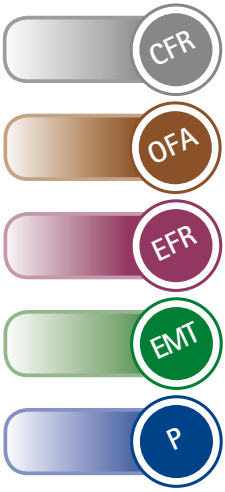
CLINICAL PRACTICE GUIDELINES

For Pre-Hospital Emergency Care

2012 Version



ADVANCED PARAMEDIC AP

Pre-Hospital
Emergency Care
Council

CLINICAL PRACTICE GUIDELINES – *Published 2012*

The Pre-Hospital Emergency Care Council (PHECC) is an independent statutory body with responsibility for standards, education and training in the field of pre-hospital emergency care in Ireland. PHECC's primary role is to protect the public.

MISSION STATEMENT

The Pre-Hospital Emergency Care Council protects the public by independently specifying, reviewing, maintaining and monitoring standards of excellence for the delivery of quality pre-hospital emergency care for people in Ireland.

The Council was established as a body corporate by the Minister for Health and Children by Statutory Instrument Number 109 of 2000 (Establishment Order) which was amended by Statutory Instrument Number 575 of 2004 (Amendment Order). These Orders were made under the Health (Corporate Bodies) Act, 1961 as amended and the Health (Miscellaneous Provisions) Act 2007.

CLINICAL PRACTICE GUIDELINES – *2012 Version*

Practitioner

Advanced Paramedic

Pre-Hospital
Emergency Care
Council

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Pre-Hospital Emergency Care Council

It is my pleasure to write the foreword to this PHECC Clinical Handbook comprising Clinical Practice Guidelines (CPGs) and Medication Formulary. There are now 236 CPGs in all, to guide integrated care across the six levels of Responder and Practitioner.

My understanding is that it is a world first to have a Cardiac First Responder using guidance from the same integrated set as all levels of Responders and Practitioners up to Advanced Paramedic. We have come a long way since the publication of the first set of guidelines numbering 35 in 2001, and applying to EMTs only at the time. I was appointed Chair in June 2008 to what is essentially the second Council since PHECC was established in 2000.

I pay great tribute to the hard work of the previous Medical Advisory Group chaired by Mark Doyle, in developing these CPGs with oversight from the Clinical Care Committee chaired by Sean Creamer, and guidance and authority of the first Council chaired by Paul Robinson.

The development and publication of CPGs is an important part of PHECC's main functions which are:

1. To ensure training institutions and course content in First Response and Emergency Medical Technology reflect contemporary best practice.
2. To ensure pre-hospital emergency care Responders and Practitioners achieve and maintain competency at the appropriate performance standard.
3. To sponsor and promote the implementation of best practice guidelines in pre-hospital emergency care.
4. To source, sponsor and promote relevant research to guide Council in the development of pre-hospital emergency care in Ireland.
5. To recommend other pre-hospital emergency care standards as appropriate.
6. To establish and maintain a register of pre-hospital emergency care practitioners.
7. To recognise those pre-hospital emergency care providers which undertake to implement the clinical practice guidelines.

The CPGs, in conjunction with relevant ongoing training and review of practice, are fundamental to achieve best practice in pre-hospital emergency care. I welcome this revised Clinical Handbook and look forward to the contribution Responders and Practitioners will make with its guidance.

Mr Tom Mooney, Chair, Pre-Hospital Emergency Care Council

Advanced Paramedic	AP
Advanced Life Support	ALS
Airway, breathing & circulation	ABC
All terrain vehicle	ATV
Altered level of consciousness	ALoC
Automated External Defibrillator	AED
Bag Valve Mask	BVM
Basic Life Support	BLS
Blood Glucose	BG
Blood Pressure	BP
Carbon dioxide	CO_2
Cardiopulmonary Resuscitation	CPR
Cervical spine	C-spine
Chronic obstructive pulmonary disease	COPD
Clinical Practice Guideline	CPG
Degree	°
Degrees Centigrade	°C
Dextrose 10% in water	$D_{10}W$
Drop (gutta)	gtt
Electrocardiogram	ECG
Emergency Department	ED
Emergency Medical Technician	EMT
Endotracheal tube	ETT
Foreign body airway obstruction	FBAO
Fracture	#
General Practitioner	GP
Glasgow Coma Scale	GCS
Gram	g
Greater than	>
Greater than or equal to	≥
Heart rate	HR
History	Hx
Impedance Threshold Device	ITD
Inhalation	Inh
Intramuscular	IM
Intranasal	IN
Intraosseous	IO
Intravenous	IV
Keep vein open	KVO
Kilogram	Kg

Less than	<
Less than or equal to	≤
Litre	L
Maximum	Max
Microgram	mcg
Milligram	mg
Millilitre	mL
Millimole	mmol
Minute	min
Modified Early Warning Score	MEWS
Motor vehicle collision	MVC
Myocardial infarction	MI
Nasopharyngeal airway	NPA
Milliequivalent	mEq
Millimetres of mercury	mmHg
Nebulised	NEB
Negative decadic logarithm of the H+ ion concentration	pH
Orally (per os)	PO
Oropharyngeal airway	OPA
Oxygen	O_2
Paramedic	P
Peak expiratory flow	PEF
Per rectum	PR
Percutaneous coronary intervention	PCI
Personal Protective Equipment	PPE
Pulseless electrical activity	PEA
Respiration rate	RR
Return of spontaneous circulation	ROSC
Revised Trauma Score	RTS
Saturation of arterial oxygen	SpO_2
ST elevation myocardial infarction	STEMI
Subcutaneous	SC
Sublingual	SL
Systolic blood pressure	SBP
Therefore	∴
Total body surface area	TBSA
Ventricular Fibrillation	VF
Ventricular Tachycardia	VT
When necessary (pro re nata)	prn

The process of developing CPGs has been long and detailed. The quality of the finished product is due to the painstaking work of many people, who through their expertise and review of the literature, ensured a world-class publication.

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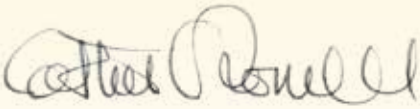
SPECIAL THANKS

A special thanks to all the PHECC team who were involved in this project from time to time, in particular Marion O'Malley, Programme Development Support Officer and Marie Ni Mhurchu, Client Services Manager, for their commitment to ensure the success of the project.

The development of Clinical Practice Guidelines (CPGs) is a continuous process. The publication of the ILCOR Guidelines 2010 was the principle catalyst for updating these CPGs. As research leads to evidence, and as practice evolves, guidelines are updated to offer the best available advice to those who care for the ill and injured in our pre-hospital environment.

This 2012 Edition offers current best practice guidance. The guidelines have expanded in number and scope – with **73 CPGs in total for Advanced Paramedics**, covering such topics as Post Resuscitation Care for Paediatric patients and End of Life – DNR for the first time. The CPGs continue to recognise the various levels of Practitioner (Emergency Medical Technician, Paramedic and Advanced Paramedic) and Responder (Cardiac First Response, Occupational First Aid and Emergency First Response) who offer care.

The CPGs cover these six levels, reflecting the fact that care is integrated. Each level of more advanced care is built on the care level preceding it, whether or not provided by the same person. For ease of reference, a version of the guidelines for each level of Responder and Practitioner is available on www.phecc.ie Feedback on the experience of using the guidelines in practice is essential for their ongoing development and refinement, therefore, your comments and suggestions are welcomed by PHECC. The Medical Advisory Group believes these guidelines will assist Practitioners in delivering excellent pre-hospital care.



Mr Cathal O'Donnell
Chair, Medical Advisory Group (2008-2010)

Clinical Practice Guidelines (CPGs) and the Practitioner

CPGs are guidelines for best practice and are not intended as a substitute for good clinical judgment. Unusual patient presentations make it impossible to develop a CPG to match every possible clinical situation. The Practitioner decides if a CPG should be applied based on patient assessment and the clinical impression. The Practitioner must work in the best interest of the patient within the scope of practice for his/her clinical level on the PHECC Register. Consultation with fellow Practitioners and or medical practitioners in challenging clinical situations is strongly advised.

The CPGs herein may be implemented provided:

1 The Practitioner is in good standing on the PHECC Practitioner's Register.
2 The Practitioner is acting on behalf of an organisation (paid or voluntary) that is approved by PHECC to implement the CPGs.
3 The Practitioner is authorised by the organisation on whose behalf he/she is acting to implement the specific CPG.
4 The Practitioner has received training on – and is competent in – the skills and medications specified in the CPG being utilised.

The medication dose specified on the relevant CPG shall be the definitive dose in relation to Practitioner administration of medications. The principle of titrating the dose to the desired effect shall be applied. The onus rests on the Practitioner to ensure that he/she is using the latest versions of CPGs which are available on the PHECC website www.phecc.ie

Definitions

Adult	a patient of 14 years or greater, unless specified on the CPG.
Child	a patient between 1 and less than or equal to (≤) 13 years old, unless specified on the CPG.
Infant	a patient between 4 weeks and less than 1 year old, unless specified on the CPG.
Neonate	a patient less than 4 weeks old, unless specified on the CPG.
Paediatric patient	any child, infant or neonate.

Care principles

Care principles are goals of care that apply to all patients. Scene safety, standard precautions, patient assessment, primary and secondary surveys and the recording of interventions & medications on the Patient Care Report (PCR) are consistent principles throughout the guidelines and reflect the practice of Practitioners at work. Care principles are the foundations for risk management and the avoidance of error.

Care Principles

1. Ensure the safety of yourself, other emergency service personnel, your patients and the public:
   - review all Ambulance Control Centre dispatch information.
   - consider all environmental factors and approach a scene only when it is safe to do so.
   - identify potential and actual hazards and take the necessary precautions.
   - request assistance as required in a timely fashion, particularly for higher clinical levels.
   - ensure the scene is as safe as is practicable.
   - take standard infection control precautions.
2. Identify and manage life-threatening conditions:
   - locate all patients. If the number of patients is greater than resources, ensure additional resources are sought.
   - assess the patient's condition appropriately.
   - prioritise and manage the most life-threatening conditions first.
   - provide a situation report to Ambulance Control Centre as soon as possible after arrival on the scene as appropriate.
3. Ensure adequate ventilation and oxygenation.
4. Monitor and record patient's vital observations.
5. Optimise tissue perfusion.
6. Identify and manage other conditions.
7. Provide appropriate pain relief.
8. Place the patient in the appropriate posture according to the presenting condition.
9. Ensure the maintenance of normal body temperature (unless CPG indicates otherwise).
10. Maintain responsibility for patient care until handover to an appropriate.

Practitioner. Do not hand over responsibility for care of a patient to a Practitioner/ Responder who is less qualified or experienced unless the care required is within the scope of their practice.

11 Arrange transport to an appropriate medical facility as necessary and in an appropriate time frame:
   - On-scene times for life-threatening conditions, other than cardiac arrest, should not exceed 10 minutes.
   - Following initial stabilisation other treatments should be commenced/continued en-route.

12 Provide reassurance at all times.

Completing a PCR for each patient is paramount in the risk management process and users of the CPGs must be committed to this process.

CPGs and the pre-hospital emergency care team

The aim of pre-hospital emergency care is to provide a comprehensive and coordinated approach to patient care management, thus providing each patient with the most appropriate care in the most efficient time frame.

In Ireland today, providers of emergency care are from a range of disciplines and include Responders (Cardiac First Response, Occupational First Aid and Emergency First Response) and Practitioners (Emergency Medical Technicians, Paramedics, Advanced Paramedics, Nurses and Doctors) from the statutory, private, auxiliary and voluntary services.

CPGs set a consistent standard of clinical practice within the field of pre-hospital emergency care. By reinforcing the role of the Practitioner, in the continuum of patient care, the chain of survival and the golden hour are supported in medical and trauma emergencies respectively.

CPGs guide the Practitioner in presenting to the acute hospital a patient who has been supported in the very early phase of injury/illness and in whom the danger of deterioration has lessened by early appropriate clinical care interventions.

CPGs presume no intervention has been applied, nor medication administered, prior to the arrival of the Practitioner. In the event of another Practitioner or Responder initiating care during an acute episode, the Practitioner must be cognisant of interventions applied and medication doses already administered and act accordingly.

In this care continuum, the duty of care is shared among all Responders/ Practitioners of whom each is accountable for his/her own actions. The most qualified Responder/Practitioner on the scene shall take the role of clinical leader. Explicit handover between Responders/Practitioners is essential and will eliminate confusion regarding the responsibility for care.

In the absence of a more qualified Practitioner, the Practitioner providing care during transport shall be designated the clinical leader as soon as practical.

Defibrillation policy

The Medical Advisory Group has recommended the following pre-hospital defibrillation policy;

- Advanced Paramedics should use manual defibrillation for all age groups.
- Paramedics may consider use of manual defibrillation for all age groups.
- EMTs and Responders shall use AED mode for all age groups.

Using the 2012 Edition CPGs

The 2012 Edition CPGs continue to be published in sections.

- Appendix 1, the Medication Formulary, is an important adjunct supporting decision-making by the Practitioner.
- Appendix 2, lists the care management and medications matrix for the six levels of Practitioner and Responder.
- Appendix 3, outlines important guidance for critical incident stress management (CISM) from the Ambulance Service CISM committee.
- Appendix 4, outlines changes to medications and skills as a result of updating to version 2 and the introduction of new CPGs.
- Appendix 5, outlines the pre-hospital defibrillation position from PHECC.

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Clinical Practice Guidelines
for
Advanced Paramedic
Codes explanation

EMT — **Emergency Medical Technician**
(Level 4) for which the CPG pertains

P — **Paramedic**
(Level 5) for which the CPG pertains

AP — **Advanced Paramedic**
(Level 6) for which the CPG pertains

MP — **Medical Practitioner**
(Level 7) for which the CPG pertains

Sequence step — **A sequence (skill) to be performed**

Mandatory sequence step — **A mandatory sequence (skill) to be performed**

A decision process
The Practitioner must follow one route

Consider treatment options — Given the clinical presentation consider the treatment option specified

Reassess — Reassess the patient following intervention

A parallel process
Which may be carried out in parallel with other sequence steps

A cyclical process in which a number of sequence steps are completed

Paramedic or lower clinical levels not permitted this route

Transport to an appropriate medical facility and maintain treatment en-route

Special authorisation — **Special authorisation**
This authorises the Practitioner to perform an intervention under specified conditions

Instructions — **An instruction box for information**

Special instructions — **Special instructions**
Which the Practitioner must follow

AP — **A skill or sequence that only pertains to Advanced Paramedic**

4/5/6.4.1 Version 2, 07/11
4/5/6.x.y Version 2, mm/yy

CPG numbering system
4/5/6 = clinical levels to which the CPG pertains
x = section in CPG manual, y = CPG number in sequence
mm/yy = month/year CPG published

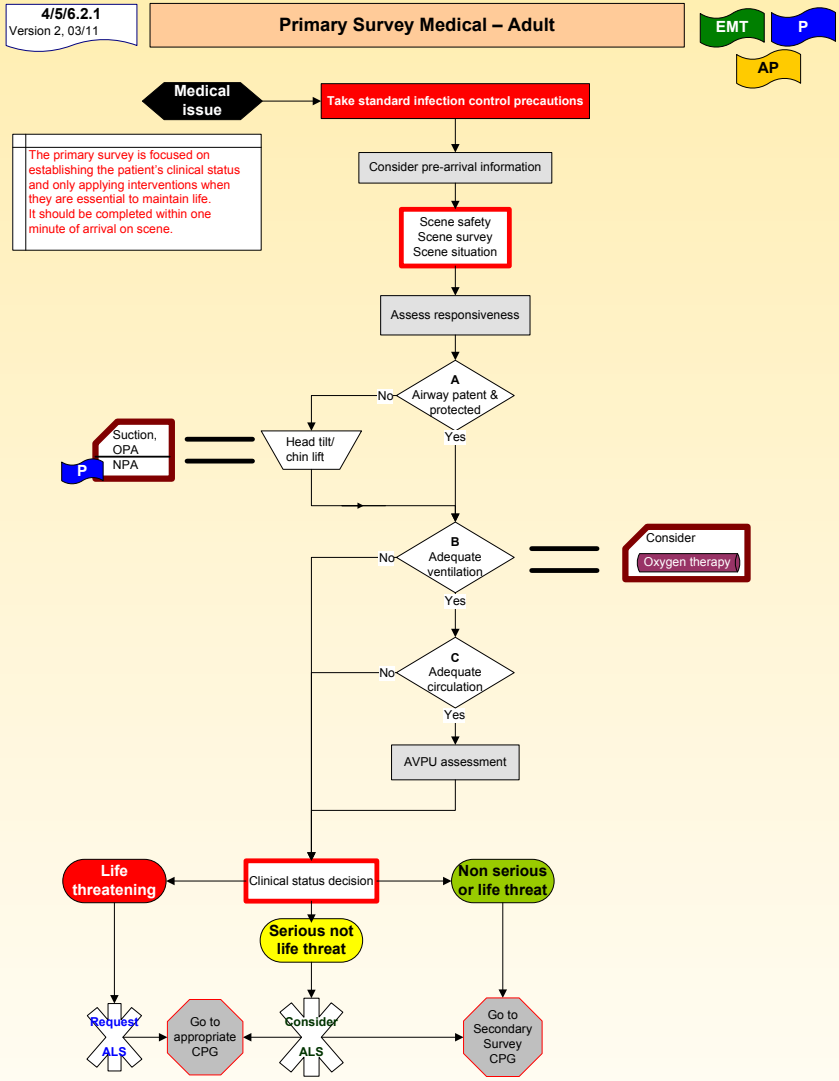
Medication, dose & route — **A medication which may be administered by an EMT or higher clinical level**
The medication name, dose and route is specified

Medication, dose & route — **A medication which may be administered by a Paramedic or higher clinical level**
The medication name, dose and route is specified

Medication, dose & route — **A medication which may be administered by an Advanced Paramedic**
The medication name, dose and route is specified

Go to xxx CPG — **A direction to go to a specific CPG following a decision process**
Note: only go to the CPGs that pertain to your clinical level

Start from — **A clinical condition that may precipitate entry into the specific CPG**



Reference: ILCOR Guidelines 2010

4/5/6.2.2
Version 2, 03/11

Primary Survey Trauma – Adult

EMT P AP

Trauma → Take standard infection control precautions

The primary survey is focused on establishing the patient's clinical status and only applying interventions when they are essential to maintain life. It should be completed within one minute of arrival on scene.

Consider pre-arrival information

Scene safety
Scene survey
Scene situation

Control catastrophic external haemorrhage

Mechanism of injury suggestive of spinal injury
- No → Assess responsiveness
- Yes → C-spine control → Assess responsiveness

Assess responsiveness

A Airway patent & protected
- No → Jaw thrust
- Yes

P: Suction, OPA, NPA

B Adequate ventilation
- No → Consider Oxygen therapy
- Yes

C Adequate circulation
- No → Treat life threatening injuries only at this point
- Yes

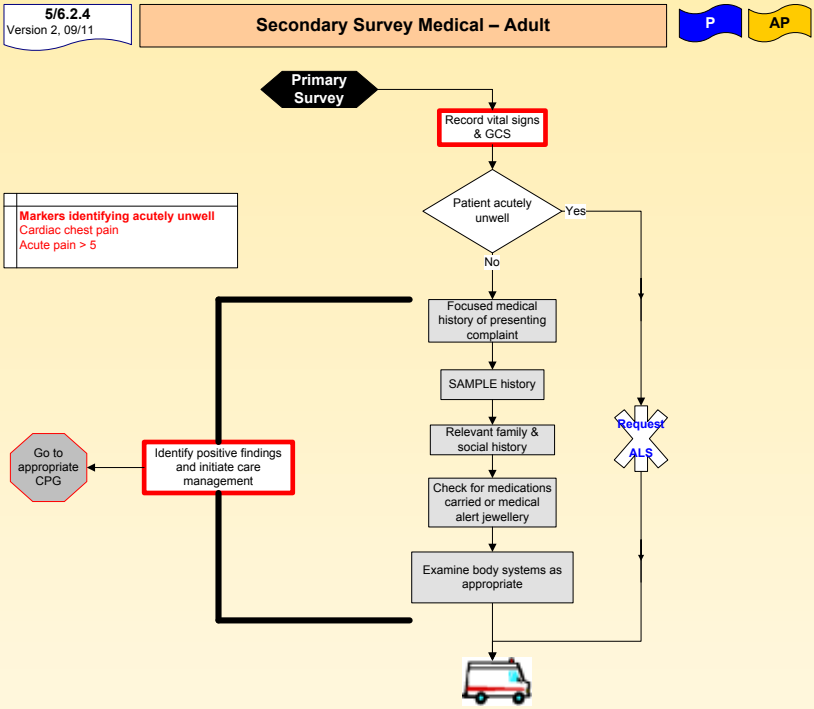
AVPU assessment

Treat life threatening injuries only at this point

Clinical status decision
- Life threatening → Request ALS → Go to appropriate CPG
- Serious not life threat → Consider ALS → Go to appropriate CPG
- Non serious or life threat → Go to Secondary Survey CPG

Maximum time on scene for life threatening trauma: ≤ 10 minutes

Reference: ILCOR Guidelines 2010

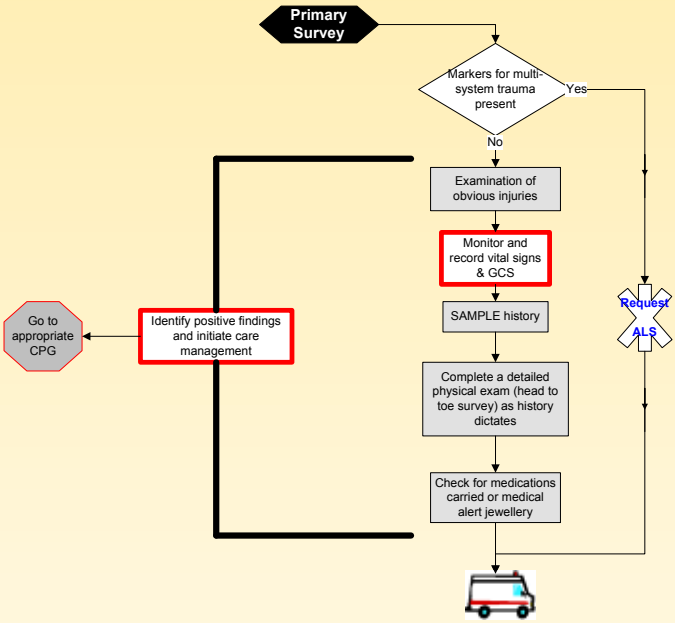


Reference: Sanders, M. 2001, Paramedic Textbook 2nd Edition, Mosby
Gleadle, J. 2003, History and Examination at a glance, Blackwell Science
Rees, JE, 2003, Early Warning Scores, World Anaesthesia Issue 17, Article 10

5/6.2.5
05/08

Secondary Survey Trauma – Adult

P AP



Markers for multi-system trauma
GCS < 13
Systolic BP < 90
Respiratory rate < 10 or > 29
Heart rate > 120
Revised Trauma Score < 12
Mechanism of Injury

