Clinical Practice Guidelines

Ambulance Community Officer
Community Emergency Response Team

AmbulanceVictoria

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About

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Approach to an Incident CPP B01

1. Ensure safety and control hazards - 'Dangers'

Assess

- Assess the scene for hazards and control if able

Stop

- Do not enter unless safe to do so
- Use standard precautions (gloves, safety glasses, P2 mask, high visibility vest etc.)
- Remove patient from hazard as priority if necessary and safe

2. Manage immediate life threats - Primary Survey - RabCD

Action

- **Response – assess** using “touch and talk”
  - **IF** responsive proceed to ***Point 4***
- Airway -
  - Open airway by placing patient supine with slight head tilt
  - Do not delay at this point with further airway procedures
  - Ensure spinal care if trauma suspected
- Breathing –
  - < 10 second **assess** for effective breathing
- Compressions -
  - < 10 second **assess** for carotid pulse
  - **IF** absent/ineffective breathing but <u>with</u> pulse
    - Provide airway support and assist ventilation as required
  - **IF** absent/ineffective breathing and no pulse present

  - Immediately commence chest compressions – **priority**
- **IF** effective breathing with pulse present – **refer point 4**

- Defibrillation – Attach AED per *Cardiac Arrest C4* – priority
- Provide a brief Situation Report to ESTA ambulance dispatch confirming immediate life threat

3. Manage immediate life threats – The Pulseless Patient

- Manage as per **CPP C04 Cardiac Arrest**

4. Carotid pulse present or pulse returns

Action

- **Bleeding** – manage any life threatening bleeding
- Manage per Points 5 -10 and Acute Altered Consciousness C12

5. Identify main presenting problem and time criticality

Assess

- Main presenting problem
- Perfusion Assessment
- Conscious State Assessment
- Respiratory Assessment
- Time Critical Assessment

6. Provide Initial Management

Action

- Physical rest and appropriate position
- Emotional support and reassurance
- Assess SpO_2
- Apply O_2 therapy where SpO_2 is less than 92% (8L per minute via mask or 100% via Bag Valve Mask)
- Reassess and maintain initial management

7. Obtain History and Secondary Survey

Action

- Obtain history from patient and / or bystanders **(AMPLE)**
  - Allergies
  - Medications (current)
  - Past Medical History
  - Last Meal

  - Event that prompted the call for an ambulance
- If **Trauma** – expose patient and “nose to toes” survey

8. Provide a Situation Report

Action

- Provide a Situation Report to ESTA ambulance dispatch

9. Manage Specific Problems

Action

- Use “pay-off” and manage for best outcome
- Apply appropriate Clinical Protocol(s) based on finding(s) in order of importance

10. Reassess and Maintain management

Action

- Monitor and record vital signs frequently (15 minutely as a minimum, more often if vital signs are abnormal)
- If patient deteriorates during care, return to the primary assessment and reassess
- Modify management as required based on reassessment
- Update ESTA dispatch / hospital / backup as required

Conscious State Assessment CPP B02

AVPU

AVPU is the preferred tool for assessing conscious state in children where adapting the GCS can be problematic. It is widely used and consistent with practice at the Royal Children's Hospital.

AVPU is quick and simple to apply and is appropriate to determine conscious state whilst initial assessment is conducted and treatment is being established. A formal GCS should be undertaken in more complex patient presentations.

A child cannot have a conscious state assessment done while asleep. They must be woken first. If the child wakes and remains awake and alert, record this as an "A" for AVPU. If the child wakes but remains drowsy and appears inattentive, record this as a "V".

When assessed, is the patient:

Alert?	= **A**
Responding to Voice?	= **V**
Responding to Pain?	= **P**
Unresponsive?	= **U**

Glasgow Coma Score

A.	Eye Opening	Score	
	Spontaneous	4	
	To voice	3	
	To pain	2	
	None	1	A: _____
B.	**Verbal Response**	**Score**	
	Orientated	5	
	Confused	4	
	Inappropriate words	3	
	Incomprehensible sounds	2	
	None	1	B: _____
C.	**Motor Response**	**Score**	
	Obeys command	6	
	Purposeful movements (pain)	5	
	Withdraw (pain)	4	
	Flexion (pain)	3	
	Extension (pain)	2	
	None	1	C: _____
	Total GCS (Maximum Score = 15)		
	(A + B + C) = _____		

NB. A GCS < 13 is a criteria for a patient being time critical.

Respiratory Status Assessment CPP B03

	Normal	Respiratory Distress	Life threatening
General appearance	• Calm, quiet	May be • Distressed • Anxious	• Fighting to breathe • Exhausted • Catatonic
Speech	• Clear and steady	• Sentences, short phrases or words	• Unable to speak
Chest sounds	• Normal lung sounds	May have: • Wheeze • Crackles	• Inspiratory stridor
Respiratory rate	12 – 16 / min	> 20 / min	< 8 / min
Respiratory rhythm	• Regular and even	• Asthma / COPD: Prolonged expiratory phase	
Work of breathing / effort	• Normal, no increased effort	• Increased effort • May have accessory muscle use	• Poor respiratory effort
Heart rate	60 – 100	• Increased heart rate	• Slowed heart rate
Skin	• Normal	• May be pale / sweaty	• Cyanosis
Conscious state	• Alert	• Alert	• Altered **or** • Unconscious

SpO_2 % (RA) Lower SpO_2 readings may be acceptable in patients with chronic respiratory disease (e.g. COPD)	≥ 94%	90 - 93%	< 90%

Care objectives

- Perform a respiratory assessment and identify respiratory distress, including life threatening signs.

Intended patient group

- Patients aged ≥ 16 years requiring respiratory assessment

Assessment

- This guideline provides broad guidance for assessing respiratory status in all conditions. **CPP C20 Asthma** includes more specific assessment for management of that condition and should be used in preference to this tool.
- In patients with chronic respiratory disease, compare the findings against the patient's usual baseline / function.
- Changes in skin, pulse, or conscious state should be interpreted together with breathing signs, as they are not usually specific to respiratory distress on their own.
- Patients with respiratory distress are time critical. Provide a SITREP and consult the clinician if delay to backup or any life-threatening signs.
- Any single finding in the life-threatening category in the patient with respiratory distress indicates a life threat.

Chest sounds

- Audible chest sounds (e.g. wheeze, stridor) can be assessed without a stethoscope and may assist in identifying respiratory problems.
- Chest sounds vary depending on the underlying cause. The presence or absence of abnormal sounds does not reliably indicate the severity.
  - For example, bronchospasm can cause respiratory distress with or without an audible wheeze.

Respiratory rate

- Respiratory rate should ideally be assessed over at least a 30 second period.

Respiratory rhythm

- Prolonged expiratory phase is most commonly associated with asthma / COPD.
- Other changes to the respiratory rhythm may indicate specific diseases such as hyperglycaemia or head injury.

Oxygen saturations

- In healthy adults, SpO_2 < 94% indicates respiratory distress.
- In patients with chronic respiratory disease, lower oxygen saturations may be acceptable (e.g. 88 – 92% in patients with COPD).

Pulse oximetry

- Check the reliability of the SpO_2 reading for the patient. Pulse oximeters will indicate if the reading is accurate.
  - If the reading is inaccurate, place the probe on a different finger and reassess.
- If available, use the neonatal SpO_2 sensor for smaller children – the adult finger probe may be too large to obtain an accurate reading.
- The accuracy of pulse oximetry may be reduced by several factors relating to respiratory, perfusion or other physical aspects such as dirt or wearing fake nails.

More information

Respiratory	• Severe hypoxaemia An SpO_2 < 80% increases the chance of being inaccurate. • Severely high CO_2 levels • Severe anaemia • Toxic inhalation exposures
Perfusion	• Severe hypotension / shock • Peripheral vascular disease • Cold extremities or peripherally 'shut down'
Other	• Darker skin tones In patients with darker skin tones, the actual oxygen saturation may be lower than the SpO_2 value displayed • Nail polish / fake nails • Dirt Clean the fingertip • Excessive ambient light

Causes of respiratory distress

- There are many different causes of respiratory distress. Respiratory and cardiac causes are the most common, but others include neurological, metabolic and miscellaneous conditions.

More information

Respiratory	Cardiac	Neurological	Metabolic	Other
• Asthma • COPD • Pneumonia / respiratory infection / COVID • Pulmonary embolism • Upper airway obstruction	• Cardiac chest pain / heart attack • Acute pulmonary oedema (fluid on the lungs) • Abdominal aortic aneurysm • Abnormal heart rhythm	• Stroke • Neuromuscular disease (e.g. motor neurone disease)	• Severe hyperglycaemia • Severe infection • Anaemia	• Anap • Pois • Obe • Hyp / anx • Trau
*These are examples, this list is not exhaustive				

Further Information

- https://av-digital-cpg.web.app/assets/pdf/MAC/PCC250812 Respiratory Assessment.pdf

Perfusion Assessment CPP B04

The perfusion assessment is made up of a series of observations that, when considered together provide an indication of a patient's perfusion and the function of the cardiovascular system. These observations are:

- Pulse – rate
- Blood pressure
- Skin – colour, temperature and moistness
- Conscious state

	SKIN	PULSE		CONSCIOUS STATE
Adequate Perfusion	Warm, pink and dry	60 – 100 minute	>100 mm Hg systolic	Alert and orientated in time and place
Less than adequate Perfusion	Cool, pale, clammy	< 50 or >100 min	< 100 mm Hg systolic	May be alert or conscious state may be altered
No Perfusion	Cool, pale, clammy	Absence of palpable pulse	Unable to record	Unconscious

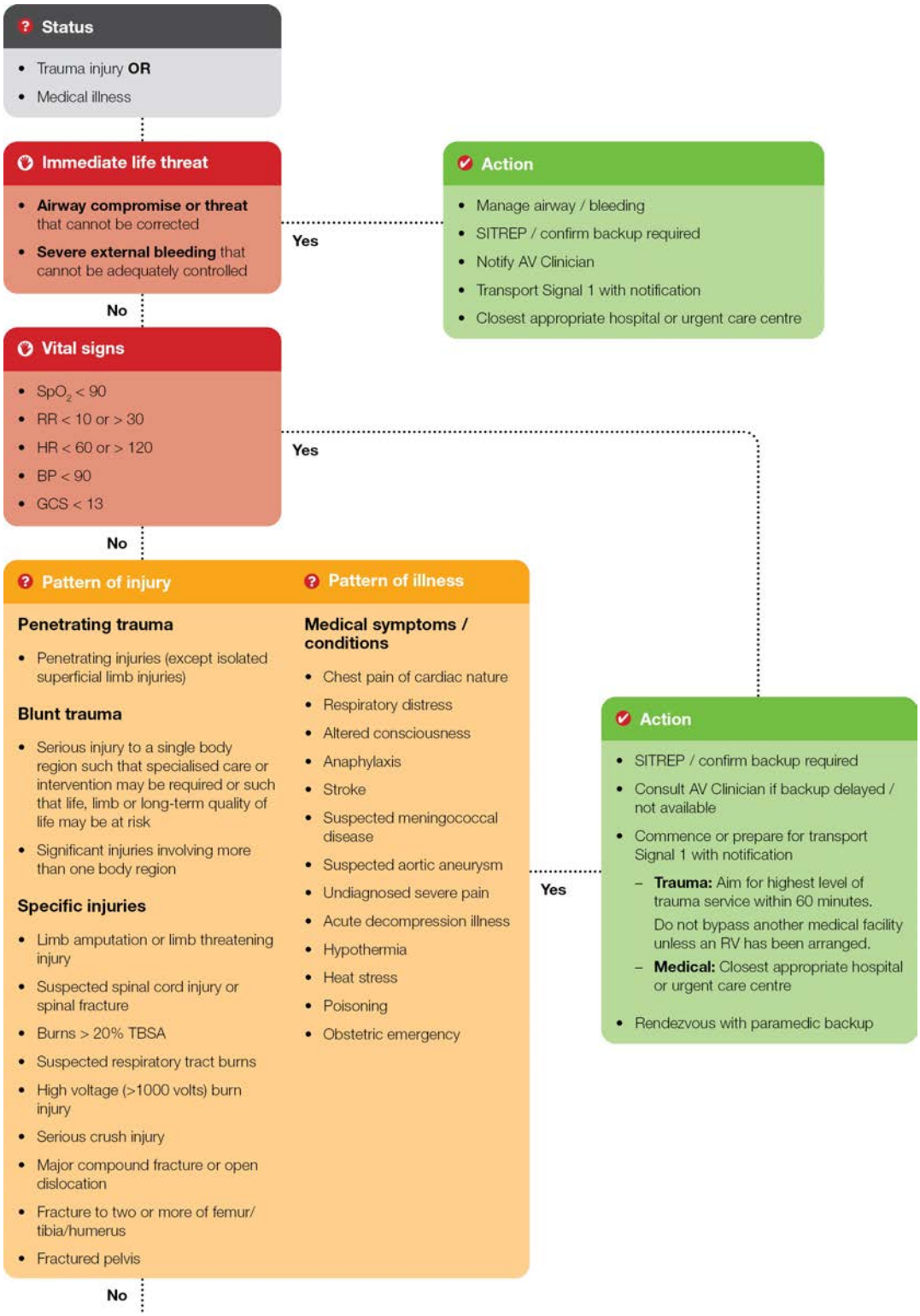
A person with two or more of the above meets the criteria for that category of perfusion.

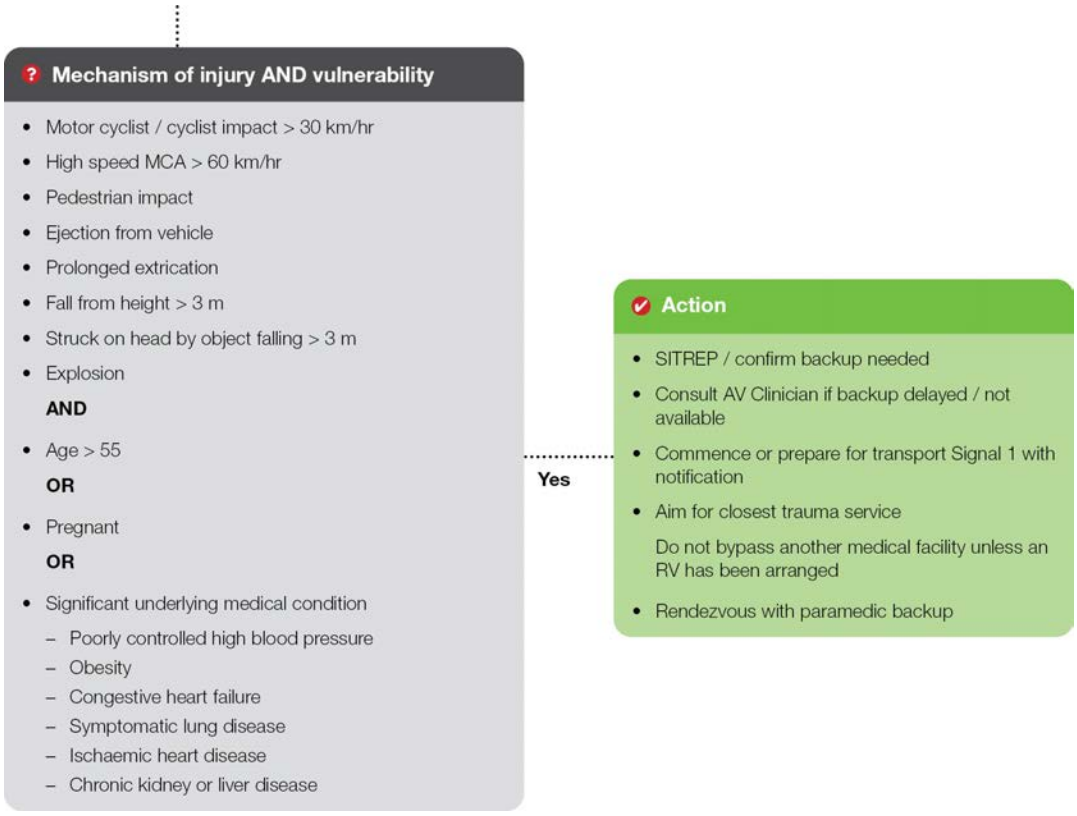
A person with less than adequate perfusion is time critical and requires expedient transport to hospital by the Paramedic backup crew.

A pulse between 50 and 60 bpm and / or a BP less than 100 mmHg may be normal for some patients.

Initial and ongoing communication with the Paramedic backup crew, via ESTA ambulance communications, regarding the patient's condition is vital.

Flowchart


Status
Trauma injury OR
Medical illness
Immediate life threat
Airway compromise or threat that cannot be corrected
Severe external bleeding that cannot be adequately controlled
Yes
Action
Manage airway / bleeding
SITREP / confirm backup required
Notify AV Clinician
Transport Signal 1 with notification
Closest appropriate hospital or urgent care centre
No
Vital signs
SpO2 < 90
RR < 10 or > 30
HR < 60 or > 120
BP < 90
GCS < 13
Yes
No
Pattern of injury
Penetrating trauma
Penetrating injuries (except isolated superficial limb injuries)
Blunt trauma
Serious injury to a single body region such that specialised care or intervention may be required or such that life, limb or long-term quality of life may be at risk
Significant injuries involving more than one body region
Specific injuries
Limb amputation or limb threatening injury
Suspected spinal cord injury or spinal fracture
Burns > 20% TBSA
Suspected respiratory tract burns
High voltage (>1000 volts) burn injury
Serious crush injury
Major compound fracture or open dislocation
Fracture to two or more of femur/ tibia/humerus
Fractured pelvis
Pattern of illness
Medical symptoms / conditions
Chest pain of cardiac nature
Respiratory distress
Altered consciousness
Anaphylaxis
Stroke
Suspected meningococcal disease
Suspected aortic aneurysm
Undiagnosed severe pain
Acute decompression illness
Hypothermia
Heat stress
Poisoning
Obstetric emergency
Yes
Action
SITREP / confirm backup required
Consult AV Clinician if backup delayed / not available
Commence or prepare for transport Signal 1 with notification
– Trauma: Aim for highest level of trauma service within 60 minutes.
Do not bypass another medical facility unless an RV has been arranged.
– Medical: Closest appropriate hospital or urgent care centre
Rendezvous with paramedic backup
No



Care Objectives

- Identify patients with injuries or illness that require time critical care.

Intended patient group

- Patients aged ≥ 16 years with traumatic injuries or a medical problem.

Notes

Immediate life threat

- Commence or prepare for transport to the closest hospital or urgent care centre capable of addressing the life threat.
- Notify the AV Clinician as soon as possible.
- Early notification of the receiving hospital to ensure the required staff and equipment are immediately available.

More information

The immediate life threat criteria are primarily aimed at identifying trauma patients who are highly unlikely to survive the longer transfer to a major trauma service. They should be transported to the closest hospital capable of correcting the problem. The destination may vary depending on the exact services available at the closer facility, transport times involved and the condition of the patient. Consultation with the AV Clinician is required.

Vital signs criteria & pattern of injury / illness

- Patients meeting these criteria should be transported to:
  - **Medical:** Closest appropriate hospital or urgent care centre
  - **Trauma:** Aim for the highest level of trauma service within 60 minutes. Do not bypass another medical facility unless a rendezvous with other AV services has already been planned.
- Consult the AV Clinician if backup is delayed or not available or for a trauma patient if a trauma service is not available within 60 minutes transport time.
  - The AV Clinician will determine the most appropriate plan which may include HEMS, RV with ALS/MICA backup or transport to appropriate trauma service.

More information

Patients meeting the vital sign or pattern of injury / illness criteria either have or likely have major trauma or are seriously medically unwell.

Vital sign criteria

The patient's vital signs indicate that they are seriously injured or unwell (shocked, hypoxic, unconscious, etc).

Pattern of injury / illness

The injuries, illness or symptoms are serious or complex in themselves. There is a reasonable likelihood of deterioration (e.g. developing shock).

Transport to urgent care or primary care services is not generally recommended. In some circumstances (e.g. very remote locations), transporting the patient to one of these services to facilitate additional assistance, space or resources while waiting for ALS/MICA backup, HEMS or ARV may be appropriate. Consult the AV Clinician to determine a plan.

Trauma service list

Regional Trauma Services

- Barwon South Western
  - Geelong
  - Hamilton
  - Warrnambool
- Grampians
  - Ballarat
  - Horsham
- Loddon Mallee
  - Bendigo
  - Mildura
- Hume
  - Albury
  - Shepparton
  - Wangaratta
- Gippsland
  - Traralgon

Major Trauma Service (adult, age ≥ 16 years)

- The Royal Melbourne Hospital
- The Alfred Hospital

Metropolitan Trauma Services (adult and paediatric)

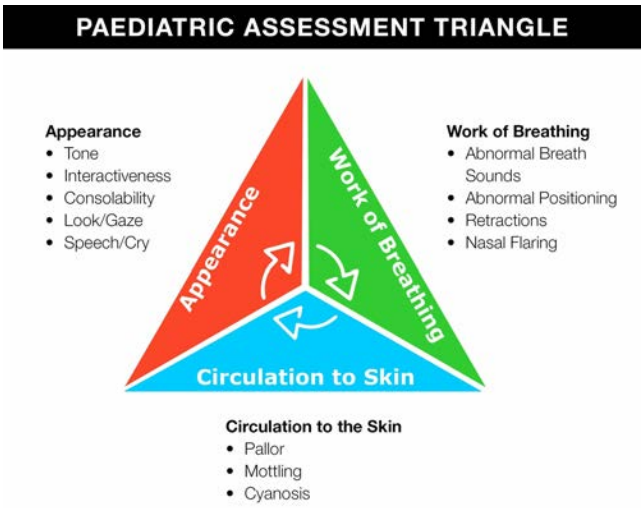
- Austin Health
- Box Hill Hospital
- The Northern Hospital
- Monash Medical Centre, Clayton Campus
- Dandenong Hospital
- Frankston Hospital

Metropolitan Trauma Services (adult only)

- Maroondah Hospital
- St Vincent's Hospital
- Western Hospital Footscray

Initial Paediatric Assessment

It is important to form a rapid first impression of the patient's appearance, breathing, and circulation as illustrated in the Paediatric Assessment Triangle below. Visually evaluate mental status, muscle tone and body position, chest movement, work of breathing, and skin colour whilst also looking for obvious injuries. This assessment should not take more than a few seconds.



If the child appears well with no signs of serious trauma, approach with a calm demeanour whilst explaining your actions to the parents and the child. *If a well-appearing patient has experienced a high-risk mechanism of injury, consider the patient potentially unstable due to the risk of serious internal injuries.*

For children with a poor appearance and evidence of significant injury, proceed immediately to the primary survey including any lifesaving interventions as appropriate.

Age and Weight Definitions CPP E02-2

Definitions

For the purposes of the clinical care protocols, a child is defined as being aged under 16 years. The rationale for this relates to the physiological parameters and medication doses of older children being equal to adults. This principle does not relate to emotional care, mental health, or legal obligations of caring for a person under the age of 18.

Paediatric Definitions Nomenclature	Age
Newborn	Birth to 24 hours
Small infant	Under 3 months
Large infant	3 - 12 months
Small child	1 - 4 years
Medium child	5 - 11 years
Adolescent	12 - 15 years

Paediatric weight calculation

Paediatric Weight Calculation	
For children various treatments are based on body weight, such as drug doses, defibrillation joules and fluid volume. It is acceptable to ask a parent the patient's weight. If weight is unknown, it can be estimated using the following guide.	
Age	**Weight**
< 24 hours	3.5kg
3 months	6 kg
6 months	8 kg
1 year	10 kg
1 - 9 years	Age x 2 + 8 kg
10 - 11 years	Age x 3.3 kg
12 - 15 years	Estimated based on patient size

Respiratory Status Assessment (Paediatric) CPP E02-4

Care objectives

- Assess and identify respiratory distress.

Intended patient group

- Patients aged < 16 years requiring respiratory assessment

Assessment

Respiratory rate

Normal respiratory rates (medical)

Age	Respiratory Rate
Newborn (Birth – 24 hrs)	25 - 60 breaths / minute
Small infant (< 3 months)	25 - 60 breaths / minute
Large infant (3 – 12 months)	25 - 55 breaths / minute
Small child (1 – 4 yrs)	20 - 40 breaths / minute
Medium child (5 – 11 yrs)	16 - 34 breaths / minute
Adolescent (12 - 15 yrs)	14 - 26 breaths / minute

- Respiratory rate should ideally be assessed over at least a 30 second period.
- Assess and observe the child without touching them where possible. Ask the parents to assist in uncovering the child's chest / abdomen.
- **Any deviation from the normal respiratory rate for age is a source of concern.**
  - Children presenting with abnormal vital signs should be transported to hospital. Note: Paramedics may consider referral to VVED if vital signs are borderline.
- The values above do not apply to trauma patients. See **CPP E10** for trauma assessment.
- For asthma specific respiratory assessment, see **CPP E12**.

