Clinical Procedures and Guidelines

Pocket Edition

2013 - 2015

St John

first to care

FOREWORD

These are the Clinical Procedures and Guidelines (CPGs) for the New Zealand ambulance sector.

This is the pocket edition of the Clinical Procedures and Guidelines (CPGs), incorporating standing orders, developed for the ambulance sector of New Zealand. It is a 'quick reference' summary of the comprehensive edition.

These CPGs are for the use of St John personnel, with current authority to practice, when providing clinical care to patients on behalf of St John. They have been developed by the National Ambulance Sector Clinical Working Group and are issued to individual clinical personnel by the St John Medical Director.

These CPGs expire at the end of 2015 at which time they will be formally updated and reissued. They remain the intellectual property of the National Ambulance Sector Clinical Working Group and may be recalled or updated at any time. Any persons other than St John personnel using these CPGs do so at their own risk. Neither St John nor the National Ambulance Sector Clinical Working Group will be responsible for any loss, damage or injury, suffered as a result of the use of these CPGs by persons other than St John personnel.

Dr Tony Smith

Medical Director

Dr Ian Civil

Chair of the Clinical Governance Committee

INSTRUCTIONS FOR USE

The pocket edition is an edited version of the comprehensive edition. Changes include complete sections being omitted or modified as appropriate. For easy reference between the two documents, the associated number for each section is the same. For example, section 10.6 is not present in the pocket edition, and so section 10.7 follows 10.5 in this edition.

Each flowchart within this pocket edition uses colour to indicate which treatment falls under each delegated scope of practice. Refer to the key below:

- ICP only
- PARA and above
- EMT and above
- All levels

For 'non-transport pause and checklist' refer to **page 120**

Clinical Procedures and Guidelines - Pocket Edition		
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CONTENTS

Section 11: Red flags

Section 12: Checklists

DELEGATED SCOPES OF PRACTICE

Primary Care

Entonox, methoxyflurane, paracetamol.

Emergency Medical Technician (EMT)

All of the above plus adrenaline (IM, IN and nebulised), glucagon, GTN spray, ibuprofen, ipratropium, laryngeal mask airway, loratadine, nasopharyngeal airway, ondansetron (oral), prednisone, PEEP, salbutamol, tramadol, urinary catheter troubleshooting.

BLS Paramedic

All of the above plus 0.9% NaCl (IV), glucose (IV), IV cannulation, lignocaine (SC) for cannulation, manual defibrillation, synchronised cardioversion.

Paramedic

All of the above plus adrenaline (IV) for cardiac arrest only, amiodarone (IV) for cardiac arrest only, ceftriaxone, clopidogrel, fentanyl, lignocaine (SC) for ring blocks, midazolam (IM) for seizures only, morphine, naloxone, ondansetron, oxytocin.

Intensive Care Paramedic (ICP)

All of the above plus adenosine, adrenaline, amiodarone, atropine, calcium chloride, capnography, chest decompression, cricothyrotomy, intraosseous access, endotracheal intubation, ketamine, laryngoscopy, lignocaine, midazolam, rocuronium, sodium bicarbonate, suxamethonium (selected personnel only).

1.1 ASTHMA

- Administer a bronchodilator using the patient's own MDI (and spacer if available), if they are status three or status four. Administer nebulised bronchodilators (as below) if their MDI is not available.
- Administer 5 mg of nebulised salbutamol in combination with 0.5 mg of nebulised ipratropium, if the patient is status one or status two.
- Administer prednisone orally:
  a) 40 mg for adults.
  b) See the paediatric drug dose tables for children.
- Administer 5 mg of nebulised salbutamol (without ipratropium) if the patient is not improving, and repeat this as required.
- Administer adrenaline IM if the patient is status one or status two and deteriorating despite nebulised bronchodilators:
  a) For personnel at EMT level, administer adults 0.5 mg of adrenaline IM.
  b) For personnel at Paramedic and ICP level, administer adults 0.3-0.5 mg of adrenaline IM.
  c) IM adrenaline may be repeated every 10 minutes if IV access cannot be obtained.
  d) See the paediatric drug dose tables for children.
- Gain IV access if the patient is not improving.

- Administer IV adrenaline in addition to continuous nebulised salbutamol if the patient is status one and not improving. Place 1 mg of adrenaline into a one litre bag of 0.9% NaCl:

  For adults:

  a) Administer this as an IV infusion. Start at 2 drops per second and adjust the rate to the patient's condition **or**
  b) Administer 0.01 mg (10 ml) IV every 1-2 minutes.

  For children aged 5-14 years:

  a) Administer this as an IV infusion. Start at 1 drop per second and adjust the rate to the patient's condition **or**
  b) Administer IV boluses (see the paediatric drug dose tables) every 1-2 minutes.

  For children aged less than 5 years:

  a) Administer IV boluses (see the paediatric drug dose tables) every 1-2 minutes.
  b) Do not administer adrenaline as an IV infusion.

For 'asthma non-transport checklist' refer to **page 110**

Asthma Summary

If: (a) status one or status two or (b) patient's MDI unavailable

5 mg salbutamol nebulised and 0.5 mg ipratropium nebulised

If patient is able to swallow:

40 mg prednisone oral (adults)

If not improving:

5 mg salbutamol nebulised (repeat as required)

If status one or status two and deteriorating:

0.5 mg adrenaline IM (adults), repeat every 10 minutes if required

If status one and not improving:

Administer 1:1,000,000 adrenaline IV

Adults	Aged 5-14 years	Aged less than 5 years
IV infusion starting at 2 drops/second **or** 0.01 mg (10ml) IV every 1-2 minutes	IV infusion starting at 1 drop/second **or** IV bolus every 1-2 minutes	IV bolus every 1-2 minutes Do not give as infusion

1.2 CHRONIC OBSTRUCTIVE RESPIRATORY DISEASE (CORD)

- Titrate the oxygen flow to maintain an SpO_2 of 88-92%.
- Administer bronchodilator using the patient's own MDI (and spacer if available), if they are status three or status four. Administer nebulised bronchodilator (as below) if their MDI is not available.
- Administer 5 mg of nebulised salbutamol in combination with 0.5 mg of nebulised ipratropium, if the patient is status one or status two.
- If oxygen is required to nebulise bronchodilators then alternate 5 minutes with the nebuliser mask on and 5 minutes with the nebuliser mask off, if the SpO_2 climbs above 92%.
- Administer 40 mg of prednisone orally.
- Administer 5 mg of nebulised salbutamol (without ipratropium) if the patient is not improving and repeat this as required. Alternate as above if nebulising with oxygen.
- Gain IV access if the patient has life threatening CORD.
- Administer IV adrenaline if the patient is deteriorating to the point that respiratory arrest is imminent. Place 1 mg of adrenaline into a one litre bag of 0.9% NaCl:
  a) Administer this as an IV infusion. Start at 2 drops per second and adjust the rate to the patient's condition **or**
  b) Administer 0.01 mg (10 ml) IV every 1-2 minutes.

For 'CORD non-transport checklist' refer to **page 111**

1.3 STRIDOR

This section is for any form of upper airway obstruction secondary to infection (such as croup) or swelling.

- Administer 5 mg of nebulised adrenaline if there is resting stridor, or stridor causing moderate to severe respiratory distress.
- Repeat nebulised adrenaline as required every 10 minutes.

1.4 OXYGEN ADMINISTRATION

Administer oxygen if the patient has:

- An SpO_2 less than 94% on air (exception – see 'patients at high risk' below and the newborn section) **or**
- Airway obstruction **or**
- Respiratory distress (exception – see 'patients at high risk' below) **or**
- Shock **or**
- Inability to obey commands from TBI **or**
- Carbon monoxide poisoning **or**
- Smoke inhalation **or**
- Decompression illness.

The oxygen flow rates to be used:

- Nasal prongs 1-4 litres/minute.
- Simple mask 6-8 litres/minute.
- Nebulised medicines 8 litres/minute.
- Reservoir mask 10-15 litres/minute.
- Manual ventilation bag 10-15 litres/minute.

Patients at high risk

- Patients at high risk include patients with CORD, morbid obesity, those on home oxygen, and those on home CPAP or BiPAP.
- These patients may have carbon dioxide clearance that is dependent on hypoxia, and excess oxygen administration may cause hypercarbia.
- Oxygen flow rates should be titrated to the patient's normal SpO_2 if this is known. If it is not known, titrate the oxygen flow rate to an SpO_2 of 88-92%.

1.5 POSITIVE END EXPIRATORY PRESSURE (PEEP)

Apply PEEP using the following settings if a manual ventilation bag is being used to provide ventilation:

For adults requiring ventilation:

a) Do not attach PEEP during cardiac arrest.
b) Apply PEEP set to 5 cmH_20 in the setting of TBI.
c) Apply PEEP set to 10 cmH_20 for all other adults.

For children requiring ventilation:

a) Do not attach PEEP during cardiac arrest.
b) Apply PEEP set to 5 cmH_20 for all other children.

For neonates requiring ventilation:

a) Apply PEEP set to 5 cmH_20, including during cardiac arrest.

For adults with cardiogenic pulmonary oedema:

Apply PEEP using the following settings if they have severe respiratory distress that is not improving:

a) Set to 10 cmH_20, focusing on ensuring a tight seal with the mask. Do not assist the patient's breathing unless it is ineffective.
b) Increase to 15 cmH_20 if the patient does not improve.

2.1 MYOCARDIAL ISCHAEMIA

This section is for adults, including those with silent myocardial ischaemia.

- Only administer oxygen if required to achieve an SpO_2 greater than or equal to 94%.
- Acquire a 12 lead ECG. Acquire an additional 12 lead ECG using a V4R lead position if an inferior STEMI is suspected.
- Administer 0.4-0.8 mg of GTN provided that:
  a) The systolic BP is greater than 100 mmHg **and**
  b) The heart rate is greater than 40/minute and less than 130/minute.
- Use GTN with caution and use an initial dose of 0.4 mg if the patient:
  a) Is small, frail, or physiologically unstable **or**
  b) Has poor perfusion **or**
  c) Has dysrhythmia **or**
  d) Has taken a drug for erectile dysfunction in the last 24 hours **or**
  e) Has inferior STEMI **or**
  f) Has known aortic stenosis.
- Administer 300 mg of aspirin orally.
- Gain IV access if the patient has:
  a) Significant symptoms still present following GTN **or**
  b) STEMI **or**
  c) Dysrhythmia **or**
  d) Poor perfusion or signs of shock.
- Repeat GTN every 2-5 minutes if it provides symptomatic relief.

- Administer opiate pain relief if the pain is significant. This should be morphine unless fentanyl is specifically indicated.

STEMI

In addition to the above:

- Attach defibrillation pads and be prepared to treat cardiac arrest.
- Administer 600 mg of clopidogrel orally. Use caution if there is clinically significant bleeding.
- Begin transport without delay, providing most treatments en route.
- Transmit the ECG if appropriate.
- Transport the patient direct to a hospital with a cardiac catheter room provided they can be transported there within 60 minutes of the diagnosis being made.
- Initiate pre-hospital thrombolysis (where available), if the patient cannot reach a hospital with a cardiac catheter room within 60 minutes of the diagnosis being made.

Post thrombolysis

In addition to the above, if the patient is being transported after thrombolysis for STEMI:

- Attach defibrillation pads and be prepared to treat cardiac arrest.
- Record the patient's blood pressure, heart rate and capillary refill time every 10 minutes.
- Monitor the patient closely for signs of bleeding.
- Acquire a 12 lead ECG after 60 minutes, or if there is any significant change in condition. Do not transmit this ECG unless specifically asked to do so.

2.2 CARDIOGENIC PULMONARY OEDEMA

This section is for adults. Seek clinical advice if the patient is a child.

- Determine and record the cardiac rhythm.
- Acquire a 12 lead ECG.
- Administer 0.4-0.8 mg of GTN provided that:
  a) The systolic BP is greater than 100 mmHg **and**
  b) The heart rate is greater than 40/minute and less than 130/minute.
- Use GTN with caution and use an initial dose of 0.4 mg if the patient:
  a) Is small, frail, or physiologically unstable **or**
  b) Has poor perfusion **or**
  c) Has dysrhythmia **or**
  d) Has taken a drug for erectile dysfunction in the last 24 hours **or**
  e) Has inferior STEMI **or**
  f) Has known aortic stenosis.
- Gain IV access if the patient has:
  a) Significant respiratory distress **or**
  b) Signs of poor perfusion.
- Continue to administer 0.4-0.8 mg of GTN every 2-5 minutes if not improving.
- If there is severe respiratory distress that is not improving:
  a) Apply PEEP of 10 cmH_20 **and**
  b) Increase this to 15 cmH_20 if the patient is not improving.
- Morphine may be administered in 1-2 mg doses IV for severe anxiety and/or respiratory distress.

2.4 BRADYCARDIA

This section is for adults with bradycardia. Bradycardia in children is usually due to hypoxia or hypovolaemia and treating the underlying cause takes priority over other therapy.

- Acquire a 12 lead ECG and determine the rhythm.
- Gain IV access and provide appropriate treatment if there is a clear underlying cause.
- Initiate treatment if the heart rate is less than 50/minute and there is significant cardiovascular compromise.

If the rhythm is sinus bradycardia, nodal bradycardia, first degree heart block, second degree heart block, or an undifferentiated narrow complex bradycardia:

a) Administer 0.6 mg of atropine IV. Administer further doses (without a maximum dose) as required if the bradycardia is responsive to atropine.
b) Administer IV adrenaline (see below) if the bradycardia is unresponsive to atropine.
c) Stop adrenaline administration and initiate pacing (refer to checklist on page 112) if the bradycardia is unresponsive to IV adrenaline.

If the rhythm is third degree heart block, or an undifferentiated broad complex bradycardia:

a) Initiate pacing (refer to checklist on page 112).
b) Administer IV adrenaline (see below) if the bradycardia is unresponsive to pacing.

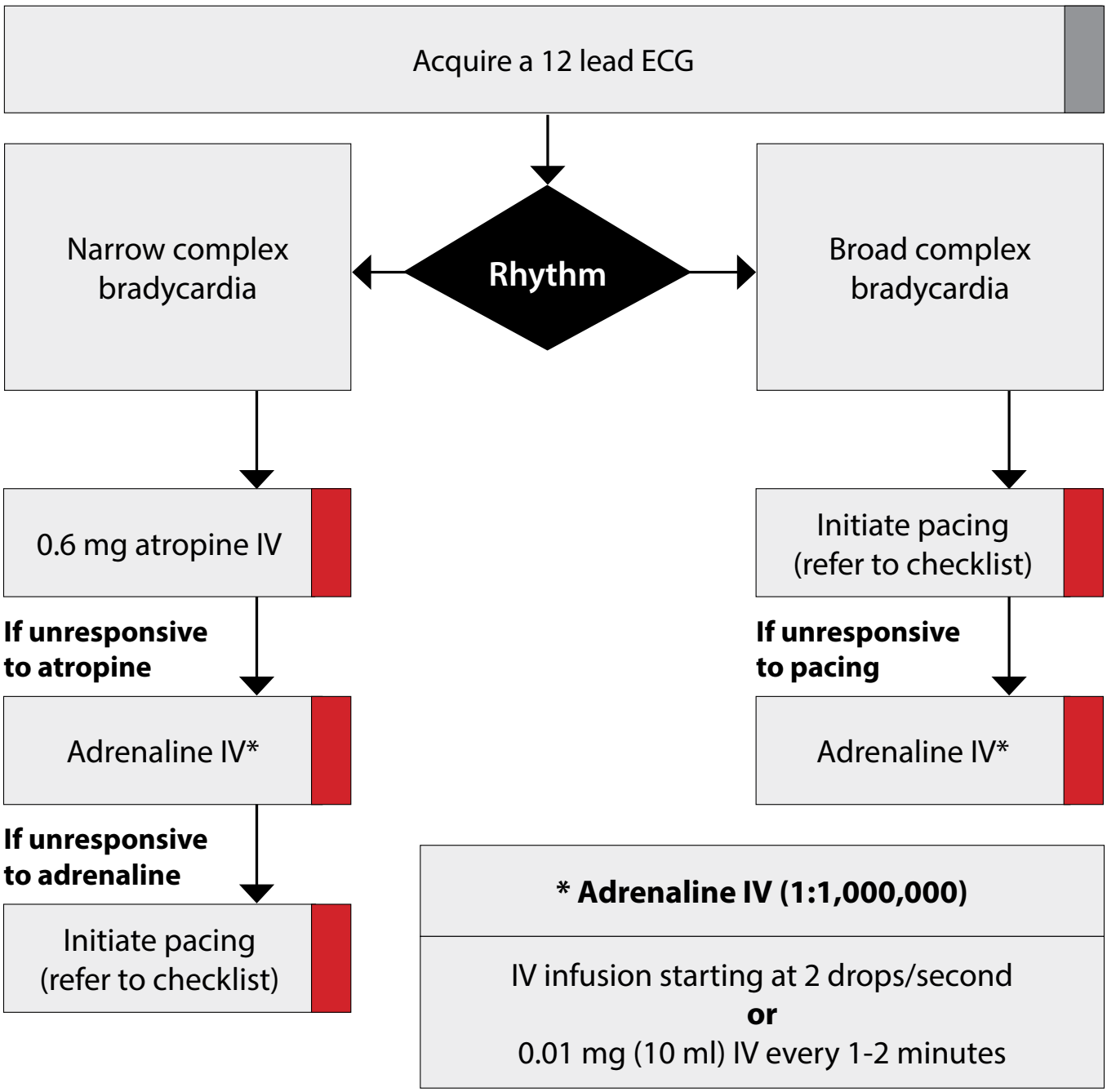
To administer IV adrenaline, place 1 mg of adrenaline into a one litre bag of 0.9% NaCl:

a) Administer as an IV infusion. Start at 2 drops per second and adjust the rate to the patient's condition **or**
b) Administer 0.01 mg (10 ml) IV every 1-2 minutes.