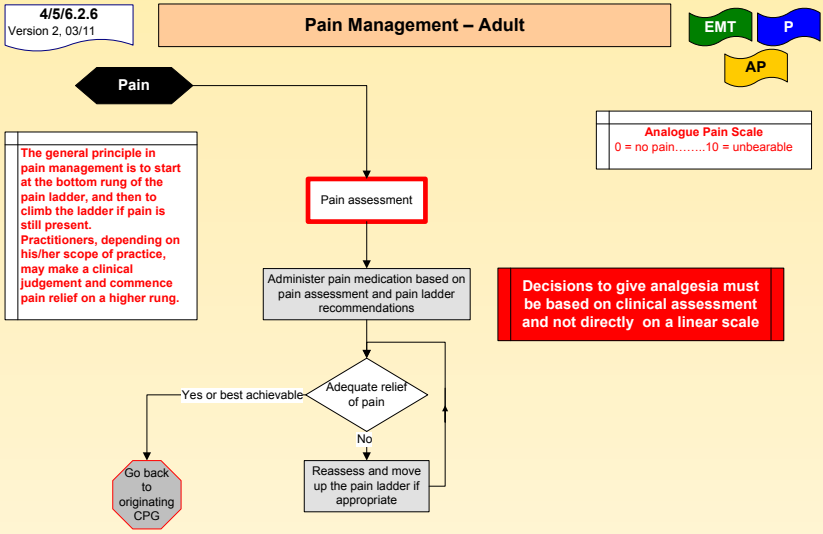
Revised Trauma Score		
Respiratory Rate	10 – 29	4
	> 29	3
	6 – 9	2
	1 – 5	1
	0	0
Systolic BP	≥ 90	4
	76 – 89	3
	50 – 75	2
	1 – 49	1
	no BP	0
GCS	13 – 15	4
	9 – 12	3
	6 – 8	2
	4 – 5	1
	3	0
RTS = Total score		

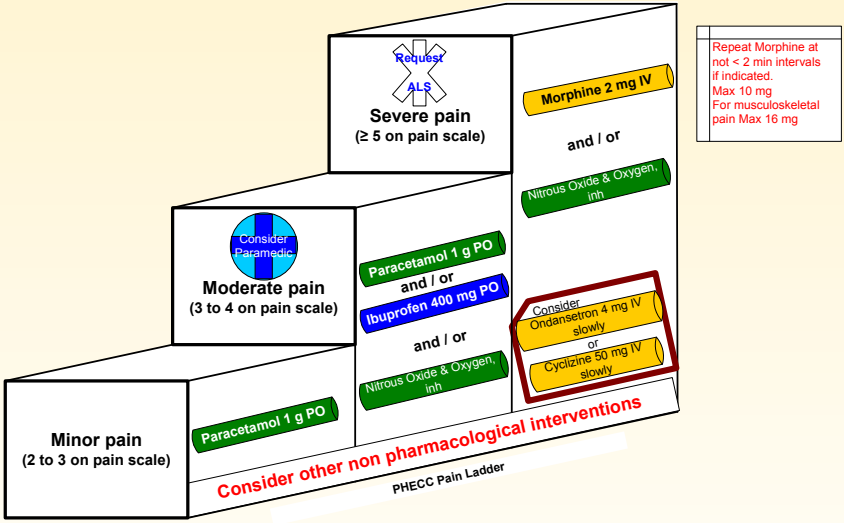
Reference: McSwain, N. et al, 2003, PHTLS Basic and advanced prehospital trauma life support, 5th Edition, Mosby

4/5/6.2.6
Version 2, 03/11

Pain Management – Adult

EMT P AP





EMT P
Special Authorisation:
Registered Medical Practitioners may authorise the use of IM Morphine by Paramedic or EMT practitioners for a specific patient in an inaccessible location

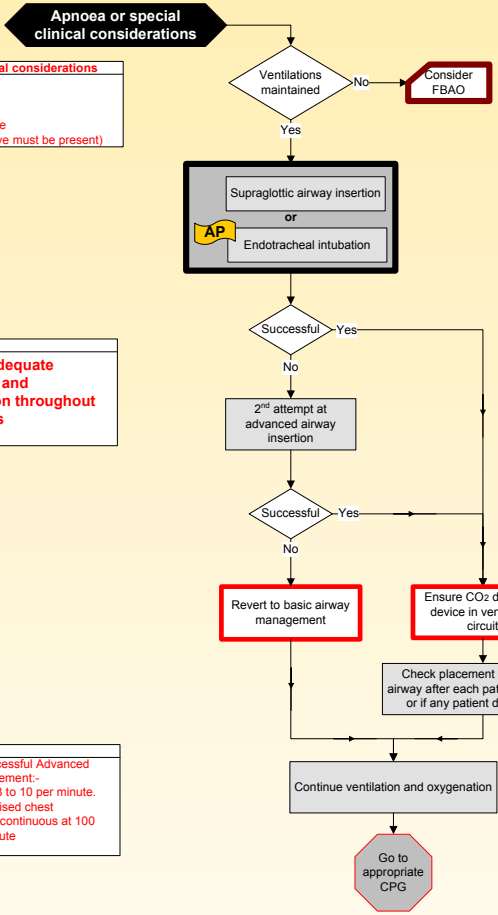
AP
Special Authorisation:
Advanced Paramedics are authorised to administer Morphine up to 10 mg IM if IV not accessible, the patient is cardio-vascularly stable and no cardiac chest pain present

Reference: World Health Organization, Pain Ladder

5/6.3.1
Version 2, 03/11

Advanced Airway Management – Adult (≥ 8 years)

P AP



Special clinical considerations
GCS = 3
SpO_2 < 92%
RR ≤ 9
BVM ineffective
(All of the above must be present)

Minimum interruptions of chest compressions.

Maximum hands off time 10 seconds.

Maintain adequate ventilation and oxygenation throughout procedures

Following successful Advanced Airway management:-
i) Ventilate at 8 to 10 per minute.
ii) Unsynchronised chest compressions continuous at 100 to 120 per minute

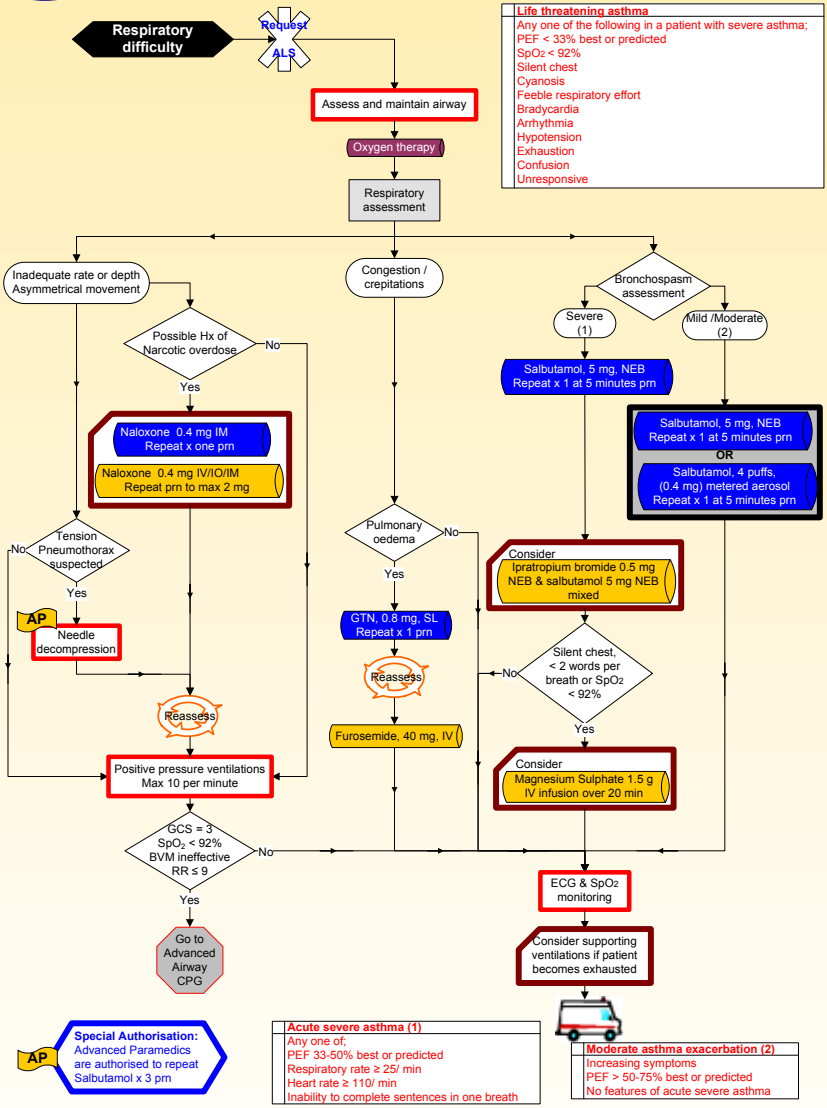
AP Consider use of waveform capnography

Reference: ILCOR Guidelines 2010

5/6.3.2
05/08

Inadequate Respirations – Adult

P AP



Life threatening asthma

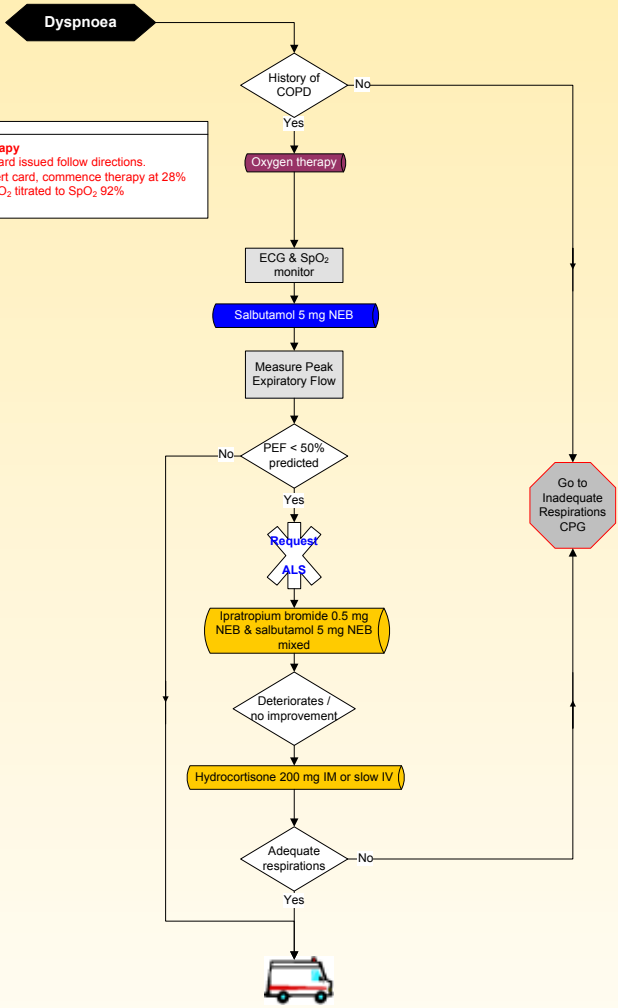
Any one of the following in a patient with severe asthma;
- PEF < 33% best or predicted
- SpO_2 < 92%
- Silent chest
- Cyanosis
- Feeble respiratory effort
- Bradycardia
- Arrhythmia
- Hypotension
- Exhaustion
- Confusion
- Unresponsive

Reference: British Thoracic Society, 2005, British Guidelines on the Management of Asthma, a national clinical guideline

5/6.3.3
05/09

Exacerbation of COPD

P | AP



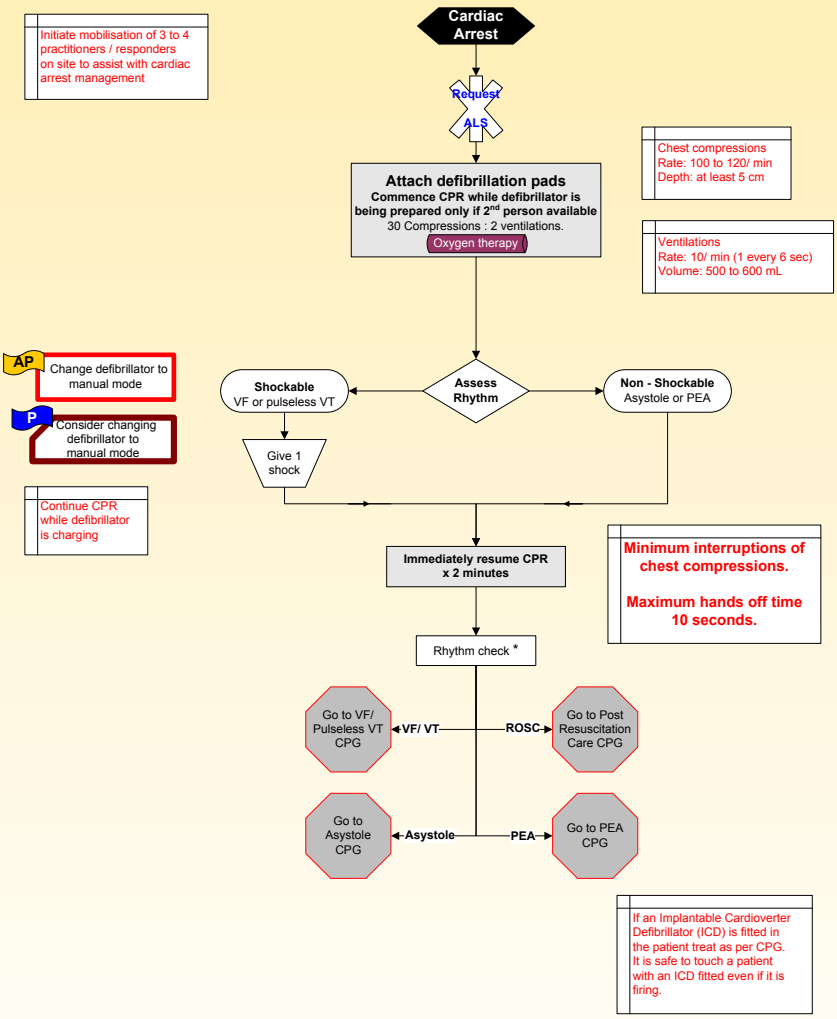
Oxygen Therapy
1. if O_2 alert card issued follow directions.
2. if no O_2 alert card, commence therapy at 28%
3. administer O_2 titrated to SpO_2 92%

An exacerbation of COPD is defined as;
An event in the natural course of the disease characterised by a change in the patient's baseline dyspnoea, cough and/or sputum beyond day-to-day variability sufficient to warrant a change in management. (European Respiratory Society)

4/5/6.4.1
Version 2, 06/11

Basic Life Support – Adult

EMT P AP



* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Reference: ILCOR Guidelines 2010

4/5/6.4.4
06/11

Basic Life Support – Paediatric (≤ 13 Years)

EMT | P | AP

Cardiac arrest
or
pulse < 60 per minute with signs of poor perfusion

Initiate mobilisation of 3 to 4 practitioners / responders on site to assist with cardiac arrest management

Give 5 rescue ventilations
Oxygen therapy

Request ALS

One rescuer CPR 30 : 2
Two rescuer CPR 15 : 2
Compressions : Ventilations

Minimum interruptions of chest compressions.

Maximum hands off time 10 seconds.

Commence chest **Compressions**
Continue CPR (30:2) until defibrillator is attached

Chest compressions
Rate: 100 to 120/ min
Depth: ½ depth of chest
Child; two hands
Small child; one hand
Infant (< 1); two fingers

< 8 years
Yes
No

With two rescuer CPR use two thumb-encircling hand chest compression for infants

AP: Change defibrillator to manual mode

P: Consider changing defibrillator to manual mode

Apply paediatric system AED pads

Apply adult defibrillation pads

< 8 years use paediatric defibrillation system (if not available use adult pads)

Assess Rhythm

Shockable
VF or pulseless VT

Non - Shockable
Asystole or PEA

Continue CPR while defibrillator is charging

Give 1 shock

Immediately resume CPR x 2 minutes

Rhythm check *

VF/ VT → Go to VF / Pulseless VT CPG

ROSC → Go to Post Resuscitation Care CPG

Asystole / PEA → Go to Asystole / PEA CPG

Infant AED
It is extremely unlikely to ever have to defibrillate a child less than 1 year old. Nevertheless, if this were to occur the approach would be the same as for a child over the age of 1. The only likely difference being, the need to place the defibrillation pads anterior (front) and posterior (back), because of the infant's small size.

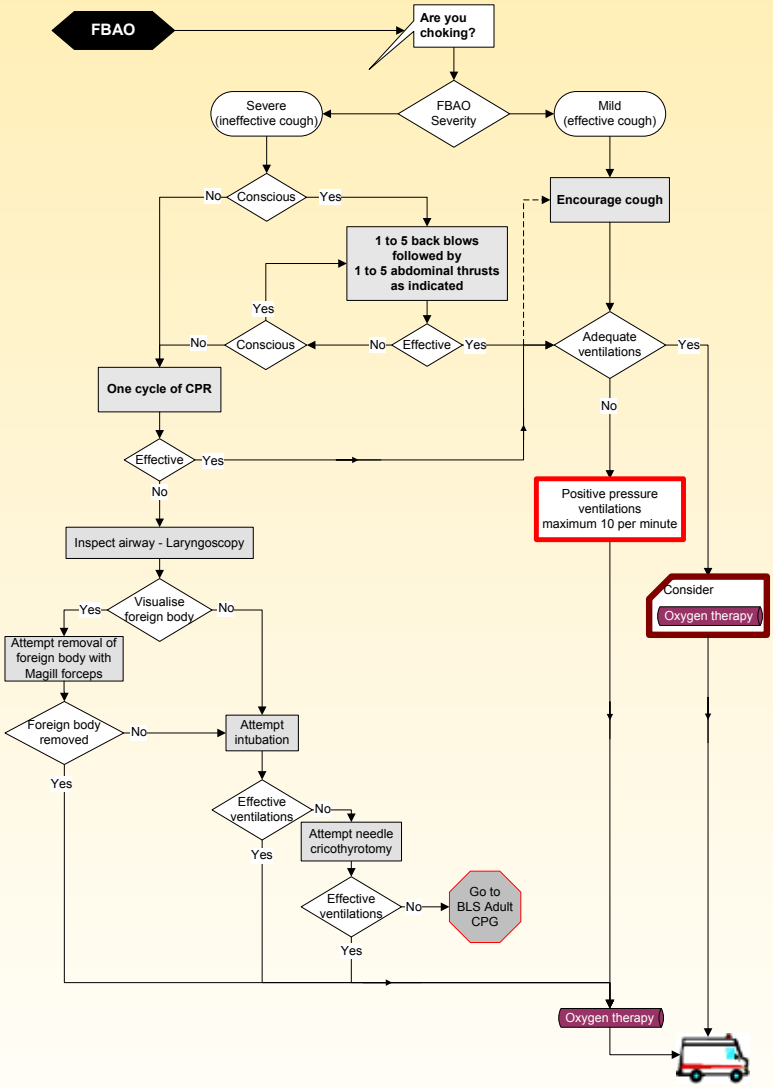
* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Reference: ILCOR Guidelines 2010

6.4.5
05/08

Foreign Body Airway Obstruction – Adult

AP

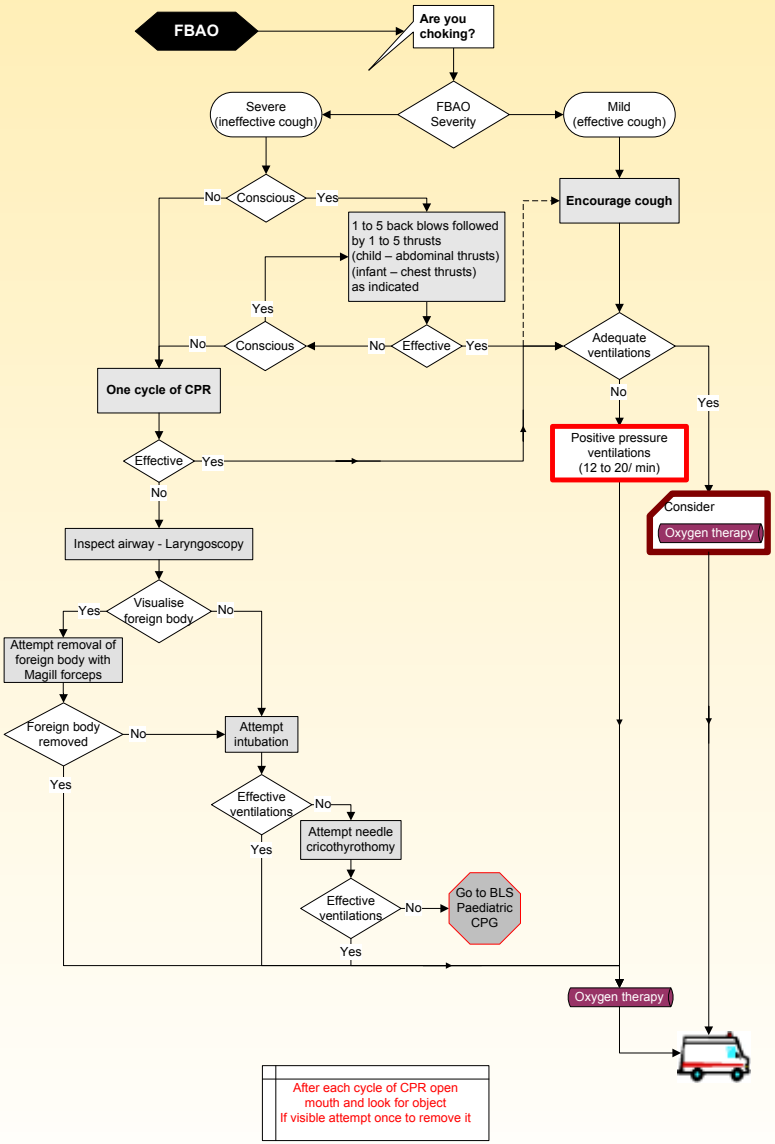


After each cycle of CPR open mouth and look for object.
If visible attempt once to remove it

6.4.6
05/08

Foreign Body Airway Obstruction – Paediatric (≤ 13 years)

AP



4/5/6.4.7
Version 2, 03/11

VF or Pulseless VT – Adult

EMT | P | AP

From BLS Adult CPG → VF or VT arrest

AP: Immediate IO access if IV not immediately accessible

Refractory VF/VT post Epinephrine
- Amiodarone 300 mg (5 mg/kg) IV/ IO

2nd dose (if required)
- Amiodarone 150 mg (2.5 mg/kg) IV/ IO

Go to Post Resuscitation Care CPG ← ROSC
Go to PEA CPG ← PEA
Go to Asystole CPG ← Asystole

No ← VF/VT → Yes → Defibrillate

C P R x 2 minutes

Rhythm check *

NaCl IV/IO 500 mL (use as flush)

Epinephrine (1:10 000) 1 mg IV/IO Every 3 to 5 minutes prn

Initial Epinephrine between 2nd and 4th shock

Advanced airway management

Consider mechanical CPR assist

If torsades de pointes, consider
- Magnesium Sulphate 2 g IV/IO

Consider transport to ED if no change after 20 minutes resuscitation
- If no ALS available