Work of breathing

Signs of increased work of breathing in paediatric patients include:

- Retractions (intercostal, suprasternal, costal margin)
- Nasal flaring
- Sternocleidomastoid contraction (head bobbing)
- Forward posturing

- Grunting

Related Resources

Videos: Examples of increased work of breathing in paediatric patients

- https://www.youtube.com/watch?v=EYqi7hHBEVs
- https://www.youtube.com/watch?v=qsFR8evfrK8

Further Information

- **https://av-digital-cpg.web.app/assets/pdf/MAC/PCC250812 Respiratory Assessment.pdf**

Perfusion Assessment (Paediatric)

Adequate Perfusion		
Age	**HR**	**BP**
Newborn	110 - 170 bpm	> 60 mmHg systolic
Small infant	110 - 170 bpm	> 60 mmHg systolic
Large infant	105 - 165 bpm	> 65 mmHg systolic
Small child	85 - 150 bpm	> 70 mmHg systolic
Medium child	70 - 135 bpm	> 80 mmHg systolic
Adolescent	60 - 120 bpm	> 90 mmHg systolic

Skin - warm, pink and dry

Conscious state - alert and active

Inadequate perfusion

Any deviation from normal perfusion values is a source of concern. Children presenting with abnormal vital signs must be transported to hospital.

Skin - cool, pale, clammy

In the setting of an unwell child, cold hands/feet and mottled skin are a early sign that correlates with subsequent ICU admission. This should always be treated as a significant finding.

Conscious state - patient responding to voice, pain or unresponsive. May present as restless / agitated.

Poor or no perfusion is display by an absent pulse and blood pressure, non-recordable blood pressure, cool pale skin, an altered conscious state or unconsciousness.

Conscious State Assessment (Paediatric) CPP E02-6

Conscious state assessment - AVPU

Conscious state can be assessed using **AVPU** in children.

AVPU is quick and simple to apply and is appropriate to determine conscious state whilst initial assessment is conducted and treatment is being established.

When assessed, is the patient:

- Alert
- Responds to Voice
- Responds to Pain
- Unresponsive

A child cannot have a conscious state assessment done while asleep. They must be woken first. If the child wakes and remains awake and alert, record this as an “A” for AVPU. If the child wakes but remains drowsy and appears inattentive, record this as a “V”.

Conscious state assessment - Glasgow Coma Scale (GCS)

Conscious State should be assessed using the Glasgow Coma Scale once stable.

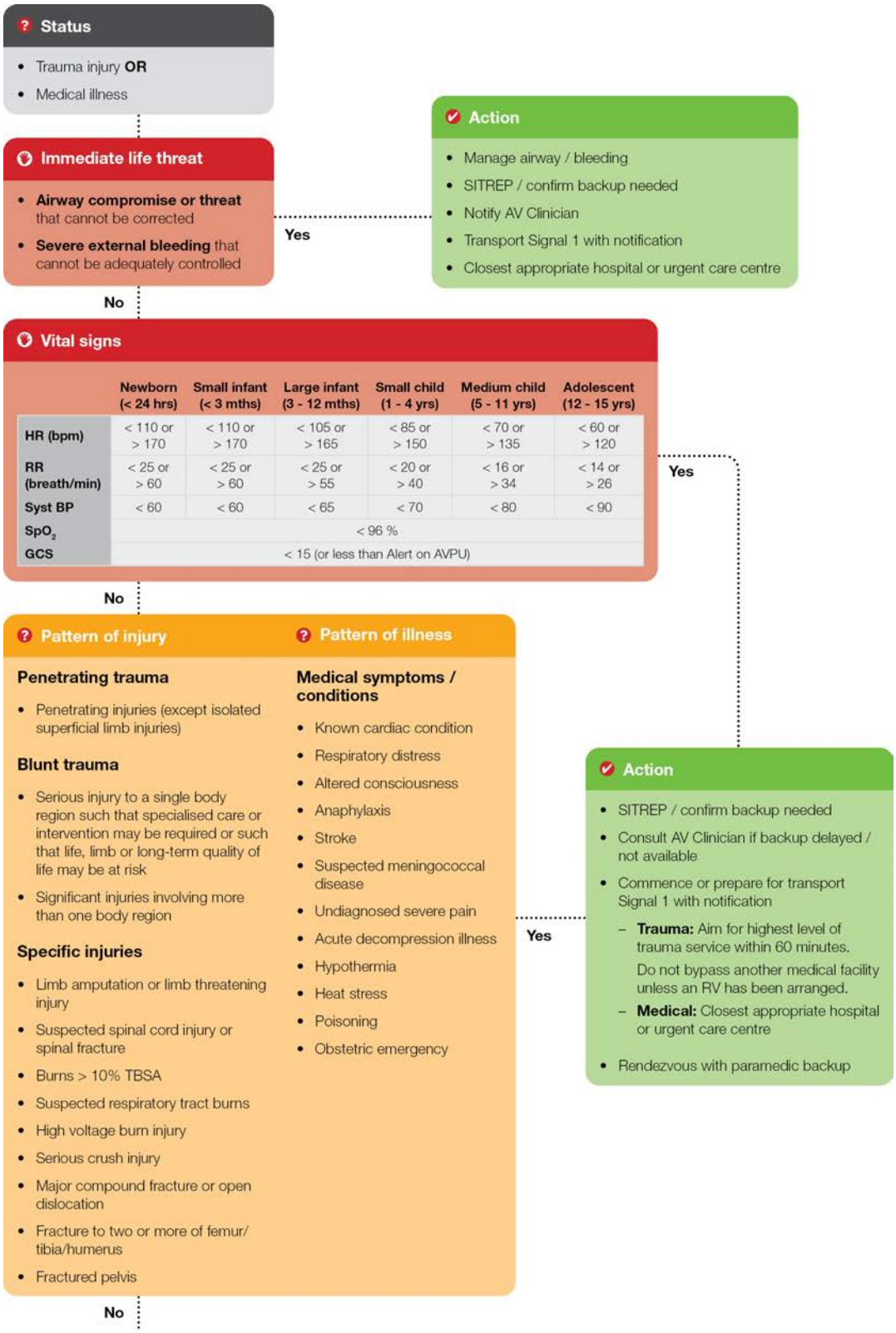
Conscious State Assessment (Paediatric)

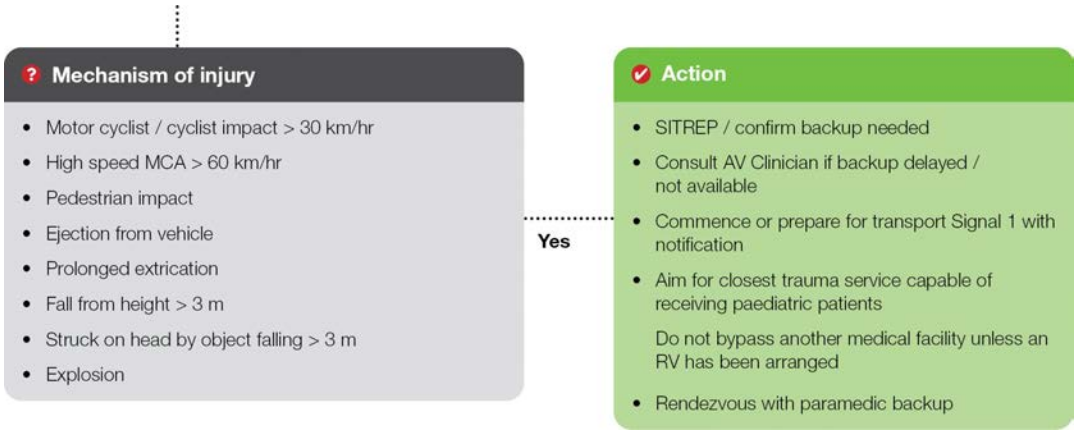
CPP E02-6

Child ≤ 4 years	Child > 4 years
Eye opening	**Eye opening**
Spontaneous – 4	Spontaneous – 4
To voice – 3	To voice – 3
To pain – 2	To pain – 2
None – 1	None – 1
Verbal response	**Verbal response**
Appropriate words/social smile – 5	Orientated – 5
Cries but consolable – 4	Confused – 4
Persistently irritable – 3	Inappropriate words – 3
Moans to pain – 2	Incomprehensible sounds – 2
None – 1	None – 1
Motor response	**Motor response**
Spontaneous – 6	Obeys command – 6
Localises to pain – 5	Localises to pain – 5
Withdraws from pain – 4	Withdraws from pain – 4
Abnormal flexion to pain – 3	Abnormal flexion to pain – 3
Abnormal extension to pain – 2	Abnormal extension to pain – 2
None – 1	None – 1

Time Critical Assessment (Paediatric) CPP E10

Flowchart





Care Objectives

- Identify patients with injuries or illness that require time critical care.

Intended patient group

- Patients aged < 16 years with traumatic injuries or a medical problem.

Notes

Immediate life threat

- Commence or prepare for transport to the closest hospital or urgent care centre capable of addressing the life threat.
- Notify the AV Clinician as soon as possible.
- Early notification of the receiving hospital to ensure the required staff and equipment are immediately available.

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Vital signs criteria & pattern of injury

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  - **Trauma:** Aim for the highest level of trauma service within 60 minutes. Do not bypass another medical facility unless a rendezvous with other AV services has already been planned.
- Consult the AV Clinician if backup is delayed or not available or for a trauma patient if a trauma service is not available within 60 minutes transport time.
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- The Royal Children's Hospital

Metropolitan Trauma Services (adult and paediatric)

- Austin Health
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- Dandenong Hospital
- Frankston Hospital

Paediatric Pain Assessment

Paediatric pain assessment should be appropriate to the developmental level of the child. Pain can be communicated by words, expressions and behaviour such as crying, guarding a body part or grimacing. The **QUEST** principles of pain (Baker and Wong, 1987) and the following pain rating scales may be helpful in assessing paediatric pain.

- Question the Child
- Use Pain rating scales
- Evaluate behaviour and physiological changes
- Secure parent's involvement
- Take cause of pain into account
- Take action and evaluate results

Faces Pain Rating Scale

When talking to the child say either "hurt" or "pain", whichever seems right for a particular child.

"These faces show how much something can hurt. This face [point to face on far left] shows no pain. The faces show more and more pain [point to each from left to right] up to this one [point to face on far right] - it shows very much pain. Point to the face that shows how much you hurt [right now]."

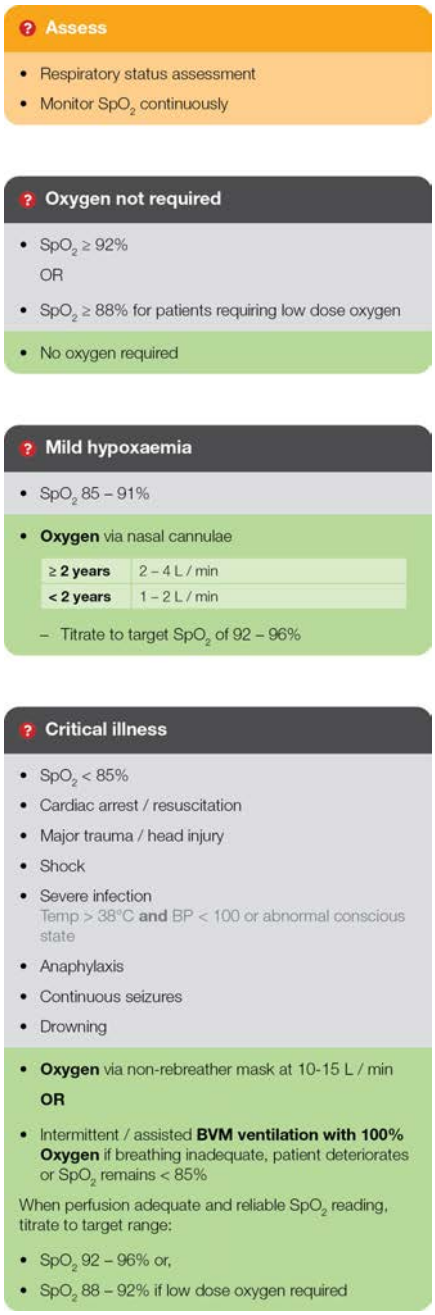
Score the chosen face 0, 2, 4, 6, 8, or 10, counting left to right, so "0" = "no pain" and "10" = "very much pain". Do not use words like "happy" or "sad". This scale is intended to measure how children feel inside, not how their face looks.

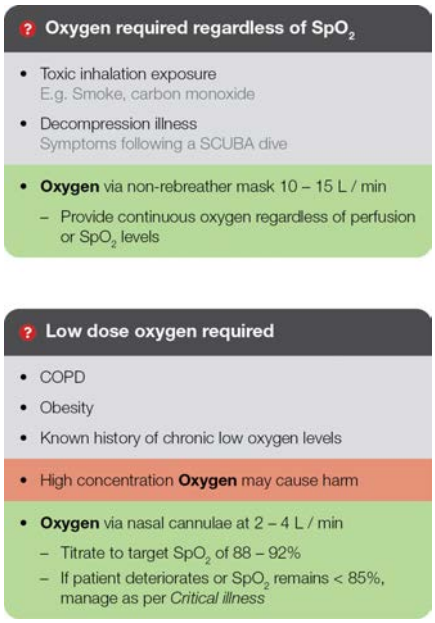
Reference: Hicks CL, et al. The Faces Pain Scale - Revised: Toward a common metric in pediatric pain measurement. Pain 2001; 93:173-183.

Verbal Numerical Rating Scale

The patient rates their pain from "no pain" (0) to "worst pain possible" (10). Suitable for use in children over six years of age who have an understanding of the concepts of rank and order. Avoid using numbers on this scale to prevent the patient receiving cues. Some patients are unable to use this scale with only verbal instructions but may be able to look at a number scale and point to the number that describes the intensity of their pain.

Flowchart


Assess
Respiratory status assessment
Monitor SpO2 continuously
Oxygen not required
SpO2 ≥ 92%
OR
SpO2 ≥ 88% for patients requiring low dose oxygen
No oxygen required
Mild hypoxaemia
SpO2 85 – 91%
Oxygen via nasal cannulae
≥ 2 years 2 – 4 L / min
< 2 years 1 – 2 L / min
– Titrate to target SpO2 of 92 – 96%
Critical illness
SpO2 < 85%
Cardiac arrest / resuscitation
Major trauma / head injury
Shock
Severe infection
Temp > 38°C and BP < 100 or abnormal conscious state
Anaphylaxis
Continuous seizures
Drowning
Oxygen via non-rebreather mask at 10-15 L / min
OR
Intermittent / assisted BVM ventilation with 100% Oxygen if breathing inadequate, patient deteriorates or SpO2 remains < 85%
When perfusion adequate and reliable SpO2 reading, titrate to target range:
SpO2 92 – 96% or,
SpO2 88 – 92% if low dose oxygen required



Care objectives

- Provide oxygen therapy for patients with hypoxaemia or critical illness as required
- Provide targeted oxygen therapy to avoid harms associated with excessive oxygen administration
- Provide continuous high flow oxygen regardless of SpO_2 for management of specific conditions where required

Overview

Intended patient group

- All adult and paediatric patients (excluding newborns)

Assessment

- Assess and continuously monitor SpO_2 in all situations where oxygen is used.
- Complete an RSA in addition to SpO_2 assessment.

Pulse oximetry

- Check the reliability of the SpO_2 reading for the patient. Pulse oximeters will indicate if the reading is accurate.
  - If the reading is inaccurate, place the probe on a different finger and reassess.
  - See **CPP B03 Respiratory Status Assessment** for more information on factors that affect

pulse oximetry.

- If available, consider using the infant SpO_2 sensor for smaller children if the adult finger probe is too large to obtain an accurate reading.

Management

- Provide oxygen as needed to keep SpO_2 within the target range. Avoid routine administration, as excess oxygen can be harmful.
- For critical illness or acute breathlessness, provide oxygen before assessing SpO_2. Titrate to the target saturation range later.
- If pulse oximetry is not available or unreliable, provide oxygen until a reliable SpO_2 reading can be obtained or symptoms resolve.

Oxygen delivery

- If possible, position the conscious patient in the upright position to improve oxygenation.
  - Patients with suspected spinal injury or inadequate perfusion may need to lie supine.
- The flow rate required will depend on the delivery method

Nasal cannulae	• 1 – 4 L / min More likely to be tolerated in younger paediatric patients (administer 1 - 2 L / min if < 2 years) If nasal passages are congested or blocked, use a non-rebreather mask at 10 - 15 L / min
Non-rebreather mask	• 10 – 15 L / min
Nebuliser mask	• 8 L / min Use to deliver nebulised medications
BVM	• Demand valve or > 8 L / min if using reservoir bag

Low dose oxygen therapy required

- Some patients, such as those with chronic obstructive pulmonary disease (COPD), obesity or history of chronic low oxygen levels are prone to respiratory failure. Providing excessive oxygen to these patients can cause harm.
- Target an SpO_2 of 88 – 92% in these patients.

More information

- Patients with a history of COPD will usually be aware of their condition and may also refer to it as emphysema or chronic bronchitis. They will usually be aged > 40 years, have chronic breathlessness, prescribed multiple inhaler medications and may be on home oxygen.
- Some patients may carry an oxygen alert card or bracelet if they are at risk of harm from high levels of oxygen.

- Paediatric patients are unlikely to require low dose oxygen therapy. In rare cases, some patients will require specific management for congenital heart disease. The patient's parents will be able to advise of any changes to oxygen therapy.

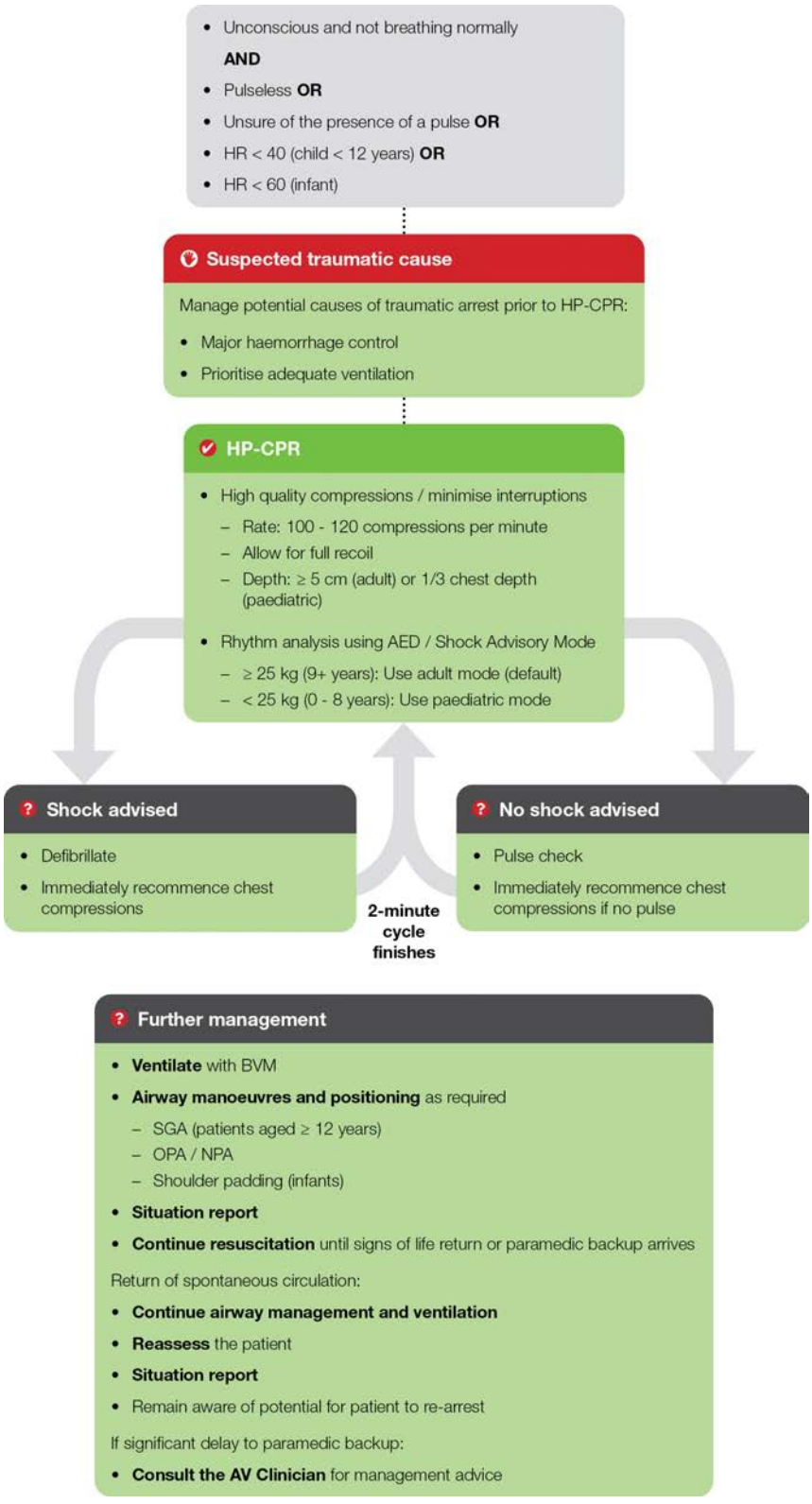
Oxygen therapy required regardless of SpO_2

- Some patients require high concentration oxygen therapy due to specific disease processes. Provide continuous oxygen therapy regardless of SpO_2 or signs of breathlessness.

More information

- All patients suspected of having inhaled potentially **toxic gases** (e.g. house fires) should be given high concentration oxygen due to the risks associated with carbon monoxide, cyanide and other gases.
  - Consult the AV Clinician for advice if the patient is exposed to toxic gases or other poisons.
- **Decompression illness** may occur following a SCUBA dive. Consult the AV clinician for advice.

Flowchart


Unconscious and not breathing normally
AND
Pulseless OR
Unsure of the presence of a pulse OR
HR < 40 (child < 12 years) OR
HR < 60 (infant)
Suspected traumatic cause
Manage potential causes of traumatic arrest prior to HP-CPR:
Major haemorrhage control
Prioritise adequate ventilation
HP-CPR
High quality compressions / minimise interruptions
Rate: 100 - 120 compressions per minute
Allow for full recoil
Depth: ≥ 5 cm (adult) or 1/3 chest depth (paediatric)
Rhythm analysis using AED / Shock Advisory Mode
≥ 25 kg (9+ years): Use adult mode (default)
< 25 kg (0 - 8 years): Use paediatric mode
Shock advised
Defibrillate
Immediately recommence chest compressions
No shock advised
Pulse check
Immediately recommence chest compressions if no pulse
2-minute cycle finishes
Further management
Ventilate with BVM
Airway manoeuvres and positioning as required
SGA (patients aged ≥ 12 years)
OPA / NPA
Shoulder padding (infants)
Situation report
Continue resuscitation until signs of life return or paramedic backup arrives
Return of spontaneous circulation:
Continue airway management and ventilation
Reassess the patient
Situation report
Remain aware of potential for patient to re-arrest
If significant delay to paramedic backup:
Consult the AV Clinician for management advice

Care Objectives

- High quality chest compressions with minimal interruptions
- Rapid defibrillation
- Effective airway control, adequate ventilation and oxygenation

Intended patient group

- All adult and paediatric patients in cardiac arrest (excluding newborns)
  See: **CPP E02-9 Newborn Resuscitation**

Assessment

- **If any doubt exists as to the presence of a pulse**, chest compressions must be commenced.
- **Traumatic arrest:** If the history, mechanism or pattern of injury are strongly suggestive of a traumatic cause of arrest, manage the potential causes of arrest prior to commencing HP-CPR:
  - Major haemorrhage control (Combat Application Tourniquet, haemostatic dressings, direct pressure and / or pelvic splint)
  - Ventilation / oxygenation (Insert OPA / NPA / SGA where indicated)
- Carotid pulse checks are only required where a shock has not been advised.

Management

- A **supra-glottic airway** (patients aged ≥ 12 years) is an appropriate option to manage the airway initially and to facilitate continuous compressions.

High-Performance CPR (HP-CPR)

- **Immediate rhythm check and defibrillation on arrival**
  - Time to first defibrillation ≤ 2 minutes
  - Perform chest compressions while the defibrillator is being applied
  - Follow the AED prompts
  - If access is compromised, consider rhythm check and defibrillation before gaining 360-degree access
- **Perform high-quality CPR**
  - Rate: 100 - 120 compressions per minute
  - Depth: ≥ 5 cm (adult) or 1/3 chest depth (paediatric), allow for full recoil
  - Ventilation duration: 1 second per ventilation
  - 2 minute rotations of compressor

- **Minimise interruptions to chest compressions**
  - Focus on team performance and communication
  - Swap roles while defibrillator is analysing rhythm
  - Hover hands over chest and resume compressions immediately after defibrillation or no shock advised
- **Switch to paramedic HP-CPR procedure on arrival of backup**
  - Hands on charging and manual defibrillation
  - Aim for interruptions to chest compressions ≤ 3 seconds
  - Follow paramedic crew instructions

Compression technique

Infant

- Two rescuers: Two-thumb technique
  The hands encircle the chest and thumbs compress the sternum. Take care not to restrict chest expansion during recoil or ventilation.
- Single rescuer: Two-finger technique
  Preferred in order to minimise transition time between compressions and ventilations.

