Clinical Practice Guidelines

Ambulance Community Officer
Community Emergency Response Team

AmbulanceVictoria

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About

Enquiries

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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.

	Normal	Respiratory Distress
Rate	12-16/minute	Rapid (> 20) or Slow (< 8)
Rhythm	Regular even cycles	Asthma: prolonged expiratory phase
Effort	Little with small chest movement	Marked chest movement and may be some use of accessory muscles
Appearance	Calm, quiet	May be distressed, anxious, exhausted. Fighting to breathe
Ability to **S**peak	Clear and steady	Speaks in short phrases or unable to speak (can they count to ten?)
Noises	Usually quiet	May have a cough Asthma: expiratory wheeze, may also be inspiratory wheeze, may be no breath sounds if severe Heart Failure or infection: audible crackles – with possibly inspiratory +/- expiratory wheeze Upper airway obstruction: inspiratory stridor

These observations need to be taken in the context of:

- the patient's presenting condition;
- repeated observations and trends shown; and
- response to management

The patient with breathing difficulty is time critical and requires expedient transport to hospital with the Paramedic backup crew.

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

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

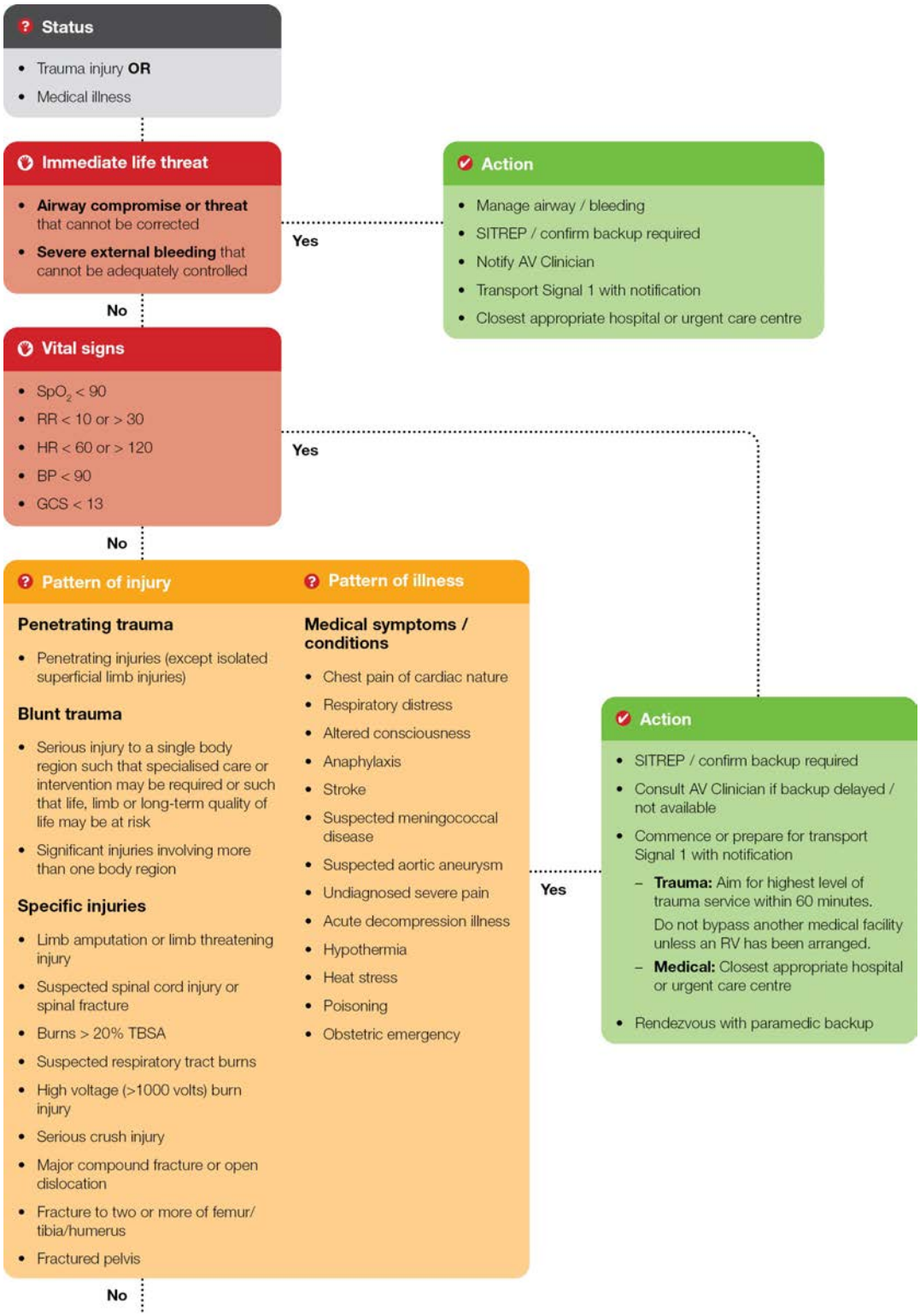
A person with two or more of the above meets the criteria for that category of perfusion.

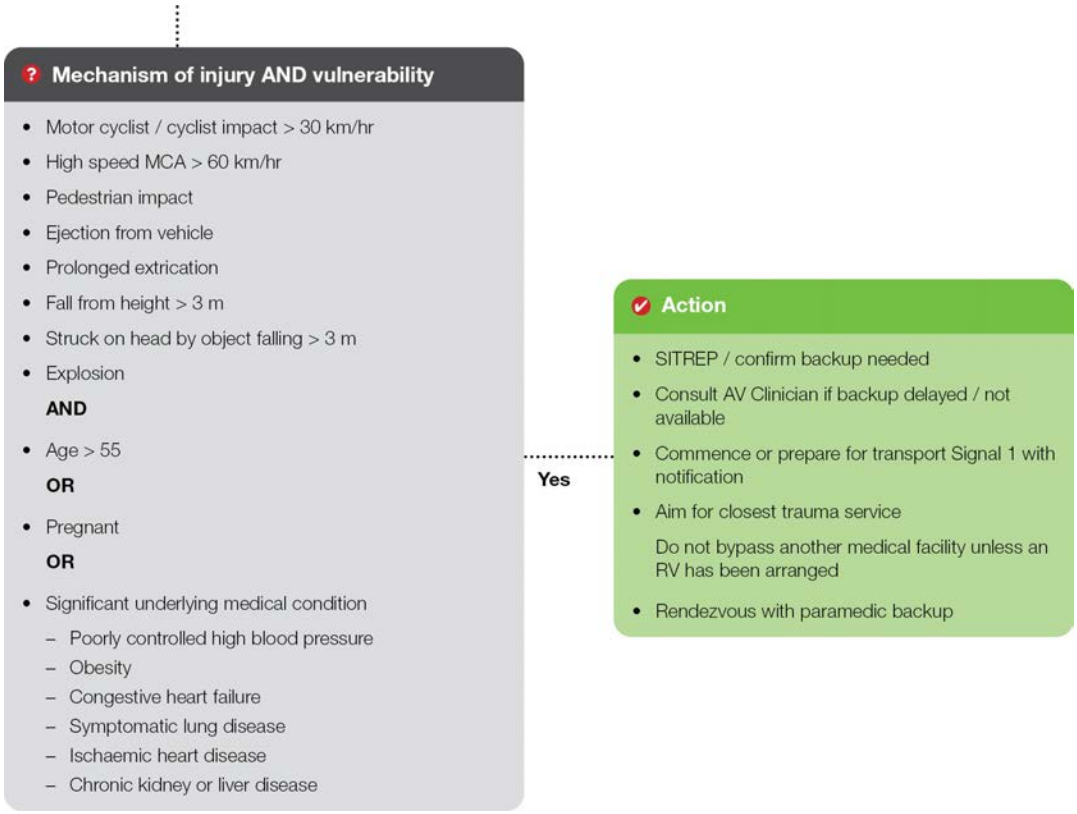
A person with less than adequate perfusion is time critical and requires expedient transport to hospital by the Paramedic backup crew.

