Basic Life Support
(Summary)

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The Chain of Survival

Rapid Recognition and Response to Cardiac Arrest

If cardiac arrest occurs it is important that Cardiopulmonary Resuscitation is commenced as soon as possible. This is the second link in the **Chain of Survival.**

In the hospital it is **essential that:**

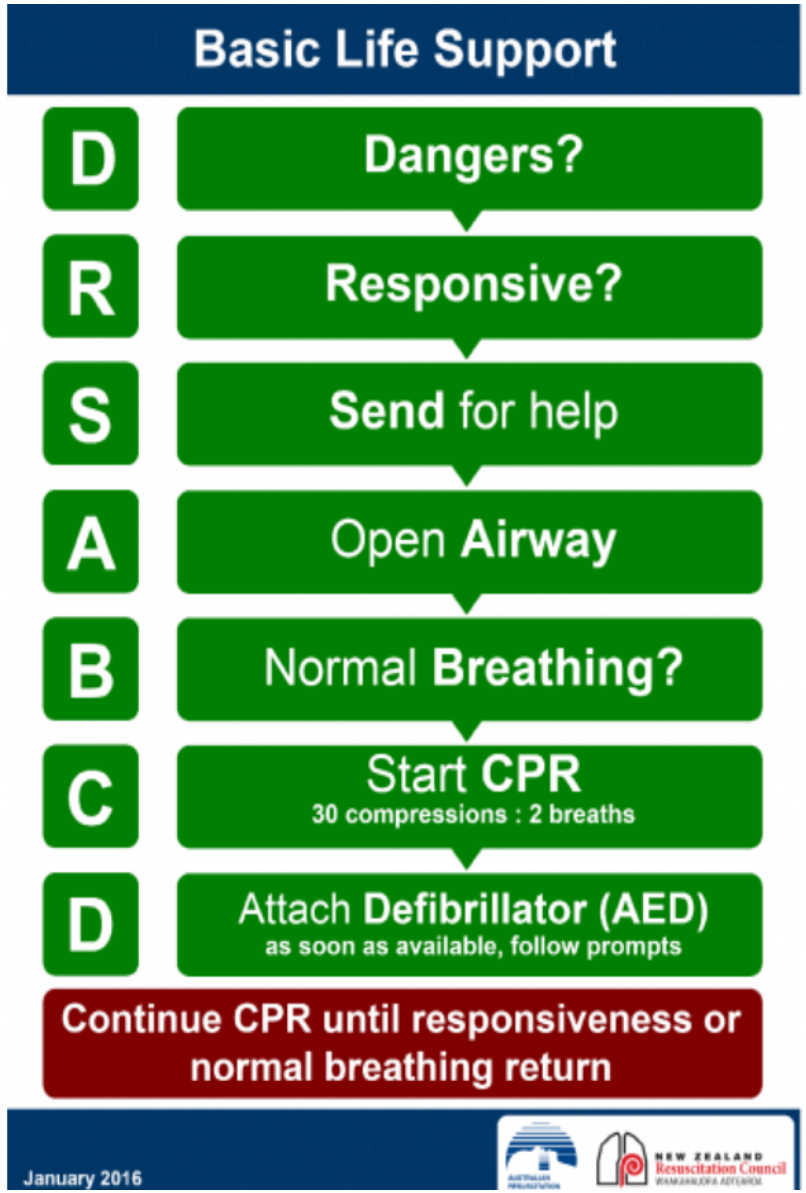
- Cardiopulmonary arrest is recognised immediately.
- Assistance from those near by and from the arrest (emergency) Team is summoned without delay.
- Cardiopulmonary Resuscitation is commenced immediately and defibrillation is attempted as soon as the defibrillator is available. This may be via an AED or with the manual defibrillator (trained staff only).

The most important interventions that improve survival after cardiac arrest are:

1. *early and uninterrupted high quality cardiac compressions, and*
2. *early defibrillation for ventricular fibrillation / pulseless ventricular tachycardia (ANZCOR, 2016).*

ANZCOR 2016

Basic Life Support Algorithm



BLS - DRSABCD

Danger

Rescuer safety, the patient's safety and the safety of others is the first priority in any resuscitation attempt.