Drive smoothly

Mechanical CPR device is the optimum care during transport

With CPR ongoing maximum hands off time 10 seconds Continue CPR during charging

Consider causes and treat as appropriate:
- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- Thrombosis – pulmonary
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- Toxins
- Trauma

Clinical leader to monitor quality of CPR

Initiate mobilisation of 3 to 4 practitioners / responders on site to assist with cardiac arrest management

AP: Consider use of waveform capnography

If Tricyclic Antidepressant Toxicity consider
- Sodium Bicarbonate 8.4% 50 mL IV

AP: **Special Authorisation:** Advanced Paramedics are authorised to substitute Amiodarone with a one off bolus of Lidocaine (1-1.5 mg/Kg IV) if Amiodarone is not available

* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Reference: ILCOR Guidelines 2010

4/5/6.4.8
Version 2, 06/11

VF or Pulseless VT – Paediatric (≤ 13 years)

EMT | P | AP

From BLS Child CPG → VF or VT arrest

AP: Immediate IO access if IV not immediately accessible

< 8 years use paediatric defibrillation system (if not available use adult pads)

Refractory VF/VT post Epinephrine: Amiodarone, 5 mg/kg, IV/IO

Go to Post Resuscitation Care CPG ← ROSC

Go to Asystole / PEA CPG ← Asystole/PEA

VF/VT → Yes → Defibrillate (4 joules/Kg)

VF/VT → No → Rhythm check *

C P R x 2 minutes

Epinephrine (1:10 000), 0.01 mg/kg IV/IO
Repeat every 3 to 5 minutes prn

Initial Epinephrine between 2nd and 4th shock

AP: Advanced airway management

Check blood glucose

Transport to ED if no change after 10 minutes resuscitation

If no ALS available

Drive smoothly

With CPR ongoing maximum hands off time 10 seconds
Continue CPR during charging

Following successful Advanced Airway management:-
i) Ventilate at 12 to 20 per minute.
ii) Unsynchronised chest compressions continuous at 100 to 120 per minute

Clinical leader to monitor quality of CPR

AP: Consider use of waveform capnography

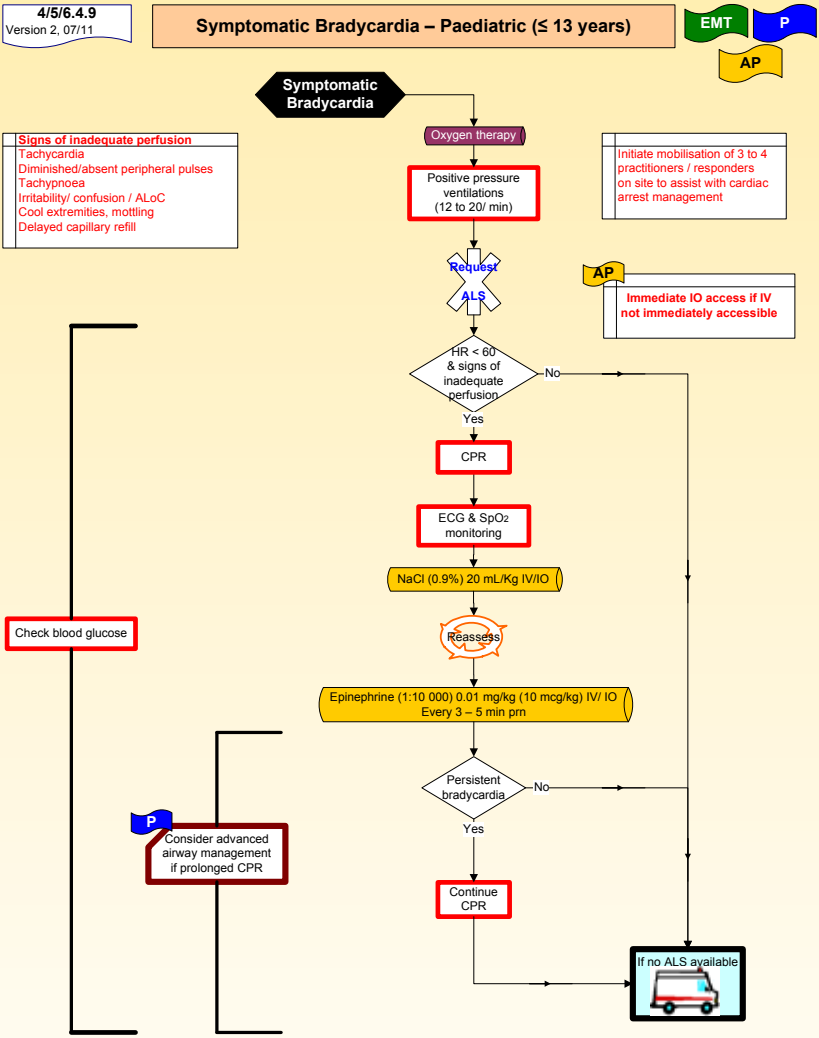
Consider causes and treat as appropriate:

- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- Thrombosis – pulmonary
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- Toxins
- Trauma

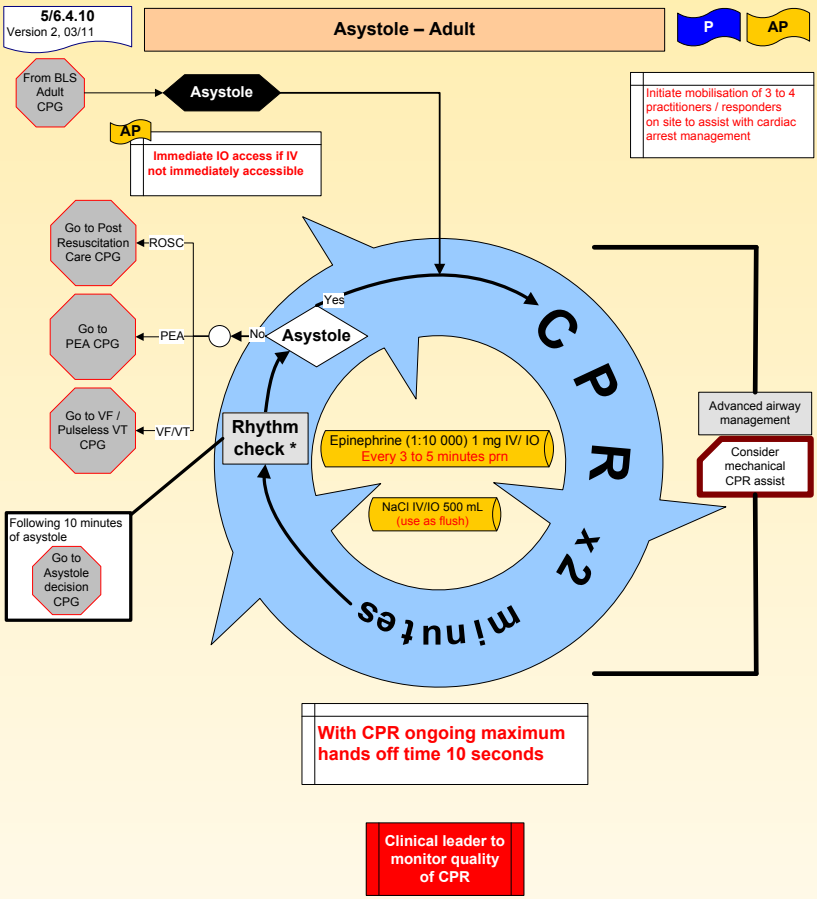
Initiate mobilisation of 3 to 4 practitioners / responders on site to assist with cardiac arrest management

* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Reference: ILCOR Guidelines 2010



Reference: International Liaison Committee on Resuscitation, 2010, Part 6: Paediatric basic and advanced life support, Resuscitation (2005) 67, 271 – 291



* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Reference: ILCOR Guidelines 2010

4/5/6.4.11
Version 2, 03/11

Pulseless Electrical Activity – Adult

EMT | P | AP

From BLS Adult CPG → PEA

AP: Immediate IO access if IV not immediately accessible

Initiate mobilisation of 3 to 4 practitioners / responders on site to assist with cardiac arrest management

Go to Post Resuscitation Care CPG ← ROSC

Go to Asystole CPG ← Asystole

Go to VF / Pulseless VT CPG ← VF/VT

No ← PEA

Yes → C P R x 2 minutes

Rhythm check *

Epinephrine (1:10 000) 1 mg IV/ IO
Every 3 to 5 minutes prn

NaCl IV/IO 500 mL
(use as flush)

Advanced airway management

Consider mechanical CPR assist

Consider transport to ED if no change after 20 minutes resuscitation

If no ALS available

Drive smoothly

Mechanical CPR device is the optimum care during transport

With CPR ongoing maximum hands off time 10 seconds

Consider causes and treat as appropriate:

- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- Thrombosis – pulmonary
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- Toxins
- Trauma

Clinical leader to monitor quality of CPR

AP: Consider use of waveform capnography

If Tricyclic Antidepressant Toxicity consider
Sodium Bicarbonate 8.4% 50 mL IV

Consider fluid challenge
NaCl 20 mL/Kg IV/IO

* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Reference: ILCOR Guidelines 2010

4/5/6.4.12
Version 2, 03/11

Asystole/PEA – Paediatric (≤ 13 years)

EMT | P | AP

From BLS Child CPG → **Asystole/ PEA arrest**

AP: **Immediate IO access if IV not immediately accessible**

AP: Initiate mobilisation of 3 to 4 practitioners / responders on site to assist with cardiac arrest management

Go to Post Resuscitation Care CPG ← ROSC

Go to VF / Pulseless VT CPG ← VF/VT

Asystole/ PEA — Yes → CPR; No → ROSC / VF/VT

CPR x 2 minutes

Rhythm check *

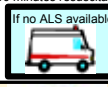
Epinephrine (1:10 000), 0.01 mg/kg IV/IO
Repeat every 3 to 5 minutes prn

AP: Advanced airway management

Check blood glucose

Transport to ED if no change after 10 minutes resuscitation

If no ALS available



Drive smoothly

With CPR ongoing maximum hands off time 10 seconds

Clinical leader to monitor quality of CPR

Consider causes and treat as appropriate:

- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- Thrombosis – pulmonary
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- Toxins
- Trauma

Consider fluid challenge
NaCl 20 mL/Kg IV/IO

Following successful Advanced Airway management:-
i) Ventilate at 12 to 20 per minute.
ii) Unsynchronised chest compressions continuous at 100 to 120 per minute

AP: Consider use of waveform capnography

* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Reference: ILCOR Guidelines 2010

5/6.4.13
05/08

Asystole - Decision Tree

P AP

From Asystole – Adult CPG

Asystole

From Traumatic Cardiac Arrest CPG

Traumatic Cardiac Arrest

Patient is;
- Hypothermic or
- Cold water drowning or
- Poisoning/ Overdose or
- Pregnant or
- < 18 years

Yes → Continue BLS & or ALS

No → Witnessed arrest & CPR prior to arrival of EMS

Yes → Resuscitation continuous for at least 20 minutes in asystole

No → Confirm Asystolic Cardiac Arrest
- Unresponsive
- No signs of life; absence of central pulse and respiration

Confirm that (two minutes of CPR and no shock advised) x 3 are completed

Consider ceasing resuscitation efforts

No → Continue BLS & or ALS

Yes → Record two rhythm strips x 10 sec duration

Record on ECG strips
- PCR No
- Patient's name
- Date and time

Inform Ambulance Control

If present, inform next of kin — Emotional support for relatives should be considered before leaving the scene

Complete PCR and flag for mandatory clinical audit

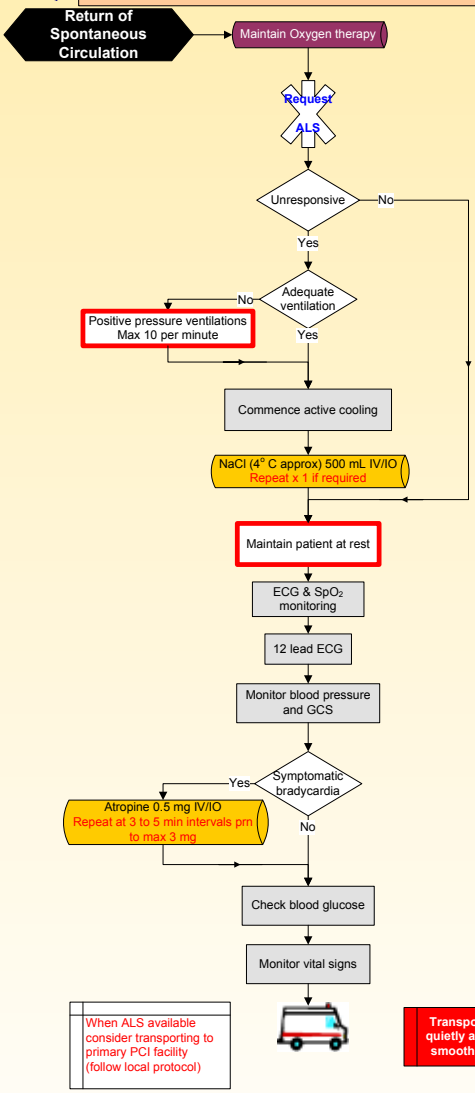
Follow local protocol for care of deceased

If no ALS available

5/6.4.14
Version 2, 03/11

Post-Resuscitation Care – Adult

P | AP



Titrate O_2 to 94% - 98%

Initiate mobilisation of 3 to 4 practitioners / responders on site to assist with cardiac arrest management

For active cooling place cold packs at arm pit, groin & abdomen

If persistent hypotensive consider NaCl IV/IO to maintain Sys BP > 90 mmHg

Equipment list
Cold packs

Consider causes and treat as appropriate:

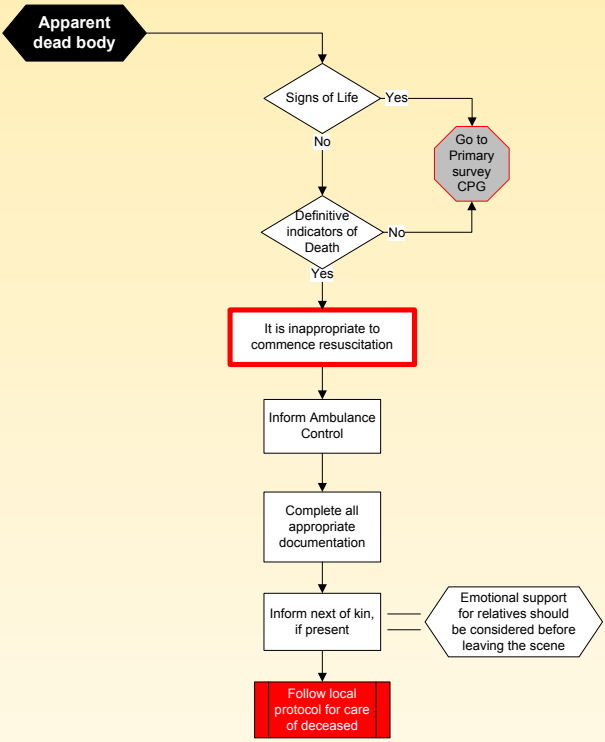
- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- Thrombosis – pulmonary
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- Toxins
- Trauma

Reference: ILCOR Guidelines 2010

5/6.4.15
Version 2, 06/11

Recognition of Death – Resuscitation not Indicated

P AP

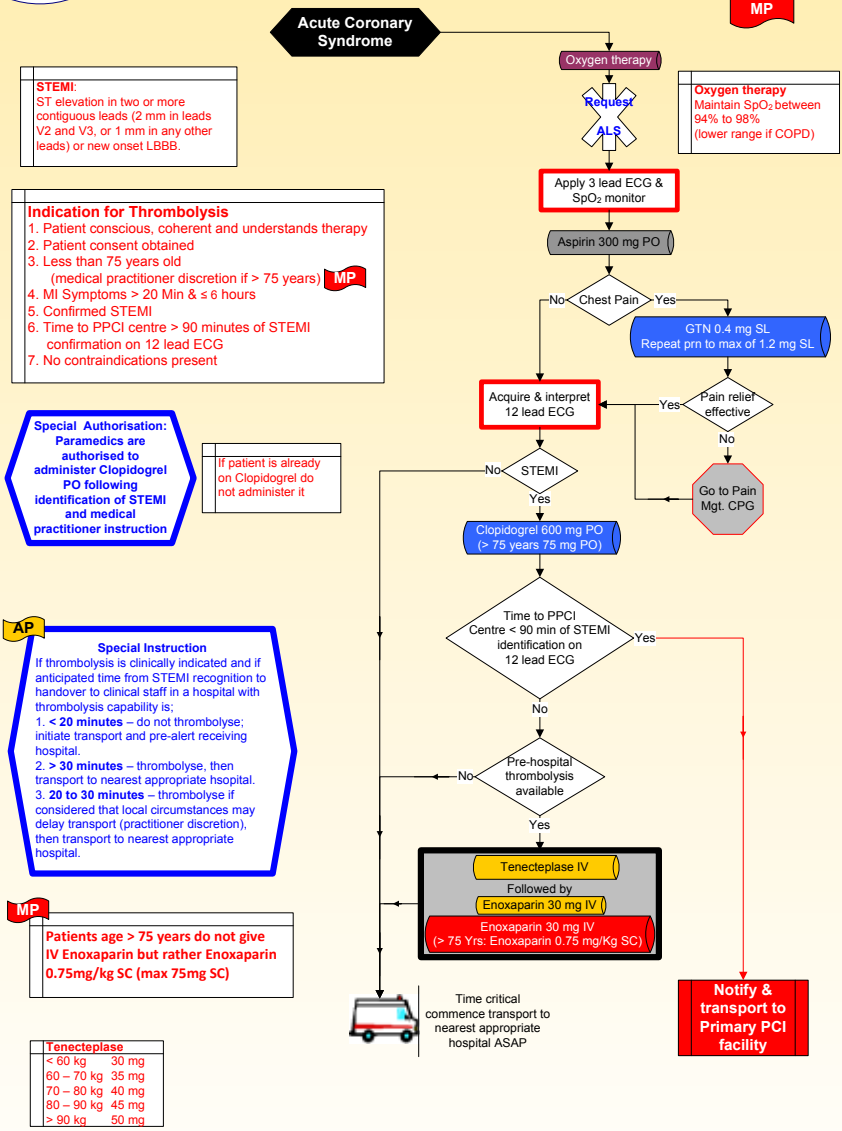


Definitive indicators of death:
1. Decomposition
2. Obvious rigor mortis
3. Obvious pooling (hypostasis)
4. Incineration
5. Decapitation
6. Injuries totally incompatible with life
7. Unwitnessed traumatic cardiac arrest following blunt trauma (see CPG 5/6.4.13)

5/6.4.16
Version 3, 05/12

Acute Coronary Syndrome

P AP MP



STEMI:
ST elevation in two or more contiguous leads (2 mm in leads V2 and V3, or 1 mm in any other leads) or new onset LBBB.

Oxygen therapy
Maintain SpO_2 between 94% to 98%
(lower range if COPD)

Indication for Thrombolysis
1. Patient conscious, coherent and understands therapy
2. Patient consent obtained
3. Less than 75 years old
   (medical practitioner discretion if > 75 years) MP
4. MI Symptoms > 20 Min & ≤ 6 hours
5. Confirmed STEMI
6. Time to PPCI centre > 90 minutes of STEMI confirmation on 12 lead ECG
7. No contraindications present

Special Authorisation: Paramedics are authorised to administer Clopidogrel PO following identification of STEMI and medical practitioner instruction

If patient is already on Clopidogrel do not administer it

AP

Special Instruction
If thrombolysis is clinically indicated and if anticipated time from STEMI recognition to handover to clinical staff in a hospital with thrombolysis capability is;
1. **< 20 minutes** – do not thrombolyse; initiate transport and pre-alert receiving hospital.
2. **> 30 minutes** – thrombolyse, then transport to nearest appropriate hsopital.
3. **20 to 30 minutes** – thrombolyse if considered that local circumstances may delay transport (practitioner discretion), then transport to nearest appropriate hospital.

