol 5mg nebulas x 2
- Ipratropium 500mcg nebulas x 2
- Nebuliser device and mask
- sublingual GTN
- Aspirin 300mg
- Frusemide

Resuscitation Equipment for Primary Care Facilities

- Oxygen mask with reservoir bag (NRB)
- Self-inflating bag valve mask system for children and adults
- Resuscitation masks for children and adults
- Oropharyngeal airways for children and adults
- Syringes and needles (various sizes)
- IV cannulae (various sizes)
- IV Fluids
- Oxygen (piped or portable)
- Suction
- Adrenaline 1mg
- Atropine 1mg
- Amiodarone 300mg
- 0.9% saline
- Tape
- Gloves
- Sharps box
- Razor
- Scissors
- Yankauer Sucker
- Suction catheters
- Automated external defibrillator with self-adhesive pads

10. Decisions relating to withholding or withdrawing cardiopulmonary resuscitation

General information is provided in this section. For an individual patient, specific information regarding decisions related to withholding or withdrawing cardiopulmonary resuscitation should be sought and recorded in line with the health service's policy. In the absence of a valid refusal of treatment certificate or an agreed resuscitation plan and when the wishes of the patient are unknown, CPR should be initiated at the emergency of cardiopulmonary arrest.

Recommendations

Do not attempt Resuscitation (DNAR) and Not for Resuscitation (NFR) orders

1. It is essential to pre-identify (a) patients for whom cardiopulmonary arrest would be an anticipated terminal event and in whom cardiopulmonary resuscitation would be inappropriate; and (b) competent patients who do not wish to be resuscitated.
2. Discussion with competent patients and with guardians of incompetent persons (e.g. person with medical power of attorney or parent of a child) should precede any establishment of a "Do not attempt resuscitation" (DNAR) or "Not for resuscitation" (NFR) order.
3. Institutions must ensure that there is a clear and explicit resuscitation plan for all patients. For some patients this may involve a DNAR/NFR decision.
4. Institutions must have a policy requiring resuscitation decisions (including DNAR/NFR decisions) to be clearly recorded and available to all clinical and managerial staff at all times. A copy must accompany the patient if transportation to another facility is required.
5. In the absence of a lawful DNAR/NFR order, a decision to withhold or withdraw CPR would be lawful when:
 - Withholding CPR is the recorded or stated informed wish of a mentally competent patient (right of refusal)
 - When no person is able to consent or refuse on behalf of an incompetent patient's whose condition indicates that attempted CPR would be unlikely to be in that person's best interests as when it would:
 - Not save life but instead would prolong the process of dying (futility)
 - When CPR would impose burdens outweighing benefits
6. The overall responsibility for a DNAR/NFR decision should rest with the most senior medical practitioner in charge of the patient's care. Apart from the wishes of the patient, the opinions of other members of the medical and nursing team, the patient's relatives (when appropriate) and other staff members may be taken into account when forming a decision.
7. The most senior available member of the medical team should enter the DNAR/NFR decision and the reasons for it in the medical records. It should also be documented whether the patient and relatives have been informed and their comments noted. If no discussion has taken place, the reasons for this should be documented. The use of a dedicated DNAR/NFR form is encouraged.
8. The DNAR/NFR decision should be communicated effectively to all members of the multidisciplinary team involved in the patient's care. It should be reviewed regularly if there are changes in the patient's condition. The decision should be documented in the medical record and handed over at each change of staff shift.

9. A decision not to attempt resuscitation applies only to CPR. It should be made clear to the patient, relatives and members of the healthcare team that this does not imply “no-treatment” and that all other treatment and care for the patient will continue to be considered and offered. Palliative care cannot be refused.
10. Institutions should provide information for staff, patients and relatives about resuscitation decisions. This can be in the form of organisational policies, patient brochures and information sheets but subject to consideration of the individual patient.

