Clinical Field Protocols for Volunteer Ambulance Officers (VAO)
Disclaimer

All rights reserved. Without limiting the reservation of copyright, no person shall reproduce, store in a retrieval system or transmit in any form, or by any means, part or the whole of the Ambulance Tasmania (AT) Clinical Field Protocols for Volunteer Ambulance Officers (VAO Field Protocols) without the prior written permission of AT.

AT accepts no responsibility for any modification, redistribution or use of the VAO Field Protocols or any part thereof.

The VAO Field Protocols are expressly intended for use by accredited Volunteer Ambulance Officers (VAO) when performing duties and delivering ambulance services for, and on behalf of, AT. They define what a VAO is required to do and are to be interpreted as positive instructions; if a protocol, procedure or action is not specified, it is prohibited.

Under no circumstances will AT, its employees or agents, be liable for any loss, injury, claim, liability or damages of any kind resulting from the unauthorised use of, or reliance upon the VAO Field Protocols or the contents therein.


While effort has been made to contact all copyright owners this has not always been possible. We would be pleased to hear from any copyright holder who has been omitted or incorrectly acknowledged.

The approved version of the VAO Field Protocols is published on the DHHS Intranet and any printed copy or copy held in storage on an electronic device is uncontrolled and may be used only for the convenience of staff. In the event there is a discrepancy between a printed version or acopy held in any electronic device and the approved version on the DHHS intranet, the approved version shall prevail. On notification of changes, VAO are responsible for ensuring any personal copy of Clinical Field Protocols received is altered with appropriate changes.

Errors and omissions should be reported to the Director of Clinical Services, Ambulance Tasmania.
Ambulance Tasmania aims to develop and implement Clinical Practice Guidelines, Clinical Field Protocols and supporting work instructions that promote and facilitate the delivery of effective pre-hospital care.

The Clinical Field Protocols for Volunteer Ambulance Officers (VAO) describe the level of patient care that can be provided by accredited volunteers. They are to be interpreted as positive instructions; if a protocol, procedure or action is not specified, it is prohibited.
The Ambulance Tasmania Clinical Field Protocols for Volunteer Ambulance Officers have undergone a major revision to ensure contemporary, evidence-based practice in an easy to read format.

This revised format incorporates a flow chart style, colour coding for individual management steps and follows the style adopted for the Ambulance Tasmania Clinical Practice Guidelines (CPG) for Paramedics and Intensive Care Paramedics which was originally developed by the Ambulance Victoria (AV) CPG Working Group with specialist advice from the AV Corporate Communications Department, and provided to Ambulance Tasmania (AT) for conceptualisation to AT practice. The design provides greater clarity within each guideline to assist clinical practice. The reformat highlights key details and decision pathways within each Field Protocol and is intended to reduce risk in clinical practice through an improved clarity of the VAO Field Protocols.

There is a new “language” associated with these field protocols that is illustrated in the Abbreviations / Colour Chart. It is based on contemporary designs in industry that highlight key information with colour-cognitive triggering, the intention being to remind the user of important details within the field protocol. For example, a red colour is to highlight an aspect of the Field Protocols that may place the patient at risk or requires an immediate intervention prior to proceeding.

These Field Protocols have been recommended by the Tasmanian Ambulance Clinical Council (TACC) and approved by the Chief Executive Officer for use by Volunteer Ambulance Officers when working for AT. The field protocols represent a multi disciplinary consensus based on the best available evidence on the management of common emergency medical problems encountered by Volunteer Ambulance Officers which they are expected to follow. They are to be interpreted as positive instructions and define what a Volunteer Ambulance Officer must do; if a protocol, procedure or action is not specified, it is not permitted. There is no provision for Volunteer Ambulance Officers to apply alternative methods of treatment or vary the Field Protocols with or without medical consultation.
It is important to note that not all Volunteer Ambulance Officers are credentialed to practise all the clinical interventions defined within the VAO Field Protocols. Staff are responsible for ensuring they only operate within their individually approved scope of practice and should contact the Clinical Services Division for clarification regarding practice approvals if required.

Any printed version of the Field Protocols is uncontrolled and is for convenience of the staff. VAO are personally responsible for ensuring any printed material is appropriately altered when a notification of change has been forthcoming and is indicated on the approved version, which is stored on the DHHS Intranet.