MP

Patients age > 75 years do not give IV Enoxaparin but rather Enoxaparin 0.75mg/kg SC (max 75mg SC)

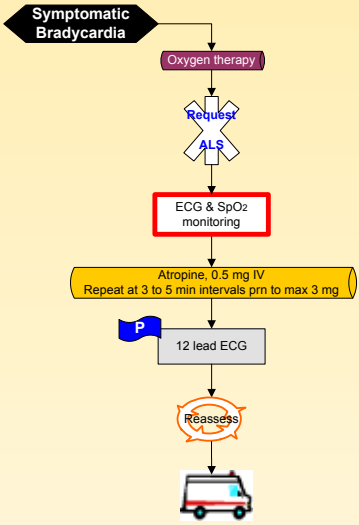
Tenecteplase	
< 60 kg	30 mg
60 – 70 kg	35 mg
70 – 80 kg	40 mg
80 – 90 kg	45 mg
> 90 kg	50 mg

Reference: HSE ACS Programme, ILCOR Guidelines 2010, ECS Guidelines 2008

4/5/6.4.17
05/08

Symptomatic Bradycardia – Adult

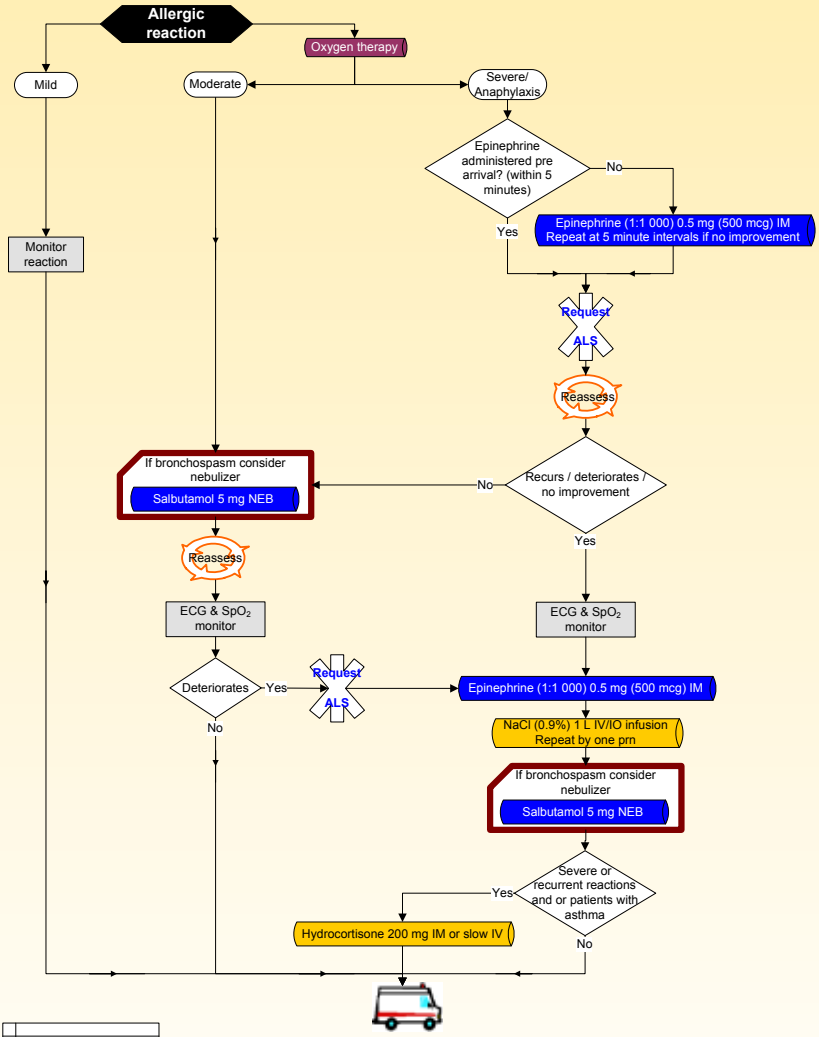
EMT P AP



5/6.4.18
Version 2, 07/11

Allergic Reaction/Anaphylaxis – Adult

P AP



Mild
Urticaria and or angio oedema

Moderate
Mild symptoms + simple bronchospasm

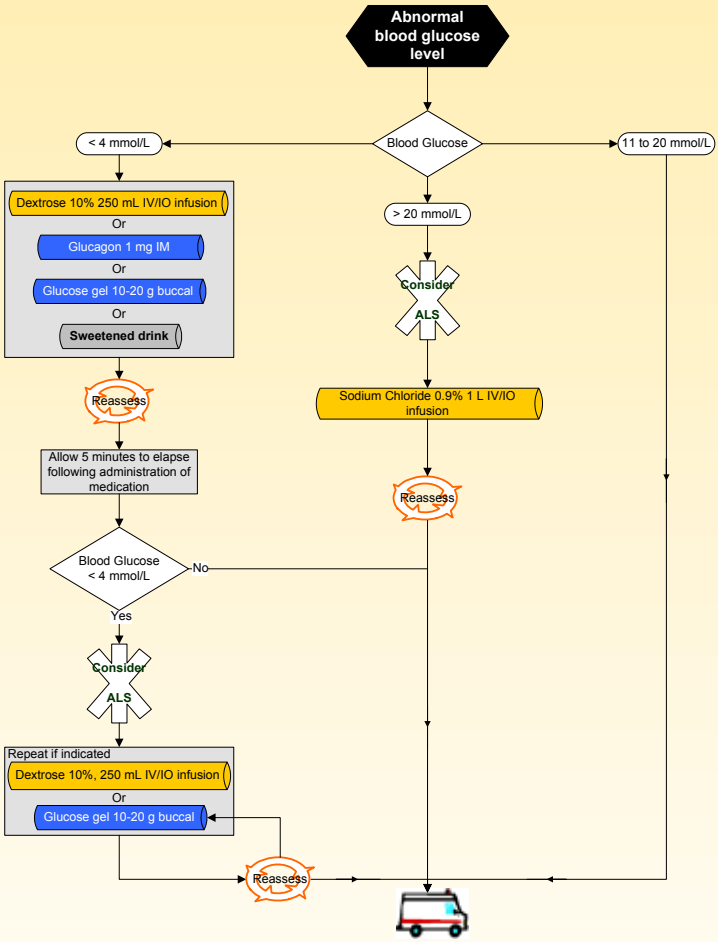
Severe/ anaphylaxis
Moderate symptoms + haemodynamic and or respiratory compromise

P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

5/6.4.19
05/08

Glycaemic Emergency – Adult

P AP

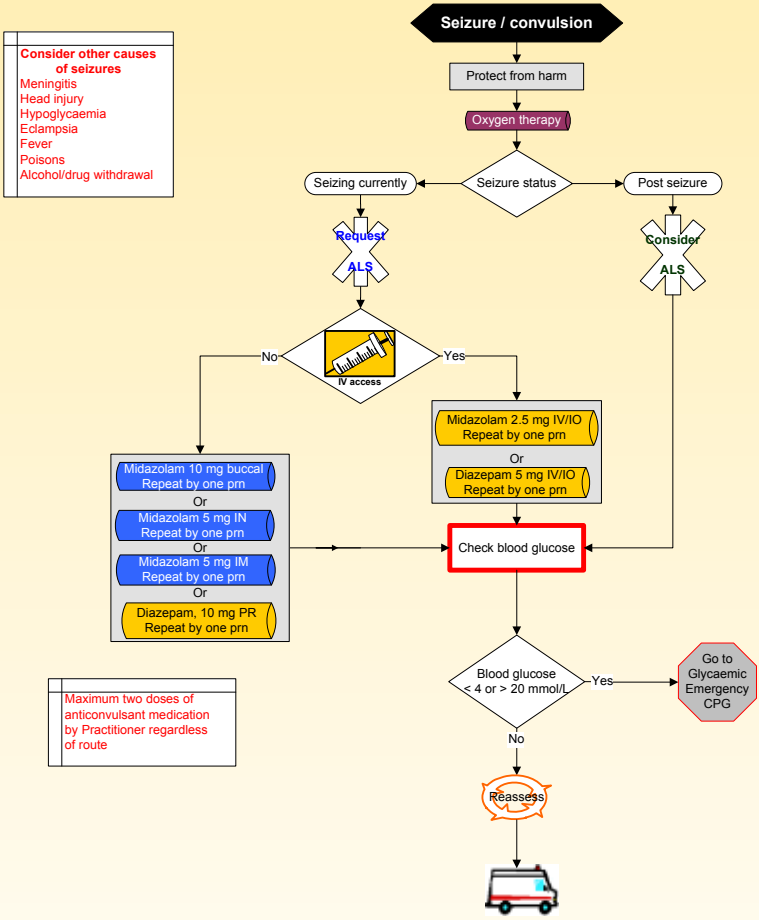


P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

5/6.4.20
Version 2, 07/11

Seizure/Convulsion – Adult

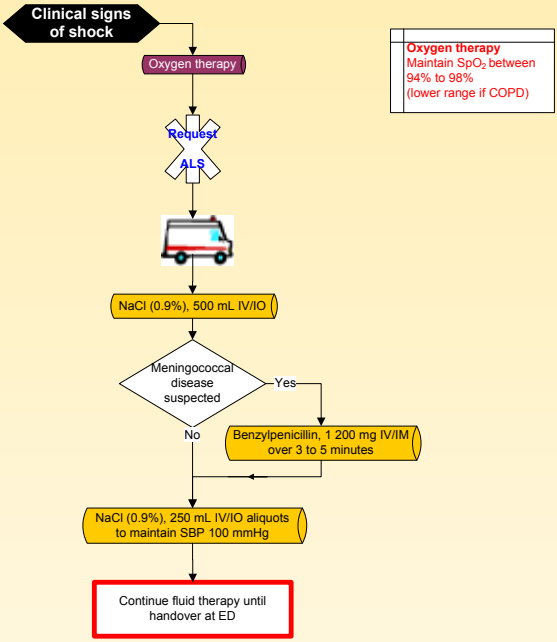
P AP



5/6.4.21
Version 2, 07/11

Septic Shock – Adult

P AP

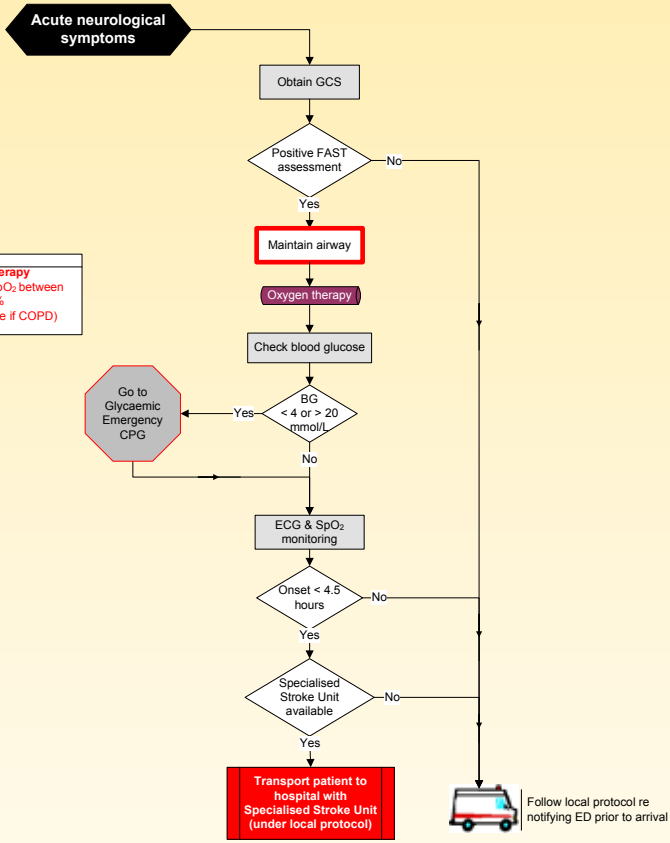


P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

5/6.4.22
Version 2, 07/11

Stroke

P | AP



Oxygen therapy
Maintain SpO_2 between 94% to 98%
(lower range if COPD)

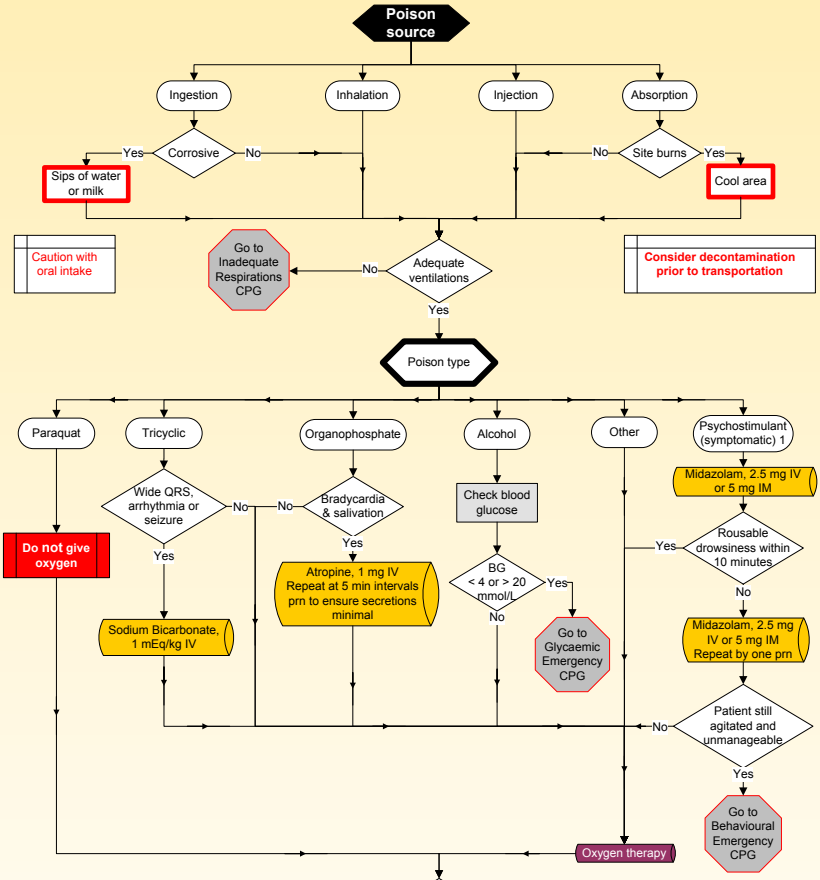
F – facial weakness
Can the patient smile?, Has their mouth or eye drooped? Which side?
A – arm weakness
Can the patient raise both arms and maintain for 5 seconds?
S – speech problems
Can the patient speak clearly and understand what you say?
T – time to transport now if positive FAST

Reference
ILCOR Guidelines 2010
Prof R Boyle, 2006, Mending hearts and brains, Clinical case for change: Report by Prof R Boyle, National Director for Heart Disease and Stroke, NHS
AHA, 2005, Part 9 Adult Stroke, Circulation 2005; 112; 111-120
A. Mohd Nor, et al, Agreement between ambulance paramedic- and physician- recorded neurological signs with Face Arm Speech Test (FAST) in acute stroke patients, Stroke 004; 35;1355-1359
Jeffrey L Saver, et al, Prehospital neuroprotective therapy for acute stroke: results of the field administration of stroke therapy-Magnesium (FAST-MAG) pilot trial, Stroke 2004; 35; 106-108
Werner Hacke MD, et al, 2008, Thrombolysis with Alteplase 3 to 4.5 Hours after Acute Ischemic Stroke, N Engl J Med 2008; 359:1317-29

6.4.23
05/08

Poisons – Adult

AP



Note:
Inadequate respirations CPG , authorises the administration of Naloxone for opiate overdose by Advanced Paramedics

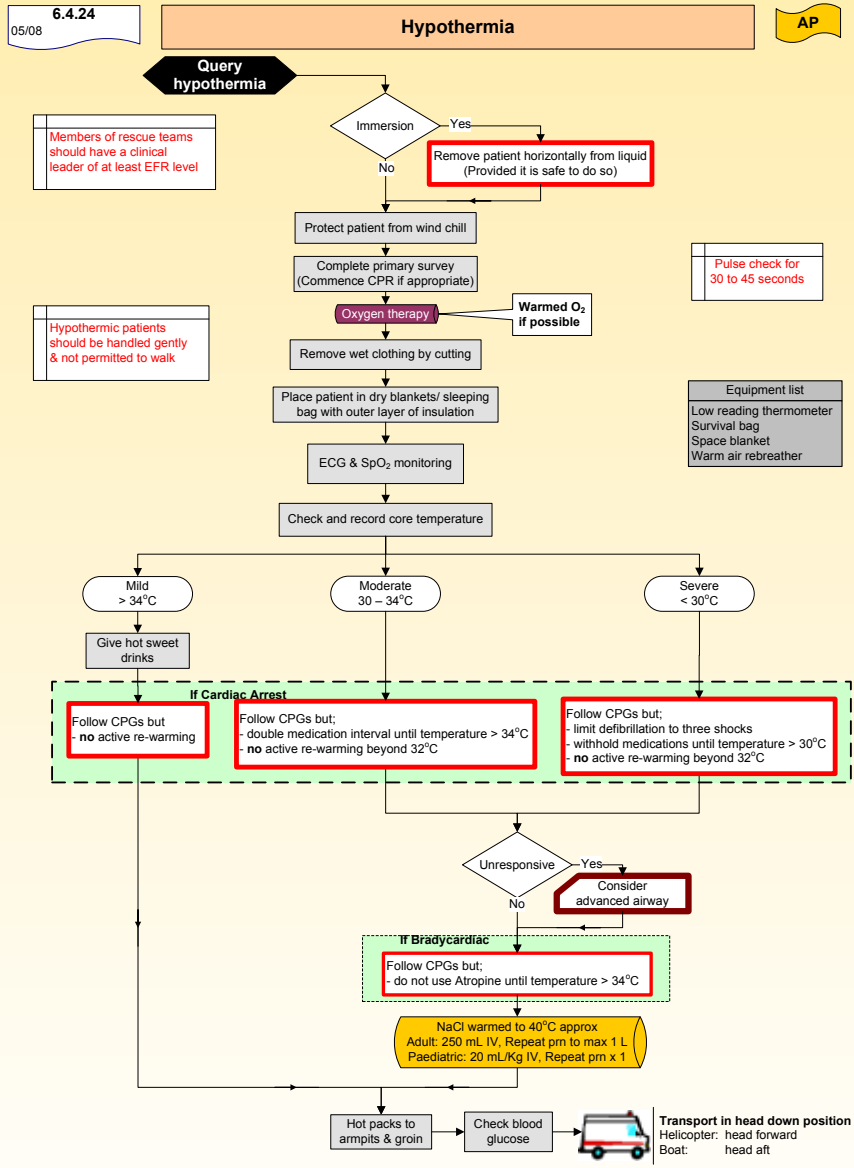
For acute psychostimulant toxicity, urgent transport is indicated if the patient;
has a temp of ≥ 38°C
has an altered level of consciousness
has severe headache
is hypertensive
has respiratory difficulties
has had a seizure
has chest pain
is extremely agitated
does not respond to verbal de-escalation strategies

Reference:
Dr Joe Tracey, Director, National Poison Information Centre
National Drugs Strategy, 2006, Management of Patients with Psychostimulant Toxicity, Guidelines for ambulance service, Commonwealth of Australia.

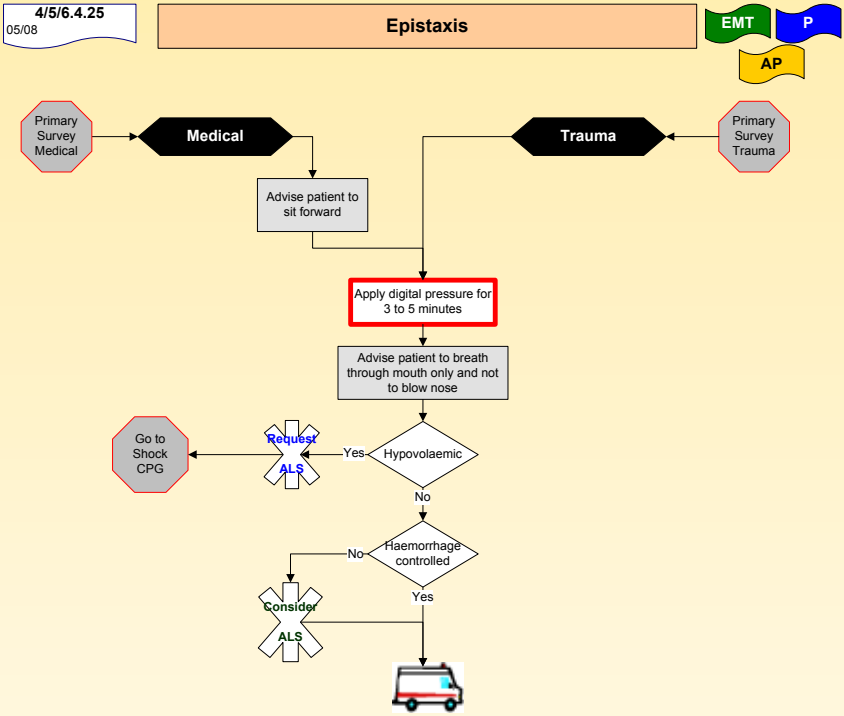
6.4.24
05/08

Hypothermia

AP



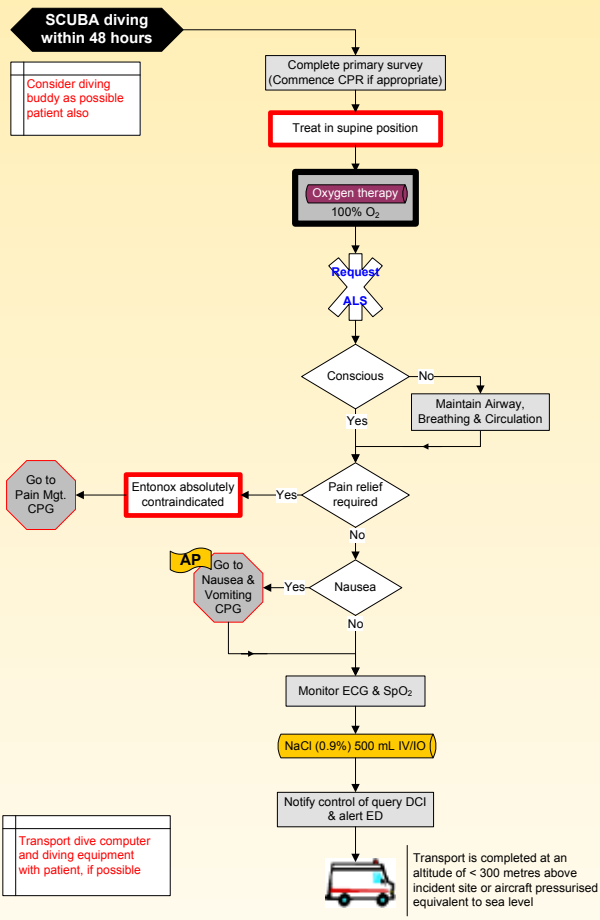
Reference: Golden, F & Tipton M, 2002, Essentials of Sea Survival, Human Kinetics
AHA, 2005, Part 10.4: Hypothermia, Circulation 2005:112;136-138
Soar, J et al, 2005, European Resuscitation Council Guidelines for Resuscitation 2005, Section 7. Cardiac arrest in special circumstances, Resuscitation (2005) 6751, S135-S170
Pennington M, et al, 1994, Wilderness EMT, Wilderness EMS Institute


4/5/6.4.25
05/08
Epistaxis
EMT
P
AP
Primary Survey Medical
Medical
Trauma
Primary Survey Trauma
Advise patient to sit forward
Apply digital pressure for 3 to 5 minutes
Advise patient to breath through mouth only and not to blow nose
Hypovolaemic
Yes
No
Request ALS
Go to Shock CPG
Haemorrhage controlled
No
Yes
Consider ALS

4/5/6.4.26
Version 2, 07/11

Decompression Illness (DCI)

EMT P AP



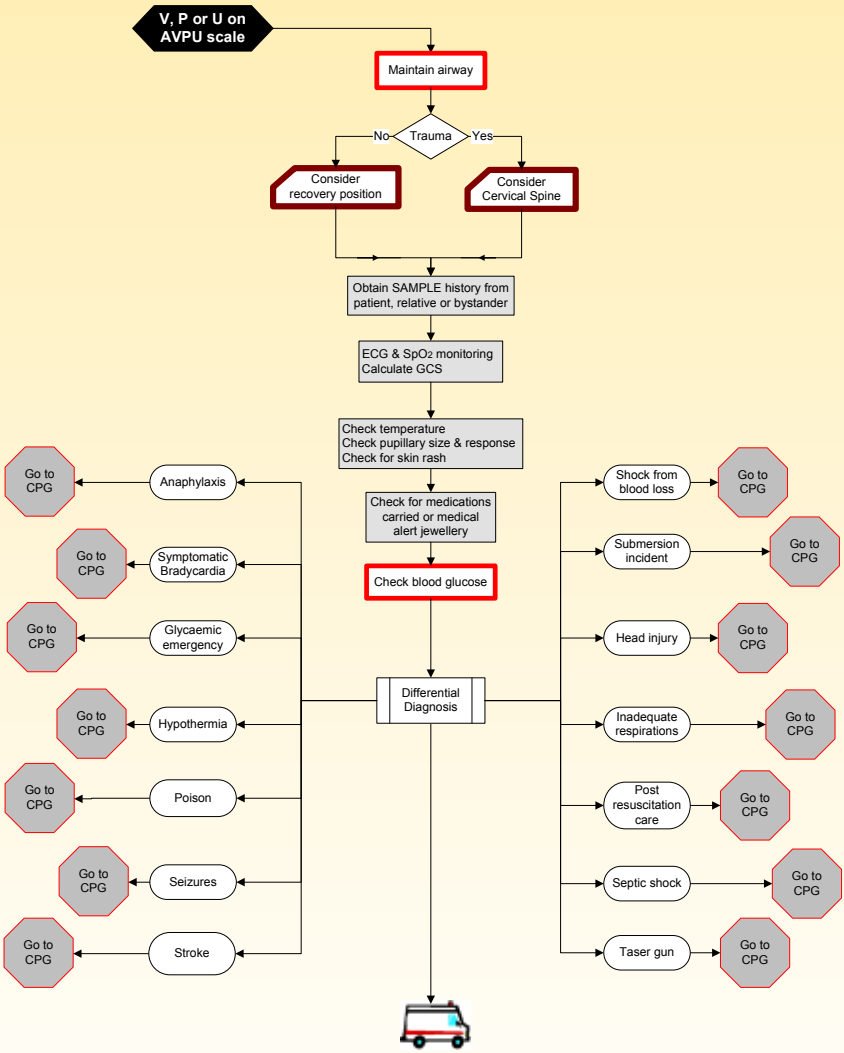
P Special Authorisation:
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

