



Clinical Procedures and Guidelines

Pocket edition

2016 - 2018



St John

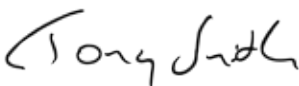
Here for Life

Introduction

This pocket edition of the Clinical Procedures and Guidelines (CPGs) is a quick reference summary of the comprehensive edition and must be read in conjunction with it. Not all sections contained in the comprehensive edition are in the pocket edition, but for ease of reference between the two documents the associated number for each section is the same.

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

These CPGs expire at the end of 2018 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 by any person as a result of, or arising out of, the use of these CPGs by persons other than authorised St John personnel.



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Medical Director



Dr Ian Civil







Chair of the Clinical
Governance Committee

Clinical Procedures and Guidelines - Pocket Edition		
Issued by: Dr Tony Smith, Medical Director	Issue No: 07	Document No: CDT508
Authorised by: Norma Lane, Director of Clinical Operations	Issue date: December 2016	Expiry date: December 2018

Instructions for use

Unless otherwise specified, all drug doses and fluid volumes described in the flow charts are for adults and children whose weight has been rounded to greater than or equal to 50 kg. See the paediatric drug dose tables (**pg74**) if the patient is a child weighing less than 45 kg.

The flow charts contain coloured symbols and words that represent specific actions or information.

	Indication
	Contraindication
	Caution
	Perform an action
	Consider performing an action
prn	The action may be repeated as required
 Text	Used when referencing a checklist


Contraindications and cautions

Cautions

Coloured banners are near or within the flow chart if the drug described has contraindications or cautions, noting that only those specifically relevant to that section are listed. If the drug has both contraindications and cautions, these are listed under a red banner with the appropriate symbols. If the drug only has cautions, these are listed under an orange banner.

Note boxes contain pertinent reminders and are not always present for every flow chart.

Note

 Pertinent reminders will appear here.

1 General treatment principles

- 1.1 ATP and practice levels
- 1.4 Analgesia
- 1.6 Assessing competency
- 1.7 Calling the Clinical Desk
- 1.10 Handover
- 1.12 Major incident sitrep
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1.1 Authority to practise and practice levels

Ambulance personnel cannot legally supply or administer prescription medicines to patients unless they have authority to practise, or they are a Registered Health Practitioner with the ability to supply or administer prescription medicines described within their scope of practice. In addition, services restrict the use of some items of clinical equipment and the performance of some clinical procedures to personnel at specified practice levels.

Authority to practise is the authorisation of a person to use these CPGs by the ambulance service Medical Director. Personnel may not use these CPGs without authority to practise. Authority to practise is granted at a specified practice level and the practice levels are listed in the table. Each practice level has a delegated scope of practice. The delegated scopes of practice define the medicines and procedures that personnel may administer or perform when treating patients. First aid interventions that are not described within the delegated scopes of practice (for example CPR and automated defibrillation) may be provided by personnel without authority to practise.

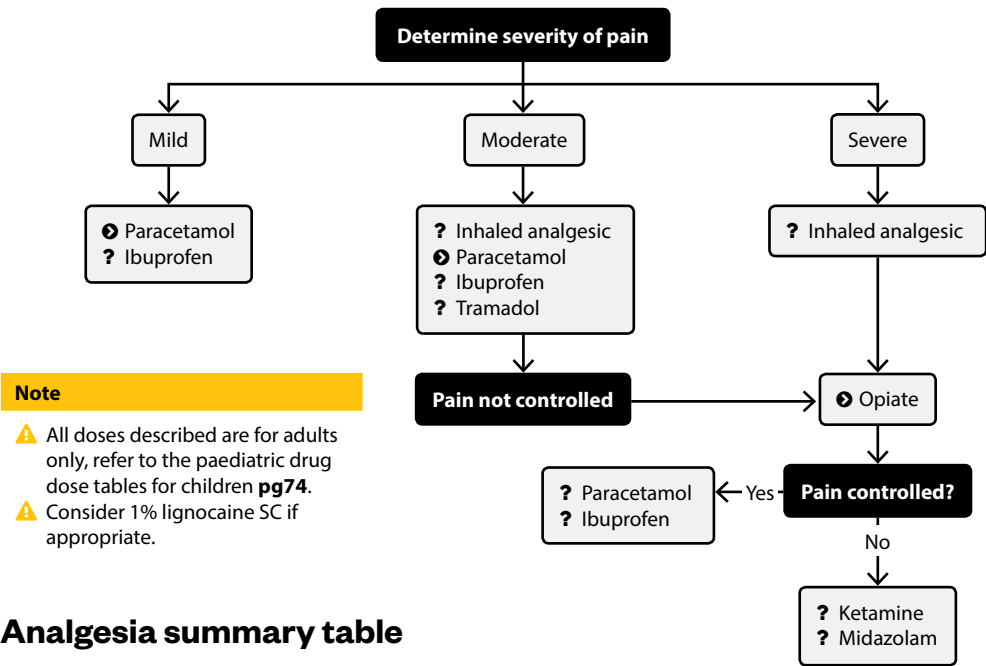
SKILL	EMT	PARAMEDIC	ICP
Adrenaline IM, IN, nebulised and topical	✓	✓	✓
Entonox inhaled	✓	✓	✓
Glucagon IM	✓	✓	✓
GTN SL	✓	✓	✓
Ibuprofen PO	✓	✓	✓
Ipratropium nebulised	✓	✓	✓
Laryngeal mask airway	✓	✓	✓
Laryngoscopy (airway obstruction)	✓	✓	✓
Loratadine PO	✓	✓	✓
Methoxyflurane inhaled	✓	✓	✓
Ondansetron PO	✓	✓	✓
Paracetamol PO	✓	✓	✓

SKILL	EMT	PARAMEDIC	ICP
Prednisone PO	✓	✓	✓
PEEP	✓	✓	✓
Salbutamol nebulised	✓	✓	✓
Tramadol PO	✓	✓	✓
Urinary catheter troubleshooting	✓	✓	✓
Adrenaline IV (cardiac arrest only)		✓	✓
Amiodarone IV (cardiac arrest only)		✓	✓
Amoxicillin/clavulanic acid IM or IV		✓	✓
Clopidogrel PO		✓	✓
Enoxaparin SC		✓	✓
Fentanyl IN and IV		✓	✓
Gentamicin IV		✓	✓
Glucose IV		✓	✓
Heparin IV		✓	✓
IV cannulation		✓	✓
1% lignocaine SC		✓	✓
Manual defibrillation		✓	✓
Metoprolol IV		✓	✓
Midazolam IM (seizures or agitated delirium only)		✓	✓
Midazolam IV (seizures only)		✓	✓
Morphine IM and IV		✓	✓
Naloxone IM and IV		✓	✓
Olanzapine PO		✓	✓
Ondansetron IM and IV		✓	✓

SKILL	EMT	PARAMEDIC	ICP
Oxytocin IM		✓	✓
0.9% sodium chloride IV		✓	✓
Synchronised cardioversion		✓	✓
Tenecteplase IV		✓	✓
Valproate IV		✓	✓
Adenosine IV			✓
Adrenaline (all routes)			✓
Amiodarone IV			✓
Atropine IV			✓
Calcium chloride IV			✓
Chest decompression (needle)			✓
Cricothyroidotomy			✓
Endotracheal intubation			✓
Finger thoracostomy			✓
IO access			✓
Ketamine (all routes)			✓
1% lignocaine (all routes)			✓
Magnesium IV			✓
Midazolam IV			✓
Pacing			✓
Rocuronium IV			✓
8.4 % sodium bicarbonate IV			✓
Suxamethonium IV (RSI endorsed personnel only)			✓



1.4 Analgesia



Analgesia summary table

PARACETAMOL		
<ul style="list-style-type: none">• 1 g PO if 50-80 kg• 1.5 g PO if >80 kg	<ul style="list-style-type: none">✗ Paracetamol poisoning	<ul style="list-style-type: none">○ Paracetamol in last 4 hours○ Abdominal pain○ Severe liver disease
IBUPROFEN		
<ul style="list-style-type: none">• 400 mg PO if 50-80 kg• 600 mg PO if >80 kg	<ul style="list-style-type: none">✗ 3rd trimester pregnancy	<ul style="list-style-type: none">○ Ibuprofen in last 4 hours○ Abdominal pain○ Age ≥75 years○ Renal impairment○ Bleeding disorder○ Clinically significant bleeding○ Bronchospasm with NSAIDS○ Taking warfarin○ Pregnancy

TRAMADOL

- 50 mg PO
- ✗ Age <12 years
- ⊖ Tramadol in last 4 hours
- ⊖ Abdominal pain
- ⊖ Age ≥75 years

METHOXYFLURANE

- 3 ml inhaled
- Can repeat 3 ml x1
- ✗ Personal or family history of MH
- ✗ Unable to obey commands
- ✗ Known renal impairment
- ✗ Has had methoxyflurane in the last week
- ⊖ Age ≥75 years
- ⊖ Pre-eclampsia
- ⊖ Confined spaces

ENTONOX

- Inhaled prn
- ✗ Unable to obey commands
- ✗ Pneumothorax
- ✗ Bowel obstruction
- ✗ SCUBA diving in last 24 hours or has diving related emergency
- ⊖ Confined spaces
- ⊖ Chronic pain disorders and use ambulance frequently

FENTANYL

- 10-50 mcg IV every 3-5 mins
- 100 mcg IN if 50-80 kg
- 200 mcg IN if >80 kg
- Halve subsequent IN doses, repeat every 10 mins prn
- ✗ Unable to obey commands
- ✗ Respiratory depression
- ⊖ <1 year of age
- ⊖ High risk of respiratory depression
- ⊖ Labour

MORPHINE

- 1-5 mg IV every 3-5 mins
- 5-10 mg IM
- Can repeat IM x1 after 10 mins
- ✗ Unable to obey commands
- ✗ Respiratory depression
- ⊖ <1 year of age
- ⊖ High risk of respiratory depression
- ⊖ Labour

KETAMINE

- 10-50 mg IV every 3-5 mins
- 1 mg/kg IM (max 100 mg)
- Can repeat IM dose x1 after 10 mins
- ✗ <1 year
- ✗ Myocardial ischaemia
- ⊖ Unable to obey commands
- ⊖ Active psychosis
- ⊖ Hypertension
- ⊖ Clinical condition that may be worsened by hypertension

1.6 Assessing competency

REASONABLE GROUNDS FOR BELIEVING A PATIENT IS NOT COMPETENT

Any of the following:

- Appears unable to understand information or
- Appears unable to understand the consequences of their decisions or
- Appears unable to remember information or
- Has attempted suicide or
- A threat to commit suicide appears significant or genuine.

IF PERSONNEL BELIEVE THE PATIENT IS NOT COMPETENT TO MAKE INFORMED DECISIONS, TREATMENT MAY BE PROVIDED AGAINST THE PATIENT'S WILL IF:

All of the following:

- Personnel believe treatment is in the patient's best interest and
- Personnel believe the risks associated with providing treatment are less than the risks of not providing treatment and
- The treatment is not contradicting a valid advance directive.

1.7 Calling the Clinical Desk

I Identify yourself: state your name, practice level, vehicle call sign and where you are calling from.

S Situation: state a succinct reason for calling.

B Background: briefly describe the background of the incident.

A Assessment: describe your assessment of the patient. Ensure any information that is likely to be required is available.

R Recommend and review: state what you think is required and then listen to instructions from personnel on the Clinical Desk. Review and confirm the plan before ending the call.

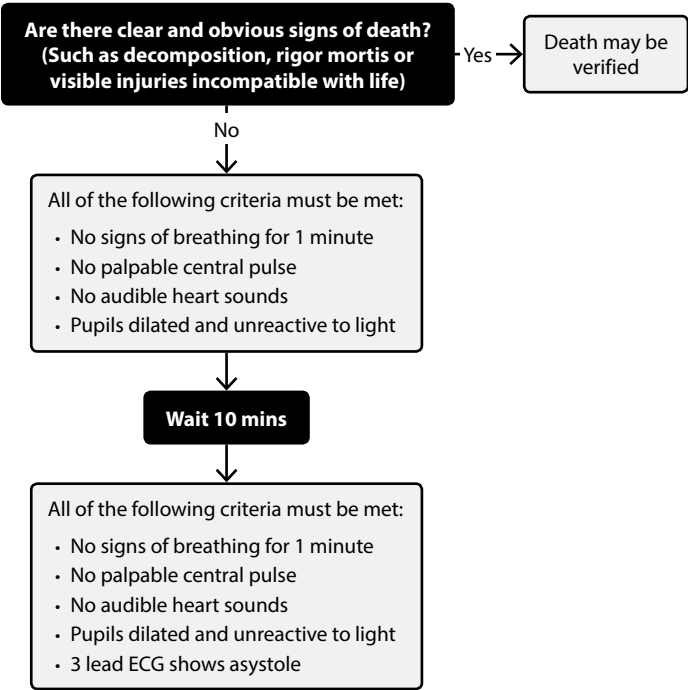
1.10 Handover

- I** Identification of the patient.
- M** Mechanism of injury or medical complaint.
- I** Injuries identified or information related to the medical complaint.
- S** Signs and symptoms.
- T** Treatment provided and trends.
- A** Allergies.
- M** Medicines.
- B** Background including previous medical history.
- O** Other (including information on family and social situation).

1.12 Major incident sitrep

- M** Major incident declaration.
- E** Exact location of incident.
- T** Type of incident.
- H** Hazards (significant) identified.
- A** Access and egress.
- N** Number (estimated) of patients.
- E** Emergency services already present and extra resources required.

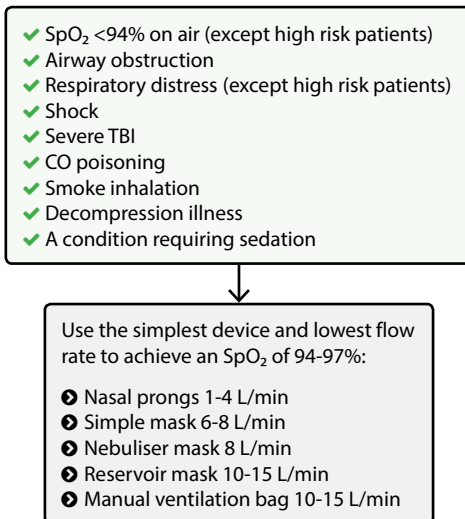
1.14 Verification of death



Note

- ⚠ There may be slow broad complexes consistent with a dying heart. If this is the case, wait until asystole is present before verifying death.
- ⚠ If a patient has a pacemaker, it is appropriate to verify death despite electrical activity on the ECG, provided all other clinical criteria are met.
- ⚠ Personnel with ATP must always complete a verification of death form if death is verified.

1.15 Oxygen administration



Note

⚠ High risk patients include:

- CORD
- Morbid obesity
- On home O₂
- On home CPAP or BiPAP
- Neonates.

⚠ If high risk adult, titrate to patient's known normal SpO₂. If not known, titrate to 88-92%.

⚠ If neonate, titrate to 90-95% 10 mins after birth.

1.17 Requesting a helicopter


ANTS request criteria

ACCESS	Access is difficult and a helicopter is the most appropriate means of extrication.
NUMBER	The number of patients at the scene exceeds the capacity of road resources.
TIME	The patient has a time sensitive condition and a helicopter will result in a clinically significant time saving in the patient arriving in hospital.
SKILL	The patient requires personnel with specific skills and a helicopter will result in a clinically significant time saving in appropriately skilled personnel reaching the patient.

Provide the following information to Control/Comms:

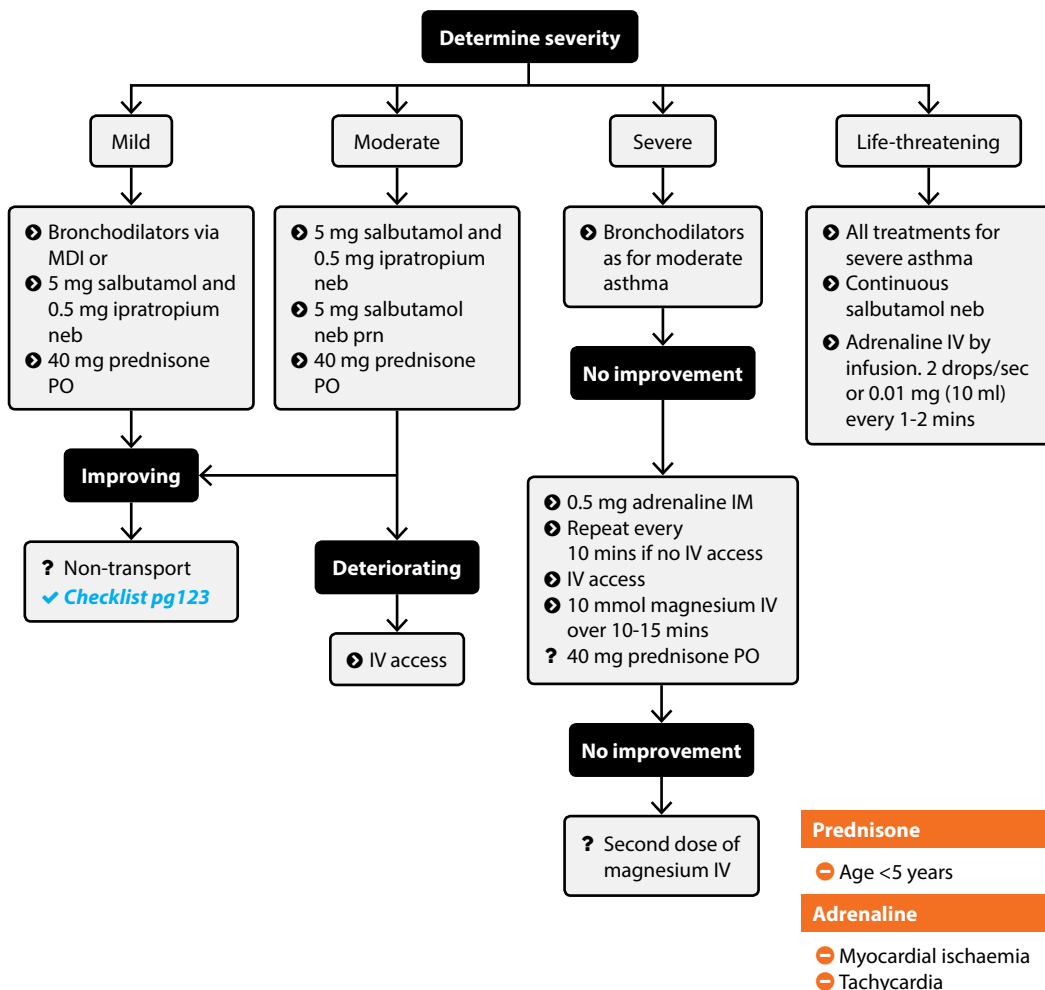
- The reason a helicopter is required, including the main request criteria.
- A brief summary of the patient’s clinical condition.
- The expected immediate treatment needs of the patient.
- The expected hospital destination.
- Whether or not there are any specific requirements, for example winching.

Note

-  The time saving must be clinically significant:
- More than 15 minutes time saving if the patient is status one and has a time critical condition.
 - More than 30 minutes time saving if the patient is status two and has a time sensitive condition.
 - More than 60 minutes time saving if the patient is status three and has a time sensitive condition.



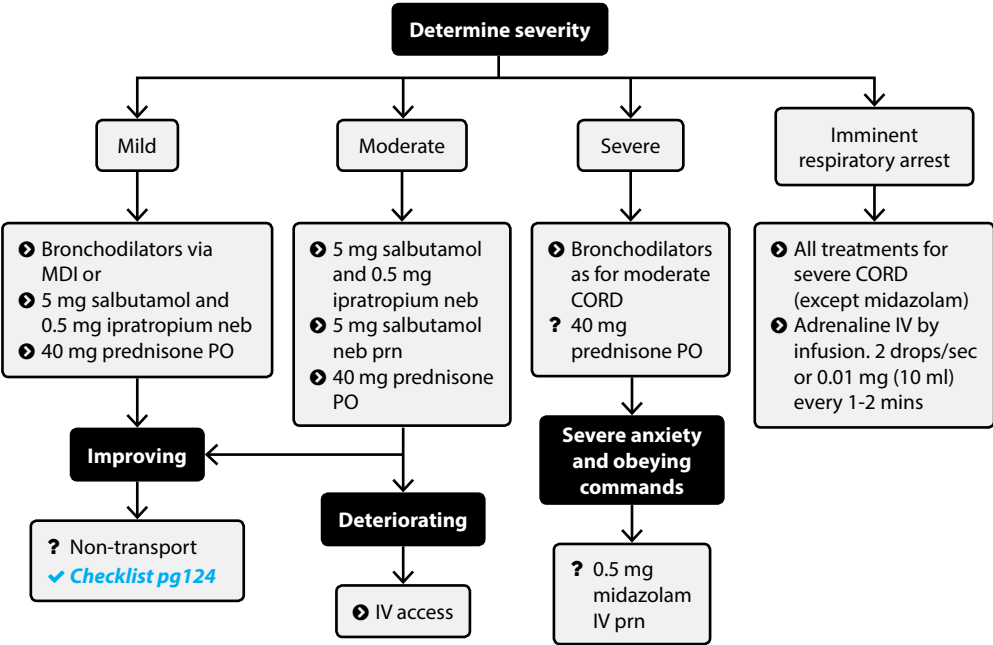
2.1 Asthma



Note

⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.

2.2 Chronic obstructive respiratory disease (CORD)



Note

- ⚠ Titrate oxygen to SpO₂ of 88-92%.
- ⚠ Avoid using O₂ to nebulise meds if feasible.
- ⚠ If no air available to nebulise, alternate 5 mins with mask on and 5 mins with mask off, if SpO₂ >92%.