Small child

- One-hand technique

Medium child, adolescent, adult

- Two-hand technique

Compression / ventilation ratios

Adult

BVM	• 30 compressions : 2 ventilations • Pause for ventilations
SGA	• 15 compressions : 1 ventilation • No pause for ventilations

Paediatric

BVM	• 15 compressions : 2 ventilations (two rescuers) • 30 compressions : 2 ventilations (single rescuer) • Pause for ventilations
SGA Age ≥ 12 years only	• 15 compressions : 2 ventilations • No pause for ventilations

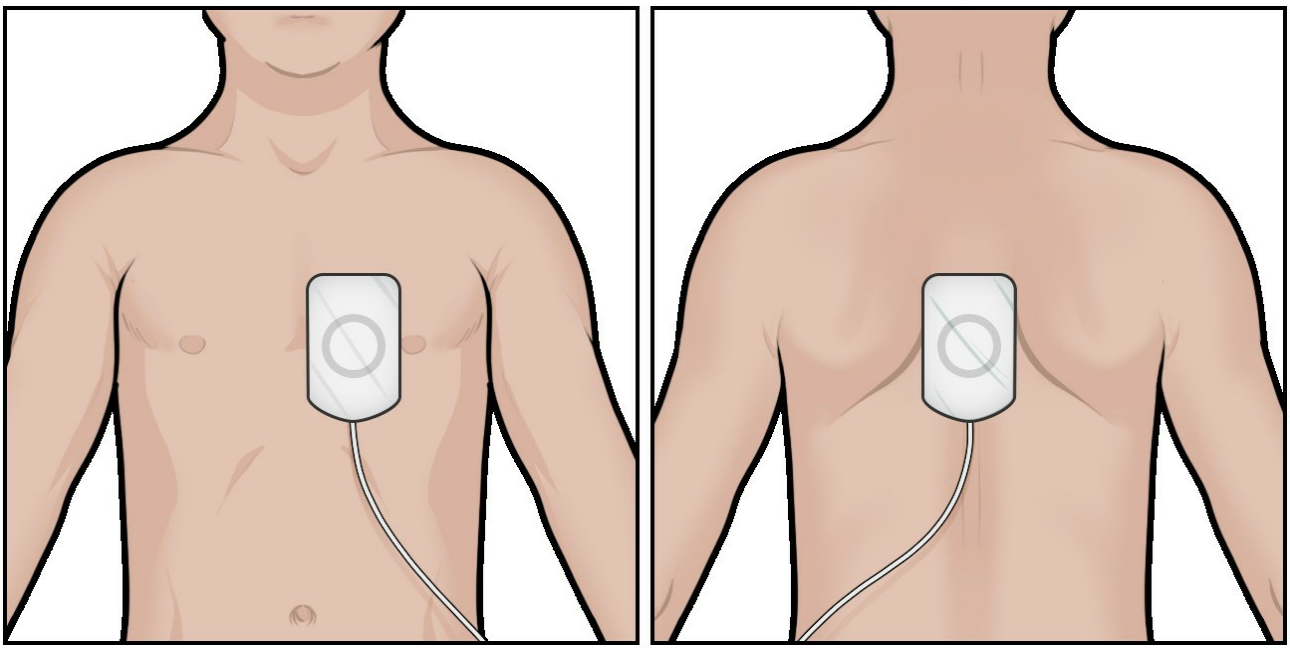
Paediatric patients (< 16 years)

- Effective airway management, ventilation and oxygenation are the central components of paediatric resuscitation.
- Cardiac arrest in children and infants is commonly caused by hypoxia. Cardiac arrest following a respiratory arrest may be corrected with ventilation prior to commencing chest compressions.
- Airway manouevres and positioning for paediatric patients as per **CWI/OPS/190**.
- **< 25 kg (0 - 8 years):** Apply paediatric pads in anterior-posterior position and switch defibrillator to Paediatric Mode.

Anterior-posterior placement

Anterior posterior placement (paediatric):

- The anterior pad is placed mid-chest immediately left to the sternum
- The posterior pad is placed in the middle of the back between the scapulae



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Adult
< 25 kg									≥ 25 kg							
Paediatric Pads / Paediatric Mode									Adult Feedback Pads / Adult Mode							
																

CPR-interfering patient

- CPR induced consciousness occurs when a patient gains some level of consciousness during cardiac arrest, despite no pulse being present.
- This may lead to interference with CPR preventing safe and effective resuscitation.
- Consult the AV Clinician for advice if this occurs.

Return of Spontaneous Circulation (ROSC)

- Continue airway management and ventilation.
- Reassess and monitor the patient frequently (PSA, RSA, GCS, adjuncts). Modify management as required.
- Provide a situation report. Consider consultation with the AV Clinician if paramedic backup is delayed.
- Remain aware of potential for patient to re-arrest and plan for this. Patients in the post ROSC period are often unstable.
- Avoid moving the patient initially unless there is an immediate need (e.g. due to safety concerns).

Prolonged resuscitation

- Where paramedic backup is delayed, consult the AV Clinician for management advice and to consider options around alternative backup or management.
- Consult the AV Clinician where “no shock” is repeatedly advised after 30 minutes of resuscitation and there are no compelling reasons to continue. Further efforts may be futile. The AV Clinician may consider directing first responders to cease resuscitation.

Flowchart


Birthed
Maintain warmth / stimulate
– Term or preterm (32 – 42 weeks): Skin to skin, dry, beanie
– Very preterm (< 32 weeks), witnessed: Leave wet, polyethylene bag, dry head, beanie
– Very preterm (< 32 weeks), unwitnessed: Dry, polyethylene bag, beanie
Breathing / crying
Muscle tone (flexed arms and legs)
Breathing adequately and good muscle tone
Skin to skin contact with mother
Maintain warmth
Monitor HR / breathing
1 minute
Apnoeic / gasping or poor muscle tone
Position
– Clamp and cut cord if necessary to facilitate resuscitation
– Move to resus area (fresh towel, bubble wrap)
Airway
– Neutral position (towel under shoulders)
– Suction only if airway obstruction is suspected
Continue drying / stimulating while assessing (no more than 30 seconds)
Breathing / crying
Muscle tone (flexed arms and legs)
Heart rate (auscultate)
Apnoeic / gasping or poor muscle tone or HR < 100
IPPV at 40 – 60 per minute on room air
– Target chest rise and fall
Troubleshooting as required:
– Mask size and fit
– Ensure neutral airway position
– Two person BVM technique
– Increase inspiratory pressure
– Consider suction (if airway occlusion suspected)
– Chin lift and open mouth
– Swap operators
Escalate care / PIPER via the AV Clinician if not already contacted
Reassess after 30 seconds
HR < 60
CPR 3:1 ratio with Oxygen (5 L / min)
Reassess in two-minute cycles
HR 60 - 100
Continue:
IPPV at 40 – 60 per minute on room air
Troubleshooting
Reassess after 30 seconds
HR < 100 persists:
IPPV with Oxygen (5 L / min)
HR > 100
Skin to skin contact with mother
Maintain warmth
IPPV if HR drops below 100 at any stage
Discuss with AV Clinician / PIPER

Care objectives

- **Temperature:** Maintain normal temperature.
- **Ventilation:** Establish and maintain effective ventilation.
- **Escalation of care:** Seek early backup, expert advice from PIPER and ensure transport to a facility appropriate for the patient's acuity.

Intended patient group

- Newborns who require resuscitation after birth

More information

This protocol is intended to support newborns requiring resuscitation while transitioning to the extrauterine environment. Usually this is immediately following birth. For simplicity, the AV definition of "Newborn" includes the first 24 hours of life and this guideline can be applied during that period.

General notes

Overview

- **Ventilation and temperature:** Establishing and maintaining effective ventilation and the maintenance of normal temperature are the most important principles of newborn resuscitation. Other elements of resuscitation such as introducing supplemental oxygen, are unlikely to add any value if they come at the expense of ventilation and temperature.
- **Escalation of care:** Newborn resuscitation is a complex, high acuity, low occurrence skill, often required in the context of having multiple patients (i.e. mother and newborn). Early backup and early expert advice from PIPER is essential.

Initial care

- Immediate care following birth is focused on maintaining temperature while simultaneously stimulating and assessing the newborn.

More information

- All newborns are vulnerable to hypothermia. Preterm newborns are especially vulnerable. Hypothermia is an independent predictor of poor outcomes and should be aggressively prevented.

- The ideal order of steps varies depending on gestational age and whether the birth was witnessed.
  - Term / preterm (32 - 42 wks): Place the newborn skin to skin on mother, simultaneously dry them, cover with fresh towels / blanket or bubble wrap, place a beanie.
  - Very Preterm (< 32 wks), witnessed: Leave the newborn wet as the remaining fluid remains warm and will assist in maintaining the newborn's temperature. Place them straight into a polyethylene bag with a hole pre-cut for the head, dry head and place a beanie.
  - Very Preterm (< 32 wks), unwitnessed: Dry the newborn as the remaining fluid is likely now cold and should be removed to assist in maintaining temperature. Place them in a polyethene bag with a hole pre-cut for the head and place a beanie.

Initial assessment

- Focus on:
  - Adequacy of breathing: Regular spontaneous breathing usually occurs within 15 -30 seconds with stimulation / drying
  - Muscle tone: Moving all limbs and flexed posture
- **Good muscle tone and adequate breathing:** unlikely to need resuscitation.
- **Inadequate breathing or poor muscle tone:**
  - **Position:** Place the newborn in a resuscitation area.
  - **Airway:** Place the airway in a neutral position as per **CWI/OPS/190 Airway Manoeuvres & Positioning** (likely requires a folded towel under the shoulders).

Reassess

- If poor muscle tone or inadequate breathing obviously persist, there is no need to delay initiating resuscitation to measure the heart rate.
- If some improvement is seen, measure the heart rate to inform the need for resuscitation.

More information

Position

The resuscitation area may be either of the following at the judgement of AV staff or volunteers:

- Between the mother's legs after replacing soiled towels / blankets. This allows for the umbilical cord to remain attached and streamlines the initial assessment and resuscitation (i.e. focus on ventilation and warmth rather than cord cutting). Cutting the cord will still be required in the first minutes of resuscitation after ventilation has been initiated.
- A dedicated resuscitation area nearby. If resuscitation cannot be performed (usually because of the logistics of caring for both mother and newborn), clamping and cutting the cord to move the newborn to a resuscitation area is equally acceptable.

Airway

Place the head in a neutral position to open the airway. This may require a folded towel to be placed under the newborn's shoulders.

Continue measures to maintain temperature and stimulate (e.g. finish drying, applying beanie, place bubble wrap). For very preterm newborns placed directly into a polyethylene bag, the application of the bag, drying of the head and application of the beanie is sufficient stimulation. Many very preterm babies require positive pressure ventilation (PPV) regardless of initial efforts to stimulate and dry.

Reassess the adequacy of breathing and muscle tone and measure the heart rate with a stethoscope or by taking a brachial pulse (the heart rate should rise to above 100 bpm within a minute of birth). If the newborn is not breathing effectively, has poor muscle tone, or HR remains < 100 bpm after drying and stimulating, initiate PPV on room air. Breathing and tone are the quickest to assess and if they remain clearly inadequate, the newborn will require PPV - there is no need to delay PPV to measure a heart rate. Heart rate should still be measured as soon as practicable to guide continued resuscitation interventions.

Ventilation

- Initiate ventilation within the first 60 seconds of management in the non-vigorous newborn.
- A correctly sized facemask will achieve a seal around the mouth and nose but not cover the eyes or overlap the chin.
- **OPAs are not recommended** for routine use as they may cause airway obstruction.
- An increase in heart rate > 100 bpm is the most important indicator of the adequacy of ventilation.
- If the heart rate does not increase, the most likely cause is inadequate ventilation. This should prompt a strong and ongoing focus on troubleshooting bag valve mask ventilation as per **CWI/OPS/059 Bag Valve Mask**.
- During the initial period of ventilation, escalating care / contacting PIPER (if not already activated) via the AV Clinician and applying pulse oximetry with the primary goal of measuring heart rate are the next priorities.
- Healthy newborns normally have an SpO_2 of approximately 60 - 65% at birth. This gradually increases to 85 – 95% within the first ten minutes of life. If the heart rate is > 100, breathing is normal and the SpO_2 trends upwards towards > 90% at 5-10 minutes post-birth, no further interventions are required. Continue to assess breathing, heart rate and muscle tone, and maintain warmth by placing the newborn skin-to-skin on mother's chest. Further management should ideally be informed by

PIPER.

Suction

- Suction is only required where the airway is obstructed. If suction is required, the mouth should be suctioned first, followed by the nose. Newborns are nasal breathers and may gasp and inhale pharyngeal fluid if the nose is cleared first.
- Suction should be gentle, brief (5 - 6 seconds) and no deeper than the oropharynx.

Pulse oximetry

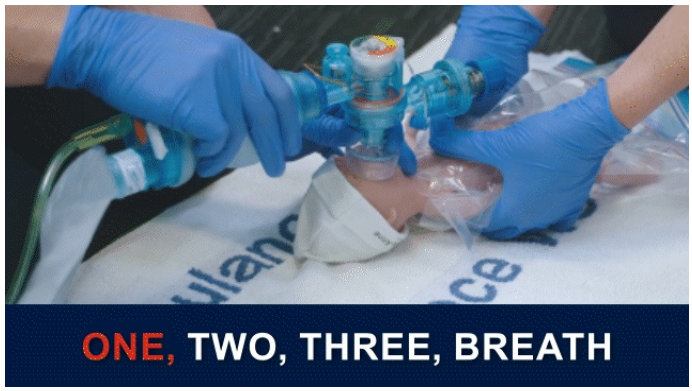
- Attach infant probe to the right hand or right wrist (pre-ductal) if available.
  - Watch video of applying the SpO_2 probe
- Applying the probe under bubble wrap or plastic coverings is difficult but should not come at the expense of ventilation or maintaining warmth.
- SpO_2 values post-birth are shown below. These gradually increase to > 90% in the first ten minutes after birth.

Targeted SpO_2 (mins post birth)	1 min	60 – 70%
	3 mins	70 – 90%
	5 mins	80 – 90%
	7-10 mins	> 90%

- Newborns with an SpO_2 < 90% at 5 - 10 minutes post birth may require supplemental oxygen. Consult PIPER via the AV Clinician for further care.

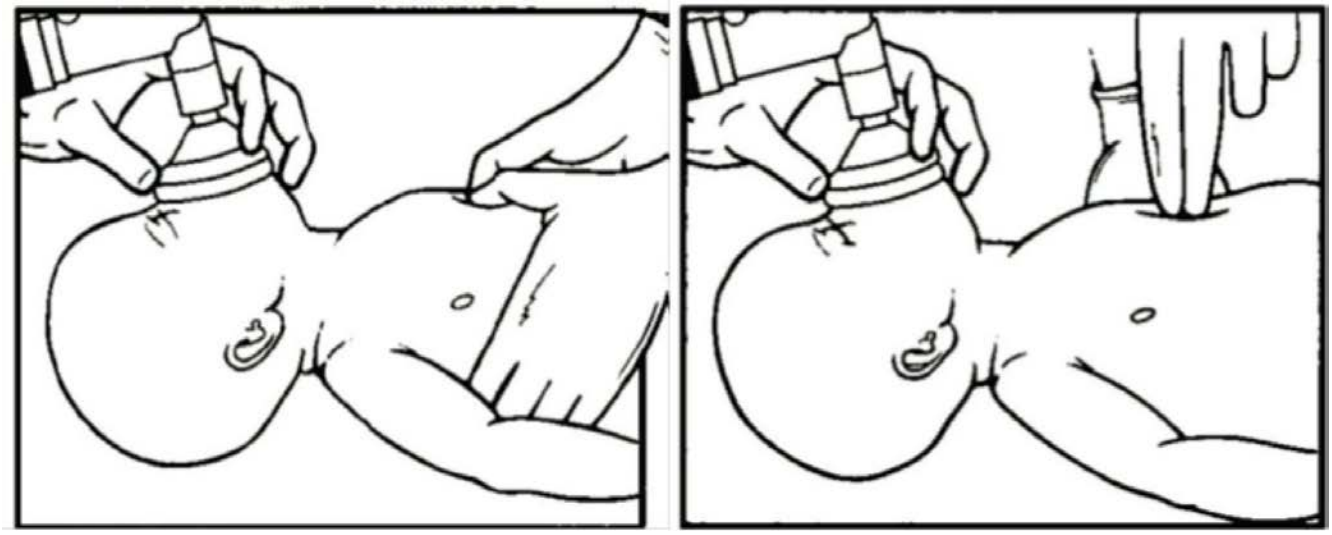
CPR

- 3:1 compression to ventilation ratio.



- Achieve 90 compressions and 30 ventilations per minute with a 0.5 second pause for ventilation (120 events per minute).
- Compression depth should be approximately 1/3 the depth of the chest.
- The two thumb, hand encircling technique (below left) is preferred. The two-finger technique (below

right) may be performed.



PIPER handover (IMIST)

Identification	Identify yourself, scene location
Mechanism / Medical Complaint	Nature of presentation (e.g preterm baby is not breathing)
Information	• Gestational age • Time since birth
Signs	• Respiratory rate and effort • Movement and muscle tone • Heart rate (< 60, 60-100, >100)
Treatment	Management currently being provided (focus on ventilation and temperature management)

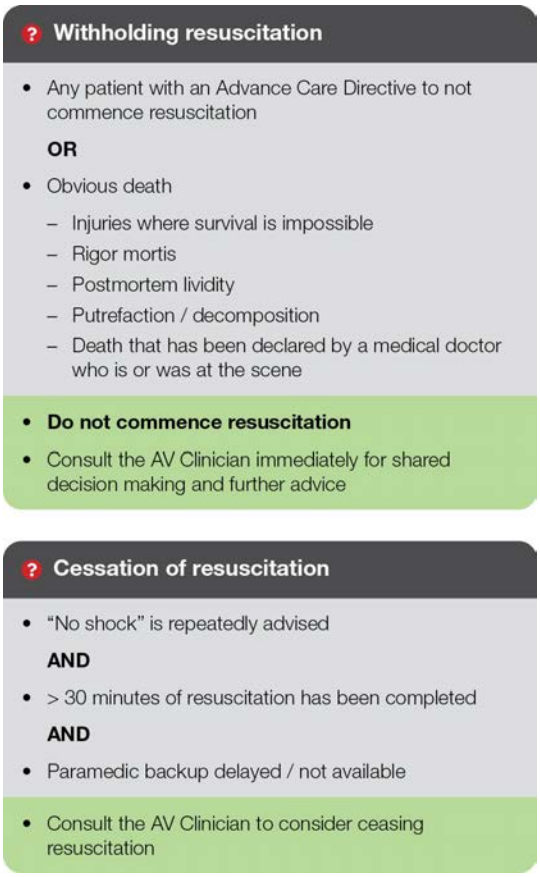
Indications for withholding resuscitation

- Resuscitative efforts should be withheld in newborns < 22 weeks gestation as there is no possibility of successful resuscitation. Where there is any doubt as to the gestation of the newborn, first responders should attempt resuscitation and consult with PIPER via the AV Clinician.
- While resuscitative efforts may not be required, it is a legal requirement in Victoria that any infant born at ≥ 20 weeks' gestation OR ≥ 400 g birth weight OR showing signs of life regardless of gestation, be registered by a hospital, medical facility or midwife. There is no requirement that miscarriages < 20 weeks' gestation be reported to the coroner or police unless the loss of pregnancy

has occurred due to violence or injury.

Withholding or Ceasing Resuscitation CPP C14

Flowchart



Care Objectives

- Identify patients who will not benefit from resuscitation or where there is a legal requirement to withhold resuscitation.

Assessment / Management

Obvious death

- Obvious death is characterised by any of the following:
  - Injuries where survival is impossible (e.g. decapitation, incineration, cranial destruction, hemicorporectomy)
  - Rigor mortis
  - Postmortem lividity
  - Putrefaction / decomposition
  - Death that has been declared by a medical doctor who is or was at the scene.

Advance Care Directives

- First responders have a legal obligation and duty of care to act in accordance with an Advance Care Directive (ACD) or the decisions of a medical treatment decision maker.
- First responders may provide or withhold treatment based upon the patient's wishes as recorded on an ACD that is sighted by them or first responders may accept, in good faith, the advice from those present at the scene of the patient's wishes and that this supporting documentation exists.
- A patient's ACD must be followed even where the emergency is not directly related to a pre-existing illness. If the person's wishes are unknown or there is doubt about the documentation or its existence, first responders are to provide routine care.
- Please note: The law permits provision of medical treatment in an emergency (e.g. resuscitation), without consent, to a person who does not have decision-making capacity. Emergency treatment should not be delayed while searching for an ACD (or a medical treatment decision maker), but a first responder must comply with a known ACD **except in circumstances** where:
  - The ACD instructs a first responder to provide medically futile or unethical treatment,

    or
  - The ACD instructs a first responder to take action(s) that would go against their code of conduct,

    or
  - The ACD cannot be readily and confidently understood and applied by the first responder.

Voluntary Assisted Dying

- In Victoria, patients with a terminal diagnosis may choose to undertake Voluntary Assisted Dying (VAD).
- The medication used leads to deep sedation and respiratory depression. In most patients, death from respiratory depression occurs within one hour after oral ingestion.
- Where AV attends a patient who is actively involved in a VAD case, it is important to note:
  - There will be a documented instructional Advance Care Directive for "no resuscitation".
  - Family members or other health professionals (including First Responders) are not permitted to assist in the administration of the VAD medicine.
  - Attending staff are not to administer active clinical therapy or resuscitation such as oxygen therapy, or assisted BVM ventilation.
  - Supportive care such as positioning and other comfort measures are encouraged.
- If the dying process is prolonged, first responders are encouraged to contact the AV Clinician who will liaise with the care navigator, the patient's specialist VAD doctor or the palliative care team.
- For more information see:
  - Victorian Department of Health's Voluntary Assisted Dying website

Chest Pain / Discomfort CPP C05

1. Initial Approach and Assessment

- Follow approach to an incident **steps 1 – 6**
- Assess SpO_2
- Oxygen Therapy as per **CPP C23 Oxygen Therapy**

Assess

- Pain suspected to be cardiac in origin using DOLOR and 'payoff'
- Pain Score 0 -10

2. IF likely to be cardiac pain / discomfort

Action

- Manage as time critical and immediately prepare for transport to assist the Paramedic backup crew and minimise scene time
- Administer chewable **Aspirin 300 mg (1 tablet)** if no allergy or sensitivity, associated back pain or other contraindications

3. IF Pain Score > 2 and Blood Pressure > 100 mmHg Systolic

Stop

- **Do not** administer nitrate therapy if the patient:
  - Has any contraindications to nitrates
  - Has a known sensitivity to nitrates

Action

- **Glyceryl Trinitrate 0.3 mg buccal / sublingual**
  - Remove tablet from mouth and rinse out immediately if the tablet causes problems e.g. collapse or hypotension

- Assess patient for side effects of nitrate therapy

4. IF pain persists and BP remains > 100 mmHg Systolic and there are no side effects

Action

- Repeat **Glyceryl Trinitrate sublingual / buccal** at original dose at 5 minute intervals until pain is reduced to a comfortable level
- Reassess after each administration. Cease **Glyceryl Trinitrate** administration if BP falls below 100 mmHg or side effects occur.

5. If unable to administer nitrate therapy or pain score > 2 persists despite nitrate therapy as above

Action

- Administer **Methoxyflurane per Pain Relief – Non Cardiac C7**

Accredited Practice (Pain Relief)

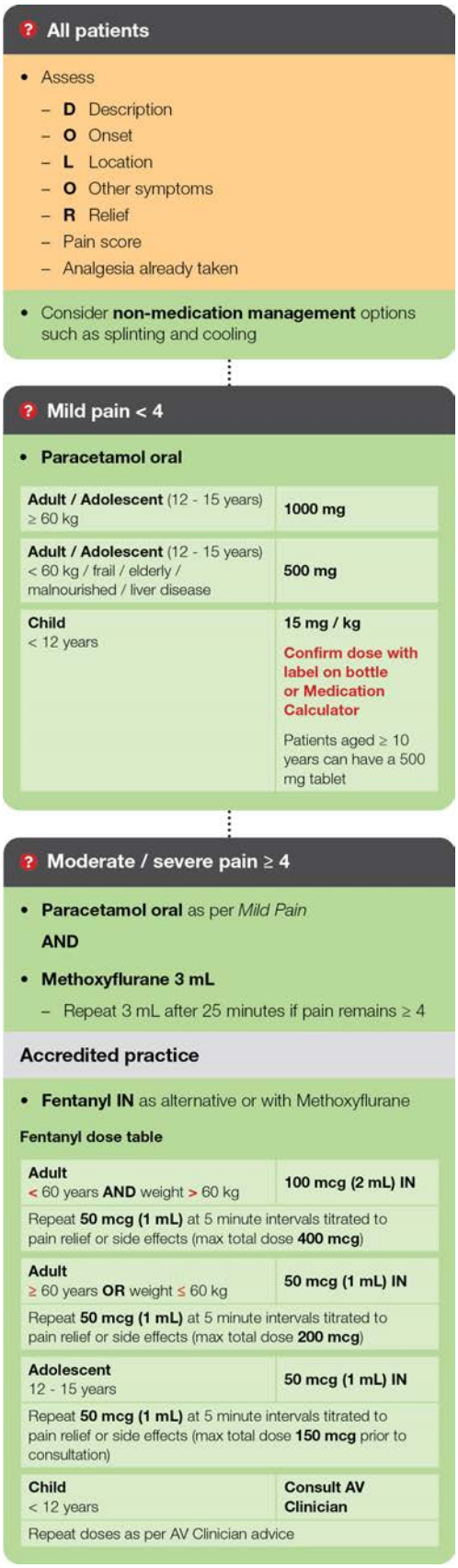
- Administer **Fentanyl IN** instead of **Methoxyflurane**

6. Patient Transport

Action

- Commence or prepare patient for transport to nearest approved medical facility OR rendezvous with Paramedic backup
- Provide Situation Report
- Continually reassess and modify treatment as required

Flowchart


All patients
Assess
D Description
O Onset
L Location
O Other symptoms
R Relief
Pain score
Analgesia already taken
Consider non-medication management options such as splinting and cooling
Mild pain < 4
Paracetamol oral
Adult / Adolescent (12 - 15 years) ≥ 60 kg
1000 mg
Adult / Adolescent (12 - 15 years) < 60 kg / frail / elderly / malnourished / liver disease
500 mg
Child < 12 years
15 mg / kg
Confirm dose with label on bottle or Medication Calculator
Patients aged ≥ 10 years can have a 500 mg tablet
Moderate / severe pain ≥ 4
Paracetamol oral as per Mild Pain
AND
Methoxyflurane 3 mL
Repeat 3 mL after 25 minutes if pain remains ≥ 4
Accredited practice
Fentanyl IN as alternative or with Methoxyflurane
Fentanyl dose table
Adult < 60 years AND weight > 60 kg
100 mcg (2 mL) IN
Repeat 50 mcg (1 mL) at 5 minute intervals titrated to pain relief or side effects (max total dose 400 mcg)
Adult ≥ 60 years OR weight ≤ 60 kg
50 mcg (1 mL) IN
Repeat 50 mcg (1 mL) at 5 minute intervals titrated to pain relief or side effects (max total dose 200 mcg)
Adolescent 12 - 15 years
50 mcg (1 mL) IN
Repeat 50 mcg (1 mL) at 5 minute intervals titrated to pain relief or side effects (max total dose 150 mcg prior to consultation)
Child < 12 years
Consult AV Clinician
Repeat doses as per AV Clinician advice

Care objectives

- To reduce the suffering associated with the experience of pain to a degree that the patient is comfortable.