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)

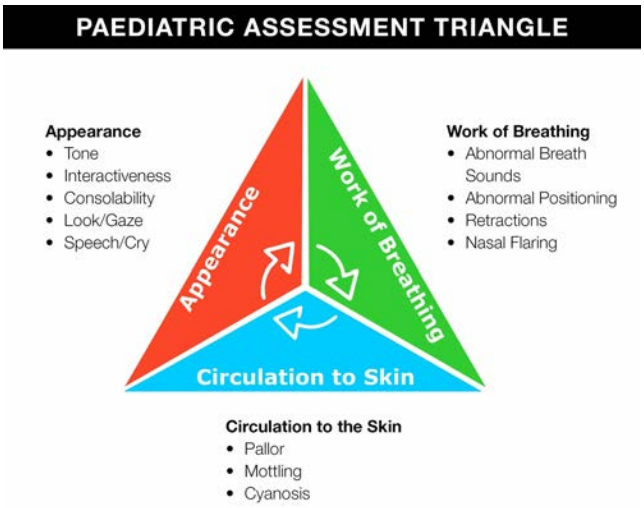
- Austin Health
- Box Hill Hospital
- The Northern Hospital
- Monash Medical Centre, Clayton Campus
- Dandenong Hospital
- Frankston Hospital

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 Assessment (Paediatric)

Age	RR
Newborn	25 - 60 breaths/minute
Small infant	25 - 60 breaths/minute
Large infant	25 - 55 breaths/minute
Small child	20 - 40 breaths/minute
Medium child	16 - 34 breaths/minute
Adolescent	14 - 26 breaths/minute

Respiratory distress

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

Signs of respiratory disrtess include:

- tachypnoea
- chest wall retraction
- use of accessory muscles
- tracheal tugging
- abdominal protrusion

Signs of Hypoxia in Children	
Infants	**Children**
Lethargy	Restlessness
Bradycardia	Tachypnoea
Hypotension	Tachycardia
Apnoea	Cyanosis
Pallor	Bradycardia (late sign)

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)

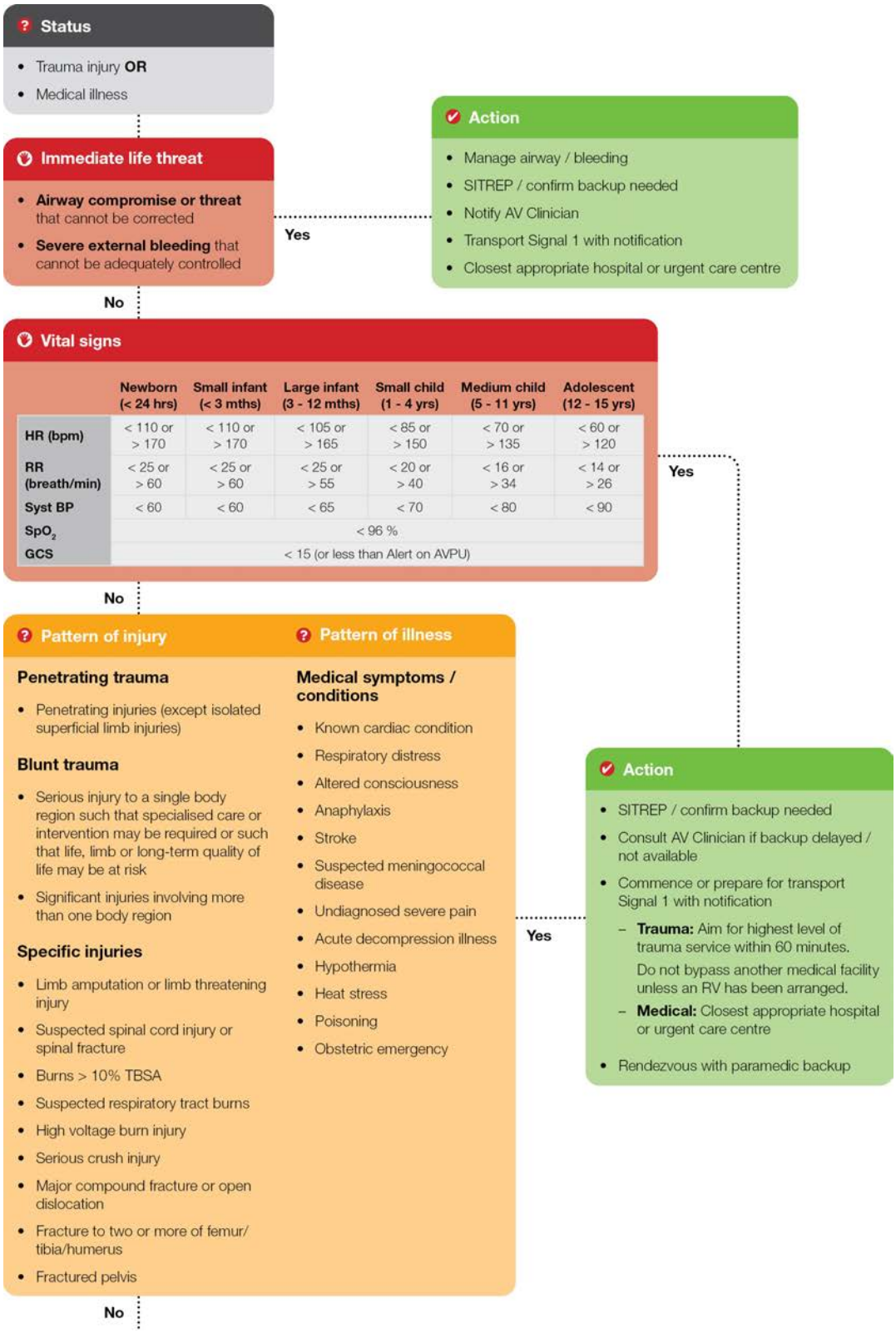
Conscious State should be assessed using the Glasgow Coma Scale once stable.

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

Flowchart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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 needed
Notify AV Clinician
Transport Signal 1 with notification
Closest appropriate hospital or urgent care centre
No
Vital signs
Newborn (< 24 hrs)
Small infant (< 3 mths)
Large infant (3 - 12 mths)
Small child (1 - 4 yrs)
Medium child (5 - 11 yrs)
Adolescent (12 - 15 yrs)
HR (bpm)
< 110 or > 170
< 110 or > 170
< 105 or > 165
< 85 or > 150
< 70 or > 135
< 60 or > 120
RR (breath/min)
< 25 or > 60
< 25 or > 60
< 25 or > 55
< 20 or > 40
< 16 or > 34
< 14 or > 26
Syst BP
< 60
< 60
< 65
< 70
< 80
< 90
SpO2
< 96 %
GCS
< 15 (or less than Alert on AVPU)
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
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Limb amputation or limb threatening injury
Suspected spinal cord injury or spinal fracture
Burns > 10% TBSA
Suspected respiratory tract burns
High voltage 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
Known cardiac condition
Respiratory distress
Altered consciousness
Anaphylaxis
Stroke
Suspected meningococcal disease
Undiagnosed severe pain
Acute decompression illness
Hypothermia
Heat stress
Poisoning
Obstetric emergency
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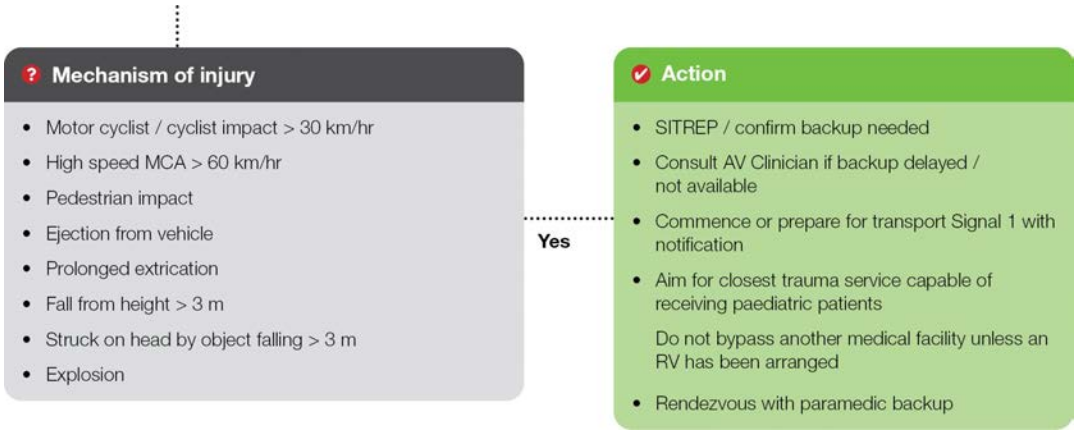

Care Objectives

- 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

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- Early notification of the receiving hospital to ensure the required staff and equipment are immediately available.

More information

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Vital signs criteria & pattern of injury

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  - 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

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Vital sign criteria

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Pattern of injury / illness

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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.

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- Grampians
  - Ballarat
  - Horsham

- Loddon Mallee
  - Bendigo
  - Mildura
- Hume
  - Albury
  - Shepparton
  - Wangaratta
- Gippsland
  - Traralgon

Major Trauma Service (paediatric, age < 16 years)

- The Royal Children's Hospital

Metropolitan Trauma Services (adult and paediatric)

- Austin Health
- Box Hill Hospital
- The Northern Hospital
- Monash Medical Centre, Clayton Campus
- 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]."