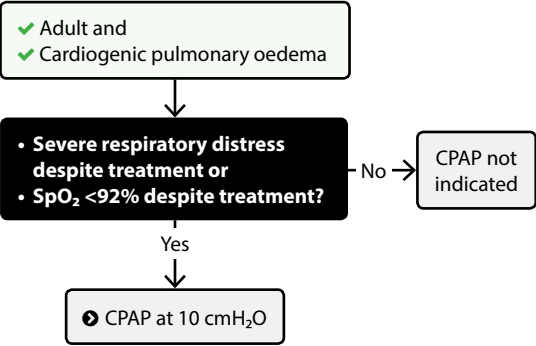
Midazolam

- ⊖ Elderly
- ⊖ Altered LOC

Adrenaline

- ⊖ Myocardial ischaemia
- ⊖ Tachycardia

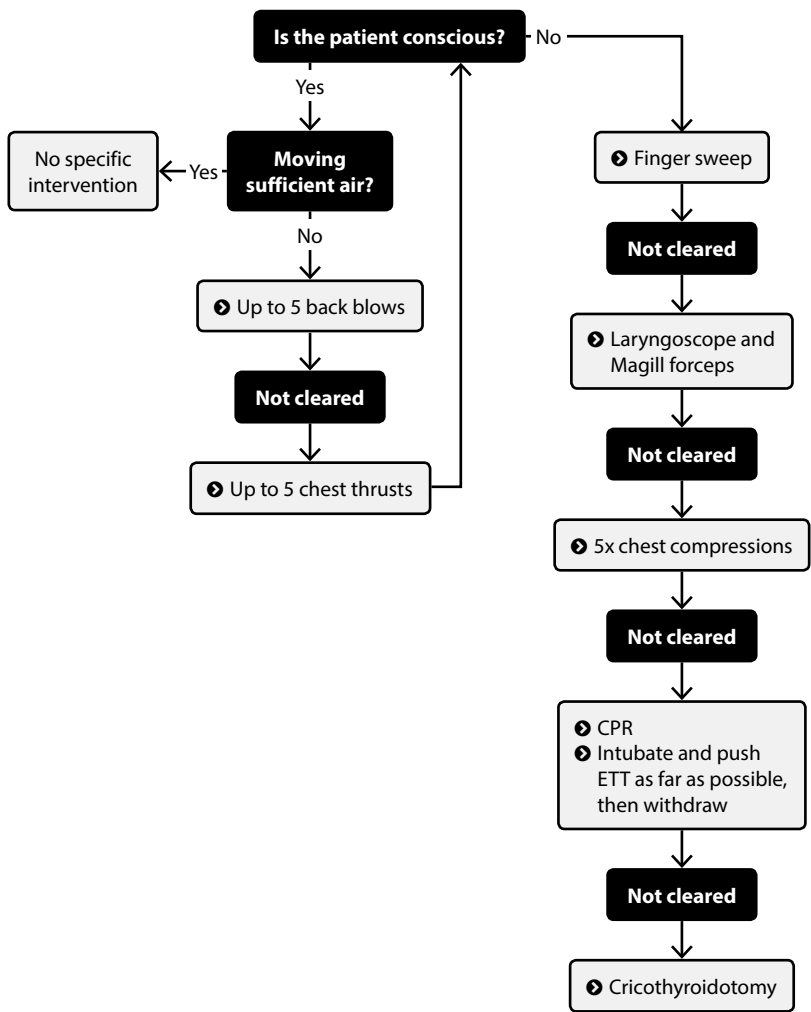
2.3 Continuous positive airway pressure (CPAP)



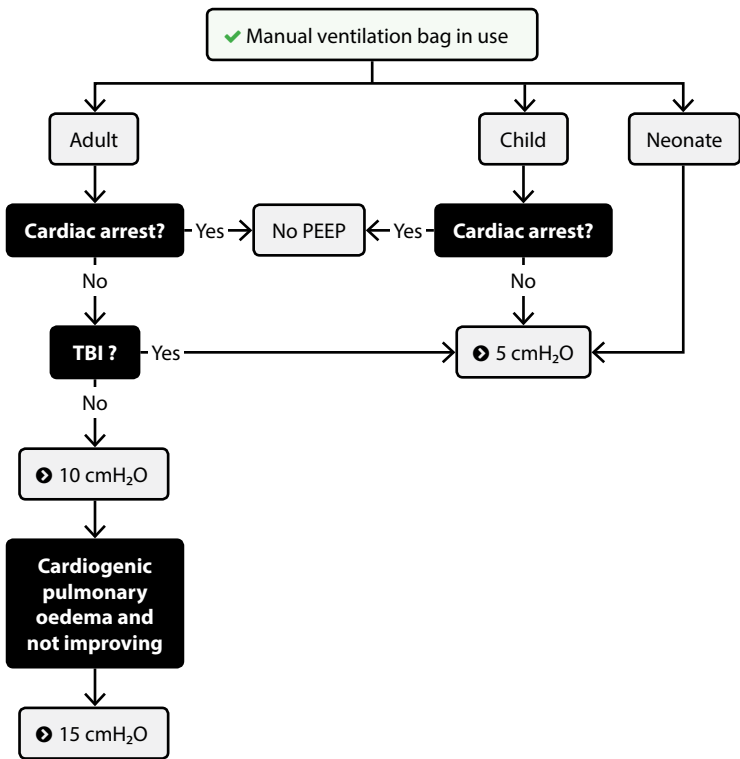
Note

⚠ Use CPAP with caution if the patient has an altered LOC or signs of shock.

2.4 Foreign body airway obstruction



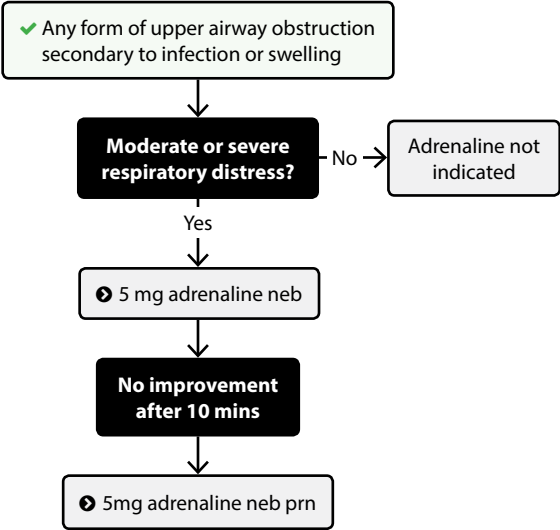
2.5 Positive end expiratory pressure (PEEP)



Note

⚠ Use PEEP with caution if the patient has signs of shock.

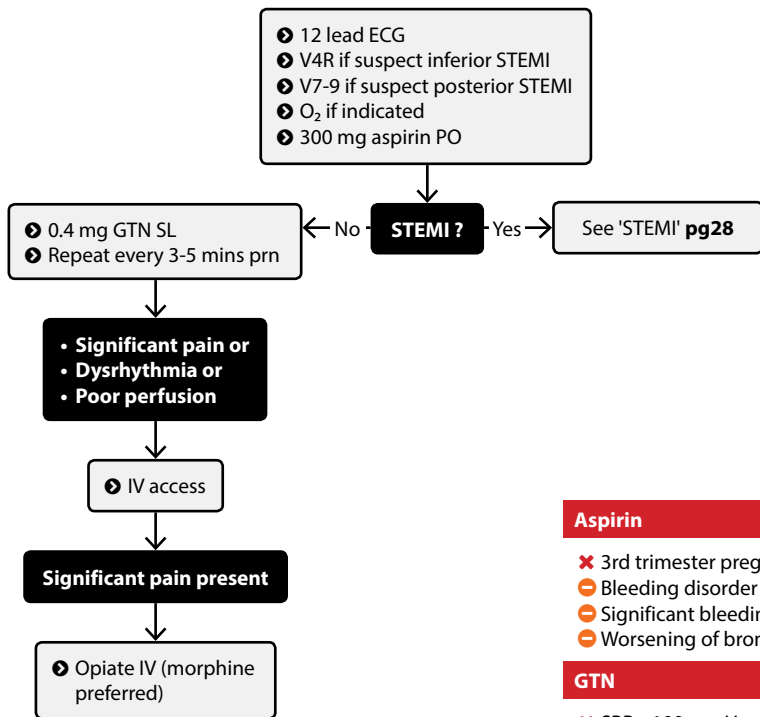
2.6 Stridor





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3.2 Myocardial ischaemia



Aspirin

- ✗ 3rd trimester pregnancy
- ⊖ Bleeding disorder
- ⊖ Significant bleeding
- ⊖ Worsening of bronchospasm

GTN

- ✗ SBP <100 mmHg
- ✗ HR <40/min or >130/min
- ✗ VT
- ⊖ STEMI
- ⊖ Small, frail or physiologically unstable
- ⊖ Poor perfusion
- ⊖ Dysrhythmia
- ⊖ Erectile dysfunction drugs
- ⊖ Known aortic or mitral stenosis

Morphine and fentanyl

- ✗ Respiratory depression
- ✗ Unable to obey commands
- ⊖ At high risk of respiratory depression

Note

- ⚠ This section is for adults only, seek clinical advice if the patient is a child.
- ⚠ The elderly, diabetics and women are at increased risk of silent myocardial ischaemia.

3.3 12 lead ECG criteria for STEMI

- ✓ More than or equal to 2 mm of ST elevation in two or more leads V1-3 or
- ✓ More than or equal to 1 mm of ST elevation in two or more contiguous leads in any other area (V4-6, I, II, III, aVL or aVF) or
- ✓ More than or equal to 1 mm of ST elevation in two or more contiguous posterior leads (V7-9) or
- ✓ Left bundle branch block that is known to be new.

Lead I High Lateral	aVR	Lead V1 Septal	Lead V4 Anterior
Lead II Inferior	Lead aVL High Lateral	Lead V2 Septal	Lead V5 Lateral
Lead III Inferior	Lead aVF Inferior	Lead V3 Anterior	Lead V6 Lateral

Additional 12 lead ECG territory nomenclature:

- Anteroseptal: V1-V4.
- Anterolateral: V3-V6, I and aVL.
- Extensive anterior: V1-V6.
- Inferolateral: II, III, aVF, V5, V6 and/or I and aVL.
- Posterior: V7-V9.

3.3 STEMI diagnosis

STEMI criteria

✓

≥2 mm of ST elevation in two or more leads V1-3 or

✓

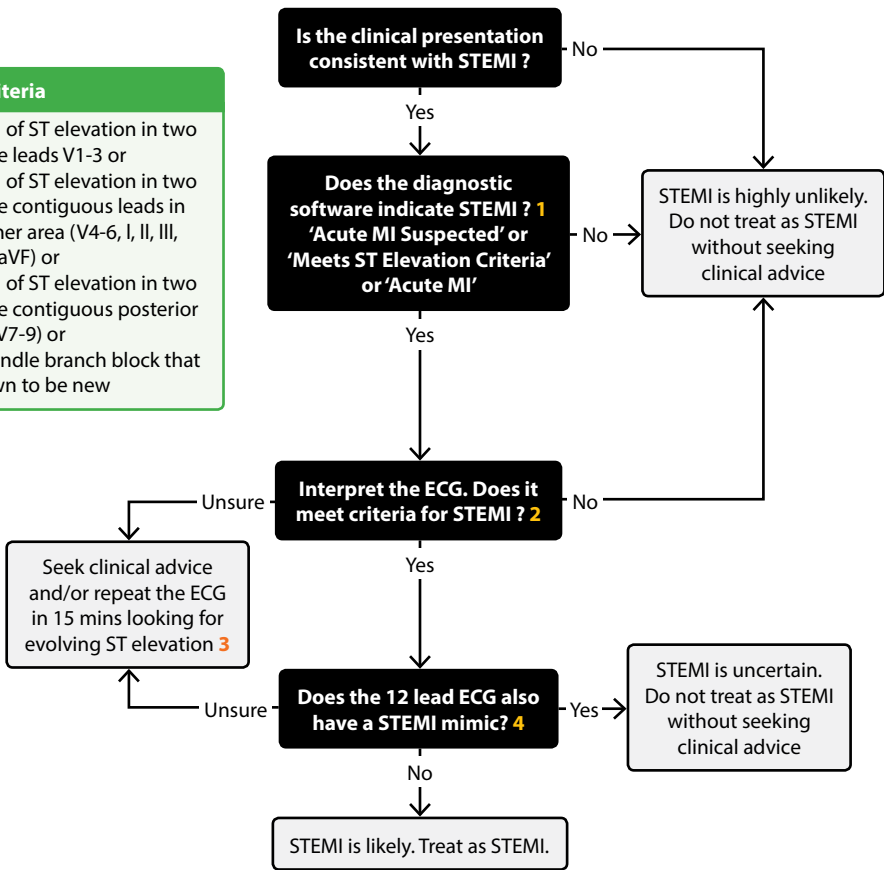
≥1 mm of ST elevation in two or more contiguous leads in any other area (V4-6, I, II, III, aVL or aVF) or

✓

≥1 mm of ST elevation in two or more contiguous posterior leads (V7-9) or

✓

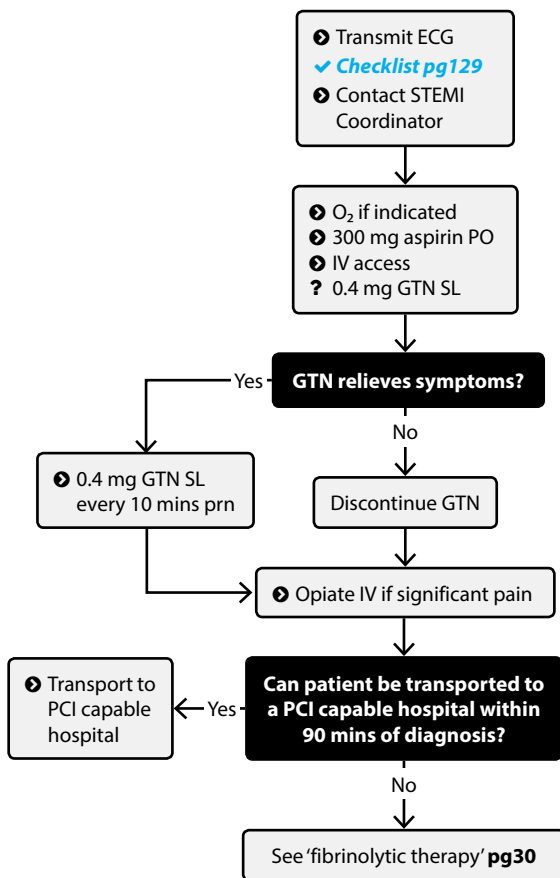
Left bundle branch block that is known to be new



Note

- 1 EMTs should call for backup or seek clinical advice.
- 2 The presence of ST depression in reciprocal leads increases the likelihood of STEMI.
- 3 The presence of evolving ST elevation increases the likelihood of STEMI.
- 4 In particular: LBBB (anterior STEMI), RBBB (anterior STEMI), LVH (anterior STEMI), paced rhythm, benign early repolarisation.

3.3 STEMI treatment



Aspirin

- ✗ 3rd trimester pregnancy
- ⊖ Bleeding disorder
- ⊖ Significant bleeding
- ⊖ Worsening of bronchospasm

GTN

- ✗ SBP <100 mmHg
- ✗ HR <40/min or >130/min
- ✗ VT
- ⊖ STEMI
- ⊖ Small, frail or physiologically unstable
- ⊖ Poor perfusion
- ⊖ Dysrhythmia
- ⊖ Erectile dysfunction drugs
- ⊖ Known aortic or mitral stenosis

Morphine and fentanyl

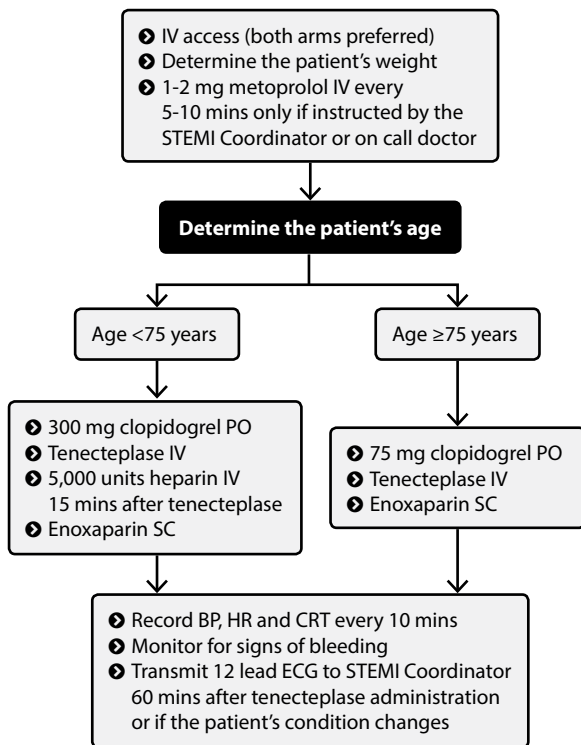
- ✗ Respiratory depression
- ✗ Unable to obey commands
- ⊖ At high risk of respiratory depression

Note

⚠ This section is for adults only, seek clinical advice if the patient is a child.



3.4 Fibrinolytic therapy



Metoprolol

- ✗ Bradycardia
- ✗ Hypotension
- 1st, 2nd or 3rd degree heart block
- Sick sinus syndrome
- Asthma or CORD

Clopidogrel, heparin and enoxaparin

- Significant bleeding
- Taking an anticoagulant
- At risk of bleeding

Tenecteplase

- ✗ Suspected aortic dissection
- ✗ Major trauma, major surgery or severe TBI in last 6 weeks
- ✗ Intracranial surgery in last 6 months
- ✗ Ischaemic stroke in last 6 months
- ✗ Previous intracerebral haemorrhage
- ✗ Known cerebral aneurysm, AVM or tumour
- Significant bleeding
- >10 mins CPR
- Vascular puncture in last 24 hours
- Internal bleeding in last 6 weeks
- Lumbar puncture or epidural insertion in last 6 weeks
- Bleeding disorder
- Taking warfarin or dabigatran
- SBP >180 mmHg or DBP >110 mmHg
- Pregnant or <2 weeks postpartum

3.4 Fibrinolytic therapy doses

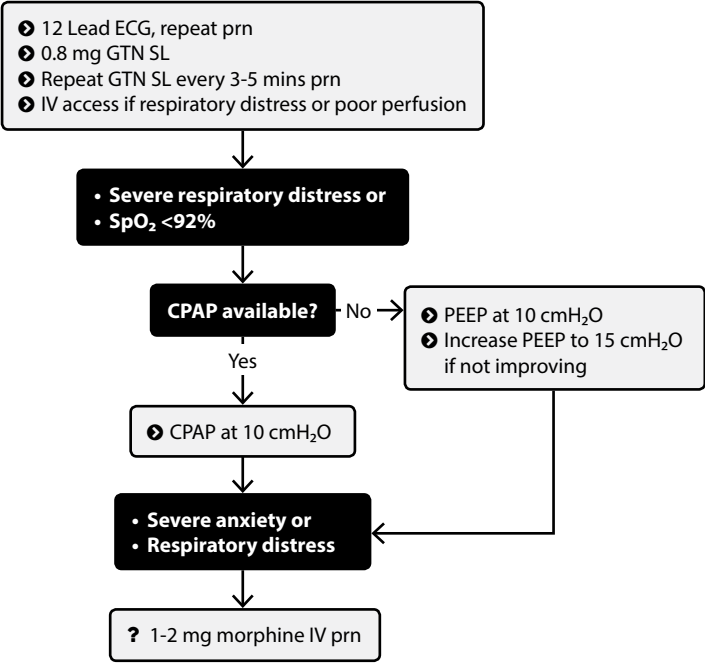
Age less than 75 years

	TENECTEPLASE		ENOXAPARIN	
Weight	Tenecteplase (dose IV)	Tenecteplase (volume IV)	Enoxaparin (dose SC)	Enoxaparin (volume SC)
<60 kg	30 units	6 ml	60 mg	0.6 ml
60-69 kg	35 units	7 ml	70 mg	0.7 ml
70-79 kg	40 units	8 ml	80 mg	0.8 ml
80-89 kg	45 units	9 ml	90 mg	0.9 ml
≥90 kg	50 units	10 ml	100 mg	1 ml

Age 75 years or older

	TENECTEPLASE		ENOXAPARIN	
Weight	Tenecteplase (dose IV)	Tenecteplase (volume IV)	Enoxaparin (dose SC)	Enoxaparin (volume SC)
<60 kg	15 units	3 ml	45 mg	0.45 ml
60-69 kg	17.5 units	3.5 ml	50 mg	0.5 ml
70-79 kg	20 units	4 ml	60 mg	0.6 ml
80-89 kg	22.5 units	4.5 ml	70 mg	0.7 ml
≥90 kg	25 units	5 ml	75 mg	0.75 ml

3.5 Cardiogenic pulmonary oedema



Note

- ⚠ This section is for adults only, seek clinical advice if the patient is a child.
- ⚠ Use CPAP with caution if altered LOC or signs of shock.
- ⚠ Use PEEP with caution if signs of shock.

GTN

- ✗ SBP <100 mmHg
- ✗ HR <40/min or >130/min
- ⊖ STEMI
- ⊖ Small, frail or physiologically unstable
- ⊖ Poor perfusion
- ⊖ Dysrhythmia
- ⊖ Erectile dysfunction drug
- ⊖ Aortic or mitral stenosis

Morphine

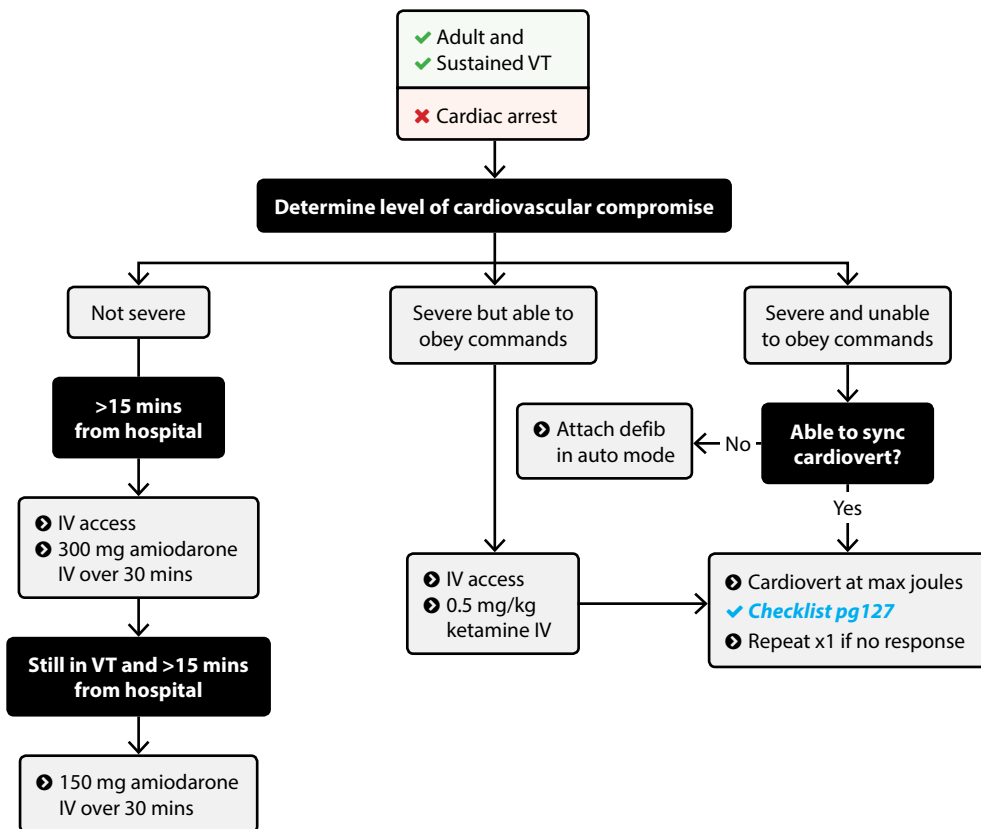
- ✗ Respiratory depression
- ✗ Unable to obey commands

3.6 Determining the level of cardiovascular compromise

NOT COMPROMISED	MILDLY COMPROMISED
<ul style="list-style-type: none"> • Normal vital signs. • No symptoms of myocardial ischaemia. • 'Looks status four'. 	<ul style="list-style-type: none"> • Near normal vital signs e.g. near normal BP and CRT, normal LOC, normal or near normal breathing. • Mild symptoms of myocardial ischaemia. • 'Looks status three'.
MODERATELY COMPROMISED	SEVERELY COMPROMISED
<ul style="list-style-type: none"> • Abnormal vital signs e.g. hypotension or prolonged CRT, altered LOC but can obey commands, moderate shortness of breath. • Significant symptoms of myocardial ischaemia. • 'Looks status two'. 	<ul style="list-style-type: none"> • Markedly abnormal vital signs e.g. severe hypotension, inability to obey commands, severe shortness of breath. • High risk of cardiac arrest. • 'Looks status one'.