Consider personal protective equipment as appropriate (e.g. gloves)

Assess the situation / environment for any dangers:

- Body fluid exposure risk (blood, secretions etc.)
- Infection risks.
- Electrical live wires
- Wet floors, tripping hazards etc.
- Sharps risk

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Response

Check the patient for a response

- Once met with a collapsed patient, it is important to elicit responsiveness to verbal and physical stimulation - call the patient loudly and squeeze the shoulders or perform trapezium pinch. *(DO NOT SHAKE THE patient)*

- If the patient *is* ***responsive***, proceed to **ABCDE** assessment.

- Position the patient to prevent further injury - sitting / lying depending on his / her conscious state.

- If patient ***unresponsive***, call for assistance immediately as per local policy. Position the patient flat on their back and continue with **DRSABCD** algorithm.

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Send for help

- In hospital, call for local help (emergency button) and activate the Code Blue as per local policy
- Outside hospital Dial 111.
- Do not leave the patient to get help unless absolutely necessary.

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Second Responder

The second responder to the cardiac arrest has several responsibilities. These include:

1. Assist **with** CPR and documentation

2. Ensure escalation process (as per hospital local policy) Code Blue / Arrest Team or 111 is followed.

3. Collect the Emergency Resuscitation equipment (Emergency Cart and defibrillator)

4. Attach the Defibrillator as soon as possible - for AEDs, follow voice prompts

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Other Responders

1. Assist with CPR and documentation (e.g. nominate a person to scribe)

2. De-clutter the area so there is space when the Code Blue/ Arrest Team arrives

3. Collect the patient's notes and any necessary equipment

4. *Remove* / support other patients / visitors that may be in the area.

5. Follow the directions of the Code Blue/ Arrest Team Leader and ward shift coordinator

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Airway

- Check if the airway is clear. Remove any obvious foreign bodies (loose teeth, ill-fitting dentures, food, secretions etc.) with a gloved hand or suction. It is not necessary to roll the patients onto their side. Turn their head to the side if required to drain any secretions. Well-fitting dentures should be left in-situ to ensure a good seal when ventilating with a face mask.

- For adults, older children (>8 years) and young children (1-8 years), open the airway using head tilt and chin lift (if there is risk of cervical spine injury use a jaw thrust instead).

- For infants (< 1 year) the head is kept in *neutral position* and only the lower jaw support is given at the point of the chin, with the mouth open.

Management of
Foreign Body Airway Obstruction

Airway obstruction may be present in a conscious or unconscious patients and it may be partial or complete.

In all situations it is important that the victim is continually observed and assessed because a partial obstruction in a conscious patient may quickly deteriorate to complete obstruction.

Airway obstruction is a life threatening emergency and should be managed promptly.

Management of
Foreign Body Airway Obstruction

In a Conscious Patient

- If the patient is able to cough, the patient should be reassured and *encouraged to cough* until the foreign body is expelled.
- In severe / complete airway obstruction where the patient is unable to cough or expel the foreign body, 5 back blows followed by 5 chest thrusts are used to assist with clearing an obstructed airway of a *conscious adult*. The aim of the back blows or chest thrusts is to clear the obstruction with each maneuver rather than delivering several consecutive blows or chest thrusts. Therefore it is important to access the effectiveness of each maneuver prior to initiating the next one. An infant may be placed head downwards on the rescuer's lap or thigh to perform the back blows and chest thrusts.

In an Unconscious Patient

- Suction or a gloved finger sweep may be utilised if solid foreign material is visible in the airway. Chest compressions (to increase intra thoracic pressure) and rescue breaths are commenced till help arrives or foreign body expelled and patient resumes breathing.

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Breathing

- While *maintaining* an open airway assess the patient's breathing - Look, Listen and Feel for NORMAL BREATHING (Take up to 10 seconds only)

  LOOK for rise and fall of the chest

  LISTEN for breath sounds

  FEEL for air movement on your cheek from the patient's nose & mouth.