Advanced directives for limitation of life-sustaining treatment

If an advanced directive exists for an incompetent patient involving limitation of life-sustaining treatment, it must be followed. However the conditions for which such a directive may be constructed, applied or disregarded are variable according to jurisdictional laws. Healthcare providers should be aware of their jurisdictional laws related to substitute decision makers (‘person responsible’) and advanced directives. These are contained in the publication “A National Framework for Advance Care Directives” at http://www.ahmac.gov.au/cms_documents/AdvanceCareDirectives2011.pdf

11. Patient Transfer and Post-Resuscitation Care

Recommendations:

1. Immediately following Return of Spontaneous Circulation (ROSC), most patients are clinically unstable and likely to require high levels of care and admission to a critical care facility. Since facilities for the continuation of care may not be available where the cardiopulmonary arrest occurred, transport of the patient may be necessary with the use of an ambulance service and/or retrieval medical teams.
2. Coordination of care and optimal transport modality during this period is vital. Appropriate staff should be consulted prior to transfer. When appropriate, rapid referral to specialists (e.g. cardiology or intensive care) should be made. It is the responsibility of the resuscitation team leader to ensure that the transfer of care from one group of clinicians to another is efficient. The team leader should not leave the patient until this has occurred unless they have delegated care to an appropriate colleague.
3. The patient’s condition should be stabilized as far as possible before transfer, but this should not delay definitive treatment.
4. Institutions must ensure that appropriate equipment, drugs and portable monitoring devices are readily available for the safe transfer of the patient from the scene of cardiopulmonary arrest to another facility, as required.
5. Transport between healthcare facilities requires planning and liaison with the appropriate ambulance service/retrieval team in addition to the sending and receiving institutions (Australasian College for Emergency Medicine (ACEM) / Australian and New Zealand College of Anaesthetists (ANZCA) / College of Intensive Care Medicine of Australia and New Zealand (CICM), 2013).
6. Whether transport of the patient requires road, air, or sea routes, the institution must ensure that members of staff escorting the patient are insured against personal injury.
7. A patient being transferred should be accompanied by staff appropriately trained in the safe transfer of patients.

8. Relatives should be informed about the transfer of a patient but should not expect to travel with the patient.
9. Appropriate staff debriefing should be offered to all health professionals involved in the resuscitation attempt. Institutions should have the appropriate policies and procedures in place to support this practice.

12. Auditing and Reporting Standards

Recommendations:

1. To ensure a high quality resuscitation service the institution should audit:
 - The availability and use of equipment (variable frequency)
 - The availability and use of cardiopulmonary arrest and peri-arrest medications (variable frequency)
 - All cardiopulmonary arrests (The Utstein template may be used)
 - Resuscitation decisions/DNAR/NFR (each event) and of DNAR/NFR policies
 - Cardiopulmonary arrest outcomes (each event)
 - Critical incidents leading to cardiopulmonary arrest or occurring during the resuscitation attempt (each event)
 - The cleaning and decontamination of manikins (after each training session)
 - Other health and safety issues, e.g. manual handling
 - Debriefing practices
2. Institutions are encouraged to collate data and engage in relevant national audits.
3. Where audit has identified deficiencies, steps should be taken to improve performance. The resuscitation committee should receive appropriate support from the institutional executive in addressing these identified deficits.

13. Research

Recommendations

1. Healthcare institutions must collect information about their recognition and response systems for deteriorating patients and resuscitation processes, provide feedback to the clinical workforce on recognition and response systems and resuscitation processes, and track outcomes and changes in performance over time (Australian Commission on Safety and Quality in Healthcare, 2012).
2. Research is needed to improve provision and outcomes of resuscitation. Individuals who wish to further the scientific basis and clinical practice of resuscitation should be encouraged.
3. Clinical research in this area is challenging due to ethical issues as well as small populations. Individuals wishing to undertake research in resuscitation are advised to seek the advice and support of their local research ethics committees.
4. Advice and support can also be sought from the State Branches of the Australian Resuscitation Council.

14. Glossary

ALS	Advanced Life Support
APLS	Advanced Paediatric Life Support
BLS	Basic Life Support
CPR	Cardiopulmonary Resuscitation
DNAR	Do Not Attempt Resuscitation
MET	Medical Emergency Team
NFR	Not For Resuscitation
ROSC	Return of Spontaneous Circulation
AED	Automated External Defibrillator
ECG	Electrocardiography

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