Basic Life Support And Defibrillation

Relates to HLT404C Apply Advanced Resuscitation Techniques
Advanced Life Support
Module 2
Basic Life Support
And Defibrillation

Relates to HLT404C Apply Advanced Resuscitation Techniques
Objectives

• Explain the steps of Basic Life Support (BLS) - DRSABCD
• Discuss the components of the Basic Life Support Algorithm
• List steps for using Automatic External Defibrillator (AED) and/or Semi Automatic External Defibrillator (SAED) and safety precautions
• Describe post resuscitation process
“Cardiopulmonary resuscitation is the technique of chest compressions combined with rescue breathing. The purpose of cardiopulmonary resuscitation is to temporarily maintain a circulation sufficient to preserve brain function until specialised treatment is available.”

ARC Guideline 8, December 2010
# BASIC LIFE SUPPORT

<table>
<thead>
<tr>
<th>D</th>
<th>Danger</th>
<th>Self, Others, Casualty</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Response</td>
<td>Shout and Squeeze</td>
</tr>
<tr>
<td>S</td>
<td>Send for help</td>
<td>Get assistance</td>
</tr>
<tr>
<td>A</td>
<td>Airway</td>
<td>Open airway and check</td>
</tr>
<tr>
<td>B</td>
<td>Breathing</td>
<td>Not breathing - commence compressions</td>
</tr>
<tr>
<td></td>
<td>Check for signs of life - breathing, movement, consciousness, responsiveness</td>
<td></td>
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<tr>
<td>C</td>
<td>Compressions</td>
<td>30 compressions : 2 Breaths</td>
</tr>
<tr>
<td>D</td>
<td>Defibrillation</td>
<td>Apply as soon as available</td>
</tr>
</tbody>
</table>
CHECK FOR DANGER

Check for danger to yourself and to the patient

Remember your PPE
Grasp and squeeze the shoulders and shout loudly.

COWS acronym

C  - “Can you hear me”
O  - “Open your eyes”
W  - “What is your name”
S  - “Squeeze my hands”
Send for Help

Send/Call for help
Call first – 000 or 112 for mobile if out in the community.
If in your health service/hospital, check your local process for calling for assistance
If a second person is present ask them to call for ambulance or extra help
AIRWAY

Airway management is required to provide an open airway when the victim:

• Is unconscious
• Has an obstructed airway
• Needs rescue breathing

The techniques most commonly used are Backward Head Tilt in combination with Chin Lift.
Open Airway

- Place hand on forehead
- Place fingertips under the point of the chin
- Gently tilt head back and lift the chin to open the airway
- Remove any visible objects using suction catheters and equipment
- Check for normal breathing and responsiveness
- If neck injury suspected – use "jaw thrust"
CLINICAL TIP
The most common cause of airway obstruction is the tongue so a good chin lift or jaw thrust is required.
Choking

Partial Obstruction

• Noisy, coughing, difficulty breathing
• Encourage them to cough

Total Obstruction

• Silent, grasping at throat
• 5 Back blows, 5 Chest thrusts
• Possible CPR
Choking Flow Chart

Assess Severity

Severe airway obstruction

Ineffective Cough

Unconscious
- Call ambulance (000)
- Commence CPR

Conscious
- Call ambulance (000)
- Give up to 5 back blows
  
  If not effective
  - Give up to 5 chest thrusts

Effective Cough

Mild airway obstruction

Encourage coughing
- Continue to check victim until recovery or deterioration
- Call ambulance (000)
BREATHING

Keep airway open and check for normal breathing

Look  Is the chest rising?

Listen  Can you hear the sounds of normal breathing?

Feel  Is there air against your cheek?
BREATHING

If the casualty **IS** breathing normally

- Place them on their side (as they are unconscious and breathing)
- Continue to look at their airway and breathing while you continue with primary and secondary survey
- Apply oxygen therapy if on hand

If the casualty is **NOT** breathing normally

- Place them on their back
- Commence chest compressions followed by 2 rescue breaths
BREATHING

CLINICAL TIP

If chest does not rise and fall, check and reposition head tilt and chin lift and try another 2 breaths
A compression/ventilation ratio of 30:2 for all (adults, children and infants) has been chosen for the following reasons:

- Increase number of compressions
- Minimise the interruptions to compressions
- Prevent excessive ventilations
- Maximise knowledge retention
- Maintain international consistency
COMPRESSIONS

• Find the lower half of the sternum - “Centre of the chest”
• Place the heel of your dominant hand on this location
• Keep arms straight and shoulders over the casualty’s sternum
• Depress the sternum one third the depth of the chest
COMPRESSIONS

• Keep the heel of the hand in contact with the lower half of the sternum
• Give 30 compressions at approximately 2 compressions per second (100/min)
• Then tilt the casualty’s head back, lift the chin and give 2 breaths
COMPRESSIONS

CLINICAL TIP

Chest compressions must be adequate to produce a palpable pulse during resuscitation.