3.7 Ventricular tachycardia



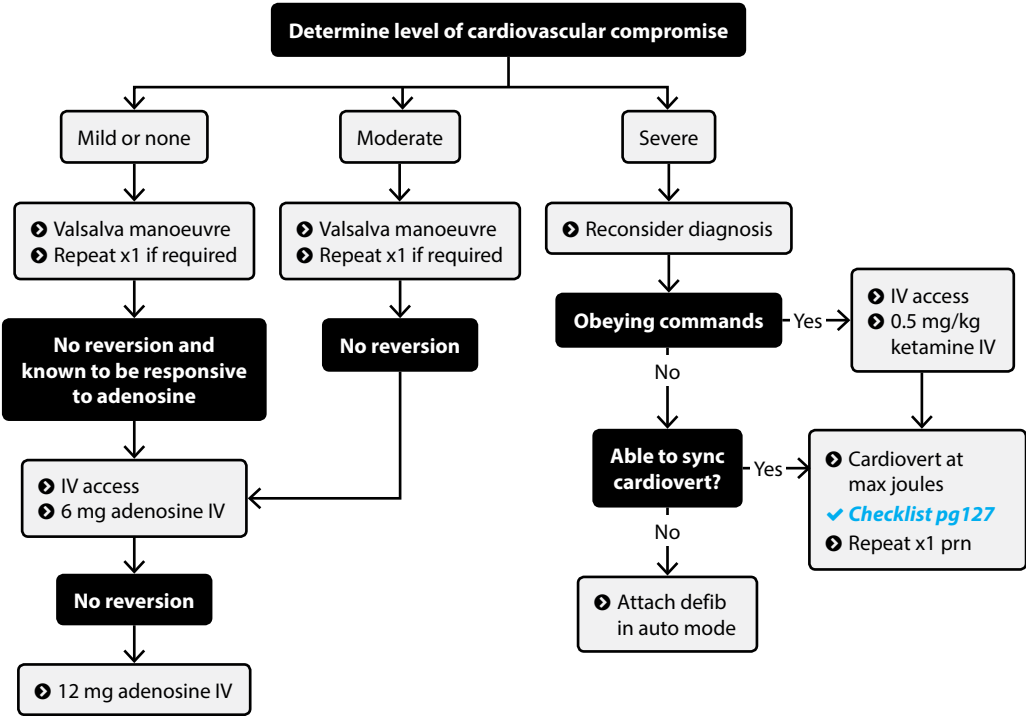
Note

- ⚠ Do not administer GTN.
- ⚠ SVT with abnormal conduction can mimic VT.
- ⚠ Consider an IV bolus of sodium ions if VT is secondary to poisoning.

Amiodarone

- ✗ VT secondary to poisoning
- ✗ Known severe allergy to iodine
- ⊖ Poor perfusion
- ⊖ Hypotension
- ⊖ Sick sinus syndrome
- ⊖ Previous 2nd or 3rd degree heart block

3.8 Supraventricular tachycardia



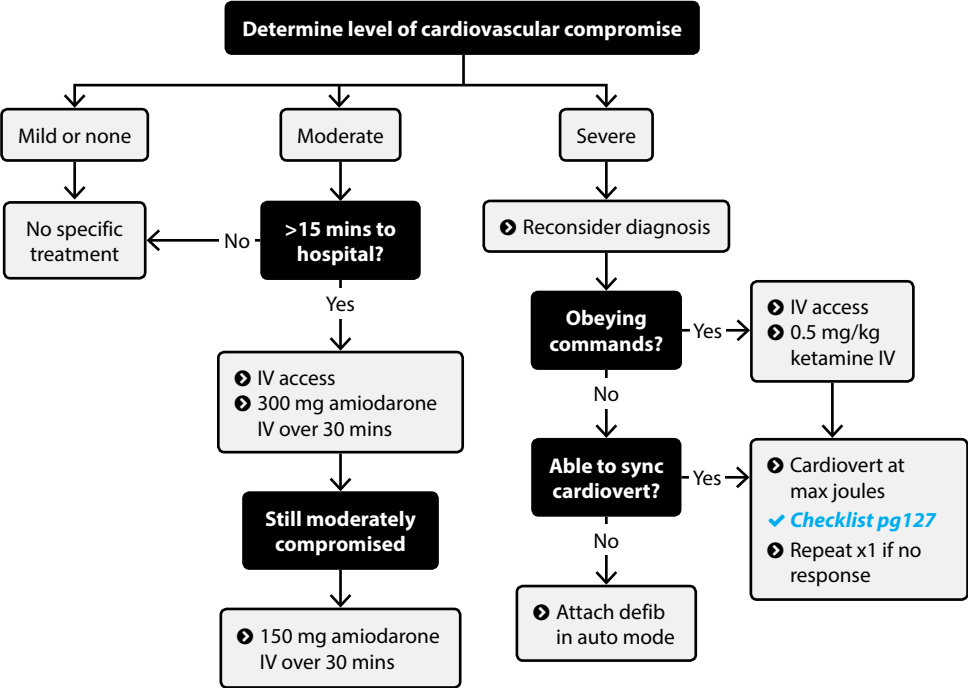
Adenosine

- ✗ Sick sinus syndrome without pacemaker
- ✗ Previous 2nd or 3rd degree heart block without pacemaker
- ✗ Heart transplantation without pacemaker
- ⊖ Asthma
- ⊖ CORD
- ⊖ WPW syndrome with a rhythm that could be fast AF

Note

⚠ This section is for adults only, seek clinical advice if the patient is a child.

3.9 Atrial fibrillation or atrial flutter



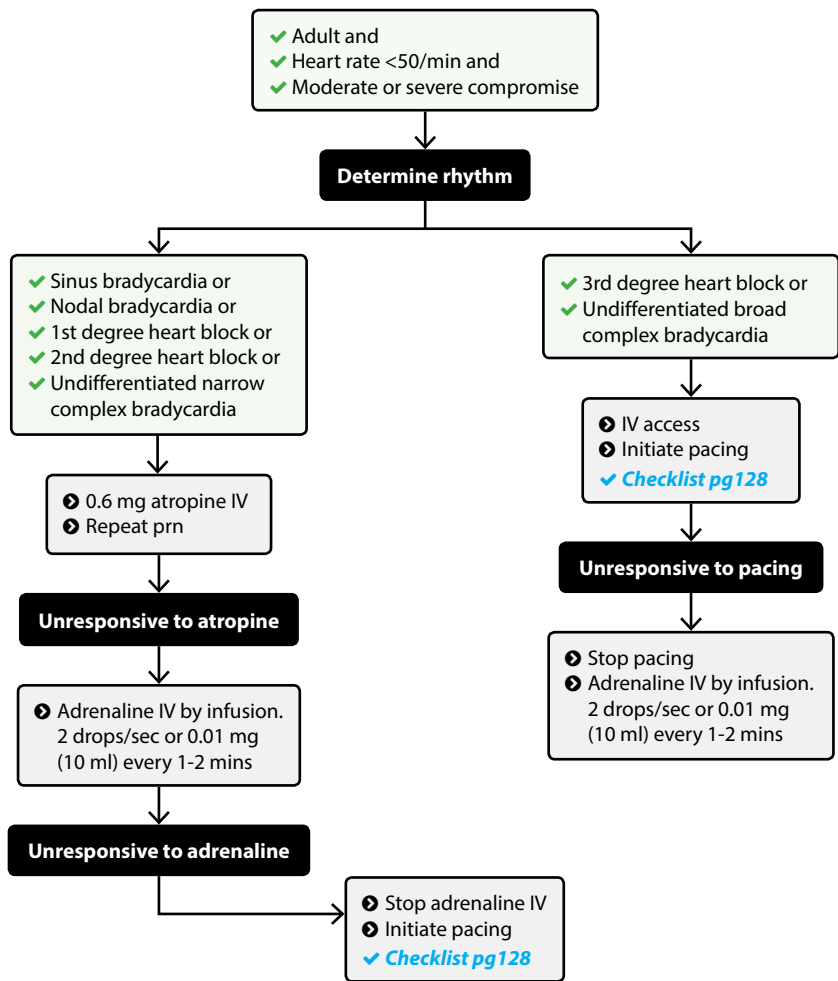
Amiodarone

- ✗ Known severe allergy to iodine
- ⊖ Poor perfusion
- ⊖ Hypotension
- ⊖ Atrial fibrillation with severe sepsis
- ⊖ Sick sinus syndrome
- ⊖ Previous 2nd or 3rd degree heart block

Note

⚠ This section is for adults only, seek clinical advice if the patient is a child.

3.11 Bradycardia



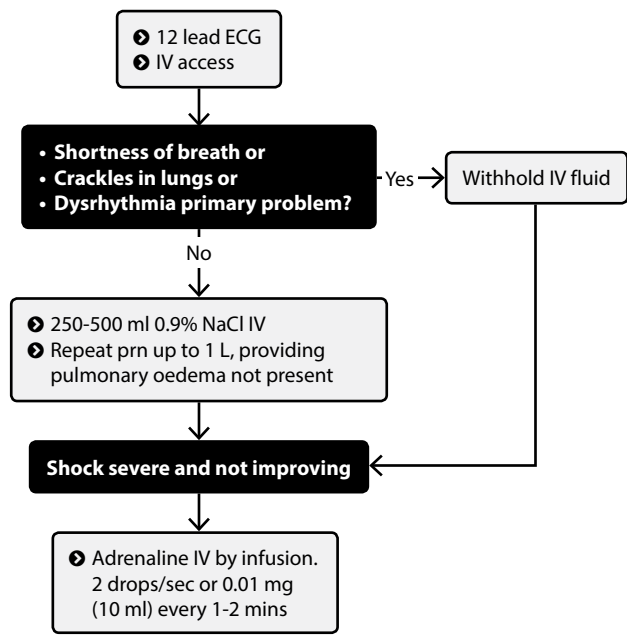
Note

⚠ Consider a second ICP if pacing.

Atropine and adrenaline

⊖ Myocardial ischaemia

3.12 Cardiogenic shock



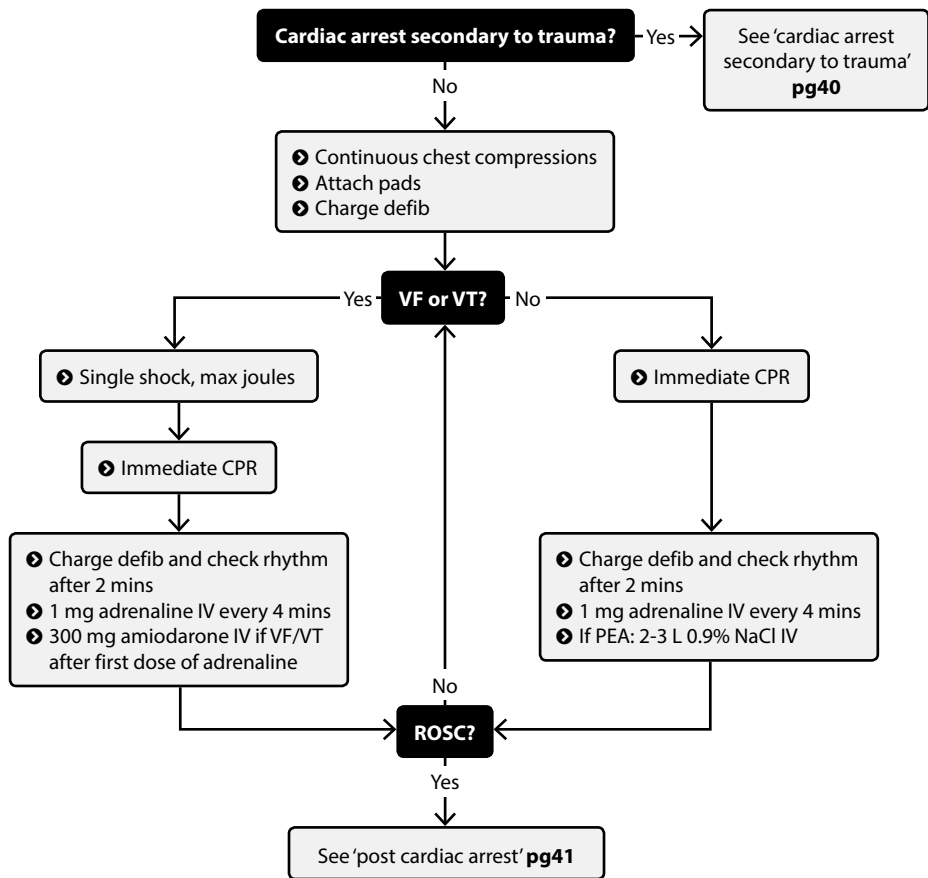
Note

- ⚠ This section is for adults only, seek clinical advice if the patient is a child.
- ⚠ Do not administer GTN.
- ⚠ Use caution with opiates, amiodarone, CPAP and PEEP.

Adrenaline

- ⊖ Myocardial ischaemia
- ⊖ Tachycardia

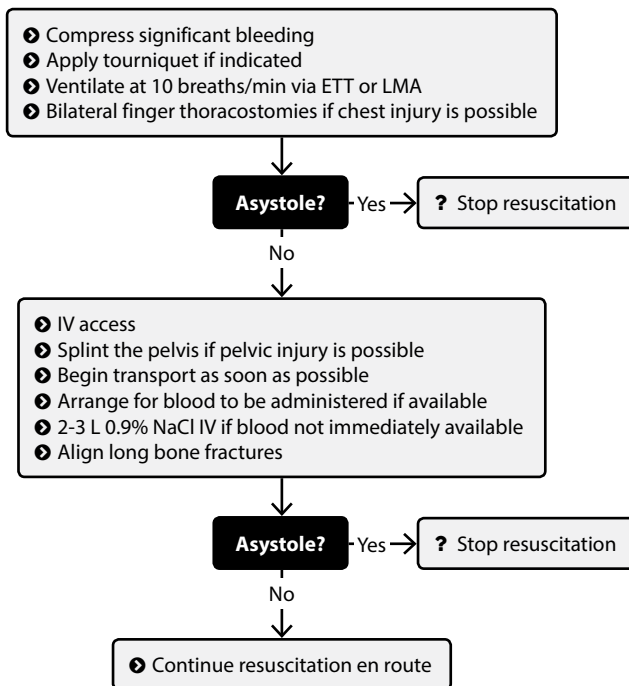
3.13 Cardiac arrest



Note

- ⚠ If VF persists for >15-20 mins, consider administering a further 150 mg amiodarone IV.
- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.

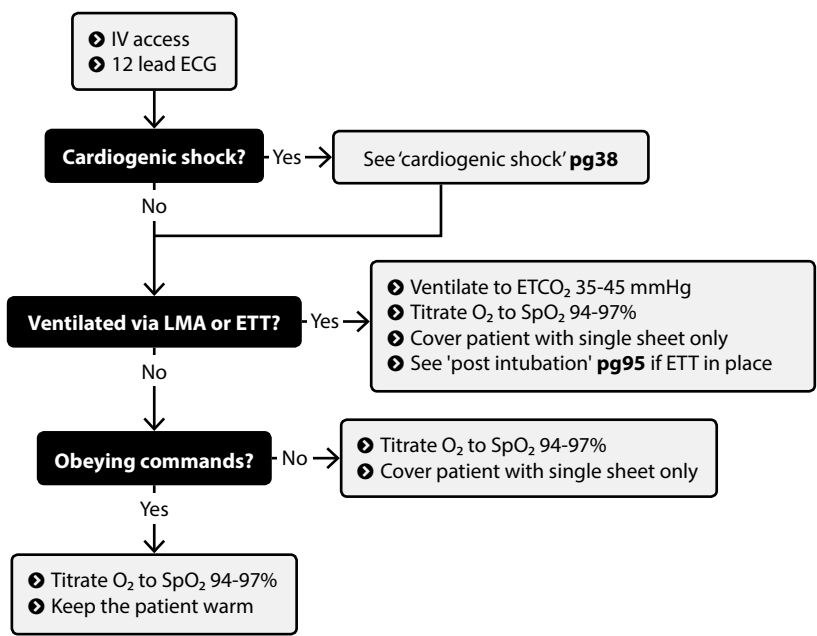
3.13 Cardiac arrest secondary to trauma



Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ Do not perform chest compressions.
- ⚠ IV medicines are not a priority.
- ⚠ It is usually inappropriate to resuscitate a trapped patient who is in cardiac arrest.

3.14 Post cardiac arrest care

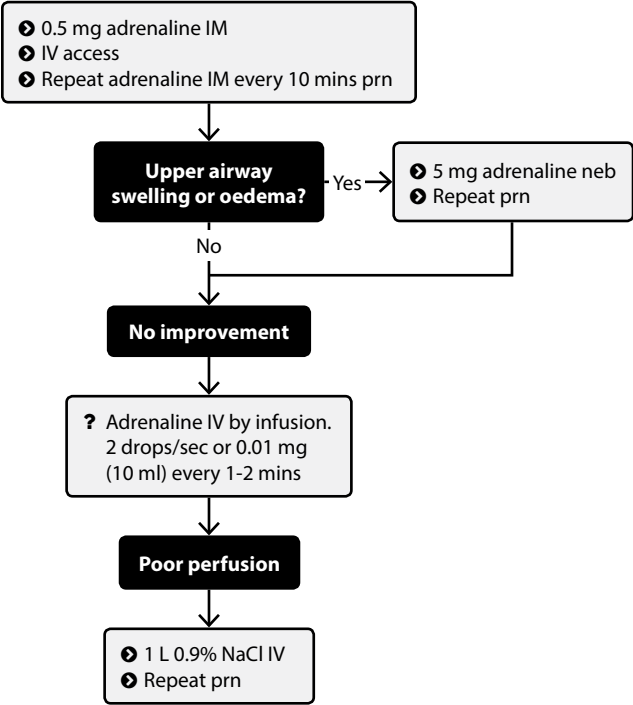


Note

- ⚠ Transport to a hospital with PCI facilities if the patient has STEMI whenever feasible. In all other instances transport to a major hospital whenever feasible.
- ⚠ Request backup for RSI if the patient has not been intubated and:
 - Backup can locate at least 15 minutes faster than transport can occur to hospital and
 - The patient has a poor airway or poor breathing and
 - The patient has a GCS less than or equal to 10.



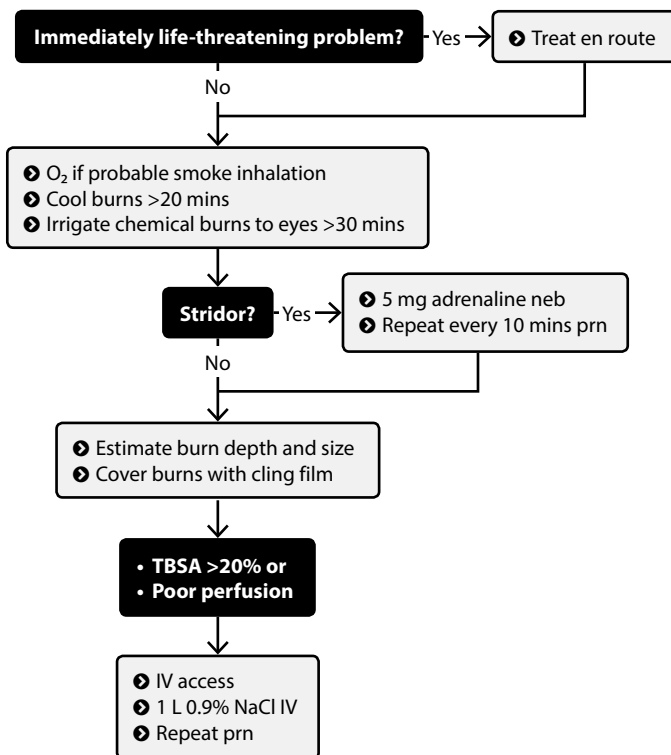
4.2 Anaphylaxis



Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ All personnel may administer the patient's own adrenaline IM.

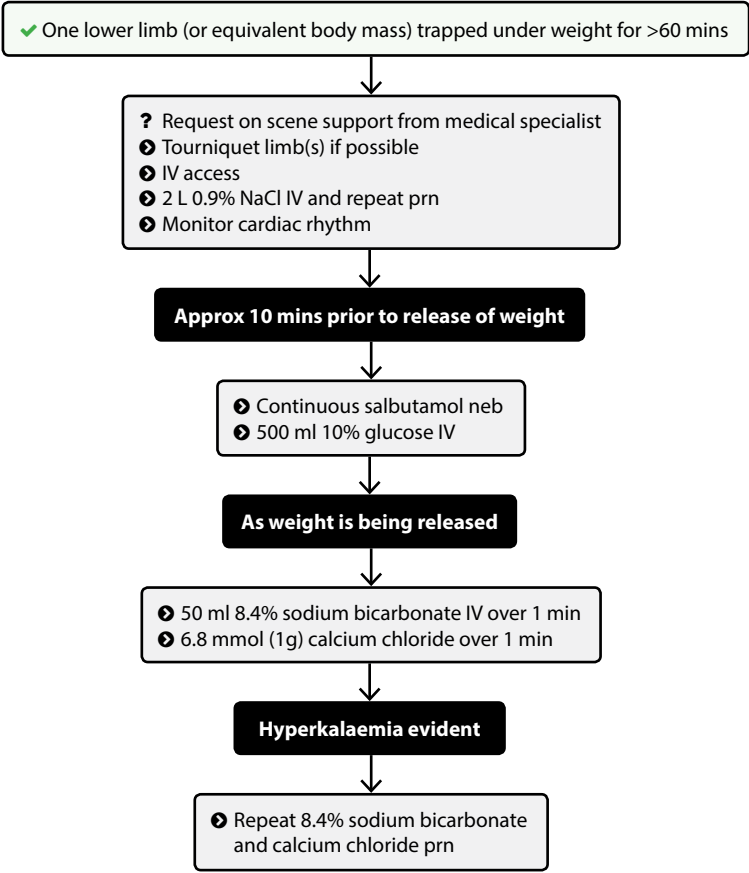
4.3 Burns



Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ Administer bronchodilators as per 'asthma' **pg18** if bronchospasm is prominent.
- ⚠ Keep the patient warm.
- ⚠ Transport to a designated major trauma hospital if TBSA >20%.

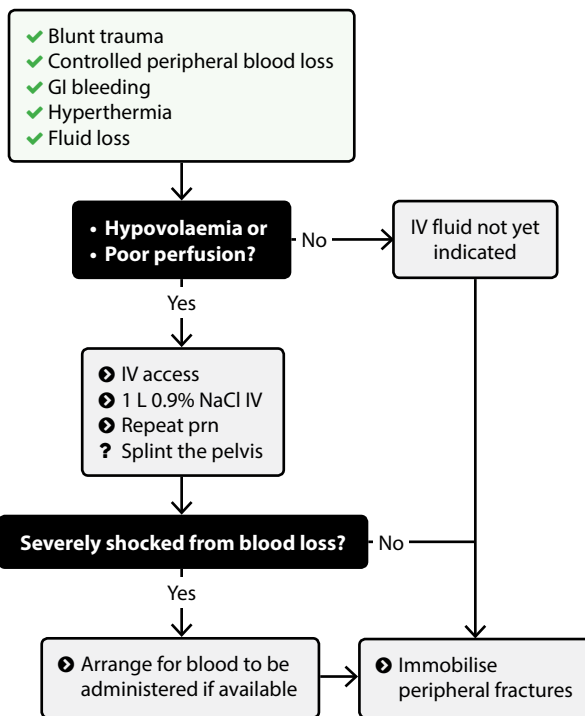
4.4 Crush injury



Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ If significant weight is on the head, neck, chest or abdomen, release the weight as soon as possible.
- ⚠ If there is clinically significant risk of release syndrome from limbs, consider delaying release of the weight for 10-15 mins while preparation occurs.

