Paediatric Basic Life Support

Learning Package

Community and Oral Health

Developed: September 2019

Review: September 2022
Introduction

This learning package outlines the knowledge and skills required to perform Paediatric Basic Life Support (BLS) within Community and Oral Health (COH). This learning package is to be used as an adjunct to the Basic Life Support (BLS) learning package.

As per the recommendations outlined in Standard 9.6.1 of the National Safety and Quality Health Service Standards and mandated by the MNHHS Legislative, Mandatory and Requisite Skills overarching policies, Clinical Staff (those involved in direct paediatric patient care) are required to be trained and proficient in performing Paediatric BLS\(^{10}\).

This learning package is a learning resource to support the theory assessment of Paediatric BLS. Online assessment via iLearn is to be completed and passed prior to attending practical assessment.

Learning Objectives

- Demonstrate competence in Paediatric BLS techniques and use of the Automatic External Defibrillation (AED) safely
- Identify the differences between Paediatric BLS and BLS

Overview

- Theory Assessment –iLearn “COH Paediatric Basic Life Support” – to be completed prior to practical assessment
- Practical assessment
- Practical assessment can only be facilitated by a Paediatric BLS Instructor - please contact your Education team for Paediatric BLS Instructors.
Definitions
The Australian Resuscitation Council provides the following definitions:

Basic Life Support
“The preservation of life by the initial establishment of, and/or maintenance of, airway, breathing, circulation and related emergency care, including use of an AED."  

Cardiopulmonary Resuscitation (CPR)
“Cardiopulmonary Resuscitation (CPR) is the technique of chest compressions combined with rescue breathing.”

Children and Infants
“ Definitions of ‘infant’ and ‘child’ are based on combinations of physiology, age and physical size which influence the efficacy and practicality of performing resuscitative techniques.”

An infant is defined as younger than one year  
A child is one to eight years of age  
An older child is nine to fourteen years of age

Recognising and responding to acute deterioration
The National Safety and Quality Health Service Standard 8 intention is to “… ensure that a person’s acute deterioration is recognised promptly and appropriate action is taken.”

Early identification of deterioration may improve outcomes and lessen the intervention required to stabilise patients whose condition deteriorates in hospital.

In children, a period of recognisable deterioration often occurs prior to cardio-respiratory arrest. If deterioration is recognised early, cardio-respiratory arrest may be prevented.
Cardiopulmonary Resuscitation (CPR)

1. Early, high quality CPR saves lives. CPR should commence for presumed cardiac arrest without concerns of harm to persons not in cardiac arrest.
2. Compression to ventilation ratio of 30:2 for all ages. Pause compressions for ventilation.
3. DRSAABCD should be adopted for initial resuscitation.
4. Chest compressions should be performed on all persons who are unresponsive and not breathing normally.
5. Chest compressions should be at a rate of 100-120/min.
6. Breaths should be given by all those trained and willing to do so.
7. Minimise interruptions to chest compressions – do not pause to check breathing or response.

Paediatric differences

1. Weight
2. Anatomy and Physiology

Figure 1: Summary of significant upper airway anatomy

Source: Samuels & Wieteska
Basic Life Support

D
Dangers?

R
Responsive?

S
Send for help

A
Open Airway

B
Normal Breathing?

C
Start CPR
30 compressions : 2 breaths

D
Attach Defibrillator (AED)
as soon as available, follow prompts

Continue CPR until responsiveness or normal breathing return

"Any Attempt at Resuscitation is Better Than No Attempt"
Basic Life Support

D Check for DANGER – Quickly assess the situation
- Ensure safety for the rescuer, person in need and bystanders
- Assess area for hazards and safety risks
- Don personal protective equipment (PPE)
- Minimise clutter

R Check RESPONSE to verbal and tactile stimuli (“talk and touch”)
- Firmly place your hand on persons chest and give a simple command (eg. "open your eyes; squeeze my hand")
- If no response – elicit pressure to the trapezius muscle by grasping and squeezing the shoulders firmly
- Failure to respond or minor response, such as groaning without eye opening, should be managed as if unconscious

S SEND for Help
- Alert fellow staff to “CODE BLUE”
- Call QAS by dialling “0” for outside line, then dialling “000” – Use ISBAR for handover
- Second rescuer arrives bringing available emergency equipment and notifies QAS

A Establish AIRWAY

CLEAR
- Open mouth and turn head slightly downwards to allow any obvious foreign material to drain.
- Remove loose dentures
- Remove visible materials using rescuer’s fingers.
- If airway is or becomes obstructed, regurgitation or vomiting occurs, roll person onto their side to clear airway

OPEN
- Head tilt/chin lift
  ➢ place one hand on forehead or top of head
  ➢ Use other hand to provide chin lift

Suggested technique is to place thumb over chin below the lip and support the tip of the jaw with the middle finger and index finger lying along the jaw line. Be careful ring finger does not squash the soft tissues of the neck. Hold jaw open slightly pulling it away from the chest.
Children

Children should be managed as for adults.  

Infants

The upper airway is easily obstructed because of the narrow nasal passages, the entrance to the windpipe (vocal cords) and the trachea (windpipe). The trachea is soft and pliable and may be distorted by excessive backward head tilt or jaw thrust. Therefore, in an infant the head should be kept neutral and maximum head tilt should not be used.