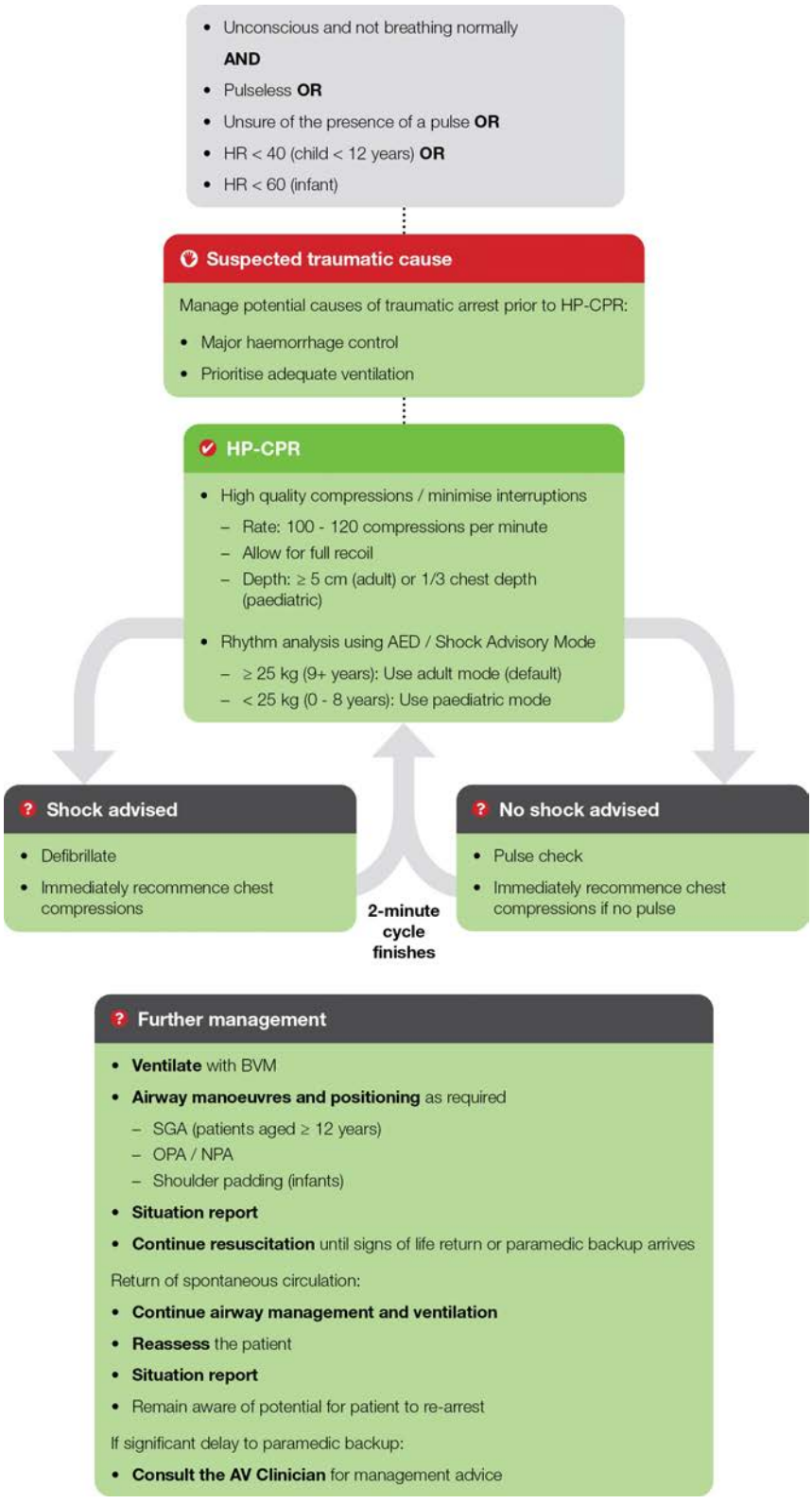
Score the chosen face 0, 2, 4, 6, 8, or 10, counting left to right, so "0" = "no pain" and "10" = "very much pain". Do not use words like "happy" or "sad". This scale is intended to measure how children feel inside, not how their face looks.

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


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

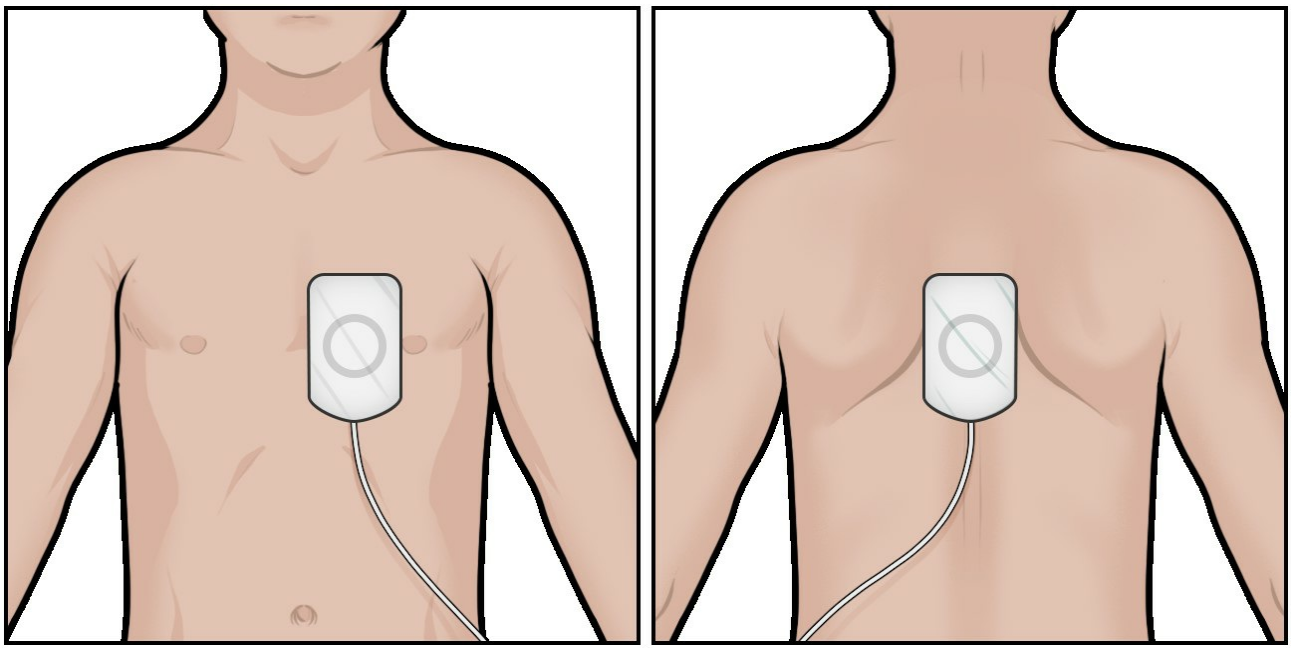
Paediatric patients (< 16 years)

- 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.

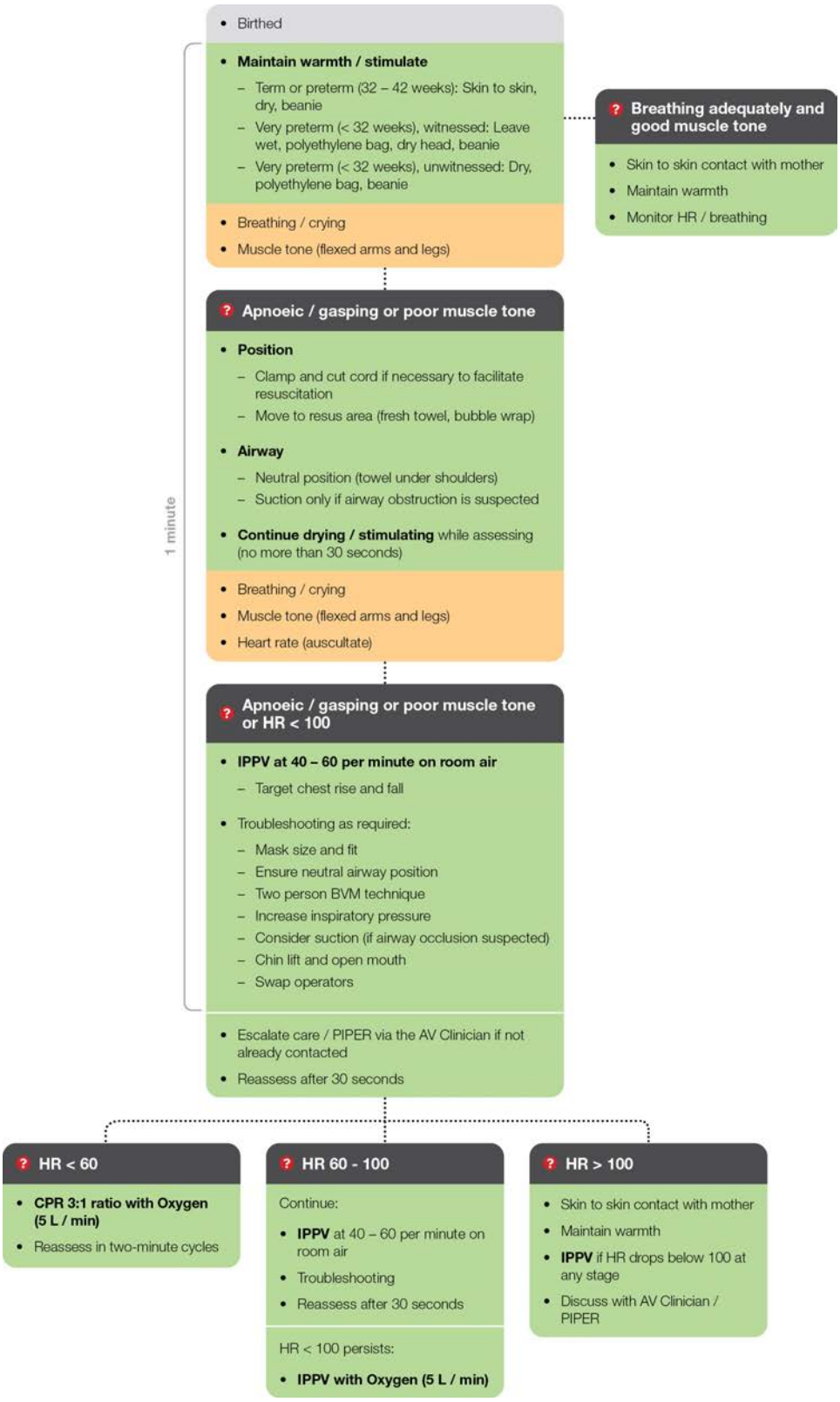
Return of Spontaneous Circulation (ROSC)