Overview

- Check for contraindications before administering any medications
- Ensure adequate reassurance provided
- Apply appropriate splinting for all suspected fractures or dislocations

Fentanyl

- Where accredited, fentanyl is to be given in preference to methoxyflurane for severe pain as the analgesic effects are more effective and last longer.

Methoxyflurane

- Only administer in a well-ventilated area.
- Instruct and encourage patient in correct use of Penthrox inhaler.
- The maximum dose of methoxyflurane for any one patient is 6 mL per 24 hour period. This must NOT be exceeded.
- If a patient is allergic to fentanyl, methoxyflurane may be used as an alternative (if not otherwise contraindicated).

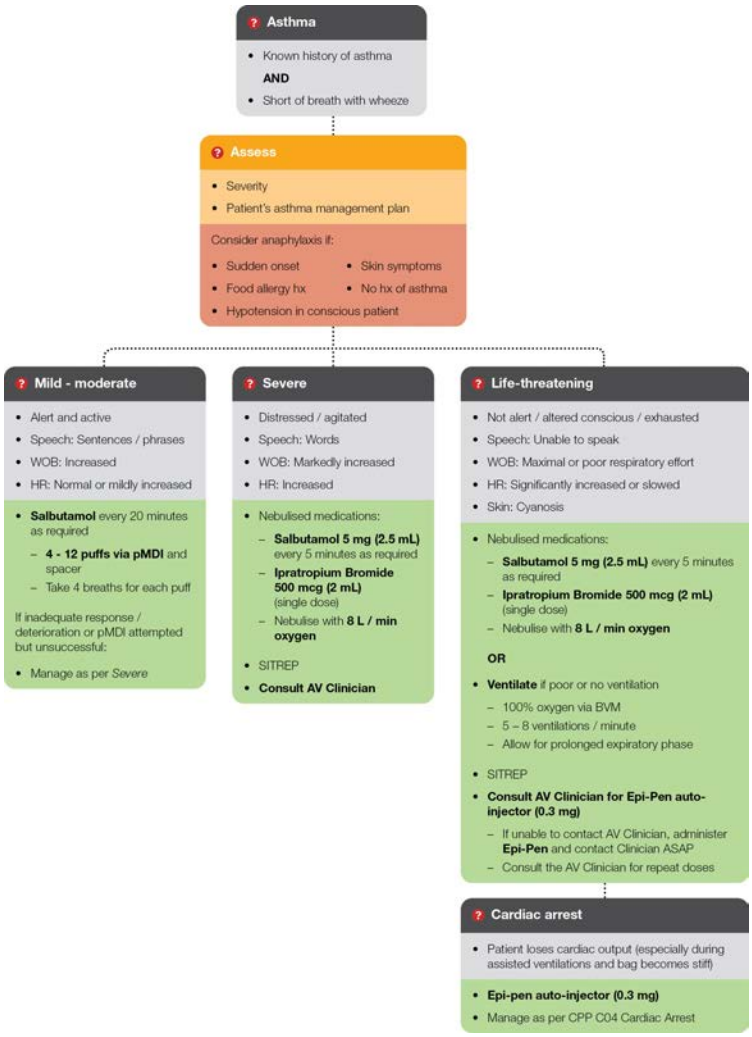
Paracetamol

- Administer paracetamol in addition to methoxyflurane or fentanyl where the oral route is not contraindicated.
- Do not give medications orally if the patient is unable to swallow effectively and safely:
  - Altered conscious state
  - Unable to follow commands
  - Impaired swallowing (e.g. from previous stroke)
  - Persistent vomiting
- Children aged ≥ 10 years can have a single 500mg tablet as an alternative to the liquid preparation depending on the patient preference.
- Dose errors in paediatric patients can cause serious harm. Paracetamol dose should be cross checked using the bottle and / or the digital CPG medication calculator. The medication and dose must be confirmed with other AV staff or volunteers (or with the patient, parents or bystanders if there are no other AV staff or volunteers present).

Further Information

- https://av-digital-cpg.web.app/assets/pdf/MAC/PCC250709 ACO CERT Analgesia.pdf

Flowchart



Care objectives

- Assess severity
- Inhaled bronchodilators in patients with adequate ventilation
- Epi-pen in patients with life-threatening asthma
- Early SITREP and consider AV Clinician consult in severe or life-threatening asthma

Intended patient group

- Patients aged ≥ 16 years with acute asthma

Overview

Definition

- Asthma is a chronic lung disease characterised by:
  - Variable respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough
  - Variable airflow obstruction (due to constricted airways, swelling or excessive mucous)
  - Increased airway reactivity
  - Underlying airway inflammation

Assessment

- Assess the severity of the patient's presentation but do not delay treatment in the setting of clearly severe or life-threatening asthma.
- Consider anaphylaxis in all patients presenting with asthma. Anaphylaxis should be strongly suspected where there is:
  - No history of asthma
  - Sudden onset (especially after food or medication)
  - Skin symptoms (rash, urticaria, oedema)
  - Hypotension in the conscious patient
- Some patients will have an Asthma Management Plan. Support the patient to follow their in date plan or consult the AV Clinician for advice.

History

- Onset, duration and nature of symptoms
- Frequency of salbutamol use (number of doses, time of last dose)
  Frequent salbutamol use (≥12 canisters per year / > 6 puffs per day on average) is a risk factor for life-threatening asthma
- Trigger factors for this episode if known (e.g. upper respiratory tract infection, passive smoking).
  Sudden onset of symptoms after insect sting or ingestion of food / medication suggest anaphylaxis.
- Previous episodes details – frequency of attacks; previous need for hospital admission, ICU, and / or intubation.
  Previous ICU admission, recent presentation (within 4 weeks) or frequent presentations (> 3 in a year) are risk factors for life-threatening asthma.

Physical Examination

- **Chest sounds:** Wheeze is common but may not always be present. Consult the AV Clinician for advice if a patient with asthma presents with SOB but no obvious wheeze.
- **Oxygen saturation:** Low SpO_2 indicates severe asthma. Normal SpO_2 does not rule out severe asthma.
- **Deteriorating heart rate:** a sudden drop in heart rate may indicate imminent cardiac arrest rather than improvement.

Management

- Asthma is dynamic and patients can show initial improvement with treatment then deteriorate rapidly. Adjust management of the patient if their severity category changes.
- Patients presenting with SOB and a wheeze due to a cause other than asthma, COPD or anaphylaxis may be treated with salbutamol and ipratropium bromide as per the management in this guideline. This may include conditions such as smoke inhalation or viral infections.

Severe / Life-threatening asthma

- Provide an early SITREP and consult the AV Clinician in all cases of severe or life-threatening asthma.
- Patients with severe and life-threatening asthma are at high risk of deterioration during extrication.
  - Management should be started prior to any attempt to extricate. It is reasonable to allow some time for the initial treatment to take effect prior to extricating.
  - Prepare for deterioration prior to extrication (e.g. ensure resuscitation equipment immediately available).
  - Patient exertion must be minimised as much as reasonably possible.
  - Monitor patient closely throughout extrication
- BVM ventilation with 100% oxygen is required if the patient has poor or no ventilation or a reduced conscious state.
- Consult the AV Clinician for Epi-Pen administration as soon as possible after initial management.
  - If the AV Clinician is unable to be contacted, administer the Epi-pen and consult them as soon as possible after

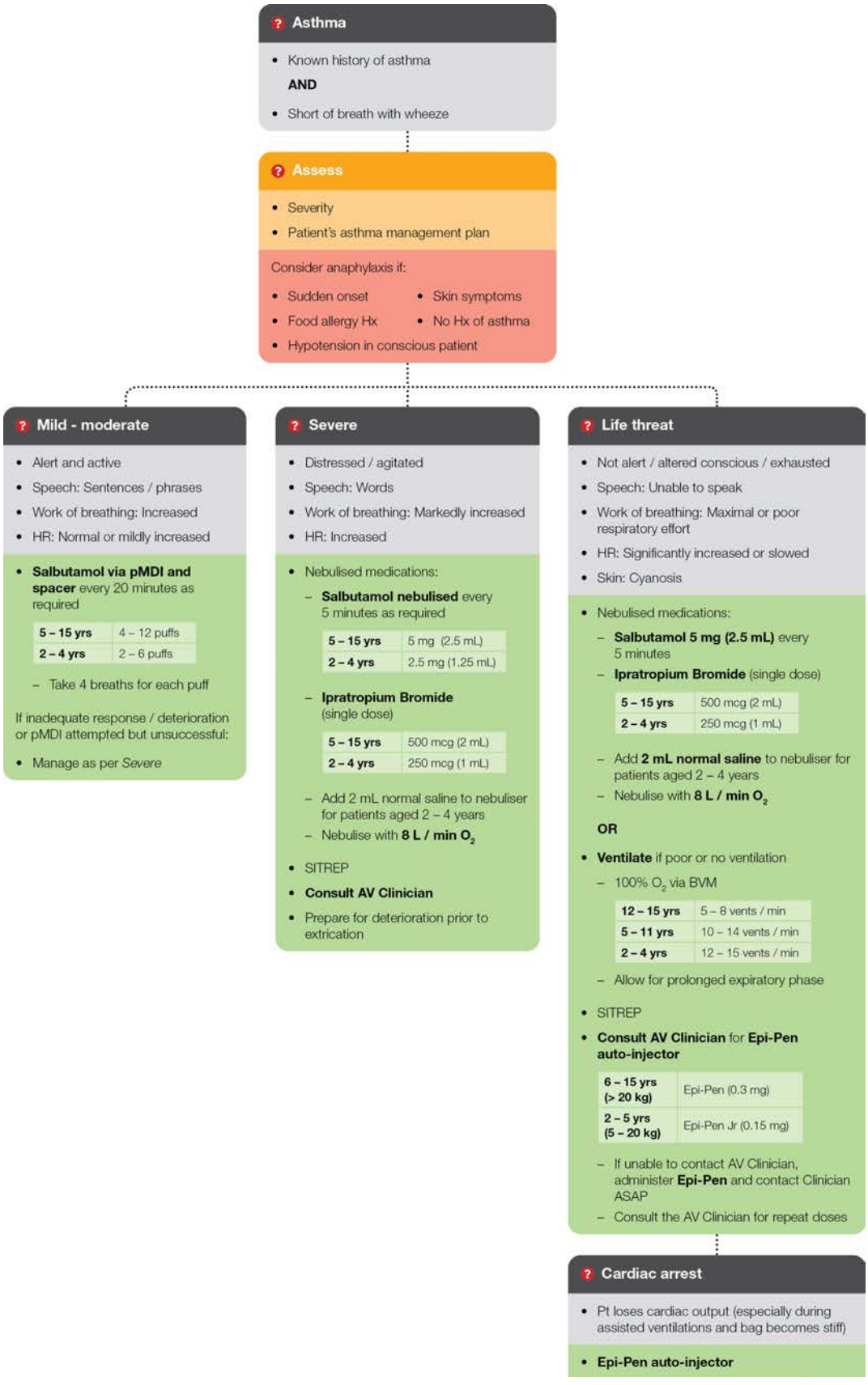
Cardiac arrest

- Epi-Pen administration is the priority.
  - The AV Clinician does not need to be contacted to administer the Epi-Pen in this situation
- Commence cardiac arrest management as per **CPP C04** after the Epi-Pen has been administered

Further resources

- https://av-digital-cpg.web.app/assets/pdf/MAC/PCC250312 Asthma (Adult).pdf
- https://av-digital-cpg.web.app/assets/pdf/MAC/PCC250812 Asthma (Adult).pdf

Flowchart


Asthma
Known history of asthma
AND
Short of breath with wheeze
Assess
Severity
Patient's asthma management plan
Consider anaphylaxis if:
Sudden onset
Skin symptoms
Food allergy Hx
No Hx of asthma
Hypotension in conscious patient
Mild - moderate
Alert and active
Speech: Sentences / phrases
Work of breathing: Increased
HR: Normal or mildly increased
Salbutamol via pMDI and spacer every 20 minutes as required
5 – 15 yrs 4 – 12 puffs
2 – 4 yrs 2 – 6 puffs
Take 4 breaths for each puff
If inadequate response / deterioration or pMDI attempted but unsuccessful:
Manage as per Severe
Severe
Distressed / agitated
Speech: Words
Work of breathing: Markedly increased
HR: Increased
Nebulised medications:
Salbutamol nebulised every 5 minutes as required
5 – 15 yrs 5 mg (2.5 mL)
2 – 4 yrs 2.5 mg (1.25 mL)
Ipratropium Bromide (single dose)
5 – 15 yrs 500 mcg (2 mL)
2 – 4 yrs 250 mcg (1 mL)
Add 2 mL normal saline to nebuliser for patients aged 2 – 4 years
Nebulise with 8 L / min O2
SITREP
Consult AV Clinician
Prepare for deterioration prior to extrication
Life threat
Not alert / altered conscious / exhausted
Speech: Unable to speak
Work of breathing: Maximal or poor respiratory effort
HR: Significantly increased or slowed
Skin: Cyanosis
Nebulised medications:
Salbutamol 5 mg (2.5 mL) every 5 minutes
Ipratropium Bromide (single dose)
5 – 15 yrs 500 mcg (2 mL)
2 – 4 yrs 250 mcg (1 mL)
Add 2 mL normal saline to nebuliser for patients aged 2 – 4 years
Nebulise with 8 L / min O2
OR
Ventilate if poor or no ventilation
100% O2 via BVM
12 – 15 yrs 5 – 8 vents / min
5 – 11 yrs 10 – 14 vents / min
2 – 4 yrs 12 – 15 vents / min
Allow for prolonged expiratory phase
SITREP
Consult AV Clinician for Epi-Pen auto-injector
6 – 15 yrs (> 20 kg) Epi-Pen (0.3 mg)
2 – 5 yrs (5 – 20 kg) Epi-Pen Jr (0.15 mg)
If unable to contact AV Clinician, administer Epi-Pen and contact Clinician ASAP
Consult the AV Clinician for repeat doses
Cardiac arrest
Pt loses cardiac output (especially during assisted ventilations and bag becomes stiff)
Epi-Pen auto-injector

6 – 15 yrs (> 20 kg)	Epi-Pen (0.3 mg)
2 – 5 yrs (5 – 20 kg)	Epi-Pen Jr (0.15 mg)

- Mx as per CPP C04 Cardiac Arrest

Care Objectives

- Assess severity
- Inhaled bronchodilators in patients with adequate ventilation
- Epi-pen in patients with life-threatening asthma
- Early SITREP and consider AV Clinician consult in severe or life-threatening asthma

Intended patient group

- Patients aged < 16 years with acute asthma

Overview

Definition

- Asthma is a chronic lung disease characterised by:
  - Variable respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough
  - Variable airflow obstruction (due to constricted airways, swelling or excessive mucous)
  - Increased airway reactivity
  - Underlying airway inflammation

Assessment

- Assess the severity of the patient's presentation but do not delay treatment in the setting of clearly severe or life-threatening asthma.
- Consider anaphylaxis in all patients presenting with asthma. Anaphylaxis should be strongly suspected where there is:
  - No history of asthma
  - Sudden onset (especially after food or medication)
  - Skin symptoms (rash, urticaria, oedema)
  - Hypotension in the conscious patient
- Some patients will have an Asthma Management Plan. Support the patient to follow their plan or consult the AV Clinician for advice.

History

- Onset, duration and nature of symptoms
- Frequency of salbutamol use (number of doses, time of last dose)
  Frequent use in recent months is a risk factor for life-threatening asthma.
- Trigger factors for this episode if known (e.g. upper respiratory tract infection, passive smoking)
  Sudden onset of symptoms after insect sting or ingestion of food / medication suggest anaphylaxis.
- Previous episodes details – frequency of attacks; previous need for hospital admission, ICU, and / or intubation
  Previous ICU admission, recent presentation (within 4 weeks) or frequent presentations (> 3 in a year) are risk factors for life-threatening asthma.

Physical examination

- **Chest sounds:**
  - Wheeze is common but may not always be present. Consult the AV Clinician for advice if a patient with asthma presents with SOB but no audible wheeze.
  - Stridor is a high-pitched upper airway sound similar to wheeze that may occur in children under 6 years with croup. It is often accompanied by a barking cough. In this situation, minimise distress to the patient as crying can worsen any obstruction, and consult the AV Clinician for advice.
- **Oxygen saturation:** Low SpO_2 indicates severe asthma. Normal SpO_2 does not rule out severe asthma.
- **Deteriorating heart rate:** a sudden drop in heart rate may indicate imminent cardiac arrest rather than improvement.

Management

- Asthma is dynamic and patients can show initial improvement with treatment then deteriorate rapidly. The management of the patient should be tailored to changes in the condition.
- Patients presenting with SOB and a wheeze due to a cause other than asthma, COPD or anaphylaxis may be treated with salbutamol and ipratropium bromide as per the management in this guideline. This may include conditions such as smoke inhalation or viral infections.

Severe / Life-threatening asthma

- Provide an early SITREP and consult the AV Clinician in all cases of severe or life-threatening asthma.
- Patients with severe and life-threatening asthma are at high risk of deterioration during extrication.
  - Management should be started prior to any attempt to extricate. It is reasonable to allow some time for the initial treatment to take effect prior to extricating.
  - Prepare for deterioration prior to extrication (e.g. ensure resuscitation equipment immediately available).

  - Patient exertion must be minimised as much as reasonably possible.
  - Monitor patient closely throughout extrication.

- BVM ventilation with 100% oxygen is required if the patient has poor or no ventilation or a reduced conscious state.
- Consult the AV Clinician for Epi-Pen administration as soon as possible after initial management.
  - If the AV Clinician is unable to be contacted, administer the Epi-pen and consult them as soon as possible after.

Cardiac arrest

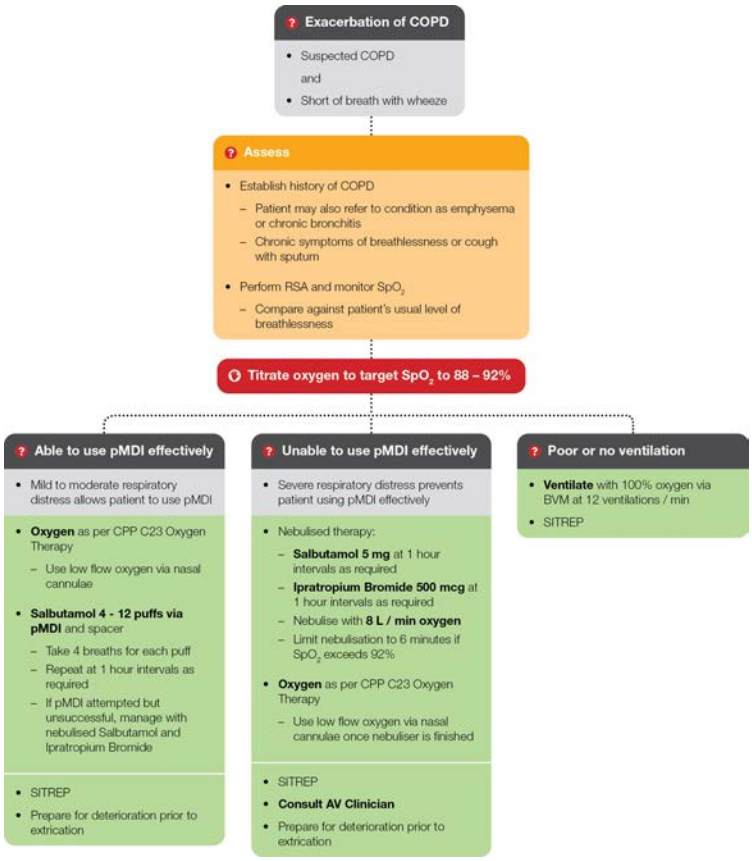
- Epi-Pen administration is the priority.
  - The AV Clinician does not need to be contacted to administer the Epi-Pen in this situation.
- Commence cardiac arrest management as per **CPP C04** after the Epi-Pen has been administered.

Further Information

- https://av-digital-cpg.web.app/assets/pdf/MAC/PCC250812 Asthma (Paediatric).pdf

Chronic Obstructive Pulmonary Disease (COPD) CPP C21

Flowchart



Care objectives

- Relieve shortness of breath with bronchodilators
- Controlled oxygen therapy if hypoxaemic to avoid harm due to excessive oxygen administration

Intended patient group

- Patients aged ≥ 16 years with exacerbation of COPD

Overview

- Chronic Obstructive Pulmonary Disease (COPD) is a respiratory condition characterised by persistent shortness of breath and respiratory symptoms.
- An exacerbation of COPD involves an episode of increased shortness of breath and / or cough and sputum. Exacerbations are most commonly triggered by respiratory infections.

Chronic Obstructive Pulmonary Disease (COPD) CPP C21

Assessment

- Determine if the patient has COPD by asking if they have a known COPD diagnosis. They may also refer to it as emphysema or chronic bronchitis.
  - Patients will often have chronic breathlessness and may have a chronic cough.
  - They will usually be prescribed 2 or more inhaler medications.
  - Patients with severe COPD may be prescribed home oxygen.
- Assess the patient as per the respiratory status assessment
  - Compare the current symptoms to the patient's usual baseline / function.
- Some patients may have a COPD Action Plan including steroid and antibiotic medications. Support the patient to follow their own action plan or consult the AV Clinician for advice.
- Patients with advanced or end-stage COPD may be managed under a palliative care team. Consult the AV Clinician for advice on palliative care management.

History

- Onset, duration and nature of symptoms
- Frequency of reliever use
- Evidence of respiratory infection (e.g. productive cough with green sputum) or other cause of exacerbation
- Previous episode details – frequency of exacerbations, previous need for hospital admission, use of non-invasive ventilation, ICU, and / or intubation

Physical examination

- **Chest sounds:** Wheeze is common but may not always be present. Consult the AV Clinician for advice if a COPD patient presents with SOB and no obvious wheeze or other chest sounds.
- **Oxygen saturation:** Pulse oximetry should be monitored throughout care and is used to titrate oxygen therapy.

Management

Oxygen therapy

- Where oxygen is required for hypoxaemia, **target an SpO_2 of 88% - 92%**.
- Use low flow oxygen via nasal cannulae wherever possible to avoid excessive oxygen delivery.
- Oxygen administration resulting in SpO_2 > 92% may cause harm.
- See specific bronchodilator sections below for oxygen considerations during pMDI and nebulised therapy.

Bronchodilators

pMDI therapy

- Salbutamol pMDI alone is preferred over nebulised salbutamol and ipratropium bromide where the patient can use it effectively. This is to reduce the risk of harm associated with high oxygen levels in COPD patients.
- Administer low flow oxygen via nasal cannulae during pMDI therapy as required to maintain SpO_2 in the target range.

Nebulised therapy

- Use nebulised therapy if the patient cannot use a pMDI.
- Deliver nebulised medication with oxygen at 8 L / min.
- Where an oxygen driven nebuliser is used, limit administration to 6 minutes at a time if the patient's SpO_2 exceeds 92%.
  - This allows for most of the dose to be administered while minimising the risk of harm from high oxygen levels.
- After nebulisation, revert to low flow oxygen via nasal cannulae if required.