The lower jaw should be supported at the point of the chin while keeping the mouth open. There must be no pressure on the soft tissues of the neck. If these manoeuvres do not provide a clear airway, the head may be tilted backwards very slightly with a gentle movement.  

Foreign Body Airway Obstruction

Choking is a life-threatening emergency. Chest thrusts and back blows are effective to relieve foreign body airway obstruction in adults and children.  

B Assess for BREATHING

LOOK for movement of the upper abdomen or lower chest
LISTEN for the escape of air from nose and mouth
FEEL for movement of air at the mouth and nose  

“If the unconscious person is unresponsive and not breathing normally after the airway has been opened and cleared, the rescuer must immediately begin chest compressions and then rescue breathing.”

Unconscious people who are breathing normally should be managed in lateral, side-lying recovery position.
C Commence **COMPRESSIONS**

**LOCATE** the site for chest compressions
- Lower half of the sternum

**METHOD**
- Place heel of hand in centre of chest with other hand on top
- Shoulders directly over person’s sternum
- Arms straight
- Avoid leaning on the chest
- Depression to one third dept of chest with each compression
- Compression rate of 100-120 per minute
- Allow full recoil of the chest between chest
- Change rescuers every two minutes
- Minimise interruptions

**Children**

Either a one or two hand technique can be used for performing chest compressions in children.

**Infants**

The two finger technique should be used by lay rescuers in order to minimise transfer time from compression to ventilation.

**Cardiopulmonary Resuscitation**  

30:2
Minimise Interruptions

Rescue breathing to be provided only if equipment is available to do so safely.  

Positioning of disposable Bag-Valve Mask

Top landmark – edge of plastic seal on the top of the mask should extend to the bridge of the nose
Lower landmark – edge of plastic seal on the bottom of the mask should extend to the cleft of the chin

Older Children and Adults

1000ml reservoir with 15L/min if Oxygen available

Infants and Children

500ml reservoir with 15L/min if oxygen available

NOTE chest rise when delivering ventilation

Second rescuer – holds face mask in place with two hands ensure good seal
First rescuer – stops compressions and delivers ventilation compressing bag

Attach AUTOMATED EXTERNAL DEFIBRILLATOR

- CPR must continue
- Apply pads and turn on as soon as possible
- Ensure good pad to skin contact – remove moisture or excessive hair without causing delays
- Apply anterior-lateral position
  - right side chest slightly below collar bone (mid-clavicular 2nd intercostal space)
  - left side chest below arm pit (mid axilla 6th intercostal space)
  - Avoid placing pads over implantable devices or medication patches

Children over 8 years

Standard adult AEDs and pads are suitable for use

Children and Infants under 8 years

Ideally an AED with a paediatric capability should be used.
If the AED does not have a paediatric mode or paediatric pads then it is reasonable to proceed with
standard adult AED pads.
If the pads are too large and there is danger of pad-to-pad arcing, use the front-back position (antero-posterior): one pad on the upper back between shoulder blades and on pad on the front of the chest, if possible slightly to the left.

Safety
Perform visual sweep looking for danger
- Oxygen
- Water
- Flammables
Compressions continue...
If the AED identifies a shockable rhythm, AED will charge
Directly before delivering shock call “STAND CLEAR”
- Perform second visual sweep as above
- Compressions pause
- Ensure all rescuers are clear
- Avoid touching patient during shock delivery
- Recomence compressions immediately

Continue CPR until responsiveness or normal breathing returns
## Adult and Paediatric BLS Algorithm

### Community & Oral Health

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<th>Paediatric (Halwyn/HiTH/Diabetes)</th>
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<td><strong>Danger</strong></td>
<td>Check for danger</td>
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<td><strong>Response</strong></td>
<td>Touch and Talk - Assesses responsiveness to verbal and tactile stimuli</td>
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<td><strong>Send for help</strong></td>
<td>Send for help</td>
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<td><strong>Airway</strong></td>
<td>Opens and clears airway</td>
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<td>head tilt, chin lift technique</td>
<td>Infant – demonstrates the neutral head position Child – head tilt chin lift manoeuvre (same as adult)</td>
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<tr>
<td><strong>Breathing</strong></td>
<td>Assess for normal breathing (look, listen, feel) for rise and fall of chest</td>
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<tr>
<td><strong>Compression</strong></td>
<td>Lower half of sternum 1/3 chest depth Rate of 100 -120 compression per minute 30 compressions: 2 inflations</td>
<td>Infant – use two fingers or thumb encircling technique Child - compressions delivered by either one hand or two-handed technique.</td>
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<tr>
<td></td>
<td>Two handed technique</td>
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</table>
| Defibrillator (Semi-AED) | Pads should be placed on exposed chest in anterior-lateral position | Infants less than 1yr old – do not defibrillate
Child, 1-8yrs old (<25 kg) – use Semi-AED with either Paediatric Key

Pad placement for a child;
➢ Anterior-Lateral position.
➢ Anterior-Posterior position if pads touching or too close in Anterior-Lateral position. Reduces risk of arcing. |

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**References**

Standards


Documents

1. MNNHS Legislative, Mandatory and Requisite Skills Document for Nurses and Midwives (v13 revised Mar 2016)

2. MNHHS Community and Oral Health Recognition and Response to Clinical Deterioration (March 2018)

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