For 'pacing checklist' refer to **page 112**

Bradycardia Summary

For adults with a heart rate less than 50/minute and significant cardiovascular compromise



2.5 VENTRICULAR TACHYCARDIA

This section is for adults with sustained ventricular tachycardia (VT), or an undifferentiated broad complex tachycardia with a ventricular rate greater than or equal to 150/minute, provided the patient is not in cardiac arrest.

- Do not use this section if the patient is a child, or the VT is secondary to poisoning. In these settings seek clinical advice.
- Attach defibrillation pads and be prepared to treat cardiac arrest.
- Acquire a 12 lead ECG.
- Do not use GTN, even if the patient has cardiac chest pain.
- Determine the level of cardiovascular compromise:
  a) Go to step 1 if the patient is severely compromised.
  b) Go to step 2 if the patient is moderately compromised, mildly compromised, or not compromised.
  c) Move to the appropriate step if the level of cardiovascular compromise changes.

1. If the patient is severely compromised

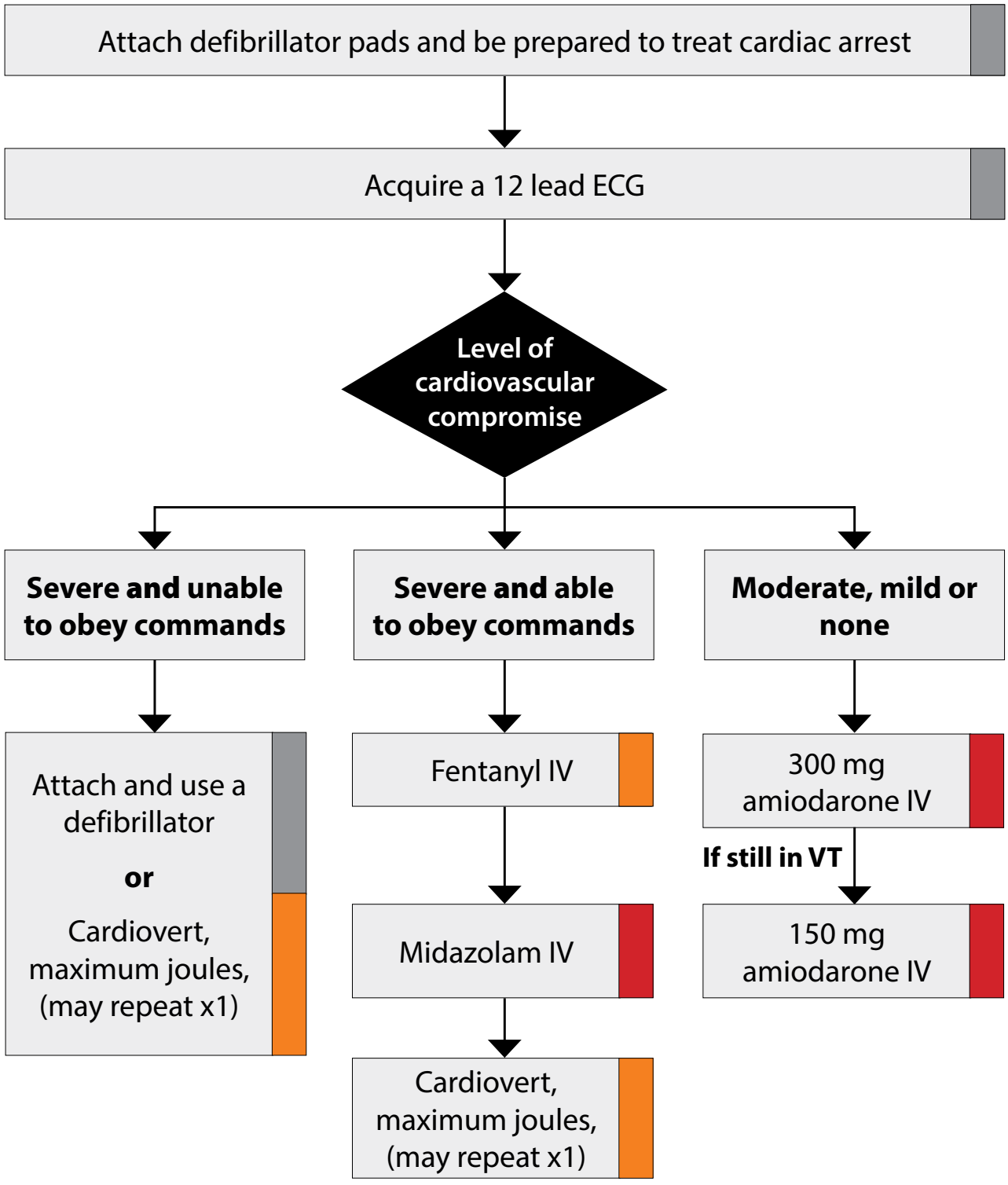
- If the patient cannot obey commands:
  a) Cardiovert using maximum joules in synchronised mode. Repeat this once if there is no response (refer to checklist on page 113).
  b) Attach and use a defibrillator in automatic mode if you cannot use it in manual mode.
- If the patient can obey commands: gain IV access and cardiovert as above, administering sedation using fentanyl and midazolam prior to cardioversion.

2. If the patient is moderately compromised, mildly compromised, or not compromised

- Gain IV access and administer 300 mg of amiodarone IV over 30 minutes.
- Use amiodarone with caution if the patient is poorly perfused. Reduce the rate of administration if there is a significant fall in blood pressure or cardiac output.
- Administer a further 150 mg of amiodarone IV over 15-30 minutes, if the patient remains in VT following the first dose of amiodarone.

For 'cardioversion checklist' refer to **page 113**

VT Summary


Attach defibrillator pads and be prepared to treat cardiac arrest
Acquire a 12 lead ECG
Level of cardiovascular compromise
Severe and unable to obey commands
Severe and able to obey commands
Moderate, mild or none
Attach and use a defibrillator
or
Cardiovert, maximum joules, (may repeat x1)
Fentanyl IV
Midazolam IV
Cardiovert, maximum joules, (may repeat x1)
300 mg amiodarone IV
If still in VT
150 mg amiodarone IV

2.6 SUPRAVENTRICULAR TACHYCARDIA

This section is for adults with supraventricular tachycardia (SVT) with a ventricular rate greater than or equal to 150/minute.

- Acquire a 12 lead ECG and gain IV access.
- Exclude the possibility that the rhythm is sinus tachycardia secondary to another clinical condition. Only use this section if the dysrhythmia appears to be the primary problem.
- Determine the level of cardiovascular compromise:
  a) Go to step 1 if the patient is severely compromised.
  b) Go to step 2 if the patient is moderately compromised.
  c) Go to step 3 if the patient is mildly compromised, or not compromised.
  d) Move to the appropriate step if the level of cardiovascular compromise changes.

1. If the patient is severely compromised

- Reconsider the diagnosis because it is rare for SVT to cause severe compromise.
- If the patient cannot obey commands:
  a) Cardiovert using maximum joules in synchronised mode. Repeat this once if there is no response (refer to checklist on page 113). Do not continue to cardiovert if the rhythm does not revert.
  b) Attach and use a defibrillator in automatic mode if you cannot use it in manual mode.
- If the patient can obey commands, cardiovert as above, administering sedation using fentanyl and midazolam prior to cardioversion.

2. If the patient is moderately compromised

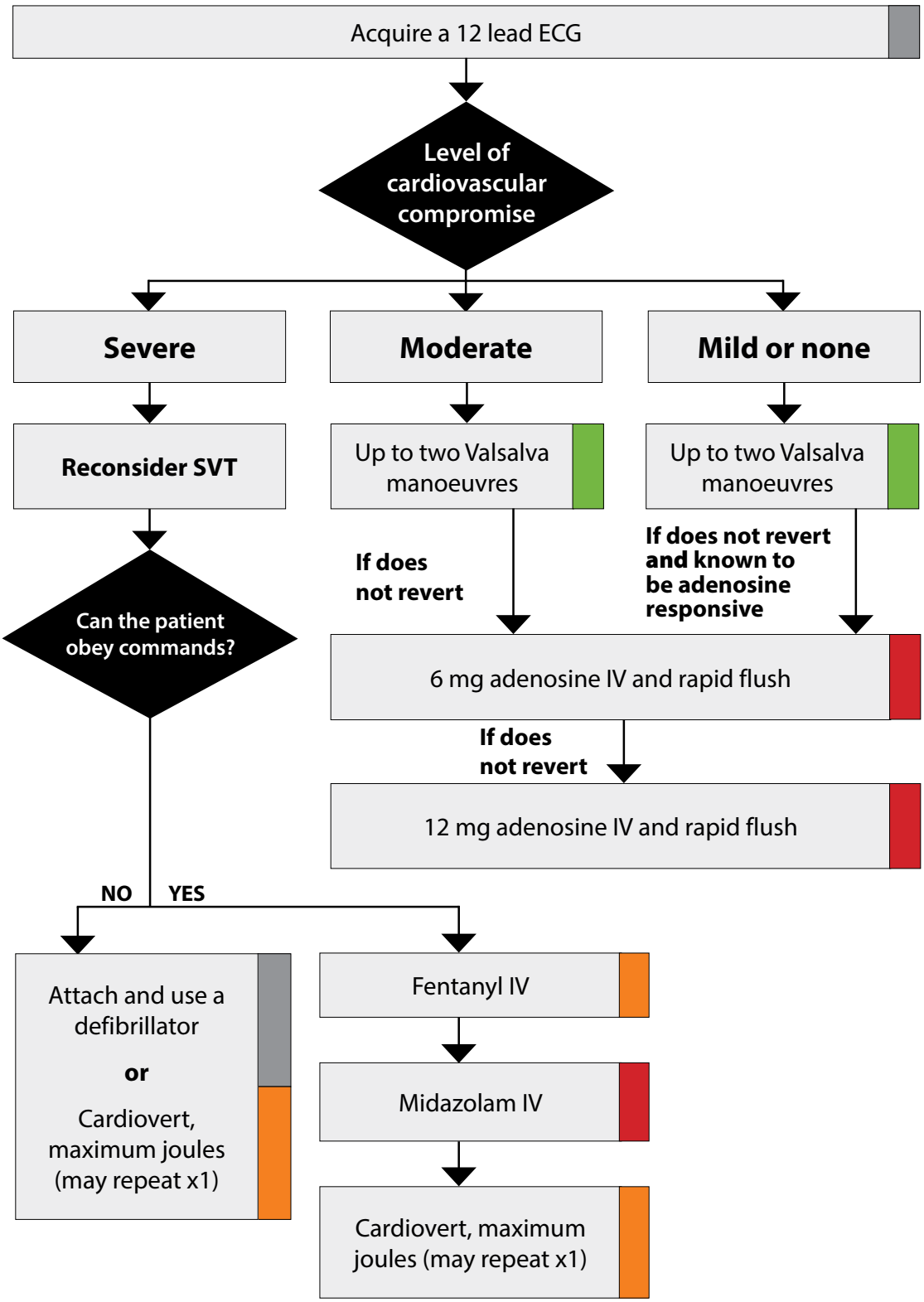
- Try up to two Valsalva manoeuvres.
- Administer adenosine if the rhythm fails to revert.
- Adenosine is contraindicated if the patient has:
  a) Known sick sinus syndrome, or previous 2nd or 3rd degree heart block, without an internal pacemaker in place **or**
  b) Had a previous heart transplant without an internal pacemaker in place.
- Use adenosine with caution if the patient has:
  a) Asthma **or**
  b) CORD.
- To administer adenosine:
  a) Attach defibrillation pads.
  b) The preferred site of injection is the antecubital fossa.
  c) Administer 6 mg of adenosine IV as a rapid bolus followed immediately by a rapid flush of 20-30 ml of 0.9% NaCl.
  d) If the rhythm does not revert, repeat as above using 12 mg of adenosine IV.

3. If the patient is mildly compromised, or not compromised

- Try up to two Valsalva manoeuvres.
- Administer adenosine (as above) only if they have a history of recurrent SVT that is known to be responsive to adenosine.

For 'cardioversion checklist' refer to **page 113**

SVT Summary


Acquire a 12 lead ECG
Level of cardiovascular compromise
Severe
Moderate
Mild or none
Reconsider SVT
Up to two Valsalva manoeuvres
Up to two Valsalva manoeuvres
If does not revert
If does not revert and known to be adenosine responsive
Can the patient obey commands?
6 mg adenosine IV and rapid flush
If does not revert
12 mg adenosine IV and rapid flush
NO
YES
Attach and use a defibrillator
or
Cardiovert, maximum joules (may repeat x1)
Fentanyl IV
Midazolam IV
Cardiovert, maximum joules (may repeat x1)

2.7 ATRIAL FIBRILLATION OR ATRIAL FLUTTER

This section is for adults with atrial fibrillation or atrial flutter with a ventricular rate greater than or equal to 130/minute, who have cardiovascular compromise (particularly myocardial ischaemia).

- Acquire a 12 lead ECG.
- Exclude the possibility that the dysrhythmia is secondary to another clinical condition. Only use this section if the dysrhythmia appears to be the primary problem.
- Gain IV access.
- Determine the level of cardiovascular compromise:
  a) Go to step 1 if the patient is severely compromised.
  b) Go to step 2 if the patient is moderately compromised.
  c) Go to step 3 if the patient is mildly compromised, or not compromised.
  d) Move to the appropriate step if the level of cardiovascular compromise changes.

1. If the patient is severely compromised

- Reconsider the diagnosis because it is very rare for atrial fibrillation or atrial flutter to cause severe compromise.
- If the patient cannot obey commands:
  a) Cardiovert using maximum joules in synchronised mode. Repeat this once if there is no response (refer to checklist on page 113). Do not continue to cardiovert if the rhythm does not revert.

b) If you cannot use a defibrillator in manual mode, use it in automatic mode and follow the instructions.

- If the patient can obey commands, cardiovert as above, administering sedation using fentanyl and midazolam prior to cardioversion.

2. If the patient is moderately compromised

- If the ventricular rate is persistently greater than 130/minute:
  a) Administer 300 mg of amiodarone IV over 30 minutes, provided the patient has a systolic BP of greater than 100 mmHg and transport time is greater than 15 minutes.
  b) Use amiodarone with caution if the patient is poorly perfused, and reduce the rate of administration if there is a significant fall in blood pressure.
  c) Administer a further 150 mg of amiodarone IV over 15-30 minutes, if the dysrhythmia continues following the first dose of amiodarone and the above indications are still met.