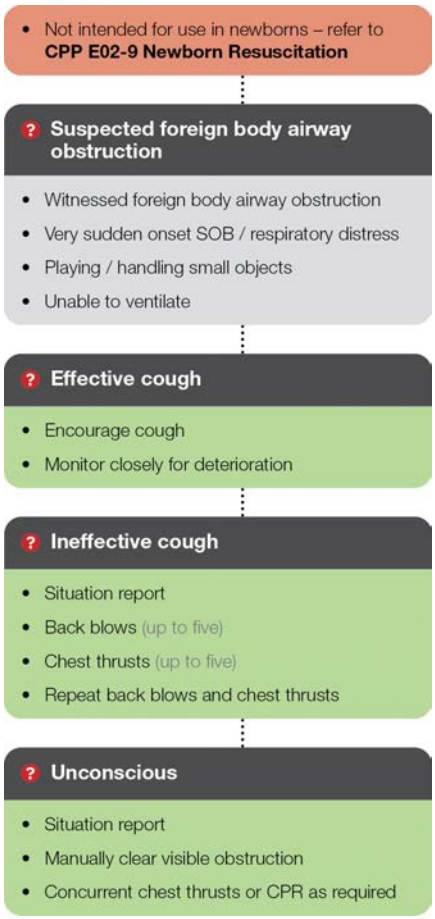
Extrication

- Patients with moderate – severe exacerbations of COPD are at risk of deterioration during extrication.
  - Management should be started prior to any attempt to extricate. It is reasonable to allow some time for the initial treatment to take effect prior to extricating.
  - Prepare for deterioration prior to extrication (e.g. ensure resuscitation equipment is immediately available).
  - Monitor patient closely throughout extrication.
  - Patient exertion must be minimised as much as reasonably possible.

Further Information

- https://av-digital-cpg.web.app/assets/pdf/MAC/PCC250812 COPD.pdf
- https://av-digital-cpg.web.app/assets/pdf/MAC/PCC250312 COPD.pdf

Flowchart



Care Objectives

- To identify the severity of foreign body airway obstruction
- Immediately manage foreign body airway obstruction causing inadequate ventilation

Intended patient group

- Any patient (aside from newborns) with suspected foreign body airway obstruction

Assessment

History

- Witnessed to inhale / choke on a foreign body
- Very sudden onset dyspnoea / respiratory distress

- Playing with / handling small objects
- Eating

Physical examination

- Coughing / gagging
- Stridor
- Voice changes
- Drooling
- Tracheal tugging, paradoxical breathing, chest wall retraction
- Unable to ventilate

Management

- Foreign body airway obstruction is treated based on the adequacy of ventilation.
- The best indicator of the adequacy of ventilation is the effectiveness of the patient's cough, although other signs are important in determining adequacy of ventilation.

Further information

- **Adequate ventilation:** The obstruction is incomplete and allows enough air to pass by. No interventions are necessary. Attempts to remove or investigate the obstruction may cause deterioration and should be delayed until the right resources are available to definitively manage a complete airway obstruction (e.g. in hospital).
- **Inadequate ventilation:** The obstruction is either complete or so severe that it does not allow enough air to pass by to sustain life. Immediate intervention is required.

Adequate ventilation	Inadequate ventilation
Effective cough	Ineffective cough
Able to speak	Unable to speak
Able to take a breath prior to coughing	Unable to breathe, silent chest, cyanosis
Normal conscious state	Altered conscious state

Effective cough

Incomplete obstruction with adequate ventilation

- Encourage the patient to cough.
- Monitor closely for deterioration as the obstruction may shift, becoming more severe.

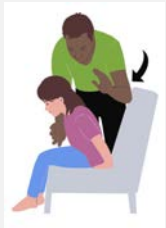
Ineffective cough

Complete or severe obstruction with inadequate ventilation

- Alternate between back blows and chest thrusts as required until the obstruction is dislodged, or the patient deteriorates.
- Assess the patient in between each blow or thrust. There is no need to continue once the obstruction is dislodged.

Back blows

- **Technique:** Strike the patient firmly and suddenly in the centre of the back between their shoulder blades using the heel of the hand.
- **Position:** Ideally the patient should brace against a supportive object or surface to provide stability during back blows.
  - There are no specific ages or weights at which one position may be used over another. It will depend on the size of the patient and what is easiest to achieve in the circumstances.
  - **Adults and larger children:** brace or lean against a chair, bed, or other support
  - **Smaller children:** across the clinician's knees
  - **Infants:** head down, chest supported by the clinician's forearm and head supported by the clinician's hand

Infant Back Blows	
Smaller Child Back Blows	
Larger Child Back Blows	

Adult Back Blows	

Chest thrusts

- **Technique:** A rapid, forceful thrust delivered to the centre of the chest while the back is supported.
  - Similar to chest compressions but delivered in a sharper movement and at a slower rate, allowing reassessment in between thrusts.
- **Position:** Position the back against any immediately available surface that can provide the most counter pressure against force of the thrust (e.g. ground, wall, or the clinician's other hand or body).

Infant Chest Thrusts	
Smaller Child Chest Thrusts	
Adult Chest Thrusts	

Unconscious

Perform concurrent efforts to remove the obstruction:

- Manually remove any visible obstruction in the upper airway and suction as required.
- Chest thrusts or CPR as required.
  - There is little difference between chest thrusts and CPR from the perspective of clearing a FBAO in an unconscious patient. If in any doubt regarding the presence of a pulse, default to CPR.

References

1. ANZCOR **Guideline 4 – Airway**. 2021. Available from: **https://www.anzcor.org/home/basic-life-support/guideline-4-airway**
2. Olasveengen TM, Semeraro F, Ristagno G, Castren M, Handley A, Kuzovlev A, et al. **European Resuscitation Council Guidelines 2021: Basic Life Support**. Resuscitation. 2021;161:98-114.
3. Couper K, Abu Hassan A, Ohri V, Patterson E, Tang HT, Bingham R, et al. **Removal of foreign body**

airway obstruction: A systematic review of interventions. Resuscitation. 2020;156:174-81.

4. Royal Children's Hospital. Foreign bodies – inhaled clinical practice guideline. March, 2021. Available from: https://www.rch.org.au/clinicalguide/guideline_index/Foreign_bodies_inhaled/

Further Information

- https://av-digital-cpg.web.app/assets/pdf/MAC/PCC220928 Choking.pdf

Acute Altered Consciousness CPP C12

1. Initial Approach and Assessment

- Follow approach to an incident **steps 1 – 6**

Assess

- History / likely cause for conscious state change e.g.
  - Alcohol / drug intoxication
  - Epilepsy (seizure activity; post ictal)
  - Insulin (diabetic) or other metabolic problem
  - Overdose or low oxygen (hypoxia)
  - Underdose (of medication or drug / alcohol withdrawal)
  - Trauma to the head
  - Infection
  - Pain or psychiatric condition
  - Stroke or TIA

Stop

- Protect patient and self from injury during any seizure
- Consider risk factors if drug taking suspected e.g. syringe

Action

- Place patient in lateral position
  - Support head during and after movement
  - Gently suction the airway if necessary and able
- **IF** Pt is biting, do not attempt to insert anything past the teeth
- Oxygen Therapy as per **CPP C23 Oxygen Therapy**
- **IF** inadequate ventilation
  - Position patient supine

- Use BVM with oxygen attached to maintain 12 ventilations/min
- Ventilate children (< 16 years) at appropriate rate/tidal volume

- **IF** stroke suspected manage as per **Acute Stroke C11**
- **IF** Hypoglycaemia suspected manage as per **Hypoglycaemia (Low Blood Sugar) C6**
- Provide Situation Report as soon as practicable
  - Call for other support resources early
- Continually reassess and modify treatment as required

2. Seizure Evident

- Manage seizures as per **CPP C24 Seizures**

3. Drug / Medication Overdose Suspected

Assess

- Evidence of illicit drug administration including paraphernalia
- Evidence of medications taken including bottles and foils

Stop

- Accidental needle stick injury must be a paramount concern at all times. Beware of / try to locate used needles before continuing
- Scenes involving illicit drug taking can be unpredictable and volatile. Enter such scenes and manage patients with great caution. Wait for police assistance if considered unsafe.

Action

- Continue to manage per Point 1 initial assessment / approach
- Provide early Situation Report, particularly where hazards are present

4. Traumatic Head Injury

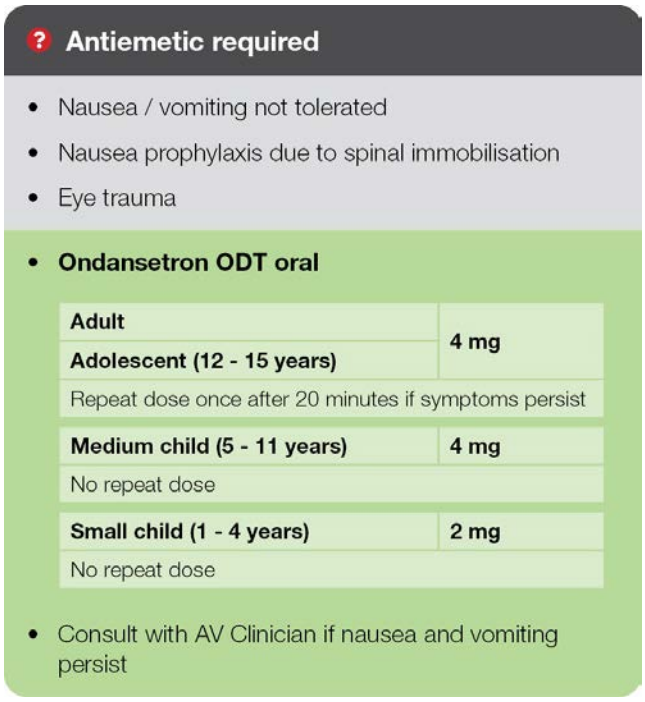
- Manage traumatic head injury as per **CPP C08 Trauma Management**

5. Patient Transport

Action

- Commence or prepare patient for transport to nearest appropriate medical facility OR rendezvous with Paramedic backup
- Provide Situation Report
- Continually reassess and modify treatment as required

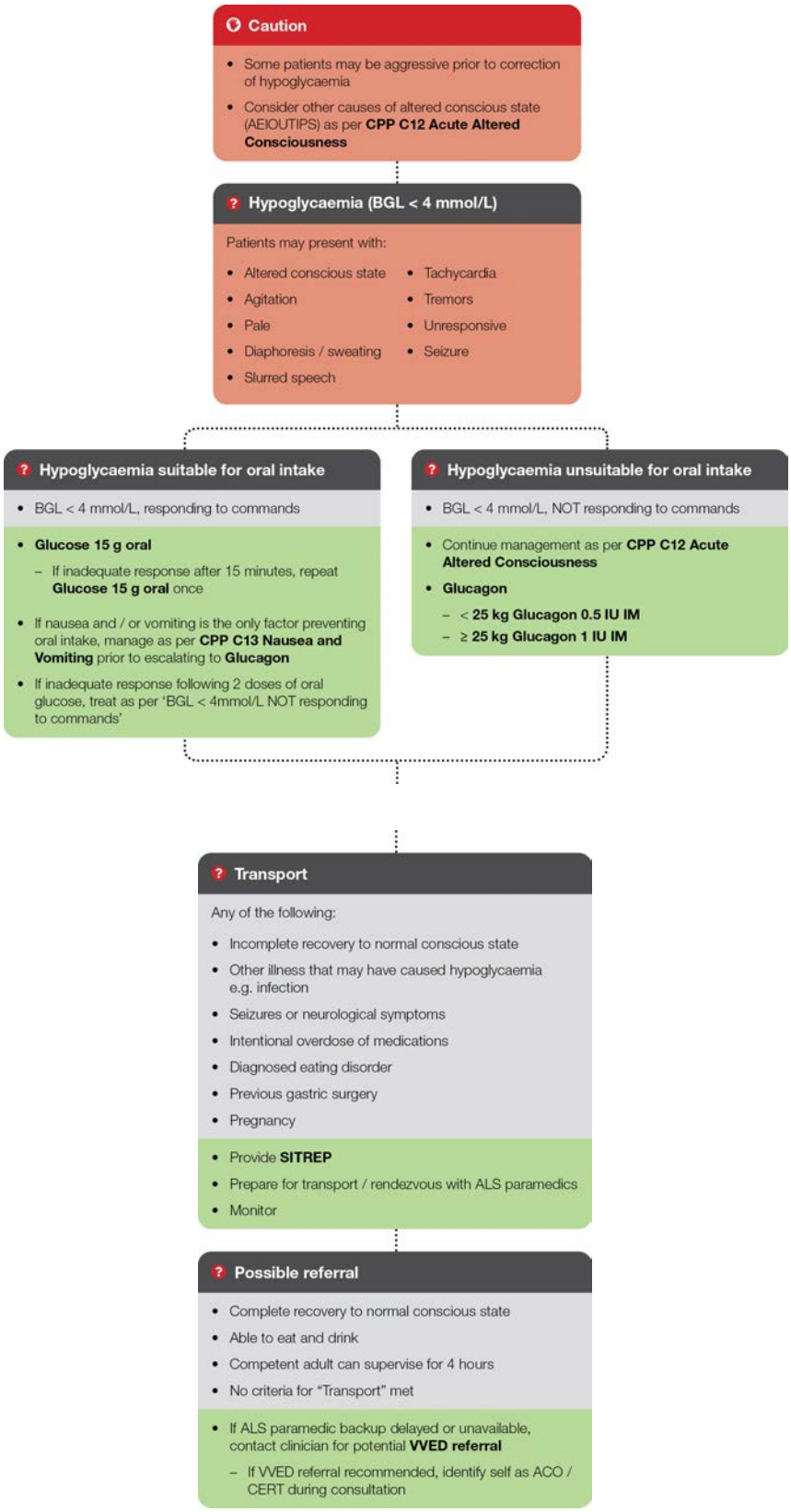
Flowchart



Overview

- If nausea and / or vomiting is being tolerated, basic care, reassurance and transport is the only care required.

Flowchart


Caution
Some patients may be aggressive prior to correction of hypoglycaemia
Consider other causes of altered conscious state (AEIOUTIPS) as per CPP C12 Acute Altered Consciousness
Hypoglycaemia (BGL < 4 mmol/L)
Patients may present with:
Altered conscious state
Agitation
Pale
Diaphoresis / sweating
Slurred speech
Tachycardia
Tremors
Unresponsive
Seizure
Hypoglycaemia suitable for oral intake
BGL < 4 mmol/L, responding to commands
Glucose 15 g oral
If inadequate response after 15 minutes, repeat Glucose 15 g oral once
If nausea and / or vomiting is the only factor preventing oral intake, manage as per CPP C13 Nausea and Vomiting prior to escalating to Glucagon
If inadequate response following 2 doses of oral glucose, treat as per 'BGL < 4mmol/L NOT responding to commands'
Hypoglycaemia unsuitable for oral intake
BGL < 4 mmol/L, NOT responding to commands
Continue management as per CPP C12 Acute Altered Consciousness
Glucagon
< 25 kg Glucagon 0.5 IU IM
≥ 25 kg Glucagon 1 IU IM
Transport
Any of the following:
Incomplete recovery to normal conscious state
Other illness that may have caused hypoglycaemia e.g. infection
Seizures or neurological symptoms
Intentional overdose of medications
Diagnosed eating disorder
Previous gastric surgery
Pregnancy
Provide SITREP
Prepare for transport / rendezvous with ALS paramedics
Monitor
Possible referral
Complete recovery to normal conscious state
Able to eat and drink
Competent adult can supervise for 4 hours
No criteria for "Transport" met
If ALS paramedic backup delayed or unavailable, contact clinician for potential VVED referral
If VVED referral recommended, identify self as ACO / CERT during consultation

Care Objectives

- Identification of hypoglycaemia
- Normalisation of blood glucose level

Intended Patient Group

- Patients > 24 hours of age with hypoglycaemia
  - See **CPP E02-9 Newborn Resuscitation** for patients < 24 hours of age

Overview

- The most common symptoms of hypoglycaemia include sweating, tremors, and tachycardia, but can progress to altered conscious states, slurred speech, seizures, and complete loss of consciousness.
- Some patients who regain consciousness may be appropriate for continuing care in the community. These cases can be discussed with the AV Clinician where appropriate.

Assessment

- Assess blood glucose and ketones in:
  - Any patient with diabetes, or symptoms suggestive of diabetes, who presents with any illness or injury
  - Unwell patients who are pregnant
- Some patients with hypoglycaemia may have elevated ketones. In this case, manage the episode of hypoglycaemia as per this CPP and then consult the AV Clinician.

History

- History taking should focus on excluding alternative causes of altered conscious state and subsequent identification of the precipitating cause of hypoglycaemia.
- History from the patient's friends and / or family may be essential, as some patients living with diabetes experience impaired awareness of hypoglycaemic symptoms and may be unaware of when the episode began.
- Hypoglycaemia in diabetic patients commonly occurs because of:
  - Medicines
    - Accidental or intentional additional doses of insulin or oral hypoglycaemic medications
    - Injection of insulin into a new site or a site that warmed up with exercise
    - Non-diabetic medications (e.g. salicylates, sulfa drugs, pentamidine)
  - Diet and exercise

  - Increased, or more strenuous, exercise than usual
  - Fasting
  - Insufficient carbohydrate intake
- Co-presenting illness
  - Any illness resulting in kidney impairment, e.g. sepsis, dehydration
  - Gastroenteritis
  - Significant liver or cardiovascular disease
- Drugs and alcohol
  - Excessive alcohol
  - Overdose – intentional or accidental

Accelerated Starvation Ketosis

- An accelerated version of starvation ketosis may occur in some paediatric patients following a relatively short period of decreased caloric intake.
- These patients will often present with hypoglycaemia, but significantly elevated ketones, despite not having a diagnosis of diabetes.
- The most common symptoms are abdominal pain, nausea, and vomiting, which may impede efforts to increase glucose levels.
- Patients in this cohort should receive management for nausea and vomiting initially, with a priority on subsequent oral replenishment of glucose.
  - Glucagon is unlikely to be of benefit in this cohort, likely producing more side effects than improvements, and most cases will respond appropriately to anti-emetic therapies allowing for oral replacement to occur.

In-Dwelling Devices

Continuous Glucose Monitor (CGM)

- Some patients may have a CGM in place which has alerted a hypoglycaemic event.
- These are medical devices with a sensor just under the skin that read glucose levels at 5 - minute intervals.
- Finger stick blood glucose readings are more reliable at extreme values than a CGM reading. Use AV glucometers rather than CGMs to guide management.
- National Diabetes Services CGM Fact Sheet

Insulin Pumps

- An insulin pump may be present in some patients. It is a small device which continuously delivers small amounts of insulin into subcutaneous (fatty) tissue.
- Patients and their families will be familiar with the devices and will likely have a pre-developed plan to manage potential hypoglycaemia.
  - If no plan is in place, do not pause or discontinue the infusion. Hypoglycaemia will generally respond to usual therapies.

Management

Scene Safety

- Complete dynamic risk assessment
- Be aware of the potential for uncapped sharps from bystander glucagon kits
- Patients with hypoglycaemia may be aggressive prior to normalisation of blood glucose

Hypoglycaemia suitable for oral intake

- The primary aim in patients responding to commands is to restore the blood glucose level to normal with appropriate oral intake.
- Glucose paste is the preferred management. If the patient is unable to tolerate glucose paste due to taste or texture, consider alternatives including:
  - 6 – 7 jellybeans
  - 3 teaspoons of honey
  - 150 mLs of full-strength soft drink
  - 150 – 200 mLs of fruit juice

Hypoglycaemia unsuitable for oral intake

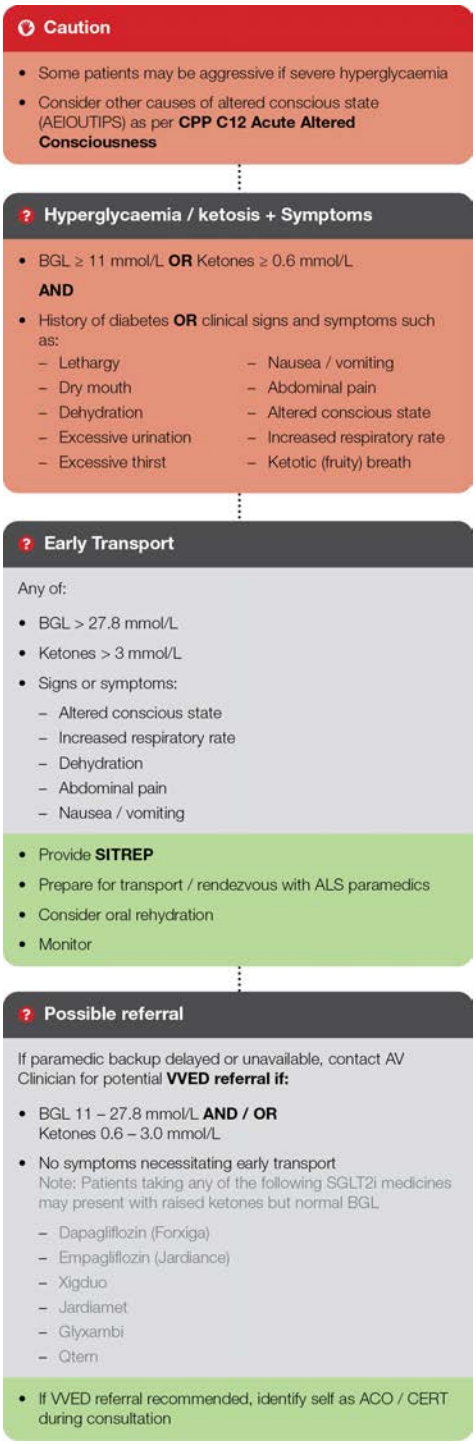
- These patients will often be unable to follow commands and are at risk of aspiration of glucose paste.
- Request paramedic support early. Some patients will not respond sufficiently to intramuscular glucagon.

Related Resources

- https://av-digital-cpg.web.app/assets/pdf/MAC/MAC Paper - Hypoglycaemia 2024.pdf

Hyperglycaemia and Ketosis CPP C18

Flowchart



Care Objectives

- Identification of hyperglycaemic emergency

Intended Patient Group

- All patients with hyperglycaemia

Overview

- Hyperglycaemia can be a serious complication of diabetes. Risk factors include undiagnosed diabetes, insulin omission, illness / infection, and myocardial infarction.
- Elevated ketones are a serious complication of diabetes.

More information

- Factors associated with increased risk of hyperglycaemic emergencies:
  - Children and young people with known type 1 diabetes
  - Recent history of unstable glycaemic control
  - Diabetes medication omission – especially insulin
  - Use of an insulin pump
  - Past hyperglycaemia
  - Acute infection and sepsis
  - Pancreatitis
  - Myocardial infarction / unstable angina
  - Trauma, surgery or burns
  - Medications – corticosteroids, atypical antipsychotics, immunosuppressive agents, SGLT2i
  - Alcohol excess and recreational drugs
  - Elderly people
  - Pregnancy

Assessment

- Assess blood glucose and blood ketones in any unwell patient with diabetes or any patient with symptoms of diabetes who presents with any illness or injury.
- Blood glucose and ketones should be assessed in all patients who are pregnant.

Diabetic ketoacidosis (DKA)

- A severe type of hyperglycaemia is known as DKA and is characterised by increased ketones and acidosis. Classic clinical signs include dehydration, excessive urine, excessive thirst, and rapid breathing. Additional clinical signs may include nausea / vomiting, abdominal pain, confusion or drowsiness / altered conscious state.

- A blood ketone level of < 0.6 mmol/L is normal
- Ketone levels of > 0.6 mmol/L require medical assessment, either in person or virtually
- DKA should be suspected in any patient with ketones > 3 mmol/L. These patients need urgent hospital based medical attention. **Ensure early SITREP is given.**

More information

- DKA is often associated with younger patients who have type 1 diabetes (but not always).
- DKA may occur in patients without previously diagnosed diabetes, in particular:
  - Children
  - Pregnancy
  - Elderly

- Euglycaemic ketoacidosis (diabetic acidosis with a near-normal BGL)
  - Euglycaemic ketoacidosis can occur because of various diabetic medicines including sodium glucose co-transporter 2 inhibitors (SGLT2i) and dipeptidyl peptidase-4 (DPP-4) inhibitors.
  - Any patient who is on an SGLT2i and is unwell (e.g. nausea, vomiting, abdominal pain) should have blood ketones assessed **regardless of BGL.**

More information

- SGLT2i medications currently available in Australia include:
  - Dapagliflozin (Forxiga), Empagliflozin (Jardiance).
- They also come in combinations with:
  - Metformin under the brand names Xigduo, Jardiamet.
  - DPP-4 inhibitor under the brand names: Glyxambi, Qtern.

https://www.diabetesaustralia.com.au/blog/sglt2-inhibitors/

Continuous Blood Glucose Monitors (CGMs)

- Some patients may have a CGM in-situ which has alerted a hyperglycaemic event.
- These are subcutaneous devices that read interstitial fluid glucose levels at 5-minute intervals.
- Finger stick blood glucose readings are more reliable at extreme values than a CGM reading. Accordingly, care should be based on BGL assessments via AV glucometers.

- National Diabetes Services CGM Fact Sheet

Management

Early Transport

- Patients requiring transport will generally present with extreme elevations in BGL (> 27.8 mmol/L) and / or ketones (> 3.0 mmol/L) but may also be identified by the following clinical features:
  - Altered conscious state
  - Increased respiratory rate
  - Dehydration
  - Nausea / vomiting
  - Abdominal pain
- These patients can deteriorate rapidly – Contact the AV Clinician and prepare for transport.
- Oral rehydration may be appropriate in patients with on-going severe thirst and ability to follow commands but do not exceed 250 mL in the first hour unless advised by the AV Clinician or VVED.