AT would like to acknowledge the support from Ambulance Victoria in developing these field protocols. In addition, it is important to note the exceptional work done by AT staff to convert the previous VAO Field Protocols to this new format. Every effort has been made to ensure the accuracy of these field protocols. They are under constant review in light of changes to evidence based practice. Feedback is welcome as these field protocols are an evolving product and can be forwarded to the Director of Clinical Services, Ambulance Tasmania. Proposals for change to the VAO Field Protocols are subject to the New Interventions Policy and will be forwarded to the relevant committee.
<table>
<thead>
<tr>
<th>Title</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergies, Bites and Stings</td>
<td>VAO CFP01</td>
</tr>
<tr>
<td>Cardiac Arrest</td>
<td>VAO CFP02</td>
</tr>
<tr>
<td>Pain Relief</td>
<td>VAO CFP03</td>
</tr>
<tr>
<td>Decreased Conscious State</td>
<td>VAO CFP04</td>
</tr>
<tr>
<td>Diving Emergency</td>
<td>VAO CFP05</td>
</tr>
<tr>
<td>Environmental Emergencies</td>
<td>VAO CFP06</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>VAO CFP07</td>
</tr>
<tr>
<td>Respiratory</td>
<td>VAO CFP08</td>
</tr>
<tr>
<td>Foreign Body Choking</td>
<td>VAO CFP09</td>
</tr>
<tr>
<td>Trauma - Chest Injuries</td>
<td>VAO CFP10</td>
</tr>
<tr>
<td>Trauma - Burns</td>
<td>VAO CFP11</td>
</tr>
<tr>
<td>Trauma - Fracture / Amputation Management</td>
<td>VAO CFP12</td>
</tr>
<tr>
<td>Title</td>
<td>Version</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Drug Presentation</td>
<td></td>
</tr>
<tr>
<td>Adrenaline</td>
<td></td>
</tr>
<tr>
<td>Acetyl salicylic Acid (Aspirin)</td>
<td></td>
</tr>
<tr>
<td>Glucagon</td>
<td></td>
</tr>
<tr>
<td>Glucose Paste</td>
<td></td>
</tr>
<tr>
<td>Glyceryl Trinitrate (GTN)</td>
<td></td>
</tr>
<tr>
<td>Ipratropium Bromide (Atrovent)</td>
<td></td>
</tr>
<tr>
<td>Methoxyflurane</td>
<td></td>
</tr>
<tr>
<td>Oxygen</td>
<td></td>
</tr>
<tr>
<td>Salbutamol</td>
<td></td>
</tr>
</tbody>
</table>
## Guide to Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>@</td>
<td>‘At’ relating to time intervals between dose/action/intervention</td>
</tr>
<tr>
<td>AAA</td>
<td>Abdominal Aortic Aneurysm</td>
</tr>
<tr>
<td>ACS</td>
<td>Acute Coronary Syndrome</td>
</tr>
<tr>
<td>ADLs</td>
<td>Activities of Daily Living</td>
</tr>
<tr>
<td>AF</td>
<td>Atrial Fibrillation</td>
</tr>
<tr>
<td>AIVR</td>
<td>Accelerated Idioventricular Rhythm</td>
</tr>
<tr>
<td>AMI</td>
<td>Acute Myocardial Infarction</td>
</tr>
<tr>
<td>AP</td>
<td>Ambulance Paramedic</td>
</tr>
<tr>
<td>APH</td>
<td>Antepartum haemorrhage</td>
</tr>
<tr>
<td>APO</td>
<td>Acute Pulmonary Oedema</td>
</tr>
<tr>
<td>A-V</td>
<td>Atrioventricular</td>
</tr>
<tr>
<td>AVRT</td>
<td>Atrioventricular re-entry tachycardia</td>
</tr>
<tr>
<td>AVNRT</td>
<td>A-V nodal re-entry tachycardia</td>
</tr>
<tr>
<td>BGL</td>
<td>Blood Glucose Level</td>
</tr>
<tr>
<td>BLS</td>
<td>Basic Life Support</td>
</tr>
<tr>
<td>BP</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>bpm</td>
<td>beats per minute</td>
</tr>
<tr>
<td>BVM</td>
<td>Bag-Valve-Mask</td>
</tr>
<tr>
<td>C/I</td>
<td>Contraindication</td>
</tr>
<tr>
<td>CBR</td>
<td>Chemical / Biological / Radiation</td>
</tr>
<tr>
<td>CCF</td>
<td>Congestive Cardiac Failure</td>
</tr>
<tr>
<td>C.O.</td>
<td>Cardiac Output (L/min.)</td>
</tr>
<tr>
<td>COPD</td>
<td>Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>CPAP</td>
<td>Continuous Positive Airway Pressure</td>
</tr>
<tr>
<td>CPG</td>
<td>Clinical Practice Guideline</td>
</tr>
<tr>
<td>D5W</td>
<td>5% Dextrose</td>
</tr>
<tr>
<td>DCCS</td>
<td>Direct Current Counter Shock</td>
</tr>
<tr>
<td>DCR</td>
<td>Direct Current Reversion</td>
</tr>
<tr>
<td>DKA</td>
<td>Diabetic Ketoacidosis</td>
</tr>
<tr>
<td>dpm</td>
<td>Drops per minute</td>
</tr>
<tr>
<td>ECC</td>
<td>External Cardiac Compression</td>
</tr>
<tr>
<td>ECG</td>
<td>Electrocardiogram</td>
</tr>
<tr>
<td>EtCO₂</td>
<td>End-tidal carbon dioxide</td>
</tr>
<tr>
<td>ETT</td>
<td>Endotracheal tube</td>
</tr>
<tr>
<td>FG</td>
<td>French Gauge</td>
</tr>
<tr>
<td>FHR</td>
<td>Foetal Heart Rate</td>
</tr>
<tr>
<td>g</td>
<td>gram/s</td>
</tr>
<tr>
<td>GCS</td>
<td>Glasgow Coma Score</td>
</tr>
<tr>
<td>GIT</td>
<td>Gastrointestinal Tract</td>
</tr>
<tr>
<td>GR</td>
<td>Grade</td>
</tr>
<tr>
<td>GTN</td>
<td>Glyceryl trinitrate</td>
</tr>
<tr>
<td>hr</td>
<td>hour</td>
</tr>
<tr>
<td>HR</td>
<td>Heart Rate</td>
</tr>
<tr>
<td>Hx</td>
<td>History</td>
</tr>
<tr>
<td>ICP</td>
<td>Intensive Care Paramedic</td>
</tr>
<tr>
<td>IFS</td>
<td>Intubation Facilitated by Sedation</td>
</tr>
<tr>
<td>IM</td>
<td>Intramuscular</td>
</tr>
<tr>
<td>IN</td>
<td>Intranasal</td>
</tr>
<tr>
<td>I/O</td>
<td>Intraosseous</td>
</tr>
<tr>
<td>IPPV</td>
<td>Intermittent Positive Pressure Ventilation</td>
</tr>
<tr>
<td>IU</td>
<td>International Unit</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>J</td>
<td>Joules</td>
</tr>
<tr>
<td>kg</td>
<td>kilograms</td>
</tr>
<tr>
<td>LMA</td>
<td>Laryngeal Mask Airway</td>
</tr>
<tr>
<td>Lpm</td>
<td>litres per minute</td>
</tr>
<tr>
<td>LVF</td>
<td>Left Ventricular Failure</td>
</tr>
<tr>
<td>max.</td>
<td>maximum</td>
</tr>
<tr>
<td>MVA</td>
<td>Motor Vehicle Accident</td>
</tr>
<tr>
<td>mcg</td>
<td>microgram/s</td>
</tr>
<tr>
<td>mg</td>
<td>milligram/s</td>
</tr>
<tr>
<td>min</td>
<td>minutes</td>
</tr>
<tr>
<td>ml</td>
<td>millilitres</td>
</tr>
<tr>
<td>ml/hr</td>
<td>millilitres per hour</td>
</tr>
<tr>
<td>mmHg</td>
<td>millimetres of Mercury (Hg)</td>
</tr>
<tr>
<td>mmol/l</td>
<td>millimoles per litre</td>
</tr>
<tr>
<td>MOI</td>
<td>Mechanism of Injury</td>
</tr>
<tr>
<td>MTS</td>
<td>Major Trauma Service</td>
</tr>
<tr>
<td>MV</td>
<td>Minute Ventilation</td>
</tr>
<tr>
<td>Mx</td>
<td>Management</td>
</tr>
<tr>
<td>NB</td>
<td>Note well</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>NEPT</td>
<td>Non Emergency Patient Transport</td>
</tr>
<tr>
<td>NFR</td>
<td>Not For Resuscitation</td>
</tr>
<tr>
<td>NG</td>
<td>Nasogastric</td>
</tr>
<tr>
<td>NPA</td>
<td>Nasopharyngeal Airway</td>
</tr>
<tr>
<td>NSTEMI</td>
<td>Non-ST Elevation Myocardial Infarction</td>
</tr>
<tr>
<td>O₂</td>
<td>Oxygen</td>
</tr>
<tr>
<td>OD</td>
<td>Overdose</td>
</tr>
<tr>
<td>ODD</td>
<td>Oesophageal Detector Device</td>
</tr>
<tr>
<td>OG</td>
<td>Orogastric</td>
</tr>
<tr>
<td>OPA</td>
<td>Oropharyngeal Airway</td>
</tr>
<tr>
<td>PCI</td>
<td>Percutaneous Coronary Intervention</td>
</tr>
<tr>
<td>PCR</td>
<td>Pt Care Record</td>
</tr>
<tr>
<td>PEA</td>
<td>Pulseless Electrical Activity</td>
</tr>
<tr>
<td>PEEP</td>
<td>Positive End-Expiratory Pressure</td>
</tr>
<tr>
<td>PHx</td>
<td>Past History</td>
</tr>
<tr>
<td>PIP</td>
<td>Peak Inspiratory Pressure</td>
</tr>
<tr>
<td>pMDI</td>
<td>Pressurised Metered Dose Inhaler</td>
</tr>
<tr>
<td>PSA</td>
<td>Perfusion Status Assessment</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>PSV</td>
<td>Pressure Support Ventilation</td>
</tr>
<tr>
<td>Pt</td>
<td>Patient</td>
</tr>
<tr>
<td>PV</td>
<td>Per Vagina</td>
</tr>
<tr>
<td>QRS</td>
<td>QRS complex of ECG</td>
</tr>
<tr>
<td>ROSC</td>
<td>Return of Spontaneous Circulation</td>
</tr>
<tr>
<td>RSA</td>
<td>Respiratory Status Assessment</td>
</tr>
<tr>
<td>RSI</td>
<td>Rapid Sequence Intubation</td>
</tr>
<tr>
<td>RTA</td>
<td>Road Traffic Accident</td>
</tr>
<tr>
<td>R/V</td>
<td>Rendezvous</td>
</tr>
<tr>
<td>Rx</td>
<td>Treatment</td>
</tr>
<tr>
<td>S Rural</td>
<td>Selected AV Rural APs permitted to perform skill</td>
</tr>
<tr>
<td>SCI</td>
<td>Spinal Cord Injury</td>
</tr>
<tr>
<td>sec.</td>
<td>second</td>
</tr>
<tr>
<td>SIMV</td>
<td>Synchronous Intermittent Mandatory Ventilation</td>
</tr>
<tr>
<td>S/L</td>
<td>Sublingual</td>
</tr>
<tr>
<td>SOB</td>
<td>Short of Breath</td>
</tr>
<tr>
<td>SpO₂</td>
<td>Saturation of haemoglobin with O₂ measured by Pulse Oximetry</td>
</tr>
<tr>
<td>SV</td>
<td>Stroke volume</td>
</tr>
<tr>
<td>SVT</td>
<td>Supraventricular tachycardia</td>
</tr>
<tr>
<td>STEMI</td>
<td>ST Elevation Myocardial Infarction</td>
</tr>
<tr>
<td>TBI</td>
<td>Traumatic Brain Injury</td>
</tr>
<tr>
<td>TCA</td>
<td>Tricyclic Antidepressent</td>
</tr>
<tr>
<td>TKVO</td>
<td>To Keep Vein Open</td>
</tr>
<tr>
<td>TPT</td>
<td>Tension Pneumothorax</td>
</tr>
<tr>
<td>Tx</td>
<td>Transport</td>
</tr>
<tr>
<td>UA</td>
<td>Unstable Angina</td>
</tr>
<tr>
<td>VF</td>
<td>Ventricular Fibrillation</td>
</tr>
<tr>
<td>Vol</td>
<td>Volume</td>
</tr>
<tr>
<td>VSS</td>
<td>Vital Signs Survey</td>
</tr>
<tr>
<td>Vₜ</td>
<td>Tidal Volume</td>
</tr>
<tr>
<td>VT</td>
<td>Ventricular Tachycardia</td>
</tr>
<tr>
<td>Wt</td>
<td>Weight (kg)</td>
</tr>
<tr>
<td>x/60</td>
<td>x minutes e.g. 5/60 = 5 minutes</td>
</tr>
<tr>
<td>@ x/60</td>
<td>e.g. @ 5/60 = at 5 minutely intervals</td>
</tr>
</tbody>
</table>
Graphic Guide

Special Notes

- Information to support the Field Protocols and improve the user’s understanding of a concept.