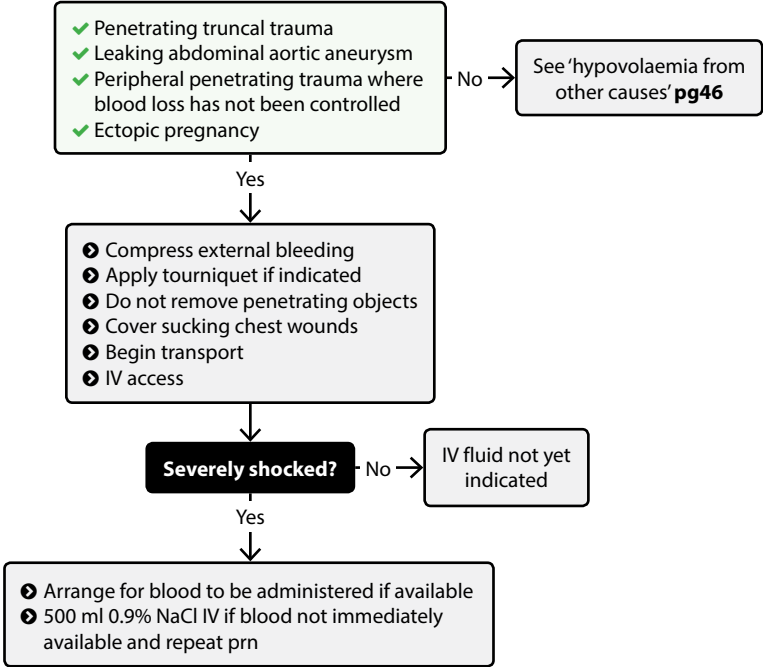
4.5 Hypovolaemia from other causes



Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ Keep the patient warm.
- ⚠ Transport to a designated major trauma hospital if shock is secondary to trauma.

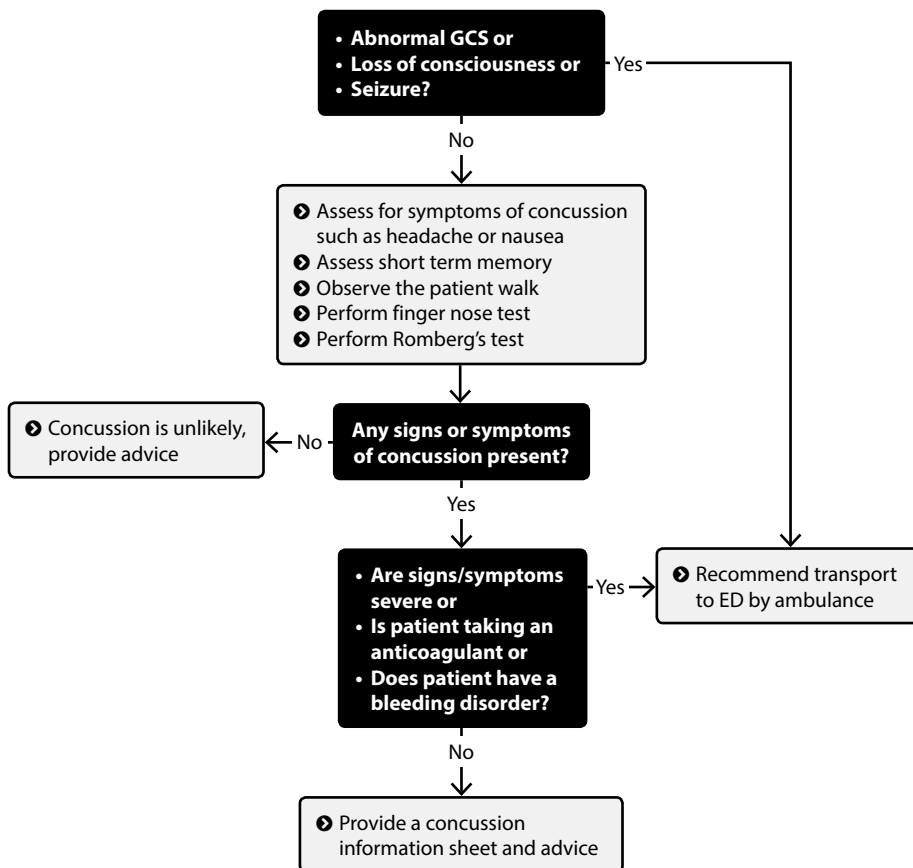
4.6 Hypovolaemia from uncontrolled bleeding



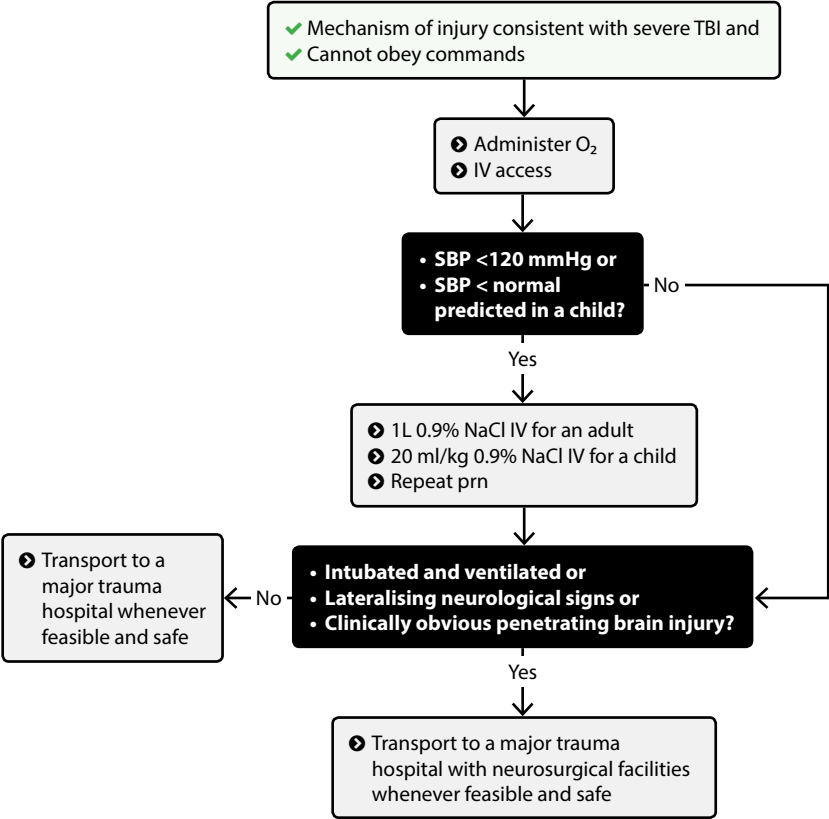
Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ Keep the patient warm.
- ⚠ Transport to a designated major trauma hospital if shock is secondary to trauma.
- ⚠ Provide as much prehospital notification of arrival as possible.

4.7 Minor traumatic brain injury



4.8 Severe traumatic brain injury



Note

- ⚠️ Request backup for RSI if the patient has a GCS <10 and a poor airway or poor breathing.
- ⚠️ Do not intubate without RSI unless patient has a GCS of 3 and ineffective breathing.

4.9 Joint dislocation and fracture realignment

FINGER OR TOE DISLOCATION

- ? Ring block and/or inhaled analgesia
- Longitudinal traction

SHOULDER DISLOCATION

Only attempt relocation if:

- ✓ Previous dislocation of the same joint and
- ✓ Anterior dislocation and
- ✓ No AC joint dislocation and
- ✓ No fractured humerus and
- ✓ Dislocation from malpositioning and/or minor force.

To attempt relocation:

- ? Inhaled analgesia
- IV access and administer fentanyl IV
- ? Low dose midazolam IV
- Stimson or modified Kocher's technique (max two attempts)

DISLOCATED / SEVERELY DEFORMED WRIST / ELBOW / KNEE / ANKLE

Relocation should usually occur, particularly when there is impaired sensation or perfusion distal to the injury, unless transport time is less than 15 minutes.

- IV access and administer fentanyl IV
- Ketamine IV
- Longitudinal traction on limb with counter traction above the injury site

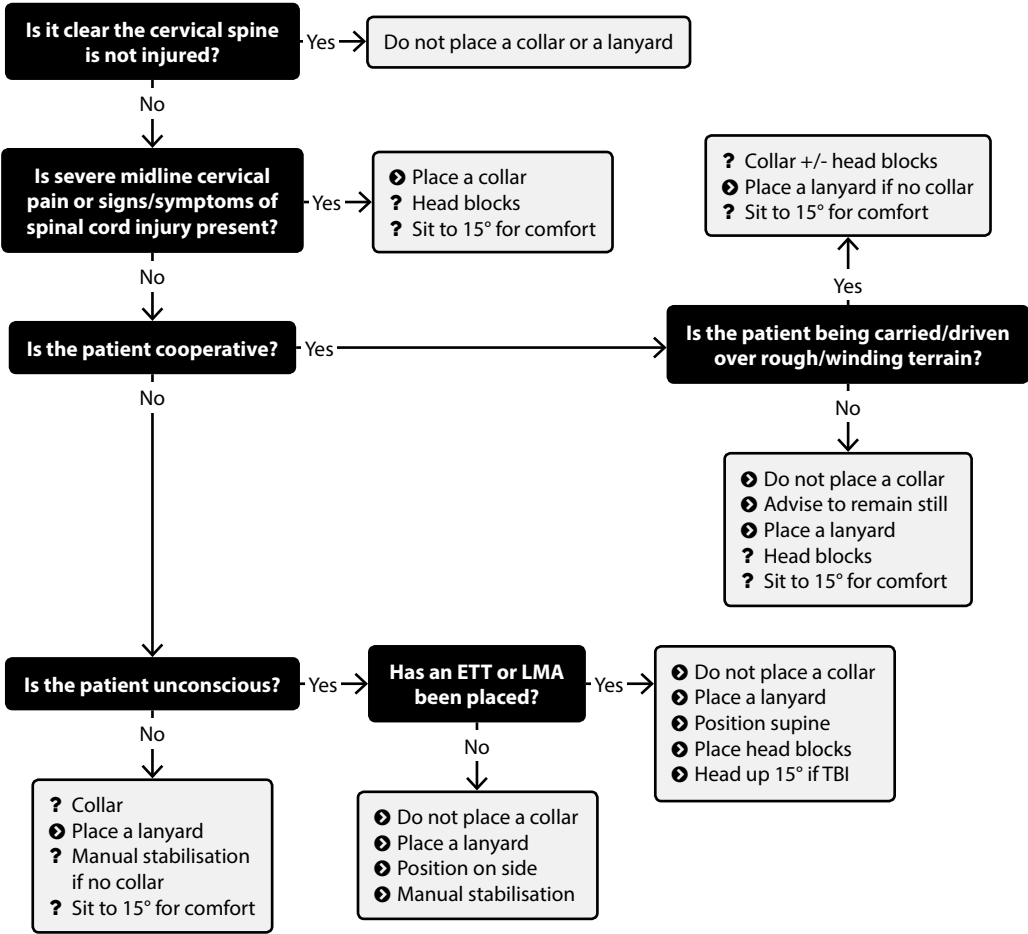
DISLOCATED PATELLA

- ? Inhaled analgesia
- IV access and administer fentanyl IV if required
- Grasp the patella and push it medially (inwards) while simultaneously straightening the knee

DISLOCATED HIP

- An attempt to relocate a dislocated hip must not occur without seeking clinical advice.

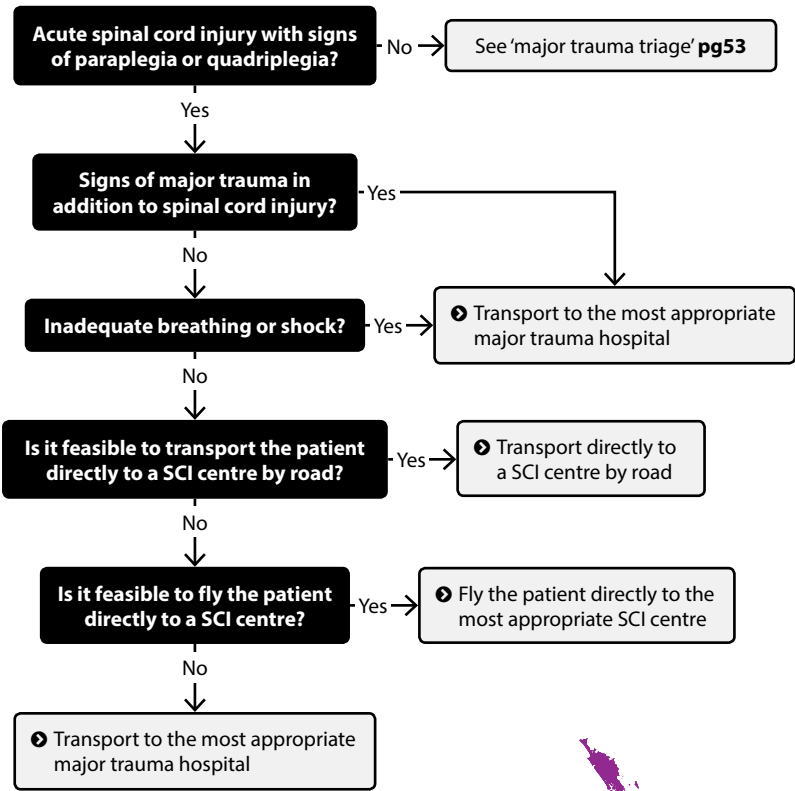
4.10 Cervical spine immobilisation



Note

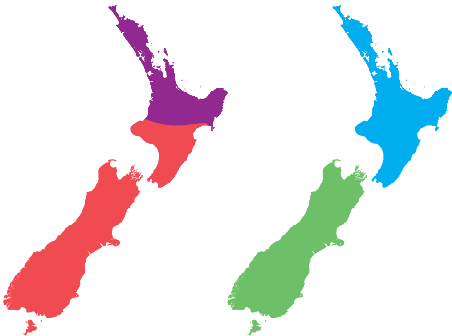
⚠ If no access to head blocks, use rolled towels as an alternative.

4.11 Spinal cord injury

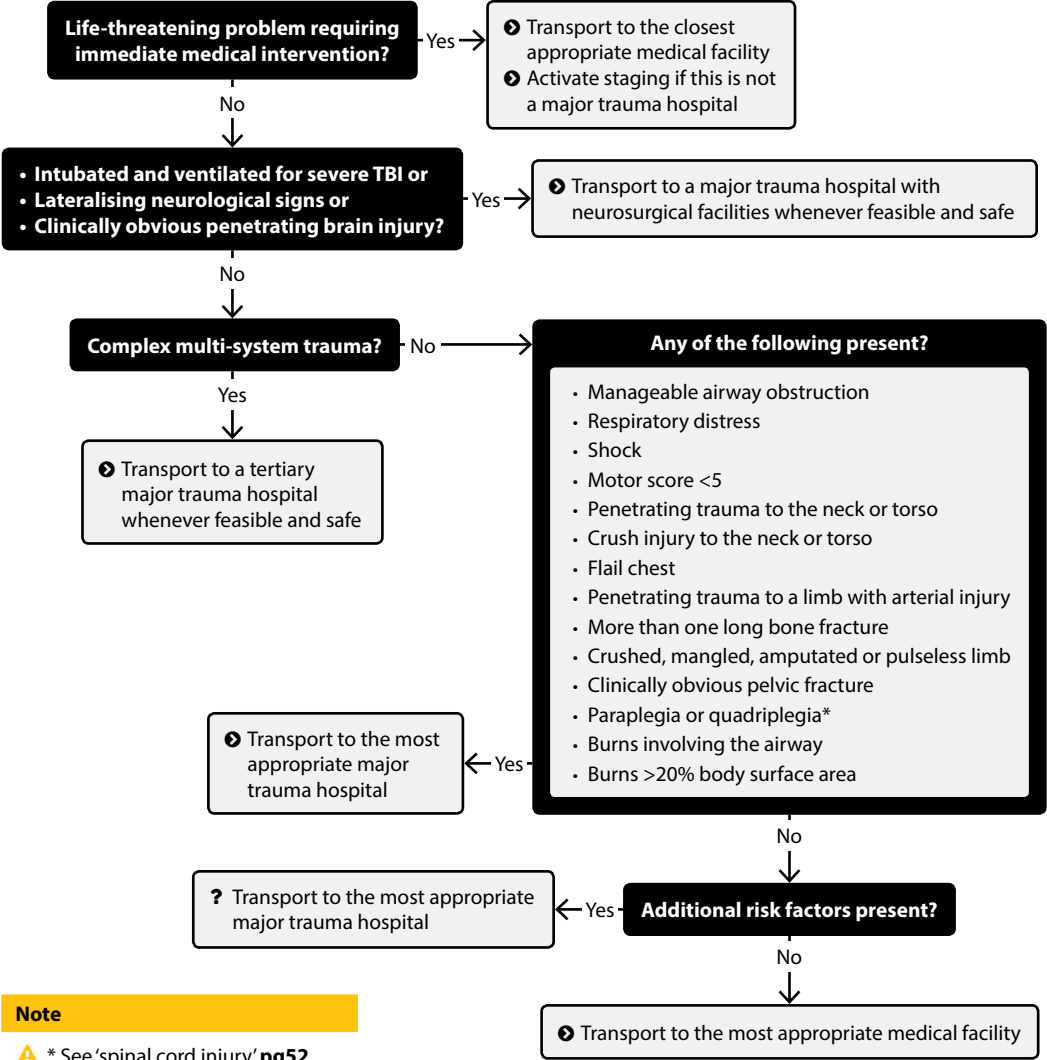


Note

- ⚠ Spinal Cord Impairment (SCI) centres:
- Middlemore Hospital (adults)
 - Christchurch Hospital (adults)
 - Starship Children's Hospital (children)
 - Christchurch Hospital (children)



4.12 Major trauma triage



Note

⚠ * See 'spinal cord injury' pg52.



5.1 Agitated delirium

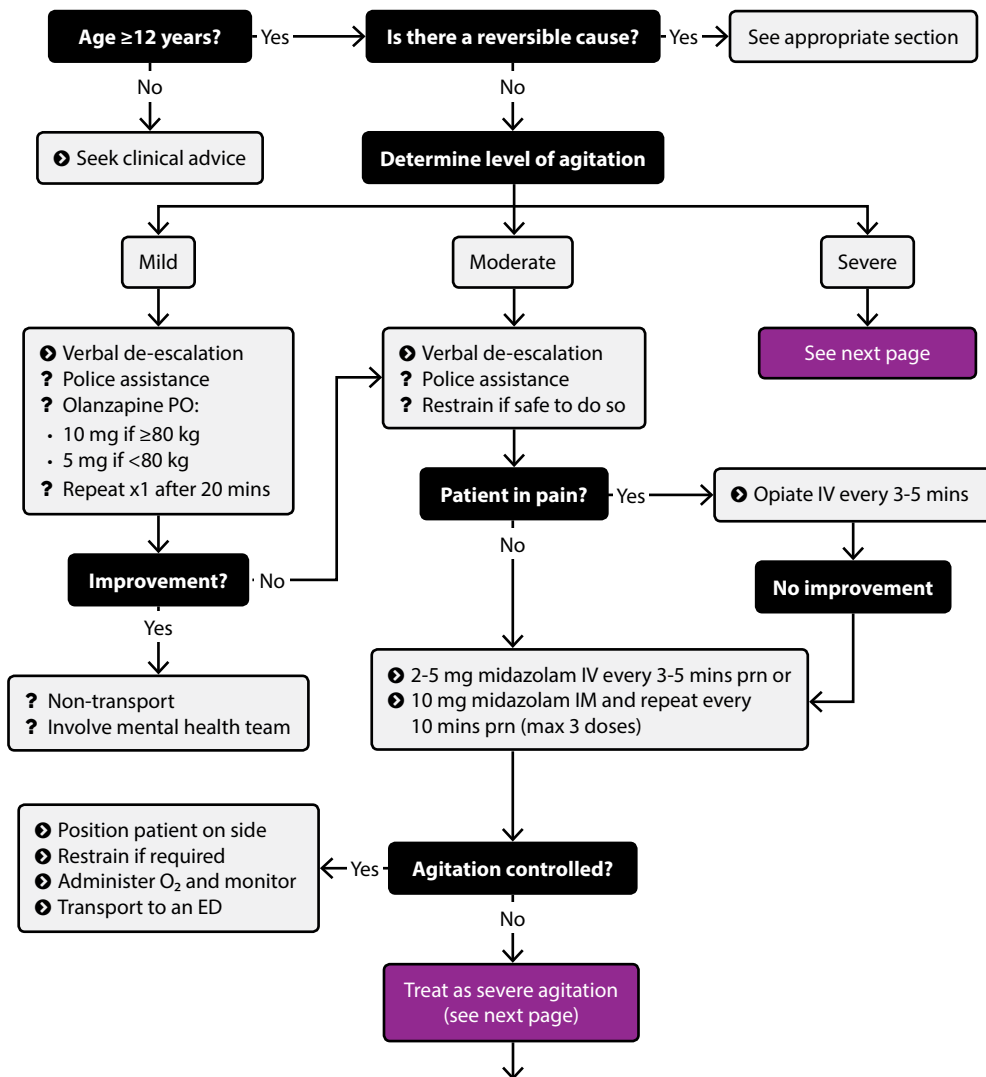
This table should be used in conjunction with the 'agitated delirium' flow chart.

Determining the level of agitation

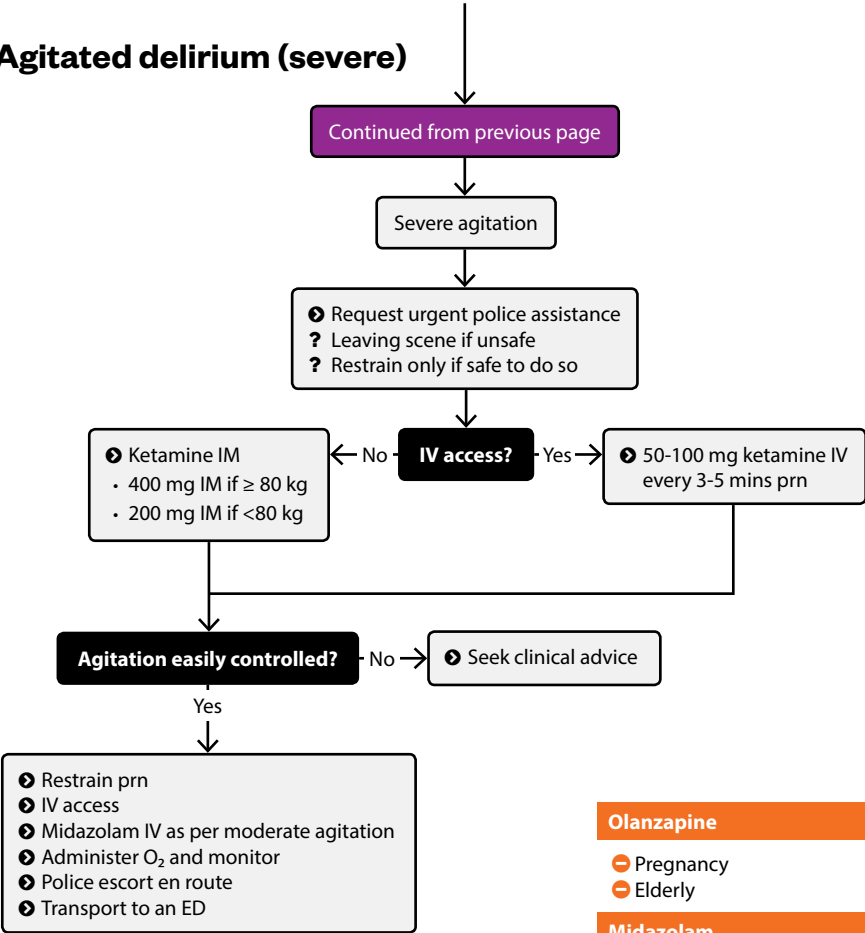
MILD	<p>Examples include, but are not limited to:</p> <ul style="list-style-type: none"> • Agitation and/or anxiety without physical aggression. • Mostly cooperative. • Restless but settles with de-escalation. • Reluctant to accept assistance but does so with repeated explanation.
MODERATE	<p>Examples include, but are not limited to:</p> <ul style="list-style-type: none"> • Agitation and/or anxiety with some physical aggression. • Uncooperative. • Very restless and/or has disorganised behaviour that fails to settle with de-escalation. • Failure to accept assistance.
SEVERE	<p>Examples include, but are not limited to:</p> <ul style="list-style-type: none"> • Agitation with severe or dangerous physical aggression. • Wielding a weapon. • Destruction of physical surroundings. • Failure to acknowledge instructions or to interact.