- If the patient is unconscious but breathing normally, position him /her in a lateral (recovery) position and support the airway.

- *All rescuers, including health care professionals, should use unresponsiveness and absence* of *normal breathing* as an *indication to start CPR. Palpation* of a *pulse is unreliable and should not be performed* to *confirm the need for resuscitation (*ANZCOR Guideline 6, 2016)

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Compressions

- Position patient flat on their back on a firm background. Pregnant women should be positioned on their back with a small pillow positioned under their right hip (slight left lateral position) to relieve pressure on the vena cava and help venous return.

- Kneel next to the patient (if they are on the floor) or position yourself next to or on the bed.

- For adults and older child (over 8 years, size dependent): place heel of one hand on the *lower half of the sternum*.

- Position your second hand on top of the first and interlock your fingers. With arms straight and shoulders directly over the patient's chest, compress the chest straight down to a depth of *1/3* of the patient's chest. This is about 5-6 cm in adults and the older child.

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Compressions

- In a young child (1-8 years, size dependent): same as for an adult but 1 or 2 hands may be used to compress *1/3* depth of chest, approximately 5 cm.
- In infants (less than 12 months) - use the two finger technique with a compression depth of 4 cm (Chest encircling technique may be used instead).
- Compression rate *for all ages* is 100 - 120 compressions per minute
- Allow the chest to recoil after each compression (to assist refilling of the heart).
- Minimise interruptions to compressions.

Providers should swap every 2 minutes to be able to maintain effective compressions without exhaustion.

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Cardio-Pulmonary Resuscitation (CPR)

- Once cardiac compressions are commenced assisted ventilation will also be required.

- Compressions and assisted ventilations are delivered at a rate of **30 chest compressions to 2 breaths** for all ages (excluding younger children & infants which is **15:2**) (ANZCOR 2016 BLS Guidelines).

- **For newborns:** Assisted ventilation is delivered at a rate of 1 **breath** every 3 **chest compressions** (ANZCOR 2016 Guidelines).

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Cardio-Pulmonary Resuscitation (CPR)

- Each assisted breath should be delivered with **sufficient pressure */* volume to provide a visible rise of the chest only.** This means the ventilation volume for an adult will differ from that of a child.

- Leave sufficient time between breaths for patient exhalation.

- Use a pocket mask (if available) or a bag-valve-mask (by trained staff) connected to 10-15 l/ min of oxygen to deliver breaths. No hospital employee is expected to perform mouth to mouth ventilation.

- **Chest compressions** should be briefly **stopped (up to 5 seconds only)** while assisted breaths are given. It is not necessary to pause for breaths once the patient is intubated, or a laryngeal mask (adults only) without an audible air leak, is in place.

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Cardio-Pulmonary Resuscitation (CPR)

- Minimise interruptions to chest compressions. CPR should not be interrupted to check for response or breathing.

- Continue cardiopulmonary resuscitation until the patient shows signs of life (responds or begins to breathe normally), you are relieved or you are instructed to stop by the resuscitation team.

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Defibrillation

Early Defibrillation is essential

- Ensure environment is safe prior to attaching defibrillator - dry and shave chest as necessary
- Attach defibrillator (AED) as soon as possible and follow its prompts.
- Do not delay attaching defibrillator while awaiting Code Blue/ Arrest Team
- The adhesive defibrillation pads are applied as per instructions on packaging.
- To allow effective application, roll pads onto patient's chest to minimise air trapping beneath
- Do not place pads directly over implanted devices (e.g. pacemakers and internal defibrillators), ECG dots, or medication patches
- The defibrillation pads should be positioned at least 3 cm apart from each other

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AED Defibrillation

Once the AED is switched on, follow the automated directions delivered by the AED.

- **If** the AED states shock is advised, and the patient is rousing / semi-conscious - DO NOT shock the patient. Disarm the AED by turning the AED off. A conscious patient must never be defibrillated.