3. If the patient is mildly compromised, or not compromised

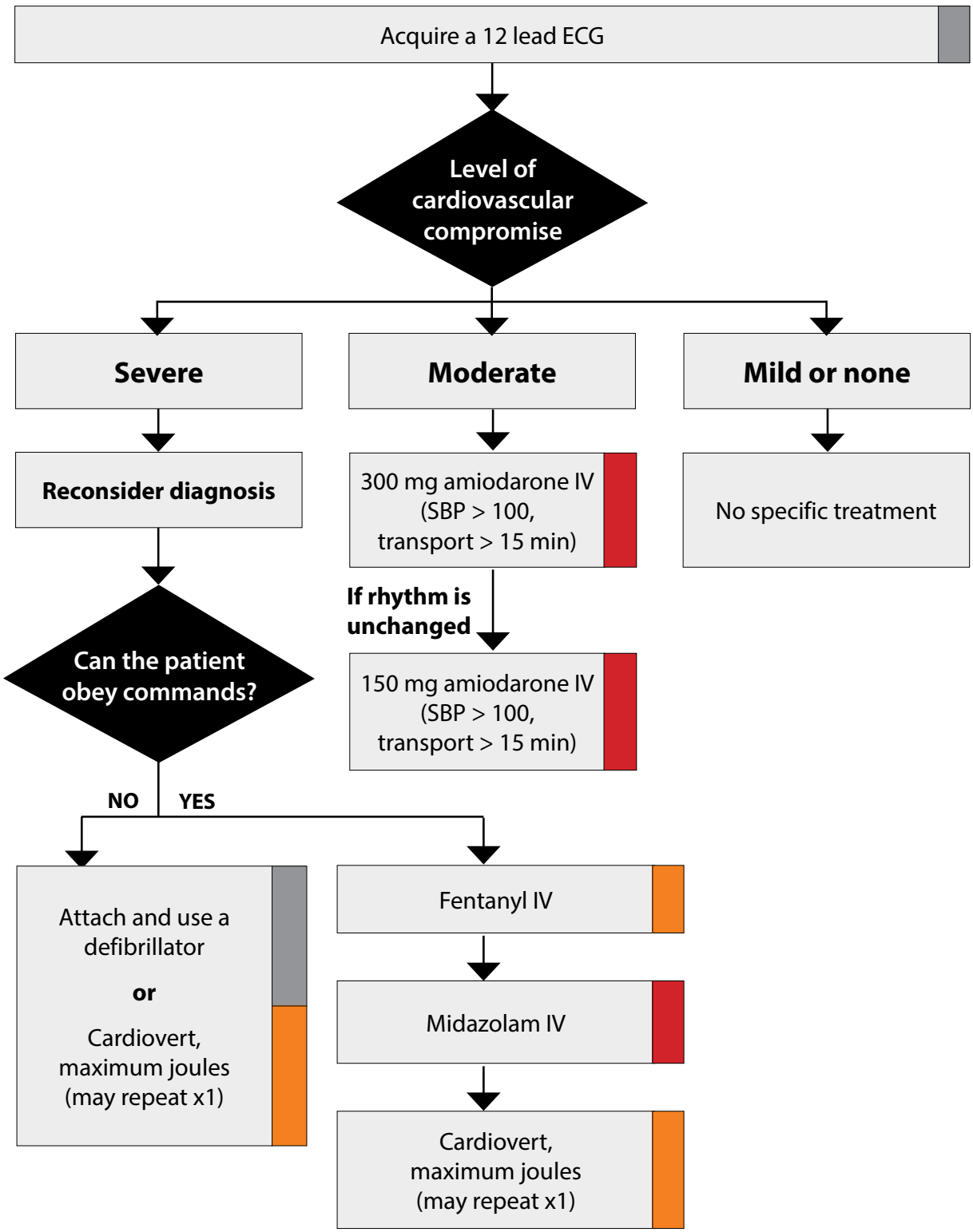
- Do not provide specific treatment for the dysrhythmia.

In addition

- If myocardial ischaemia and/or pulmonary oedema are present, provide additional treatment using the appropriate section, noting that if fast atrial fibrillation or fast atrial flutter is present, the focus is on treating the dysrhythmia.

For 'cardioversion checklist' refer to **page 113**

Atrial Fibrillation or Atrial Flutter Summary



2.8 CARDIOGENIC SHOCK

This section is for adults. If the patient is a child seek clinical advice.

- Acquire a 12 lead ECG.
- Gain IV access.
- Administer IV fluid if there are signs of poor perfusion, provided the patient is not short of breath, has no crackles in their chest and the primary problem is not dysrhythmia:
  a) Administer 250-500 ml of 0.9% NaCl IV.
  b) This may be repeated as required, up to a maximum of one litre.
  c) Stop the fluid if the patient becomes short of breath.

In addition

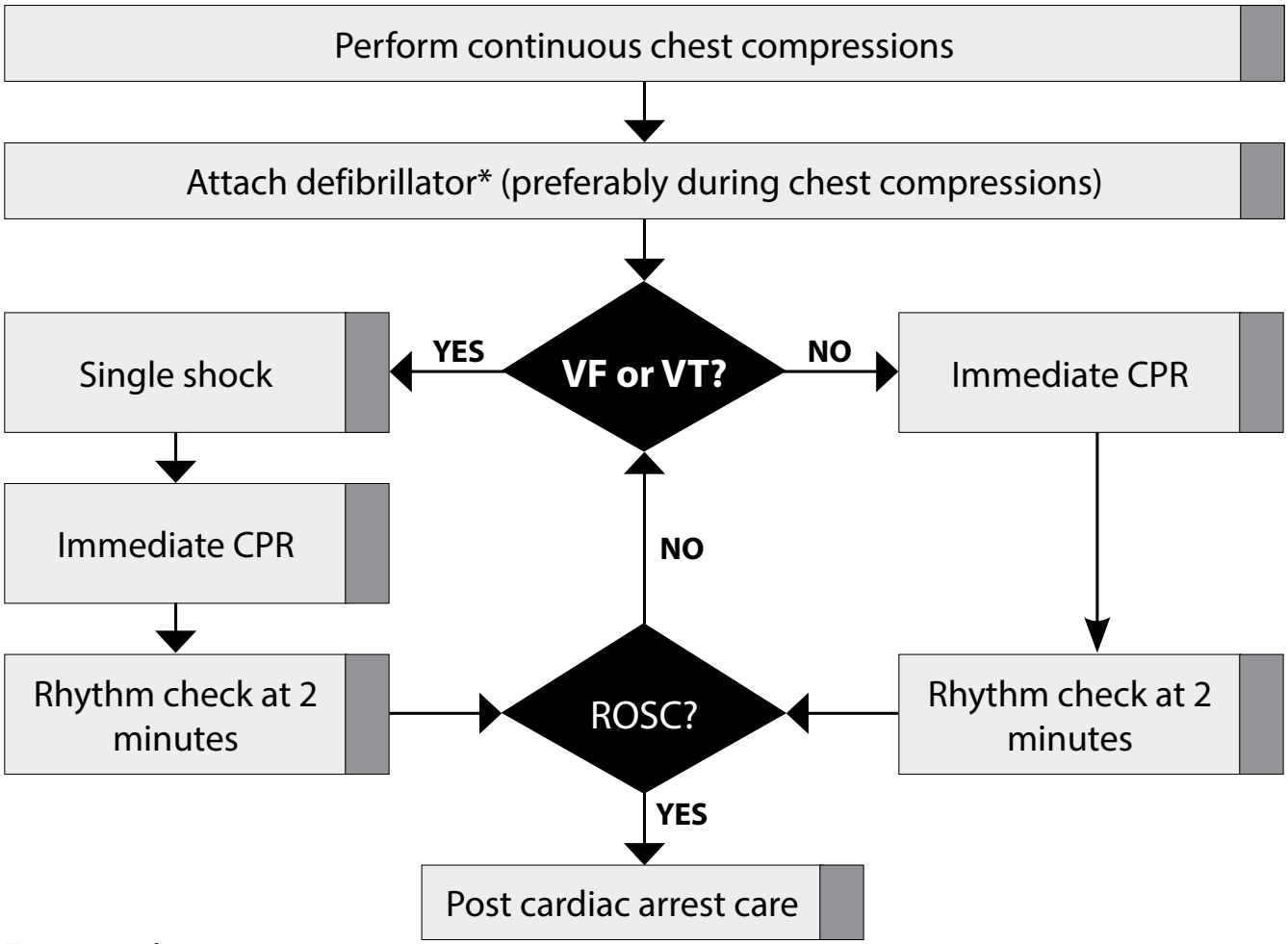
- Treat as per the appropriate section if dysrhythmia, myocardial ischaemia, or pulmonary oedema is present.

2.9 CARDIAC ARREST

- Perform continuous chest compressions whilst the defibrillator is being attached and charged.
- Defibrillate immediately if the cardiac rhythm is VF or VT using a single shock at maximum joules and immediately recommence chest compressions.
- Perform 2 minute cycles of CPR between rhythm checks.
- Manage the airway and gain IV access, but chest compressions take priority.
- Continue to defibrillate every 2 minutes using single shocks if the rhythm is VF or VT at the rhythm check.
- Administer 1 mg of adrenaline IV every 4 minutes.
- Administer 300 mg of amiodarone IV once only as a bolus, if the rhythm is VF or VT at any time after the first dose of adrenaline.
- If the patient has PEA:
  a) Correct reversible causes **and**
  b) Give 2-3 litres of 0.9% NaCl as a bolus.

For 'defibrillator failure checklist' refer to **page 114**

Cardiac Arrest Summary



Every 4 minutes:

1 mg adrenaline IV (adults)

If in VF or VT any time after the first dose of adrenaline:

300 mg amiodarone IV as a bolus, once only (adults)

If PEA:

2-3 L 0.9% NaCl as a bolus (adults) **AND** Consider reversible causes

* For personnel using a defibrillator in automatic mode, follow the instructions

3.1 HYPOVOLAEMIC SHOCK FROM UNCONTROLLED BLEEDING

This section is for hypovolaemic shock from:

a) Penetrating truncal trauma **or**
b) Leaking abdominal aortic aneurysm **or**
c) Peripheral trauma where blood loss has not been controlled **or**
d) Postpartum haemorrhage (see the obstetric section) **or**
e) Ectopic pregnancy.

- Compress any external bleeding.
- Apply a tourniquet if there is life threatening bleeding from a limb that is not controlled by conventional measures.
- Do not remove penetrating objects.
- Cover sucking chest wounds with a sealed dressing.
- Load and treat en route.
- Keep the patient warm.
- Gain IV access.
- Administer IV fluid if the patient is severely shocked:
  a) 500 ml of 0.9% NaCl for adults.
  b) 10 ml/kg of 0.9% NaCl for children.
  c) Administer further fluid if they remain severely shocked.
- Transport the patient direct to a major hospital whenever feasible, providing as much pre-hospital warning as possible.

3.2 HYPOVOLAEMIA FROM OTHER CAUSES

This section is for hypovolaemia from:

a) Blunt trauma **or**
b) Peripheral blood loss that has been fully controlled **or**
c) Gastrointestinal bleeding **or**
d) Antepartum haemorrhage (see the obstetric section) **or**
e) Hyperthermia **or**
f) Fluid loss (for example from hyperglycaemia or diarrhoea) **or**
g) Hypovolaemia from a cause that does not fit into another section.

- Keep the patient warm.
- Gain IV access.
- Administer IV fluid if the patient has signs of poor perfusion:
  a) One litre of 0.9% NaCl for adults.*
  b) 20 ml/kg of 0.9% NaCl for children.*
  c) *Do not give this fluid as a bolus if the cause of hypovolaemia is hyperglycaemia, unless the patient is severely shocked.
  d) Administer further fluid as required.
- Immobilise fractures. In particular firmly wrap the pelvis and tie the legs together if shock is associated with a possible pelvic fracture.
- If the patient has trauma and hypovolaemic shock, transport them direct to a major hospital whenever feasible.

3.3 ANAPHYLAXIS

- Administer adrenaline if the patient is status one, status two, or showing systemic signs of anaphylaxis:
  a) All personnel may administer a patient's own adrenaline IM, if they are status one, status two, or showing systemic signs of anaphylaxis.
  b) For personnel at EMT level: for adults administer 0.5 mg of adrenaline IM.
  c) For personnel at Paramedic and ICP level: for adults administer 0.3-0.5 mg of adrenaline IM.
  d) See the paediatric drug dose tables for children.
- If there is upper airway oedema, swelling or wheeze, administer 5 mg of nebulised adrenaline in addition to other treatment. Repeat as required noting that if the patient is not improving, repeat IM or IV adrenaline is a priority over repeat nebulised adrenaline.
- Gain IV access.
- Administer IV fluid if the patient has signs of poor perfusion:
  a) One litre of 0.9% NaCl for adults.
  b) 20 ml/kg of 0.9% NaCl for children.
  c) Administer further fluid as required.
- Repeat IM adrenaline after 10 minutes if the patient is not improving.

- Administer IV adrenaline if the patient is deteriorating despite IM adrenaline. Place 1 mg of adrenaline into a one litre bag of 0.9% NaCl:

For adults:

a) Administer this as an IV infusion. Start at 2 drops per second and adjust the rate to the patient's condition **or**
b) Administer 0.01 mg (10 ml) IV every 1-2 minutes.

For children aged 5-14 years:

a) Administer this as an IV infusion. Start at 1 drop per second and adjust the rate to the patient's condition **or**
b) Administer IV boluses (see the paediatric drug dose tables) every 1-2 minutes.

For children aged less than 5 years:

a) Administer IV boluses (see the paediatric drug dose tables) every 1-2 minutes.
b) Do not administer adrenaline as an IV infusion.

3.4 BURNS

- Administer oxygen if the patient has probable smoke inhalation.
- Cool burns for at least 20 minutes:
  a) This should be at the scene unless there is an immediately life threatening problem in the primary survey.
  b) Remove all clothing (leaving underwear on) and decontaminate the patient if the burns are due to chemical exposure.
- Irrigate chemical burns to the eye for at least 30 minutes.
- Estimate burn depth and size.
- Cover burns with cling film after cooling.
- Gain IV access.
- Administer IV fluid if the patient has signs of poor perfusion, or if the burn area is greater than 20%:
  a) One litre of 0.9% NaCl for adults.
  b) 20 ml/kg of 0.9% NaCl for children.
  c) Administer further fluid if transport time is greater than one hour, or if required for poor perfusion.
- Administer nebulised bronchodilators if wheeze is present (using the asthma section).
- Transport the patient direct to a major hospital if the burn area is greater than 20%, whenever feasible.

3.5 MINOR TRAUMATIC BRAIN INJURY

Use this section for patients who can obey commands and have a mechanism of injury consistent with traumatic brain injury (TBI).

Include an assessment of:

a) Signs and symptoms of concussion **and**
b) Memory **and**
c) Coordination and balance.

Referral and advice

- All patients with any of the following must be given a firm recommendation to be transported to an ED by ambulance:
  a) Loss of consciousness with the injury **or**
  b) Abnormal GCS **or**
  c) Seizure following the injury.
- All patients taking an anticoagulant or with a bleeding disorder, should be given a firm recommendation to be assessed in an ED, unless the injury is thought to be extremely minor.
- A patient with signs or symptoms of concussion must be given a firm recommendation to immediately stop activity (for example sport) that might result in further brain injury and see a doctor (preferably their own GP) for follow up. They do not require transport to an ED by ambulance provided they do not have any of the features within bullets a-c above.

- A patient without signs or symptoms of concussion may be given a recommendation that they can continue with their activity. Clinical judgement is required that takes into consideration the nature of the injury, because signs or symptoms of concussion may not be present immediately and can develop later.
- A patient must be given the brain injury information sheet, along with an explanation of the advice within it, if they are not transported by ambulance and they:
  a) Have signs or symptoms of concussion **or**
  b) Are thought to have a significant injury, even though there are no signs or symptoms of concussion **or**
  c) They are competent and are refusing transport by ambulance **or**
  d) They are taking an anticoagulant or have a bleeding disorder in association with extremely minor injury.
- Whenever possible the brain injury information sheet, along with an explanation of the advice within it, should also be given to an accompanying competent adult.
- The threshold for recommending transport to an ED must be lowered in a patient with alcohol and/or drug intoxication.
- Clinical judgement is required when determining possible concussion in a patient with alcohol and/or drug intoxication because they may have abnormal memory, coordination or balance without concussion.

3.6 SEVERE TRAUMATIC BRAIN INJURY

Use this section for patients who cannot obey commands and have a mechanism of injury consistent with traumatic brain injury (TBI).