5.1 Agitated delirium



5.1 Agitated delirium (severe)



Olanzapine

- ⊖ Pregnancy
- ⊖ Elderly

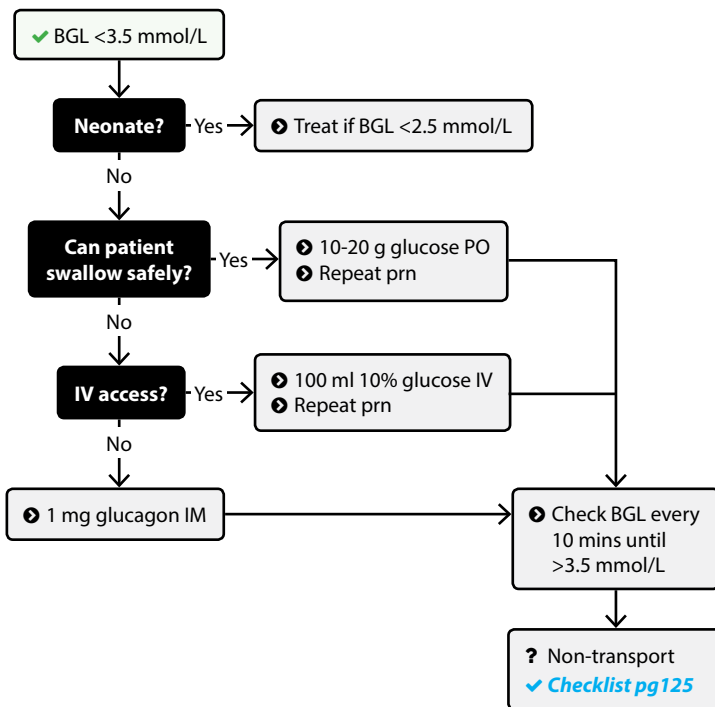
Midazolam

- ⊖ Concurrent administration of opiates or ketamine
- ⊖ Intoxication
- ⊖ Elderly

Morphine and fentanyl

- ✗ Respiratory depression
- ⊖ At high risk of respiratory depression

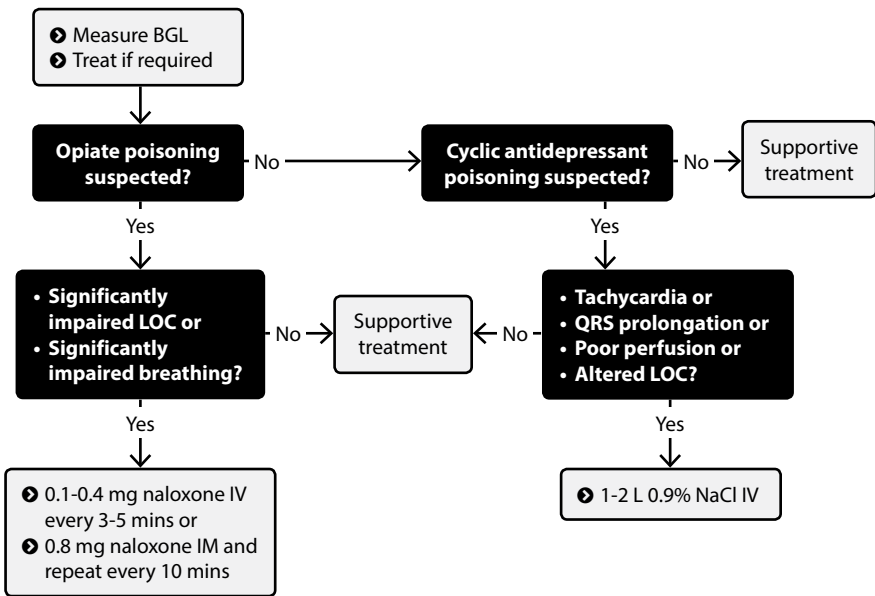
5.3 Hypoglycaemia



Note

⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.

5.4 Poisoning



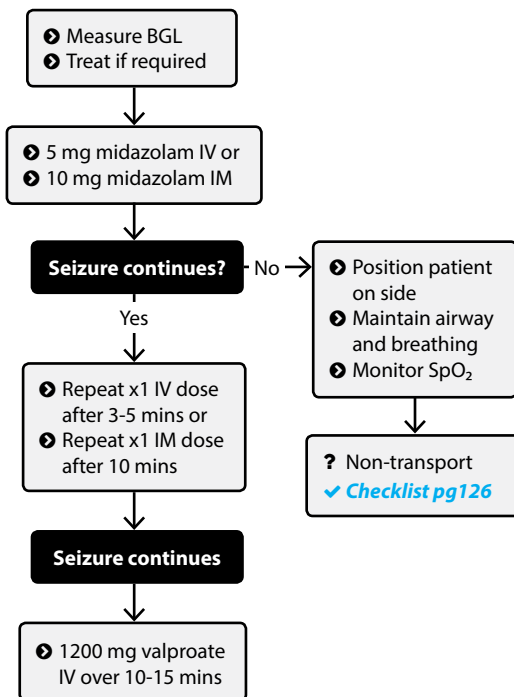
Naloxone

⊖ Chronic opiate use

Note

⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.

5.5 Seizures



Midazolam

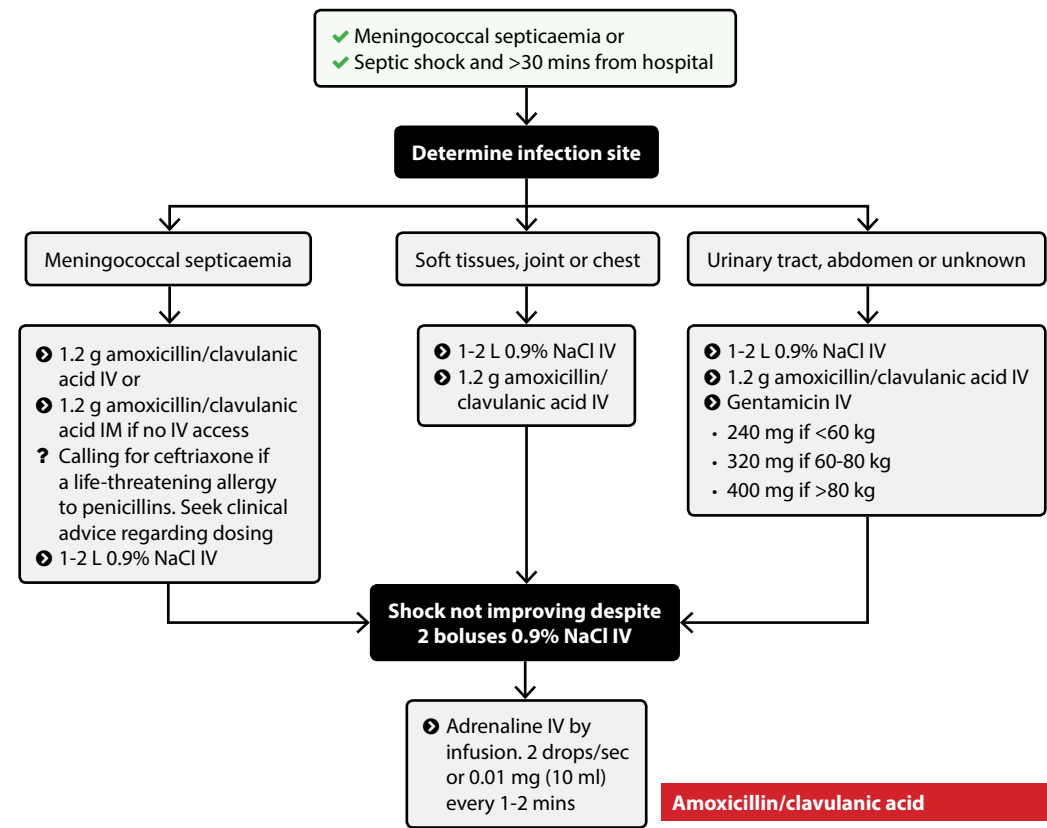
- ⊖ Elderly
- ⊖ Small, frail or physiologically unstable

Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ Request backup from an ICP if more than one dose of midazolam is administered or valproate is to be administered.
- ⚠ Request backup for RSI in all patients with status epilepticus.



6.2 Septic shock



Note

- ⚠ To diagnose septic shock the patient must have:
 - Clear signs of infection and
 - Signs of a systemic inflammatory response and
 - Clear signs of shock.
- ⚠ Consider gaining IV access in two sites.

Amoxicillin/clavulanic acid

- ✗ Anaphylaxis to betalactam antibiotics
- ✗ Known severe allergy to penicillins

Gentamicin

- ✗ Pregnancy

Adrenaline

- ⊖ Myocardial ischaemia
- ⊖ Tachycardia

6.3 Cellulitis



RED FLAGS

- Signs of shock.
- Severe pain, oedema or blistering.
- Skin necrosis.
- Inability to mobilise.
- Rigors.
- Neutropenia.
- Chemotherapy within the last four weeks.
- Temperature greater than 39 degrees.
- An associated abscess.
- Involves greater than 5% of body surface area.
- Rapidly spreading.
- Involves the face, hands or genitals.
- Diabetes on insulin.
- Significant lymphangitis.
- A prosthetic joint or heart valve.
- A hot or painful joint.
- Associated with a bite wound.
- Frail, elderly or significant comorbidities.

- If there are no red flags, the patient should see a doctor within 12 hours.
- If the patient is not being referred or transported to an ED, consider administering a single dose of antibiotic IV if it is possible there may be a delay in the patient seeing a doctor:
 - 1.2 g amoxicillin/clavulanic acid IV.
 - Wait a minimum of 20 minutes before leaving, to ensure no signs or symptoms of severe allergy develop.

Note

⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.

6.4 Chest infection



RED FLAGS

- Signs of shock.
- Tachypnoea.
- Confusion.
- SpO₂ less than 94% on air (unless normal for the patient).
- Inability to mobilise normally.
- Severe pleuritic chest pain.
- Rigors.
- Neutropenia.
- Chemotherapy within the last four weeks.
- Temperature greater than 39 degrees.



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 24 HOURS

- Temperature 37.5-39 degrees.
- Mild to moderate pleuritic chest pain.
- Age 65 years or older.
- CORD.
- Purulent sputum.
- Immunocompromised (for example taking steroids).



GREEN FLAGS

- Temperature less than 37.5 degrees.
- Productive cough but sputum not purulent.
- Age 64 years or younger.
- Normal vital signs.
- Normal mobility.

6.5 Influenza



RED FLAGS

- Tachypnoea.
- SpO₂ less than 94% on air (unless normal for the patient).
- Confusion.
- Inability to mobilise normally.
- Rigors.
- Neutropenia.
- Chemotherapy within the last four weeks.
- Temperature greater than 39 degrees.



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 24 HOURS

- Aged over 65 years.
- Pregnant.
- Immunocompromised (for example taking steroids).
- Ischaemic heart disease.
- CORD.
- Diabetes requiring treatment.
- Severe obesity.



GREEN FLAGS

- Normal vital signs.
- Normal mobility.

6.6 Lower UTI (cystitis)



RED FLAGS

- Signs of shock.
- Flank/loin pain.
- Severe pain.
- Significant haematuria.
- Urinary retention.
- Inability to mobilise normally.
- Rigors.
- Neutropenia.
- Chemotherapy within the last four weeks.
- Temperature greater than 39 degrees.
- Confusion.



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 24 HOURS

- Dysuria.
- Temperature 37.5-39 degrees.
- Moderate pain.
- Male.
- Aged less than 15 years or over 65 years.
- Pregnancy.
- Immunocompromised (for example taking steroids).



GREEN FLAGS

- Normal vital signs.
- Normal mobility.
- Temperature below 37.5 degrees.
- Mild pain.

6.7 Sore throat



RED FLAGS

- Signs of airway compromise.
- Signs of shock.
- Severe pain.
- Severe difficulty swallowing.
- Abnormal speech.
- Rigors.
- Neutropenia.
- Chemotherapy within the last four weeks.
- Temperature greater than 39 degrees.



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 24 HOURS

- Onset over less than a day.
- Temperature 37.5-39 degrees.
- Moderate pain.
- Age less than 15 years.
- Age 16-45 years with any of the following features:
 - a) Māori or Pacific People or
 - b) Live in a low socioeconomic area of the North Island or
 - c) Have a past history, or family history of rheumatic fever.



GREEN FLAGS

- Mild pain.
- Temperature less than 37.5 degrees.

6.8 Infectious disease precautions

INFECTIOUS DISEASE	LEVEL OF PPE REQUIRED	LEVEL OF VEHICLE CLEANING REQUIRED
Chicken pox	Droplet	Standard
Clostridium difficile diarrhoea	Contact	Standard
ESBL	Contact	Additional
Gastroenteritis, type not specified	Contact	Standard
Hepatitis A	Contact	Standard
Hepatitis B	Standard	Standard
Hepatitis C	Standard	Standard
HIV	Standard	Standard
Influenza	Droplet	Standard
Measles	Airborne	Standard
Meningitis, type not specified	Standard	Standard
Meningococcal disease	Droplet	Standard
MRSA	Contact	Additional
MRO, type not specified	Contact	Additional
Mumps	Droplet	Standard
Norovirus with vomiting	Airborne	Additional
Norovirus without vomiting	Contact	Additional
Pneumonia, type not specified	Standard	Standard
Rotavirus	Contact	Standard
Rubella	Airborne	Standard
Tuberculosis	Airborne	Standard
VRE	Contact	Additional
Whooping cough	Droplet	Standard

6.8 PPE levels

LEVEL OF PPE	MINIMUM REQUIRED PPE AND ACTIONS
Standard	<ul style="list-style-type: none">• Gloves for anticipated contact with body fluids.• Change contaminated gloves as soon as possible.• Eye protection for anticipated body fluid splash.• Consider overalls/gown and/or an apron for significant body fluid exposure.• Hand washing and drying or alcohol hand rub, before and after patient contact.
Contact	<ul style="list-style-type: none">• Standard level PPE plus gloves and overalls/gown for direct contact with the patient or their immediate surroundings.
Droplet	<ul style="list-style-type: none">• Standard level PPE plus a surgical mask for the patient and personnel.• Wear overalls/gown and/or an apron for direct contact if the patient has chicken pox.• Consider overalls/gown if within two metres of the patient if the patient is coughing significantly and unable to wear a mask.• N95 mask for personnel within two metres of the patient during procedures that may aerosolise droplets. For example when nebulising medicines.
Airborne	<ul style="list-style-type: none">• Standard PPE plus an N95 mask for the patient and personnel.• Wear overalls/gown and/or an apron for direct contact if the patient has norovirus.

6.8 Vehicle cleaning and disinfection

LEVEL OF CLEANING AND DISINFECTION	MINIMUM ACTIONS
Standard	<ul style="list-style-type: none">• Open all vehicle doors for 10 minutes with nobody in the vehicle, if the infectious disease was airborne.• Wear gloves.• Decontaminate and disinfect surfaces contaminated with body fluid:<ul style="list-style-type: none">a) Decontaminate using a cleaning solution, removing all visible soiling.b) Wipe with a disinfectant and allow to dry.• Remove used linen.• Wipe down the stretcher and all surfaces touched by the patient with disinfectant and allow to dry.• Wipe down all surfaces in the back of the vehicle touched by personnel (such as the monitor) with an approved disinfectant wipe and allow to dry.• Clean the floor if visibly dirty.• Replace linen.• Wash and dry hands.• Once disinfected surfaces are dry, the vehicle may be used for other patients.
Additional	<ul style="list-style-type: none">• Standard level cleaning and disinfection plus:<ul style="list-style-type: none">• Wear gloves and overalls/gown and/or an apron.• Wipe down all interior surfaces (including in the front of the vehicle) that the patient or personnel may have touched, with disinfectant and allow to dry.• Clean the floor.• Once disinfected surfaces are dry, the vehicle may be used for other patients.



7.1 The paediatric assessment triangle

Activity

Movement, interaction, tone

Abnormal: Inactive, lethargic, abnormal or absent cry or speech, failure to interact with people or objects, floppy.

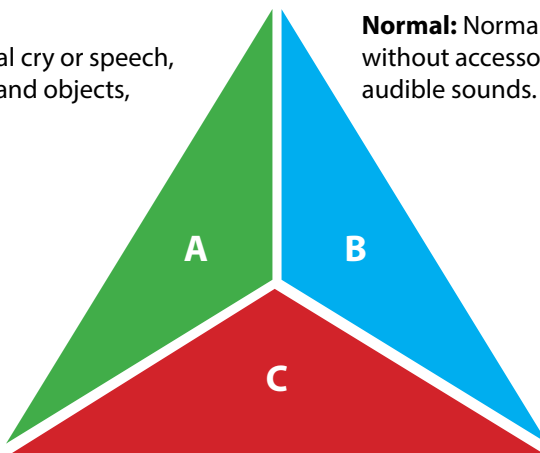
Normal: Active, normal cry or speech, interacts with people and objects, good muscle tone.

Breathing

Respiratory rate, work of breathing

Abnormal: Tachypnoea, nasal flaring, indrawing, use of accessory muscles, grunting.

Normal: Normal regular breathing without accessory muscle use or audible sounds.



Circulation

Heart rate, perfusion

Abnormal: Tachycardia, mottled skin, pale, cold, slow capillary refill time.

Normal: Normal heart rate, normal skin colour, warm, fast capillary refill time.







7.2 Paediatric equipment and drug doses

ESTIMATED WEIGHT (kg)	
Under 1 year old	5
1-10 years	(Age in years + 4) x 2
11-14 years	Age in years x 3
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 years ÷ 2) + 12
DEFIBRILLATION ENERGY	
Initial and all subsequent	5 J/kg

Paediatric vital signs

AGE	HR	RR	BP (sys)
Newborn	120-180	30-60	85-90
1-12 months	100-160	30-50	75-80
1-4 years	80-110	24-40	75-80
5-12 years	65-100	18-30	70-75

Drug dilution

-  1 **ADRENALINE IV 1:10,000 (0.1 mg/ml)**
 - Draw up 1 ml adrenaline from 1 mg/ml ampoule.
 - Make up to a total volume of 10 ml using 0.9% sodium chloride.
-  2 **ADRENALINE IV 1:1,000,000 (0.001 mg/ml)**
 - Use a 1 litre bag of 0.9% sodium chloride.
 - Add 1 ml adrenaline from 1 mg/ml ampoule.
 - Shake well and label.
-  3 **AMOXICILLIN/CLAVULANIC ACID IV 120 mg/ml**
 - Add 4 ml 0.9% sodium chloride to 1.2 g powder amoxicillin/clavulanic acid ampoule, shake until dissolved.
 - Draw up the contents of the ampoule.
 - Make up to a total volume of 10 ml using 0.9% sodium chloride.
-  4 **AMOXICILLIN/CLAVULANIC ACID IM 500 mg/ml**
 - Add 2 ml 0.9% sodium chloride to 1.2 g powder amoxicillin/clavulanic acid ampoule, shake until dissolved.
 - The total volume will be 2.4 ml.
-  5 **FENTANYL IV 10 mcg/ml**
 - Draw up 2 ml fentanyl from 100 mcg/2 ml ampoule.
 - Make up to a total volume of 10 ml using 0.9% sodium chloride.
-  6 **GENTAMICIN IV**
 - Draw up the dose from the 80 mg/2 ml ampoule(s).
 - If administering in a 100 ml bag of 5% glucose:
 - a) Not suitable for patients whose weight has been rounded to less than 20 kg.
 - b) Administer over 15-30 minutes (1-2 drops/second).
 - If administering using a syringe:
 - a) Dilute to a total of 10 ml using 0.9% sodium chloride.
 - b) Administer 1 ml every 2-3 minutes.

7 **KETAMINE IV 10 mg/ml**

- Draw up 1 ml ketamine from a 200 mg/2 ml ampoule.
- Make up to a total volume of 10 ml using 0.9% sodium chloride.

8 **MAGNESIUM IV 10 mmol/ml**

- Draw up 5 ml of magnesium from 10 mmol/5 ml ampoule.
- Make up to a total volume of 10 ml using 0.9% sodium chloride.

9 **MIDAZOLAM IV 1 mg/ml**

- Draw up 2 ml of midazolam from 15 mg/3 ml ampoule.
- Make up to a total volume of 10 ml using 0.9% sodium chloride.

10 **MORPHINE IV 1 mg/ml**

- Draw up 1 ml morphine from 10 mg/ml ampoule.
- Make up to a total volume of 10 ml using 0.9% sodium chloride.

11 **MORPHINE (1 mg/ml) AND MIDAZOLAM (1 mg/ml) IV for post intubation sedation**

- Draw up 2 ml of midazolam from 15 mg/3 ml ampoule and 1 ml of morphine from 10 mg/ml ampoule in the same syringe.
- Make up to a total volume of 10 ml using 0.9% sodium chloride.

12 **NALOXONE IV 0.1 mg/ml**

- Draw up 1 ml naloxone from 0.4 mg/ml ampoule.
- Make up to a total volume of 4 ml using 0.9% sodium chloride.

13 **VALPROATE IV**

- Add 4 ml 0.9% sodium chloride to each 400 mg powder sodium valproate ampoule, shake until dissolved. This will give a 100 mg/ml solution.
- If administering in a 100 ml bag of 5% glucose:
 - a) Not suitable for patients whose weight has been rounded to less than 20 kg.
 - b) Administer over 10-15 minutes (2-3 drops/second).
- If administering using a syringe:
 - a) Dilute to a total of 10 ml using 0.9% sodium chloride if the dose is ≤ 800 mg.
 - b) If the dose is 1200 mg the volume will be approximately 12 ml.
 - c) Administer over 10-15 minutes (1 ml every 1-2 minutes).