- **If** the AED instructs to deliver a shock, you must clearly warn all persons present to **"stand clear"** and you must perform a visual check to ensure all persons are not in contact with the patient, or the bed, prior to the shock being delivered.

- Any oxygen in use must be moved at least 1 m away from the patient's chest prior to the shock being delivered.

- **Please note:** If an AED is being used, cardiac compressions must be stopped so that the AED is able to analyse the cardiac rhythm. Follow the voice prompts provided by the AED.

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Manual Defibrillation

- Defibrillator pads are applied while chest compressions continue. Manual defibrillator operator (Trained ALS provider ONLY) says:
  "Continue Compressions"
  "Oxygen and Others away"
  "I am Charging"

- Trained Manual Defibrillator Operator charges the defibrillator and performs a safety check to ensure all staff (except for person doing compressions) are clear of the patient & bed. The oxygen delivery system (excluding a closed circuit) must be moved to at least 1 meter away from the patient's chest.

- <u>Once the defibrillator is *charged:*</u>
  1. Defibrillator operator says: "Hands Off"
  2. The person performing the cardiac compressions moves away

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Manual Defibrillation

3. Defibrillator operator performs another quick safety check, ensuring no one is touching the patient or bed etc.

4. Team Leader/ Defibrillator operator checks the cardiac rhythm and states whether the rhythm is "**Shockable or Non-shockable**".

5. If there is a shockable rhythm : VT(unconscious) or VF - shock is delivered. Once delivered they state "recommence **CPR"** and CPR is performed for a further 2 minutes. This is done regardless of the effect of the defibrillation (unless the patient starts to wake up).

6. If there is a non shockable rhythm - defibrillator charge is dumped/ disarmed. If the rhythm is an organised rhythm, the Team Leader or Defibrillator operator may wish to assess for a pulse for up to 10 seconds. If no pulse is felt, they will state "recommence **CPR"** and CPR is performed for a further 2 minutes. The cycle is then repeated.

BLS

Post Resuscitation Care

The primary aim of resuscitation is the Return of Spontaneous Circulation (ROSC) and to achieve normal cerebral function, a stable cardiac rhythm and normal haemodynamic function.

ROSC may occur before the Code Blue/ Arrest Team arrives. If this occurs it is important to continue to provide care that will support the patient until they are transferred to a high care area for additional treatment. Ongoing supportive care is provided according to the ABCDE approach.

A: Airway

B: Breathing

C: Circulation

D: Disability

E : Exposure

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Patient Transfer

- Once the patient is stabilised they may need to be transferred to a critical care area such as ICU, CCU, theatres or to an external facility.

- The decision to transfer is made by the attending Medical Officer, in consultation with the admitting Medical Officer. The Hospital Coordinator is responsible for arranging the bed availability and staffing.

- The transfer of this critically ill patient must be carefully planned and coordinated to ensure maximum safety for the patient. The patient must be reassessed immediately prior to the transfer to ensure the stability of their condition and readiness to be moved.

- Portable *oxygen*, *suction*, a *defibrillator* and continuous *monitoring* must be in place prior to the transfer. The nurse accompanying the patient on the transfer must be competent in the use of this equipment.

- All cannulae, catheters, tubes and drains etc. must be carefully secured prior to transfer and they should be monitored on route.

Documentation

It is important that the circumstances of the incident and the treatment administered are clearly documented and a thorough Clinical Bedside Handover is given to the staff in the critical care area.

Ensure your local Emergency Collection Data Sheet has been completed, and the incident has been documented in the patient's progress notes.

Ensure all Code Blue/ Rapid Response Team events are reported as per protocol.

After the event

Debrief

It is important that the staff involved in the cardiac arrest are given the opportunity to reflect and debrief about the situation.

This will assist the staff to cope with the emotions of this difficult situation and to also learn from the experience.

This may be a formal or informal session, depending on the needs of the individual staff members. The timing of this debrief will be situation dependent.

Positive and constructive feedback to the staff is imperative to ensure the ongoing development, knowledge and skills of the staff as well as providing for their ongoing wellbeing.