Reference: The Primary Clinical Care Manual 3rd Edition, 2003, Queensland Health and the Royal Flying Doctor Service (Queensland Section)

5/6.4.27
05/08

Altered Level of Consciousness – Adult

P AP



4/5/6.4.28
05/08

Behavioural Emergency

EMT | P | AP

Behaviour abnormal

Practitioners may not compel a patient to accompany them or prevent a patient from leaving an ambulance vehicle

Obtain a history from patient and or bystanders present as appropriate

Indications of medical cause of illness — Yes → Go to appropriate CPG

No

Potential to harm self or others — Yes → Request control to inform Gardaí

No

If potential to harm self or others ensure minimum two people accompany patient in saloon of ambulance at all times

Reassure patient
Explain what is happening at all times
Avoid confrontation

Attempt verbal de-escalation

Patient agrees to travel — No → Injury or illness potentially serious or likely to cause lasting disability

Yes

Injury or illness potentially serious or likely to cause lasting disability — No → Offer to treat and or transport patient

Yes → Inform patient of potential consequences of treatment refusal

Offer to treat and or transport patient → Treatment only — No → Yes

Request control to inform Gardaí and or Doctor

Is patient competent to make informed decision — No → Await arrival of doctor or Gardaí **or** receive implied consent

Yes → Advise alternative care options and to call ambulance again if there is a change of mind

Document refusal of treatment and or transport to ED

Aid to Capacity Evaluation
1. Patient verbalizes/ communicates understanding of clinical situation?
2. Patient verbalizes/ communicates appreciation of applicable risk?
3. Patient verbalizes/ communicates ability to make alternative plan of care?
If no to any of the above consider Patient Incapacity

Reference: HSE Mental Health Services

6.4.29
05/08

Mental Health Emergency

AP

Behaviour abnormal with previous psychiatric history

Exclude medical caused of abnormal behaviour prior to implementing this CPG

RMP – Registered Medical Practitioner
RPN – Registered Psychiatric Nurse

RMP or RPN in attendance **or** have made arrangements for voluntary/ assisted admission

Yes → **Co-operate as appropriate with medical or nursing team** → Transport patient to an Approved Centre

No → Obtain a history from patient and or bystanders present as appropriate

Practitioners may not compel a patient to accompany them or prevent a patient from leaving an ambulance vehicle

Potential to harm self or others

Yes → Request control to inform Gardaí

No → Reassure patient
Explain what is happening at all times
Avoid confrontation

If potential to harm self or others ensure minimum two people accompany patient in saloon of ambulance at all times

Attempt verbal de-escalation

Patient agrees to travel

Yes → Ambulance

No → Combative with hallucinations or Paranoia & risk to self or others

Yes → Acute Psychostimulant toxicity

Yes → Go to Poisons CPG

No → Midazolam 2.5 mg IV or 5 mg IM
or
Lorazepam 2 mg PO

Be aware of respiratory depression following sedation

Oxygen therapy

No → Request as appropriate
- Gardaí
- Medical Practitioner
- Mental health team

For acute psychostimulant toxicity, urgent transport is indicated if the patient
has a temp of ≥ 38° C
has an altered level of consciousness
has severe headache
is hypertensive
has respiratory difficulties
has had a seizure
has chest pain
is extremely agitated
does not respond to verbal de-escalation strategies

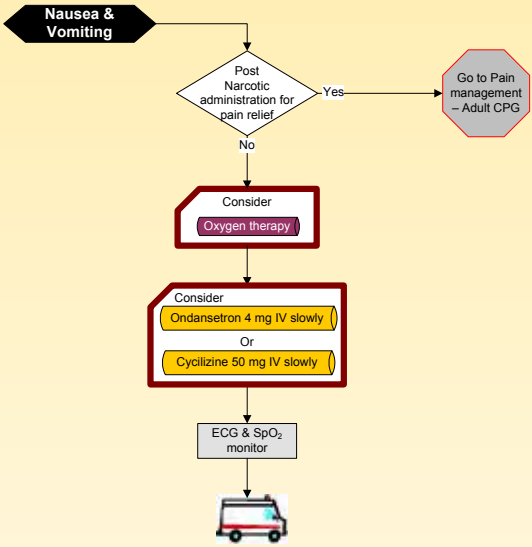
Aid to Capacity Evaluation
1. Patient verbalizes/ communicates understanding of clinical situation?
2. Patient verbalizes/ communicates appreciation of applicable risk?
3. Patient verbalizes/ communicates ability to make alternative plan of care?
If no to any of the above consider Patient Incapacity

References: Clinical Practice Manual, Queensland Ambulance Service 2001
Management for patients with psychostimulant toxicity, Guidelines for Ambulance Services, 2006, National Drugs Strategy, Commonwealth of Australia.
Reference Guide to the Mental Health Act 2001, Mental Health Commission
HSE Mental Health Services

6.4.30
05/09

Significant Nausea & Vomiting – Adult

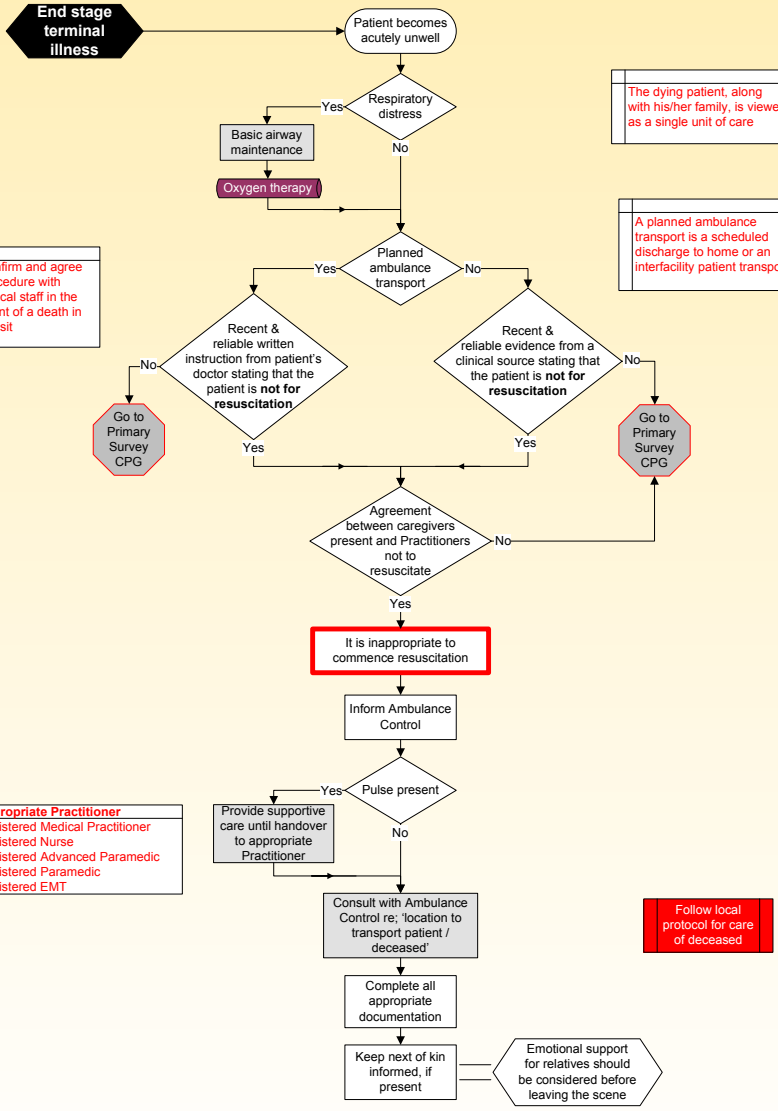
AP

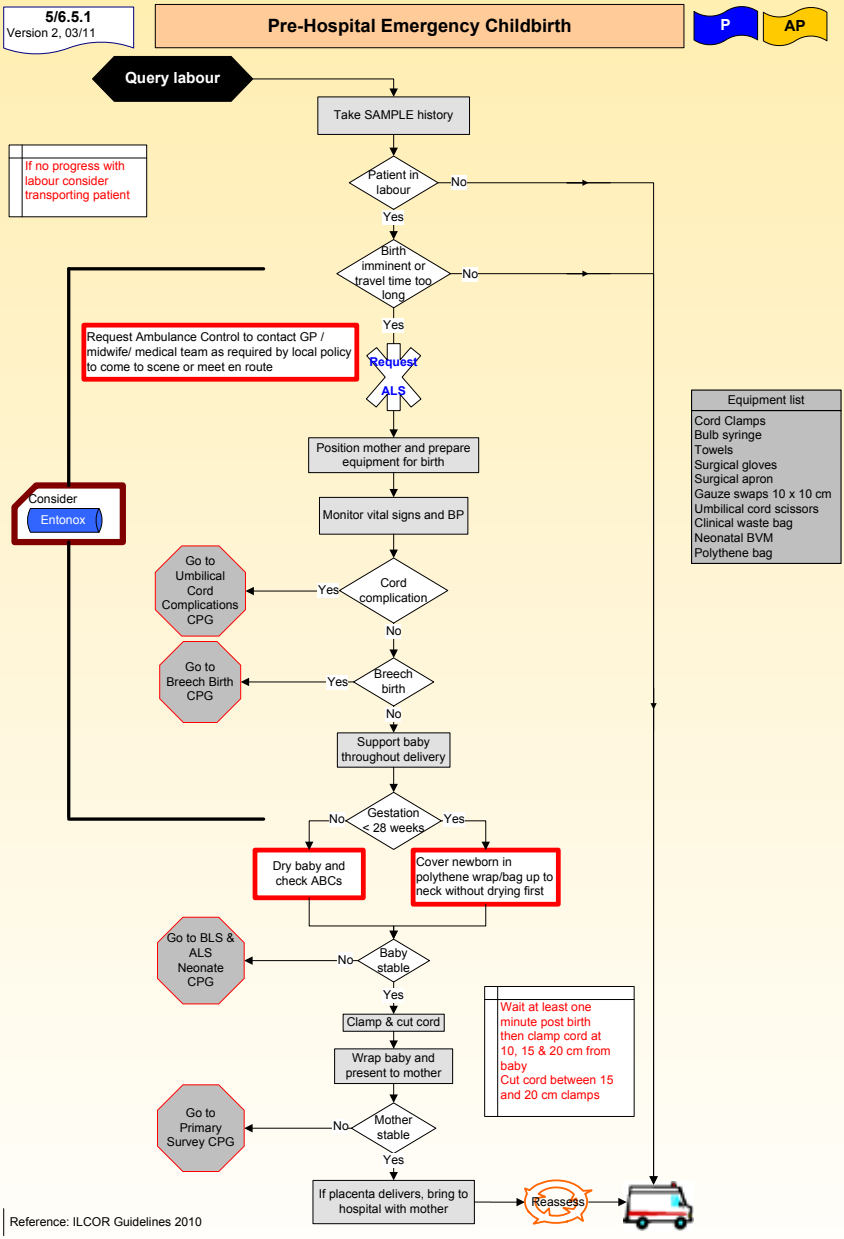


5/6.4.31
06/10

End of Life – DNR

P AP

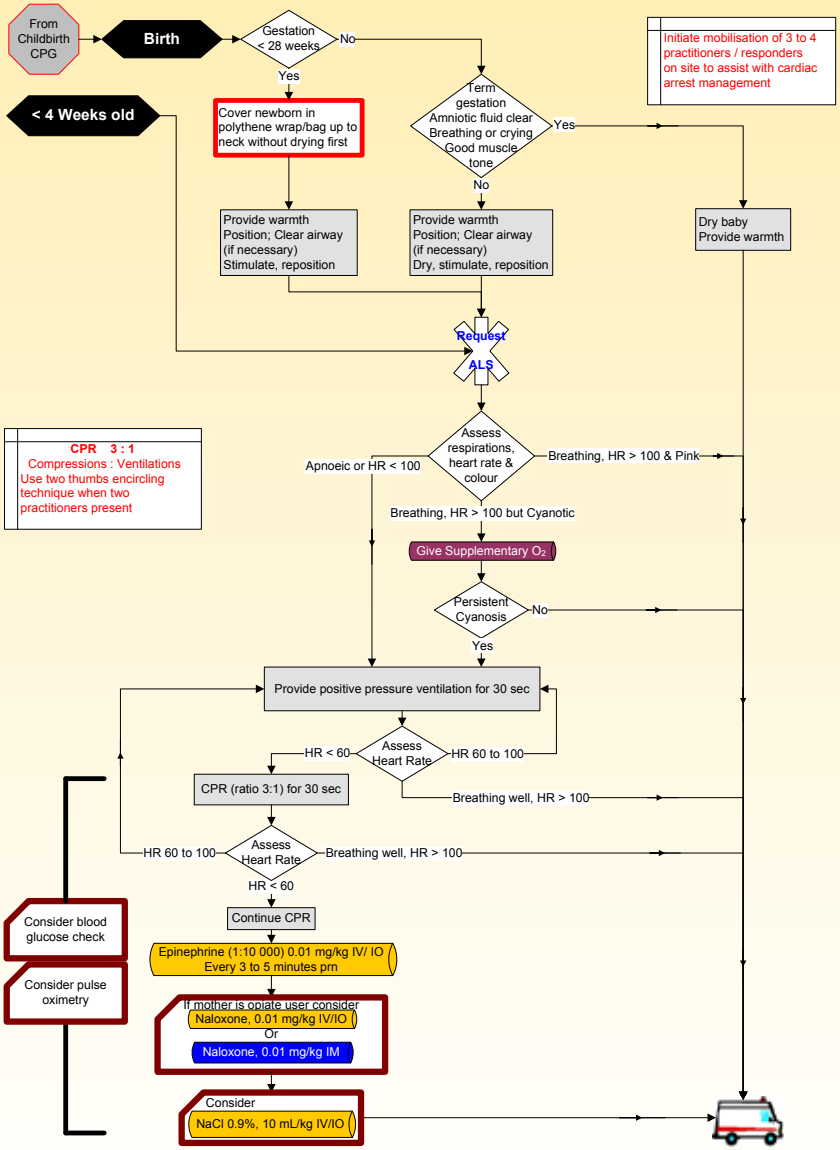



5/6.5.1
Version 2, 03/11
Pre-Hospital Emergency Childbirth
P
AP
Query labour
Take SAMPLE history
If no progress with labour consider transporting patient
Patient in labour
No
Yes
Birth imminent or travel time too long
No
Yes
Request Ambulance Control to contact GP / midwife/ medical team as required by local policy to come to scene or meet en route
Request ALS
Position mother and prepare equipment for birth
Monitor vital signs and BP
Consider
Entonox
Go to Umbilical Cord Complications CPG
Yes
Cord complication
No
Go to Breech Birth CPG
Yes
Breech birth
No
Support baby throughout delivery
No
Gestation < 28 weeks
Yes
Dry baby and check ABCs
Cover newborn in polythene wrap/bag up to neck without drying first
Go to BLS & ALS Neonate CPG
No
Baby stable
Yes
Clamp & cut cord
Wrap baby and present to mother
Wait at least one minute post birth then clamp cord at 10, 15 & 20 cm from baby
Cut cord between 15 and 20 cm clamps
Go to Primary Survey CPG
No
Mother stable
Yes
If placenta delivers, bring to hospital with mother
Reassess
Equipment list
Cord Clamps
Bulb syringe
Towels
Surgical gloves
Surgical apron
Gauze swaps 10 x 10 cm
Umbilical cord scissors
Clinical waste bag
Neonatal BVM
Polythene bag
Reference: ILCOR Guidelines 2010

5/6.5.2
Version 2, 03/11

Basic & Advanced Life Support – Neonate (< 4 weeks)

P | AP

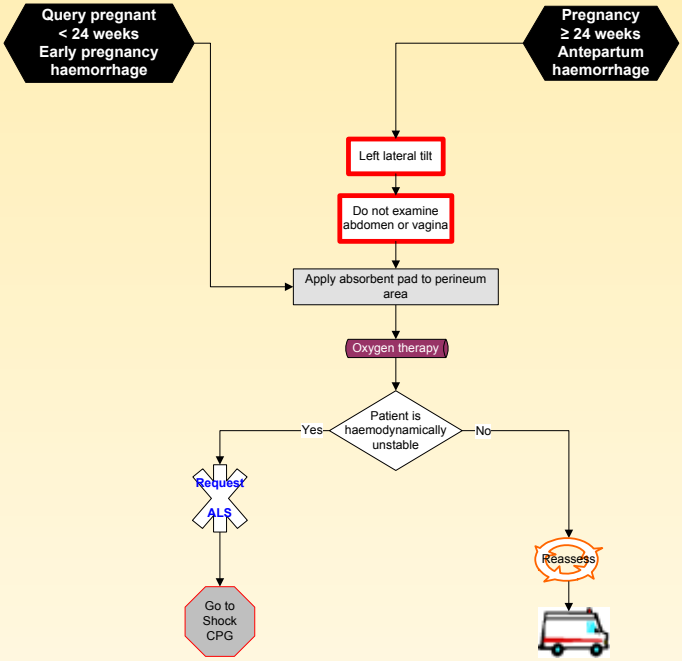


Reference: ILCOR Guidelines 2010

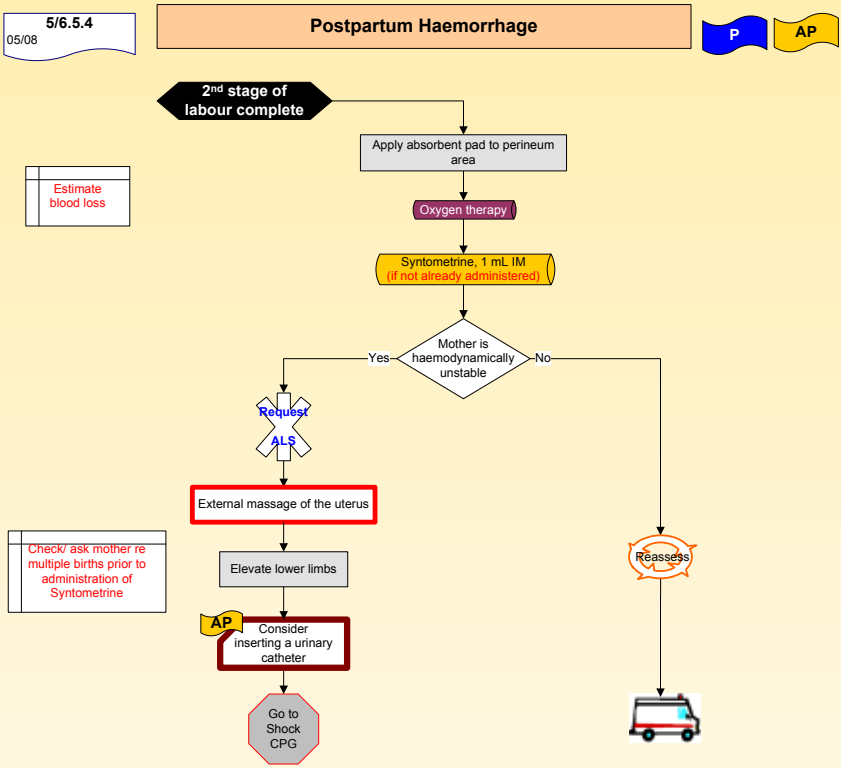
5/6.5.3
05/08

Haemorrhage in Pregnancy Prior to Delivery

P AP



Reference: Sweet, BR, 2000, Mayes' Midwifery, 12th Edition, Bailleire Tindall

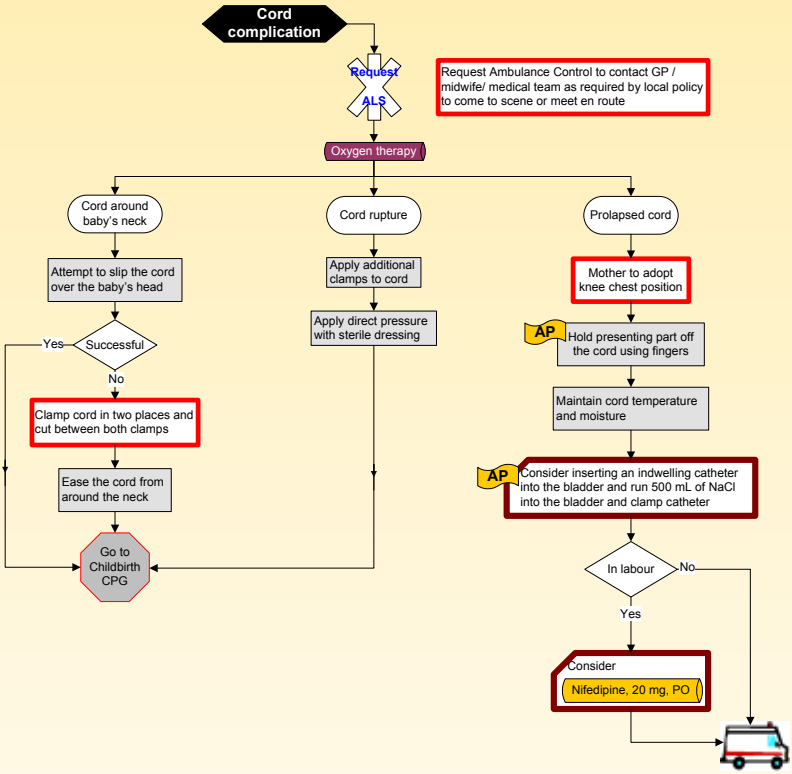


Reference: Sweet, BR, 2000, Mayes' Midwifery, 12th Edition, Bailleire Tindall

5/6.5.5
05/08

Umbilical Cord Complications

P AP



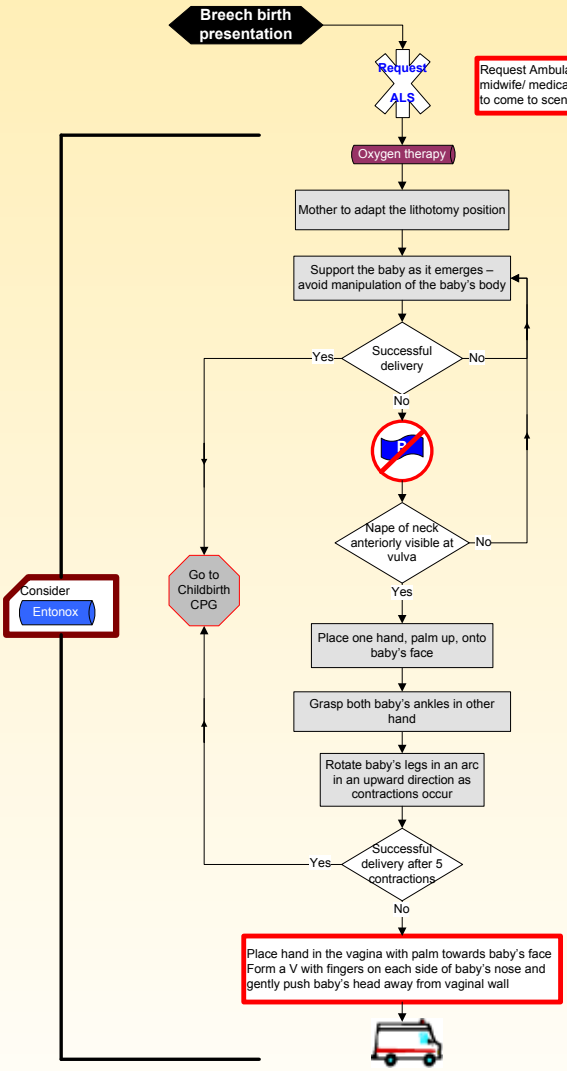
For prolapsed cord pre-alert hospital as emergency caesarean section will be required