General Care

- Provides supporting information or care related to the Field Protocol. e.g. administration of Methoxyflurane
Graphic Guide

- **Status**
  - Presenting condition/signs and symptoms

- **Assess / Consider**
  - More specific assessment criteria that may direct Rx pathway

- **Action**
  - Drug or intervention required for Clinician

- **Stop**
  - Either:
    - a contraindication exists
    - a high risk action follows
    - care must be exercised to proceed or an immediate action is required
# Clinical Approach to a Patient

## Stop

<table>
<thead>
<tr>
<th>Primary Survey / Life Threat Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Precautions:</strong> Gloves, safety glasses, helmet, mask, vest, other PPE as supplied</td>
</tr>
<tr>
<td><strong>Dangers</strong> Cervical spine immobilisation if required</td>
</tr>
<tr>
<td><strong>Response</strong> Assist ventilations</td>
</tr>
<tr>
<td><strong>Airway</strong> Commence CPR if required</td>
</tr>
<tr>
<td><strong>Breathing</strong> Control life threatening haemorrhage</td>
</tr>
</tbody>
</table>

**Immediate Mx + Sitrep required (Utilise ETHANE mnemonic)**

## Action

<table>
<thead>
<tr>
<th>Rapport, Rest and Reassurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posture / Position of comfort</td>
</tr>
<tr>
<td>Oxygen as required (e.g. hypoxia, respiratory distress)</td>
</tr>
</tbody>
</table>

In order of clinical need

If clinically applicable, assess Hx prior to physical contact with Pt e.g. Vital Signs Survey, applying monitor, exposing chest

## Assess

<table>
<thead>
<tr>
<th>History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief clinical Hx</td>
</tr>
<tr>
<td>Event prior to Ambulance call</td>
</tr>
<tr>
<td>Past medical Hx</td>
</tr>
<tr>
<td>Pain – assessment</td>
</tr>
<tr>
<td>Medications</td>
</tr>
<tr>
<td>Allergies</td>
</tr>
</tbody>
</table>

Accurate Hx + assessment essential for problem recognition
# Clinical Approach to a Patient

<table>
<thead>
<tr>
<th>Assess</th>
<th>Vital Sign Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA</td>
<td>Determine time criticality to Mx accordingly</td>
</tr>
<tr>
<td>RSA</td>
<td>Accurate body system assessment in all Pts</td>
</tr>
<tr>
<td>Pattern / mechanism of injury / medical condition</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment Tools / Secondary Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary Survey</td>
</tr>
<tr>
<td>Temp</td>
</tr>
<tr>
<td>BGL - Blood Glucose Level</td>
</tr>
<tr>
<td>More detailed Hx</td>
</tr>
<tr>
<td>Thorough physical examination</td>
</tr>
<tr>
<td>- Head to toe</td>
</tr>
<tr>
<td>- Inspection, palpation, auscultation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Determine Main Presenting Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>The combination of subjective (PHx, Hx, Med’s) and objective (physical) data allows identification of clinical problems</td>
</tr>
<tr>
<td>Multiple problems may be identified and prioritised to provide treatment order</td>
</tr>
<tr>
<td>Some overlap in treatment may address multiple problems</td>
</tr>
<tr>
<td>Confirm clinical reasoning with assessment data</td>
</tr>
</tbody>
</table>
Clinical Approach to a Patient

<table>
<thead>
<tr>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further Sitrep / Resource requirements as required</td>
</tr>
<tr>
<td>Specific treatment - appropriate CFP applied to Mx clinical problems</td>
</tr>
<tr>
<td>Consult with Clinical Coordinator regarding transport method and ongoing management</td>
</tr>
<tr>
<td>Transport to back up crew or appropriate facility</td>
</tr>
<tr>
<td>Reassess frequently and adapt Mx as appropriate</td>
</tr>
<tr>
<td>Final assessment at destination / handover</td>
</tr>
</tbody>
</table>

This Clinical Approach is to be applied to all Pts as a basic level of care. There is an assumption in each CFP that this is the minimum level of care that the Pt will receive prior to the application of the Protocols. The exception to this rule is the Pt in immediate life threat that requires intervention during the Primary Survey.
**Special Notes**

- Anaphylaxis - Is the acute onset of respiratory distress associated with bronchospasm and / or an acute onset of less than adequate perfusion or altered conscious state **AND** presents with
  - Laryngeal oedema and/or
  - Urticaric Rash and/or
  - Abdominal pain, nausea, vomiting or diarrhoea

**General Care**

- Pressure bandages are preferred over crepe bandages, if neither available clothing or other material may be used
- Bandages should remain firm and tight. It should be difficult to slide a finger between the bandage and the skin
- Bandages are to be applied over the top of existing clothes if possible
- Ensure to check peripheral circulation

Confirm Paramedic back-up has been dispatched
**Status**
- Evidence of exposure to allergen
- Evidence of allergic reaction / anaphylaxis

**Assess - Systemic Response**
- Altered Conscious State with oedema / facial swelling and rash
  AND / OR
- Altered Respiratory Status - Respiratory Distress
  AND / OR
- Altered Perfusion Status - Inadequate Perfusion

**Initial Treatment**

**Severe allergic reaction/anaphylaxis**
- **Action**
  - Sit patient up
  - Salbutamol pMDI and spacer
    - Deliver 1 puff followed by 4-5 breaths, repeating process 5 more times over 5 minutes. Repeat this process every 5 minutes as required
    - If pMDI not available, utilise nebulised Salbutamol
  - If age > 5 or > 20kg administer EpiPen Adult Adrenaline Auto Injector 0.3mg
  - If age < 5 or < 20kg administer EpiPen Jnr Adrenaline Auto Injector 0.15mg
  - If no or limited response after 5 minutes repeat dose x1

**If evidence of Respiratory Distress**
- **Action**
  - Fish spine stings - Place the site of the sting in hot water
  - Jelly fish - Wash site with hot water
  - Red Back / White tail Spider - Ice packs, Do Not apply pressure
  - Bee / Wasp - Remove sting and apply ice pack
  - If evidence of Respiratory Distress

**Bites**
- **Action**
  - Apply two broad (10-15cms apart) pressure bandages as follows:
    - First Bandage is applied directly over the site and mark bite site
    - Second Bandage is applied peripherally covering as much of the limb as possible
    - Do not elevate, keep the patient and limb at rest

**Snake / Blue Ringed Octopus bites**
- **Action**
  - Fish spine stings - Place the site of the sting in hot water
  - Jelly fish - Wash site with hot water
  - Red Back / White tail Spider - Ice packs, Do Not apply pressure
  - Bee / Wasp - Remove sting and apply ice pack

**Severe allergic reaction/anaphylaxis**
- If age > 5 or > 20kg administer EpiPen Adult Adrenaline Auto Injector 0.3mg
- If age < 5 or < 20kg administer EpiPen Jnr Adrenaline Auto Injector 0.15mg
- If no or limited response after 5 minutes repeat dose x1
Principles of CPR

CPR

- Assumption that CPR is commenced immediately and continued throughout cardiac arrest
- Interruptions to chest compressions must be minimised
- Change operators every 2 mins to improve CPR performance and reduce fatigue
- Compress to 1/3 chest depth
- Rhythm / Pulse check every 2 mins
- CPR commenced immediately after defibrillation and pulse check after 2 mins
- Remember to push hard and fast

Ratios of Compressions to Ventilations (Adult/Child)

Not Intubated

- 30:2 Rate: Approximately 100 compressions per minute
- Pause for ventilation

Intubated/Supraglottic airway

- 15:1 Rate: Approximately 100 compressions per minute
- 8/10 ventilations/min
- No pause for ventilations

Ratios of Compressions to Ventilations (New born)

- 3:1 Rate: Approximately 120 events per minute
- No change in ratio if intubated/supraglottic airway

Adjustment for Temperature

- > 30°C
  - Standard Cardiac Arrest protocol
- <30°C
  - One defibrillation shock only
  - Continue CPR and rewarming until temp >30°C
Causes and Resuscitation Principles

- Cardio-respiratory arrest in infants and children is most commonly caused by hypoxaemia, hypotension or both, and should be suspected when the child or infant loses consciousness, appears pale or cyanosed or is apnoeic or pulseless. Examples of conditions causing cardiac arrest in infants and children are trauma, drowning, septicaemia, sudden infant death syndrome, asthma, upper airway obstruction and congenital abnormalities of the heart and lungs.
- Resuscitation is directed at adequate airway control, ventilation and chest compressions.