5 kg / 3 months

5 kg/ 3 months		DOSE	VOLUME	
CARDIAC ARREST				
Adrenaline IV	0.05 mg	0.5 ml (1:10,000)	1	
Amiodarone IV	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		
OTHER DRUGS				
Adrenaline IM	0.05 mg	0.5 ml (1:10,000)	1	
Adrenaline IV (not cardiac arrest)	0.001 mg	1 ml (1:1,000,000)	2	
Amoxicillin/clavulanic acid IV	150 mg	1.3 ml (120 mg/ml)	3	
Amoxicillin/clavulanic acid IM	150 mg	0.3 ml (500 mg/ml)	4	
Fentanyl IV	2.5 mcg	0.25 ml (10 mcg/ml)	5	
Fentanyl IV (post intubation)	5 mcg	0.5 ml (10 mcg/ml)	5	
Fentanyl IN (first dose)	10 mcg	0.2 ml (undiluted)	6	
Fentanyl IN (subsequent doses)	5 mcg	0.1 ml (undiluted)		
Gentamicin IV	30 mg	0.75 ml		
Glucagon IM	0.5 mg	0.5 ml (undiluted)		
10% glucose IV	10 ml	10 ml		
Ibuprofen PO	-	-	7	
Ketamine IV	-	-		
Ketamine IV (post intubation)	5 mg	0.5 ml (10 mg/ml)		
Ketamine IM/PO	-	-		

5 kg / 3 months

	DOSE	VOLUME	💧
1% lignocaine IO	5 mg	0.5 ml (undiluted)	
1% lignocaine SC	1.5 ml (max)	1.5 ml (max)	
Loratadine PO	-	-	
Magnesium IV	-	-	
Midazolam IV (seizures)	0.5 mg	0.5 ml (1 mg/ml)	💧 9
Midazolam IM (seizures)	1 mg	0.2 ml (undiluted)	
Morphine IV	0.25 mg	0.25 ml (1 mg/ml)	💧 10
Morphine IM	1 mg	0.1 ml (undiluted)	
Morphine/Midazolam IV (post intubation)	0.2 mg of each	0.2 ml	💧 11
Naloxone IV	0.05 mg	0.5 ml (0.1 mg/ml)	💧 12
Naloxone IM	0.1 mg	0.25 ml (undiluted)	
Olanzapine PO	-	-	
Ondansetron PO	-	-	
Ondansetron IV/IM	-	-	
Paracetamol liquid PO	100 mg	2 ml (250 mg/5 ml)	
Paracetamol tablet PO	-	-	
Prednisone PO	-	-	
Rocuronium IV	5 mg	0.5 ml (undiluted)	
0.9% sodium chloride IV	100 ml	100 ml	
Tramadol PO	-	-	
Valproate IV	150 mg	1.5 ml	💧 13

10 kg / 1 year

	DOSE	VOLUME	
CARDIAC ARREST			1
Adrenaline IV	0.1 mg	1 ml (1:10,000)	
Amiodarone IV	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	
OTHER DRUGS			
Adrenaline IM	0.1 mg	0.1 ml (undiluted)	
Adrenaline IV (not cardiac arrest)	0.002 mg	2 ml (1:1,000,000)	2
Amoxicillin/clavulanic acid IV	300 mg	2.5 ml (120 mg/ml)	3
Amoxicillin/clavulanic acid IM	300 mg	0.6 ml (500 mg/ml)	4
Fentanyl IV	5 mcg	0.5 ml (10 mcg/ml)	5
Fentanyl IV (post intubation)	10 mcg	1 ml (10 mcg/ml)	5
Fentanyl IN (first dose)	20 mcg	0.4 ml (undiluted)	
Fentanyl IN (subsequent doses)	10 mcg	0.2 ml (undiluted)	
Gentamicin IV	60 mg	1.5 ml	6
Glucagon IM	0.5 mg	0.5 ml (undiluted)	
10% glucose IV	20 ml	20 ml	
Ibuprofen PO	100 mg	½ tablet	
Ketamine IV	2.5 mg	0.25 ml (10 mg/ml)	7
Ketamine IV (post intubation)	10 mg	1 ml (10 mg/ml)	7
Ketamine IM/PO	10 mg	0.1 ml (undiluted)	








10 kg / 1 year

	DOSE	VOLUME	💧
1% lignocaine IO	10 mg	1 ml (undiluted)	
1% lignocaine SC	3 ml (max)	3 ml (max)	
Loratadine PO	5 mg	½ tablet	
Magnesium IV	-	-	
Midazolam IV (seizures)	1 mg	1 ml (1 mg/ml)	💧 9
Midazolam IM (seizures)	2 mg	0.4 ml (undiluted)	
Morphine IV	0.5 mg	0.5 ml (1 mg/ml)	💧 10
Morphine IM	2 mg	0.2 ml (undiluted)	
Morphine/Midazolam IV (post intubation)	0.4 mg of each	0.4 ml	💧 11
Naloxone IV	0.1 mg	1 ml (0.1 mg/ml)	💧 12
Naloxone IM	0.2 mg	0.5 ml (undiluted)	
Olanzapine PO	-	-	
Ondansetron PO	2 mg	½ tablet	
Ondansetron IV/IM	1 mg	0.5 ml (undiluted)	
Paracetamol liquid PO	200 mg	4 ml (250 mg/5 ml)	
Paracetamol tablet PO	-	-	
Prednisone PO	-	-	
Rocuronium IV	10 mg	1 ml (undiluted)	
0.9% sodium chloride IV	200 ml	200 ml	
Tramadol PO	-	-	
Valproate IV	300 mg	3 ml	💧 13

20 kg / 5 years

	DOSE	VOLUME	
CARDIAC ARREST			1
Adrenaline IV	0.2 mg	2 ml (1:10,000)	
Amiodarone IV	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	
OTHER DRUGS			
Adrenaline IM	0.2 mg	0.2 ml (undiluted)	
Adrenaline IV (not cardiac arrest)	0.004 mg	4 ml (1:1,000,000)	2
Amoxicillin/clavulanic acid IV	600 mg	5 ml (120 mg/ml)	3
Amoxicillin/clavulanic acid IM	600 mg	1.2 ml (500 mg/ml)	4
Fentanyl IV	10 mcg	1 ml (10 mcg/ml)	5
Fentanyl IV (post intubation)	20 mcg	2 ml (10 mcg/ml)	5
Fentanyl IN (first dose)	40 mcg	0.8 ml (undiluted)	
Fentanyl IN (subsequent doses)	20 mcg	0.4 ml (undiluted)	
Gentamicin IV	120 mg	3 ml	6
Glucagon IM	1 mg	1 ml (undiluted)	
10% glucose IV	40 ml	40 ml	
Ibuprofen PO	100 mg	½ tablet	
Ketamine IV	5 mg	0.5 ml (10 mg/ml)	7
Ketamine IV (post intubation)	20 mg	2 ml (10 mg/ml)	7
Ketamine IM/PO	20 mg	0.2 ml (undiluted)	

20 kg / 5 years

	DOSE	VOLUME	
1% lignocaine IO	20 mg	2 ml (undiluted)	
1% lignocaine SC	6 ml (max)	6 ml (max)	
Loratadine PO	5 mg	½ tablet	
Magnesium IV	4 mmol	4 ml (1 mmol/ml)	 8
Midazolam IV (seizures)	2 mg	2 ml (1 mg/ml)	 9
Midazolam IM (seizures)	4 mg	0.8 ml (undiluted)	
Morphine IV	1 mg	1 ml (1 mg/ml)	 10
Morphine IM	4 mg	0.4 ml (undiluted)	
Morphine/Midazolam IV (post intubation)	0.8 mg of each	0.8 ml	 11
Naloxone IV	0.2 mg	2 ml (0.1 mg/ml)	 12
Naloxone IM	0.4 mg	1 ml (undiluted)	
Olanzapine PO	-	-	
Ondansetron PO	4 mg	1 tablet	
Ondansetron IV/IM	2 mg	1 ml (undiluted)	
Paracetamol liquid PO	400 mg	8 ml (250 mg/5 ml)	
Paracetamol tablet PO	-	-	
Prednisone PO	20 mg	1 tablet	
Rocuronium IV	20 mg	2 ml (undiluted)	
0.9% sodium chloride IV	400 ml	400 ml	
Tramadol PO	-	-	
Valproate IV	600 mg	6 ml	 13

30 kg / 10 years

	DOSE	VOLUME	
CARDIAC ARREST			1
Adrenaline IV	0.3 mg	3 ml (1:10,000)	
Amiodarone IV	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	
OTHER DRUGS			
Adrenaline IM	0.3 mg	0.3 ml (undiluted)	
Adrenaline IV (not cardiac arrest)	0.006 mg	6 ml (1:1,000,000)	2
Amoxicillin/clavulanic acid IV	900 mg	7.5 ml (120 mg/ml)	3
Amoxicillin/clavulanic acid IM	900 mg	1.8 ml (500 mg/ml)	4
Fentanyl IV	15 mcg	1.5 ml (10 mcg/ml)	5
Fentanyl IV (post intubation)	30 mcg	3 ml (10 mcg/ml)	5
Fentanyl IN (first dose)	60 mcg	1.2 ml (undiluted)	
Fentanyl IN (subsequent doses)	30 mcg	0.6 ml (undiluted)	
Gentamicin IV	160 mg	4 ml	6
Glucagon IM	1 mg	1 ml (undiluted)	
10% glucose IV	60 ml	60 ml	
Ibuprofen PO	200 mg	1 tablet	
Ketamine IV	7.5 mg	0.75 ml (10 mg/ml)	7
Ketamine IV (post intubation)	30 mg	3 ml (10 mg/ml)	7
Ketamine IM/PO	30 mg	0.3 ml (undiluted)	

30 kg / 10 years

	DOSE	VOLUME	💧
1% lignocaine IO	30 mg	3 ml (undiluted)	
1% lignocaine SC	9 ml (max)	9 ml (max)	
Loratadine PO	5 mg	½ tablet	
Magnesium IV	6 mmol	6 ml (10 mmol/ml)	💧 8
Midazolam IV (seizures)	3 mg	3 ml (1 mg/ml)	💧 9
Midazolam IM (seizures)	6 mg	1.2 ml (undiluted)	
Morphine IV	1.5 mg	1.5 ml (1 mg/ml)	💧 10
Morphine IM	6 mg	0.6 ml (undiluted)	
Morphine/Midazolam IV (post intubation)	1.2 mg of each	1.2 ml	💧 11
Naloxone IV	0.3 mg	3 ml (0.1 mg/ml)	💧 12
Naloxone IM	0.6 mg	1.5 ml (undiluted)	
Olanzapine PO	-	-	
Ondansetron PO	6 mg	1½ tablets	
Ondansetron IV/IM	3 mg	1.5 ml (undiluted)	
Paracetamol liquid PO	600 mg	12 ml (250 mg/5 ml)	
Paracetamol tablet PO	500 mg	1 tablet	
Prednisone PO	30 mg	1½ tablets	
Rocuronium IV	30 mg	3 ml (undiluted)	
0.9% sodium chloride IV	600 ml	600 ml	
Tramadol PO	-	-	
Valproate IV	800 mg	8 ml	💧 13

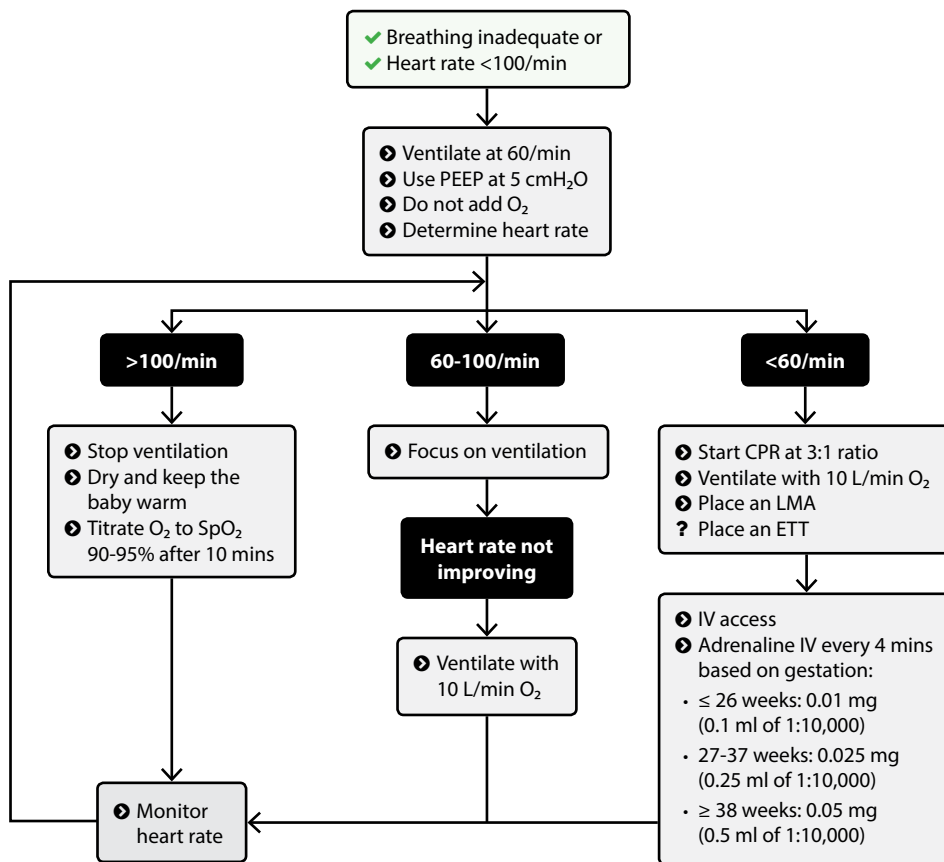
40 kg / 13 years

	DOSE	VOLUME	
CARDIAC ARREST			1
Adrenaline IV	0.4 mg	4 ml (1:10,000)	
Amiodarone IV	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	
OTHER DRUGS			
Adrenaline IM	0.4 mg	0.4 ml (undiluted)	
Adrenaline IV (not cardiac arrest)	0.008 mg	8 ml (1:1,000,000)	2
Amoxicillin/clavulanic acid IV	1.2 g	10 ml (120 mg/ml)	3
Amoxicillin/clavulanic acid IM	1.2 g	2.4 ml (500 mg/ml)	4
Fentanyl IV	20 mcg	2 ml (10 mcg/ml)	5
Fentanyl IV (post intubation)	40 mcg	4 ml (10 mcg/ml)	5
Fentanyl IN (first dose)	80 mcg	1.6 ml (undiluted)	
Fentanyl IN (subsequent doses)	40 mcg	0.8 ml (undiluted)	
Gentamicin IV	240 mg	6 ml	6
Glucagon IM	1 mg	1 ml (undiluted)	
10% glucose IV	80 ml	80 ml	
Ibuprofen PO	300 mg	1 ½ tablets	
Ketamine IV	10 mg	1 ml (10 mg/ml)	7
Ketamine IV (post intubation)	40 mg	4 ml (10 mg/ml)	7
Ketamine IM/PO	40 mg	0.4 ml (undiluted)	

40 kg / 13 years

	DOSE	VOLUME	
1% lignocaine IO	40 mg	4 ml (undiluted)	
1% lignocaine SC	12 ml (max)	12 ml (max)	
Loratadine PO	10 mg	1 tablet	
Magnesium IV	8 mmol	8 ml (1 mmol/ml)	8
Midazolam IV (seizures)	4 mg	4 ml (1 mg/ml)	9
Midazolam IM (seizures)	8 mg	1.6 ml (undiluted)	
Morphine IV	2 mg	2 ml (1 mg/ml)	10
Morphine IM	8 mg	0.8 ml (undiluted)	
Morphine/Midazolam IV (post intubation)	1.6 mg of each	1.6 ml	11
Naloxone IV	0.4 mg	4 ml (0.1 mg/ml)	12
Naloxone IM	0.8 mg	2 ml (undiluted)	
Olanzapine PO	5 mg	1 tablet	
Ondansetron PO	8 mg	2 tablets	
Ondansetron IV/IM	4 mg	2 ml (undiluted)	
Paracetamol liquid PO	800 mg	16 ml (250 mg/5 ml)	
Paracetamol tablet PO	750 mg	1 ½ tablets	
Prednisone PO	40 mg	2 tablets	
Rocuronium IV	40 mg	4 ml (undiluted)	
0.9% sodium chloride IV	800 ml	800 ml	
Tramadol PO	50 mg	1 tablet	
Valproate IV	1200 mg	12 ml	13

7.3 Neonatal resuscitation

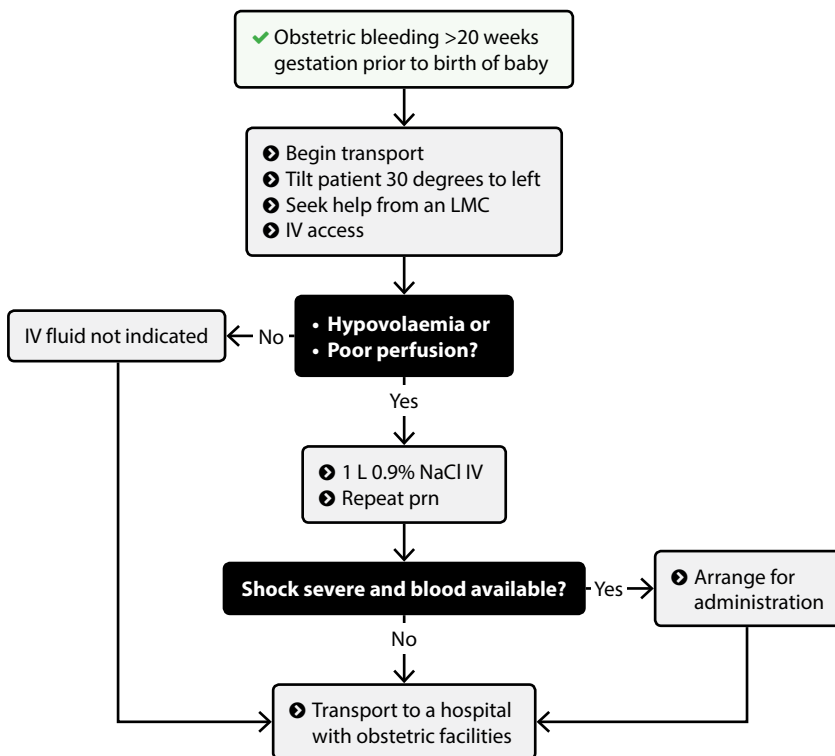


Note

⚠ Measure BGL if activity is abnormal. Neonatal hypoglycaemia is <2.5 mmol/L.



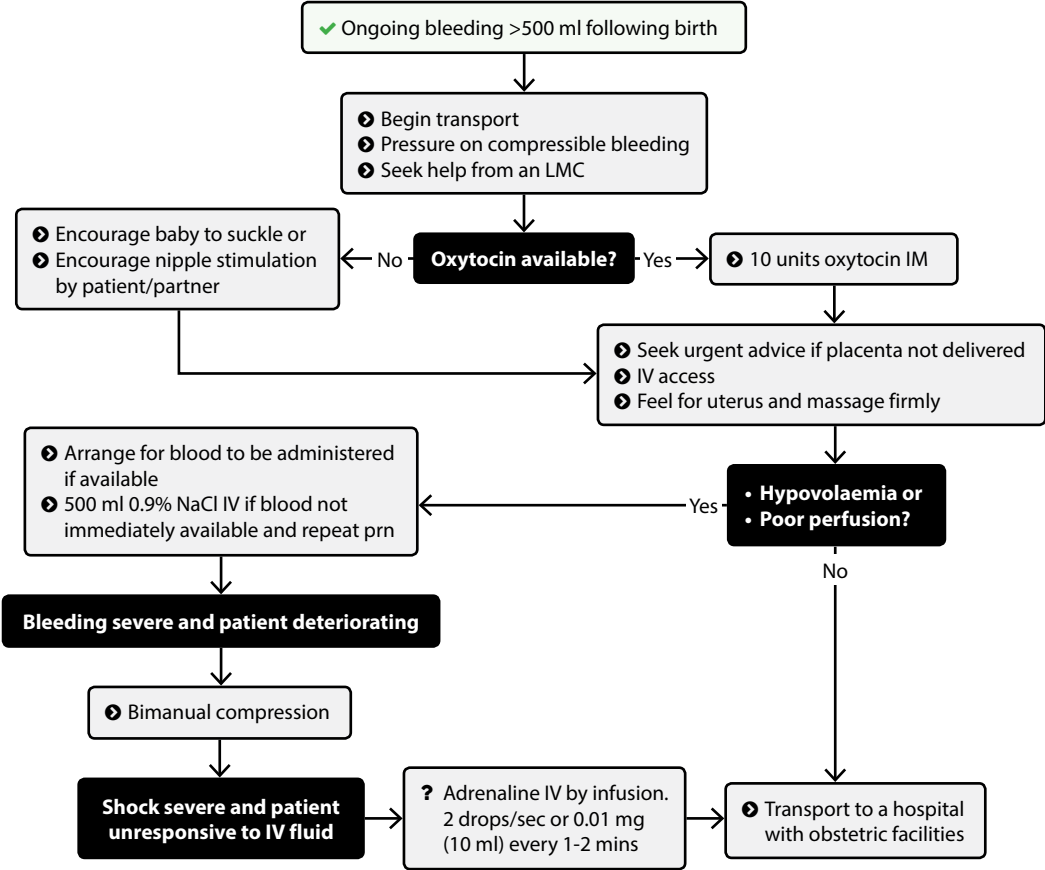
8.1 Antepartum haemorrhage



Note

- ⚠ Keep the patient warm.
- ⚠ Significant APH can occur without visible vaginal blood loss.
- ⚠ Provide as much pre-hospital notification of arrival as possible.

8.1 Postpartum haemorrhage



Note

- ⚠ Keep the patient warm.
- ⚠ Provide as much pre-hospital notification of arrival as possible.
- ⚠ Do not provide cord traction unless instructed by an LMC or doctor.

8.2 Other obstetric conditions

MISCARRIAGE

- Spontaneous miscarriage in the first trimester does not need immediate referral unless:
 - Pain is severe or
 - Nature/location of pain is different to menstrual pain or
 - Bleeding is significant.
- If referral is not required and the patient's LMC cannot be contacted, recommend the patient is reviewed by their GP or LMC within 24 hours.

PRE-LABOUR RUPTURE OF MEMBRANES

- Contact the patient's LMC.
- Exclude cord prolapse.
- If pregnancy <37 weeks, recommend assessment in an obstetric unit.
- If pregnancy >37 weeks, recommend the patient contacts their LMC.

PRE-TERM LABOUR

- Contact the patient's LMC.
- Transport immediately.
- Be prepared to treat neonatal resuscitation.

BIRTH

- Pull to the roadside if birth is imminent during transport.
- Support the patient to adopt preferred position.
- Support the baby's head and shoulders as they appear.
- Dry the baby.
- Place skin to skin with the mother if neither requires resuscitation.
- Observe the baby's breathing and activity.
- In absence of the need to commence resuscitation, clamp and cut the cord 5 cm from the baby 2-3 minutes after birth.
- Administer 10 units oxytocin IM to the mother.
- Allow the placenta to deliver spontaneously and place in a plastic bag.
- Following placenta delivery, feel for uterus and rub in circular motion until it feels firm.

IF THE BABY GETS STUCK

- Seek help from an LMC.
- Ask the patient to grab her knees, pull them to her chest and push as hard as she can with the next two contractions.
- If the above fails, place the heel of your hand directly above the patient's pubic bone and push slowly but firmly straight back towards the patient's lower back.
- If the above fails, ask the patient to move on to her hands and knees and push as hard as she can with the next two contractions.
- If the above fails transport urgently.

PROLAPSED UMBILICAL CORD

- Seek help from an LMC.
- Instruct the patient not to push and position her so that her hips are higher than her shoulders. Either:
 - Position the patient on her back with her hips on a pillow with the stretcher head down or
 - Position the patient on her elbows and knees with her head down and with the stretcher head down.
- Encourage delivery if the baby appears at vaginal opening or the patient wants to push.

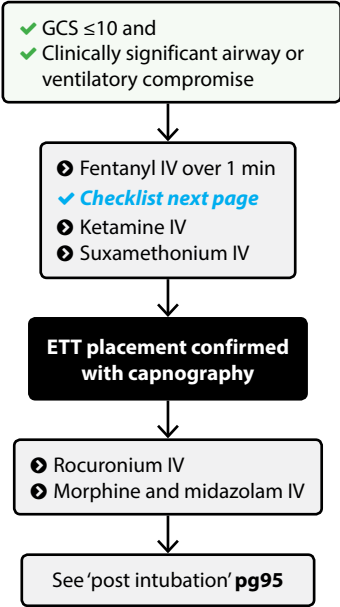
BREECH DELIVERY

- Seek help from an LMC.
- Instruct the patient not to push and position her so that her hips are higher than her shoulders. Either:
 - Position the patient on her back with her hips on a pillow with the stretcher head down or
 - Position the patient on her elbows and knees with her head down and with the stretcher head down.
- Encourage delivery if the baby appears at vaginal opening or the patient wants to push.