Reference: Sweet, BR, 2000, Mayes' Midwifery, 12th Edition, Bailleire Tindall
Katz Z et al, 1988, Management of labor with umbilical cord prolaps: A 5 year study. Obstet. Gynecol. 72(2): 278-281
Duley, LMM, 2002, Clinical Guideline No 1(B), Tocolytic Drugs for women in preterm labour, Royal College of Obstetricians and gynaecologists

5/6.5.6
05/08

Breech Birth

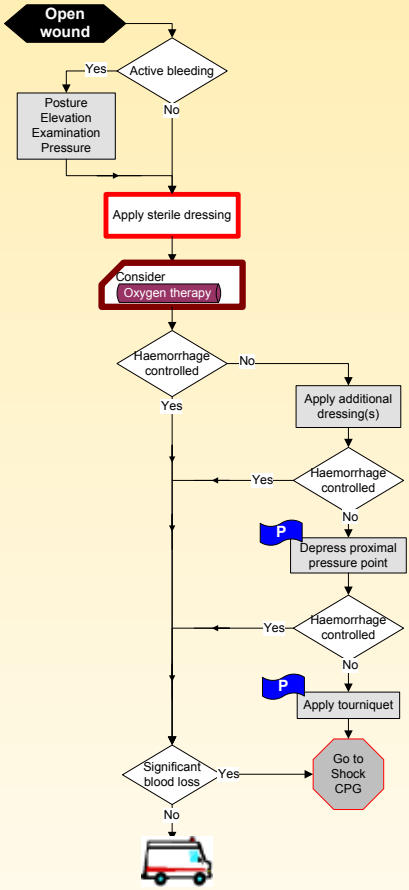
P AP



4/5/6.6.1
05/08

External Haemorrhage – Adult

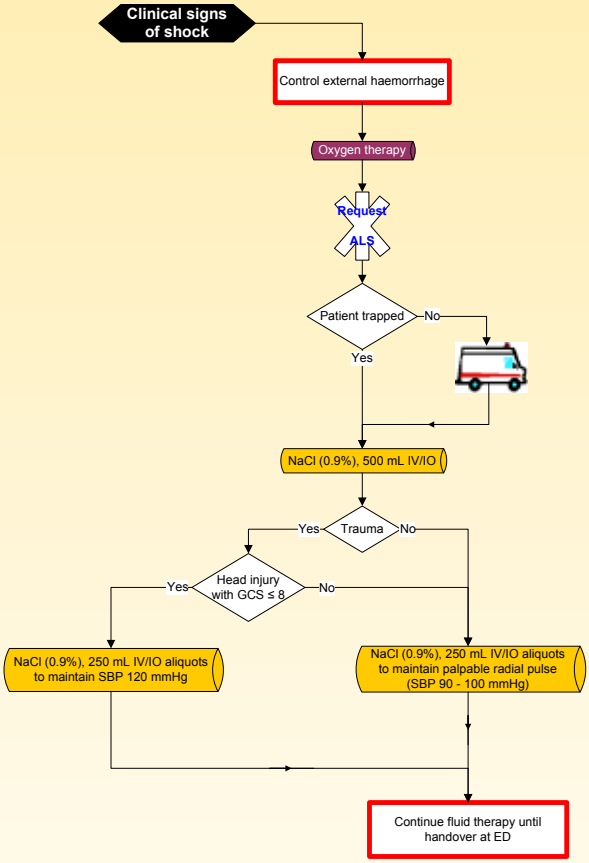
EMT P AP



5/6.6.2
Version 2, 07/11

Shock from Blood Loss – Adult

P AP



P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

5/6.6.3
Version 2, 07/11

Spinal Immobilisation – Adult

P | AP

Trauma
Initial indications for spinal immobilisation

Use clinical judgement If in doubt, immobilise

Return head to neutral position unless on movement there is Increase in
Pain, Resistance or Neurological symptoms

Do not forcibly restrain a patient that is combatitive

Remove helmet (if worn)

Neck or back pain or midline spinal tenderness
- Yes → Life Threatening
- No → Dangerous mechanism of injury or significant distracting injury

Dangerous mechanism include;
Fall ≥ 1 meter/ 5 steps
Axial load to head
MVC > 100 km/hr, rollover or ejection
ATV collision
Bicycle collision
Pedestrian v vehicle

Dangerous mechanism of injury or significant distracting injury
- Yes → Life Threatening
- No → **Are all of the factors listed present;**
  GCS = 15
  Communication effective (not intoxicated with alcohol or drugs)
  Absence of numbness, tingling or weakness in extremities
  Presence of low risk factors which allow safe assessment of range of motion
  Patient voluntarily able to rotate neck 45° left & right without pain
  Patient can walk without pain
  - Yes → **Immobilisation may not be indicated** → Go to appropriate CPG
  - No → Life Threatening

Life Threatening
- Yes → Rapid extrication with long board and cervical collar
- No → Apply cervical collar → Patient in sitting position
  - Yes → Use extrication device
  - No → Load onto vacuum mattress or long board

Rapid extrication with long board and cervical collar → Consider Vacuum mattress

Load onto vacuum mattress or long board → Consider Vacuum mattress

Consider Vacuum mattress

Low risk factors
Simple rear end MVC (excluding push into oncoming traffic or hit by bus or truck)

Equipment list
Extrication device
Long board
Vacuum mattress
Orthopaedic stretcher
Rigid cervical collar

4/5/6.6.4
Version 2, 07/11

Burns – Adult

EMT | P | AP

Burn or Scald

Cease contact with heat source

Inhalation and/or facial injury — Yes → Airway management; No → Commence local cooling of burn area

Should cool for another 10 minutes during packaging and transfer

Airway management → Respiratory distress — Yes → Go to Inadequate Respirations CPG; No → Consider humidified Oxygen therapy

Brush off powder & irrigate chemical burns
Follow local expert direction

Commence local cooling of burn area

Remove burned clothing & jewellery (unless stuck)

Equipment list
- Acceptable dressings
- Burns gel (caution for > 10% TBSA)
- Cling film
- Sterile dressing
- Clean sheet

Dressing/ covering of burn area

Pain > 2/10 — Yes → Go to Pain Mgt. CPG; No →

F: face
H: hands
F: feet
F: flexion points
P: perineum

Isolated superficial injury (excluding FHFFP) — Yes → monitor body temperature; No → TBSA burn > 10%

Caution with the elderly, circumferential & electrical burns

TBSA burn > 10% — No → monitor body temperature; Yes → Request ALS

ECG & SpO_2 monitoring

> 25% TBSA and or time from injury to ED > 1 hour — No → Consider NaCl (0.9%), 500 mL, IV/IO; Yes → NaCl (0.9%), 1000 mL, IV/IO

Monitor body temperature

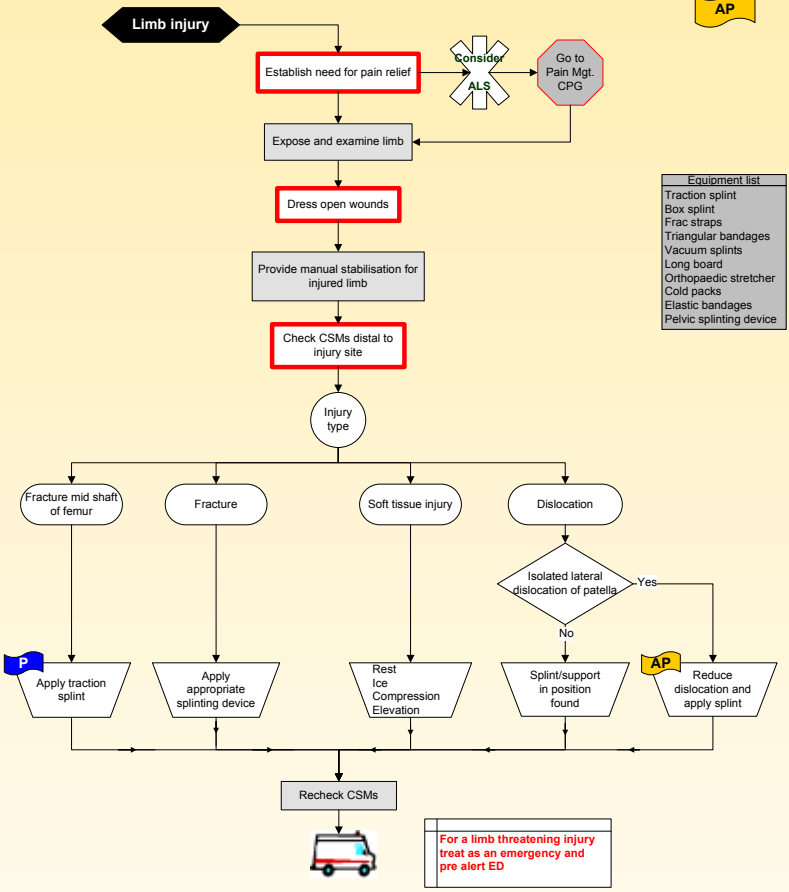
P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

Reference: Allison, K et al, 2004, Consensus on the prehospital approach to burns patient management, Emerg Med J 2004; 21:112-114
Sanders, M, 2001, Paramedic Textbook 2nd Edition, Mosby

4/5/6.6.5
Version 3, 02/12

Limb Injury – Adult

EMT P AP



Equipment list
- Traction splint
- Box splint
- Frac straps
- Triangular bandages
- Vacuum splints
- Long board
- Orthopaedic stretcher
- Cold packs
- Elastic bandages
- Pelvic splinting device

For a limb threatening injury treat as an emergency and pre alert ED

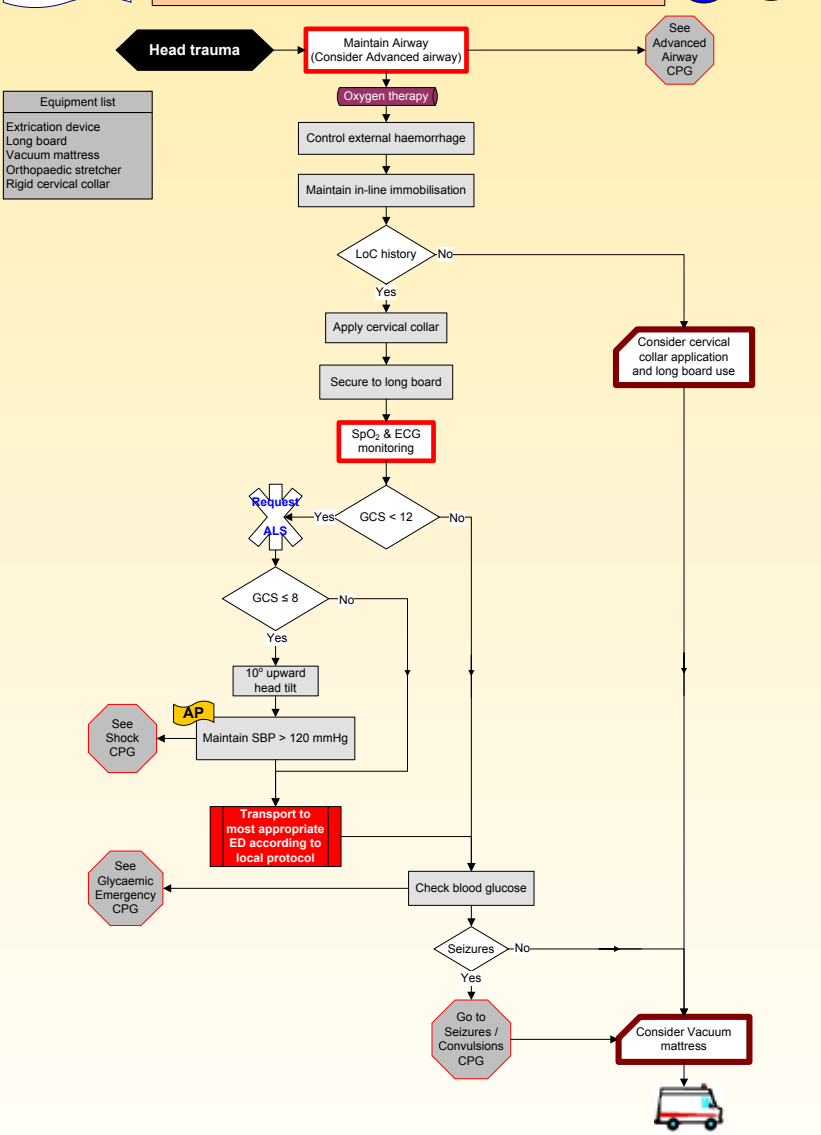
Contraindications for application of traction splint
1 # pelvis
2 # knee
3 Partial amputation
4 Injuries to lower third of lower leg
5 Hip injury that prohibits normal alignment

Reference: An algorithm guiding the evaluation and treatment of acute primary patellar dislocations, Mehta VM et al. Sports Med Arthrosc. 2007 Jun;15(2):78-81

5/6.6.6
05/08

Head Injury – Adult

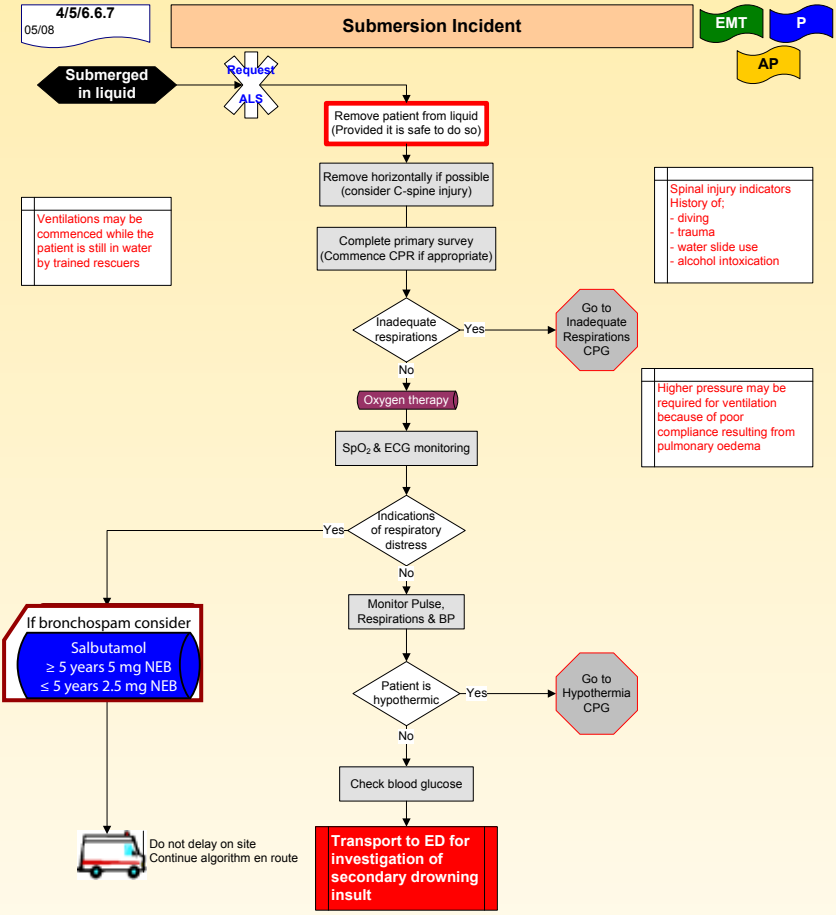
P AP



Equipment list

Extrication device
Long board
Vacuum mattress
Orthopaedic stretcher
Rigid cervical collar

Reference;
Mc Swain, N, 2003, Pre Hospital Trauma Life Support 5th Edition, Mosby

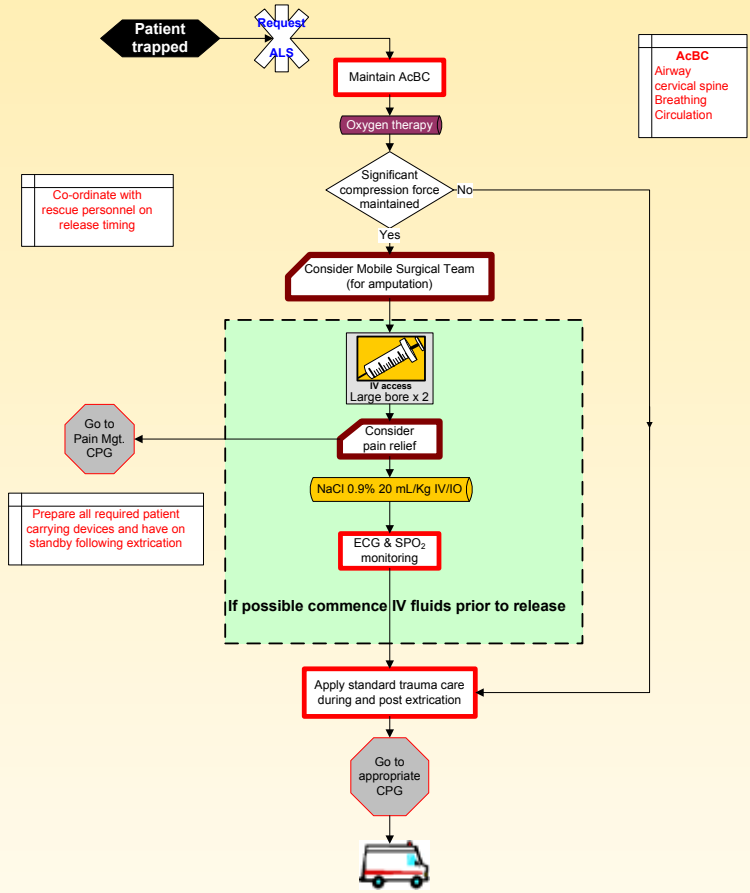


Reference: Golden, F & Tipton M, 2002, Essentials of Sea Survival, Human Kinetics
Verie, M, 2007, Near Drowning, E medicine, www.emedicine.com/ped/topic20570.htm
Shepherd, S, 2005, Submersion Injury, Near Drowning, E Medicine, www.emedicine.com/emerg/topic744.htm
AHA, 2005, Part 10.3: Drowning, Circulation 2005:112;133-135
Soar, J et al, 2005, European Resuscitation Council Guidelines for Resuscitation 2005, Section 7. Cardiac arrest in special circumstances, Resuscitation (2005) 6751, S135-S170

5/6.6.8
05/08

Crush Injury

P AP



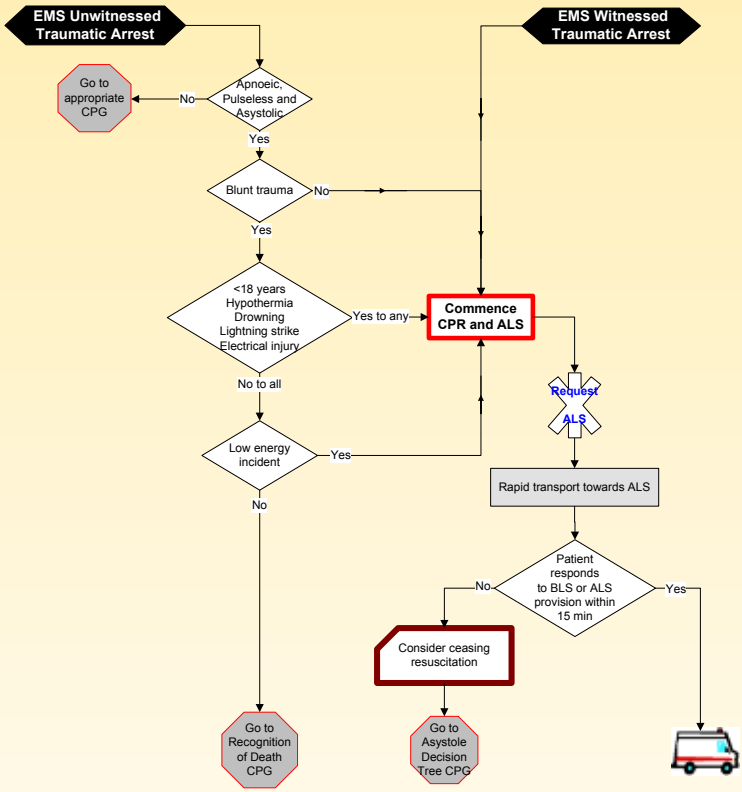
P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

Reference:
Crush Injury Syndrome (# 7102) Patient Care Policy, Alameda County EMS Agency (CA)
Crush Injuries, Clinical Practice Manual, Queensland Ambulance Service

5/6.6.9
05/08

Traumatic Cardiac Arrest – Adult

P AP

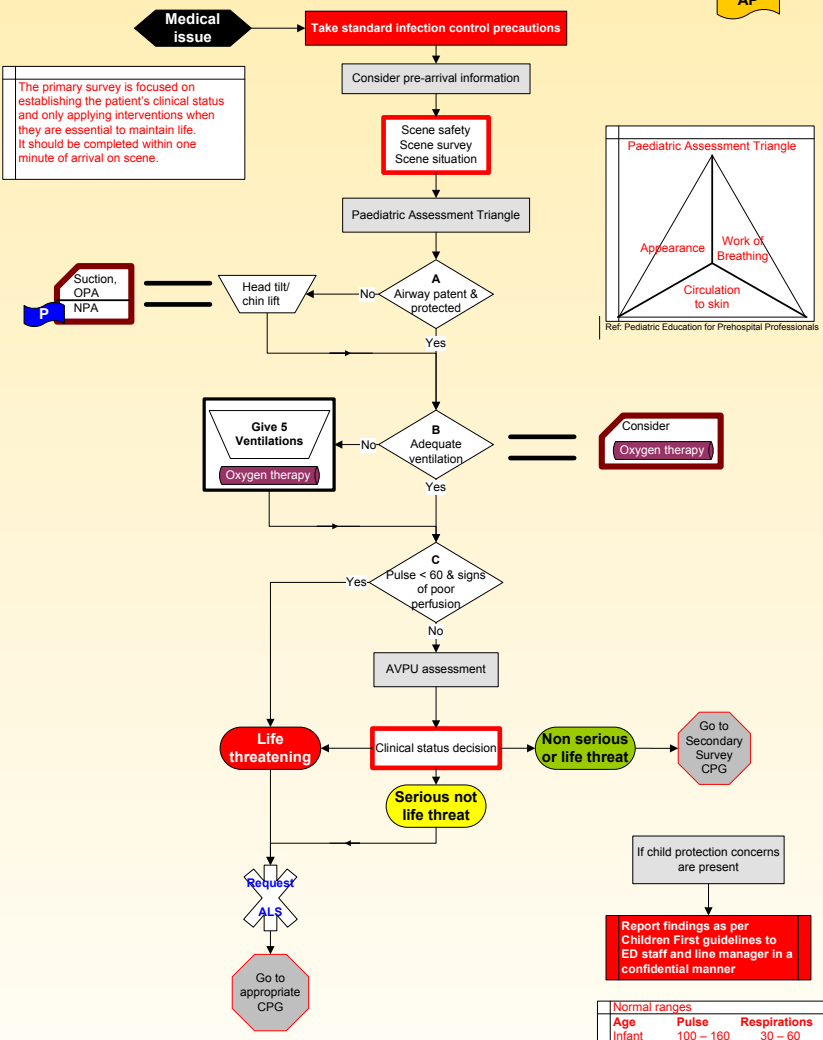


Reference: Hopson, L et al, 2003, Guidelines for withholding or termination of resuscitation in prehospital traumatic cardiac arrest, Position paper for National Association of EMS Physicians, Prehospital Emergency Care, Vol 7 p141-146

4/5/6.7.1
Version 3, 03/12

Primary Survey Medical – Paediatric (≤ 13 Years)

EMT P AP



The primary survey is focused on establishing the patient's clinical status and only applying interventions when they are essential to maintain life. It should be completed within one minute of arrival on scene.