- Administer oxygen.
- Intubation should not be attempted without rapid sequence intubation (RSI), unless the patient has a GCS of 3 **and** ineffective breathing.
- Gain IV access.
- Administer IV fluid if the systolic BP is less than 120 mmHg in adults, or less than normal predicted systolic BP in children:
  a) One litre of 0.9% NaCl for adults.
  b) 20 ml/kg of 0.9% NaCl for children.
  c) Administer further fluid as required.
- Transport the patient direct to a major hospital whenever feasible.

3.7 CERVICAL SPINE IMMOBILISATION

- Significant abnormalities within the primary survey always take priority over the cervical spine.
- The possibility of cervical spine injury should be considered in all patients suffering from trauma, except those with isolated peripheral injury.
- If the patient has a mechanism of injury that could injure the cervical spine and any of the following signs or symptoms, they should have their cervical spine immobilised:
  a) Tenderness at the posterior midline of the cervical spine **or**
  b) Focal neurological deficit **or**
  c) A decreased level of alertness **or**
  d) Evidence of intoxication **or**
  e) Clinically apparent pain or other factors that might distract the patient from the pain of a cervical spine injury.

3.8 CRUSH INJURY SUMMARY

For adults with a lower limb (or more) trapped under a weight, for more than 60 mins

Request backup*

↓

Place a tourniquet on the limb (or limbs) if possible and tighten

↓

Gain IV access (preferably in 2 sites)

↓

Minimum 2 litres of 0.9% NaCl
Administer further fluid as required

↓

Provide continuous monitoring of the cardiac rhythm

Approximately 10 minutes prior to release of the weight:

↓

Salbutamol nebulised (continuous)
AND
500 ml of 10% glucose IV as a bolus

As the weight is being released:

↓

100 ml sodium bicarbonate IV over 1 minute
AND
1 g calcium chloride IV over 1 minute

If signs of hyperkalaemia occur:

↓

Administer further doses of sodium bicarbonate and calcium chloride

* Specifically request an ICP with sodium bicarbonate and calcium chloride

4.2 HYPOGLYCAEMIA

This section is for patients with a blood glucose concentration less than 3.5 mmol/L.

- Administer glucose orally (or food), if the patient is conscious and able to swallow. Most oral glucose gels contain 10-20 g of glucose per dose and can be administered to adults and children aged 2 years and over.
- Gain IV access and administer IV glucose if the patient has an altered level of consciousness, or cannot swallow:
  a) 100 ml of 10% glucose IV for adults.
  b) 2 ml/kg of 10% glucose IV for children.
- Administer glucagon if unable to gain IV access:
  a) 1 mg of glucagon IM for adults and children aged 5 years and over.
  b) 0.5 mg of glucagon IM for children aged less than 5 years.
- Repeat the glucose measurement every 10 minutes until the glucose concentration is consistently greater than 3.5 mmol/L. Administer further doses of IV glucose if required, but do not repeat IM glucagon.

For 'hypoglycaemia non-transport checklist' refer to **page 115**

4.3 SEIZURES

- Measure the blood glucose concentration and treat accordingly.
- Administer midazolam if the seizures are generalised and have continued for longer than 5 minutes, or if the patient has status epilepticus.
- Midazolam dosage in adults*:
  a) 5 mg of midazolam IV every 5 minutes up to a maximum of 15 mg **or**
  b) 15 mg of midazolam IM which may be repeated once after 10 minutes.
- See the paediatric drug dose tables for midazolam dosage in children. Children may be administered a maximum of two IM doses and three IV doses.
- Sometimes the patient has pre-prescribed medicines to be administered via the rectal, nasal or buccal route. All personnel may administer such medicines, even if not within their delegated scope of practice, provided they have been prescribed for that patient and the seizure continues for longer than 5 minutes, or the patient has status epilepticus.

*Reduce the midazolam dose if the adult is small, frail or physiologically unstable:

a) 2-3 mg of midazolam IV every 5 minutes to a maximum of 10 mg **or**
b) 5-10 mg of midazolam IM which may be repeated once after 10 minutes.

For 'seizures non-transport checklist' refer to **page 116**

4.4 POISONING

- Measure the blood glucose concentration and treat accordingly.
- Administer naloxone if opiate poisoning is suspected and the patient has an impaired level of consciousness, or impaired breathing. For adults:
  a) 0.1-0.4 mg of naloxone IV every 2-3 minutes **or**
  b) 0.8 mg of naloxone IM and repeat every 10 minutes if required **or**
  c) 1.6 mg of naloxone IN and repeat every 10 minutes if required.
- See the paediatric drug dose tables for naloxone dosage in children.
- Administer IV fluid if cyclic antidepressant poisoning is suspected and the patient has tachycardia, QRS prolongation, signs of poor perfusion, or an altered level of consciousness:
  a) 1-2 litres of 0.9% NaCl for adults.
  b) 20-40 ml/kg of 0.9% NaCl for children.

4.5 COMBATIVE PATIENTS

This section is for adults. In the unlikely event that children require treatment using this section, follow the same principles with an appropriate dose reduction of the medicines administered.

- Use this section only when a patient is not competent to make decisions, and is so combative or non-compliant that there is a significant risk of self-harm (including harm as a result of inability to be treated), or harm to others.
- Assess the patient for reversible causes such as hypoglycaemia, hypovolaemia, hypoxia and hypercarbia. Move to the appropriate section if a clear cause is found.
- The patient may be sedated and/or restrained in order to allow safe treatment and/or transport provided that:
  a) They are not competent to make decisions **and**
  b) They pose significant risk of harm to themselves or others **and**
  c) Their airway and breathing are normal **and**
  d) Their motor score is greater than or equal to 5.
- Begin by administering an IV opiate if the patient appears to be in pain and IV access can be obtained. Administer 2-5 mg of morphine IV, or 20-50 mcg of fentanyl IV, every 3-5 minutes.
- Administer midazolam if the patient does not appear to be in pain, or opiate administration is unsuccessful. Midazolam dosage*:
  a) 5 mg of midazolam IV every 3-5 minutes **or**
  b) 15 mg of midazolam IM which may be repeated every 10 minutes.

- Administer ketamine if the above measures fail, or there is immediate and substantial danger:
  a) 50-100 mg of ketamine IV every 3-5 minutes, up to a maximum of 200 mg **or**
  b) 100-200 mg of ketamine IM which may be repeated once after 10 minutes.

*Reduce the midazolam dose if the patient is small, frail or physiologically unstable:

  a) 2-3 mg of midazolam IV every 3-5 minutes **or**
  b) 5-10 mg of midazolam IM which may be repeated every 10 minutes.

- Once control has been obtained:
  a) Gain IV access.
  b) Administer midazolam IV (using above doses) as required.
  c) Position the patient on their side.
  d) Restrain the patient's limbs.
  e) Continually monitor airway, breathing and level of consciousness.
  f) Monitor SpO_2 , heart rate, blood pressure and capillary refill time (particularly in restrained limbs) if possible.
- Seek clinical advice if the situation is not easily brought under control.

5.1 SEPTIC SHOCK

This section is for patients with a clinical diagnosis of:

a) Meningococcal septicaemia (regardless of distance from hospital) **or**
b) Septic shock if more than 30 minutes from hospital.

- Gain IV access and administer ceftriaxone:
  a) 2 g IV for adults.
  b) See the paediatric drug dose tables for children
- Administer IV fluid if there are signs of poor perfusion:
  a) One litre of 0.9% NaCl for adults.
  b) 20 ml/kg of 0.9% NaCl for children.
  c) Administer further fluid as required.
- If unable to gain IV access administer the ceftriaxone dose IM (half into each thigh). Dissolve each 1 g ampoule using 2 ml of 0.9% NaCl or 2 ml of 1% lignocaine.

Continued on page 48

- Administer IV adrenaline if shock is very severe and not improving despite a minimum of two boluses of 0.9% NaCl. Place 1 mg of adrenaline into a one litre bag of 0.9% NaCl:

For adults:

a) Administer this as an IV infusion. Start at 2 drops per second and adjust the rate to the patient's condition or
b) Administer 0.01 mg (10 ml) IV every 1-2 minutes.

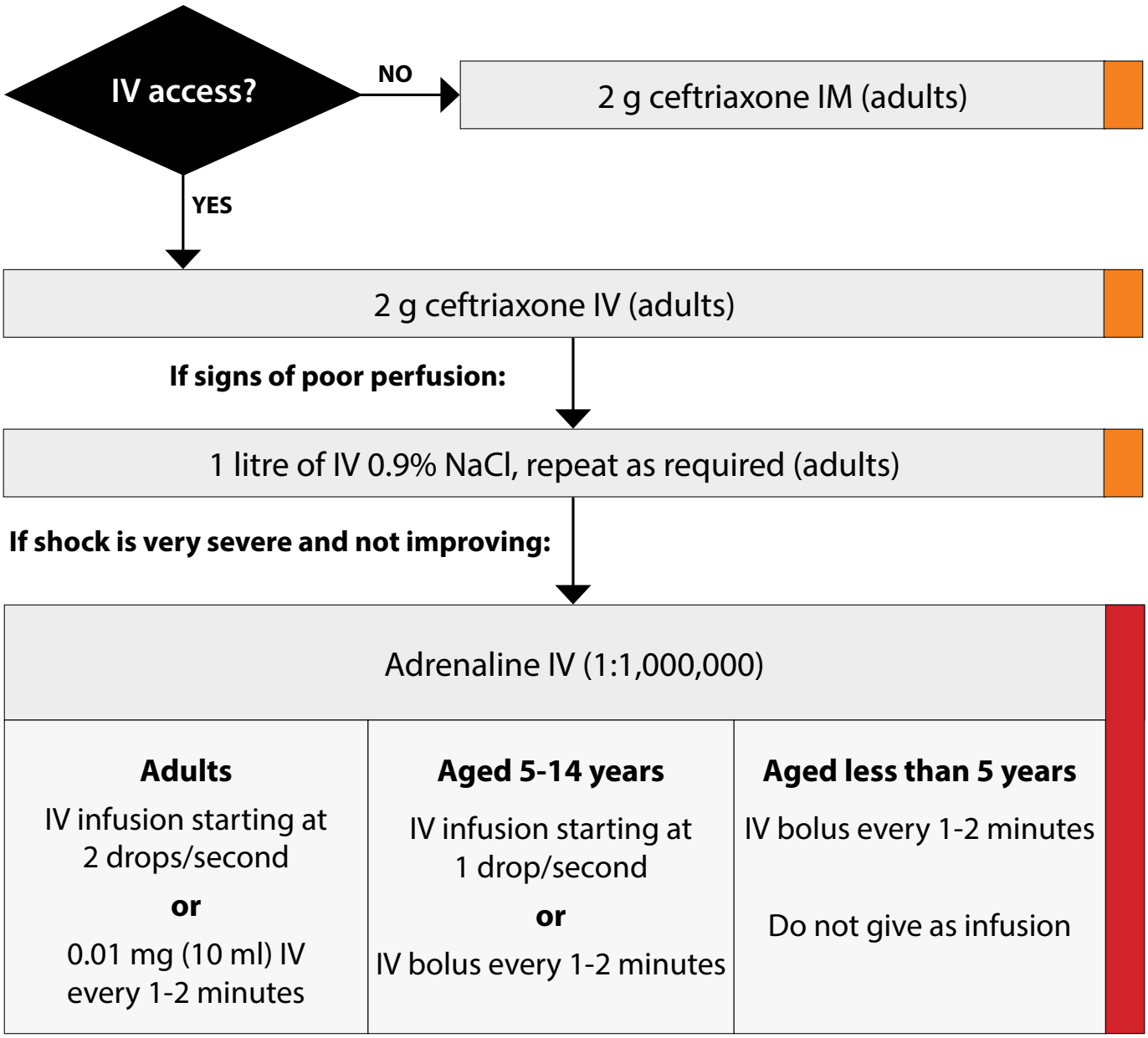
For children aged 5-14 years:

a) Administer this as an IV infusion. Start at 1 drop per second and adjust the rate to the patient's condition or
b) Administer IV boluses (see the paediatric drug dose tables) every 1-2 minutes.

For children aged less than 5 years:

a) Administer IV boluses (see the paediatric drug dose tables) every 1-2 minutes.
b) Do not administer adrenaline as an IV infusion.

Septic Shock Summary



5.2 INFLUENZA

- Wear appropriate PPE.
- Have the patient wear a surgical mask if feasible.
- Include an assessment for signs of meningococcal disease, which in its early phase may be indistinguishable from influenza.
- Consider an alternative diagnosis if the patient has any of the following:
  a) Absence of fever **or**
  b) Tachycardia that is inconsistent with influenza **or**
  c) Prolonged peripheral capillary refill time **or**
  d) Absence of respiratory or throat symptoms **or**
  e) Rigors **or**
  f) Inability to mobilise.
- Provide the patient and their family members with appropriate advice.

Referral

- A patient with near normal vital signs and normal mobility should receive advice for self-care. An information sheet should be given to them.
- A patient with abnormal vital signs should be given a firm recommendation to be transported to an ED by ambulance. Of particular concern is:
  - Tachypnoea **or**
  - An SpO_2 below 94% on air (unless normal for that patient) **or**
  - An inability to mobilise normally.

6.1 PAEDIATRIC EQUIPMENT AND DRUG DOSES

For children the doses of drugs, defibrillation energy and fluid therapy are based on body weight when this is known. If the body weight is not known, it can be estimated from the children's age using the formulae in the table. The formulae are a guide only, with some children being heavier than predicted. Many children will require a different sized LMA, ETT or length at lips than that predicted by the formulae.

Estimated weight (kg)	
Under 1 year old	5
1 - 10 years	2 x (age in years + 4)
11 - 14 years	3 x age in years
Cuffed endotracheal tube (ETT) size (mm)	
Newborn to 1 year	3 - 4
1 year and over	(age in years/4) + 3.5
Endotracheal tube length at lips (cm)	
Newborn	6 + weight in kg
Under 1 year	ETT size x 3
1 year and over	(age in year/2) + 12
Defibrillation energy	
Initial and all subsequent	5 J/kg

Drug Dilution
Adrenaline 1:10,000 • Using a 10 ml syringe, draw up 1 ml adrenaline from 1 mg/ml ampoule • Add 9 ml 0.9% NaCl to make a total volume of 10 ml
Adrenaline 1:1,000,000 • Use a 1 litre bag of 0.9% NaCl • Add 1 ml adrenaline from 1 mg/ml ampoule • Shake well and label
[1]**Ceftriaxone IV 100 mg/ml** • Add 5 ml 0.9% NaCl to each of 2 ampoules, shake until dissolved • Using a 30 ml syringe, draw up both ampoules • Add 10 ml 0.9% NaCl to make a total volume of 20 ml
[2]**Ceftriaxone IM 500 mg/ml** • Add 2 ml 0.9% NaCl or 1% lignocaine to each of 2 ampoules, shake until dissolved • Using a 5 ml syringe, draw up both ampoules
[3]**Fentanyl IV 10 mcg/ml** • Using a 10 ml syringe, draw up 2 ml fentanyl from 100 mcg/2 ml ampoule • Add 8 ml of 0.9% NaCl to make a total volume of 10 ml

Drug Dilution
[4]**Ketamine IV 10 mg/ml** • Using a 10 ml syringe, draw up 1 ml ketamine from a 200 mg/2 ml ampoule • Add 9 ml of 0.9% NaCl to make a total volume of 10 ml
[5]**Morphine IV 1 mg/ml** • Using a 10 ml syringe, draw up 1 ml morphine from 10 mg/ml ampoule • Add 9 ml 0.9% NaCl to make a total volume of 10 ml
[6]**Morphine (1 mg/ml) and Midazolam (1 mg/ml) for post intubation sedation** • Using a 10 ml syringe draw up: - 2 ml of midazolam from 15 mg/3 ml ampoule **and** - 1 ml of morphine from 10 mg/ml ampoule • Add 7 ml 0.9% NaCl to make a total volume of 10 ml
[7]**Naloxone IV 0.1 mg/ml** • Using a 5 ml syringe, draw up 1 ml naloxone from 0.4 mg/ml ampoule • Add 3 ml 0.9% NaCl to make a total volume of 4 ml