Possible Referral

- Patients without features necessitating early transport may be suitable for continuing care in the community.
- If ALS paramedic backup is delayed or not available, consider consultation with the AV Clinician to discuss suitability for VVED referral.

Related Resources

- https://av-digital-cpg.web.app/assets/pdf/MAC/MAC Paper - Hyperglycaemia 2024.pdf

Anaphylaxis / Severe Allergic Reaction CPP C01

1. Initial Approach and Assessment

- Follow approach to an incident steps 1 – 6

Assess

- Sudden onset of illness (minutes to hours)

AND

- Two or more of **R.A.S.H.** with or without confirmed exposure to allergen
  - **R** respiratory distress (SOB, audible wheeze, cough, stridor)
  - **A** Abdominal symptoms (nausea, vomiting, diarrhoea, abdominal pain / cramps)
  - **S** Skin / mucosal symptoms (hives, welts, itch, flushing, angioedema / facial swelling)
  - **H** Hypotension (Altered conscious state or adult: SBP < 90 mmHg, paediatric: SBP < adequate for age)

OR

- Isolated hypotension (Adult: SBP < 90 mmHg, Paediatric: SBP < adequate for age) following exposure to known antigen

OR

- Isolated respiratory distress following exposure to known antigen

2. Initial Management

Action

- Administer AV Adrenaline auto-injector (Epi-Pen)
  - Adult / Child > 5 years or > 20kg
    - AV Adrenaline auto-injector **(Epi-Pen)** (0.3 mg)
  - Child ≤ 5 years or < 20kg
    - Adrenaline auto-injector **(Epi-Pen Jr)** (Adrenaline 0.15mg)
    - If < 12 months use Epi-Pen Jr (Adrenaline 0.15mg)
- Advise patient of possible side effects

  - heart racing/palpitations/anxiety
- **IF** no improvement or deterioration is observed after 5 minutes, repeat assessment/management as per **point 1 & 2**
- If still no improvement after second dose of Epi-Pen consult with Clinician for consideration of:
  - Adult – 2 x **Epi-Pen Jr** (Adrenaline 0.15mg)
  - Child – 1 x **Epi-Pen** (Adrenaline 0.3mg)

3. Supportive management

Action

- Oxygen Therapy as per **CPP C23 Oxygen Therapy**
- **IF** Conscious with Breathing Difficulty
  - Position upright or allow patient to adopt own preferred position
  - Patients with inadequate perfusion may prefer supine with legs elevated
- Consider concurrent **salbutamol** and **ipratropium bromide** as per **CPP C20 Asthma** (if wheeze heard) but do not delay management per *Point 2*
- **IF** Conscious with NO Breathing Difficulty
  - Position patient supine with legs elevated
- **IF** Unconscious and Inadequate Ventilation
  - Position patient supine
  - Provide IPPV using BVM and 100% **Oxygen**
- Manage as Time Critical
  - Provide Situation Report and minimise scene time

4. Patient Transport

Action

- Commence or prepare patient for transport to nearest approved medical facility OR

- Rendezvous with Paramedic backup
- Provide Situation Report
- Continually reassess and modify treatment as required
- Patients with suspected anaphylaxis should be transported to hospital regardless of the severity of their presentation or response to management (including self-administration prior to arrival) for observation
- Where possible, do not allow patient to stand or walk

Related Resources

https://av-digital-cpg.web.app/assets/pdf/CWI/CWI OPS 088 Medication Administration by Auto-Injector.pdf

1. Initial Approach and Assessment

- Follow approach to an incident **steps 1 – 6**

Assess

- Stroke signs and symptoms as below
- Assess SpO_2
- Hypoglycaemia for exclusion
- Time of onset of signs and symptoms

Consider

- Stroke mimics
  - Drug or alcohol affected
  - Brain tumour
  - Seizure or post seizure
  - Migraine
  - Syncope
  - Middle ear disorder

Stroke Signs and Symptoms

Assessment	Findings	Normal	Abnormal
Facial Droop	Patient shows teeth or smiles	Both sides of face move equally	One side of face does not move as well as other
Speech	Patient repeats “You can’t teach an old dog new tricks”	Patient says the correct words, no slurring	Patient slurs words, says the wrong words or is unable to speak or understand
Hand grip	Test same as for GCS	Equal grip strength	Unilateral weakness

2. Initial Management

Action

- **IF** conscious
  - Place patient in position of comfort
- **IF** altered conscious state or seizure evident at any time
  - Manage concurrent per **Acute Altered Consciousness C12**
- Oxygen Therapy as per **CPP C23 Oxygen Therapy**
- **IF** patient is hypoglycaemic with BGL < 4 mmol/L
  - Manage as per Hypoglycaemia (low blood sugar) C6
- Support and protect all limbs
- Manage as Time Critical
  - Provide Situation Report and minimise on scene time

3. Patient Transport

Action

- Commence or prepare patient for transport to nearest approved medical facility OR
- Rendezvous with Paramedic backup
- Provide Situation Report
- Continually reassess and modify treatment as required

Special Note

- It is important to determine the exact time of onset of stroke symptoms. Patients within 12 hours of onset may benefit from current stroke therapies available in many centres.
- IF the patient wakes with stroke signs and symptoms the time is taken from when the patient was last seen well and not from time of awakening.
- IF stroke signs and symptoms resolve, the patient should continue to be managed as for acute stroke and transported to hospital.

Palliative Care CPP C17

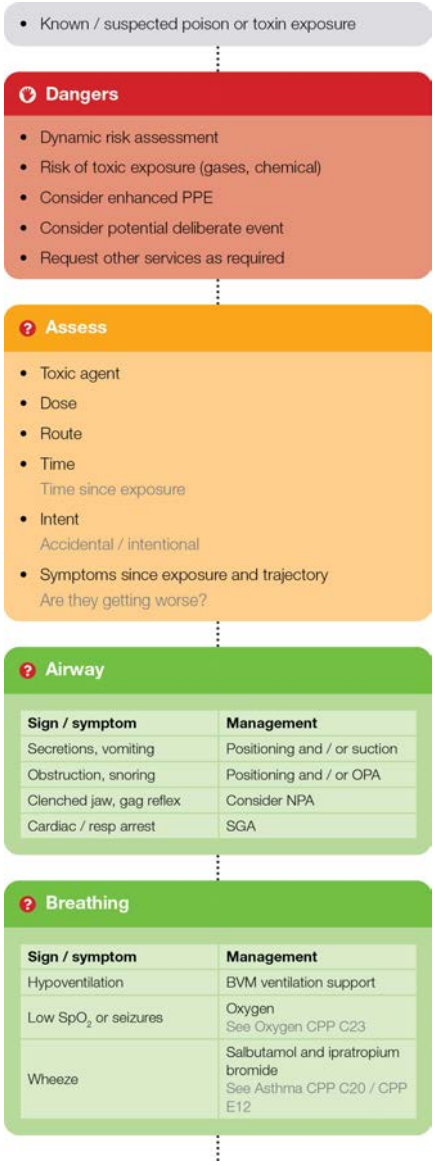
Care Objectives

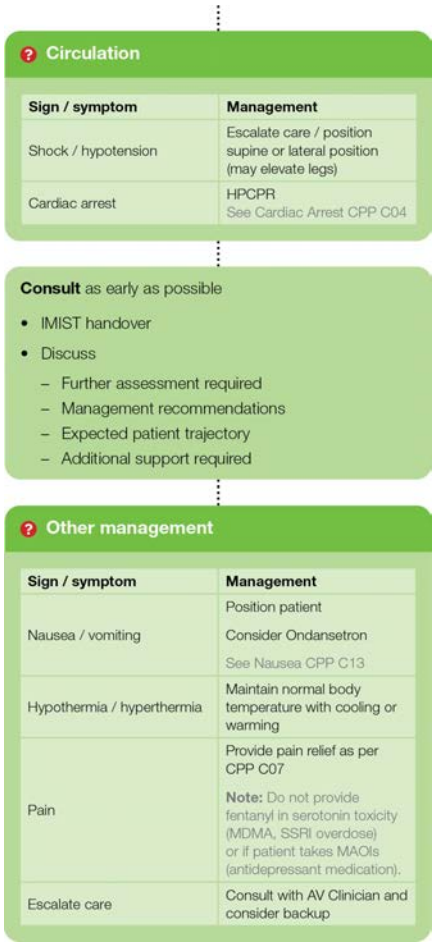
- Identify patients receiving palliative care
- Provide appropriate management in consultation with the AV Clinician

Assessment and Management

- Patients with a terminal illness may be cared for at home under the guidance of a palliative care team during the end stages of life. Ambulance Victoria may be asked to assist where the palliative care team cannot be contacted.
- If a first responder team attends a palliative care patient, contact the AV Clinician for management advice.
- Palliative patients may present with symptoms including:
  - Pain
  - Agitation
  - Airway obstruction
  - Respiratory distress
  - Nausea and vomiting
- Depending on the presentation, the AV Clinician may advise the administration of medications for comfort care; these may include salbutamol, ondansetron, or oral suctioning. Reassure the patient and family and where possible assist with simple comfort measures such as positioning or a warm / cold face washer.
- For a patient in the care of a community palliative care service, there may be no benefit in measuring vital signs. However, if paramedic backup is delayed, the AV Clinician may advise the first responder to contact VVED or the palliative care service who may request measurement of vital signs to aid their assessment.

Flowchart


Known / suspected poison or toxin exposure
Dangers
Dynamic risk assessment
Risk of toxic exposure (gases, chemical)
Consider enhanced PPE
Consider potential deliberate event
Request other services as required
Assess
Toxic agent
Dose
Route
Time
Time since exposure
Intent
Accidental / intentional
Symptoms since exposure and trajectory
Are they getting worse?
Airway
Sign / symptom
Management
Secretions, vomiting
Positioning and / or suction
Obstruction, snoring
Positioning and / or OPA
Clenched jaw, gag reflex
Consider NPA
Cardiac / resp arrest
SGA
Breathing
Sign / symptom
Management
Hypoventilation
BVM ventilation support
Low SpO2 or seizures
Oxygen
See Oxygen CPP C23
Wheeze
Salbutamol and ipratropium bromide
See Asthma CPP C20 / CPP E12



Circulation

Sign / symptom	Management
Shock / hypotension	Escalate care / position supine or lateral position (may elevate legs)
Cardiac arrest	HPCPR See Cardiac Arrest CPP C04

Consult as early as possible

- IMIST handover
- Discuss
  - Further assessment required
  - Management recommendations
  - Expected patient trajectory
  - Additional support required

Other management

Sign / symptom	Management
Nausea / vomiting	Position patient Consider Ondansetron See Nausea CPP C13
Hypothermia / hyperthermia	Maintain normal body temperature with cooling or warming
Pain	Provide pain relief as per CPP C07 **Note:** Do not provide fentanyl in serotonin toxicity (MDMA, SSRI overdose) or if patient takes MAOIs (antidepressant medication).
Escalate care	Consult with AV Clinician and consider backup

Care Objectives

- Supportive care based on presenting symptoms
- Identify poison and toxin to guide specific management
- Consult relevant services to access specialist treatments
- Minimise the time from exposure to definitive care

General Notes

- A patient presentation following toxic exposure may occur in almost any setting and can vary from mild symptoms to life threatening. The toxic agent is not always known and accordingly a considered approach using these principles will assist in the assessment and care for the patient who is at risk of toxic exposure.

Scene safety

- Assess risk of exposure to gases and other toxins by completing a dynamic risk assessment
- Consider the need for enhanced PPE

- Consider the potential that this may be a deliberate event
- Do not enter a scene where there is a threat of chemical, biological, radiological (CBR) exposure
  - Protect the scene and prevent further exposure to others
  - Notify other emergency service agencies e.g. fire, rescue, police
  - Escalate response through the DM to the Regional Health Commander
  - Prepare for the potential for multi casualty event (e.g. Triage/Transport Officer, ETHANE situation report)
  - Prepare to manage the patients who have been exposed
- Liaise with incident controller regarding appropriate decontamination

Assessment

Risk Assessment

- Conducting a thorough patient assessment is vital for managing poisonings and will direct management of the patient. Gather as much information as possible about the patient and exposure from relatives, friends, and witnesses. If information is not available, assume the worst-case scenario.

Agent	Identify each agent / medication / substance involved
Dose	Total dose for each agent Consider formulation: immediate release / slow release Collect packaging (e.g. empty pill bottles, webster packs) and transport with patient
Route	Identify the route of each exposure (e.g. oral, IV, inhalation)
Time	Time since each exposure
Intent	Intentional self-harm, accidental, or recreational misadventure
Clinical features / trajectory	Symptoms since exposure Timing and change in symptom progression
Consider risk of undisclosed agent and co-ingestants	

Environment

- Consider the setting to determine potential agent types and risks (home, industrial, occupational, recreational, natural disaster, chemical warfare, criminal acts / terrorism)

Paediatric specific considerations

- Paediatric presentations and adult patients with an intellectual disability are more likely to include

foreign bodies and household chemicals.

Pharmacological agents

- Ingestion of **adult medicines** by paediatric patients are potentially harmful and can be fatal even with as little as one tablet.
- AV Clinician will be able to assist with assessment

Button battery

- Button battery ingestions always require further investigation as they can become lodged in the oesophagus and erode the lining.
- Patients may present without symptoms or with non-specific symptoms such as pain, nausea, and vomiting. Some battery brands release a blue dye when ingested which may be visible on the patient's hands or mouth.
- If there is any possibility of button battery ingestion, patients require further medical assessment and imaging.
- If honey is available, give 10 mLs every 10 mins (child aged > 1 year), however **do not delay transport to** ED.

Household cleaners

- Household cleaners are the most common exposures seen in small children. They are usually benign but can be serious in stronger concentrations.
- Victorian Poisons Information Centre (VPIC) can provide advice on whether patients require transport or further assessment. Caustic or corrosive substances (highly alkaline or acidic) can be life threatening in stronger concentrations due to airway, oral or gastrointestinal injuries. Dilute household bleach, detergents or ammonia are less likely to cause major effects.
  - Decontaminate by irrigating skin and / or eyes if exposed
  - Adult patients: decontaminate mouth; rinse out mouth with water (not to be swallowed)
  - Younger paediatric patients: do not attempt to decontaminate mouth as they usually drink the contaminated water

Other household chemicals

- Other chemicals found around the home can cause varying and serious effects. The following are of particular risk:
  - Essential oils
  - Nicotine: e-liquid (higher risk), patch or gum / lozenge
  - Hydrocarbons (e.g. lighter fluid, solvents, mineral turpentine)
- These chemicals may have significant effects including respiratory and gastrointestinal effects, arrhythmias, seizures and coma. Essential oils may be toxic to children with exposures as little as 2 - 3 mL. Nicotine e-liquid concentrations may vary significantly.

In the garden

- Poisons in and around the garden include pesticides, bates and fertilisers. The risks associated with these poisons vary significantly. VPIC will be able to advise on the agent and preferred management.

- Slugs and snails can carry a parasite which causes a serious type of meningitis.

Child safety – consider intentional / unintentional exposure

- Assess if poisoning is consistent with the child's age, involves unusual substances (e.g. illicit drugs) or history is inconsistent with presentation. Unintentional poisoning is more common in younger children than in older children or adults.
- Consider age:
  - Children under 1 do not self-administer medication
  - Children aged 1-6 are more likely to have unintentional exposure
  - Children aged over 10 are more likely to have an intentional exposure
- Transport the patient to hospital if there are any child safety concerns.

Clinical assessment

- A complete assessment is essential including SpO_2, BGL and temperature.
  - BGL and temperature can both be affected by a range of agents.
- Consult the AV Clinician for assessment support and management advice. The AV Clinician may also consult Victorian Poisons Information Centre.

Identification	Yourself: Name and role (e.g. ACO, CERT). Patient: age and sex.
Mechanism	Agent.
Illness	Dose, route, timing for each agent. Intent (if relevant).
Signs / Symptoms	Clinical findings, vital signs.
Treatment	Care provided prior to consultation.
Consider risk of undisclosed agent and co-ingestants	

Management

- Minimise the time from exposure to definitive care
  - Definitive care may include access to specialist medicines and advanced interventions such as antidotes/antivenom or critical care. These may not be available at the closest hospital. The AV Clinician will be able to assist and will work closely with VPIC and ARV / PIPER.
- Airway
  - Consider risk of aspiration or airway obstruction.
- Breathing

  - Inhalation exposure may cause cough, wheeze, stridor, drooling or shortness of breath. Treat wheezes as per **CPP C20 Asthma** including salbutamol and ipratropium bromide.
  - Respiratory symptoms from inhalation exposure can be delayed
  - Toxic agents can cause hypoventilation or hyperventilation. Close monitoring is required.

- Circulation
  - Shock and / or abnormal cardiac rhythms may occur which will need urgent paramedic and medical care.

- Cardiac Arrest
  - Follow cardiac arrest protocols.
  - Prolonged CPR may be indicated – consult the AV Clinician.

- Some medicines and agents have a delayed toxic effect. Maintain a cautious approach for all patients regardless of how they initially present.
- Some patients may be found following prolonged unconsciousness. This can lead to clinical complications and is relevant when consulting VPIC.

Patient decontamination

- It is best if the fire service performs decontamination but is not always required. If unsure about decontamination requirements, consult VPIC for advice.
- Decontamination should always be undertaken by fire services when:
  - The agent is unknown
  - The agent poses significant risk to others should decontamination be undertaken incorrectly (e.g. industrial chemicals)
  - Inadequate decontamination infrastructure is available on site.
- It is important that even when a patient is time critical that correct decontamination is undertaken as the transport of these patients poses a significant risk to staff and hospitals.
- Decontamination requirements will depend on the agent and route of exposure.
- Additional considerations:
  - Staff safety / preventing further patient exposure
    - Move patient to safe location to minimise risk of staff exposure / further exposure to patient, e.g. move patient to well ventilated area / upwind / uphill.
    - Consider simple dry decontamination techniques such as removal of first layer of clothing and wipe down with paper towel.
  - Gastrointestinal
    - Avoid inducing vomiting
    - Instruct patient not to eat or drink
    - Isolate contaminated vomit in clinical waste (if chemical exposure)
  - Eye exposure
    - Irrigate affected eye(s) with clean water for 15 minutes

- Skin exposure
  - Remove clothing and place in plastic bag
  - Wash skin / rinse mouth
  - If caustic / corrosive exposure, rinse skin with copious amounts of water or saline (consider using a shower if available)

Antidotes / Antivenom

- Access to definitive care often means early access to an antidote or antivenom as soon as possible after exposure. Consult the AV Clinician if this may be required.

Other management

- Provide supportive care as required (e.g. pain relief, anti-emetic).
  - Patients presenting with withdrawal of drugs of dependance (including alcohol) may present with sweating, tremors, nausea / vomiting, agitation, pupil dilation, tearing and / or convulsions.

Monitoring

- Ongoing monitoring and minimum of 15 minutely observations will be required for patients presenting with actual or potential toxic exposure. This includes:
  - BP, HR, respiratory rate, temperature, SpO_2

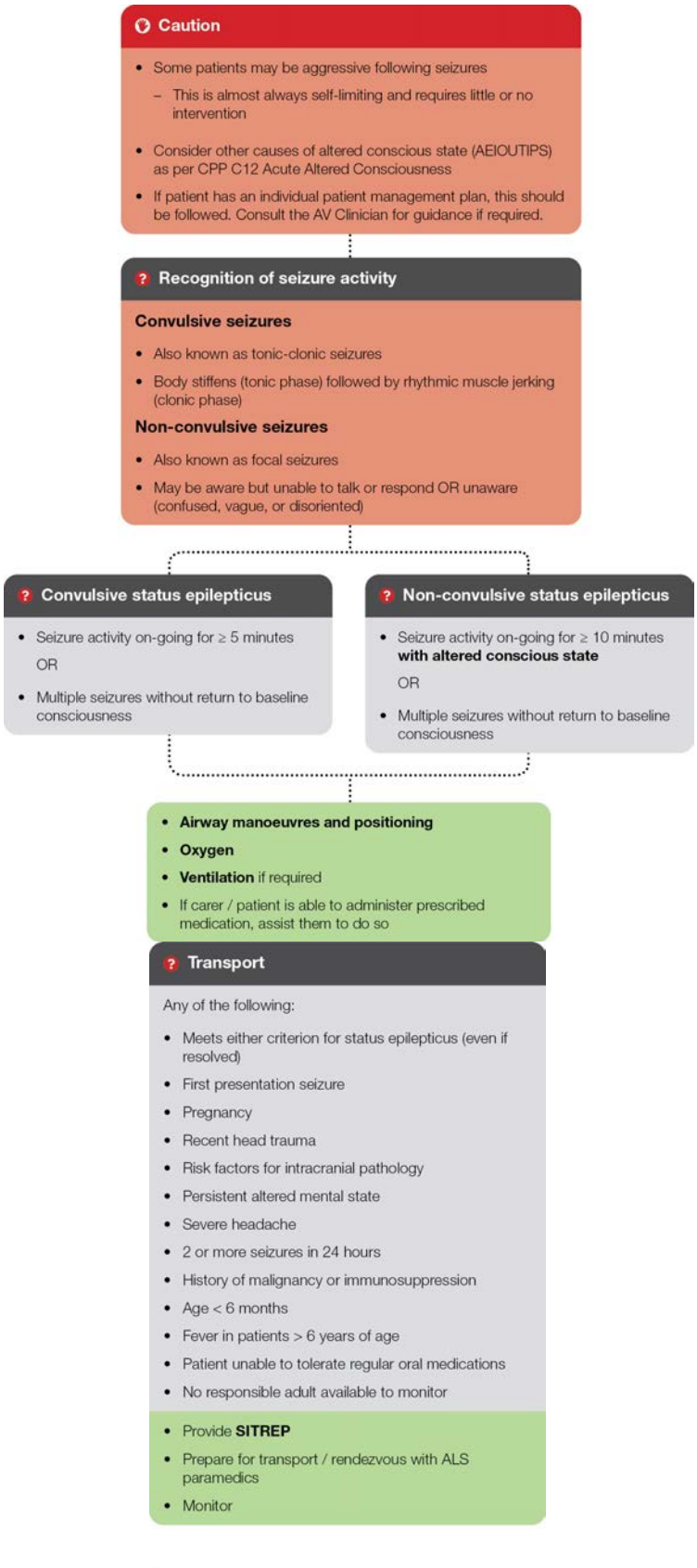
Clinical advice and support

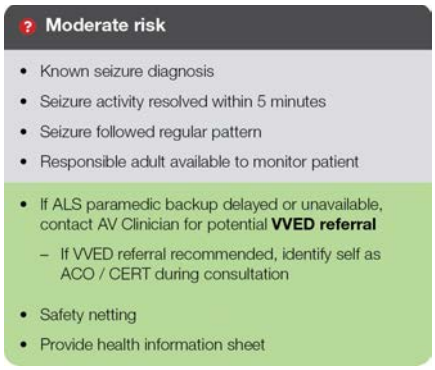
- VPIC is staffed by a specialist pharmacist and toxicologists to assist in the assessment and care of patients who have potentially been exposed to toxic agents.
- The AV Clinician may consult with VPIC as a part of case management to provide specialist advice and assist in care planning.
- Illicit drug exposure is commonly experienced at events such as music festivals. These events are frequently supported by first aid facilities which may be staffed by skilled paramedics, nurses and medical specialists who may have access to life saving equipment (e.g. ice baths). Working in collaboration with these experts and their resources will optimise patient outcomes.

Disposition

- Transport will be required for many patients who have had an intentional overdose for assessment and monitoring. Emergency department care usually includes a blood test to assess for potentially harmful levels of ingested substances. This is particularly important where there is any risk that paracetamol has been ingested.
- Consult the AV Clinician if VVED or non-transport may be suitable (e.g. accidental ingestion of a small amount of medication).

Flowchart


Caution
Some patients may be aggressive following seizures
This is almost always self-limiting and requires little or no intervention
Consider other causes of altered conscious state (AEIOUTIPS) as per CPP C12 Acute Altered Consciousness
If patient has an individual patient management plan, this should be followed. Consult the AV Clinician for guidance if required.
Recognition of seizure activity
Convulsive seizures
Also known as tonic-clonic seizures
Body stiffens (tonic phase) followed by rhythmic muscle jerking (clonic phase)
Non-convulsive seizures
Also known as focal seizures
May be aware but unable to talk or respond OR unaware (confused, vague, or disoriented)
Convulsive status epilepticus
Seizure activity on-going for ≥ 5 minutes
OR
Multiple seizures without return to baseline consciousness
Non-convulsive status epilepticus
Seizure activity on-going for ≥ 10 minutes with altered conscious state
OR
Multiple seizures without return to baseline consciousness
Airway manoeuvres and positioning
Oxygen
Ventilation if required
If carer / patient is able to administer prescribed medication, assist them to do so
Transport
Any of the following:
Meets either criterion for status epilepticus (even if resolved)
First presentation seizure
Pregnancy
Recent head trauma
Risk factors for intracranial pathology
Persistent altered mental state
Severe headache
2 or more seizures in 24 hours
History of malignancy or immunosuppression
Age < 6 months
Fever in patients > 6 years of age
Patient unable to tolerate regular oral medications
No responsible adult available to monitor
Provide SITREP
Prepare for transport / rendezvous with ALS paramedics
Monitor



Care Objectives

- Identification of seizure activity
- Maintenance of oxygenation and ventilation
- Appropriate disposition planning based on risk profile

Intended patient group

- All patients who have experienced, or are currently experiencing, a seizure

Overview

- Over 11,000 patients are attended by paramedics in Victoria annually for seizure presentations, with just 15% requiring paramedic-administered midazolam for seizure termination
- Status epilepticus is a condition associated with significant morbidity and mortality, and becomes more difficult to terminate the longer it continues
- Patients with known seizure disorders may have specific patient management plans to support on-going management in the community, while others will be suitable for paramedic-initiated management in the community

Assessment

- Assessment and management should occur concurrently if the patient is actively seizing.
- Patients who have suffered a seizure will often experience a postictal period during which they will experience confusion and may become agitated. This period should be short-lived (no more than 30 minutes) and requires patience for safe management.

