



SUMMARY OF MAJOR CHANGES TO PAEDIATRIC ADVANCED LIFE SUPPORT GUIDELINES DECEMBER 2010

Recommendations for basic and advanced paediatric cardiopulmonary resuscitation (CPR) have been revised conjointly by Australian and New Zealand Resuscitation Councils. Changes aim to encourage CPR out-of-hospital by community citizens and to improve quality of CPR given by healthcare providers in-hospital and by services providing advanced resuscitation out-of-hospital.

The principal recommendations and recent changes to guidelines are the following:

- First-aid treatment of foreign body airway obstruction by back slaps and chest thrusts.
- Deletion of abdominal thrusts as first-aid treatment for foreign body airway obstruction.
- Commencement of basic life support when the victim is “unresponsive and not breathing normally”.
- Lay-persons should not be taught to attempt pulse palpation to diagnose cardiac arrest.
- Providers of advanced life support should spend no more than 10 seconds attempting to palpate a pulse. If a pulse cannot be palpated with certainty, the rescuer should commence CPR.
- Providers of basic life support should commence CPR with 30 compressions followed by a pause to deliver 2 ventilations and aim to accomplish 5 cycles (repetitions) in 2 minutes.
- Providers unwilling or unable to give ventilations should give continuous cardiac compressions at a rate of approximately 100 per minute.
- Providers of advanced life support can commence CPR with 15 chest compressions followed by 2 ventilations in a ratio of 15:2, or alternatively commence with 2 ventilations followed by 15 chest compressions, and aim to accomplish 5 cycles in 1 minute.
- The exact age at which paediatric techniques, particularly the compression-ventilation ratio, should replace those used for newborns, especially for small premature infants, is not certain. Infants whose cardiorespiratory physiology is in transition from an intra-uterine environment at birth to several hours after birth, i.e., newborns, should be managed as per neonatal guidelines 13.1-13.10 with a compression-ventilation ratio of 3:1. Infants in cardiac arrest aged more than a few hours beyond birth should be managed according to paediatric guidelines, particularly with a compression-ventilation 15:2 in the settings of pre-hospital, emergency department, paediatric wards and paediatric intensive care units. With the exception of newborns, all infants with known or suspected cardiac aetiology of cardiac arrest should be managed according to paediatric guidelines regardless of location with a compression-ventilation ratio of 15:2 if not intubated and with continuous compressions without interruption for ventilations of about 10 per minute if intubated. Infants in cardiac arrest secondary to hypoxaemia should be treated initially with positive pressure ventilation and oxygen.

- Use of automated external defibrillators (AED) out-of-hospital is encouraged
- In situations when a manual dose-controlled defibrillator is not available or cannot be used or a paediatric restricted dose AED is not available, an adult AED may be used.
- Dose-controlled manual defibrillators are preferred for use in-hospital use by providers of advanced CPR.
- Encouragement to adopt rapid response systems in hospital to prevent cardiac arrest.
- Affirmation to use initial bag-mask ventilation before tracheal intubation.
- After tracheal intubation, chest compressions should be delivered continuously at a rate of approximately 100 per minute.
- After tracheal intubation, a test to detect exhaled carbon dioxide (CO₂) should be performed immediately to exclude non-tracheal intubation. Inability to detect CO₂ should prompt an immediate verification of tracheal intubation.
- After tracheal intubation, ventilation should be restricted to approximately 10 breaths per minute.
- During CPR, end-tidal carbon dioxide should be measured by capnography to optimize compressions and ventilation. Low exhaled CO₂ (≤ 20 mmHg) should prompt a check of the adequacy of chest compressions and to exclude excessive ventilation.
- Shockable dysrhythmias (ventricular fibrillation and pulseless ventricular tachycardia) should be treated with a single DC shock at 4 joules per kilogram body weight (J/kg).
- After delivery of DC shock, CPR should be resumed immediately without waiting to re-analyse the cardiac rhythm and continued for 2 minutes. Subsequent DC shocks should be 4J/kg followed by 2 minutes of immediate CPR. Refractory dysrhythmias may be treated with higher doses of DC shock.
- Pulseless non-shockable cardiac dysrhythmias should be treated with adrenaline 10 microgram per kilogram body weight intravenously via the intraosseous route.
- Intraosseous access to the circulation is recommended if immediate intravenous access is impossible.
- The endotracheal route is an acceptable alternative for adrenaline (100 microgram/kg), atropine and lignocaine if the intravenous and intraosseous access to the circulation is impossible.
- Amiodarone is strongly favoured over lignocaine for refractory VF.
- Adrenaline is strongly favoured over atropine for severe bradycardia, asystole and pulseless electrical activity.
- If desired by family, their presence at resuscitation of their child is encouraged.
- Therapeutic hypothermia is acceptable after resuscitation to improve neurological outcome.
- Extracorporeal circulatory support for in-hospital cardiac arrest may be used in equipped centres.