5 kg / 3 months

5 kg / 3 months			
	Anaphylaxis		
		Dose	**Volume**
	Adrenaline IM	0.05 mg	0.5 ml (1:10,000)
	Adrenaline IV	0.001 mg	1 ml (1:1,000,000)
		1:1,000,000 = 1 mg adrenaline + 1 L 0.9% NaCl	
	Cardiac Arrest		
		Dose	**Volume**
	Adrenaline IV	0.1 mg	1 ml (1:10,000)
		1:10,000 = 1 mg adrenaline + 9 ml 0.9% NaCl	
	Amiodarone	25 mg	0.5 ml (undiluted)
	Manual Defibrillation	25	Joules
	LMA	Size 1 (< 5 kg)	Cuff inflation 4 ml
	ETT (cuffed)	Size 3	9 cm length at lips

5 kg / 3 months	Other Drugs		
		Dose	**Volume**
	0.9% NaCl	100 ml	100 ml
	Ceftriaxone IV	0.2 g	2 ml (100 mg/ml)[1]
	Ceftriaxone IM	0.2 g	0.4 ml (500 mg/ml)[2]
	Fentanyl IV	5 mcg	0.5 ml (10 mcg/ml)[3]
	Fentanyl IN	-	-
	Fentanyl IN - 2nd dose	-	-
	Glucagon IM	0.5 mg	0.5 ml (undiluted)
	Glucose 10% IV	10 ml	10 ml
	Ibuprofen PO	-	-
	Ketamine IV	-	-
	Ketamine IM/IN/PO	-	-

5 kg / 3 months	Other Drugs		
		Dose	**Volume**
	Lignocaine 1% IO	-	-
	Lignocaine 1% SC	-	-
	Loratadine PO	-	-
	Midazolam IV	0.5 mg (max. 3 doses)	0.5 ml (5 mg/5 ml) (undiluted)
	Midazolam IM	1.5 mg (max. 2 doses)	0.3 ml (15 mg/3 ml) (undiluted)
	Morphine IV	0.5 mg	0.5 ml (1 mg/ml)[5]
	Morphine IM	1 mg	0.1 ml (undiluted)
	Morphine/Midazolam IV (post intubation)	0.2 mg of each	0.2 ml[6]

5 kg / 3 months	Other Drugs		
		Dose	**Volume**
	Naloxone IV	0.05 mg	0.5 ml (0.1 mg/ml)[7]
	Naloxone IM	0.1 mg	0.25 ml (undiluted)
	Naloxone IN	0.2 mg	0.5 ml (undiluted)
	Ondansetron PO	-	-
	Ondansetron IV/IM	-	-
	Paracetamol liquid	100 mg	2 ml (250 mg/5 ml)
	Paracetamol tablet	-	-
	Prednisone PO	-	-
	Rocuronium IV	5 mg	0.5 ml (undiluted)
	Tramadol PO	-	-

10 kg / 1 year

10 kg / 1 year

Asthma and Anaphylaxis		
	Dose	**Volume**
Adrenaline IM	0.1 mg	0.1 ml (undiluted)
Adrenaline IV	0.002 mg	2 ml (1:1,000,000)
	1:1,000,000 = 1 mg adrenaline + 1 L 0.9% NaCl	

Cardiac Arrest		
	Dose	**Volume**
Adrenaline IV	0.2 mg	2 ml (1:10,000)
	1:10,000 = 1 mg adrenaline + 9 ml 0.9% NaCl	
Amiodarone	50 mg	1 ml (undiluted)
Manual Defibrillation	50	Joules
LMA	Size 2 (10-20 kg)	Cuff inflation 10 ml
ETT (cuffed)	Size 3 or 4	12 cm length at lips

10 kg / 1 year	Other Drugs		
		Dose	**Volume**
	0.9% NaCl	200 ml	200 ml
	Ceftriaxone IV	0.4 g	4 ml (100 mg/ml)[1]
	Ceftriaxone IM	0.4 g	0.8 ml (500 mg/ml)[2]
	Fentanyl IV	10 mcg	1 ml (10 mcg/ml)[3]
	Fentanyl IN	20 mcg	0.4 ml (undiluted)
	Fentanyl IN - 2nd dose	10 mcg	0.2 ml (undiluted)
	Glucagon IM	0.5 mg	0.5 ml (undiluted)
	Glucose 10% IV	20 ml	20 ml
	Ibuprofen PO	100 mg	½ tablet
	Ketamine IV	2.5 mg	0.25 ml (10 mg/ml)[4]
	Ketamine IM/IN/PO	10 mg	1 ml (10 mg/ml)[4]

10 kg / 1 year	Other Drugs		
		Dose	**Volume**
	Lignocaine 1% IO	10 mg	1 ml (undiluted)
	Lignocaine 1% SC	4 ml (max)	-
	Loratadine PO	5 mg	½ tablet
	Midazolam IV	1 mg (max. 3 doses)	1 ml (5 mg/5 ml) (undiluted)
	Midazolam IM	3 mg (max. 2 doses)	0.6 ml (15 mg/3 ml) (undiluted)
	Morphine IV	1 mg	1 ml (1 mg/ml)[5]
	Morphine IM	2 mg	0.2 ml (undiluted)
	Morphine/Midazolam IV (post intubation)	0.4 mg of each	0.4 ml[6]

10 kg / 1 year	Other Drugs		
		Dose	**Volume**
	Naloxone IV	0.1 mg	1 ml (0.1 mg/ml)[7]
	Naloxone IM	0.2 mg	0.5 ml (undiluted)
	Naloxone IN	0.4 mg	1 ml (undiluted)
	Ondansetron PO	2 mg	½ tablet
	Ondansetron IV/IM	1 mg	0.5 ml (undiluted)
	Paracetamol liquid	200 mg	4 ml (250 mg/5ml)
	Paracetamol tablet	-	-
	Prednisone PO	-	-
	Rocuronium IV	10 mg	1 ml (undiluted)
	Tramadol PO	-	-

20 kg / 5 year

20 kg / 5 year			
	Asthma and Anaphylaxis		
		Dose	**Volume**
	Adrenaline IM	0.2 mg	0.2 ml (undiluted)
	Adrenaline IV	0.004 mg	4 ml (1:1,000,000)
		1:1,000,000 = 1 mg adrenaline + 1 L 0.9% NaCl	
	Cardiac Arrest		
		Dose	**Volume**
	Adrenaline IV	0.4 mg	4 ml (1:10,000)
		1:10,000 = 1 mg adrenaline + 9 ml 0.9% NaCl	
	Amiodarone	100 mg	2 ml (undiluted)
	Manual Defibrillation	100	Joules
	LMA	Size 2 (10-20 kg)	Cuff inflation 10 ml
	ETT (cuffed)	Size 4 or 5	15 cm length at lips

20 kg / 5 year

Other Drugs		
	Dose	**Volume**
0.9% NaCl	400 ml	400 ml
Ceftriaxone IV	0.8 g	8 ml (100 mg/ml)[1]
Ceftriaxone IM	0.8 g	1.6 ml (500 mg/ml)[2]
Fentanyl IV	20 mcg	2 ml (10 mcg/ml)[3]
Fentanyl IN	40 mcg	0.8 ml (undiluted)
Fentanyl IN - 2nd dose	20 mcg	0.4 ml (undiluted)
Glucagon IM	1 mg	1 ml (undiluted)
Glucose 10% IV	40 ml	40 ml
Ibuprofen PO	100 mg	½ tablet
Ketamine IV	5 mg	0.5 ml (10 mg/ml)[4]
Ketamine IM/IN/PO	20 mg	0.2 ml (undiluted)

20 kg / 5 year	Other Drugs		
		Dose	**Volume**
	Lignocaine 1% IO	20 mg	2 ml (undiluted)
	Lignocaine 1% SC	8 ml (max)	-
	Loratadine PO	5 mg	½ tablet
	Midazolam IV	2 mg (max. 3 doses)	2 ml (5 mg/5 ml) (undiluted)
	Midazolam IM	6 mg (max. 2 doses)	1.2 ml (15 mg/3 ml) (undiluted)
	Morphine IV	2 mg	2 ml (1 mg/ml)[5]
	Morphine IM	4 mg	0.4 ml (undiluted)
	Morphine/Midazolam IV (post intubation)	0.8 mg of each	0.8 ml[6]

20 kg / 5 year	Other Drugs		
		Dose	**Volume**
	Naloxone IV	0.2 mg	2 ml (0.1 mg / ml)[7]
	Naloxone IM	0.4 mg	1 ml (undiluted)
	Naloxone IN	0.8 mg	2 ml (undiluted)
	Ondansetron PO	4 mg	1 tablet
	Ondansetron IV/IM	2 mg	1 ml (undiluted)
	Paracetamol liquid	400 mg	8 ml (250 mg/5 ml)
	Paracetamol tablet	-	-
	Prednisone PO	10 mg	½ tablet
	Rocuronium IV	20 mg	2 ml (undiluted)
	Tramadol PO	-	-

30 kg / 10 year

30 kg / 10 year

Asthma and Anaphylaxis		
	Dose	**Volume**
Adrenaline IM	0.3 mg	0.3 ml (undiluted)
Adrenaline IV	0.006 mg	6 ml (1:1,000,000)
	1:1,000,000 = 1 mg adrenaline + 1 L 0.9% NaCl	

Cardiac Arrest		
	Dose	**Volume**
Adrenaline IV	0.6 mg	6 ml (1:10,000)
	1:10,000 = 1 mg adrenaline + 9 ml 0.9% NaCl	
Amiodarone	150 mg	3 ml (undiluted)
Manual Defibrillation	150	Joules
LMA	Size 3 (30-50 kg)	Cuff inflation 20 ml
ETT (cuffed)	Size 5 or 6	17 cm length at lips

30 kg / 10 year	Other Drugs		
		Dose	**Volume**
	0.9% NaCl	600 ml	600 ml
	Ceftriaxone IV	1.2 g	12 ml (100 mg/ml)[1]
	Ceftriaxone IM	1.2 g	2.4 ml (500 mg/ml)[2]
	Fentanyl IV	30 mcg	3 ml (10 mcg/ml)[3]
	Fentanyl IN	60 mcg	1.2 ml (undiluted)
	Fentanyl IN - 2nd dose	30 mcg	0.6 ml (undiluted)
	Glucagon IM	1 mg	1ml (undiluted)
	Glucose 10% IV	60 ml	60 ml
	Ibuprofen PO	200 mg	1 tablet
	Ketamine IV	7.5 mg	0.75 ml (10 mg/ml)[4]
	Ketamine IM/IN/PO	30 mg	0.3 ml (undiluted)

30 kg / 10 year	Other Drugs		
		Dose	**Volume**
	Lignocaine 1% IO	30 mg	3 ml (undiluted)
	Lignocaine 1% SC	12 ml (max)	-
	Loratadine PO	5 mg	½ tablet
	Midazolam IV	3 mg (max. 3 doses)	3 ml (5 mg/5 ml) (undiluted)
	Midazolam IM	9 mg (max. 2 doses)	1.8 ml (15 mg/3 ml) (undiluted)
	Morphine IV	3 mg	3 ml (1 mg/ml)[5]
	Morphine IM	6 mg	0.6 ml (undiluted)
	Morphine/Midazolam IV (post intubation)	1.2 mg of each	1.2 ml[6]

30 kg / 10 year	Other Drugs		
		Dose	**Volume**
	Naloxone IV	0.3 mg	3 ml (0.1 mg/ml)[7]
	Naloxone IM	0.6 mg	1.5 ml (undiluted)
	Naloxone IN	1.2 mg	3 ml (undiluted)
	Ondansetron PO	6 mg	1 ½ tablets
	Ondansetron IV/IM	3 mg	1.5 ml (undiluted)
	Paracetamol liquid	600 mg	12 ml (250 mg/5ml)
	Paracetamol tablet	500 mg	1 tablet
	Prednisone PO	20 mg	1 tablet
	Rocuronium IV	30 mg	3 ml (undiluted)
	Tramadol PO	-	-

40 kg / 13 year

40 kg / 13 year

Asthma and Anaphylaxis		
	Dose	**Volume**
Adrenaline IM	0.4 mg	0.4 ml (undiluted)
Adrenaline IV	0.008 mg	8 ml (1:1,000,000)
	1:1,000,000 = 1 mg adrenaline + 1 L 0.9% NaCl	

Cardiac Arrest		
	Dose	**Volume**
Adrenaline IV	0.8 mg	8 ml (1:10,000)
	1:10,000 = 1 mg adrenaline + 9 ml 0.9% NaCl	
Amiodarone	200 mg	4 ml (undiluted)
Manual Defibrillation	200	Joules
LMA	Size 3 (30-50 kg)	Cuff inflation 20 ml
ETT (cuffed)	Size 6 or 7	19 cm length at lips

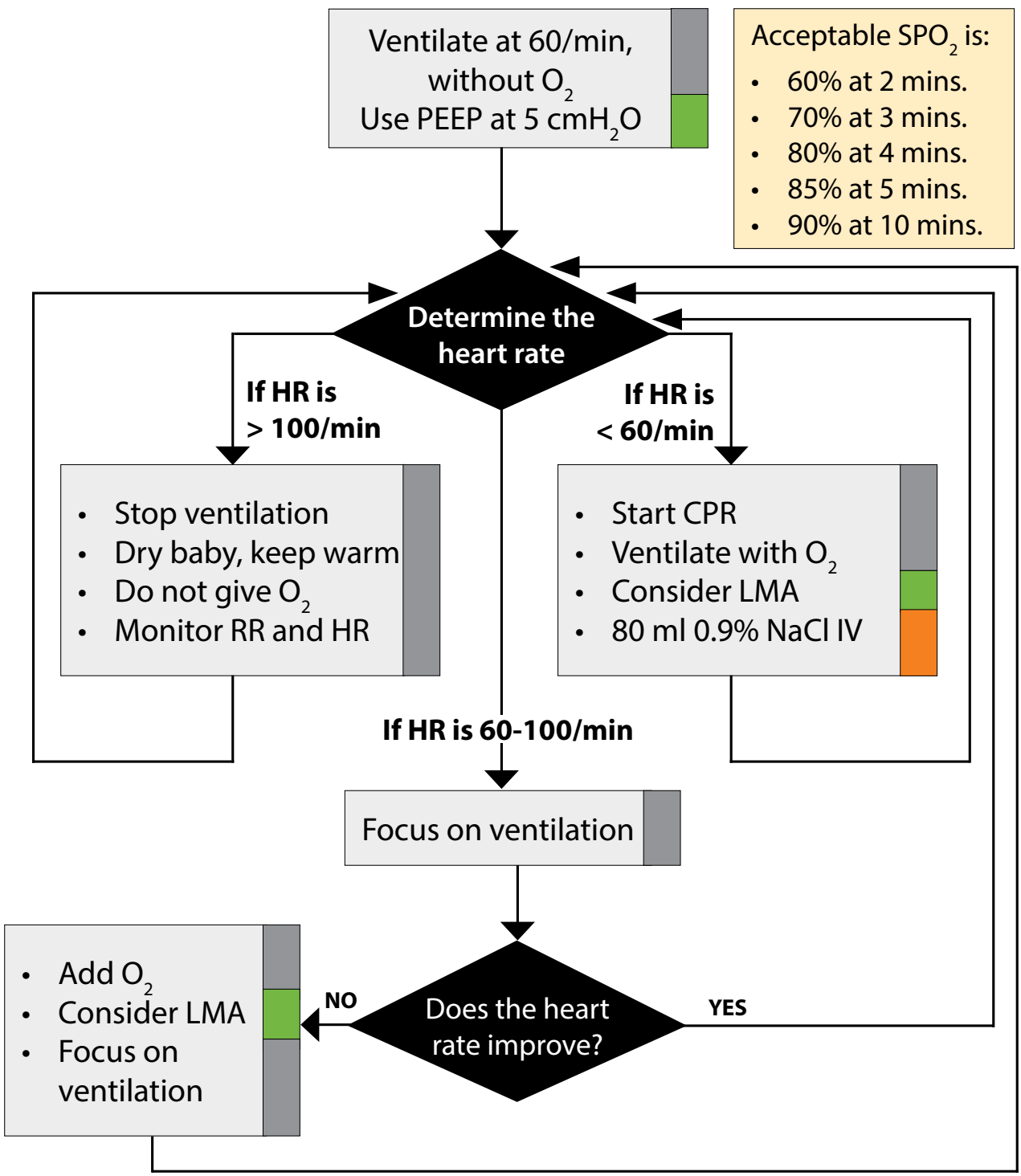
40 kg / 13 year	Other Drugs		
		Dose	**Volume**
	0.9% NaCl	800 ml	800 ml
	Ceftriaxone IV	1.6 g	16 ml (100 mg/ml)[1]
	Ceftriaxone IM	1.6 g	3.2 ml (500 mg/ml)[2]
	Fentanyl IV	40 mcg	4 ml (10 mcg/ml)[3]
	Fentanyl IN	80 mcg	1.6 ml (undiluted)
	Fentanyl IN - 2nd dose	40 mcg	0.8 ml (undiluted)
	Glucagon IM	1 mg	1 ml (undiluted)
	Glucose 10% IV	80 ml	80 ml
	Ibuprofen PO	300 mg	1 ½ tablets
	Ketamine IV	10 mg	1 ml (10 mg/ml)[4]
	Ketamine IM/IN/PO	40 mg	0.4 ml (undiluted)