Airway and Breathing

- To assess an airway in a new born, infant or child, the positioning and technique are similar to those for an adult with the exception that care should be taken to avoid over extension of the neck and head.
- To position the head and neck to maintain an open airway:
  - New born and infant: head and neck should be placed in the neutral position, avoiding additional neck flexion and head extension.
  - Children: Use neck flexion and head extension with caution in the younger child
- If spontaneous ventilation is not present, an appropriate size OPA should be inserted and assisted ventilation should be commenced immediately.
- Effective airway control and adequate ventilation with oxygen supplementation is the keystone of paediatric resuscitation

External Cardiac Compressions

- Commence (ECC) if:
  - Unconscious and not adequately breathing (e.g. agonal respirations)
  - Unconscious and HR < 60 (infants) or
  - Unconscious and HR <40 (Adults/Children)

New born and Infant Technique:

- Two fingers or by two thumb technique. In this latter technique, the hands encircle the chest and the thumbs compress the sternum. This is considered a more effective technique and is the preferred option for two rescuers. However care should be taken to avoid restricting chest expansion during inspiration

Child Technique:

- Two handed technique as for adults
Adult/Child Cardiac Arrest

**Action**
- Immediately commence CPR 30:2 (Child/Adult) at approximately 100 compressions per minute.

**Adult/Child Cardiac Arrest**

**Action**
- Attach AED and follow the prompts
- Confirm paramedic backup has been dispatched
- If child < 8yrs or < 25kg, insert paediatric key and/or attach paediatric pads

**Cardiac Arrest persists**

**Action**
- Insert Supraglottic Airway
- Change CPR ratio to 15:1

**Return of circulation**

**Action**
- Treat as per appropriate guidelines if condition changes
- Consult Clinical Coordinator regarding evacuation without delay to meet Paramedic backup en route

Confirm Paramedic back-up has been dispatched
**Assessment and Management of Newborn Baby**

**Assess**
- Status of Newborn
  - Effective breathing / crying with good muscle tone

**Assess**
- Breathing and pulse rate

**Status**
- Pulse rate <100 or inadequate breathing

**Assess**
- After 30 seconds IPPV breathing remains inadequate and pulse <60

**Action**
- Commence CPR ratio 3:1, at 30 cycles per minute

**Action**
- Commence IPPV (room air for 10min) until pulse >100 and infant breathing

**Action**
- If baby is breathing, heart rate >100 and beginning to pink, then give routine care and observations appropriate to gestation
  - If heart rate >100 with inadequate breathing, assist with IPPV with room air

**Action**
- Dry baby
  - Clear airway only if needed
  - Assess breathing, colour and heart rate

**Confirm Paramedic back-up has been dispatched**

Cardiac Arrest VAO CFP02
**Special Notes - Chest Pain**

- GTN is a potent vasodilator that causes a reduction in blood pressure.
- As such GTN is **contraindicated if systolic blood pressure is less than 110mmHg**.
- GTN is also **contraindicated in bradycardia (HR <50)** or **tachycardia HR >150** due to the patients inability to compensate to a decrease in blood pressure.

**Special Notes - Pain Relief**

- Methoxyflurane is to be self-administered and only used for patients who are able to understand instructions, this includes children.
- Methoxyflurane should not be administered in confined spaces unless a Scavenger filter is fitted.

**Special Note:** Onset of effect is approximately after 8-10 deep breaths and offset of effect is 3 – 5 minutes after ceasing use.

**Maximum dose:** 6mls in 24 hours and 15mls in 7 days.

Confirm Paramedic back-up has been dispatched
The following pts SHOULD NOT have Methoxyflurane:

- Pre-existing renal disease / renal impairment
- Concurrent use of tetracycline antibiotics
- Exceeding total dose of 6ml in a 24 hour period
- Family history of anaesthetic induced malignant hyperthermia

Ensure adequate oxygenation
Administer Methoxyflurane 3ml
- Repeat 3ml if required (max. 6ml)
**Pain Relief - Chest Pain**

**Status**
- Acute Coronary Syndrome (ACS)

**Assess**
- Pain relief
- Oxygen therapy
- Positioning (systolic BP < 100mmHg) recumbent legs elevated

**Suspected Acute Myocardial Infarction**

**Action**
- Administer Aspirin 300mg if not contraindicated
- Pain relief as per VAO CFP03
- Attach AED if severely compromised

- If **Active Chest Pain** AND **Systolic BP > 110mmHg**
  - Apply GTN 50mg Transdermal Patch (0.4mg/hr) - if not contraindicated
  - **Remove patch** if Systolic BP falls below 110mmHg or patch becomes contraindicated

---

Confirm Paramedic back-up has been dispatched

---

Chest Pain VAO CFP03
### Special Notes

- Airway Management is the first priority in these patients
  - Consider positioning
  - Consider suctioning
  - Consider airway adjunct OPA, NPA
  - Supraglottic airways are only to be utilised in cardiac arrest

- High concentration oxygen

- Commence IPPV if:
  - Inadequate respirations
  - Deteriorating conscious level

- All patients with a decreased conscious state or stroke (CVA) like symptoms require a blood sugar level taken.

**Note:** As for all decreased conscious state patients, if unable to speak, be mindful that the patient may still be able to understand what is being said and you should explain what you are doing. Also, the patient may be able to communicate by hand or eye signals.

### Cerebral Vascular Accident (CVA)

- The most common signs of CVA include:
  - Facial weakness
  - Arm weakness
  - Difficulty with speech

Other symptoms may include one, or a combination of:

- Syncope or fainting
- Weakness or numbness or paralysis of the face, arm or leg on either or both sides of the body
- Difficulty speaking or understanding
- Dizziness, loss of balance or an unexpected fall
- Loss of vision, sudden blurring or decreased vision in one of both eyes
- Headache, unusually severe and abrupt onset or unexplained change in the pattern of headaches
- Difficulty swallowing

**Confirm Paramedic back-up has been dispatched**
Decreased Conscious State

### Status
- Reduction in conscious state
  - Continuous or recurrent seizures
  - Cerebral Vascular Accident (CVA)
  - Diabetic Problems
  - Overdose

### Assess - Systemic Response
- Airway Management
- Ensure appropriate oxygenation and ventilation
- Assess Blood Glucose Level and Temperature

### Initial Treatment

#### Action
- Treat symptomatically
- Ensure airway management
  - Posture
  - Suctioning
  - Airway adjunct (NPA, OPA)
  - Supraglottic Airways are only to be utilised in cardiac arrest

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

#### Stroke/CVA
- Treat systematically
- Consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with paramedic backup

#### Seizures
- Protect patient from injury by removing dangerous objects
- Place patient in recovery position to maintain airway
- Place on high concentration O2 mask

#### Overdose
- Do not try and induce vomiting
- Contact poisons information centre via Comms for consult

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

#### Diabetic Problem
- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

### Stroke/CVA
- Treat symptomatically
- Consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with paramedic backup

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

### Seizures
- Protect patient from injury by removing dangerous objects
- Place patient in recovery position to maintain airway
- Place on high concentration O2 mask

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

### Overdose
- Do not try and induce vomiting
- Contact poisons information centre via Comms for consult

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

### Diabetic Problem
- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

- Commence IPPV with high concentration oxygen if:
  - Inadequate respirations
  - Deteriorating conscious state
  - Ensure a BGL and Temp has been taken, treat accordingly

If BGL > 12.0mmol
- Basic care until paramedic arrival

If BGL < 4.0mmol, AND

- The patient is conscious **AND** not at risk of choking
  - Administer Oral Glucose Paste

Or

- The patient is unconscious **OR** at risk of choking
  - Administer IM Glucagon
  - Administer Oral Glucose Paste

- < 25kg 0.5ml Glucagon IM
- > 25kg 1.0ml Glucagon IM
Special Notes

**Barotrauma / Gas embolus**
- Arises from rapid gas expansion in body cavities
  - Check for pneumothorax
  - Assess for Cerebral Artery Gas Embolus (CAGE) - Sudden LOC or other CNS symptoms at surface after rapid ascent

**Decompression Sickness (DCS)**
- DCS arises from dissolved gases coming out of solution into bubbles inside the body on depressurisation.
  - More gradual onset, usually post dive. Consider this for any pt developing symptoms within 0-36hrs of diving,
  - Patients may present with: generalised aches, headache; SOB, rash, joint pain, paraesthesia, paralysis, seizures, unconscious

Special notes

- Assess all other divers on scene

Confirm Paramedic back-up has been dispatched
Diving Emergencies

Status
- Possible diving emergency

Assess
- Mechanism of diving emergency
- Respiratory status
- Check for Pneumothorax
- Level of consciousness

Initial Treatment

Action
- Keep patient laying flat
- Pain Relief as per VAO CFP03
- Administer high flow oxygen
- Consult with Clinical Coordinator regarding transport method and ongoing management
- Transport avoiding high altitudes

Confirm Paramedic back-up has been dispatched
### Hypothermia

- Hypothermia is insidious and rarely occurs in isolation. Where the patient is in a group environment other members of the group should be carefully assessed for signs of hypothermia.
- Gentle handling of patients is essential. Position flat or lateral and avoid head up position.