Paediatric Assessment Triangle

Appearance
Work of Breathing
Circulation to skin

Ref: Pediatric Education for Prehospital Professionals

Normal ranges

Age	Pulse	Respirations
Infant	100 – 160	30 – 60
Toddler	90 – 150	24 – 40
Pre school	80 – 140	22 – 34
School age	70 – 120	18 – 30

Reference:
ILCOR Guidelines 2010, American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals
Department of Children and Youth Affairs, 2011, Children First: National Guidance for the protection and Welfare of Children

4/5/6.7.2
Version 3, 03/12

Primary Survey Trauma – Paediatric (≤ 13 years)

EMT | P | AP

Trauma → Take standard infection control precautions

The primary survey is focused on establishing the patient's clinical status and only applying interventions when they are essential to maintain life. It should be completed within one minute of arrival on scene.

Consider pre-arrival information

Scene safety
Scene survey
Scene situation

Paediatric Assessment Triangle

Control catastrophic external haemorrhage

Mechanism of injury suggestive of spinal injury
- No → A
- Yes → C-spine control → A

A Airway patent & protected
- No → Jaw thrust (Head tilt/ chin lift) → Suction, OPA / NPA(> 1 year) (P)
- Yes → B

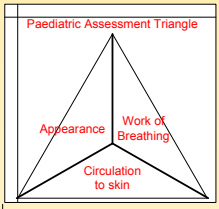
B Adequate ventilation
- No → Give 5 Ventilations → Oxygen therapy (P)
- Yes → Consider Oxygen therapy (P) → C

C Pulse < 60 & signs of poor perfusion
- Yes → Life threatening
- No → AVPU assessment

AVPU assessment → Expose & check obvious injuries → Treat life threatening injuries only → Clinical status decision

Clinical status decision
- Life threatening → Request ALS → Go to appropriate CPG
- Serious not life threat → Request ALS → Go to appropriate CPG
- Non serious or life threat → Go to Secondary Survey CPG

If child protection concerns are present → Report findings as per Children First guidelines to ED staff and line manager in a confidential manner



Ref: Pediatric Education for Prehospital Professionals

Normal ranges

Age	Pulse	Respirations
Infant	100 – 160	30 – 60
Toddler	90 – 150	24 – 40
Pre school	80 – 140	22 – 34
School age	70 – 120	18 – 30

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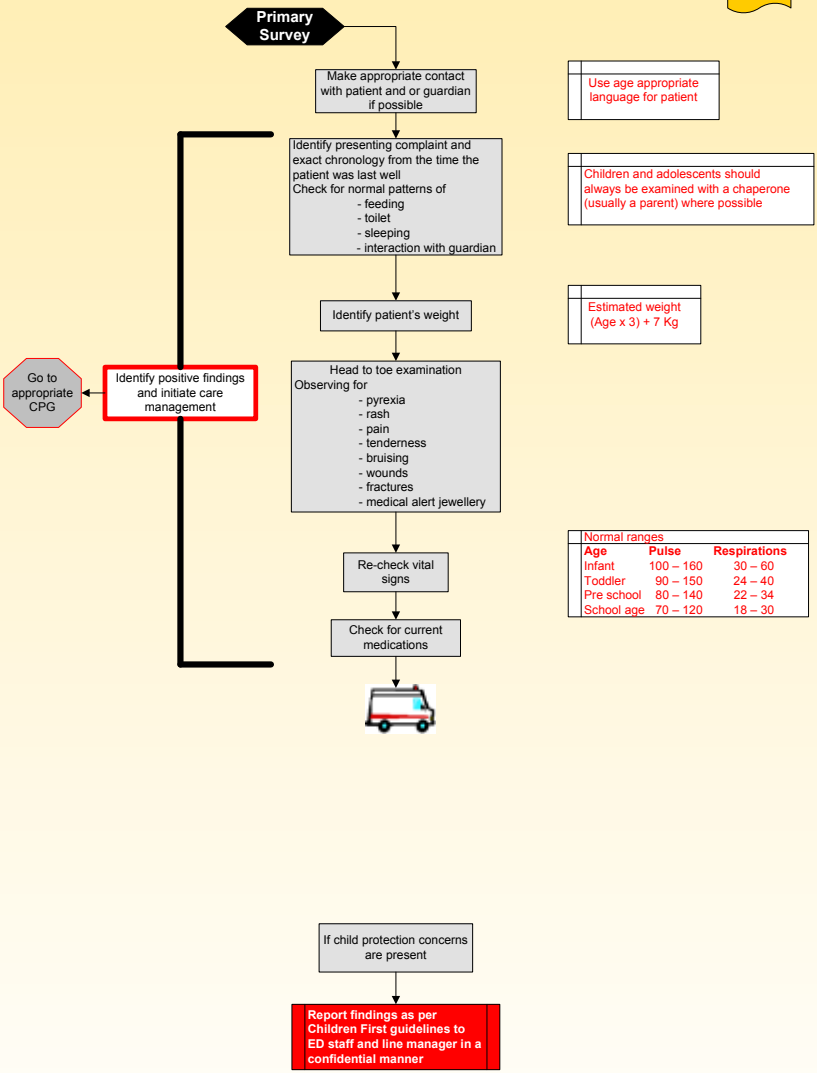
ILCOR Guidelines 2010, American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals
Department of Children and Youth Affairs, 2011, Children First: National Guidance for the protection and Welfare of Children

4/5/6.7.4
Version 2, 03/12

Secondary Survey – Paediatric (≤ 13 years)

EMT | P | AP



Normal ranges

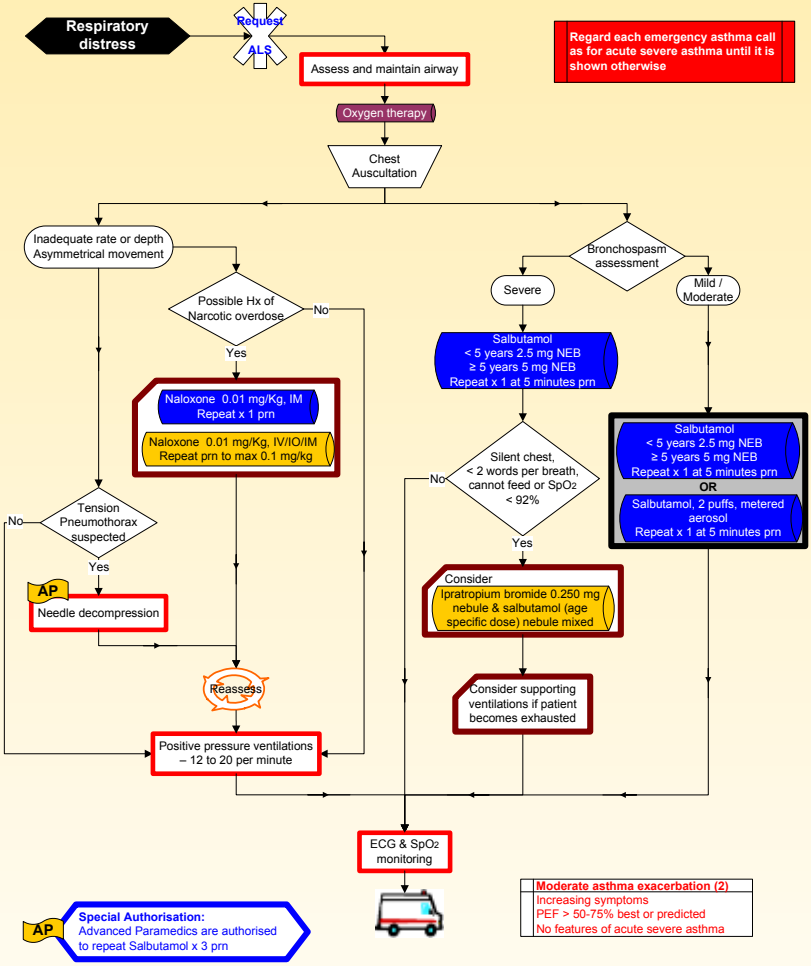
Age	Pulse	Respirations
Infant	100 – 160	30 – 60
Toddler	90 – 150	24 – 40
Pre school	80 – 140	22 – 34
School age	70 – 120	18 – 30

Reference:
Miall, Lawrence et al, 2003, Paediatrics at a Glance, Blackwell Publishing
Department of Children and Youth Affairs, 2011, Children First: National Guidance for the protection and Welfare of Children
Luscombe, M et al 2010, BMJ, Weight estimation in paediatrics: a comparison of the APLS formula and the formula 'WeightE3(age)+7'

5/6.7.5
05/08

Inadequate Respirations – Paediatric (≤ 13 years)

P AP



Regard each emergency asthma call as for acute severe asthma until it is shown otherwise

AP **Special Authorisation:** Advanced Paramedics are authorised to repeat Salbutamol x 3 prn

Moderate asthma exacerbation (2)
Increasing symptoms PEF > 50-75% best or predicted No features of acute severe asthma

Life threatening asthma
Any one of the following in a patient with severe asthma; Silent chest Cyanosis Poor respiratory effort Hypotension Exhaustion Confusion Unresponsive

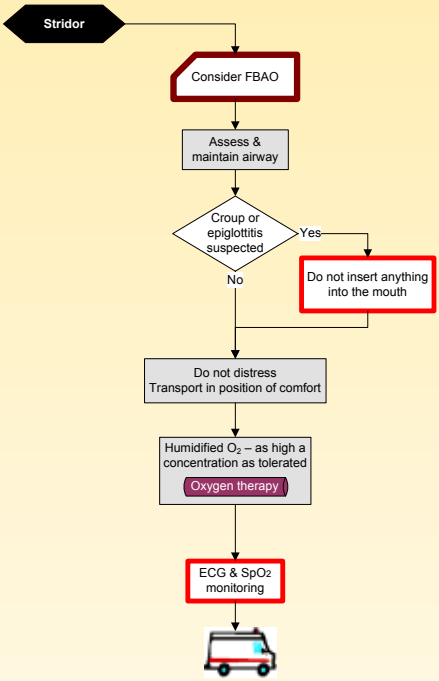
Acute severe asthma	
Any one of; Inability to complete sentences in one breath or too breathless to talk or feed	
Respiratory rate	> 30/ min for > 5 years old > 50/ min for 2 to 5 years old
Heart rate	> 120/ min for > 5 years old > 130/ min for 2 to 5 years old

Reference: British Thoracic Society, 2005, British Guidelines on the Management of Asthma, a national clinical guideline

4/5/6.7.6
05/08

Stridor – Paediatric (≤ 13 years)

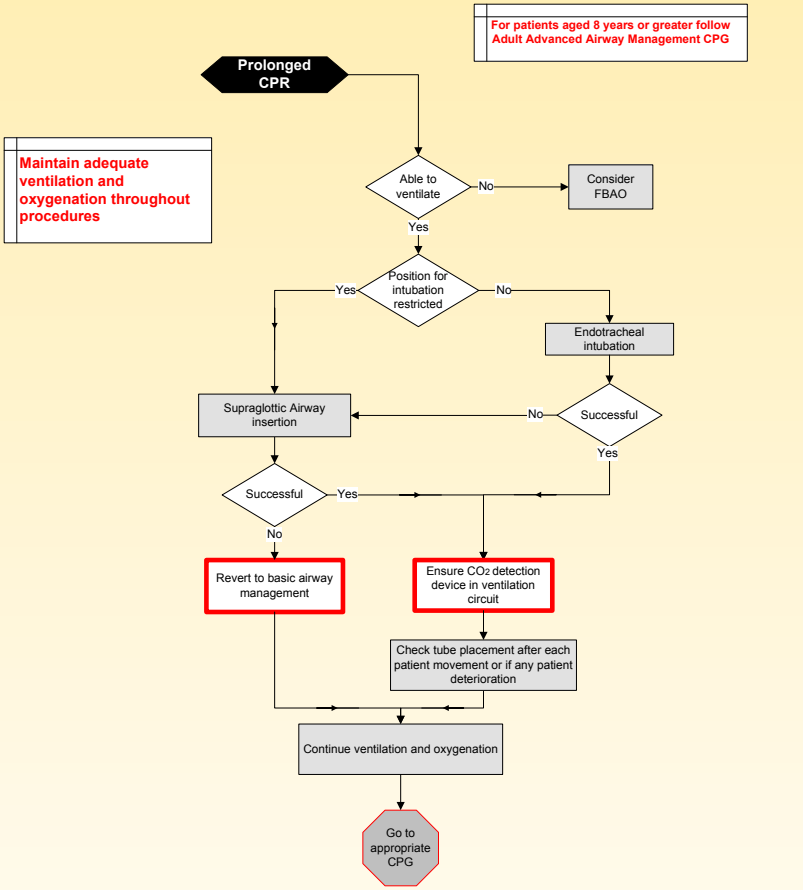
EMT P AP



6.7.7
05/08

Advanced Airway Management – Paediatric (< 8 years)

AP

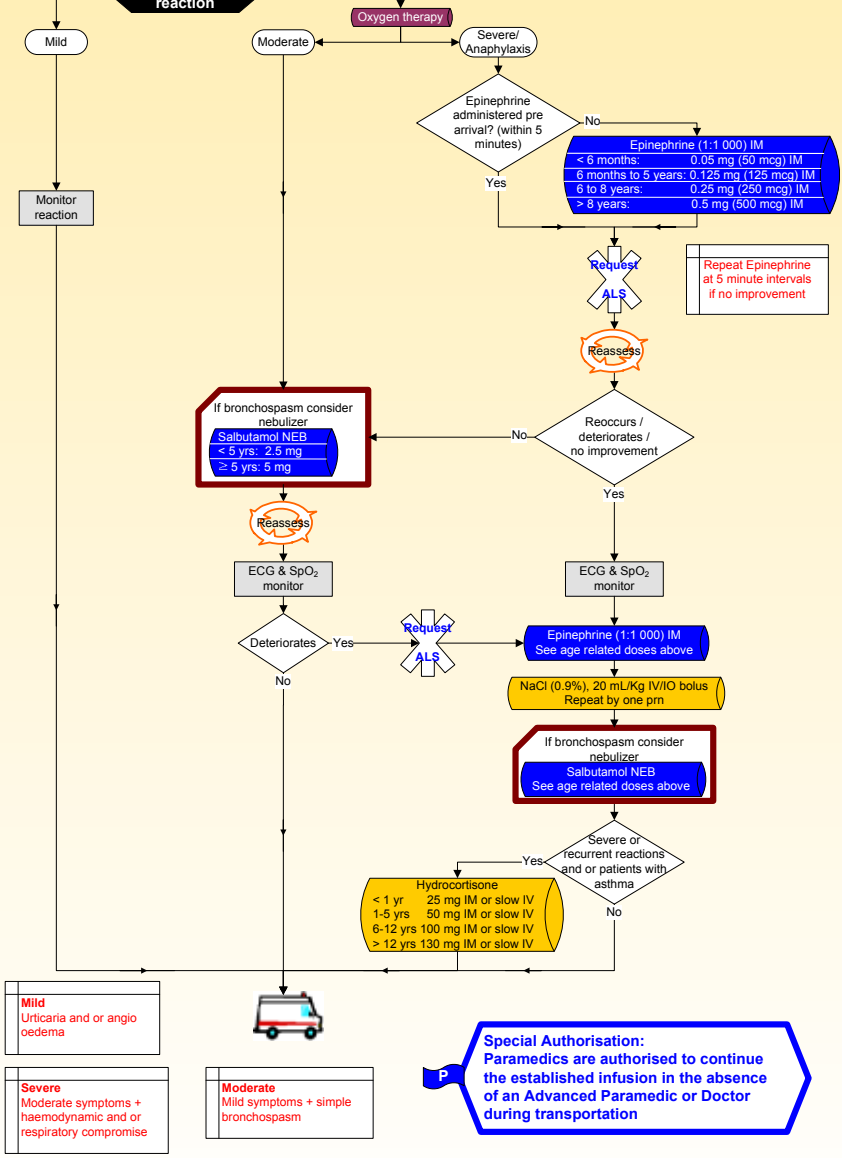


Reference: International Liaison Committee on Resuscitation, 2005, Part 6: Paediatric basic and advanced life support, Resuscitation (2005) 67, 271 – 291

5/6.7.8
Version 2, 07/11

Allergic Reaction/Anaphylaxis – Paediatric (≤ 13 years)

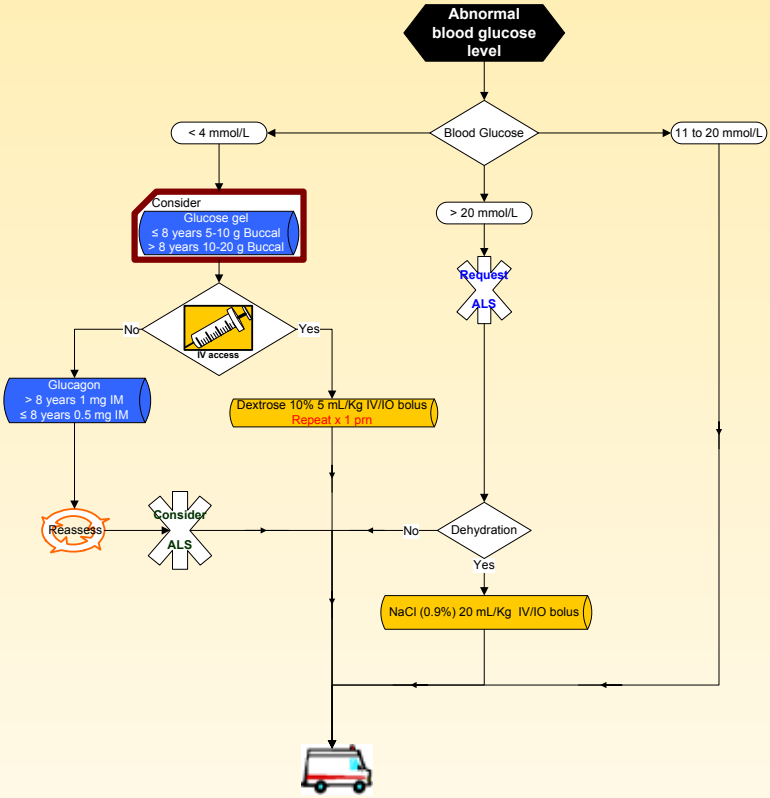
P AP



5/6.7.9
Version 2, 06/12

Glycaemic Emergency – Paediatric (≤ 13 years)

P AP



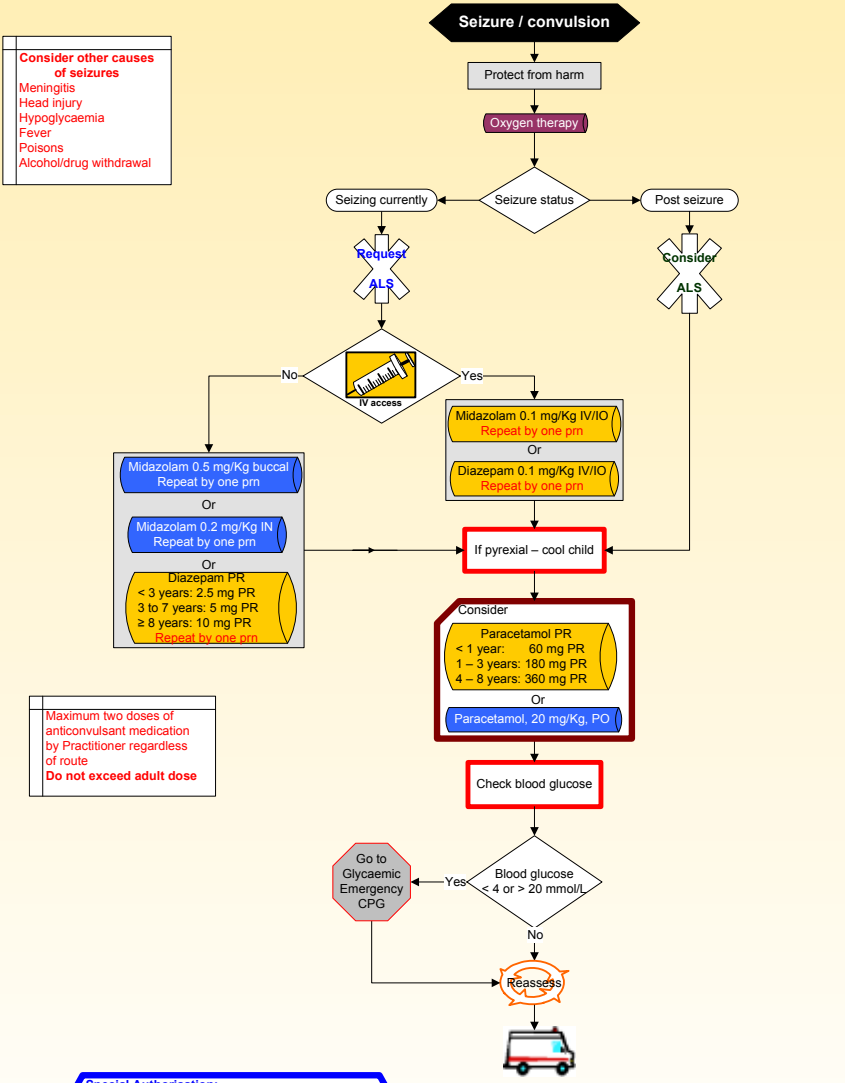
P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

Reference: Dehydration- Paramedic Textbook 2nd E p 1229

5/6.7.10
Version 2, 07/11

Seizure/Convulsion – Paediatric (≤ 13 years)