40 kg / 13 year	Other Drugs		
		Dose	**Volume**
	Lignocaine 1% IO	40 mg	4 ml (undiluted)
	Lignocaine 1% SC	16 ml (max)	-
	Loratadine PO	10 mg	1 tablet
	Midazolam IV	4 mg (max. 3 doses)	4 ml (5 mg/5 ml)
	Midazolam IM	12 mg (max. 2 doses)	2.4 ml (15 mg/3 ml) (undiluted)
	Morphine IV	4 mg	4 ml (1 mg/ml)[5]
	Morphine IM	8 mg	0.8 ml (undiluted)
	Morphine/Midazolam IV (post intubation)	1.6 mg of each	1.6 ml[6]

40 kg / 13 year	Other Drugs		
		Dose	**Volume**
	Naloxone IV	0.4 mg	4 ml (0.1 mg/ml)[7]
	Naloxone IM	0.8 mg	2 ml (undiluted)
	Naloxone IN	1.6 mg	4 ml (undiluted)
	Ondansetron PO	8 mg	2 tablets
	Ondansetron IV/IM	4 mg	2 ml (undiluted)
	Paracetamol liquid	800 mg	16 ml (250 mg/5 ml)
	Paracetamol tablet	750 mg	1 ½ tablets
	Prednisone PO	30 mg	1½ tablets
	Rocuronium IV	40 mg	4 ml (undiluted)
	Tramadol PO	50 mg	1 tablet

6.2 NEONATAL RESUSCITATION SUMMARY

If breathing is inadequate or HR < 100/minute



7.1 PAIN RELIEF

Paracetamol

- Is indicated (in combination with ibuprofen) for mild pain, or in addition to other measures for moderate or severe pain.
- Is contraindicated if the patient has current paracetamol poisoning.
- Withhold paracetamol if the patient has already taken it within the last four hours.
- Dosage:
  a) 1.5 g orally for adults weighing greater than 80 kg.
  b) 1 g orally for adults weighing 80 kg or less.
  c) See the paediatric drug dose tables for children.
- All personnel (including those without ATP) may give paracetamol to a patient for self-administration. In this setting the package instructions should be followed.

Ibuprofen

- Is indicated (in combination with paracetamol) for mild pain, or in addition to other measures for moderate or severe pain.
- Is contraindicated in the third trimester of pregnancy.
- Withhold ibuprofen if the patient has already taken it within the last four hours.
- Dosage:
  a) 600 mg orally for adults weighing greater than 80 kg.
  b) 400 mg orally for adults weighing 80 kg or less.
  c) See the paediatric drug dose tables for children.
- All personnel (including those without ATP) may give ibuprofen to a patient for self-administration. In this setting the package instructions should be followed.

Tramadol

- Is indicated for moderate pain (in combination with paracetamol and ibuprofen), or in addition to other measures for severe pain.
- Is contraindicated if the patient is:
  a) A child aged less than 12 years of age **or**
  b) Confused or has dementia.
- Withhold tramadol if the patient has already taken it within the last four hours.
- Use with caution in the elderly, particularly if they have a history of confusion.
- Dosage: 50 mg orally for adults and children aged 12 years and over.
- A patient may be administered tramadol (in combination with paracetamol and ibuprofen) for moderate pain associated with a known chronic condition, and be given a recommendation that they do not require immediate referral to a medical facility provided:
  a) Adequate pain control is achieved **and**
  b) Vital signs are normal **and**
  c) They are able to safely mobilise **and**
  d) They are able to see a GP for a review of their condition.

Entonox

- Is indicated for moderate or severe pain, in addition to other measures.
- Is contraindicated if the patient:
  a) Is unable to obey commands **or**
  b) Has a suspected pneumothorax **or**
  c) Has a suspected bowel obstruction **or**
  d) Has been SCUBA diving in the last 24 hours, or has a diving related emergency.

Methoxyflurane

- Is indicated for moderate or severe pain, in addition to other measures.
- Is contraindicated if the patient:
  a) Is unable to obey commands **or**
  b) Has a personal or family history of malignant hyperthermia **or**
  c) Has known renal impairment **or**
  d) Has received methoxyflurane within the last week.
- Use with caution if the patient:
  a) Has toxaemia of pregnancy **or**
  b) Is in labour with known signs of foetal distress.
- Dosage:
  a) A maximum of two doses (6 ml) for a patient aged 12 years and over.
  b) A maximum of one dose (3 ml) for a patient aged less than 12 years.

Morphine

- Is indicated for severe pain, in addition to other measures.
- Is contraindicated if the patient:
  a) Has respiratory depression **or**
  b) Is in premature labour.
- Use with caution if the patient is:
  a) A child aged less than one year **or**
  b) At high risk of respiratory depression.
- Dosage:
  a) 1-5 mg IV every 3-5 minutes for adults.
  b) 5-10 mg IM for adults, if unable to obtain IV access. This may be repeated once after 10 minutes.
  c) See the paediatric drug dose tables for children.

Fentanyl

- Is indicated for severe pain, in addition to other measures, when the patient:
  a) Requires intense pain relief for a short period of time only **or**
  b) Has cardiovascular instability **or**
  c) Does not have IV access.
- Is contraindicated if the patient:
  a) Has respiratory depression **or**
  b) Is in premature labour.
- Use with caution if the patient is:
  a) A child aged less than one year **or**
  b) At high risk of respiratory depression.
- IV dosage:
  a) 10-50 mcg IV every 3-5 minutes for adults.
  b) See the paediatric drug dose tables for children.

- Intranasal dosage:
  a) 100 mcg IN for adults weighing 80 kg or less. Halve this dose if the patient is frail or cardiovascularly unstable. One further dose may be administered after 10 minutes.
  b) 200 mcg IN for adults weighing greater than 80 kg. Halve this dose if the patient is frail or cardiovascularly unstable. One further dose may be administered after 10 minutes.
  c) 2 mcg/kg IN for children (see the paediatric drug dose tables). One further dose of 1 mcg/kg IN (see the paediatric drug dose tables) may be administered after 10 minutes.

Ketamine

- Is indicated for very severe pain, particularly musculoskeletal or burn pain that has not been adequately controlled with an opiate.
- Is contraindicated if the patient:
  a) Is aged less than one year **or**
  b) Is unable to obey commands **or**
  c) Has active psychosis **or**
  d) Has current myocardial ischaemia.
- Use with caution if the patient is hypertensive.
- Dosage:
  a) 10-50 mg IV every 3-5 minutes for adults **or**
  b) 1 mg/kg (rounded off to nearest 10 kg) for adults IM, IN or oral, up to a maximum of 100 mg, if IV access cannot be obtained. This may be repeated once after 10 minutes.
  c) For children see the paediatric drug dose tables.

Midazolam

- Midazolam does not have analgesic properties. However, it may have a role for reducing pain associated with muscle spasm, particularly if the patient has severe back pain, or a dislocated joint.
- ICPs may administer midazolam in such a setting if adequate pain relief is not being achieved with morphine, and ketamine is not indicated.
- 'Load' the patient with morphine until further doses are not providing additional analgesia and then add midazolam in 1-2 mg doses IV.
- The patient must be able to obey commands before further midazolam is administered.

Intraosseous lignocaine

- Is indicated for significant bone pain associated with intraosseous infusion.
- Dosage:
  a) 5 ml of 1% lignocaine over 2 minutes for adults. Wait 1 further minute before giving intraosseous fluid.
  b) See the paediatric drug dose tables for children.
  c) The dose may be repeated once after 15 minutes.

Lignocaine ring blocks

- Are indicated for isolated injuries to fingers or toes.
- Examine and record the presence of sensation before administering a ring block and add inhaled analgesia if required.
- Use 1% lignocaine without added adrenaline.
- The maximum dose for an adult is 200 mg (20 ml), noting that reaching such a dose would be most unusual, as only 2-3 ml is usually required per digit.
- See the paediatric drug dose tables for maximum doses in children.

8.1 OBSTETRIC RELATED BLEEDING

Antepartum Haemorrhage (APH)

- Tilt the patient's pelvis to their left to prevent supine hypotension.
- Seek help from a midwife if they are available, provided this does not significantly delay transport.
- Gain IV access and administer IV fluid utilising the principles within the controlled bleeding section:
  a) Administer one litre of 0.9% NaCl if the patient has signs of poor perfusion.
  b) Administer further fluid as required.
- Transport the patient direct to a hospital with obstetric facilities whenever feasible.

Postpartum Haemorrhage (PPH)

- Compress external bleeding, for example a visible vaginal laceration.
- Load and treat en route.
- Seek help from a midwife if they are available, provided this does not significantly delay transport.
- Administer 10 units of oxytocin IM into the lateral thigh. If multiple babies are present administration must occur after delivery of the last baby.
- If oxytocin has not been administered:
  - Encourage the baby to begin breast feeding **or**
  - Ask the patient (or their partner) to stimulate both nipples by gently rolling them back and forth between their fingers and thumbs for approximately 15 minutes.

- Gain IV access and administer IV fluid utilising the principles within the uncontrolled bleeding section:
  - Administer 500 ml of 0.9% NaCl if the patient is severely shocked.
  - Administer further fluid if they remain severely shocked.
- Feel for the uterus at approximately umbilical level and massage it firmly using a circular motion.
- Perform bimanual compression of the uterus if bleeding is severe and the patient is deteriorating.
- Transport the patient direct to a hospital with obstetric facilities whenever feasible.

8.2 OTHER OBSTETRIC CONDITIONS

Miscarriage

- A patient with spontaneous miscarriage occurring during the first trimester does not require immediate referral or transport to hospital unless:
  a) Pain is severe **or**
  b) The nature or location of the pain is different to that of menstrual pain **or**
  c) Bleeding is clinically significant (more than a heavy period).
- If none of the above criteria are present, recommend the patient sees their LMC or GP within 24 hours.

Pregnancy and abdominal or pelvic trauma

- A pregnant patient with abdominal or pelvic trauma occurring during the second or third trimester should be given a firm recommendation to be assessed in hospital, even if the trauma is minor.

Supine hypotension

- After 20 weeks gestation, severe hypotension may occur in the supine position because the uterus can impede venous return through the inferior vena cava.
- To prevent supine hypotension always tilt the patient 15 degrees (or more) to their left by placing a rolled towel or pillow under their right hip. If this cannot be achieved, manually displace the uterus to the left if feasible.

Premature labour

- This is the onset of labour prior to 37 weeks of pregnancy.
- Transport to hospital immediately.
- Be prepared to provide neonatal resuscitation.
- Do not administer any medicines to slow down labour unless requested to do so by an LMC.

Normal birth

- Support the baby's head and shoulders as they appear without applying traction.
- Dry the baby. Place the baby 'skin to skin' with the mother provided neither are requiring resuscitation. Place a hat on the baby if one is available and cover them both with a blanket. Continue to observe the baby's activity and breathing.
- Clamping and cutting the cord is not urgent unless the baby is requiring resuscitation. In the absence of urgency, clamp and cut the cord 5 cm from the baby 2-3 minutes after birth.
- Administer 5 units of oxytocin IM into the lateral thigh of the mother. If multiple babies are present administration must occur after delivery of the last baby. Routine administration of oxytocin is controversial, but appears to reduce the incidence of postpartum haemorrhage.
- Allow the placenta to deliver spontaneously, without applying traction. This may take up to 30 minutes.
- Following delivery of the placenta, feel for the uterus at approximately umbilical level and rub it using a circular motion until it feels firm.
- If the LMC is not able to attend, the patient should be given a firm recommendation to be transported to an obstetric unit.

If the baby gets stuck

- If the baby's head appears, but the body does not after two contractions with pushing:
  a) Ask the patient to grab her knees, pull them to her chest and push as hard as she can with the next two contractions.
  b) If the above fails to deliver the baby, place the heel of your hand directly above the patient's pubic bone and push slowly but firmly straight back toward the patient's lower back. This is designed to reposition the baby's shoulder, which is usually what is preventing delivery.
  c) If the above fails, transport urgently and seek help from a midwife or obstetrician if available.

If the cord is wrapped around the neck

- This is quite common and is not an emergency.
- If the cord is loose and is easy to slip over the baby's head, then do so. If you cannot easily slip it over the head, then do not do so and continue with delivery.

Prolapsed umbilical cord and breech delivery

- Prolapsed umbilical cord is when the umbilical cord appears in the vagina ahead of the baby.
- Breech delivery is when the baby is coming out feet or buttocks first.
- Both presentations risk the baby having poor blood supply from the cord being compressed and both require urgent delivery of the baby.
- Transport urgently and seek help from a midwife or obstetrician if available.
- Ask the patient not to push and position her so that her hips are higher than her shoulders. These manoeuvres are designed to take the weight of the baby off the cord and delay delivery until expert help is available. Either:
  a) Position the patient on her back with her hips on a pillow with the stretcher head down, **or**
  b) Position the patient on her elbows and knees with her head down and with the stretcher head down.
- If the baby appears at the vaginal opening and the patient wants to push, allow delivery to occur.

9.3 RAPID SEQUENCE INTUBATION (RSI)

- Is indicated for a patient with:
  a) A GCS less than or equal to 10 **and**
  b) Clinically significant airway or ventilatory compromise.
- Is contraindicated if:
  a) There is a history (or family history) of malignant hyperthermia **or**
  b) The patient has pre-existing paraplegia or quadriplegia **or**
  c) The patient has a muscle disorder with long term weakness **or**
  d) Hyperkalaemia is strongly suspected **or**
  e) Capnography is unavailable **or**
  f) A dedicated suitable assistant is unavailable.
- Is relatively contraindicated if:
  a) The intubation is predicted to be difficult **or**
  b) Transport time to hospital is less than 15 minutes **or**
  c) The underlying cause is likely to rapidly improve **or**
  d) The patient is aged less than 5 years or greater than 75 years **or**
  e) The patient is aged greater than 70 years with stroke or CORD as the underlying cause of coma **or**
  f) The patient has severe comorbidities.

For 'RSI preparation checklist' refer to **page 117**

For 'RSI checklist' refer to **page 118**

RSI procedure

- Administer fentanyl IV (over 1 minute) 2 minutes before RSI.
- Administer midazolam and suxamethonium IV if the patient does not have shock.
- Administer ketamine and suxamethonium IV if the patient has shock.
- Provide oxygen at 15 litres/minute via nasal prongs during laryngoscopy.
- Intubate and confirm ETT position with capnography.
- Secure the ETT and note the length at the lips.
- Administer rocuronium if $ETCO_2$ is confirmed and is greater than 5 mmHg.
- Ventilate to an $ETCO_2$ of 30-35 mmHg.
- Administer sedation using the post intubation section.