### Hyperthermia

- During cooling patient should be monitored for the onset of shivering. Shivering may increase heat production and cooling measures should be adjusted to avoid its onset.

---

Confirm Paramedic back-up has been dispatched
Environmental Emergencies

**Status**
- Hypothermia

**Assess**
- Mild hypothermia 32-35°C
- Moderate hypothermia 28-32°C
- Severe hypothermia < 28°C

**Hypothermia**

**Action**
- General Care
  - Shelter from wind in heated environment
  - Remove all damp or wet clothing
  - Gently dry patient with towels/blankets
  - Wrap in warm sheet / Blankets
  - Cover head with towel/blanket
  - Use thermal/space/plastic blankets if available
  - Assess Blood Glucose Level if altered conscious state

**Hyperthermia**

**Action**
- Cooling techniques - initiated and maintained until temp < 38°C
  - Shelter/remove from heat source
  - Ensure airflow over patient
  - Remove all clothing except underwear
  - Apply tepid water using spray bottle or wet towels
- Assess Blood Glucose Level if altered conscious state
- Airway and ventilation support with 100% oxygen as required

**Cardiac Arrest**

**Action**
- Adjustment for Temperature
  - > 30°C
    - Standard Cardiac Arrest protocol
  - <30°C
    - One defibrillation shock only
    - Continue CPR and rewarming until temp >30°C

**Poor response after 10 minutes**
- Severe cases - Temp > 39.5°C
- Unconscious

**Action**
- Consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with paramedic backup
Normal Birth - Expected Management

- The cord can be cut at a convenient time over 1-3 minutes – The cord should stop pulsing. If the new born requires resuscitation, the cord may need to be cut earlier
- Triple clamp cord and ensure secure (Clamp at 10, 15 and 20cm from the baby)
- Cut between the second and third clamps
- Allow placental separation to occur spontaneously without intervention
- This may take 15mins 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 the cord
  - Uterus becomes rounded, firmer, smaller
  - Trickle or gush of blood from vagina
  - Cramping/Contractions return
- Note the time of birth of the placenta
- Place the placenta and blood clots into a container and transfer
- Inspect that the fundus is firm, contracted and central
- Continue to monitor the fundus though don’t massage once firm.

Unusual Birth - Management

- If any presentation other than head first delivery (examples include umbilical cord or limp presentation)
  Immediately consult with Clinical Coordinator for management advice
- Post Partum Haemorrhage is a PV Blood loss >600ml in 24hrs.
- In the event of Post Partum Haemorrhage Immediately consult with Clinical Coordinator for management advice.

Confirm Paramedic back-up has been dispatched
Status
- Signs of imminent delivery

Assess
- Maternal Vital Signs
- Contractions (nature, duration and time apart)

Not Imminent
- Reassure
- Monitor patient regularly for change
- Pain Relief
- Consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with paramedic backup
- If transporting use left lateral position

Imminent Birth
- Reassure
- Prepare equipment for normal birth
- Pain Relief

Imminent Birth - Birth of Head
- As head advances, encourage the mother to push with each contraction
- If the head is birthing too fast, ask the mother to pant with an open mouth during contractions instead
- Cup hand under the baby's head in preparing to grasp baby in the event of a rapid delivery
Imminent Birth - Head Rotation

Action

- With the next contraction the head will turn to face one of the mother's thighs (indicating internal rotation of the shoulders in preparation of birthing of body)

Imminent Birth - Birthing of Shoulders and Body

Action

- May be passive or guided birth
- Support baby's head, neck and shoulders as it is delivered
- Support the baby, dry and take APGAR 1 and 5 minutes after birth
- Note time of birth
- Pass the baby to the mother to facilitate breast feed unless baby requires resuscitation
Special Notes

- Asthmatic patients are dynamic and can show initial improvement with treatment then deteriorate rapidly
- Beware of patients presenting with a wheeze associated with heart failure and no asthma/COPD Hx
- pMDI = Pressurised Metered Dose Inhaler
- pMDI must be shaken at each puff to ensure that the medication is mixed with the propellant
- For every 1 puff the patient should take 4-5 breaths through the spacer.

IPPV Management

- If IPPV is required in suspected Asthma ventilate at:
  - Adult 6-8 breaths per minute
  - Large Child 8-12 breaths per minute
  - Small Child 10-15 breaths per minute
  - Infant 15-20 breaths per minute

Confirm Paramedic back-up has been dispatched
• Manage patient as Asthma/COPD

Assess
• Severity of distress
• Presence of Wheeze or no Wheeze

Presence of Wheezes
✓ Action
• Manage patient as Asthma/COPD

No Wheezes Present
✓ Action
• High Concentration Oxygen
• Patients Positioning
  - Sit patient upright and support
• Commence IPPV if
  - Inadequate resps / Hypoventilating,
  - Bradycardia, or
  - Decreased conscious state
• Consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with paramedic backup

Confirm Paramedic back-up has been dispatched
**Respiratory - Asthma/COPD**

**Salbutamol pMDI and spacer**
- Deliver 1 puff followed by 4-5 breaths, repeating process 5 more times over 5 minutes. Repeat this process every 5 minutes as required.
- If pMDI not available, utilise Nebulised Salbutamol 10mg (5ml)
- Repeat 5mg (2.5ml) Nebulised @ 5mins if required

**Nebulised Salbutamol 10mg (5ml)**

**Severe Respiratory Distress**
- Salbutamol 10mg (5ml) and Ipratropium Bromide 500mcg (2ml) Nebulised
- Repeat Salbutamol 5ml (2.5ml) Nebulised @ 5mins if required
- Consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with paramedic backup
- Assess Patient against Anaphylaxis Criteria (VAO CFP01)

**Mild or Moderate Respiratory Distress**
- Salbutamol pMDI and spacer
- Presence of wheezes
- If patients asthma Mx plan has been activated
- Patients positioning

**Adequate Response**
- Consult Clinical Coordinator regarding transport

**No Significant Response after 10mins**
- Rx as per Severe Respiratory Distress

**Confirm Paramedic back-up has been dispatched**
Foreign Body Choking

Status

- Evidence of choking

Assess

- Respiratory status
- Conscious state
- Severity of Obstruction
  (effective or ineffective cough)

Incomplete Airway Obstruction

(Effective cough)

Action

- Encourage coughing
  - Consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with paramedic backup

Complete Airway Obstruction

(Ineffective cough)

Action

- Give 5 back blows
  - If unsuccessful
    - Give up to 5 chest thrusts
    - Alternate between back blows and chest thrusts until obstruction relieved
    - If pt becomes unconscious refer to unconscious choking patient

Unconscious

Action

- Manual Clearance
  - If unsuccessful
    - Commence CPR

Confirm Paramedic back-up has been dispatched
Trauma - Chest Injuries

**Status**
- Chest Injury
  - Traumatic
  - Spontaneous

**Assess**
- Respiratory status
- Type of chest injury

**Action**
- Supplemental oxygen
- Pain relief as per VAO CFP03
- Position pt upright if possible unless, perfusion is < adequate, altered consciousness, associated barotrauma or potential spinal injury

**Flail segment/Rib Fractures**
- May require ventilation support if decreased tidal volume

**Open Chest Wound**
- 3 sided sterile occlusion dressing

**Pneumothorax**
- Consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with paramedic

*Confirm Paramedic back-up has been dispatched*
Confirm Paramedic back-up has been dispatched