30 compressions : 2 rescue breaths
Child - One hand

Infant – 2 fingers

Pregnancy
<table>
<thead>
<tr>
<th></th>
<th>Adults/Children</th>
<th>Infants (28 days-1 yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Tilt</td>
<td>FULL</td>
<td>NEUTRAL</td>
</tr>
<tr>
<td>Hand Placement</td>
<td>CENTRE OF CHEST</td>
<td>CENTRE OF CHEST</td>
</tr>
<tr>
<td>Ratio</td>
<td>30:2</td>
<td>30:2</td>
</tr>
<tr>
<td>Compression Depth</td>
<td>1/3 OF CHEST</td>
<td>1/3 OF CHEST</td>
</tr>
<tr>
<td>Technique</td>
<td>2 HANDS ADULT 1 HAND CHILD</td>
<td>2 FINGERS</td>
</tr>
</tbody>
</table>
DEFIBRILLATION

‘ Produces simultaneous depolarisation of a mass of myocardial cells and may enable resumption of organised electrical activity.’

ARC Guidelines 11.4 Dec 2010
DEFIBRILLATION

An automated external defibrillator (AED) is a portable electronic device that automatically diagnoses the potentially life threatening cardiac arrhythmias of ventricular fibrillation and ventricular tachycardia and delivers the shock if indicated.

An “semi automatic” or “shock advisory” external defibrillator (SAED) is as above but if the shock is indicated, the operator must initiate the shock.
DEFIBRILLATION

Safety Precautions

• AVOID charging the paddles unless they are placed on the victim’s chest

• AVOID placing the defibrillator paddles/pads over ECG electrodes (risk of burns or sparks), ECG leads (may melt), medication patches, an implanted device (e.g. a pacemaker), a central line insertion site

• AVOID having, or allowing any person to have, any direct or indirect contact with the victim during defibrillation (a shock may be received)
DEFIBRILLATION

Safety Precautions (Continued…)

• AVOID having the victim in contact with metal fixtures e.g. bed rails (risk of burn)
• AVOID delivering the shock with a gap between the paddle/pad and chest wall (spark hazard)
• AVOID allowing oxygen from a resuscitator to flow onto the victim’s chest during delivery of the shock (risk of fire).
DEFIBRILLATION

NOTE

Each health care setting will have different equipment so please become familiar with the one in your setting.
DEFIBRILLATION

For an AED

- Continue CPR with minimal interruption
- Apply pads/paddles to the patient’s chest. Remembering the special precautions.
- Turn the machine on. All movement (CPR) should cease while the AED is in analysing mode.
- Call out loudly ‘stand clear’ and simultaneously Perform 360° visual check to ensure no one is touching patient. Ensure patient is not in contact with metal objects.
DEFIBRILLATION

For an AED (Continued...)

- Remove Oxygen from patient.
- Defibrillate if indicated by pushing the shock button either visual or an audible prompt to “shock” the patient.
- Check that the victim has a motor response to the shock indicating delivery of the charge.
- Continue BLS measures and repeat as prompted by the AED.
DEFIBRILLATION

For a SAED

• Continue CPR with minimal interruption
• Apply pads/paddles to the patient’s chest. Remembering the special precautions.
• Turn the machine on, making sure that it is NOT in ‘synchronous’ mode
• Select voltage (Adults) - if applicable
  • Biphasic - shock at 200j, 200j, 200j
  • Monophasic - shock at 360j, 360j, 360j
• Select voltage (Paeds) - if applicable
  • Biphasic or Monophasic - shock at 4j, 4j, 4j
DEFIBRILLATION
For a SAED (continued…)

- Assess rhythm and charge the defibrillator. SAED will automatically start to analyse once turn on and will start to charge if it a ‘shockable’ rhythm
- Call out loudly ‘**stand clear**’ and simultaneously Perform 360° visual check to ensure no one is touching patient. Ensure patient is not in contact with metal objects.
- Remove $O_2$ from patient.
- Recheck rhythm
DEFIBRILLATION

For a SAED (Continued...)

• Press the shock button if using pads or apply firm pressure to the paddles whilst depressing the discharge buttons simultaneously.

• Check that the patient has had a motor response to the shock delivered.

• Assess patient and rhythm.

• Refer to ARC guidelines for witnessed and unwitnessed arrest [http://www.resus.org.au/](http://www.resus.org.au/)
DEFIBRILLATION

CLINICAL TIP
Maybe used on children aged 1-8 years. But always use paediatric paddles/pads and follow the paediatric ARC guidelines.
CONTINUE BLS

• Until signs of life return
• Ambulance/paramedics or medical staff take over
• An authorized person pronounces the casualty deceased
• You become physically exhausted and can no longer continue
• If it becomes unsafe for you to continue
POST RESUSCITATION CARE

After the Return Of a Spontaneous Circulation (ROSC), resuscitation DOES NOT STOP.
It is essential to continue maintenance of airway, breathing and circulation.

ROSC is just the first step toward the goal of complete recovery from cardiac arrest. Interventions in the post-resuscitation period are likely to significantly influence the final outcome, yet there is relatively little data relating to this phase.
The aims of therapy after initial resuscitation are to:

- Continue respiratory support
- Maintain cerebral perfusion
- Treat and prevent cardiac arrhythmias
- Determine and treat the cause of the arrest
POST RESUSCITATION

• Ensure that equipment is cleaned, discarded, disinfected, replenished and recharged in accordance with organisation procedures and manufacturer's instructions i.e. suction equipment and AED instructions

• Diagnose and deal with minor and/or major faults within the scope of organisation procedures and manufacturer's instructions
Next Steps