History

- The history gained by ambulance staff is not just invaluable in the acute management of a seizure presentation, but in the on-going management of a patient with a seizure disorder.
- Key components of history which will support acute and chronic management of seizure activity

include:

- An exact description of circumstances and any symptoms prior to the seizure as described by bystanders in plain words (e.g. “limbs jerked” rather than “tonic-clonic”)
- Any aura or symptoms prior to onset
- The nature of the seizure (e.g. stiffening prior to event, true tonic-clonic, eyes open or closed, rhythmic jerking or irregular thrashing)
- Sweating, pallor, vomiting, incontinence, fever
- Parts of the body affected and how
- Any change or loss of consciousness
- Duration of amnesia following seizure
- Duration of seizure
- Time until full recovery and postictal drowsiness or confusion

- Seek out provoking factors or underlying causes for seizures other than epilepsy:
  - Head injury
  - Drugs and medication (e.g. excess alcohol intake, withdrawal from alcohol or drugs, psychostimulants, antipsychotics, tricyclic antidepressants, tramadol, baclofen)
  - Metabolic derangements (e.g. hypo- or hyperglycaemia)
  - Intracranial pathology (e.g. lesions, meningitis, encephalitis, stroke)
  - Pregnancy

Further information

Risk factors for intracranial pathology

- Head injury (current OR recent)
- Age > 40 years
- Fever or other systemic symptoms in adults
- History of anticoagulation
- History of malignancy
- New neurological deficit
- First presentation focal seizure
- Persistent altered mental state
- Persistent headache

Physical examination

- Ensure a physical exam is completed to examine for physical injuries sustained during the seizure
- Lateral tongue trauma and / or incontinence in the setting of a clear postictal phase are strongly

indicative of seizure activity

Management

Scene safety

- Be aware of the potential for uncapped sharps from bystander emergency anti-epileptic medications.
- Some patients may be aggressive during the postictal period.
  - This aggression is generally self-limiting and short-lived (30 minutes maximum).

Patient management plans

- Some patients may have specific management plans prepared by their neurologist or general practitioner which may differ from AV CPGs.
- In this case, the patient specific management plan should be followed, which may include the administration of medications normally outside scope of practice as per **CPG F0027 Clinical Care Outside Scope of Practice**.
- If staff are concerned or unfamiliar with details contained within the management plan, they should commence management and contact the AV Clinician urgently for support and discussion.

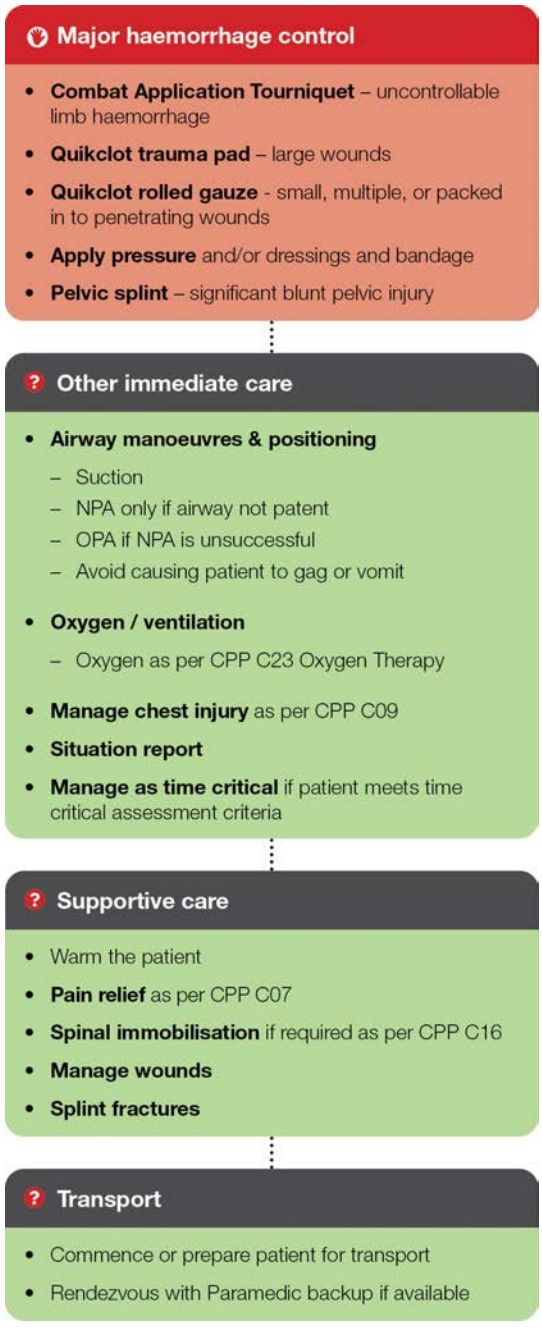
Supportive care

- If possible, create a safe working environment which minimises the risk of accidental injury to patients experiencing seizure activity.
- Airway management, oxygenation, and ventilatory support should occur concurrently with attempts to terminate seizure activity.
- In patients not requiring ventilatory support, avoid the use of the bag-valve mask (BVM) to provide high-concentration oxygen.

Further Information

- https://av-digital-cpg.web.app/assets/pdf/MAC/PCC250521 Seizures.pdf

Flowchart



Care objectives

- Immediate control of major haemorrhage
- Ensure:
  - Airway patency
  - Breathing (adequate oxygenation and ventilation)

- Prioritise transport for patients meeting time critical assessment criteria
- Supportive care as required including warming and pain relief

Overview

- This protocol includes complete guidance for management of a major trauma patient; however, it is not limited to time critical patients. The priorities also apply to patients with minor injuries, though many elements will not be relevant in this situation.

Traumatic cardiac arrest

- Manage the potential causes of traumatic arrest prior to HP-CPR:
  - Major haemorrhage control as per above
  - Prioritise airway management, ventilation and oxygenation
- Proceed with HP-CPR once these have been addressed.

Major haemorrhage

- **Prioritise major haemorrhage control.**
- Regularly reassess the patient to ensure the haemorrhage remains controlled:
  - Ensure dressings and tourniquets remain in place and are effective.
  - Ensure pelvic splint remains in position and properly fitted.
  - Check for bleeding that may resume as the patient condition changes.

Airway

- Airway manoeuvres and position as per **CWI/OPS/190**.
- Nasopharyngeal airways (NPAs) should be inserted only if required to maintain a patent airway (**CWI/OPS/021**).
- Oropharyngeal airways (OPAs) may provoke the patient's gag reflex and should not be used unless the airway cannot be maintained with other measures (**CWI/OPS/020**).

Oxygen

- Oxygen Therapy as per **CPP C23 Oxygen Therapy**.

Chest injury

- Manage as per **CPP C09 Chest Injury**, prioritising:
  - Positioning
  - Oxygenation
  - Pain relief

Warm the patient

Prevent heat loss and actively warm the patient if possible:

- Prepare the ambulance by turning on the heater early
- Remove wet clothing and dry the patient
- Apply blankets
- Thermal wrap underneath and on top of the patient
  - Sheet / space blanket / blanket OR
  - Active warming blanket device

Pain relief

- Timely and effective pain relief is important for long-term patient outcomes. Severe traumatic pain will require large analgesic doses. Consult the AV Clinician in these cases.

Pelvic splint

- Pelvic splinting is a potentially life saving form of haemorrhage control.
- Pelvic fracture should be suspected in patients with:
  - Blunt trauma with the potential to cause pelvic injury
    Generally this includes any form of blunt trauma other than clearly isolated injuries to the head or limbs

  AND

  - Pelvic pain, or
  - Haemodynamic instability, or
  - Altered conscious state
- A pelvic splint and traction splint (e.g. CT-6) can be applied if they are both indicated. Pelvic splinting is the priority.
- Avoid log-rolling the patient as it may disrupt blood clots.
- **CWI/OPS/177 Pelvic Splint**.

Other fractures

General principles

- Control external haemorrhage
- Support injured area e.g. slings, padding
- Pain relief before and during splinting
- Immobilise the joint above and below the fracture site

Splinting

Splinting can reduce pain and blood loss.

- **Long bone:** Re-align in as close to normal position as possible. Do not persist if resistance

encountered.

- Do not re-align limbs if joints are involved or there is a possibility of vascular or nerve injury.
- **Open:** Fractures with exposed bone AND gross contamination (e.g. mud, pond water, faeces, high risk environments such as farms) should be irrigated with normal saline or clean water before management.
- **Middle third femur or upper two-thirds tibia:** Traction splint unless there are distal fractures or joint involvement (CWI/OPS/156).
- **Neck of Femur (NOF):** Anatomical splinting only (CWI/OPS/179).

Time critical trauma criteria

- Minimise scene time for all patients that meet the time critical trauma criteria in **CPP B05 Time Critical Assessment (Adult)** / **CPP E10 Time Critical Assessment (Paediatric)**.

Significant head injury

- Patients with head injury do not require any specific management in addition to what is described above.
- The following signs indicate a head injury is significant and should be considered time critical.

Adult and paediatric patients

- GCS < 13 (adult) OR GCS < 15 (paediatric)
- Penetrating head injury
- LOC > 5 minutes
- Skull fracture
- Vomiting more than once
- Neurological deficit (i.e. loss of function or sensation)
- Seizure
- Agitation (paediatric only)
- Worsening signs or symptoms

High-risk falls

Even in the absence of apparent injury, patients who have fallen with the following risk factors should be transported to hospital:

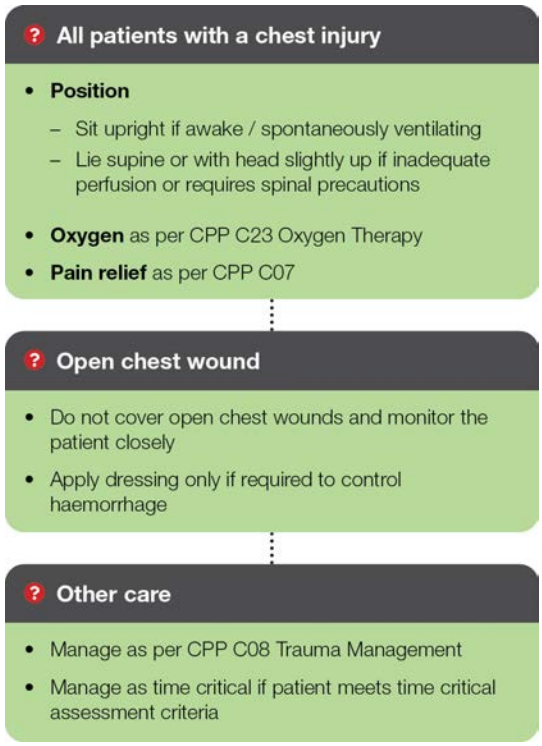
- Patients on anti-coagulants e.g. warfarin, heparin, enoxaparin (Clexane), apixaban (Eliquis), dabigatran (Pradaxa), rivaroxaban (Xarelto).
- Patients with incomplete recall of how the fall occurred.
- Extended time on ground.
- Collapse due to underlying medical or unknown cause.

Related resources

- **CWI/OPS/177** Pelvic Splint
- **CWI/OPS/190** Airway Manoeuvres & Positioning
- **CWI/OPS/021** Nasopharyngeal airway
- **CWI/OPS/020** Oropharyngeal airway
- **CWI/OPS/098** Haemorrhage Control – Direct Pressure
- **CWI/OPS/171** Haemorrhage Control – Combat Application Tourniquet
- **CWI/OPS/175** Haemorrhage Control – Quikclot Haemostatic Wound Dressings
- **CWI/OPS/156** Application of CT-6 Traction Splint
- **CWI/OPS/179** Anatomical Splinting

Chest Injury CPP C09

Flowchart



Care objectives

- Adequate oxygenation
- Effective pain relief to assist in maintaining adequate ventilation

Assessment

Respiratory

- Perform a respiratory status assessment
- Monitor SpO_2

Secondary Survey

- Expose the chest
- Observe
  - Bruising, deformity, abnormal chest movements
  - Open / penetrating wounds. Assess areas not easily visualised including the underarm and back.
- Palpate

- Tenderness, crepitus, subcutaneous emphysema (presence of air under the skin).

Management

Positioning

- Sit upright (awake and spontaneously ventilating patients).
  This optimises the patient's breathing.
- Lie supine or with head slightly up if patient has inadequate perfusion or requires spinal precautions.

Oxygen

- Initial dose via non-rebreather mask @ 10 – 15 L/min.
- Once patient has adequate perfusion and a reliable SpO_2 trace, titrate to target SpO_2 of 92 – 96%.

Pain relief

- Early and effective analgesia is essential.
  Pain associated with rib fractures can lead to hypoventilation.
- Fentanyl is preferred (where accredited) as methoxyflurane may be less effective if patient is unable to take a deep breath.
- Do not splint chest injury.
  This is not effective and may increase pain.

Open chest wounds

- Do not cover open chest wounds unless there is significant haemorrhage.
  Covering will seal the wound and may worsen the patient's condition.
- Leave the wound open and monitor the patient closely.

Spinal Injury CPP C16

Flowchart

Status

- Meets time critical trauma criteria

  OR

- Neurological deficit or changes

  OR

- Has a mechanism of injury that can cause spinal injury (e.g. fall with a head strike)

Spinal immobilisation

- Apply cervical collar
- Extricate on combi-carrier if necessary
- Consider self-extrication if patient is:
  - Conscious and co-operative
  - Not intoxicated
  - Not prevented by injury
  - No neurological deficit or changes
- Immobilise on vacuum mattress or stretcher
- **Ondansetron** as per Nausea and Vomiting CPP C13 in all awake spinally immobilised patients

- Manage as time critical if neurological deficits present or patient meets time critical trauma criteria

Care objectives

- Recognise patients at risk of spinal injury
- Maintain neutral alignment and support of the spinal column

Overview

Mechanism of injury

Mechanism of injury that can cause spinal injury

- Any mechanism with significant force which has potential to bend the neck, back, or impact on the spine.

Risk factors for spinal injury

A significant amount of force is required to damage healthy vertebrae. Patients with any dangerous mechanism of injury such as a car rollover / ejection, pedestrian impact or diving accident should be treated and assessed carefully.

Certain conditions predispose patients to spinal injuries from far less force than would be required to injure a healthy spine (e.g. standing height fall). Patients with these conditions should be treated with a higher index of suspicion after trauma of any kind.

- Elderly
- Vertebral disease
- Spinal surgery
- Hx of cervical spine injury
- Down syndrome
- Rheumatoid arthritis

Other factors may affect the ability to assess for potential spinal injury including:

- **Altered conscious state** includes any presentation which may confound the results of a physical examination (e.g. GCS < 15 for any reason, concussion, dementia).
- **Distracting injuries** that cause significant pain or distress to the extent that they may distract the patient from the pain caused by vertebral injury, making the physical exam unreliable. Generally these are very painful injuries such as fractures or burns. Small haematomas or lacerations are not usually considered distracting.
- **Intoxication:** the use of any alcohol, drugs or medications may conceal the pain of a vertebral fracture or distract the patient from reporting neurological deficits, making the physical examination unreliable.

Neurological changes / deficits

Neurological deficits indicate spinal cord injury. Patients with neurological deficit or other time critical trauma criteria should receive spinal immobilisation and expedited transport.

Examination for neurological changes / deficits

Motor function

Any weakness when asked to:

- **Arms:** grasp / pull / push.
- **Legs:** push / pull / leg raise.

Sensory function

Reduced or no sensation when applying light touch to the following:

- **Arms:** Light touch across the palm and back of hand.
- **Legs:** Light touch to outer side of heel.

- The patient should be questioned regarding numbness, tingling, burning or any other altered sensation, anywhere in the body.
- If ANY of the above criteria are present, the patient should be considered to have a neurological deficit and requires spinal immobilisation.
- The left and right sides should be tested simultaneously to compare strength between sides of the body.

Spinal immobilisation

The intent of spinal immobilisation is to support the neutral alignment of the spinal column and reduce or distribute forces placed on it.

- A range of immobilisation techniques may be used to achieve this goal but are not a goal in themselves and should be modified where required by circumstance and comfort.
- Where a collar is impairing the ability to manage the patient's airway effectively, it may be removed.
- Where a collar is not achieving the desired support and stability for any reason (e.g. the patient's anatomy, agitation), it may be adjusted, loosened or removed if there are no other options (e.g. calming the patient).
- The optimum position for spinal immobilisation is laying on the back with the head in the neutral position. However, where this is not possible (e.g. pain, vertebral disease, kyphosis, injuries prevent the position), support the patient in a position of comfort. Do not force the patient's head into the neutral position if resistance is felt or if pain increases.
- The head **MUST NOT be independently restrained** to the stretcher (e.g. taped or bandaged in any way).
- Repositioning the neck may worsen injury in some circumstances and should not be attempted even if the position prevents the application of a cervical collar.
- Manual in-line stabilisation should be used when transferring the patient (**CWI/OPS/205**).
- **Penetrating trauma:** Patients should not be routinely immobilised. Consider immobilisation where there is neurological deficit.
- The CombiCarrier extrication board should only be used as an extrication device. Patients should **NOT** be immobilised on the board for transport to hospital.
- During extrication, all movements should be planned and coordinated as a team to minimise unnecessary handling of the patient and potential for manual handling injuries. Move the patient with their entire spinal column maintained in line. One operator should hold the patient's head in position continuously. This operator should call and coordinate all patient movement.

- Where the patient has self-extricated, it is acceptable to ambulate the patient a short distance to the stretcher only where the patient is conscious, co-operative, not intoxicated, neurologically intact (no altered movement or sensation) and not prevented from doing so by injury.

Related resources

- **CWI/OPS/188** Soft Cervical Collar
- **CWI/OPS/205** Manual In-line Stabilisation

1. Initial Approach and Assessment

- Follow approach to an incident steps 1 – 6

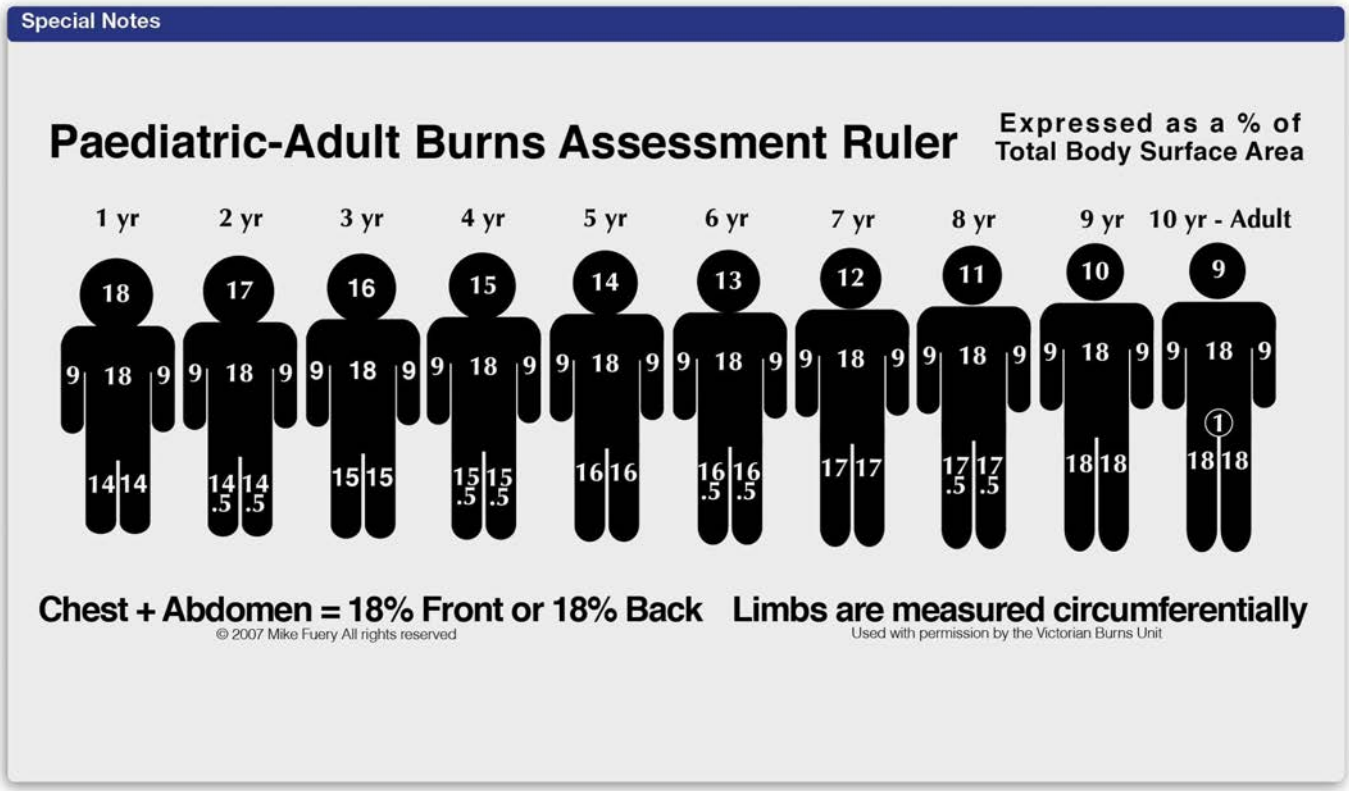
Stop

- Ensure no hazard remains and/or patient removed from hazard first
  - Beware burnt clothing or chemical contamination in particular

Assess

- Possible airway involvement
- Burn Surface Area - BSA (refer to Burns Chart below or **Burns Calculator**)
- Severity of pain

Burns Chart



2. Initial Management – oxygen therapy

- The patient has inhaled smoke from fire. Signs and symptoms of smoke inhalation or airway burns include:
  - Evidence of burns to upper torso, neck, face
  - Facial and airway swelling
  - Sooty sputum
  - Burns which have occurred in an enclosed space
  - Singed facial hair (nasal, eyebrows, eye lashes, beard)
  - Respiratory distress
  - Hypoxia (restlessness, irritability, cyanosis, decreased GCS)

Action

- Oxygen Therapy as per **CPP C23 Oxygen Therapy**
  - Oxygen is a highly flammable gas. Do not commence oxygen therapy where there is the risk of ignition.
  - Patients with smoke inhalation and suspected carbon monoxide poisoning require high flow oxygen regardless of SpO_2.

3. Initial Management – cool the burn

Action

- ***Cool the burn – warm the patient***
- Cool affected area with cool running water for 20 minutes
  - Include cooling already done by others prior to arrival
  - Do not continue to cool after 20 minutes
  - Avoid using dirty water i.e. dam water due to infection risk
  - If running water is not available, cooling may be achieved by immersing the injury in still water, using a spray bottle or applying moist towels
- Consider management as Time Critical particularly if burns to face/suspected airway involvement

Stop

- Avoid excessive cooling as hypothermia may result
  - Do not use ice / ice water
  - Avoid / eliminate shivering
  - Consider cooling for shorter periods if large BSA

4. Analgesia

Action

- Provide pain relief as required per **CPP C07 Pain Relief - Non Cardiac**

5. Maintain normothermia

Action

- Protect patient from heat loss during and after cooling
  - Take tympanic temperature
  - Provide warm environment as soon as possible
  - Cover all of patient as soon as cooling is completed

6. Dress the burn – post cooling

Action

- Carefully cut clothing from area unless stuck to the skin
- Remove jewellery before swelling occurs
- Cover burn with cling wrap after cooling
  - Cling wrap should be applied longitudinally
- Ensure cling wrap is not applied too tightly to allow for swelling

7. Patient Transport

Action

- Commence or prepare patient for transport to nearest approved medical facility OR
- Rendezvous with Paramedic backup
- Provide Situation Report
- Continually reassess and modify treatment as required
- If prolonged time to hospital and no Paramedic support is available, conscious and alert patients may be allowed to drink water to maintain hydration

Normal Birth CPP E04

Preparation

- Reassure including cultural considerations
- Prepare equipment for normal birth
- Provide a warm and clean environment
- Provide analgesia as per Pain Relief (non-cardiac) protocol

Birth of head

- As head advances, encourage the mother to push with each contraction.
- If head is birthing too fast, ask mother to pant with an open mouth during contractions instead
- Place fingers on baby's head to feel strength of descent of head
- If precipitous (i.e. extremely quick birth), apply gentle backward and downward pressure to control sudden expulsion of the head
  - Do not hold back forcibly.

Umbilical cord check

- Following the birth of the head, check for umbilical cord around neck:
  - If loose, slip over baby's head and check not wrapped around more than once.
  - If tight, apply umbilical clamps and cut in between.