### Wallace Rule of Nines
- The victim's palm surface (palm and fingers) is equal to 1 per cent of his body surface area

### General Care
- Cool burn area for preferably up to 20 mins
  - Running water if possible
  - Normal Saline or wet combine as substitute
  - Avoid/Eliminate shivering
  - Avoid Ice or Ice water
  **AVOID OVER COOLING**
- Cover cooled area with appropriate dressing
  - Ensure cling wrap is applied longitudinally to allow for swelling
- Assess patient's temp and manage as required
- If any of the following, consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with Paramedic backup:
  - 10% burns or more
  - Facial burn (consider possible airway obstruction)
  - Possible smoke inhalation
  - Infant or elderly patient
  - Uncontrolled pain
**Status**
- Evidence of burns

**Assess**
- Assess burn injury
  - Airway injury
  - Body surface area of injury - Refer to Wallace Rule of Nines
  - Burn classification e.g. superficial, full/partial

**Initial burn management**

**Action**
- Cool burn area
- Cover cooled area with appropriate dressing
- Analgesia as per VAO CFP03 Pain Relief
- Monitor patient temperature and manage as required

**Avoid over cooling**

**All other burn presentations**

**Action**
- BLS/First aid
- Consult Clinical Coordinator regarding commencement of transport without delay to rendezvous with paramedic

**Confirm Paramedic back-up has been dispatched**
**Principles of Fracture Management**

- **General principles for Fracture Management**
  - Control external haemorrhage
  - Support the injured area
  - Immobilise the joint above and below the fracture site
  - Evaluate and record neurovascular condition distal to the fracture site
- Provide appropriate pain relief
- Appropriate splinting can assist in pain reduction and arrest of haemorrhage

- **General principles for Fracture Management**
  - Realign long bone fractures in as close to normal position as possible
  - Open fractures with exposed bone should be irrigated with **Normal Saline** prior to realignment and splinting
  - If joints are involved there is an increased possibility of neurovascular impairment and reduction is not recommended
  - Femoral shaft fractures and fractures of the upper 2/3 of the tibia and fibula should be managed with a traction splint unless there are distal dislocations or fractures.
- In suspected fractures of the pelvis the legs should be anatomically splinted together (to internally rotate the feet) and the pelvis splinted with a sheet wrap or other appropriate device

**Principles of Amputation Management**

- **General principles for Amputation Management**
  - Severed part should be covered in saline soaked gauze and placed in a water tight plastic bag
  - Place the plastic bag containing the severed part into a second plastic bag containing ice and water
  - Transport amputated part with patient
The drug section of these field protocols has been specifically written to focus on the pharmacology relevant to selected medical emergencies. It is not intended that the pharmacology section of this booklet be seen as a standard text on pharmacology. Thus, the content has been restricted to Ambulance practice.

| Presentation | In many instances, drugs may be available in presentations other than those listed. However, this booklet indicates only those presentations that are currently carried on Ambulance vehicles. Drug Presentations as written can only be varied by the Chief Executive Officer (CEO) on the statutory role as Director of Ambulance Service. This will only be done through the release of a Clinical Services Update authorised by the CEO. This is the only circumstance where drug variations are permitted in ambulance service practice. |
| Pharmacology | A statement is included as to the nature of the drug followed by a list of specific actions related to the Ambulance use of that drug. |
| Metabolism | A single statement has been included to indicate the fate of the particular drug within the body. |
| Primary Emergency Indication | The indications to those emergency situations for which the drug is primarily used within Ambulance practice. The drug however, may have other indications within health care. |
| Contraindications | If there are absolute contraindications to the use of a particular drug, these are indicated in this section. |
| Precautions | Where there are relative contraindications or precautions in the administration of a drug, these are included in this section. |
| Route of Administration | Most drugs can be administered through a variety of routes. However, this section includes only those routes of administration considered appropriate for use in Ambulance practice. As a general principle, drugs should not be mixed in the same syringe or solution before administration. |
| Side Effects | Common side effects attributed to the use of the drug are included in this section. |
| Special Notes | In this section a variety of additional information, in particular the time that the drug takes to have its effect, has been included as background information. |
### Adrenaline

| Presentation | Epi-pen Adult Auto-Injector (0.3mg)  
Epi-pen Child Auto-Injector (0.15mg) |
|--------------|-----------------------------------|
| Pharmacology | A naturally occurring Adrenergic stimulant  
**Actions:**  
- Increases heart rate  
- Increases force of contraction  
- Causes bronchodilation  
- Causes blood vessel constriction |
| Metabolism   | By enzymes in blood, liver and nerves |
| Primary Emergency Indications | 1. Anaphylactic reactions |
| Contraindication | Nil |
| Precautions  | 1. Elderly Pts  
2. Pts with heart disease |
| Route of Administration | Intramuscular |
| Side Effects | Increased heart rate  
Hypertension  
Feeling of “anxiety/palpitations”  
Muscle tremor |
| Special Notes | *Intramuscular effects:*  
Onset: 30 – 90sec  
Peak: 4 – 10min  
Duration: 5 – 10min |
Aspirin (Acetylsalicylic Acid)

| Presentation                  | 300mg chewable tablets  
|                              | 300mg soluble or water dispersible tablets |
| Pharmacology                 | Used to reduce the progression of heart attacks |
| Metabolism                   | In the intestines and liver, excreted mainly by the kidneys |
| Primary Emergency Indication | To minimize platelet aggregation and thrombus formation in order to retard the progression of coronary artery thrombosis in acute coronary syndrome |
| Contraindications            | 1. Hypersensitivity to aspirin/salicylates  
|                              | 2. Actively bleeding peptic ulcers  
|                              | 3. Bleeding disorders  
|                              | 4. Suspected dissecting aortic aneurysm  
|                              | 5. Chest pain associated with psychostimulant overdose if BP > 160  
|                              | 6. Children less than 12 years old |
| Precautions                  | 1. Peptic ulcer  
|                              | 2. Asthma  
|                              | 3. Pts on anti-coagulants, e.g. Warfarin |
| Route of Administration      | Oral |
| Side Effects                 | • Heartburn, nausea, gastrointestinal bleeding  
|                              | • Increased bleeding time  
|                              | • Hypersensitivity reactions |
| Special Notes                | Aspirin reach peak levels within 15 mins and has a half-life of approximately 30 mins.  
<p>|                              | It is important to administer Aspirin for suspected AMI even if patient is on daily dose |</p>
<table>
<thead>
<tr>
<th><strong>Presentation</strong></th>
<th>1mg (IU) in 1ml Hypokit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pharmacology</strong></td>
<td>Causes an increase in blood glucose concentration by converting stored liver glycogen to glucose</td>
</tr>
<tr>
<td><strong>Metabolism</strong></td>
<td>Mainly by the liver, also by the kidneys</td>
</tr>
<tr>
<td><strong>Primary Emergency Indication</strong></td>
<td>Diabetic hypoglycaemia in patients with an altered conscious state who are unable to self-administer oral glucose paste</td>
</tr>
<tr>
<td><strong>Contraindication</strong></td>
<td>Nil significance in the above indication</td>
</tr>
<tr>
<td><strong>Precautions</strong></td>
<td>Nil significance in the above indication</td>
</tr>
<tr>
<td><strong>Route of Administration</strong></td>
<td>Intramuscular</td>
</tr>
<tr>
<td><strong>Side Effects</strong></td>
<td>Nausea and vomiting (rare)</td>
</tr>
</tbody>
</table>
| **Special Notes** | Not all Pts will respond to Glucagon, for example those with inadequate glycogen storage in the liver – alcoholics, malnourishment.  
*Intramuscular effects:*  
Onset: 3 – 5min  
Peak:  
Duration: 12 – 25min |
### Glucose Paste

<table>
<thead>
<tr>
<th>Presentation</th>
<th>15g Glucose paste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacology</td>
<td>A hypertonic sugar solution for oral use</td>
</tr>
</tbody>
</table>
| Metabolism | **Glucose:**  
- Broken down in most tissues  
- Stored in liver and muscle as glycogen |
| Primary Emergency Indication | Diabetic hypoglycaemia in Pts who are conscious and able to self-administer oral glucose |
| Contraindication | Nil significance in the above indication |
| Precautions | Nil significance in the above indication |
| Route of Administration | Oral |
| Side Effects | Nil significance in the above indication |
| Special Notes |  |
**Glyceryl Trinitrate (GTN)**

<table>
<thead>
<tr>
<th><strong>Presentation</strong></th>
<th>50mg Transdermal Patch (0.4mg/hr)</th>
</tr>
</thead>
</table>
| **Pharmacology** | - Arterial Dilation (reduces afterload)  
- Venous Dilation (reduces preload) |
| **Metabolism**   | Liver |
| **Primary Emergency Indication** | 1. Chest pain |
| **Contraindication** | 1. Known hypersensitivity  
2. Systolic blood pressure < 110 mmHg (VAO Specific Contraindication)  
3. Sildenafil Citrate “VIAGRA” or Vardenafil “LEVITRA” administration in the previous 24 hours or Tadalafil “CIALIS” administration in the previous 4 days (PDE5 inhibitors)  
4. Heart rate > 150 per min  
5. Heart rate < 50 per min |
| **Precautions**   | 1. No previous administration  
2. Elderly patients  
3. Recent heart attack |
| **Route of Administration** | Transdermal Patch |
| **Side Effects**  | Increased heart rate  
Hypotension  
Headache  
Skin flushing (uncommon)  
Decreased heart rate (occasionally) |
Storage:
Since both men and women can be prescribed Sildenafil Citrate “VIAGRA” or Vardenafil “LEVITRA” or Tadalafil “CIALIS” all patients should be asked if and when they last have had the drug to determine if Glyceryl Trinitrate is contraindicated.