- 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

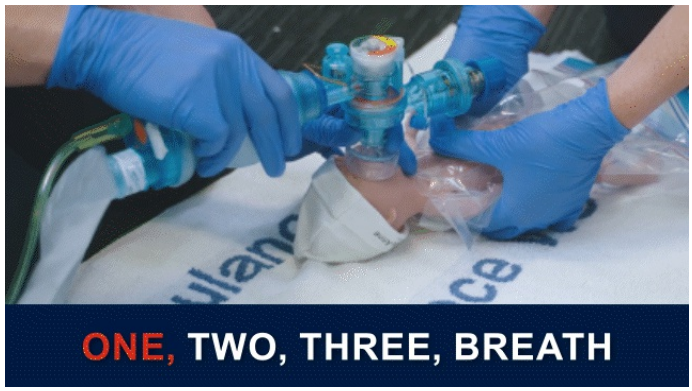
- Attach infant probe to the right hand or right wrist (pre-ductal) if available.
  - Watch video of applying the SpO_2 probe
- Applying the probe under bubble wrap or plastic coverings is difficult but should not come at the expense of ventilation or maintaining warmth.
- SpO_2 values post-birth are 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.

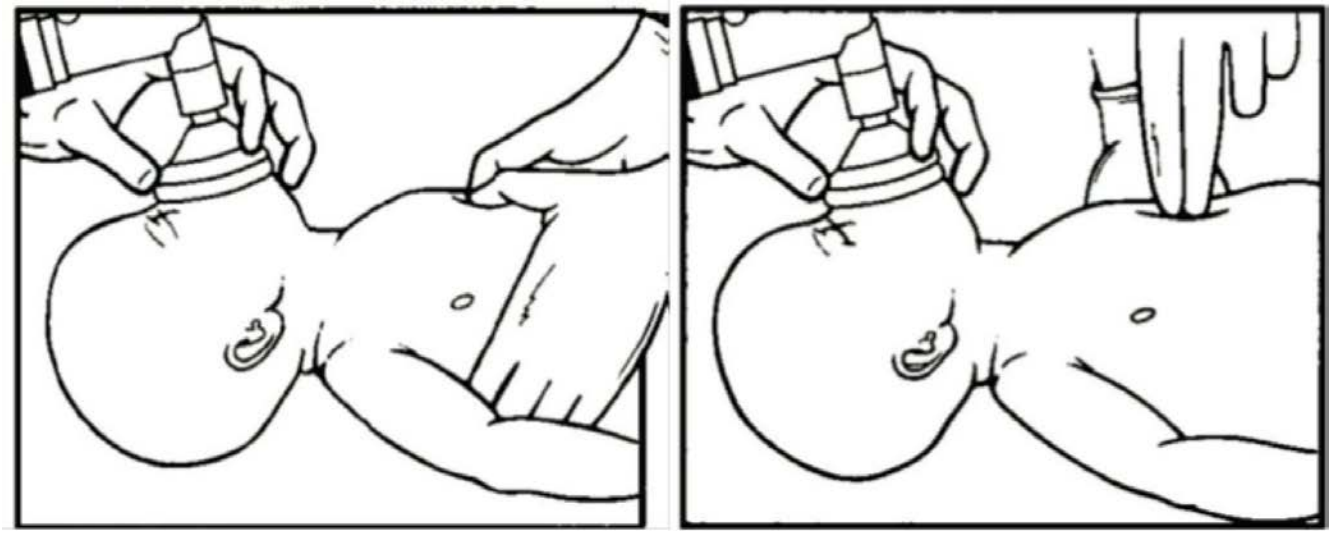
CPR

- 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)

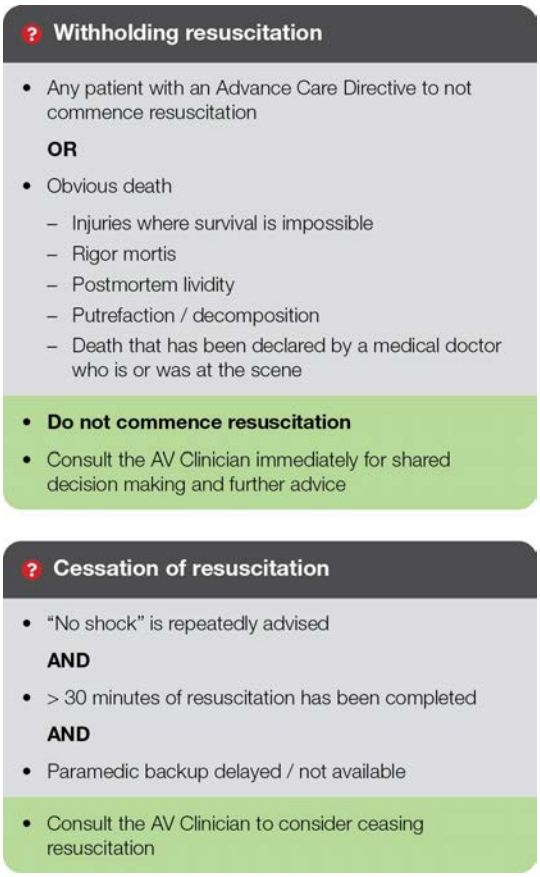
Indications for withholding resuscitation

- 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
- Apply O_2 therapy where SpO_2 is < 92% (8L per minute via mask)

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)

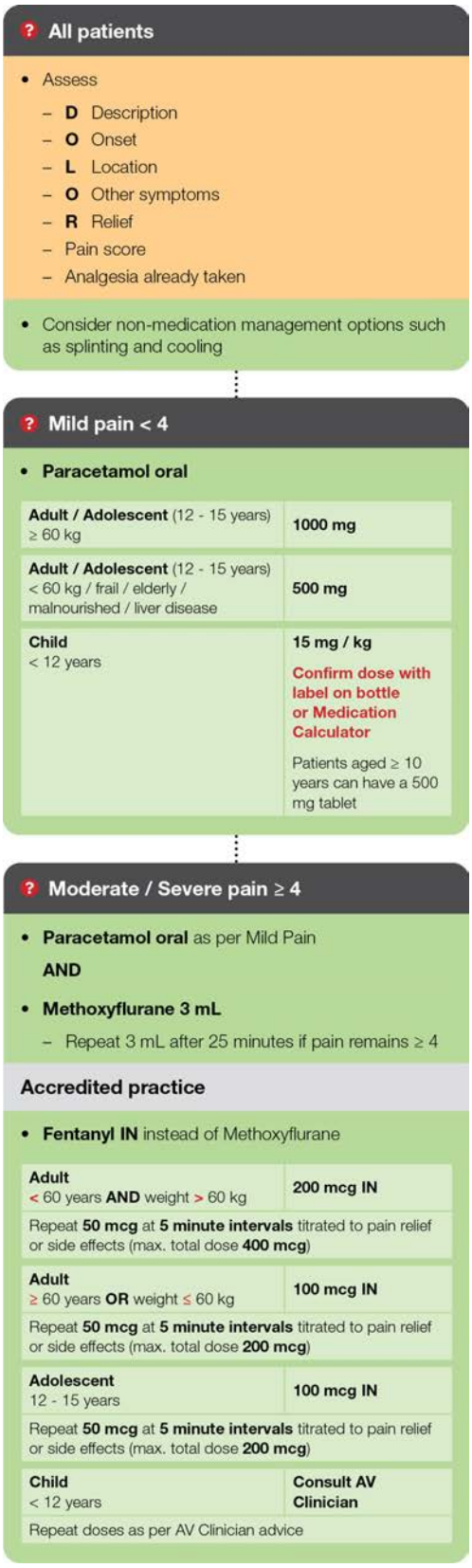
- Administer **Fentanyl IN** instead of **Methoxyflurane**

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 instead of Methoxyflurane
Adult < 60 years AND weight > 60 kg
200 mcg IN
Repeat 50 mcg at 5 minute intervals titrated to pain relief or side effects (max. total dose 400 mcg)
Adult ≥ 60 years OR weight ≤ 60 kg
100 mcg IN
Repeat 50 mcg at 5 minute intervals titrated to pain relief or side effects (max. total dose 200 mcg)
Adolescent 12 - 15 years
100 mcg IN
Repeat 50 mcg at 5 minute intervals titrated to pain relief or side effects (max. total dose 200 mcg)
Child < 12 years
Consult AV Clinician
Repeat doses as per AV Clinician advice

Pain Relief – Non Cardiac CPP C07

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).