RETAINED PLACENTA

- Transport to hospital without unnecessary delay and seek help from an LMC.
- Gain IV access and prepare to treat PPH.

9.3 Rapid sequence intubation (RSI)



Rapid sequence intubation

- ✗ No capnography
- ✗ No dedicated suitable assistant
- ⊖ Predicted difficult intubation
- ⊖ Transport to hospital <15 minutes
- ⊖ Condition is likely to rapidly improve
- ⊖ Patient is aged <5 years or >75 years
- ⊖ Severe comorbidities

Suxamethonium

- ✗ History (or family history) of MH
- ✗ Pre-existing paraplegia or quadriplegia
- ✗ Long term weakness
- ✗ Hyperkalaemia strongly suspected

Rocuronium

- ✗ ETT not confirmed by capnography
- ⊖ Chronic muscle weakness

	ADULT RSI		PAEDIATRIC RSI				
Drug	>80 kg	50-80 kg	50 kg	40 kg	30 kg	20 kg	10 kg
Fentanyl *	200 mcg	150 mcg	100 mcg	80 mcg	60 mcg	40 mcg	20 mcg
Ketamine	150 mg	100 mg	75 mg	60 mg	45 mg	30 mg	15 mg
Suxamethonium	200 mg	150 mg	100 mg	80 mg	60 mg	40 mg	20 mg
Rocuronium	100 mg	50 mg	50 mg	40 mg	30 mg	20 mg	10 mg

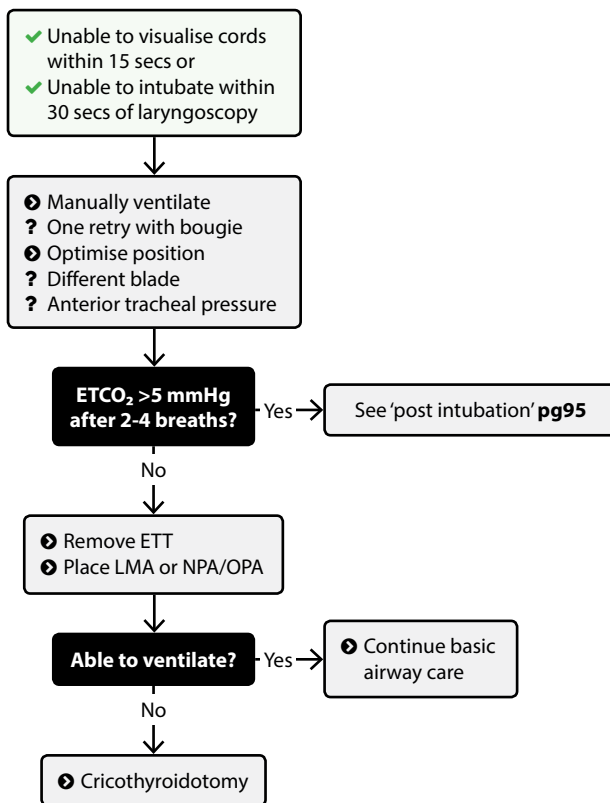
Note

⚠ * Halve the dose of fentanyl if there are signs of shock or for adult patients who are frail.

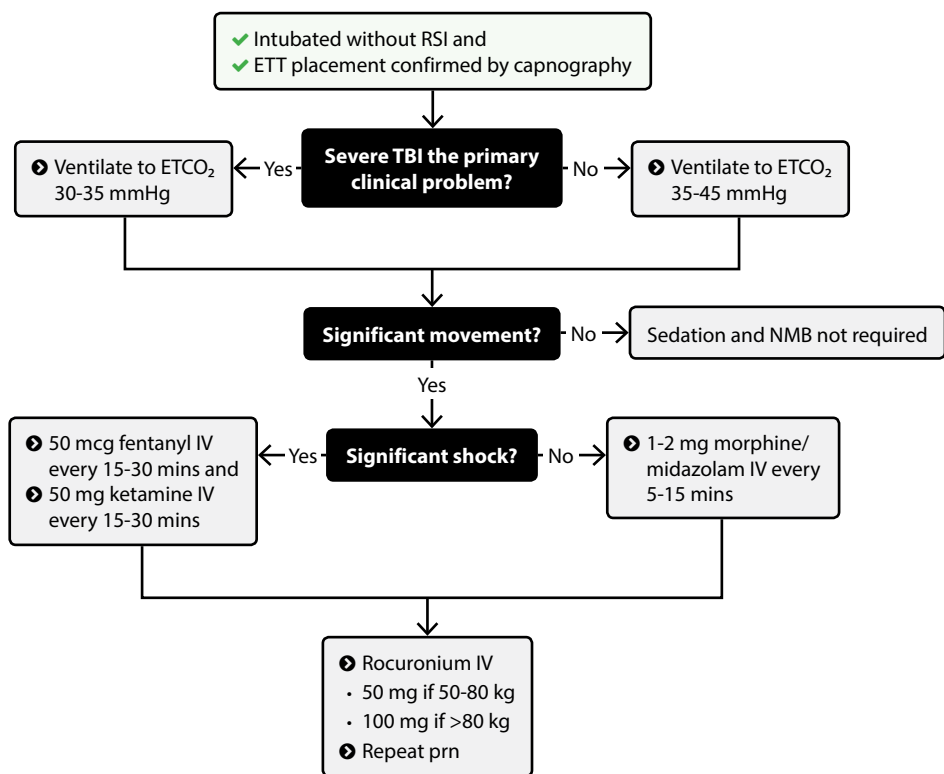
RSI checklist

- ☑ Roles assigned and team briefed:
 - a) Airway.
 - b) Airway assistant.
 - c) Drugs.
- ☑ Patient prepared:
 - a) Pre-oxygenation. Nasal prongs in place.
 - b) Position optimised.
 - c) IV access patent. Running line attached.
 - d) 0.9% NaCl IV bolus if indicated.
- ☑ Monitoring attached and visible:
 - a) Baseline vital signs including ECG and NIBP.
 - b) Pulse oximetry and capnography.
- ☑ Equipment checked and ready:
 - a) Manual ventilation bag with PEEP valve set to minimum 5 cmH₂O.
 - b) Oropharyngeal airway.
 - c) Laryngoscope checked.
 - d) ETT. Cuff checked. Syringe containing 5 ml of air.
 - e) ETT holder in place.
 - f) Suction checked and in position.
 - g) Bougie.
 - h) LMA and cricothyroidotomy equipment out.
- ☑ Drugs drawn up and doses confirmed:
 - a) Atropine if the patient is bradycardic.
 - b) Fentanyl.
 - c) Ketamine.
 - d) Suxamethonium.
 - e) Morphine and midazolam.
 - f) Rocuronium.
- ☑ Failed intubation plan communicated, including the SpO₂ level at which it will be implemented.

9.5 Failed intubation drill



9.6 Post intubation



Rocuronium

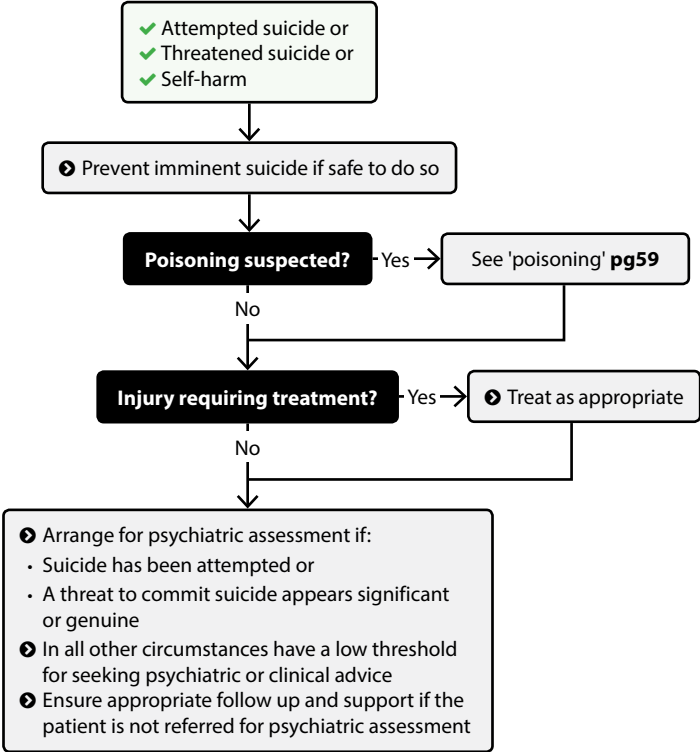
- ⊖ Chronic muscle weakness
- ⊖ Poor prognosis

Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ If the patient has been intubated during cardiac arrest use this section only if sustained ROSC occurs.



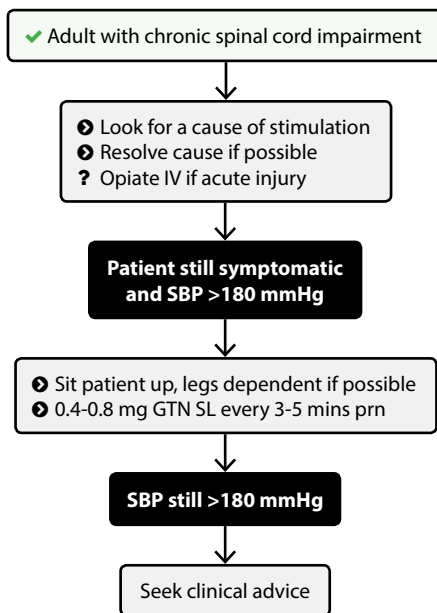
10.1 Attempted or threatened suicide or self-harm



Note

- ⚠ Consider requesting police if:
- There is immediate risk of injury to patient or others
 - More than minimal force is required to prevent suicide
 - More than minimal force is required to treat/transport.

10.2 Autonomic dysreflexia



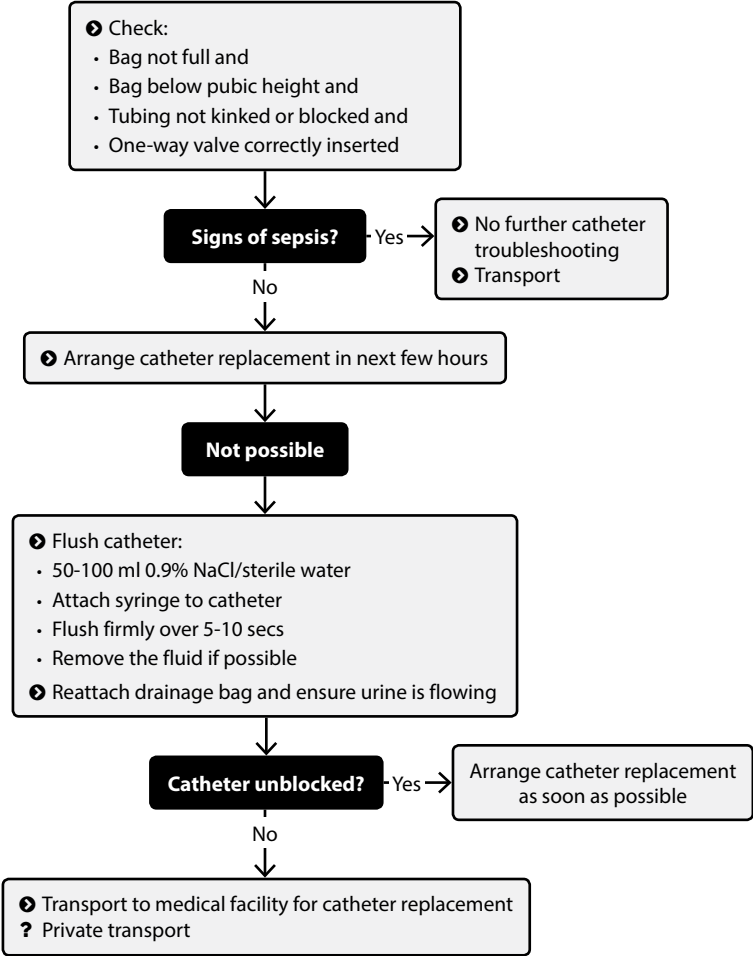
GTN

- ✗ HR <40/min or >150/min
- ⊖ Small, frail or physiologically unstable
- ⊖ Poor perfusion
- ⊖ Dysrhythmia
- ⊖ Erectile dysfunction drug
- ⊖ Aortic or mitral stenosis

Morphine and fentanyl

- ✗ Respiratory depression
- ✗ Unable to obey commands
- ⊖ At high risk of respiratory depression

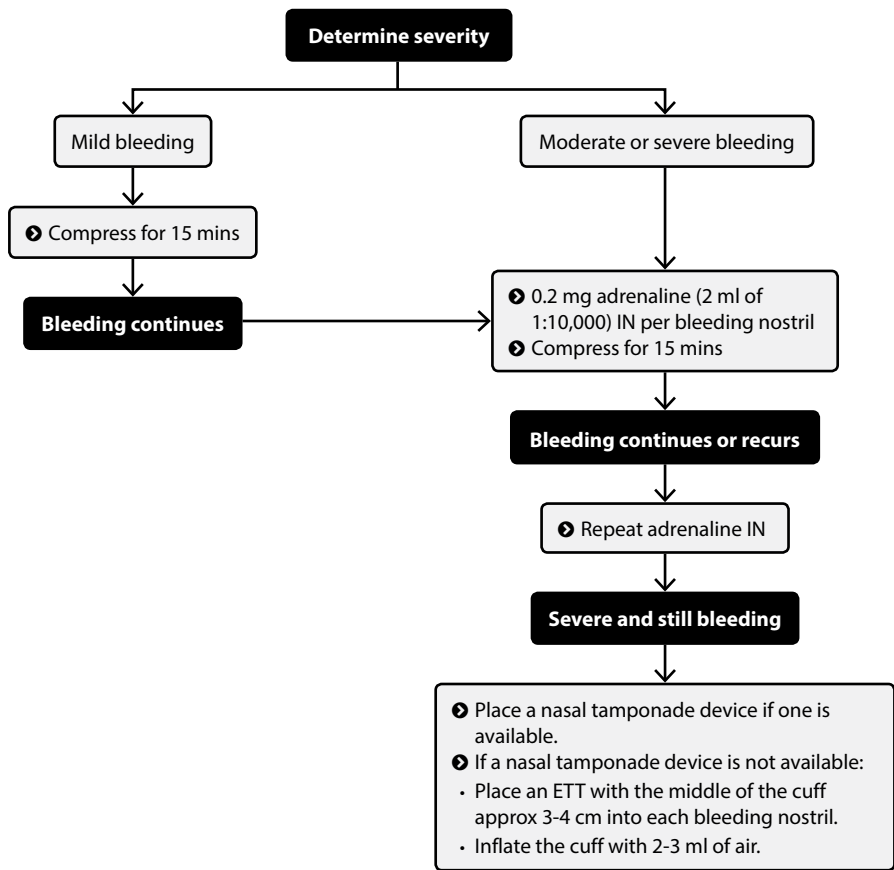
10.3 Blocked urinary catheter



Note

⚠ If the patient has had surgery on their renal tract or prostate in the last 4 weeks do not use this section and transport to hospital.

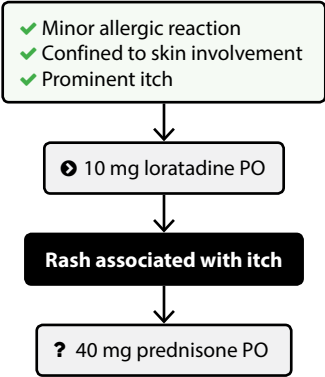
10.5 Epistaxis



Note

- ⚠ All doses described are for adults only, seek clinical advice if the patient is a child.
- ⚠ Call for ICP backup if bleeding requires an ETT to be placed. Seek clinical advice if ICP backup is unavailable.
- ⚠ If the bleeding stops and the patient is taking an anticoagulant, they must be reviewed by a doctor within 24 hours.

10.6 Minor allergy



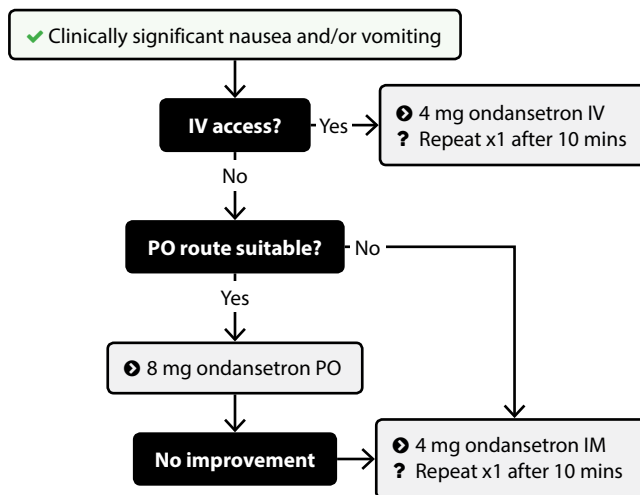
Loratadine

- ✗ <1 year of age
- ⊖ Pregnancy

Note

⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.

10.7 Nausea and/or vomiting



Ondansetron

- ✗ <1 year of age
- ⊖ Prolonged QT syndrome

Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ A maximum of two parenteral doses may be administered in addition to one oral dose.
- ⚠ Administer only one dose if the patient has a known prolonged QT syndrome.



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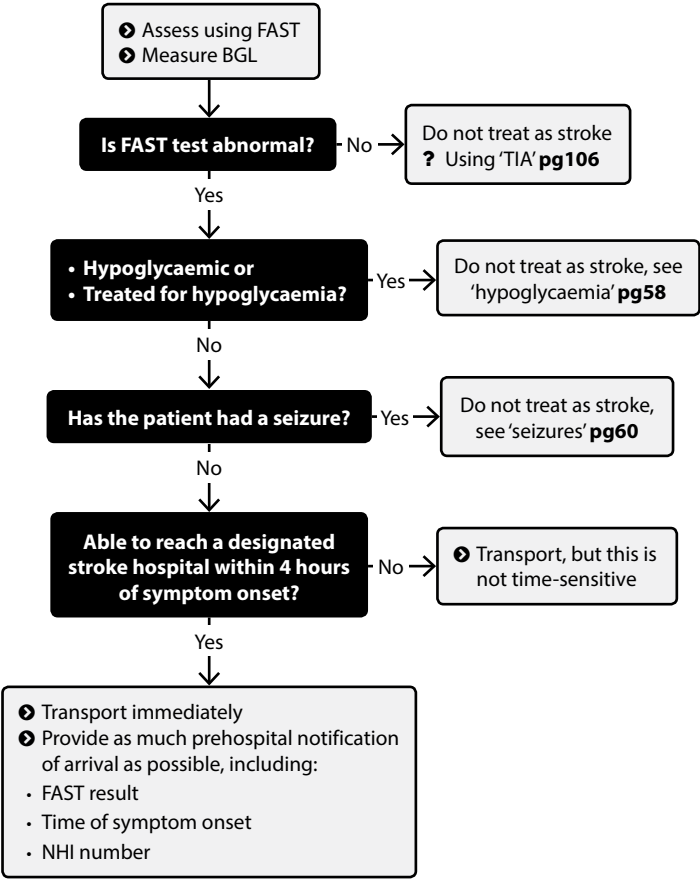
10.8 Stroke

This table should be used in conjunction with the ‘stroke’ flow chart.

The FAST assessment

FACE	Look for new onset of unilateral facial weakness. Ask the patient to smile and show all of their teeth/gums.
ARM	Look for new onset of unilateral arm weakness. Ask the patient to raise their arms to 90 degrees from the body, with their palms facing upward, close their eyes and keep their arms raised. Look for inability to raise one arm or for one arm that drifts downward.
SPEECH	Look for new onset of abnormal speech. Ask the patient to repeat a sentence and listen for slurring of words. Ask the patient to name several common objects shown to them and observe any difficulty or inability to name them.
TIME	Note the time of symptom onset. This is defined as the time that the patient was last seen or known to be normal. If the patient has woken up with the signs or symptoms, then the time of symptom onset is the time that the patient was last seen or known to be awake and symptom free.

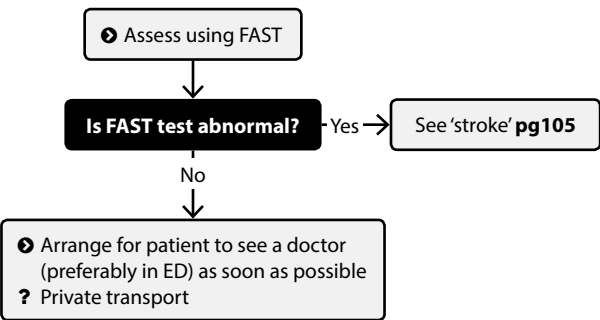
10.8 Stroke



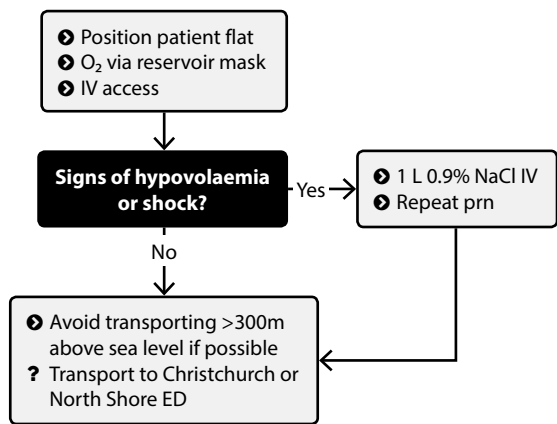
Note

⚠ Time of symptom onset is the time when the patient was last seen or known to be normal.

10.9 Transient ischaemic attack (TIA)



10.10 SCUBA diving emergencies



Note

- ⚠ All doses described are for adults only, refer to the paediatric drug dose tables for children **pg74**.
- ⚠ Do not administer Entonox.
- ⚠ Do not transport direct to recompression facility.
- ⚠ Transport the patient's dive computer if possible.

11.1 Abdominal pain



RED FLAGS

- Severe pain.
- Abnormal vital signs.
- Pain radiating to the back.
- Loin or flank pain.
- Temperature >38 degrees.
- Rigors.
- Female aged 14-50 and last menstrual period >4 weeks ago.
- Pregnant.
- Abdominal tenderness on palpation.
- Pain made worse by movement.
- Indigestion or epigastric pain.
- Persistent or recurrent vomiting.
- Age >65 years or <5 years.
- Immunocompromised (e.g. taking steroids or chemotherapy medicines).



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 12 HOURS

- Dysuria.
- Frequency or urgency of urination.
- Recent unplanned weight loss.
- Haematuria.
- Temperature 37-38 degrees but other vital signs normal.
- New onset of constipation in the elderly.



GREEN FLAGS

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

11.2 Falls



RED FLAGS

- Clinically significant injury.
- Clinically significant pain.
- Abnormal vital signs.
- Signs of stroke.
- Seizure without history of epilepsy.
- Headache.
- New onset of visual disturbance.
- Unable to mobilise.
- Unstable medical condition contributing to the fall.



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 24 HOURS

- More than one fall in the last week.
- Postural hypotension.
- Seizure with history of epilepsy.
- Recent change in medication.
- Minor injury requiring non-urgent treatment.
- New reduction in mobility but able to weight bear.



