



SUMMARY OF MAJOR CHANGES TO ADVANCED LIFE SUPPORT GUIDELINES DECEMBER 2010

In December 2010 the New Zealand Resuscitation Council and Australian Resuscitation Council published their combined and updated ALS guidelines. These revised evidence based guidelines incorporate the published literature including the evidence evaluated as part of the international evidence consensus process (published in October 2010).

The main changes in these guidelines are outlined below, grouped according to the relevant guideline.

Guideline 11.1: Introduction to Advanced Life Support

Increased emphasis on:

- Monitoring the effectiveness of compressions, adequacy of ventilation and quality of CPR and timing of defibrillation
- The early detection and prevention of cardiac arrest in the pre-hospital and in-hospital settings

Guideline 11.1.1: CPR for ALS Providers

- CPR to commence with chest compressions rather than ventilation
- Use the combination of unresponsiveness and absent or abnormal breathing (because agonal gasps may continue despite cardiac arrest) to identify cardiac arrest.
- Depth of compression increased to > 5 cm ("with insufficient evidence to recommend a specific upper limit for chest compression depth"), but still using a target of 1/3 of the Antero-Posterior chest diameter
- Chest compression rate remains at "approximately 100/min", but states that there is no evidence that a compression rate over 120 / minute offers any advantage
- Use of waveform capnography to confirm ETT placement, monitor quality of CPR, and to provide early indication of ROSC
- Simultaneous compressions and breaths are to be avoided
- Ventilation during cardiac arrest with LMA may require 15:1 or 30:2 to deliver effective breaths
- CPR prompt /feedback devices may be considered for clinical use as part of an overall strategy to improve the quality of CPR. Instructors and rescuers should be made aware that a compressible support surface (eg, mattress) may cause a feedback device to overestimate depth of compression.
- When using a defibrillator in manual mode, it is safe to charge the defibrillator while chest compressions continue in preparation for rhythm analysis and possible defibrillation

Increased emphasis on:

- High-quality chest compressions with minimal interruptions
- Fallibility of pulse check even in the hands of clinicians

Guideline 11.2: Protocols for Adult Advanced Life Support (inc ALS Flowchart)

- New co-badged ALS flow chart, designed to be easier to follow, and to increase the awareness of the importance of post-resuscitation care.
- Only single shocks are recommended (stacked shocks considered only in specific “special circumstances”)
- Continuing compressions during defibrillator charging to minimise interruptions
- Adrenaline still recommended at same points in the arrest
 - non-shockable rhythm: 1 mg immediately for non-shockable rhythms then every 3–5 min: “alternate cycles of CPR”
 - shockable rhythms (VF/VT): 1 mg after the second shock then every 3–5 min: “alternate cycles of CPR”.
 - Timing of drug administration now recommended to be “at the time of recommencement of CPR”.
- Amiodarone 300mg is still recommended after the third shock, but timing of drug administration now recommended to be “at the time of recommencement of CPR”.
- Atropine is no longer recommended for routine use for cardiac arrests due to asystole or PEA.

Reiterated emphasis on:

- Quality CPR with minimal interruptions to chest compressions
- Monophasic defibrillation: to use 360 joules for all shocks
- Biphasic defibrillation: to use 200 joules for all shocks unless clinical evidence of other energy level for a specific device
- Use of AEDs to facilitate early in-hospital defibrillation

Guideline 11.3: Precordial thump and fist pacing

- The precordial thump is no longer recommended for VF
- It may be considered for patients with monitored, pulseless ventricular tachycardia if a defibrillator is not immediately available.

Guideline 11.4: Electrical therapy for Adult Advanced Life Support

- For defibrillation when using biphasic defibrillators, self-adhesive defibrillation pads are safe and effective and offer advantages (eg. facilitating pacing, charging during compressions, safety [including removing risk of fires]) over defibrillation paddles.
- Single (non-stacked) shocks are recommended (as for 11.2 above).
- CPR should be continued during charging of the defibrillator, and CPR should not be interrupted until rhythm reanalysis is undertaken (as for 11.2 above)

Reiterated:

- Monophasic defibrillation: to use 360 joules for all shocks (as for 11.2 above)
- Biphasic defibrillation: to use 200 joules for all shocks unless clinical evidence of other energy level for a specific device (as for 11.2 above)

Guideline 11.5: Medications in Adult Advanced Life Support

- Drug administration via IV or intra-osseous route, with the endotracheal route de-emphasised.
- Adrenaline and amiodarone as for 11.2 above.
- Other drugs not recommended for routine use, but may have value for other specific reversible causes.

Guideline 11.6: Equipment and Techniques in Adult Advanced Life Support

- Decreased emphasis on the role of early tracheal intubation.
- A supraglottic airway device may be considered by healthcare professionals trained in its use as an alternative to bag-mask ventilation during cardiopulmonary resuscitation, or for definitive airway management during cardiac arrest and as a backup or rescue airway in a difficult or failed tracheal intubation.
- Waveform capnography is recommended to confirm and continuously monitor the position of a tracheal tube in victims of cardiac arrest and it should be used in addition to clinical assessment (auscultation and direct visualization is suggested). It is also recommended to confirm and continually monitor tracheal tube placement, quality of CPR, and to provide early indication of ROSC.
- Potential role of CPR prompt devices to monitor and improve quality of CPR (as for 11.1.1 above).
- Increased role of investigations (including intra-arrest ultrasound) to assist in detection of potentially reversible causes.
- Routine use of pacing (fist and electrical) not recommended in asystolic cardiac arrest (apart from special circumstances)

Guideline 11.7: Post Resuscitation Therapy in Adult Advanced Life Support

- Recommendation for the introduction of a comprehensive post-resuscitation treatment protocol for the management of patients after cardiac arrest.

Specific changes include:

- Avoid hyperoxaemia after ROSC; titrate oxygen to SaO₂ 94–98%
- Primary percutaneous coronary intervention in appropriate patients with sustained ROSC (including those comatose and cooled)
- Glucose control to treat hyperglycaemia (> 10mmol/L) and avoid hypoglycaemia.
- More emphasis on identifying underlying cause or associated injuries, and managing them accordingly
- More acute awareness of the limitations of the traditional tools used for prognostication after cardiac arrest (especially after therapeutic hypothermia)

Guideline 11.8: Therapeutic Hypothermia after Cardiac Arrest

Reiterated:

- Recommendation for routine use of therapeutic hypothermia for comatose survivors of out-of-hospital cardiac arrest due to ventricular fibrillation
- Consideration of routine use of therapeutic hypothermia for comatose survivors of cardiac arrest of any rhythm for in and out-of-hospital cardiac arrest irrespective of aetiology.