Breathing Difficulties CPP C02

1. Initial Approach and Assessment

- Follow approach to an incident steps 1 – 6
  - Place particular emphasis on providing reassurance
- Minimise patient exertion in all cases

Assess

- Respiratory distress
- Patient choking or possible airway obstruction
- Wheeze present
- History of event
- History of respiratory problems

Action

- For all patients with breathing difficulty:
- **IF** conscious
  - Position upright or allow patient to adopt own preferred position
  - **Oxygen** therapy at 8L per minute
- **IF** altered conscious state and inadequate ventilation
  - Position supine
  - Provide high concentration **Oxygen** via BVM
  - Assist ventilation as required
- **IF** choking/airway obstruction assist ventilation as per ***point 2***
- **IF** asthma suspected assist ventilation as per ***point 3***
- Patients with breathing difficulties have the potential to deteriorate even following initial improvement:
  - Aim to keep scene times to a minimum in each case
  - Manage all patients with breathing difficulties as time critical

- Provide early sit-reps to ESTA dispatch

- **IF** no pulse found – manage as ***Cardiac Arrest C4***

2. Patient Choking – airway obstruction

Action

- IF able to effectively cough:
  - Encourage coughing
  - No further intervention is required
  - Monitor for clearance or deterioration
- IF conscious but unable to effectively cough
  - Provide back blows (up to 5) and reassess
  - If still obstructed, provide chest thrusts (up to 5)
  - Monitor for clearance or deterioration
  - Administer Oxygen therapy at 8L per minute
  - IF obstruction remains alternate back blows, chest thrusts and reassessment
- IF unconscious or becomes unconscious but with pulse
  - With patient supine perform 5 external chest compressions
  - Assess for clearance of obstruction
  - Re-assess for palpable pulse
  - Attempt to ventilate patient with Bag Valve Mask
  - Repeat alternating 5 compressions and 2 ventilations as req'd
    - Use suction to assist as necessary
- IF pulse is lost or no pulse found – manage as Cardiac Arrest C4

Stop

- Do not place fingers in patient's mouth as this may cause bite reflex

3. Difficulty breathing - wheeze present or asthma history

Action

- Adult:
  - **Salbutamol pMDI 4 – 12 doses via spacer** (patient to take 4 breaths for each dose). Repeat at 20 minutes if required
  - If pMDI spacer unavailable or symptoms severe:
    - **Salbutamol 10 mg** (2 nebules) via nebuliser mask **with oxygen** at 8L per minute
    - Repeat **Salbutamol 5mg** (1 nebule) at 5 minute intervals until symptoms relieved or handover to hospital /Paramedic
- Paediatric - children 2 - 5 years old:
  - **Salbutamol pMDI 2 – 6 doses via spacer** (patient to take 4 breaths for each dose). Repeat at 20 minutes if required
  - If pMDI spacer unavailable or symptoms severe:
    - **Salbutamol 2.5 mg** (half a nebule) via nebuliser mask with **Oxygen**
    - Continue treatment with **Salbutamol 2.5 mg** (half nebule) via nebuliser mask every 20 minutes until patient states breathing is normal or handover to hospital / Paramedic
- Paediatric - Children ≥ 6 years old:
  - **Salbutamol pMDI 4 – 12 doses via spacer** (patient to take 4 breaths for each dose). Repeat at 20 minutes if required
  - If pMDI spacer unavailable or symptoms severe:
    - **Salbutamol 5 mg** (1 nebule) via nebuliser mask with **Oxygen**
    - Continue treatment with **Salbutamol 5 mg** (1 nebule) every 20 minutes until patient states breathing normal or handover to hospital / Paramedic
- **IF** no improvement after 20 minutes of Salbutamol
  - Add single dose only of **Ipratropium Bromide** to nebuliser:
    - Adult: 500 mcg (2 nebules)
    - Adolescent (12 - 15 years): 500 mcg (2 nebules)
    - Child (< 12 years): 250 mcg (1 nebule)

- **Severe Breathing Difficulties (including Thunderstorm Asthma)**
  - If patient requires multiple doses of Salbutamol, assess them against the anaphylaxis 'RASH' criteria
  - Consult AV Clinician for further treatment (e.g. IM Adrenaline EpiPen)
  - If a patient with suspected thunderstorm asthma doesn't respond to salbutamol AND the clinician is not contactable, administer IM Adrenaline (eg: EpiPen adrenaline autoinjector) as per **CPP C01 Anaphylaxis / Severe Allergic Reaction**
- **IF** patient is unconscious or becomes unconscious (with poor or no ventilation but still with a pulse)
  - Commence **100% Oxygen via Bag Valve Mask** and ventilate slowly at age appropriate rate:
    - Adult: 5 - 8 per minute
    - Adolescent: 5 - 8 per minute
    - Medium Child: 10 - 14 per minute
    - Small Child: 12 - 15 per minute
  - Do not over-ventilate as this may worsen condition

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 Rx as required

Related Resources

https://av-digital-cpg.web.app/assets/pdf/CWI/CWI OPS 059 IPPV with a Bag Valve Mask [CPP C2].pdf

https://av-digital-cpg.web.app/assets/pdf/CWI/CWI OPS 076 Administration of a Nebulised Medication to a Conscious Patient via Aerosol Mask.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
- Commence **Oxygen therapy** 8L per minute
- **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

Action

- Most seizures will self-terminate. Continue basic care and vital sign monitoring as required during and post seizure.
- Protect patient from injury.
- IF patient carer / parent is able to administer prescribed medication, assist them to do so.
  - Patients administered medication to treat seizures must be monitored closely for signs of inadequate breathing
- IF inadequate breathing
  - Use BVM with oxygen attached to maintain 12 ventilations/min
  - Ventilate children (< 16 years) at appropriate rate/tidal volume

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

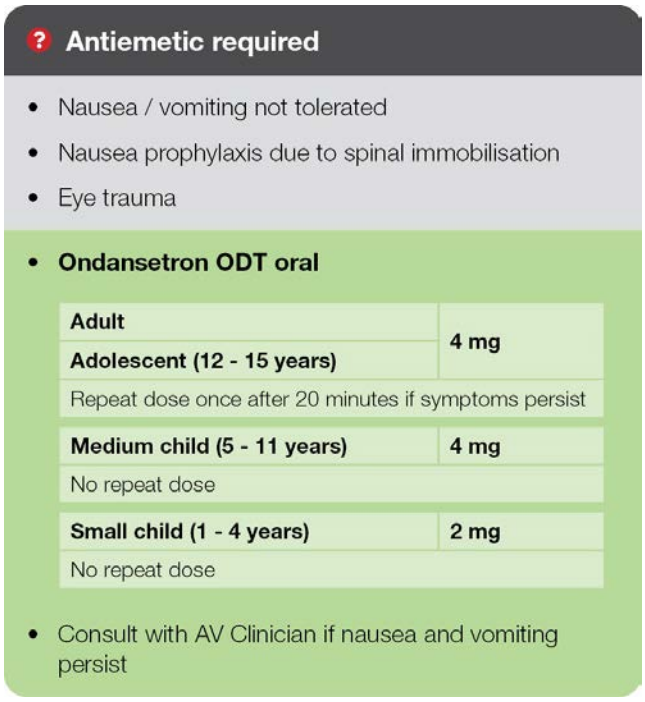
- Manage traumatic head injury as per **CPP C08 Trauma Management**