Should the patient start to become light headed, or GTN becomes contraindicated the GTN patch is to be immediately removed and symptoms are to be managed accordingly.

GTN Patch MUST be removed prior to defibrillation as it can cause damage to the pads and burn the patient.
<table>
<thead>
<tr>
<th><strong>Presentation</strong></th>
<th>500mcg in 1ml polyamp</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pharmacology</strong></td>
<td>Bronchodilator working by different mechanisms to Salbutamol</td>
</tr>
<tr>
<td><strong>Metabolism</strong></td>
<td>Excreted by the kidneys</td>
</tr>
<tr>
<td><strong>Primary Emergency Indication</strong></td>
<td>Severe respiratory distress associated with bronchospasm</td>
</tr>
<tr>
<td><strong>Contraindication</strong></td>
<td>Known hypersensitivity to Atropine or its derivatives</td>
</tr>
</tbody>
</table>
| **Precautions**  | 1. Glaucoma  
|                  | 2. Avoid contact with eyes |
| **Route of Administration** | Nebulised in combination with Salbutamol |
| **Side Effects** | Headache  
|                  | Nausea  
|                  | Dry mouth  
|                  | Skin Rash  
|                  | Increased heart rate (rare)  
|                  | Palpitations (rare)  
|                  | Acute angle closure glaucoma secondary to direct eye contact (rare) |
### Special Notes

The nebuliser mask must be fitted properly during inhalation and care taken to avoid Ipratropium Bromide solution entering the eyes. Ipratropium Bromide must be nebulised in conjunction with Salbutamol and is to be administered as a single dose only.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>3 – 5min</td>
</tr>
<tr>
<td>Peak</td>
<td>1.5 – 2hrs</td>
</tr>
<tr>
<td>Duration</td>
<td>6hrs</td>
</tr>
</tbody>
</table>
### Presentation
- 3 ml glass bottle with plastic seal

### Pharmacology
- Inhalational analgesic agent at low concentrations

### Metabolism
- By the liver

### Primary Emergency Indication
- Pre-hospital pain relief

### Contraindication
1. Pre-existing renal disease / renal impairment
2. Concurrent use of tetracycline antibiotics
3. Exceeding total dose of 6ml in a 24 hr period
4. Family history of anaesthetic induced Malignant Hyperthermia

### Precautions
1. The “Penthrox™ inhaler must be hand-held by the patient so that if unconsciousness occurs it will fall from the patient’s face. Occasionally the operator may need to assist but must continuously assess the level of consciousness
2. Pre-eclampsia

### Route of Administration
- Self-administration under supervision using the hand held “Penthrox™ Inhaler

### Side Effects
- Drowsiness
- Decrease in blood pressure and slowing in heart rate (rare)
- Exceeding the maximum total dose of 6ml in a 24 hr period may lead to Kidney toxicity
### Special Notes

The max initial priming dose for Methoxyflurane is 3ml. This will provide approximately 25 min of analgesia and may be followed by one further 3ml dose once the initial dose has expired if required. Analgesia commences after 8-10 breaths and lasts for approximately 3-5 min once discontinued.

If supplemental oxygen is required while utilising Methoxyflurane, commence oxygenation with nasal catheters between 2-4L/min.

Methoxyflurane should not be administered in confined spaces (eg. In road and air ambulances) unless the ‘Pentrox Analgiser’ is fitted with a scavenging system.
### Presentation
High pressure “Medical Oxygen”  
- “C” size cylinders 440 litres  
- “D” size cylinders 1500 litres

### Pharmacology
A chemical element that is essential to tissues for sustaining life.

### Metabolism
N/A

### Primary Emergency Indication
1. Treatment of hypoxaemia / hypoxia  
2. To assist organ perfusion in patients with poor perfusion

### Contraindications
1. Known paraquat poisoning  
2. Lung disease secondary to bleomycin therapy

### Precautions
1. Prolonged administration to premature neonates  
2. High concentrations given to COPD patients  
3. Fire and / or Explosive hazard

### Route of Administration
Inhalation via:  
- Nasal cannula  
- Non-rebreathing therapy mask  
- Bag-valve-mask

### Side Effects
Hypoventilation in some COPD patients with hypoxic drive  
Drying of the mucous membranes of the airways

### Special Notes
In acutely hypoxic patients supplemental oxygen must take precedence over the concern that in rare circumstances a patient’s hypoxic drive may be lost if high concentrations of oxygen are given.
**Presentation**
- 5mg in 2.5ml nebul/polyamp
- 100mcg in 5ml pMDI per spray

**Pharmacology**
Causes bronchodilation by relaxing bronchial smooth muscle

**Metabolism**
By the liver and excreted by the kidneys

**Primary Emergency Indication**
Respiratory distress with suspected bronchospasm:
- asthma
- severe allergic reactions
- COPD

**Contraindications**
Nil of significance in the above indications

**Precautions**
1. Diabetes
2. Cardiac disease
3. Pregnancy/lactating mothers
4. Between doses, oxygen must be administered continuously

**Route of Administration**
Nebulised at 6-8lmp
Pressurised Metered Dose Inhaler (pMDI) and spacer
### Side Effects

<table>
<thead>
<tr>
<th>Side Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinus tachycardia</td>
</tr>
<tr>
<td>Muscle tremor (common)</td>
</tr>
</tbody>
</table>

### Special Notes

- Tolerance to the bronchodilator effect may occur with prolonged or excessive use.
- Salbutamol Nebules/Polyamps have a shelf life of one month after the wrapping is opened. The date of opening of the packaging should be recorded and the drug should be stored in an environment of < 30°C.
- Diabetes is a precaution due to Salbutamol having been reported to have caused cases of high insulin levels and high blood sugar levels.
- Administration with pregnancy is a precaution due to there being no conclusive evidence of effects upon the foetus.
- Salbutamol administration with patients with a history of cardiac disease can lead to increased heart rate and hypotension.

**Nebulised effects:**
- **Onset:** 5 – 15min
- **Peak:**
- **Duration:** 15 – 50min
Perfusion Status Assessment

1. Normal Blood Volume

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse</th>
<th>Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>120 – 160</td>
<td>N/A</td>
</tr>
<tr>
<td>Infant</td>
<td>100 – 160</td>
<td>&gt; 70mmHg systolic</td>
</tr>
<tr>
<td>Small child</td>
<td>80 – 120</td>
<td>&gt; 80mmHg systolic</td>
</tr>
<tr>
<td>Large child</td>
<td>80 – 100</td>
<td>&gt; 90mmHg systolic</td>
</tr>
<tr>
<td>Adult</td>
<td>60 – 100</td>
<td>&gt; 100mmHg systolic</td>
</tr>
</tbody>
</table>

2. Definition and Observations

Same as for adults

3. Criteria

a) Adequate Perfusion

- Skin – warm, pink, dry
- Conscious, alert, active
Perfusion Status Assessment

b) Inadequate Perfusion

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse</th>
<th>Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>&lt;100/ or &gt; 170</td>
<td>N/A</td>
</tr>
<tr>
<td>Infant</td>
<td>&lt; 90/ or &gt; 170</td>
<td>&lt; 60mmHg systolic</td>
</tr>
<tr>
<td>Small child</td>
<td>&lt; 75/ or &gt; 130</td>
<td>&lt; 70mmHg systolic</td>
</tr>
<tr>
<td>Large child</td>
<td>&lt; 65/ or &gt; 100</td>
<td>&lt; 80mmHg systolic</td>
</tr>
<tr>
<td>Adult</td>
<td>&lt; 50/ or &gt; 100</td>
<td>&lt; 80mmHg systolic</td>
</tr>
</tbody>
</table>

- Skin – cool, pale, clammy, peripheral cyanosis.
- Altered conscious state, restless

c) No Perfusion

- Absence of palpable pulses
- Skin – cool, pale
- Unrecordable blood pressure
- Unconscious
Respiratory Status Assessment