Head rotation

- With the next contraction the head will turn to face one of the mother's thighs (restitution)
  - Indicative of internal rotation of shoulders in preparation for birth of body.

Birth of the shoulders and body

- May be passive or guided birth
- Hold baby's head between hands and if required apply gentle downwards pressure to deliver the anterior (top) shoulder
- Once the baby's anterior (top) shoulder is visible, if necessary to assist birth, apply gentle upward pressure to birth posterior (lower) shoulder – the body will follow quickly
- Support the baby

- Note time of birth
- Place baby skin to skin with mother on her chest to maintain warmth unless baby is not vigorous / requires resuscitation
- Manage the non-vigorous newborn as per 'Newborn Resuscitation' protocol
- If the body fails to deliver in < 60 sec after the head, consult with Clinician urgently.

Clamping and cutting the cord

- If the newborn is vigorous, the cord can be cut at a convenient time over 1 – 3 min. The cord should stop pulsing
- If the newborn is non-vigorous and may require resuscitation, the cord may need to be cut earlier
- Clamp twice, the first 10 cm from the baby then a second a further 5 cm.
- Cut between the two clamps

Birthing placenta (third stage)

Passive (expectant) Management

- Allow placental separation to occur spontaneously without intervention
- This may take from 15 minutes to 1 hour
- Position mother sitting or squatting to allow gravity to assist expulsion
- Breast feeding may assist separation or expulsion
- Do not pull on cord – wait for signs of separation
  - lengthening of cord
  - uterus becomes rounded, firmer, smaller
  - trickle or gush of blood from vagina
  - cramping / contractions return
- Placenta and membranes are birthed by maternal effort. Ask mother to give a little push
- Use two hands to support and remove placenta using a twisting 'see saw' motion to ease membranes slowly out of the vagina
- Note time of delivery of placenta
- Place placenta and blood clots into a container and transfer
- Inspect placenta and membranes for completeness
- Inspect that fundus is firm, contracted and central
- Continue to monitor fundus though do not massage once firm
- If fundus is not firm or blood loss > 500 mL initiate fundal massage and if appropriate let the baby

breast feed. Contact the clinician immediately. Administer oxygen via a non-rebreather mask @ 15 L/min if blood loss > 500ml.

Adrenaline CPP D02

Indications

- Anaphylaxis
- Asthma
    - Life-threatening (consult)
    - Cardiac arrest

Contraindications

- Nil of significance for the above indication

Precautions

- Nil of significance for the above indication

Adverse effects

- Palpitations
- Hypertension
- Angina
- Headache
- Anxiety
- Tremor
- Hyperglycaemia

Details

- **Presentation:**
  - Epi-Pen Adult Adrenaline Auto Injector (0.3 mg)
  - Epi-Pen Junior Adrenaline Auto Injector (0.15 mg)
- **Route:** IM injection
- **Dose:**
  - Adult or child > 5 years / > 20 kg: Epi-Pen (0.3 mg)
  - Child ≤ 5 years or ≤ 20 kg: Epi-Pen Jr (0.15 mg)
- **Onset of action:** 30 - 90 seconds
- **Duration of action:** 5 - 10 minutes

Notes

- Wherever possible, administer IM adrenaline into the thigh

Aspirin CPP D01

Presentation	300 mg chewable tablets
Primary emergency Indications	• Cardiac Chest Pain / Discomfort
Contraindications	• Hypersensitivity to aspirin / salicylates • Actively bleeding peptic ulcers • Bleeding disorders • Suspected aortic aneurysm • Chest pain associated with psychostimulant OD & Systolic Blood Pressure > 160mm Hg
Precautions	• History of peptic ulcer • Asthma • Patients on anticoagulants (i.e. warfarin)
Route of administration	Oral
Dose	300mg tablet
Side effects	• Heartburn, nausea, gastrointestinal bleeding • Increased bleeding time • Hypersensitivity reactions
Special notes	Aspirin is not be administered for any condition other than chest pain / discomfort of a cardiac nature

Fentanyl CPP D10

Indications

- Analgesia (accredited practice)

Contraindications

- Serotonin toxicity
  Severe toxicity state from excess serotonin marked by high fever, confusion, and muscle rigidity / seizure activity
- Complications with the nose (i.e. facial trauma)
- Monoamine oxidase inhibitors (MAOIs) within the previous 14 days
  MAOIs include moclobemide, phenelzine and tranylcypromine
- Late second stage of labour

Precautions

- Children < 12 (consult with AV Clinician)
- Elderly / frail patients
- Impaired hepatic function
- Respiratory depression
- Current asthma presentation

Adverse effects

- Vascular: bradycardia
- Respiratory: respiratory depression, rigidity of diaphragm and intercostal muscles
- Integumentary: rash, erythema
- Gastrointestinal: nausea, vomiting

Details

- **Presentation:**
  - 100 mcg in 2 mL ampoule
- **Dose:**
  - Adult (< 60 years **AND** weight > 60 kg): 100 mcg (2 mL) IN (max total dose 400 mcg)
  - Adult (≥ 60 years **OR** weight ≤ 60 kg): 50 mcg (1 mL) IN (max total dose 200 mcg)
  - Adolescent (12 – 15 years): 50 mcg (1 mL) IN (max total dose 150 mcg)
  - Repeat 50 mcg (1 mL) at 5 minute intervals titrated to pain relief or side effects, up to the max total dose
  - Child < 12 years: Consult the AV Clinician
- **Route:**
  - IN
- **Onset of action:**
  - Immediate
- **Duration of action:**
  - 30 – 60 minutes

Notes

- Fentanyl is a Schedule 8 Medicine under the *Poisons Act*. Its use must be carefully controlled with accountability and responsibility.
- Inadvertent respiratory depression should first be managed with oxygen and assisted ventilations if required. Consult the AV Clinician for further management advice.
- Intranasal fentanyl is not approved for use in children (< 12 years) without approval from the AV Clinician.
- Patients who chronically use opioids may be expected to have a degree of tolerance and may require higher cumulative doses than opioid naïve patients. As the degree of tolerance is unpredictable, careful titration is required.

References

1. Australian Medicines Handbook 2025 [Available from: https://amhonline.amh.net.au/auth.
2. Australian Injectable Drugs Handbook [Available from:https://aidh.hcn.com.au/
3. The Royal Women's Hospital. Pregnancy and Breastfeeding Medicines Guide 2025 [Available from: https://thewomenspbmg.org.au/.

Glucagon CPP D03

Presentation	**1 mg in 1 mL Hypokit**
Primary emergency Indications	• Diabetic Hypoglycaemia (low blood sugar) with altered BGL < 4 mmol/L and altered conscious state
Contraindications	• Nil of significance for the above indication
Precautions	• Nil of significance for the above indication
Route of administration	Intra-muscular injection
Dose	• ≥ 8 years of age – 1 mg (1 mL) IM • < 8 years of age – 0.5 mg (0.5 mL) IM
Side effects	• Nausea and vomiting (rare)
Special notes	Not all patients will respond to Glucagon, particularly children, and it is important to ensure early transport / activation of Paramedic backup in all cases of hypoglycaemia
Intramuscular times	• Onset: 3 – 5 minutes • Duration: 12 – 25 minutes

Glucose Paste CPP D04

Presentation	**15 g tube**
Primary emergency Indications	• Diabetic hypoglycaemia (low blood sugar) with altered BGL < 4 mmol/L and altered conscious state but able to cooperate
Contraindications	• Inability to swallow due to altered conscious state
Precautions	• Nil of significance for the above indication
Route of administration	Oral
Usual Dose	15 g orally
Side effects	• Nausea and vomiting
Special notes	Not all patients will respond to Glucose paste and it is important to ensure early transport / activation of Paramedic backup in all cases of hypoglycaemia

Glyceryl Trinitrate CPP D05

Indications

- Cardiac chest pain / discomfort

Contraindications

- Known hypersensitivity
- Systolic blood pressure < 100mmHg
- Avanafil (Spedra) administered in the previous 12 hours
- Sildenafil (Viagra) or vardenafil (Levitra) administered in the previous 24 hours
- Tadalafil (Cialis) administered in the previous 48 hours
- Patients prescribed riociguat (Adempas)
- Heart rate > 150 bpm
- Heart rate < 60 bpm
- Pale / grey moist skin

Precautions

- No previous administration of Glyceryl Trinitrate
- Elderly patients

Adverse effects

- Hypotension
- Tachycardia
- Headache
- Dizziness
- Syncope / fainting
- Bradycardia (uncommon)
- Skin flushing (occasionally)

Glyceryl Trinitrate CPP D05

Details

- **Presentation:** 0.3 mg tablet (*Nitrostat*)
- **Dose:** 0.3 mg sublingual
- **Onset of action:** 1-3 minutes
- **Peak:** 5 minutes
- **Duration of action:** at least 25 minutes

Notes

- GTN is also known as nitroglycerin
- GTN tablets should be stored in the original bottle, with the lid tightly closed after each use to prevent loss of potency.
- Due to uncontrolled storage conditions inside an ambulance, unused GTN tablets should be discarded 6 months after first opening. Mark the expiry date on the bottle with a pen or permanent marker.
- Do not administer the patient's own GTN tablets unless unavoidable, as its storage may have been sub-optimal or it may be expired.

Ipratropium Bromide CPP D06

Indications

- Anaphylaxis
  - Associated with bronchospasm
- Asthma
  - Severe
  - Life-threatening
- COPD

Contraindications

- Nil significant

Precautions

- Avoid contact with eyes

  May cause ocular complications including acute angle glaucoma
- Cardiovascular disorders

Adverse effects

- Palpitations
- Tachycardia (rare)
- Nausea
- Dizziness
- Headache

Ipratropium Bromide CPP D06

Details

- **Presentation:** 250 mcg in 1 mL nebule
- **Dose:**
  - Adult or child ≥ 5 years: 500 mcg (2 mL)
  - Child 2 – 4 years: 250 mcg (1 mL)
- **Route:** Nebulised
- **Onset of action:** 3 - 5 minutes
- **Duration of action:** 6 hours

Notes

- Administer nebulised ipratropium bromide concurrently with salbutamol
- Ensure the nebuliser mask is well fitted to avoid ipratropium bromide making contact with the eyes.

Methoxyflurane CPP D07

Indications

- Pre-hospital pain relief

Contraindications

- Pre-existing kidney disease (see Notes below)
- Known (or genetic susceptibility) to malignant hyperthermia

Precautions

- Patients should not be administered > 6 mL of methoxyflurane in a 24 hour period, due to increased risk of kidney damage
- To limit occupational exposure, methoxyflurane should not be administered in a confined space. Ensure adequate ventilation in ambulance. Place used Penthrox inhalers in a closed plastic bag when not in use.

Adverse effects

- Dizziness, drowsiness
- Hypotension
- Nausea and vomiting

Details

- **Presentation**: 3 mL bottle
- **Dose**: 3mL via Penthrox inhaler
- **Route**: Supervised self-administration via inhalation. Can be used intermittently or continuously as required
- **Onset of action**: Within 6 to 10 breaths
- **Duration of action**: Effects last 3-5 minutes after stopping the inhalation. One vial provides up to 25 minutes of analgesia with continuous use

Notes

- Managed as a restricted medication in AV
- Pre-existing kidney disease includes previously diagnosed renal impairment or failure. Kidney stones and/or renal colic are not contraindications to methoxyflurane therapy within the context of this guideline

Ondansetron CPP D12

Indications

- Nausea and vomiting
- Nausea prophylaxis due to spinal immobilisation
- Eye trauma

Contraindications

- Patients currently receiving apomorphine (injection used in the treatment of severe Parkinson's disease)

Precautions

- Pregnancy (consult required)
- Congenital Long QT syndrome
- Severe hepatic disease (e.g. cirrhosis) – limit total daily dose to a maximum of 8 mg
- Ondansetron ODT may contain aspartame which should be avoided in patients with phenylketonuria

Adverse effects

- Headache, dizziness
- Constipation

Details

- **Presentation:** 4 mg ODT (Orally Disintegrating Tablet)
- **Dose:**

  Adult and adolescent: 4 mg oral; repeat 4 mg after 20 minutes if symptoms persist (max. 8 mg)

  Small child: 2 mg oral

  Medium child: 4 mg oral

  Consult with Clinician if nausea and vomiting persists
- **Route:** ODT – tablet will dissolve in mouth and contents can then be swallowed
- **Onset of action:** 30 minutes
- **Duration of action:** Several hours

Notes

- In pregnancy, consult AV Clinician or receiving hospital for advice.
- May not be effective for nausea and vomiting caused by motion sickness or dizziness

Paracetamol CPP D11

General Notes

Presentation	**500 mg tablets** **120 mg in 5 mL (24 mg/mL) oral liquid**
Primary emergency Indications	• Mild pain
Contraindications	• Hypersensitivity to paracetamol • Children < 1 month of age • Total paracetamol intake within past 24 hours exceeding 4 g (adults) or 60 mg/kg (children) • Paracetamol administered within past 4 hours
Precautions	• Impaired liver / renal function
Route of administration	Oral
Dose	• Adult and Adolescent (12 – 15 years): Paracetamol 1000 mg oral – Reduce dose to 500 mg if age > 60 or weight ≤ 60kg • Children (< 12 years): Paracetamol 15 mg / kg oral liquid – Confirm dose with label on bottle.
Side effects	• Hypersensitivity reactions including severe skin rashes (rare)
Special notes	• There are several brands of paracetamol available in Australia. Paracetamol is also found in many combination medicines, both prescription and over-the counter. Carefully determine previous paracetamol intake before dose administration. • The usual dose of paracetamol for children is 15 mg/kg per dose.

Paediatric Paracetamol Dosing

Paracetamol 15mg/kg dose (based on 120mg in 5mL liquid) CONFIRM DOSE WITH LABEL ON BOTTLE			
Age (years)	**Weight (kg)**	**Dose (mg)**	**Volume (nearest mL)**
2 month	5	75	3
6 month	7	105	4
1 year	10	150	6
2	12	180	8
3	14	210	9
4	16	240	10
5	18	270	11
6	20	300	13
7	22	330	14
8	24	360	15
9	26	390	16
10	33	495	21
11	36	540	23

- Recommended dosages are based on 15 mg of paracetamol per kg of bodyweight.
- Children ≥ 10 years can have 500 mg (1 tablet)

Salbutamol CPP D09

Indications

- Anaphylaxis
  - Associated with bronchospasm
- Asthma
- COPD
- Shortness of breath and wheeze due to other cause (e.g. smoke inhalation)

Contraindications

- < 2 years of age

Precautions

- Nil

Adverse effects

- Palpitations
- Tachycardia
- Headache
- Muscle tremors (common)

Details

- **Presentation:**
  - 5 mg in 2.5 mL nebule
  - 100 mcg / dose pMDI
- **Dose:**
  - pMDI:
    - Adults and children ≥ 5 years: 4 – 12 puffs
    - Children 2 – 4 years: 2 – 6 puffs
  - Nebulised:
    - Adults and children ≥ 5 years: 5 mg (2.5 mL)
    - Children 2 – 4 years: 2.5 mg (1.25 mL)
- **Route:**
  - Nebulised
  - pMDI
- **Onset of action:** 5 – 15 minutes
- **Duration of action:** 15 – 30 minutes

Notes

- Administer nebulised salbutamol concurrently with ipratropium bromide.
- Salbutamol nebules have a shelf life of three months after the foil wrapping is opened. Record the date of opening on the packaging.

Information

The Ambulance Victoria (AV) Medical Advisory Committee has approved these Protocols for use by Ambulance First Responders.

The Protocols are designed to provide guidance for First Responders when providing emergency patient care. There is a strong emphasis on the importance of first responder safety when delivering patient care in the field. Safety of the carer will also be reinforced during the Continued Vocational Education program.

Feedback regarding this document is most welcome. Please provide feedback to your Team Manager, Team Leader or Trainer or email Vocational.Programs@ambulance.vic.gov.au

How to use these Protocols CPP A02

Information

The “Approach to an Incident” Protocol provides a systematic approach that should be followed at each incident you attend. Protocols for specific clinical problems should be initiated. For example, if you follow “Approach to an Incident” and the patient has pain that is cardiac in nature apply the “Cardiac Chest Pain / Discomfort” Protocol.

Not all clinical situations can be covered by a Protocol. Protocols are provided for situations that are more common or that require using medicines as part of the treatment. Seek early advice from the Clinician when unsure of treatment options.

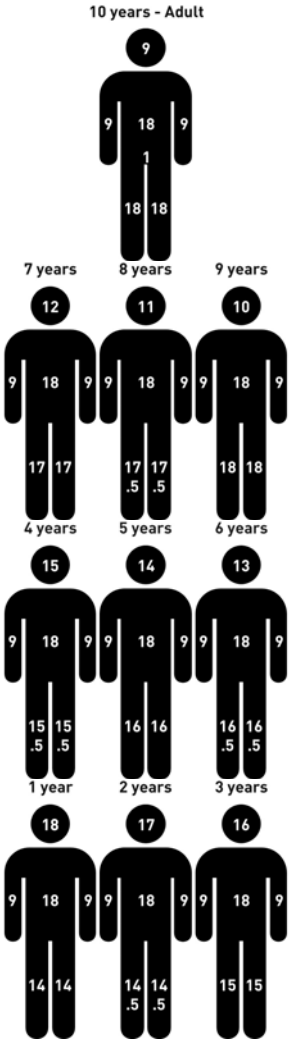
The medication reference material in this manual covers key issues such as indications for use, contraindications, side effects and dose ranges. More comprehensive information about these medicines are available from other sources. For Ambulance First Responder practice in AV the information in this protocol will override information from other sources.

All staff must ensure that they only operate within their approved accreditation level. Failure to do so puts the patient, yourself and AV at risk and may lead to loss of individual accreditation.

Burns Chart CPP E01

Paediatric-Adult Burns Assessment Ruler

Expressed as a % of Total Body Surface Area



Chest + Abdomen = 18% Front or 18% Back

Limbs are measured circumferentially

Multi Casualty Incidents CPP E06

First Ambulance on Scene

- Notify dispatcher of your arrival.
- Advise the exact location of the incident, including cross streets and what can be seen from initial observations.
- Assume the duties of the Triage Officer and Transport Officer, until the arrival of the first Paramedic crew.

Triage Officer

- Wear all the appropriate personal protective equipment provided.
- Undertake a quick reconnaissance and provide an initial ETHANE Situation Report to the Communications Centre.
  - **E** – Exact location
  - **T** – Type of incident (e.g. RTA, CBR, Hazmat)
  - **H** – Hazards (e.g. power lines, fuel, spills)
  - **A** – Access/egress
  - **N** – number of patients (walking, stretcher, deceased)
  - **E** – Emergency services required (ambulances, other agencies)
- When ascertaining the number of casualties, only pause to undertake immediate lifesaving management (i.e. Basic airway management, lateral positioning and major haemorrhage control).
- Utilise the assistance of bystanders and other emergency personnel, where available and appropriate to assist in caring for casualties.
- Apply triage tags using SMART Triage Pac using the “Sieve” method.
- Liaise with the Police Coordinator and Incident Controller.
- Liaise with the Transport Officer regarding the establishment of the Ambulance Loading Point.
- Liaise with the Field Emergency Medical Officer (if on scene).
- Select a suitable site for the Casualty Collecting Post (CCP).
- Direct walking patients (green tag) to the CCP. These should be transported after transport of the higher priority patients.
- Further classify patients using the “Sort” process.
- Monitor patients as they may change from one category to another.
- Provide updated ETHANE Situation Report as further details are obtained, including numbers of each triage category.
- Hand command of the incident over to the first Paramedic crew to arrive, or the Ambulance Commander.
- If directed to continue Triage Officer role, direct Paramedics and medical teams to the most urgent cases until relieved.

Transport Officer

- Wear all protective equipment as provided by Services.
- Ensure vehicle safety and remain with vehicle.
- Establish communication / radio with ESTA Communications.
- Ensure access/ egress for incoming ambulances, use police and/or bystanders to assist with keeping the area clear.
- Establish an ambulance loading point in consultation with the Triage Officer and liaise with Triage Officer to establish the Casualty Collecting Post.
- Establish an ambulance holding point and coordinate all ambulances arriving on scene (these must report via the Transport Officers location unless otherwise directed).
- If directed continue Triage Officer role after Paramedic arrival.
- Maintain Casualty Movement Log regarding transport of all patients (the log is located inside the sleeve of the PCR pad).
- Liaise with the Field Emergency Medical Officer (if on scene) regarding appropriate patient distribution to available hospitals.
- Apply a smart tag bar code to the Triage Label/Disaster Tag of each victim prior to transport; ensure that the smart tag bar code corresponds to the number used on the Casualty Movement Log.

Only approach from upwind and remain at least 250 metres from incident site

Look for identifying marks/symbols, Emergency Procedures Guide (EPG) on containers or vehicles

Contact Incident Controller if in attendance, or on-site expert if available

Access DATA CHEM information via ESTA dispatch

If identification is not available contact ESTA dispatch with the following information if visible:

Manufacturer's name	
Container	Type, shape, size and markings
Materials	Physical characteristics, behaviour
Transport company's name	
Vehicle registration number	

If the hazard cannot be identified DO NOT enter the 250 metre perimeter until expert advice from control agency personnel or the Incident Controller has been provided, and the area declared safe to enter.

Remember

If you don't think CBR, (Chemical, Biological or Radiological) you won't suspect CBR!

- Multiple casualties
- Similar Signs and Symptoms
- Think CBR – Ensure Safety! Stay uphill and upwind

Common Abbreviations CPP E08

Abbreviation	Meaning
b.d.	twice daily
t.d.s.	three times daily
q.i.d.	Four times daily
p.r.n.	Whenever necessary
a.c.	Before food
p.c.	Immediately after food
stat.	Immediate, once only dose
daily	Once daily
nocte	Given on settling (at night)
6/24	6 hourly
PEARL	Pupils equal and reacting light
Hx	History
C/O	Complaining of
Ca	Cancer
O/A	On arrival
PHx	Past history
Mx	Manage/Management
I.M.	Intramuscularly
I.V.	Intravenously
S.L.	Sublingual

C/C	Chief complaint
P.R.	Per rectal
P.V.	Per vagina
‘O’	Orally
Pt	Patient
O/E	On examination
Rx.	Treatment
B.P.	Blood pressure
B.G.L.	Blood Glucose Level
E.C.G.	Electrocardiogram
E.S.S.	Emergency surgical suite
I.V.T.	Intravenous therapy
N.A.D.	No abnormalities detected
I.D.C.	In-dwelling catheter
Med^{n}	Medication

Patient positioning

	Trendelberg (legs up)
	Supine (face up)
	Sitting
	Semi-recumbent
	Prone (face down)
	Lateral (side)

List of Tetracycline Antibiotics

GENERIC NAME	TRADE NAME
TETRACYCLINE HCL	ACHROMYCIN, MYSTECLIN, TETREX
MINOCYCLINE HCL	AKAMIN, MINOMYCIN
DOXYCYCLINE HCL	DORYX, DOXIG, DOXY TABLETS, DOXYCYCLINE-BC, DOXYHEXAL TABS DOXYLINE, GENRX DOXYCYCLINE' VIBRATABS-50, VIBRAMYCIN"
DEMECLOCYCLINE HCL	LEDERMYCIN

Handover / Notification CPP E09

When providing pre-arrival information, or handing over a patient to another health care professional, it is important that incident / patient information is provided in a structured way using the IMIST-AMBO format.

MNEMONICS – Common Examples CPP E11

Signs & symptoms of a fracture	**P**ain **I**rregularity **L**oss of movement or power **S**welling **D**eformity **U**nnatural movement **C**repitus **T**enderness
Treatment of fracture	**F**ix **R**eassure **A**fford limb support **C**over any wounds **T**ry for natural position **U**se appropriate splint **R**eact to haemorrhage **E**very occasion suspect fracture **S**hock – Treat & manage
Pain assessment	**D**escription **O**nset **L**ocation **O**ther symptoms **R**elief

Suspected anaphylaxis	**R**espiratory distress **A**bdominal symptoms **S**kin/mucosal symptoms **H**ypotension (altered conscious state)
Situation Report (Sit-rep)	**S**ex **A**ge **D**escription **I**njuries **E**stimated time of arrival (ETA)
History & Secondary Survey	**A**llergies **M**edications (current) **P**ast Medical History **L**ast Meal **E**vent that prompted the call for an ambulance
Pre-Arrival Notification	**I**dentification – patient name, D.O.B age and sex **M**echanism of Injury / main presenting problem **I**llness or Injury **S**igns & Symptoms, including vital signs survey **T**reatment provided and response to treatment

Ethane	**E**xact Location **T**ype of Incident (e.g. Road Traffic Accident. Chemical /Biological / Radiological [CBR], HAZMAT, etc.) **H**azards at Scene (e.g. power lines, vapour, spillage etc.) **A**ccess and Egress **N**umber of Casualties (walking, stretcher, deceased etc.) **E**mergency Services at Scene Required (e.g. additional ambulance resources and other agencies)
Causes of altered consciousness	**A**lcohol/drug intoxication **E**pilepsy (post ictal) **I**nsulin (diabetic) or other metabolic problem **O**verdose or oxygen (hypoxia) **U**nderdose (of medication or drug/alcohol withdrawal) **T**rauma to the head **I**nfection **P**ain or psychiatric condition **S**troke or TIA