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

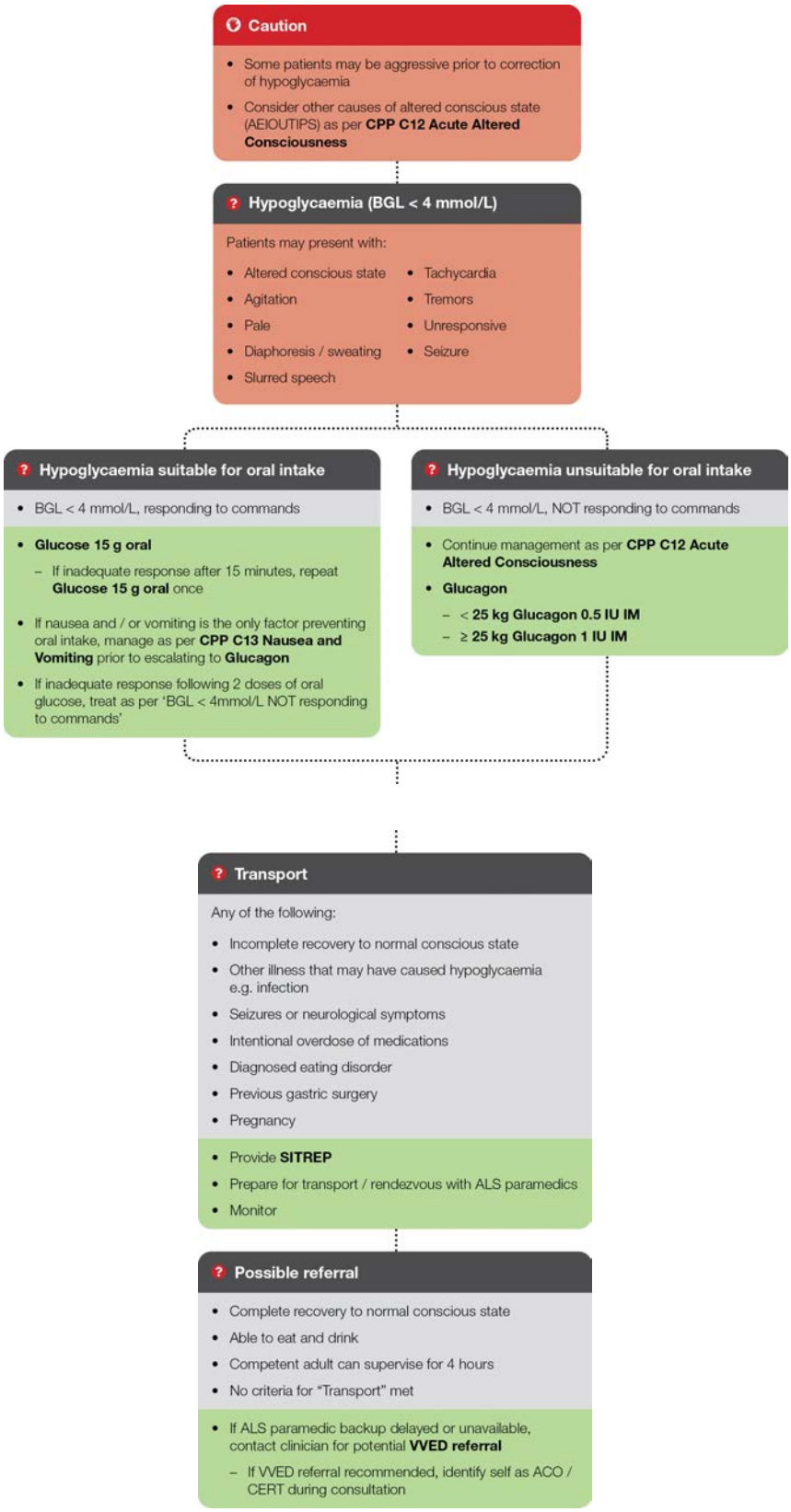
Flowchart



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

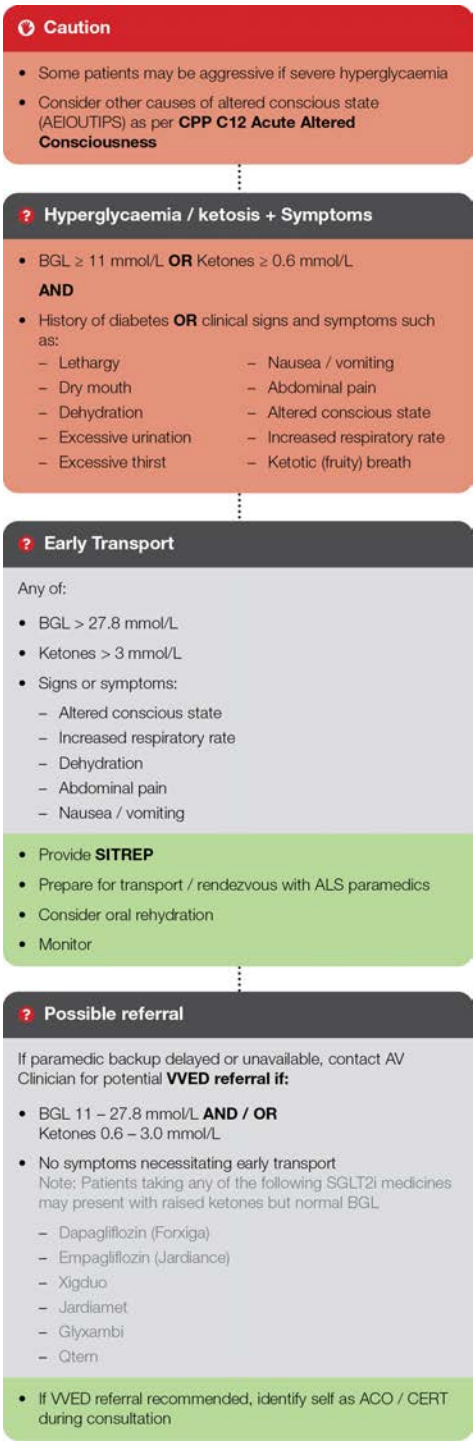
Hypoglycaemia unsuitable for oral intake

- 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

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

- Commence **oxygen therapy** at 8L per minute via face mask
- **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 ***Breathing Difficulty C2*** (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. If SpO_2 < 92%, commence Oxygen therapy at 8L per minute via Hudson mask
- 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**
- **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.

COVID-19 Management (ACO/CERT) CPP C15

Care Objectives

- Identify severity of disease
- Identify the appropriate care pathway
- Provide oxygen and other supportive care as required
- Arrange for patient to be transported to hospital, where indicated

General Notes

Intended Patient Group

- Patients ≥ 16 years of age with confirmed or strongly suspected COVID.

This guideline is intended to be used to triage and treat patients **who have COVID**, as determined by a confirmed positive test (PCR or RAT) or where it is strongly suspected. This is a higher level of suspicion than patients who simply meet PPE / testing criteria.

Overview

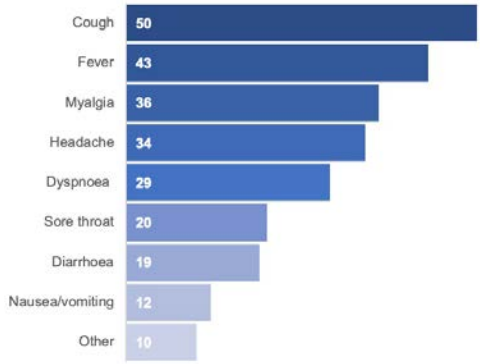
COVID-19 is the illness caused by infection with SARS-CoV2. It has multisystem features, but upper and lower respiratory features are most prominent. Other clinical presentations include gastrointestinal illness, neurological dysfunction and cardiac dysfunction.

COVID-positive patients must be fully assessed to exclude other serious conditions, particularly as the disease has the potential to cause or exacerbate other pathologies.

The Omicron variant is now the dominant strain of SARS-CoV-2 in Victoria. This strain is characterised by extremely high transmissibility via the airborne route and, in most patients, a milder clinical course than previous variants (although this finding may just reflect the very high vaccination rate in the community).

When there is very high prevalence of an infectious illness in the community, it is important to have a high index of suspicion for non-COVID related causes for a patient's symptoms.

Clinical features (%)



Mild	Moderate		Severe / Critical
Symptoms	Symptoms + **Lung involvement**		Symptoms + Lung involvement + **Hypoxia / Shock**
Cough Fever Myalgia Headache Sore throat Mild GI symptoms	**Low risk** $SpO_2 \geq 92\%$ at rest SOB exertional, not worsening RR 20 - 24 Chest discomfort (mild) Extreme fatigue preventing self-care Dizziness (mild) momentary, self-resolving Moderate GI symptoms likely to cause future severe dehydration	**High risk** $SpO_2 \geq 92\%$ at rest SOB at rest or worsening RR 25 - 29 Exertional hypoxia Borderline hypoxia (92 – 94%) Chest pain (moderate/severe) Severe dehydration, or likely in future Low / no urine output Fainting / dizziness Significant risk	$SpO_2 < 92\%$ Severe SOB $RR \geq 30$ $HR \geq 120$ $BP < 90$ Altered conscious state Confusion / drowsiness Cyanosed / cold / pale / mottled skin Coughing up blood Respiratory failure

		factors with inadequate support	
• If backup is delayed, consider contacting the Clinician to discuss referring the patient back to their health service	• If backup is delayed, consider contacting the AV Clinician to discuss referring the patient back to their health service	• SITREP • Patient will require transport	• **Oxygen** 2 – 15 L/min via NC • **Prone position** if hypoxia does not improve (conscious patient only) • **SITREP** • Patient will require transport

CPPP

COVID Positive Pathway Program (CPPP)

- COVID positive patients should be contacted by the Department of Health and allocated to an appropriate pathway based on the level of risk.
- Patients are generally advised to seek help for their symptoms via primary care services such as their GP or nurse on call.
- More information is available on the COVID Positive Pathways website.