1. Normal Respiratory Rates

<table>
<thead>
<tr>
<th>Age</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>40 – 60 breaths/min</td>
</tr>
<tr>
<td>Infant</td>
<td>20 – 50 breaths/min</td>
</tr>
<tr>
<td>Small child</td>
<td>20 – 35 breaths/min</td>
</tr>
<tr>
<td>Large child</td>
<td>15 – 25 breaths/min</td>
</tr>
<tr>
<td>Adult</td>
<td>12 – 16 breaths/min</td>
</tr>
</tbody>
</table>

2. Definition and Observations

Same as for adults

3. Criteria

a) Signs of respiratory distress include:

- tachypnoea
- grunting
- wheezing
- use of accessory muscles
- pallor
- cyanosis (late sign)
Respiratory Status Assessment

b) Signs of Hypoxia include:

<table>
<thead>
<tr>
<th>Infants</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>lethargy</td>
<td>restlessness</td>
</tr>
<tr>
<td>bradycardia</td>
<td>tachypnoea</td>
</tr>
<tr>
<td>hypotension</td>
<td>tachycardia (bradycardia late sign)</td>
</tr>
<tr>
<td>apnoea</td>
<td>cyanosis</td>
</tr>
<tr>
<td>pallor</td>
<td></td>
</tr>
</tbody>
</table>

Carbon dioxide retention is manifested by:

- sweating (uncommon in infants)
- tachycardia
- pupillary dilatation
  - hypertension
  - bounding pulse
  - eventually leading to cardiovascular and central nervous system depression

Respiratory failure is common in the first two years of life. Small calibre airways are prone to obstruction. Respiratory distress may reflect disorder of other body systems – cardiac failure, abdominal distension, neurological problems.
Sensory and Motor Examination

- The level at which sensation is altered or absent is the level of injury
- It is vital to carry out motor as well as sensory exams as the patient may have motor damage without sensory damage and vice versa.

Sensory Examination

- Examine by light touch and response to pain
- Use the forehead as your guide to what is normal sensation
- Remember to examine both sides of the upper/lower limbs, including hands and feet.

Motor Examination

- The level at which weakness or absent movement is noted is the level of injury

<table>
<thead>
<tr>
<th>Upper Body</th>
<th>Lower Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shrugs shoulder</td>
<td>C4</td>
</tr>
<tr>
<td>Bend elbow</td>
<td>C5</td>
</tr>
<tr>
<td>Push wrist back</td>
<td>C6</td>
</tr>
<tr>
<td>Open/close hands</td>
<td>C8</td>
</tr>
<tr>
<td>Flex Hip</td>
<td>L1 &amp; L2</td>
</tr>
<tr>
<td>Extend Knee</td>
<td>L3</td>
</tr>
<tr>
<td>Pull foot up</td>
<td>L4</td>
</tr>
<tr>
<td>Push foot down</td>
<td>L5 &amp; S1</td>
</tr>
</tbody>
</table>

Spinal Cord Injury in the Unconscious Patient

- Look for paradoxical respiration (a quadriplegic has lost intercostal muscles so relies on the diaphragm to breath)
- Flaccid limbs
- Loss of response to pain – full stimuli below the level of the lesion
- Loss of reflexes below level of lesion
- Erection in the unconscious male
- Low BP (systolic) less than 100 associated with a normal pulse or bradycardia indicates patient may be quadriplegic
Schematic demarcation of dermatomes shown as distinct segments. There is actually considerable overlap between any two adjacent dermatomes.
APGAR Scoring System

The APGAR score should be conducted 1 minute after delivery and repeated at 5 minutes after delivery. A score of:

- **7 – 10** Satisfactory
- **4 – 6** Moderate depression and may need respiratory support
- **0 – 3** Newborn requiring resuscitation

<table>
<thead>
<tr>
<th></th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Blue, pale</td>
<td>Body pink, extremities blue</td>
<td>Totally pink</td>
</tr>
<tr>
<td><strong>Pulse</strong></td>
<td>Absent</td>
<td>&lt; 100</td>
<td>&gt; 100</td>
</tr>
<tr>
<td><strong>Grimace</strong></td>
<td>None</td>
<td>Grimaces</td>
<td>Cries</td>
</tr>
<tr>
<td><strong>Activity</strong></td>
<td>Limp</td>
<td>Flexion of extremities</td>
<td>Active motion</td>
</tr>
<tr>
<td><strong>Respiratory effort</strong></td>
<td>Absent</td>
<td>Slow and weak</td>
<td>Good strong cry</td>
</tr>
</tbody>
</table>
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 QUESTT principles of pain (Baker and Wong, 1987) may be helpful in assessing paediatric pain.

Q - Question the child
U - Use pain rating scales
E - Evaluate behaviour and physiological changes
S - Secure parent’s involvement
T - Take cause of pain into account
T - Take action and evaluate results

The following pain rating scales may be useful when assessing pain in children.

**FLACC Scale**

This is a behaviour scale that can be used for children less than 3 years of age or who are unable to communicate. Each of the five categories below is scored from 0 – 2 and the scores are added to get a total from 0 – 10. Behavioral pain scores need to be considered within the context of the child’s psychological status, anxiety and other environment factors.
## Paediatric Pain Assessment

<table>
<thead>
<tr>
<th>Face</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>No particular expression or smile</td>
<td>Occasional grimace or frown, withdrawn, disinterested</td>
<td>Frequent to constant frown, clenched jaw, quivering chin</td>
<td></td>
</tr>
<tr>
<td>Legs</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Normal position or relaxed</td>
<td>Uneasy, restless, tense</td>
<td>Kicking or legs drawn up</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Lying quietly, normal position, moves easily</td>
<td>Squirming, shifting back and forth, tense</td>
<td>Arched, rigid or jerking</td>
<td></td>
</tr>
<tr>
<td>Cry</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>No cry (awake or asleep)</td>
<td>Moans or whimpers, occasional complaints</td>
<td>Crying steadily, screams or sobs, frequent complaints</td>
<td></td>
</tr>
<tr>
<td>Consolability</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Content, relaxed</td>
<td>Reassured by occasional touching, hugging or “talking to”, distractible</td>
<td>Difficult to console or comfort</td>
<td></td>
</tr>
</tbody>
</table>

The FLACC is a behaviour pain assessment scale which is reproduced with permission of University of Michigan Health System and Ambulance Victoria for clinical use by Ambulance Tasmania.
Paediatric Pain Assessment

Wong – Baker Faces Pain Rating Scale
This scale can be used with young children aged 3 years and older and may also be useful for adults and those from a non-English-speaking background. Point to each face using the words to describe the pain intensity. Ask the child to choose the face that best describes their own pain and record the appropriate number.

Verbal Numerical Rating Scale
This scale asks the Pt to rate their pain from “no pain” (0) to “worst pain possible” (10) and is suitable for use in children over 6 years of age who have an understanding of the concepts of rank and order. Avoid using numbers on this scale to prevent the Pt receiving cues. Some Pt’s 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.

Initiating and continuation of resuscitation attempts

Guidelines for the non-initiation of CPR

• Where the physician has documented no CPR.
• Where there are obvious clinical signs of death: decapitation, incineration, decomposition, rigor mortis or dependent lividity and overwhelming trauma.
• Where CPR places the responder at significant risk of injury due to environmental hazards.
• Where triaging in an emergency setting has determined more appropriate utilization of resources.
• The patient is pulseless, not breathing, with fixed dilated pupils, and collapse is known to have occurred >30 minutes prior to arrival with no institution of CPR.

CPR should be continued until one of the following occurs

• Appropriate Basic Life Support (BLS) and Advanced Life Support (ALS) has been instituted without restoration of breathing and circulation (including adequate airway, IV access and treatment of rhythm disturbances) ie. Asystole or agonal rhythm for >20 minutes with no reversible causes identified.
• Care is transferred to other medical professionals.
• A physician determines CPR should be discontinued.
• CPR jeopardizes the life of the responder.
• The responder can no longer continue due to physical exhaustion.
• Information in regard to medical futility, or physician orders come to light.
• CPR should always be continued until handover of care to a physician in cases of
  - hypothermia, drug overdoses, children, poisonings, drowning, unusual circumstances
• If doubt exists in any case there should always be presumption in favour of treatment.
• The limitation of resuscitation orders does not mean abandonment of the patient.
• Do not resuscitate orders, unless otherwise stated, do not mean the withholding of other modes of treatment eg. Oxygen, bronchodilators in end-stage COPD.

Ambulance practitioners must clearly record full details of the information given to them in the Patient Care Record and also the basis for their decision on resuscitation.