Adult drug dosage

	50-80 kg	> 80 kg
Fentanyl*	150 mcg	200 mcg
Midazolam*	6 mg	8 mg
Ketamine	100 mg	150 mg
Suxamethonium	150 mg	200 mg
Rocuronium	50 mg	100 mg

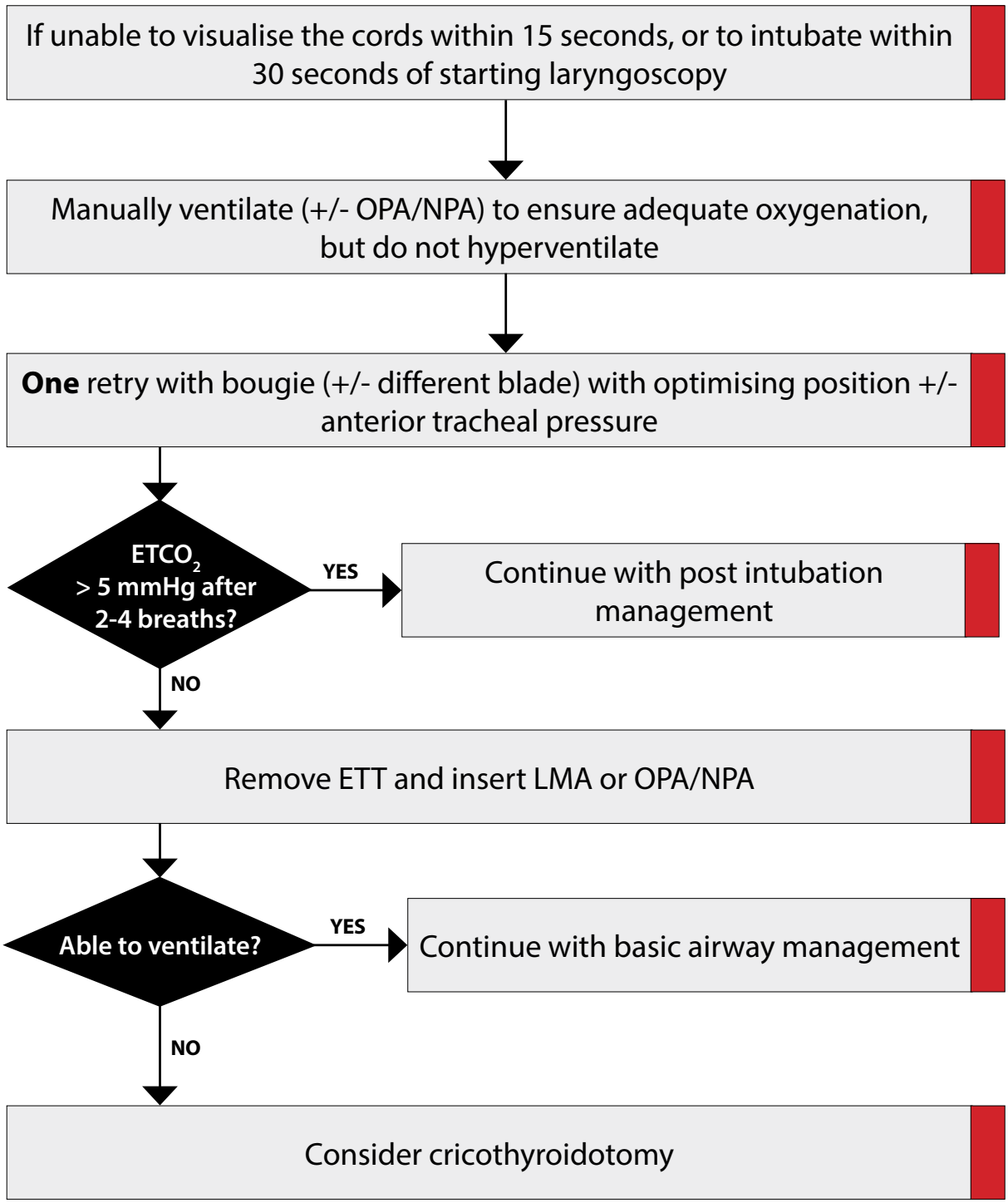
*Halve the fentanyl and midazolam dose in adults with signs of shock, or over the age of 70 years.

Paediatric drug dosage

	10 kg	20 kg	30 kg	40 kg	50 kg
Fentanyl*	20 mcg	40 mcg	60 mcg	80 mcg	100 mcg
Midazolam*	1 mg	2 mg	3 mg	4 mg	5 mg
Ketamine	15 mg	30 mg	45 mg	60 mg	75 mg
Suxamethonium	20 mg	40 mg	60 mg	80 mg	100 mg
Rocuronium	10 mg	20 mg	30 mg	40 mg	50 mg

*Halve the fentanyl and midazolam dose in children with signs of shock.

9.4 FAILED INTUBATION DRILL



9.5 POST INTUBATION

Use this section if:

a) The patient has been intubated without RSI **and**
b) ETT placement has been confirmed by capnography.

- If the patient has been intubated during cardiac arrest, this section should only be used if they develop sustained ROSC.
- Ventilate to an $ETCO_2$ of 30-35 mmHg.
- Administer sedation in combination with neuromuscular blockade, if the patient shows clinically significant signs of moving. Avoid sedation and neuromuscular blockade in adults with a very poor prognosis, whenever feasible.
- Sedation dosage:
  a) For adults: draw up 10 mg of midazolam in combination with 10 mg of morphine in a 10 ml syringe. Dilute with 0.9% NaCl to a total of 10 ml.
  b) For adults: administer 1-2 ml of this solution (1-2 mg of midazolam and 1-2 mg of morphine) every 10-15 minutes. Titrate the dose to the patient's level of sedation and blood pressure.
  c) For children: administer midazolam and morphine every 10-15 minutes using doses from the paediatric drug dose tables.
- Rocuronium dosage:
  a) 50 mg for adults weighing 50-80 kg.
  b) 100 mg for adults weighing greater than 80 kg.
  c) See the paediatric drug dose tables for children.
  d) Repeat as required.
- Administer rocuronium with caution if the patient has a chronic condition causing muscle weakness.

10.1 MINOR ALLERGY

This section is for minor allergic reactions (including bites and stings) that are confined to skin involvement.

- Administer loratadine if itch is prominent. Loratadine dosage:
  a) 10 mg orally for adults and children aged 12 years and over.
  b) 5 mg orally for children aged 1-11 years.
- Administer prednisone in addition to loratadine, if itch is associated with a rash. Prednisone dosage:
  a) 40 mg orally for adults.
  b) See the paediatric drug dose tables for children.

Referral

- A patient may be administered loratadine (with or without prednisone) and be given a firm recommendation that they do not require immediate referral to a medical facility provided:
  a) There are no signs of systemic involvement **and**
  b) There are no signs of spreading inflammation **and**
  c) There is no facial or intra-oral swelling **and**
  d) There are no signs of blistering or peeling **and**
  e) No adrenaline (including self-administration) has been administered.

10.2 NAUSEA AND/OR VOMITING

- Ondansetron is indicated for severe nausea and/or vomiting provided the patient is aged one year or over.
- Administer oral ondansetron provided vomiting is not continuous.
- Administer IV ondansetron if vomiting is continuous, or if severe nausea and/or vomiting persists 10 (or more) minutes after oral ondansetron administration.
- Ondansetron dosage:
  a) 8 mg orally for adults and children aged 12 years and over.
  b) 4 mg IV or IM for adults and children aged 12 years and over. This may be repeated once after 10 minutes, to a maximum total dose of 16 mg by all routes.
  c) See the paediatric drug dose tables for children aged 1-11 years. Children may receive a maximum of two parenteral doses in addition to one oral dose.

Referral

- A patient may be administered ondansetron and have a firm recommendation given to them that they do not require immediate referral to a medical facility provided:
  – They have isolated vomiting or vomiting and diarrhoea **and**
  – No other symptoms **and**
  – Normal vital signs.

10.3 BLOCKED URINARY CATHETER

Use this section for blocked urinary catheters, including supra-pubic catheters.

- Check that the:
  a) Drainage bag is not full **and**
  b) Drainage bag is below pubic height **and**
  c) Tubing is not kinked or blocked **and**
  d) Tubing does not contain a one way valve that has been incorrectly inserted facing the wrong way.
- Examine the patient for signs of sepsis. Recommend transport to a medical facility without further intervention, if clinically significant signs of sepsis are present.
- Deflate the balloon and rotate the catheter 180 degrees. Do not persist if it will not rotate. Re-inflate the balloon with the same volume that came out of it.
- Flush the catheter, using a clean technique if it still appears blocked:
  a) Draw up 60-100 ml of 0.9% NaCl or sterile water, using a catheter tip syringe. Warm this under a tap if possible.
  b) Detach the drainage tubing from the catheter and attach the syringe.
  c) Firmly flush the catheter over 5-10 seconds. Some discomfort is expected but stop if there is severe pain.
  d) Remove (if possible) the fluid using the syringe.
  e) Re-attach the drainage tubing and ensure urine is flowing into the drainage bag.

10.4 EPISTAXIS

Use this section for patients that are conscious with isolated bleeding from the nose.

- Sit the patient forward.
- For mild bleeding: firmly compress the fleshy part of the nose for 15 minutes.
- For moderate to severe bleeding, or mild bleeding that has not stopped with the above treatment:
  a) Ask the patient to blow their nose to clear all the clots **and**
  b) Draw up 1:10,000 adrenaline by diluting 1 mg of adrenaline to a total of 10 ml using 0.9% NaCl. Administer 2 ml of this solution into each bleeding nostril using a mucosal atomising device **and**
  c) Firmly compress the fleshy part of the nose for 15 minutes.

10.5 STROKE AND TIA

Stroke

- Assess the patient using the FAST technique.
- Measure the blood glucose concentration and treat accordingly.
- Transport to hospital without delay if signs or symptoms of a stroke are present and the patient can reach an appropriate hospital within 3.5 hours of the time of symptom onset. If a destination policy is in place, transport the patient direct to a designated hospital whenever feasible.
- Transport to hospital should usually be by road. Consider the possibility of transport by helicopter if:
  a) The patient is independent and without severe comorbidities **and**
  b) The patient has severe weakness **and**
  c) The patient can reach hospital within 2 hours of the onset of symptoms **and**
  d) Helicopter transport will save 30 minutes (or more) compared with road transport.
- Alert ED staff early, if the patient is status one or status two. Provide the following information:
  a) FAST results **and**
  b) Time of symptom onset **and**
  c) NHI number (if known).

TIA

- Assess the patient using the FAST technique.
- Measure the blood glucose concentration and treat accordingly.
- Treat using the stroke section if the patient's signs or symptoms persist.
- A patient with a TIA must be seen by a doctor as soon as possible and this should usually be in an ED, noting that transport by ambulance may not be required. However, they may be seen by their GP if:
  a) They have had a TIA that is low risk **and**
  b) Transport time to hospital is prolonged **and**
  c) Their GP can see them that same day.
- A patient has had a TIA that is low risk if:
  a) Their ABCD2 score is less than or equal to 3 **and**
  b) They have not had another TIA in the last week **and**
  c) They are not in atrial fibrillation **and**
  d) They are not taking an anticoagulant.

The ABCD2 Score	Score
AGE: if equal to or greater than 60 years	**1**
BLOOD PRESSURE: if SBP > 140 mmHg and/or DBP > 90 mmHg	**1**
CLINICAL FEATURES: (choose one)	
• Unilateral weakness	**2**
• Speech disturbance without weakness	**1**
DURATION OF SYMPTOMS:	
• > 60 minutes	**2**
• 10 - 59 minutes	**1**
• < 10 minutes	**0**
DIABETES ON TREATMENT: if present	**1**

The ABCD2 score is a means of assessing the risk of a patient subsequently developing a stroke following a TIA:

- The higher the score, the higher the risk (maximum score 7).
- A patient with an ABCD2 score less than or equal to 3 is at low risk.
- A patient with an ABCD2 score greater than 3 is at medium to high risk.

10.7 END OF LIFE CARE

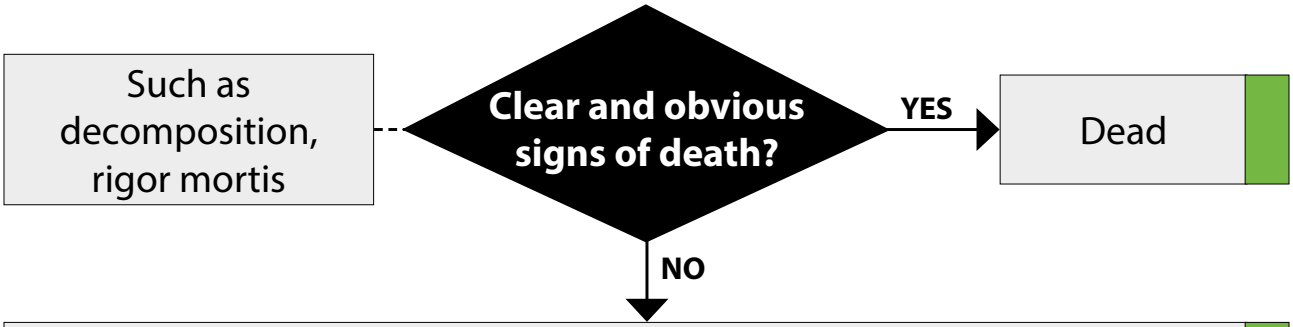
This section is for patients who are receiving end of life care.

- Confirm the patient is receiving end of life care. Locate and read their advance care plan and contact people coordinating their care, whenever possible.
- Provide treatment for relief of symptoms.
- The patient is likely to be issued with medicines for self administration in the event of severe distress. All personnel may administer such medicines, even if outside their delegated scope of practice, provided the following criteria are met:
  a) There are clear written instructions **and**
  b) The patient is in severe distress **and**
  c) No other suitable personnel are available to administer the medicine **and**
  d) The PRF is sent for audit, along with a note describing the circumstances. The person administering the treatment is responsible for ensuring this occurs.

Referral

- A patient may be administered medicines (including opiates, midazolam or their own medicines) and be given a firm recommendation that they do not require transport to a medical facility, provided this is consistent with adequate ongoing symptom control.
- Whenever possible follow the patient's wishes regarding hospital admission, taking into account the views of the family. If transport is required, this should be to a hospice if at all possible, provided this is arranged prior to arrival.

10.8 DETERMINATION OF DEATH SUMMARY



The following clinical criteria must be met:
☐ No signs of breathing (the chest and abdomen both uncovered) for one minute **and**
☐ No palpable pulse at a central site **and**
☐ Pupils dilated and unreactive to light **and**

Wait 10 minutes

☐ No signs of breathing (the chest and abdomen both uncovered) for one minute **and**
☐ No palpable pulse at a central site **and**
☐ Pupils dilated and unreactive to light **and**
☐ A 3 lead ECG must show asystole*

* The patient may be dead, but may not be in asystole at the repeat examination at 10 minutes. For example:

- There may be slow broad complexes consistant with a dying heart. If this is the case wait another 10 minutes and repeat the ECG.
- A pacemaker may generate electrical activity for many hours after death. In this setting it is appropriate to determine that the patient is dead despite electrical activity on the ECG, provided all of the other clinical criteria are met.

10.11 ASSESSING COMPETENCY SUMMARY

Reasonable grounds for determining that a patient is not competent exist if they meet any of the following criteria:
☐ Appear unable to understand information provided to them on proposed treatments **or**
☐ Appear unable to understand the consequences of their decisions **or**
☐ Appear unable to remember information given to them **or**
☐ Have attempted (or expressed serious thoughts of) self harm

If personnel believe a patient is not competent to make an informed decision, they may provide treatment to them against their will, provided:
☐ Personnel believe the treatment is in the patient's best interests **and**
☐ Personnel believe the risks associated with providing treatment against the patient's will are less than the risks of not providing that treatment **and**
☐ The treatment is not contradicting a valid advance directive

11.1 HEADACHE

RED

- Headache or neck pain following neck manipulation.
- Neck pain or neck stiffness.
- Sudden onset of severe headache.
- Temperature greater than 37.5 degrees (in the absence of influenza symptoms).
- Persistent severe vomiting.
- Focal neurological signs.
- Altered level of consciousness, including a history of altered level of consciousness with the onset of the headache.
- Worsening headache following recent trauma to the head.
- Taking an anticoagulant.
- Signs of temporal arteritis.
- Hypertension during pregnancy.
- Previous history of intracranial bleeding.
- Family history of cerebral vascular abnormalities.
- Onset during sexual activity.

ORANGE

- Symptoms associated with sinusitis.
- Migraine with symptoms different to 'usual'.

GREEN

- Symptoms associated with influenza.
- Known migraine with 'usual' symptoms.
- Normal vital signs, normal assessment using the FAST technique and able to walk normally.