Mild

Mild Symptoms only

Cough Fever Myalgia Headache Sore throat Mild GI symptoms

- Mild symptoms of upper respiratory tract infection or asymptomatic (especially if vaccinated).
- Normal SpO_2 for patient and no signs of lower respiratory tract infection.
- Mild tachypnoea (RR 16 – 20 per minute), mild tachycardia (100 – 120 beats per minute) and temperature > 38.0°C may be present.
- If backup is not available in a reasonable timeframe, consider contacting the Clinician to discuss the possibility of referring the patient to another health service.

Moderate

Moderate
Symptoms + Signs of lung involvement

$SpO_2 \geq 92\%$ Mild SOB Chest discomfort Extreme fatigue Mild dizziness Moderate GI symptoms

- COVID symptoms (often of greater severity) with signs of lung involvement / lower respiratory tract infection.
- $SpO_2 \geq 92\%$ at rest ($\geq 88\%$ in COPD)
- Some patients with *Moderate Disease* may rapidly deteriorate, usually 5-10 days following onset of symptoms.

Low Risk - Moderate

- Significant signs and symptoms include:
  - SOB that is exertional, stable and mild
  - RR 20 - 24
  - Mild chest discomfort (with normal 12-lead ECG) – mild, occurs on inspiration or coughing
  - Extreme fatigue (preventing self-care)
  - Dizziness (Mild) – momentary, self-resolving, not associated with other concerning symptoms, may be described as “light headed”
  - Moderate GI symptoms – not currently severely dehydrated but likely to cause severe dehydration in the future if not treated
- If backup is not available in a reasonable timeframe, consider contacting the Clinician to discuss the possibility of referring the patient to another health service.

High – Risk Moderate

- Moderate COVID patients presenting with certain signs and symptoms are at high risk of deterioration:

- Shortness of breath at rest or worsening
- RR 25 – 29
- Exertional hypoxia (a drop in SpO_2 by > 3 percentage points during gentle exertion such as talking or walking)
- Borderline hypoxia (92 - 94%) in young otherwise healthy patients
- Moderate-severe chest pain – constant, consistent with acute coronary syndrome, associated with other concerning symptoms
- Severe dehydration
  - Hypotension, tachycardia, dizziness, or postural changes
  - Decreased sweating, poor skin turgor, dry mouth / tongue
  - Fatigue, altered conscious state
  - Severe vomiting / diarrhoea (e.g., ≥ 4 x day, ≥ 4 days) and unable to tolerate oral intake (or not feeding / drinking)
- Low / no urine output (> 48 hours)
- Fainting episode or dizziness – actual loss of consciousness or severely dizzy to the point of nearly losing consciousness, dizziness associated with other concerning symptoms such as chest pain, palpitations
- Significant risk factors with inadequate support (see below)

- COVID may increase the risk of heart attack. Chest pain should be assessed in its own right. Do not automatically exclude more severe causes.

General patient safety risk

- Comorbidities, demographic and environmental risk factors are associated with worse outcomes.
- There is no specific number or type of risk factors that dictates transport vs non-transport. The greater the number of risk actors, the higher the overall risk.
- Where there are multiple significant risk factors present and little support available, transport is required if there is no other way to address risk.

Demographic	Comorbidities	Environmental
• Elderly / frail (risk increases with age) • Indigenous • Morbid obesity • History of smoking • Low health literacy • Low digital literacy	• **Lungs:** chronic lung disease of any cause (e.g. asthma, COPD, bronchiectasis) • **Heart:** conditions affecting the heart or circulatory system (CVD, IHD, CCF, HTN) • **Immune system:** any immunocompromise (e.g. diabetes, chronic kidney or liver disease, chemotherapy, steroids, other immune suppressants) • **Mental health conditions:** serious mental health problems (e.g. schizophrenia, bipolar disorder, major depressive disorder) • **Disability:** Significant physical or intellectual disability	• Risk of violence, abuse or neglect • Poor access to care • Remote location

- Unvaccinated
- Pregnant
- Infant

Severe / Critical

Severe / Critical
Symptoms + Lung involvement + Hypoxia / Shock

SpO_2 < 92% Severe SOB RR ≥ 30 HR > 120 BP < 90 Altered conscious state Confusion

- COVID symptoms, lung involvement and signs of respiratory failure or shock such as hypoxia that does not respond to oxygen therapy, significantly altered vital signs, confusion or altered conscious state. Other typical signs of critical illness such as pallor, cold hands and feet, or agitation may also be present.
- Hypoxia may not respond adequately to maximal supplemental oxygen. In these cases, consider prone positioning.
- The management outlined in this CPP can be applied to patients where COVID is strongly suspected. A positive PCR test or RAT is not required.

Oxygen therapy and respiratory support

- **Oxygen therapy:** nasal cannula or non-rebreather mask covered by a surgical mask.

Prone position

- May improve oxygenation in patients with persistent hypoxia despite maximal oxygen therapy.
- Must only be attempted for patients who are alert and co-operative.
- Procedure:
  1. Ask the patient to turn onto their front and find a position of comfort
  2. Provide pillows or blankets to prop up their chest and improve comfort
  3. Laying in the lateral position is a reasonable alternative if the patient cannot tolerate the prone position
  4. Securing patient with seatbelts is still required.
- **CPR:**
  - If the patient suffers a cardiac arrest in the prone position, roll the patient and commence CPR.
  - If the patient cannot be rolled remove any pillows/blankets commence CPR in the prone position until the patient can be rolled.

- CPR should not be performed in a moving ambulance
- More information in regards to compression hand placement and defibrillation pad placement for the prone-positioned patient us discussed here.

Related resources

- PPE Requirements
- CWI/OPS/195 Awake prone position
- Vehicle cleaning and decontamination
- CPR on prone position patients
- https://av-digital-cpg.web.app/assets/pdf/My COVID Assessment Plan 1.0.pdf

References

1. Stokes EK, Zambrano LD, Anderson KN, et al. Coronavirus Disease 2019 Case Surveillance — United States, January 22–May 30, 2020. MMWR Morb Mortal Wkly Rep 2020;69:759–765. DOI: http://dx.doi.org/10.15585/mmwr.mm6924e2

Palliative Care CPP C17

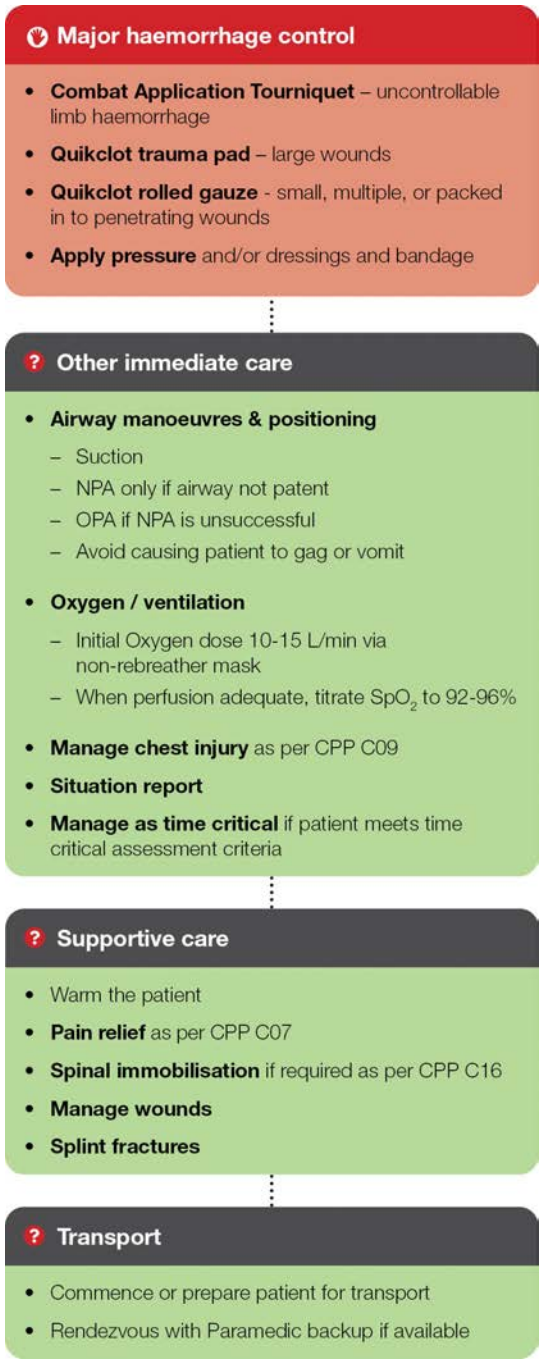
Care Objectives

- 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



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

- 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%.

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.