GREEN FLAGS

- Minor soft tissue injury not requiring medical treatment.
- Able to mobilise in a manner that is normal for the patient.

11.3 Fever in patients aged under five years



RED FLAGS

- **Colour:**
 - Pale or ashen.
 - Mottled.
 - Blue.
- **Activity:**
 - No response to social cues.
 - Difficult to rouse or does not stay awake when roused.
 - Weak cry.
 - Exhaustion.
- **Respiratory:**
 - Grunting.
 - Respiratory rate >60/min aged 3-12 months.
 - Respiratory rate >50/min aged over 12 months.
 - Moderate or severe chest indrawing.
 - SpO₂ <94% on air.
- **Circulation and hydration:**
 - Reduced skin turgor.
 - Severe tachycardia.
 - Peripheral capillary refill time >3 secs.
 - Bradycardia (extremely late sign).
- **Other:**
 - Temperature >39 degrees.
 - Neutropenia.
 - Chemotherapy within last four weeks.
 - Pain in a single joint or a single muscle area.
 - Rigors.
 - Petechiae or purpura.
 - Neck stiffness.
 - Focal neurological signs.
 - Significant concern regarding neglect or non-accidental injury.



ORANGE AND GREEN FLAGS

Continued on next page



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 6 HOURS

- **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.
- **Circulation and hydration:**
 - Dry mucous membranes.
 - Tachycardia.
 - Peripheral CRT 2-3 secs.
 - Reduced urinary output or frequency.
- **Respiratory:**
 - Nasal flaring.
 - Respiratory rate 50-60/min aged 3-12 mths.
 - Respiratory rate 40-50/min aged >12 mths.
 - Mild indrawing.
 - Crackles audible on auscultation.
 - SpO₂ 94-95% on air.
- **Other:**
 - Illness for longer than five days.
 - Non-weight bearing or not mobilising appropriately.
 - Cellulitis.
 - Help from a healthcare provider has been sought more than once within 24 hours.



GREEN FLAGS

- **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.
 - SpO₂ ≥96% on air.
- **Circulation and hydration:**
 - Normal skin and eyes.
 - Moist mucous membranes.
 - Normal heart rate.
 - Peripheral capillary refill <2 secs.

11.4 Fever in patients aged five years and over



RED FLAGS

- Significantly abnormal vital signs.
- Pain or tenderness in the flank or back.
- Rigors.
- Neutropenia.
- Chemotherapy within last four weeks.
- Abdominal pain with tenderness on palpation.
- Pain in a single joint or a single muscle area.
- Severe muscle tenderness.
- Temperature >39 degrees.
- Drowsiness.
- Severe or worsening headache.
- Neck stiffness.
- Petechiae or purpura.



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 12 HOURS

- 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 FLAGS

- Influenza with normal vital signs and normal mobility.

11.5 Headache



RED FLAGS

- Headache or neck pain following neck manipulation.
- Neck pain or neck stiffness.
- Sudden onset of severe headache.
- Temperature >37.5 degrees (without influenza symptoms).
- Persistent vomiting.
- Focal neurological signs.
- Altered level of consciousness, including a history of altered level of consciousness with onset of the headache.
- Worsening headache following recent trauma to the head.
- Taking an anticoagulant or has a known bleeding disorder.
- Signs of temporal arteritis.
- Hypertension during pregnancy.
- Previous history of intracranial bleeding.
- Family history of cerebral vascular abnormalities.
- Onset during sexual activity.



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 12 HOURS

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



GREEN FLAGS

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

11.6 Non-traumatic lumbar back pain



RED FLAGS

- Loss of bladder or bowel control.
- Temperature >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 FLAGS – SHOULD SEE A DOCTOR WITHIN 12 HOURS

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



GREEN FLAGS

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

11.7 Syncope



RED FLAGS

- Abnormal vital signs.
- Failure to recover to normal.
- Abnormal 12 lead ECG.
- New or unexplained shortness of breath.
- Clinically significant injury.
- Occurred during exertion.
- Pregnancy.
- Headache.
- Valvular or congenital heart disease.



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 24 HOURS

- Age <16 years.
- Postural hypotension.
- Family history of sudden death.
- History of heart failure.



GREEN FLAGS

- Clearly benign. Factors associated with this include:
 - Posture, e.g. prolonged standing.
 - Provoking factors, e.g. pain or a procedure.
 - Prodromal symptoms, e.g. sweating or feeling hot.

11.8 Vertigo



RED FLAGS

- Signs of stroke.
- Headache.
- Unable to walk unaided.
- Neck pain.
- Visual disturbance.
- Abnormal coordination on finger-nose testing.
- Nystagmus that persists for >10 secs.
- Altered level of consciousness.
- Abnormal vital signs.
- History of recent trauma, especially head or neck injury.
- Symptoms that do not improve when the head is still.



ORANGE FLAGS – SHOULD SEE A DOCTOR WITHIN 24 HOURS

- First episode of vertigo.
- Symptoms worsened by changes in head position.
- Symptoms improve, but do not completely settle with holding head still.
- Tinnitus or loss of hearing.



GREEN FLAGS

- Symptoms totally resolve within 60 secs when the head is kept still.



12.1 Medicine contraindications and cautions

Known severe allergy is a universal contraindication.

ADENOSINE

- ✗ Sick sinus syndrome without internal pacemaker.
- ✗ Previous 2nd or 3rd degree heart block without internal pacemaker.
- ✗ Heart transplantation without internal pacemaker.
- ⊖ Asthma or CORD.
- ⊖ WPW syndrome with a rhythm that could be fast AF.

ADRENALINE

- ✗ None.
- ⊖ Myocardial ischaemia.
- ⊖ Tachydysrhythmias.

AMIODARONE

- ✗ Known severe allergy to iodine.
- ✗ VT secondary to cyclic anti-depressant poisoning.
- ⊖ None if the patient is in cardiac arrest.
- ⊖ Poor perfusion/signs of low cardiac output.
- ⊖ Hypotension.
- ⊖ AF associated with severe sepsis.
- ⊖ Sick sinus syndrome without internal pacemaker.
- ⊖ 2nd or 3rd degree heart block without internal pacemaker.
- ⊖ Pregnancy.

AMOXICILLIN/CLAVULANIC ACID

- ✗ Known severe allergy to penicillins.
- ✗ Anaphylaxis to any beta-lactam antibiotic.
- ⊖ None.

ASPIRIN

- ✗ Third trimester of pregnancy.
- ⊖ Known bleeding disorder.
- ⊖ Clinically significant bleeding.
- ⊖ Known worsening of bronchospasm with NSAIDs.

ATROPINE

- ✗ None.
- ⊖ Myocardial ischaemia.

CALCIUM CHLORIDE

- ✗ None.
- ⊖ None.

CLOPIDOGREL

- ✗ None.
- Clinically significant bleeding.
- At risk of bleeding.
- Pregnancy.

ENOXAPARIN

- ✗ None.
- Clinically significant bleeding.
- At risk of bleeding.
- Pregnancy.

ENTONOX

- ✗ Unable to obey commands.
- ✗ Suspected pneumothorax.
- ✗ Suspected bowel obstruction.
- ✗ SCUBA diving in last 24 hours.
- ✗ SCUBA diving related emergency.
- Confined space.
- Chronic pain syndromes.

FENTANYL

- ✗ Unable to obey commands (exceptions: administration for RSI, agitated delirium and post intubation).
- ✗ Current respiratory depression.
- Age <1 year.
- At high risk of respiratory depression.
- Labour.

GENTAMICIN

- ✗ Pregnancy.
- None.

GLUCAGON

- ✗ None.
- None.

GLUCOSE (ORAL)

- ✗ None.
- None.

GTN

- ✗ SBP <100 mmHg.
- ✗ HR <40/minute.
- ✗ HR >130/minute (exception: autonomic dysreflexia where this is >150/minute).
- ✗ VT.
- STEMI.
- Small, frail or physiologically unstable.
- Poor perfusion.
- Dysrhythmia.
- Erectile dysfunction drug used in the last 24 hours.
- Aortic or mitral stenosis.

HEPARIN

- ✗ Age ≥75 years.
- ⊖ Clinically significant bleeding.
 - ⊖ At risk of bleeding.
 - ⊖ Pregnancy.

IBUPROFEN

- ✗ Third trimester of pregnancy.
- ⊖ Ibuprofen in the last 4 hours.
 - ⊖ Abdominal pain, particularly if the patient is unwell or vomiting.
 - ⊖ Age ≥75 years.
 - ⊖ Dehydration or shock.
 - ⊖ Known renal impairment.
 - ⊖ Known bleeding disorder.
 - ⊖ Clinically significant bleeding.
 - ⊖ Known worsening of bronchospasm with NSAIDs.
 - ⊖ Taking warfarin.
 - ⊖ Pregnancy.

IPRATROPIUM

- ✗ None.
- ⊖ None.

KETAMINE

- ✗ Age <1 year.
 - ✗ Myocardial ischaemia.
- ⊖ Unable to obey commands.
 - ⊖ Active psychosis.
 - ⊖ Hypertension.
 - ⊖ Conditions worsened by hypertension.

1% LIGNOCAINE

- ✗ None.
- ⊖ Local infection in area of injection.

LORATADINE

- ✗ Age <1 year.
- ⊖ Pregnancy.

MAGNESIUM

- ✗ None.
- ⊖ Hypotension.

METHOXYFLURANE

- ✗ Personal or family history of malignant hyperthermia.
 - ✗ Unable to obey commands.
 - ✗ Known renal impairment.
 - ✗ Methoxyflurane in last week.
- ⊖ Age ≥75 years.
 - ⊖ Pre-eclampsia.
 - ⊖ Confined space.

METOPROLOL

- ✗ Bradycardia.
- ✗ Hypotension.
- ⊖ 1st degree heart block.
- ⊖ Sick sinus syndrome without an internal pacemaker.
- ⊖ 2nd or 3rd degree heart block without an internal pacemaker.
- ⊖ Asthma or CORD.

MIDAZOLAM

- ✗ None.
- ⊖ Concurrent administration of opiates or ketamine.
- ⊖ Intoxication.
- ⊖ Elderly.

MORPHINE

- ✗ Unable to obey commands (exceptions: agitated delirium and post intubation).
- ✗ Current respiratory depression.
- ⊖ Age <1 year.
- ⊖ At high risk of respiratory depression.
- ⊖ Labour.

NALOXONE

- ✗ None.
- ⊖ Chronic opiate use.

OLANZAPINE

- ✗ Age less than 12 years.
- ⊖ Pregnancy.
- ⊖ Elderly.

ONDANSETRON

- ✗ Age less than one year.
- ⊖ Known prolonged QT syndrome.

OXYTOCIN

- ✗ None.
- ⊖ None.

PARACETAMOL

- ✗ Current paracetamol poisoning.
- ⊖ Taken paracetamol in last 4 hours.
- ⊖ Abdominal pain, particularly if the patient is very unwell or vomiting.
- ⊖ Severe liver disease.

PREDNISONE

- ✗ Age less than one year.
- ⊖ Age <5 years with asthma.

ROCURONIUM

- ✗ ETT placement not confirmed by capnography.
- ⊖ Chronic muscle weakness.
- ⊖ Adult with poor prognosis.

SALBUTAMOL

- ✗ None.
- ⊖ None.

8.4% SODIUM BICARBONATE

- ✗ None.
- ⊖ IV access via a small vein.

SUXAMETHONIUM

- ✗ Personal or family history of malignant hyperthermia (MH).
- ⊖ None.
- ✗ Pre-existing paraplegia or quadriplegia.
- ✗ Muscle disorder with long term weakness.
- ✗ Hyperkalaemia strongly suspected.

TENECTEPLASE

- ✗ Suspected aortic dissection.
- ⊖ Clinically significant bleeding.
- ✗ Major surgery, major trauma or severe brain injury in last 6 weeks.
- ⊖ >10 mins of CPR.
- ✗ Intracranial surgery in last 6 months.
- ⊖ Non-compressible vascular puncture in last 24 hours.
- ✗ Ischaemic stroke in last 6 months.
- ⊖ Internal bleeding in last 6 weeks.
- ✗ Previous intracerebral haemorrhage.
- ⊖ Lumbar puncture or epidural insertion in last 6 weeks.
- ✗ Known cerebral aneurysm, AVM or tumour.
- ⊖ TIA in last 3 months.
- ⊖ Known bleeding disorder.
- ⊖ Taking warfarin or dabigatran.
- ⊖ SBP >180 mmHg or DBP >110 mmHg.
- ⊖ Pregnant or less than 2 weeks postpartum.

TRAMADOL

- ✗ Age <12 years.
- ⊖ Tramadol taken in last 4 hours.
- ⊖ Abdominal pain, particularly if the patient is very unwell or vomiting.
- ⊖ Age ≥75 years.
- ⊖ Confusion.
- ⊖ Pregnancy.


VALPROATE

- ✗ None.
- ⊖ None.

Asthma non-transport checklist

📄 Flow chart on **pg18**

- ☑ Personnel at EMT level must firmly recommend that the patient is transported to a medical facility by ambulance, if the patient is administered any bronchodilator (including their own MDI).
- ☑ Personnel at Paramedic and ICP level may recommend that a patient aged 10 years or older, with mild or moderate asthma remain at home, provided the patient:
 - a) Has known asthma and
 - b) Has only received bronchodilators via MDI, or has received a maximum of one administration of nebulised bronchodilators and
 - c) Is talking in full sentences and
 - d) Has an SpO₂ on air greater than or equal to 94% and
 - e) Is observed by ambulance personnel for a minimum of 20 minutes following the completion of the last bronchodilator administration and
 - f) Is observed to mobilise normally and
 - g) Has a peak expiry flow rate (PEFR) greater than 70% of their normal PEFR (do not use this criteria if the patient does not normally use a PEFR meter) and
 - h) Is able to see a doctor (preferably their own GP) within two days and
 - i) Is provided with a prednisone pack (if appropriate), an information sheet and the information within it is explained to them and to any carers.
- ☑ If the patient has signs of a chest infection (for example fever or purulent sputum), the patient should be seen by a doctor within 12 hours. This could be a GP (preferably their own) if all of the other criteria to remain at home are met.

CORD non-transport checklist Flow chart on **pg19**

- ✔ Personnel at EMT level must firmly recommend that the patient is transported to a medical facility by ambulance, if the patient is administered any bronchodilators (including their own).
- ✔ Personnel at Paramedic and ICP level may recommend that a patient with mild to moderate CORD remain at home, provided the patient:
 - a) Has known CORD and
 - b) Has only received bronchodilators via MDI, or has received a maximum of one administration of nebulised bronchodilators and
 - c) Rapidly improves to their usual respiratory state and
 - d) Has an SpO₂ on air greater than or equal to 88% and
 - e) Is observed by ambulance personnel, for a minimum of 20 minutes following the completion of the last bronchodilator administration and
 - f) Is observed to mobilise in a way that is normal for them and
 - g) Is able to see a doctor (preferably their own GP) within two days and
 - h) Is provided with a prednisone pack (if appropriate), an information sheet and the information within it is explained to them and to any carers.
- ✔ If the patient has signs of a chest infection (for example fever or purulent sputum), they should be seen by a doctor within 12 hours. This could be a GP if all of the other criteria to remain at home are met.

Hypoglycaemia non-transport checklist

🔗 Flow chart on **pg58**

- ✔ The patient may receive treatment for hypoglycaemia and be given a firm recommendation that transport by ambulance to a medical facility is not required, provided all of the following criteria are met:
 - a) It is an isolated single episode and
 - b) It is not due to overdose (including accidental) of insulin or oral hypoglycaemics and
 - c) It is not complicated by seizure or significant injury and
 - d) The patient recovers fully and can mobilise normally and
 - e) The blood glucose is >3.5 mmol/L, 10 (or more) minutes after glucagon or the last glucose administration and
 - f) An adult can stay with the patient for the next four hours and
 - g) The patient eats a meal (preferably containing complex carbohydrate) and
 - h) The patient is given the hypoglycaemia information sheet, which is explained to them and the accompanying adult.
- ✔ The patient must be given a firm recommendation to have their treatment reviewed (for example by their GP or diabetes service personnel). If the patient is aged less than or equal to 18 years or has been recently diagnosed with diabetes, this review must occur within the same day.

Seizures non-transport checklist

➤ Flow chart on **pg60**

- ☑ A patient may be given a firm recommendation not to be transported to a medical facility by ambulance, even if midazolam has been administered, provided the patient:
 - a) Has known epilepsy and
 - b) Has not been injured and
 - c) Has recovered to their usual postictal state and
 - d) Can be left in the care of a competent adult and
 - e) Has received a maximum of one dose of midazolam and
 - f) Is 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 is well known to the GP.

Cardioversion checklist

- ✔ Place pads in either the apex/sternum (recommended) or anterior/posterior position, in addition to ECG electrodes.
- ✔ Ensure the defibrillator is in manual mode.
- ✔ Select a lead with a visible R wave and ensure that artefact is minimised.
- ✔ 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.

Transcutaneous pacing checklist

[🔗 Flow chart on pg37](#)

- ✔ Place the pads in either the anterior/posterior (recommended) or apex/sternum position in addition to ECG electrodes.
- ✔ Select a lead with a visible R wave and ensure artefact is minimised.
- ✔ Select pacing.
- ✔ Confirm there is a detection symbol above every QRS complex.
- ✔ Confirm pacing is in demand mode (not applicable to all models).
- ✔ Set the pacing rate to 70/minute.
- ✔ 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, an improvement in the SpO₂ waveform 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.

Fibrinolytic therapy/PCI checklist

▶ Flow chart on **pg30**

- ✔ Does the patient have any of the following absolute contraindications to fibrinolytic therapy?
 - Suspected aortic dissection.
 - Major surgery, major trauma or severe brain injury within the last six weeks.
 - Intracranial surgery within the last six months.
 - Ischaemic stroke within the last six months.
 - Previous intracerebral haemorrhage.
 - Known cerebral aneurysm, arterio-venous malformation or tumour.
- ✔ Does the patient have any of the following cautions to fibrinolytic therapy?
 - More than 10 minutes of CPR.
 - Non-compressible vascular puncture (including organ biopsy) within the last 24 hours.
 - Internal bleeding within the last six weeks.
 - Lumbar puncture or epidural insertion within the last six weeks.
 - TIA within the last three months.
 - Known bleeding disorder.
 - Taking warfarin or dabigatran. Note: if the patient is taking warfarin document their last known INR result if possible.
 - Systolic BP greater than 180 mmHg or diastolic BP greater than 110 mmHg.
 - Known to be pregnant or less than two weeks postpartum.
- ✔ Are any of the following present?
 - The time of onset of symptoms was greater than 12 hours ago.
 - The patient is dependent on others for their activities of daily living.
 - The patient has comorbidities that severely limit their functioning.
 - The patient has another disease, for example metastatic malignancy, that significantly shortens their life expectancy.
 - The patient is very frail.

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 Control/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 30 seconds and turn it back on again.
- ✔ Remove and replace the batteries, utilising spare batteries if possible.
- ✔ Attach and connect a new set of pads.
- ✔ Switch to automatic mode if in manual mode.
- ✔ Turn the defibrillator off for 30 seconds and turn it back on again.

Log a reportable event if you reach the point of turning the defibrillator off for 30 seconds.

Preparation for RSI checklist

This checklist is to be used by personnel to aid preparing a patient for RSI, when waiting for an appropriate ICP to arrive.

- ✔ Attach nasal prongs without oxygen.
- ✔ Pre-oxygenate using a reservoir mask at 10 litres/minute, or a manual ventilation bag at 10-15 litres/minute with PEEP set at a minimum of 5 cmH₂O.
- ✔ Attach ECG, NIBP and SpO₂.
- ✔ Prepare capnography if this is available.
- ✔ Position the monitor so that it can be seen, leaving space to the right side of the patient's head for intubation equipment.
- ✔ Gain IV access, preferably in two sites.
- ✔ Prepare a running line of 0.9% sodium chloride.
- ✔ Position the patient for optimal airway control. For example, consider placing a folded towel under the head.
- ✔ Place an ETT holder with the strap undone under the patient's head.
- ✔ Ensure suction is working and turn it off.
- ✔ Prepare a manual ventilation bag with PEEP valve attached (if not already in use).
- ✔ Obtain a set of vital signs.
- ✔ If possible, update the responding ICP with the patient's condition and vital signs.
- ✔ Prepare the area:
 - If the patient is not in an ambulance, clear the area so that there is access to both sides of the patient if possible.
 - If the patient is in an ambulance, clear away as much unnecessary equipment as possible and consider travelling toward backup.

RSI checklist Flow chart on **pg92**

- ✔ Roles assigned and team briefed:
 - a) Airway.
 - b) Airway assistant.
 - c) Drugs.
- ✔ Patient prepared:
 - a) Pre-oxygenation. Nasal prongs in place.
 - b) Position optimised.
 - c) IV access patent. Running line attached.
 - d) 0.9% NaCl IV bolus if indicated.
- ✔ Monitoring attached and visible:
 - a) Baseline vital signs including ECG and NIBP.
 - b) Pulse oximetry and capnography.
- ✔ Equipment checked and ready:
 - a) Manual ventilation bag with PEEP valve set to minimum 5 cmH₂O.
 - b) Oropharyngeal airway.
 - c) Laryngoscope checked.
 - d) ETT. Cuff checked. Syringe containing 5 ml of air.
 - e) ETT holder in place.
 - f) Suction checked and in position.
 - g) Bougie.
 - h) LMA and cricothyroidotomy equipment out.
- ✔ Drugs drawn up and doses confirmed:
 - a) Atropine if the patient is bradycardic.
 - b) Fentanyl.
 - c) Ketamine.
 - d) Suxamethonium.
 - e) Morphine and midazolam.
 - f) Rocuronium.
- ✔ Failed intubation plan communicated, including the SpO₂ level at which it will be implemented.

Post intubation checklist

🔗 Flow chart on **pg95**

This checklist must be used as soon as possible following intubation.

- ✔ Confirm placement with capnography. Note the ETCO₂ level and waveform.
- ✔ Examine the chest for signs of bronchial intubation and adjust the ETT depth if required.
- ✔ Secure the ETT and note the length at lips.
- ✔ Replace the cervical collar (if appropriate).
- ✔ Measure vital signs.
- ✔ Consider administering sedation and neuromuscular blockade.
- ✔ Check the oxygen supply.
- ✔ Check the ETT cuff, ensuring the cuff contains only the minimum amount of air required to provide a seal.
- ✔ Ensure a manual ventilation bag is immediately available if a mechanical ventilator is being used.

Non-transport pause and checklist

If a 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 non-transport checklist (below) and agree that non-transport is the right decision. If consensus is unable to be easily achieved, personnel should have a low threshold for seeking clinical advice or transporting the patient.

The following non-transport 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 is seen to mobilise (when able to normally do so), noting that if the patient is unable to mobilise there must be a clearly minor or long-standing condition preventing this and
- ✔ The patient and/or caregivers have been given an explanation of when to seek further help and
- ✔ A PRF has been completed and a copy is being left with the patient or the patient is given instructions on how to access a copy of their PRF.



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Handover

- I** Identification of the patient.
- M** Mechanism of injury or medical complaint.
- I** Injuries identified or information related to the medical complaint.
- S** Signs and symptoms.
- T** Treatment provided and trends.
- A** Allergies.
- M** Medicines.
- B** Background including previous medical history.
- O** Other (including information on family and social situation).

Major incident sitrep

- M** Major incident declaration.
- E** Exact location of incident.
- T** Type of incident.
- H** Hazards (significant) identified.
- A** Access and egress.
- N** Number (estimated) of patients.
- E** Emergency services already present and extra resources required.



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Here for Life

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App version