11.2 FEVER IN CHILDREN UNDER 5 YEARS OF AGE

RED

- Colour:
  - Pale or ashen,
  - Mottled.
  - Blue.
- Activity:
  - No response to social cues.
  - Difficult to rouse, and if roused, does not stay awake.
  - Weak cry.
  - Exhaustion.
- Respiratory:
  - Grunting.
  - Respiratory rate greater than 60/minute aged 3-12 months.
  - Respiratory rate greater than 50/minute aged over 12 months.
  - Moderate or severe chest indrawing.
  - SpO2 less than 94% on air.
- Circulation and hydration:
  - Reduced skin turgor.
  - Severe tachycardia.
  - Peripheral capillary refill time greater than 3 seconds.
  - Bradycardia (extremely late sign).
- Other:
  - Temperature greater than 39 degrees.
  - Neutropenia or recent chemotherapy.
  - Pain in a single joint or a single muscle area.

- Rigors.
- Petechiae or purpura.
- Neck stiffness.
- Focal neurological signs.
- Significant concern regarding neglect or NAI.

ORANGE

- Colour: pallor reported by caregiver (but not seen by personnel).
- Activity:
  - Not responding to social cues normally.
  - No smile.
  - Wakes only after physical stimulation.
  - Decreased activity.
  - Poor feeding.
- Respiratory:
  - Nasal flaring.
  - Respiratory rate 50-60/minute aged 3-12 months.
  - Respiratory rate 40-50/minute aged over 12 months.
  - Mild indrawing.
  - Crackles audible on auscultation.
  - SpO_2 94-95% on air.
- Circulation and hydration:
  - Dry mucous membranes.
  - Tachycardia.
  - Peripheral capillary refill time 2-3 seconds.
  - Reduced urinary output or frequency.

Continued on page 106

- Other:
  - Illness for longer than 5 days.
  - Non-weight bearing or not mobilizing appropriately.
  - Cellulitis.
  - Help from a healthcare provider has been sought more than once within 24 hours.

GREEN

- Colour: normal colour of skin, lips and tongue.
- Activity:
  - Responds to normal social cues.
  - Smiles.
  - Wakes easily and stays awake.
  - Strong/normal cry or not crying.
- Respiratory:
  - Normal respiratory rate.
  - No signs of indrawing.
  - SpO_2 greater than or equal to 96% on air.
- Circulation and hydration:
  - Normal skin and eyes.
  - Moist mucous membranes.
  - Normal heart rate.
  - Peripheral capillary refill less than 2 seconds.

11.3 FEVER IN PATIENTS AGED 5 YEARS AND OVER

RED

- Abnormal vital signs.
- Pain or tenderness in the flank or back.
- Rigors.
- Neutropenia or recent chemotherapy.
- Abdominal pain with tenderness on palpation.
- Pain in a single joint or a single muscle area.
- Severe muscle tenderness.
- Temperature greater than 39 degrees.
- Drowsiness.
- Severe or worsening headache.
- Neck stiffness.
- Petechiae or purpura.

ORANGE

- Cellulitis.
- Taking steroids.
- Frequency or urgency of urination.
- Sore throat.
- Cough productive of purulent sputum.
- Pleuritic chest pain.
- Help from a healthcare provider has been sought more than once within 24 hours.

GREEN

- Influenza with near normal vital signs and normal mobility.

11.4 ABDOMINAL PAIN

RED

- Severe pain.
- Abnormal vital signs.
- Pain radiating to the back.
- Loin or flank pain.
- Temperature greater than 38 degrees.
- Rigors.
- Female aged 14-50 and LMP more than 4 weeks ago.
- Pregnant.
- Abdominal tenderness on palpation.
- Pain made worse by movement.
- Indigestion or epigastric pain.
- Repeated vomiting.

ORANGE

- Dysuria.
- Frequency or urgency of urination.
- Immunocompromised (e.g. steroids or chemotherapy medicines).
- Recent unplanned weight loss.
- Haematuria.
- Temperature 37-38 degrees but other vital signs normal.
- New onset of constipation in the elderly.

GREEN

- Diarrhoea and vomiting with normal vital signs.
- Pain associated with menstruation.
- Recurrent constipation.

11.5 LUMBAR BACK PAIN

RED

- Loss of bladder or bowel control.
- Temperature greater than 38 degrees.
- Rigors.
- Abnormal vital signs.
- Pain in the thoracic spine or chest.
- Abdominal pain or tenderness.
- Altered sensation in the 'saddle area'.
- Altered sensation and/or power in both legs.
- Unable to walk.
- Signs or symptoms of generalised illness.
- Pain radiating down both legs.

ORANGE

- A history of cancer (other than skin cancer).
- Immunocompromised (e.g. steroids or chemotherapy medicines).
- Worsening pain, especially when lying down or at night.
- Recent unplanned weight loss.
- Altered sensation and/or power in 1 leg.
- Pain radiating down 1 leg.
- Osteoporosis.
- IV drug use.

GREEN

- Pain and/or muscle spasm isolated to the lumbar area.
- Able to walk.
- Normal vital signs.

12.1 ASTHMA NON-TRANSPORT CHECKLIST

Only use this checklist for adults

- Personnel at EMT level must firmly recommend that the patient is transported to a medical facility by ambulance if they are administered any bronchodilator (including their own).
- Personnel at Paramedic and ICP level may recommend that an adult patient with mild or moderate asthma remains at home, provided all of the following checklist criteria are met:
  - ☐ They have known asthma **and**
  - ☐ They have only received bronchodilators via MDI, or have received a maximum of one administration of nebulised bronchodilators **and**
  - ☐ They are talking in full sentences **and**
  - ☐ Their SpO_2 on air is greater than or equal to 94% **and**
  - ☐ They are observed by ambulance personnel, for a minimum of 30 minutes following the completion of the last bronchodilator administration **and**
  - ☐ They are observed to mobilise normally **and**
  - ☐ If they have a peak expiratory flow rate (PEFR) meter, their PEFR is greater than 70% of their normal PEFR (do not use this criteria if the patient does not normally use a PEFR meter) **and**
  - ☐ They are able to see a doctor (preferably their own GP) within 24 hours **and**
  - ☐ They are given the asthma information sheet and the information within it is explained to them and to any carers.
- If the patient has signs of a chest infection, they should be seen by a doctor within 6 hours (this could be a GP, preferably their own).

12.2 CORD NON-TRANSPORT CHECKLIST

- Personnel at EMT level must firmly recommend that the patient is transported to a medical facility by ambulance if they are administered any bronchodilators (including their own).
- Personnel at Paramedic and ICP level may recommend that a patient with mild to moderate CORD remains at home, provided all of the following checklist criteria are met:
  - ☐ They have known CORD **and**
  - ☐ They have only received bronchodilators via MDI, or have received a maximum of one administration of nebulised bronchodilators **and**
  - ☐ They rapidly improve to their 'normal respiratory state' for them **and**
  - ☐ Their SpO_2 on air is greater than or equal to 88% **and**
  - ☐ They are observed by ambulance personnel, for a minimum of 30 minutes following the completion of the last bronchodilator administration **and**
  - ☐ They are observed to mobilise in a way that is normal for them **and**
  - ☐ They are able to see a doctor (preferably their own GP) within 24 hours **and**
  - ☐ They are given the CORD information sheet and the information within it is explained to them and to any carers.
- If the patient has signs of a chest infection, they should be seen by a doctor within 6 hours (this could be a GP, preferably their own).
- All patients receiving more than one administration of nebulised bronchodilators must be given a firm recommendation to be transported to a medical facility by ambulance.

12.3 PACING CHECKLIST

- ☐ Place the pads in either the anterior/posterior (recommended) or apex/sternum position.
- ☐ Select the limb lead with the highest R wave.
- ☐ Minimise artefact by ensuring adequate lead placement.
- ☐ Select pacing.
- ☐ Confirm there is a detection symbol above every QRS complex.
- ☐ Confirm pacing is in demand mode (not applicable to all models).
- ☐ Confirm the pacing rate is set to 70/minute.
- ☐ Initiate pacing.
- ☐ Select current and increase this until pacing capture occurs. Confirm there is a pacing spike before each QRS complex.
- ☐ Increase the current 10 mA above the capture threshold.
- ☐ Administer fentanyl if there is significant pain from pacing. Add low doses of ketamine if required.
- ☐ Confirm there is mechanical capture with a palpable pulse or other signs of increased cardiac output.
- ☐ Increase the pacing rate to 80/minute if there is electrical capture, but no signs of increased cardiac output.
- ☐ Change to fixed or non-demand mode (not applicable to all models) if pacing is ineffective due to artefact.

12.4 CARDIOVERSION CHECKLIST

- ☐ Place pads in either the anterior/posterior or apex/sternum position.
- ☐ Ensure the defibrillator is in manual mode.
- ☐ Select the limb lead with the highest R wave.
- ☐ Minimise artefact by ensuring adequate lead placement.
- ☐ Select synchronised mode.
- ☐ Confirm there is a detection symbol above every QRS complex.
- ☐ Ensure the patient has received adequate sedation if indicated.
- ☐ Select the joules, charge the defibrillator and confirm everyone is clear.
- ☐ Press and hold the shock button until the shock is delivered.
- ☐ Determine the rhythm and the level of cardiovascular compromise.
- ☐ If administering a second cardioversion, confirm the defibrillator is still in synchronised mode.

12.5 DEFIBRILLATOR FAILURE CHECKLIST

Use this checklist if a defibrillator fails and there is not another defibrillator (including an AED) immediately available. At each defibrillator intervention, pause briefly to determine if the problem has been fixed.

- ☐ Task specific personnel to focus on resuscitating the patient.
- ☐ Task specific personnel to focus on troubleshooting the defibrillator.
- ☐ Call Comms and ensure another vehicle is responding.
- ☐ Ensure the pads are attached and connected.
- ☐ Ensure the ECG leads are attached.
- ☐ Change the lead shown on the screen so that the rhythm is visible.
- ☐ Turn the defibrillator off for thirty seconds and turn it back on again.
- ☐ Remove and replace the batteries, utilising the spare battery.
- ☐ Attach and connect a new set of pads.
- ☐ If in manual mode switch to automatic mode.
- ☐ Turn the defibrillator off for thirty seconds and turn it back on again.

Report the incident as an adverse incident if you reach the point of turning the defibrillator off for thirty seconds.

12.6 HYPOGLYCAEMIA NON-TRANSPORT CHECKLIST

- A patient may receive treatment for hypoglycaemia and be given a firm recommendation that they do not need transport to a medical facility, provided all of the following criteria are met:
  - ☐ It is an isolated single episode **and**
  - ☐ There is a clear cause (e.g. a missed meal) **and**
  - ☐ It is not due to overdose (including accidental) of insulin or oral hypoglycaemics **and**
  - ☐ It is not complicated by seizure or injury **and**
  - ☐ They recover fully and can mobilise normally **and**
  - ☐ The blood glucose is > 3.5 mmol/L, 10 (or more) minutes after the last glucose administration **and**
  - ☐ A competent adult can stay with them for the next four hours **and**
  - ☐ They eat a meal containing carbohydrate **and**
  - ☐ They are given the hypoglycaemia information sheet which is explained to them, and to the accompanying adult.

12.7 SEIZURES NON-TRANSPORT CHECKLIST

- A patient may be given a firm recommendation that they do not require immediate transport to a medical facility, even if they have received midazolam, provided all of the following criteria are met:
  - ☐ They have known epilepsy **and**
  - ☐ The seizure has not been complicated by injury **and**
  - ☐ They have recovered to their usual postictal state **and**
  - ☐ They can be left in the care of a competent adult **and**
  - ☐ They have received a maximum of one dose of midazolam **and**
  - ☐ They are instructed to see their GP for a review of their treatment.
- Transport (if required) should usually be to an ED, but could be to a GP if the patient is rapidly improving and the GP knows them well.

12.8 PREPARATION FOR RSI CHECKLIST

Use this checklist when waiting for an RSI trained person to arrive.

- ☐ Attach nasal prongs (for supplementary oxygen administration during RSI).
- ☐ Pre-oxygenate using a reservoir mask at 10 litres/minute.
- ☐ Attach monitoring with ECG, NIBP and SpO_2.
- ☐ Prepare $ETCO_2$ if this is available.
- ☐ Position the monitor so that it can be seen, leaving space to the right of the patient's head for the intubation roll.
- ☐ Gain IV access, preferably in two sites.
- ☐ Prepare a running line of 0.9% NaCl.
- ☐ Place a folded towel under the head.
- ☐ Place an ETT holder with the strap under the head.
- ☐ Ensure suction is working and place the rigid sucker under the towel.
- ☐ Prepare a manual ventilation bag with a PEEP valve attached.
- ☐ Obtain a set of vital signs.
- ☐ Prepare the area:
  - If the patient is in an ambulance, clear away as much unnecessary equipment as possible and consider moving toward backup if appropriate.
- ☐ If the patient is not in an ambulance, clear the area so that there is access to both sides if possible.

12.9 RSI CHECKLIST

- ☐ Roles assigned and team briefed:
  - Airway.
  - Airway assistant.
  - Drugs.
- ☐ Patient prepared:
  - Pre-oxygenation.
  - Nasal prongs in place.
  - Patient position optimised.
  - IV access patent with running line attached.
- ☐ Monitoring attached and visible:
  - Baseline vital signs.
  - ECG and NIBP.
  - Pulseoximetry and $ETCO_2$.
- ☐ Equipment checked and ready:
  - Manual ventilation bag with PEEP valve attached.
  - Oropharyngeal airway.
  - Laryngoscope.
  - ETT with cuff checked, +/- lube and 10 ml syringe.
  - ETT holder in place.
  - Suction on and in position.
  - Bougie.
  - LMA and cricothyrotomy equipment out.

- ☐ Drugs drawn up and doses confirmed:
  - Atropine if the patient is bradycardic.
  - Fentanyl.
  - Midazolam or ketamine.
  - Suxamethonium.
  - Morphine and midazolam.
  - Rocuronium.
- ☐ Failed intubation plan communicated, including SpO_2 at which failed intubation plan will be implemented.

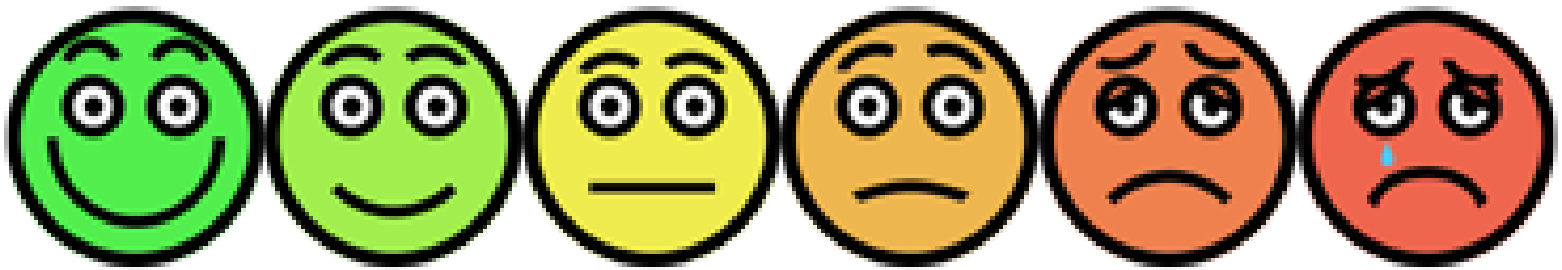
12.10 NON-TRANSPORT PAUSE AND CHECKLIST

If a single patient is being given a recommendation by ambulance personnel, that transport to a medical facility by ambulance is not required, the crew must pause briefly (preferably away from the patient) to go through the checklist and agree that non-transport is the right decision. If consensus is unable to be easily achieved, the crew should have a low threshold for seeking clinical advice or transporting the patient.

In addition, the following checklist must be completed prior to leaving the scene:

- ☐ The patient has been fully assessed including a set of vital signs and appropriate investigations **and**
- ☐ None of the vital signs are significantly abnormal **and**
- ☐ Serious illness or injury has been reasonably excluded **and**
- ☐ No red flags are present, if the clinical condition is one that is contained within the red flag section **and**
- ☐ The patient has been seen to mobilise (when able to normally do so). If the patient is unable to mobilise, there is a clearly minor condition preventing this **and**
- ☐ The patient and/or care givers have been given an explanation of when to seek further help **and**
- ☐ The PRF has been completed and a copy is being left with the patient.

Wong-Baker FACES Pain Rating Scale



0	2	4	6	8	10
NO HURT	HURTS LITTLE BIT	HURTS LITTLE MORE	HURTS EVEN MORE	HURTS WHOLE LOT	HURTS WORST

Name

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App Edition

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