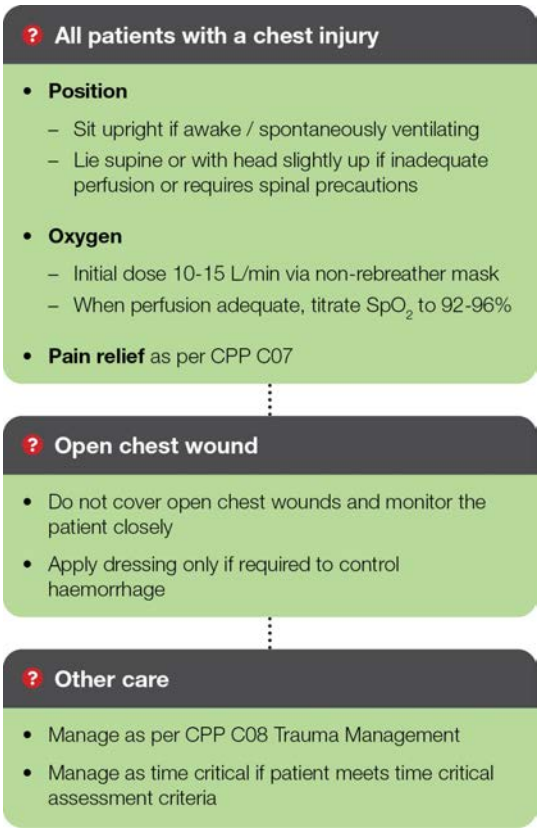
- Collapse due to underlying medical or unknown cause.

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 burn chart)
- Severity of pain

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

- Apply Oxygen therapy (8 L per minute via mask)

NB. Oxygen is a highly flammable gas. Do not commence oxygen therapy where there is the risk of ignition.

NB. Oxygen therapy is required even if the patients SpO_2 is > 92%.

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 ***Pain Relief - Non Cardiac C7***

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

Presentation	**Epi-Pen Adult Adrenaline Auto Injector (0.3 mg)** **Epi-Pen Jnr Adrenaline Auto Injector (0.15 mg)**
Primary emergency Indications	• Anaphylaxis / severe allergic reaction
Contraindications	• Nil of significance for the above indication
Precautions	• Nil of significance for the above indication
Route of administration	Intra-muscular injection
Dose	• As per Doctor's Instructions • Epi-Pen Adult Adrenaline auto injector (0.3 mg) - [> 5 years or > 20kg] • Epi-Pen Jnr Adrenaline auto injector (0.15 mg) - [≤ 5 years or < 20kg, including patients < 12 months]
Side effects	• Tachycardia • Hypertension • Dilated pupils • Feeling of anxiety / palpitations

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

Presentation	250 mcg in 1 mL ampoule
Primary emergency Indications	• Pre hospital pain relief (Accredited Practice)
Contraindications	• Known hypersensitivity • Complications with the nose i.e. Rhinitis or Facial Trauma • Second stage labour pain
Precautions	• Patients > 60 years • Patients < 60 kilograms • Children < 12 years (consult with Clinician) • Kidney or liver failure • Respiratory depression i.e. COPD • Current asthma • Known addiction to narcotics
Dose	• Adult (Age < 60 AND weight > 60kg) - 200mcg IN • Adult (Age ≥ 60 OR weight < 60kg) or adolescent (Age 12 - 15) - 100 mcg IN • Can administer further 50mcg IN at 5/60 intervals titrating to pain or side effects • The maximum total dose is twice the initial dose in either case • Consult with clinician for paediatric (< 12 years) management
Side effects	• Respiratory depression • Apnoea • Bradycardia
Special notes	Fentanyl is a schedule 8 medicine under the Poisons Act. Its use must be carefully controlled with accountability and responsibility. Severe undesired effects such as respiratory depression can be reversed with Naloxone. Consult for management advice. Intranasal Fentanyl is highly concentrated and must never be administered by another route. Intranasal Fentanyl is not approved for use in children (< 12 years) without approval from the Clinician. NB. First ensure clear identification as a First Responder (ACO/CERT) to the clinician.

Intra-Nasal Effects	**Onset:** Immediate **Peak:** < 5 minutes **Duration:** 30 – 60 minutes

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

Presentation	**250 mcg in 1 mL nebule**	
Primary emergency Indications	• Severe asthma	
Contraindications	• Known hypersensitivity to Atropine or its derivatives	
Precautions	• Glaucoma • Avoid contact with eyes	
Route of administration	Nebulised	
Dose	Adults and adolescents (12 - 15 years): 500 mcg (2 nebules) concurrently with salbutamol	Children < 12 years: 250 mcg (1 nebule) concurrently with salbutamol
Side effects	• Headache • Skin rash • Nausea • Tachycardia (rare) • Dry mouth • Palpitations (rare) • Acute angle closure glaucoma secondary to direct eye contact (rare)	
Special notes	There have been isolated reports of eye complications as a result of direct eye contact with Ipratropium Bromide (eye pain, glaucoma). **The nebuliser mask must therefore be fitted properly during inhalation and care taken to avoid Ipratropium Bromide entering the patient's eyes.** Ipratropium Bromide must be nebulised in conjunction with Salbutamol.	

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

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

Presentation	**High pressure white cylinder** **"C" cylinder – 400-490 litres** **"D" cylinder – 1500-1650 litres**
Primary emergency Indications	• Treatment of hypoxia / hypoxaemia (SpO_2 < 92%) • Cardiac arrest or resuscitation • Major trauma / head injury • Carbon monoxide poisoning • Shock / anaphylaxis • Severe sepsis • Decompression illness • Seizure
Contraindications	• Nil of significance for the above indications
Precautions	• Beware of fire or explosive hazards
Dose	Moderate concentration (40% - 60%) via face mask at 8L per minute High concentration (60% - 95%) via Bag Valve Mask (BVM) device with reservoir bag at 8 – 15L per minute
Side effects	• Drying of the mucous membranes of the upper airway
Special notes	The minimum oxygen flow through a face mask is 6L per minute The maximum oxygen flow through nasal prongs is 3L per minute

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

Presentation	**5 mg in 2.5 ml nebules** **pMDI (100 mcg per actuation)**
Primary emergency Indications	• Breathing difficulty with wheeze and/or history of asthma • No relief from patients own Ventolin administration • Breathing difficulty with severe allergic reactions • Breathing difficulty with smoke inhalation
Contraindications	• Children < 2 years old
Precautions	• Nil
Dose	• Children 2 - 5 years old: – pMDI 2 – 6 doses via spacer (patient to take 4 breaths for each dose). Repeat at 20 minutes if required – If pMDI spacer unavailable or symptoms severe: – Nebulised 2.5 mg (half a nebule) via nebuliser mask with oxygen – Continue treatment with 2.5 mg (half a nebule) every 20 minutes until patient states breathing normal or handover to hospital / Paramedic • Children > 6 years old: – pMDI 4 – 12 doses via spacer (patient to take 4 breaths for each dose). Repeat at 20 minutes if required • If pMDI spacer unavailable or symptoms severe: – Nebulised 5 mg (1 nebule) via nebuliser mask with oxygen – Continue treatment with 5 mg (1 nebule) every 20 minutes until patient states breathing normal or handover to hospital / Paramedic • Adults: – pMDI 4 – 12 doses via spacer (patient to take 4 breaths for each dose). Repeat at 20 minutes if required – If pMDI spacer unavailable or symptoms severe: – Nebuliser 10 mg (2 nebules) via nebuliser mask with oxygen. – Continue treatment with 5 mg (1 nebule) every 5 minutes until Patient states breathing normal or handover to hospital / Paramedic
Side effects	• Tachycardia • Muscle tremor

Special notes	pMDI administered via spacer is at least as effective as nebulisation for treating asthma in almost all circumstances, including mild to moderate acute exacerbations. Unused nebules remaining in the pack at the completion of a case should be disposed of. Nebules should be stored in an environment < 30 C

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.

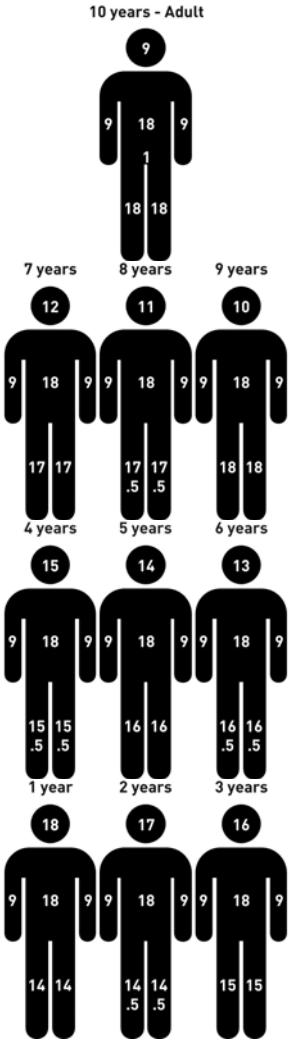
The medication reference material in this manual covers key issues such as indications for use, contraindications, side effects and dose ranges. More comprehensive information about these medicines are available from other sources. For Ambulance First Responder practice in AV the information in this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

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