P AP

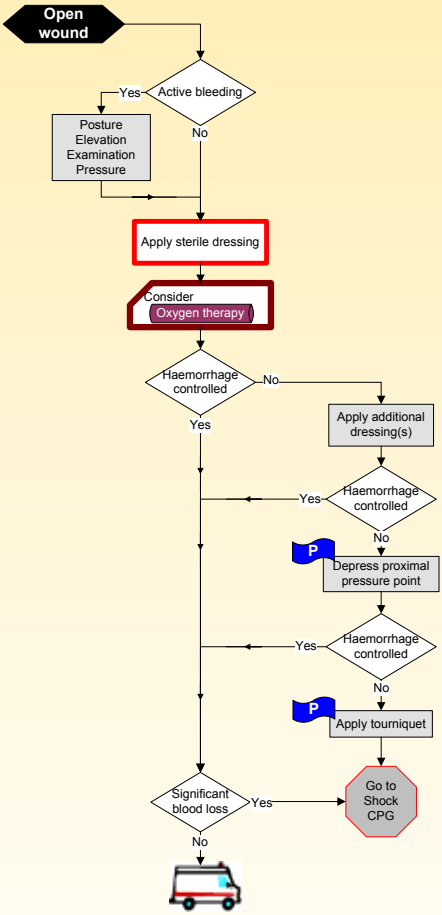


AP **Special Authorisation:**
Advanced Paramedics are authorised to administer Paracetamol, in the absence of a seizure during the current episode, to a pyrexial patient with a previous history of febrile convulsions

4/5/6.7.11
05/08

External Haemorrhage – Paediatric (≤ 13 years)

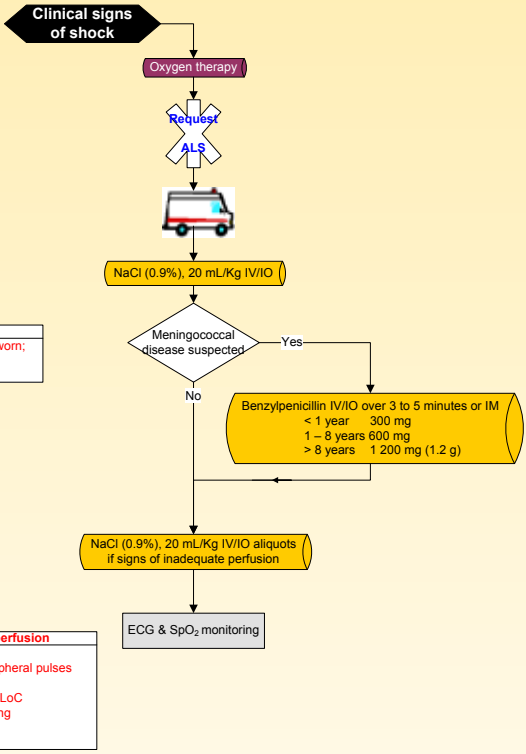
EMT P AP



5/6.7.12
Version 2, 07/11

Septic Shock – Paediatric (≤ 13 years)

P AP



Ensure appropriate PPE worn;
Mask and goggles

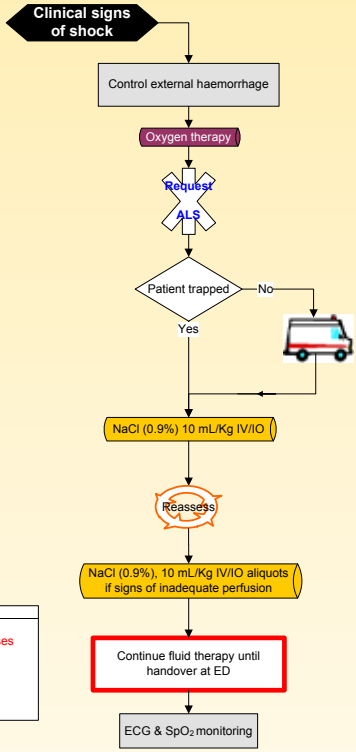
Signs of inadequate perfusion
Tachycardia
Diminished/absent peripheral pulses
Tachypnoea
Irritability/ confusion / ALoC
Cool extremities, mottling
Delayed capillary refill

P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

5/6.7.13
Version 2, 03/11

Shock from Blood Loss – Paediatric (≤ 13 years)

P AP



Signs of inadequate perfusion
Tachycardia
Diminished/absent peripheral pulses
Tachypnea
Irritability/ confusion / ALoC
Cool extremities, mottling
Delayed capillary refill

P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

Reference:
American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Prefessionals, Jones and Bartlett.

4/5/6.7.14
Version 2, 03/11

Pain Management – Paediatric (≤ 13 years)

EMT | P | AP

Pain

The general principle in pain management is to start at the bottom rung of the pain ladder, and then to climb the ladder if pain is still present. Practitioners, depending on his/her scope of practice, may make a clinical judgement and commence pain relief on a higher rung.

Pain assessment

Administer pain medication based on pain assessment and pain ladder recommendations

Adequate relief of pain

Yes or best achievable → Go back to originating CPG

No → Reassess and move up the pain ladder if appropriate

Analogue Pain Scale
0 = no pain.....10 = unbearable

Decisions to give analgesia must be based on clinical assessment and not directly on a linear scale

Severe pain (≥ 6 on pain scale)
- Request ALS
- Morphine 0.3 mg/Kg PO Max 10 mg
- or
- Morphine 0.05 mg/Kg IV Max 10 mg
- and / or
- Nitrous Oxide & Oxygen, inh
- Consider Ondansetron 0.1 mg/Kg IV slowly (Max 4 mg)

Moderate pain (3 to 5 on pain scale)
- Consider Paramedic
- Paracetamol 20 mg/Kg PO
- and / or
- Ibuprofen 10 mg/Kg PO
- and / or
- Nitrous Oxide & Oxygen, inh

Minor pain (2 to 3 on pain scale)
- Paracetamol 20 mg/Kg PO

Consider other non pharmacological interventions

PHECC Paediatric Pain Ladder

Morphine PO for > 1 year old only

Repeat Morphine IV at not < 2 min intervals prn to Max: 0.1 mg/kg IV

Wong – Baker Faces for 3 years and older

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

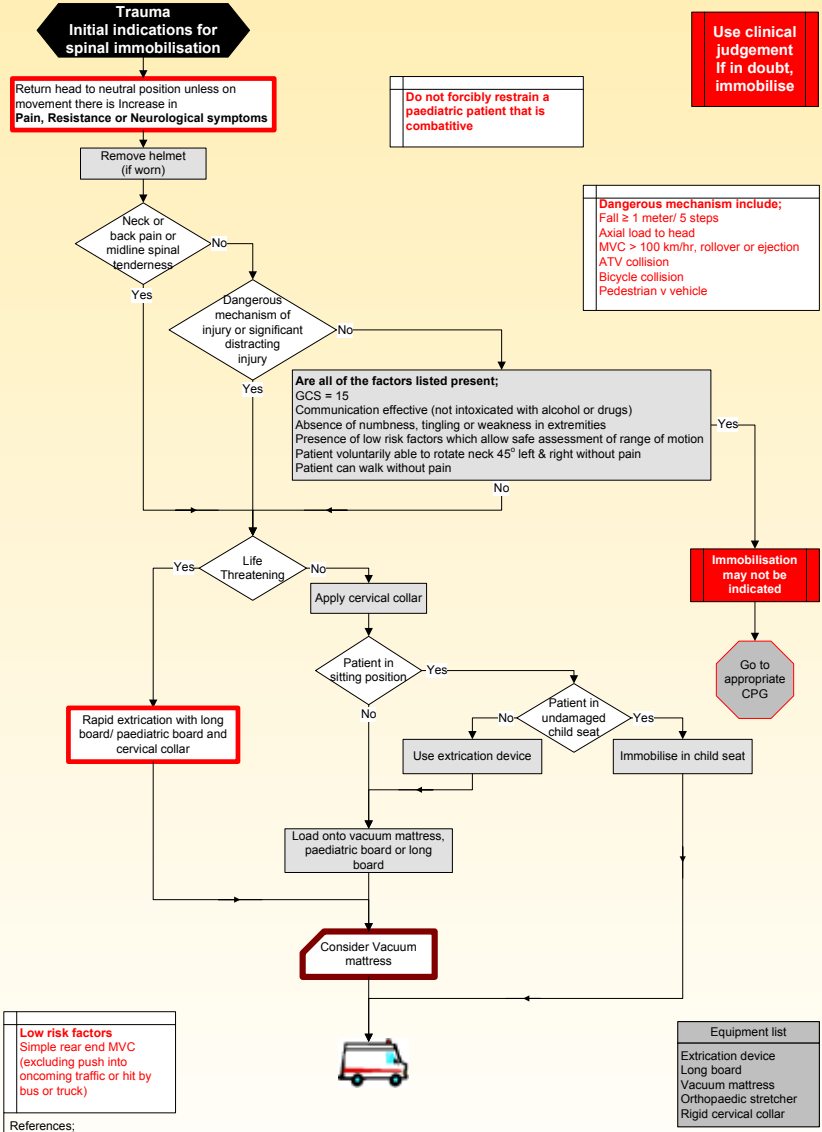
Reference:
From Wong D.L., Hockenberry-Eaton M., Wilson D., Winkelstein M.L., Schwartz P.: Wong's Essentials of Paediatric Nursing, ed.6, St. Louis, 2001, p1301.
Copyrighted by Mosby, Inc. Reprinted by permission.

Reference: World Health Organization, Pain Ladder

5/6.7.15
Version 2, 07/11

Spinal Immobilisation – Paediatric (≤ 13 years)

P | AP



Low risk factors
Simple rear end MVC (excluding push into oncoming traffic or hit by bus or truck)

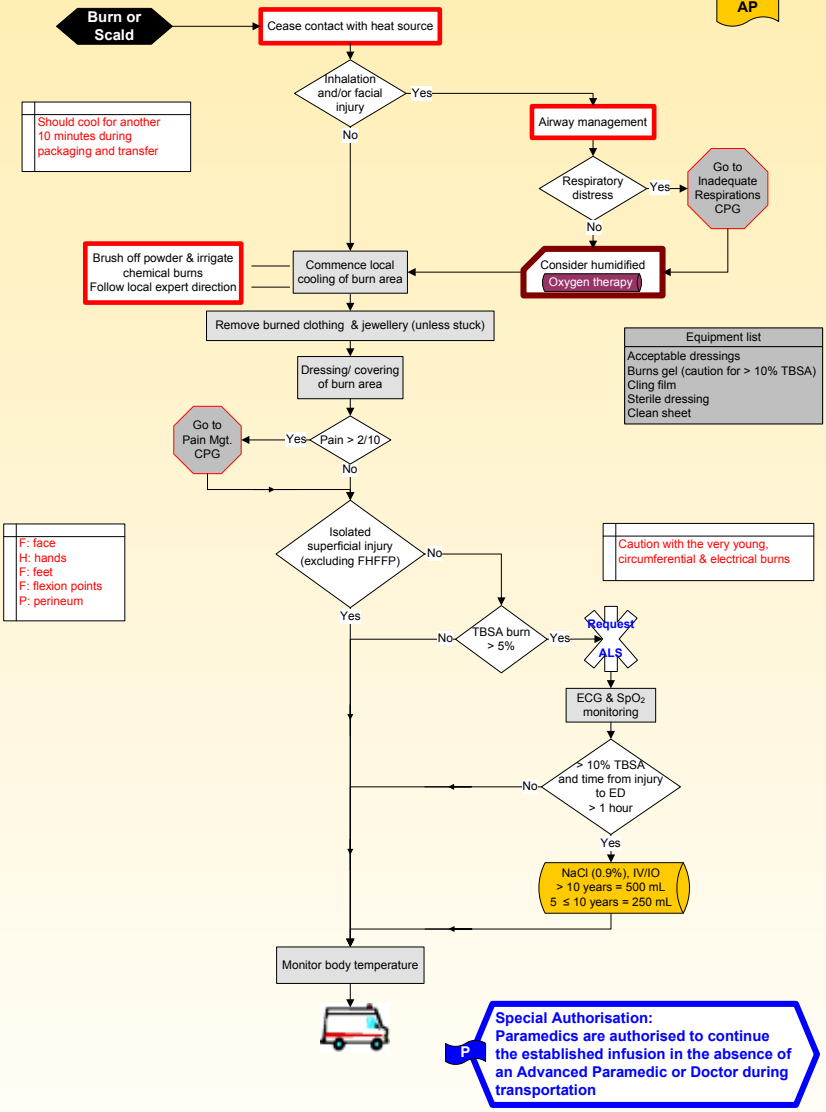
Equipment list
- Extrication device
- Long board
- Vacuum mattress
- Orthopaedic stretcher
- Rigid cervical collar

References;
Viccellio, P, et al, 2001, A Prospective Multicentre Study of Cervical Spine Injury in Children, Pediatrics vol 108, e20
Slack, S. & Clancy, M, 2004, Clearing the cervical spine of paediatric trauma patients, EMJ 21; 189-193

4/5/6.7.16
Version 2, 07/11

Burns – Paediatric (≤ 13 years)

EMT P AP



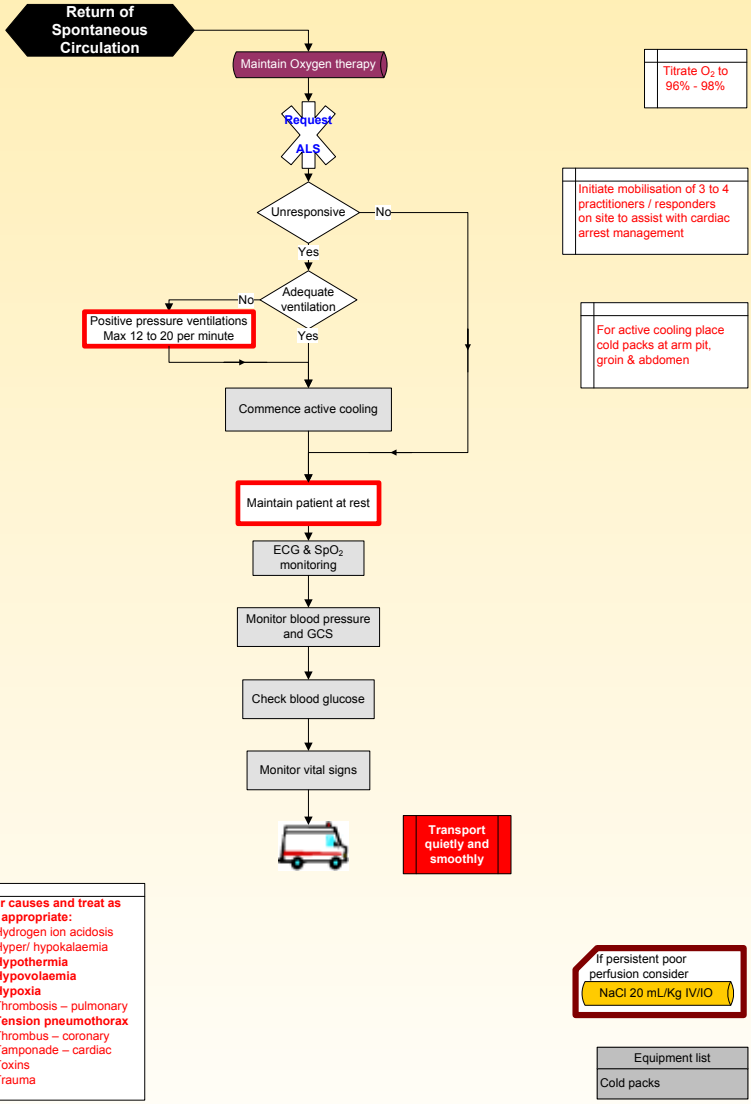
Special Authorisation:
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

Reference: Allison, K et al, 2004, Consensus on the prehospital approach to burns patient management, Emerg Med J 2004; 21:112-114
Sanders, M, 2001, Paramedic Textbook 2nd Edition, Mosby

5/6.7.17
03/11

Post-Resuscitation Care – Paediatric (≤ 13 years)

P AP



Reference: ILCOR Guidelines 2010

4/5/6.8.1
05/08

Major Emergency (Major Incident) – First Practitioners on site

EMT | P | AP

Irish (Major Emergency) terminology in black
UK (Major Incident) terminology in blue

Possible Major Emergency

Take standard infection control precautions

Consider pre-arrival information

PPE (high visibility jacket and helmet) must be worn

Practitioner 1

Park at the scene as safety permits and in liaison with Fire & Garda if present

Leave blue lights on as vehicle acts as Forward Control Point pending the arrival of the Mobile Control Vehicle

Confirm arrival at scene with Ambulance Control and provide an initial visual report stating Major Emergency (Major Incident) Standby or Declared

Maintain communication with Practitioner 2

Leave the ignition keys in place and remain with vehicle

Carry out Communications Officer role until relieved

Practitioner 2 (Ideally MIMMS trained)

Carry out scene survey

Give situation report to Ambulance Control using METHANE message

Carry out HSE Controller of Operations (Ambulance Incident Officer) role until relieved

Liaise with Garda Controller of Operations (Police Incident Officer) and Local Authority Controller of Operations (Fire Incident Officer)

Select location for Holding Area (Ambulance Parking Point)

Set up key areas in conjunction with other Principle Response Agencies on site;
- Site Control Point (Ambulance Control Point),
- Casualty Clearing Station

If single Practitioner is first on site combine both roles until additional Practitioners arrive

METHANE message
M – Major Emergency declaration / standby
E – Exact location of the emergency
T – Type of incident (transport, chemical etc.)
H – Hazards present and potential
A – Access / egress routes
N – Number of casualties (injured or dead)
E – Emergency services present and required

The first ambulance crew does not provide care or transport of patients as this interferes with their ability to liaise with other services, to assess the scene and to provide continuous information as the incident develops

The principles and terminology of Major Incident Medical management and Support (MIMMS) has been used with the kind permission of the Advanced Life Support Group, UK

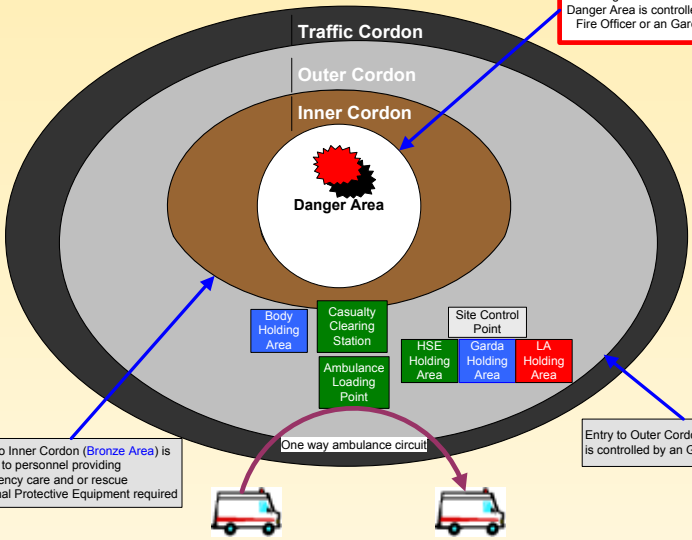
4/5/6.8.2
05/08

Major Emergency (Major Incident) – Operational Control

EMT P AP

Irish (Major Emergency) terminology in black
UK (Major Incident) terminology in blue

If Danger Area identified entry to Danger Area is controlled by a Senior Fire Officer or an Garda Síochána



Entry to Inner Cordon (Bronze Area) is limited to personnel providing emergency care and or rescue Personal Protective Equipment required

Entry to Outer Cordon (Silver area) is controlled by an Garda Síochána

Management structure for;
Outer Cordon, Tactical Area (Silver Area)
On-Site Co-ordinator
HSE Controller of Operations (Ambulance Incident Officer)
Site Medical Officer (Medical Incident Officer)
Local Authority Controller of Operations (Fire Incident Officer)
Garda Controller of Operations (Police Incident Officer)

Management structure for;
Inner Cordon, Operational Area (Bronze Area)
Forward Ambulance Incident Officer (Forward Ambulance Incident Officer)
Forward Medical Incident Officer (Forward Medical Incident Officer)
Fire Service Incident Commander (Forward Fire Incident Officer)
Garda Cordon Control Officer (Forward Police Incident Officer)

Other management functions for;
Major Emergency site
Casualty Clearing Officer
Triage Officer
Ambulance Parking Point Officer
Ambulance Loading Point Officer
Communications Officer
Safety Officer

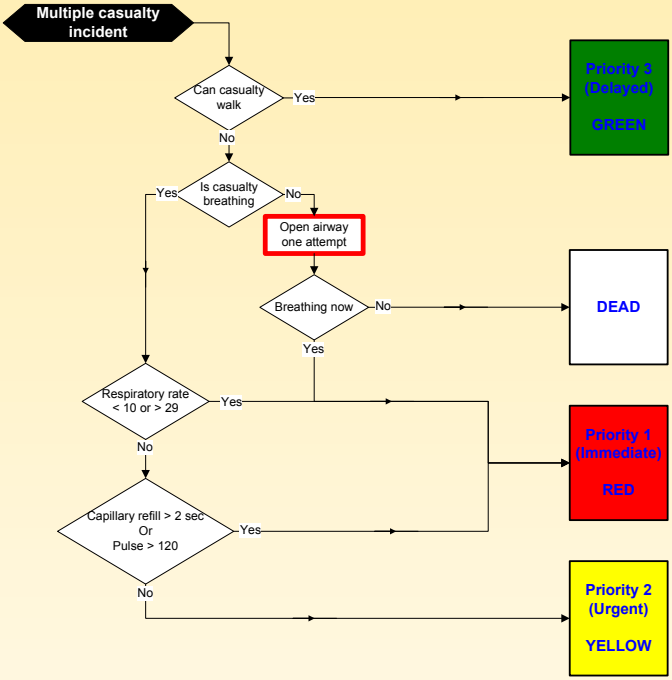
Reference: A Framework for Major Emergency Management, 2006, Inter-Departmental Committee on Major Emergencies (Replaced by National steering Group on Major Emergency Management)

The principles and terminology of Major Incident Medical management and Support (MIMMS) has been used with the kind permission of the Advanced Life Support Group, UK

4/5/6.8.3
05/08

Triage Sieve

EMT | P | AP



Triage is a dynamic process

The principles and terminology of Major Incident Medical management and Support (MIMMS) has been used with the kind permission of the Advanced Life Support Group, UK

5/6.8.4
05/08

Triage Sort

P AP

Multiple casualty incident

Triage is a dynamic process

Cardiopulmonary function	Measured value	Score	Insert score
Respiratory Rate	10 – 29 / min > 29 / min 6 – 9 / min 1 – 5 / min None	4 3 2 1 0	A
Systolic Blood Pressure	≥ 90 mm Hg 76 – 89 mm Hg 50 – 75 mm Hg 1 – 49 mm Hg No BP	4 3 2 1 0	B
Glasgow Coma Scale	13 – 15 9 – 12 6 – 8 4 – 5 3	4 3 2 1 0	C
Triage Revised Trauma Score			A+B+C

Revised Trauma Score

- 1 - 10 → Priority 1 (Immediate) RED
- 11 → Priority 2 (Urgent) YELLOW
- 12 → Priority 3 (Delayed) GREEN
- 0 → DEAD

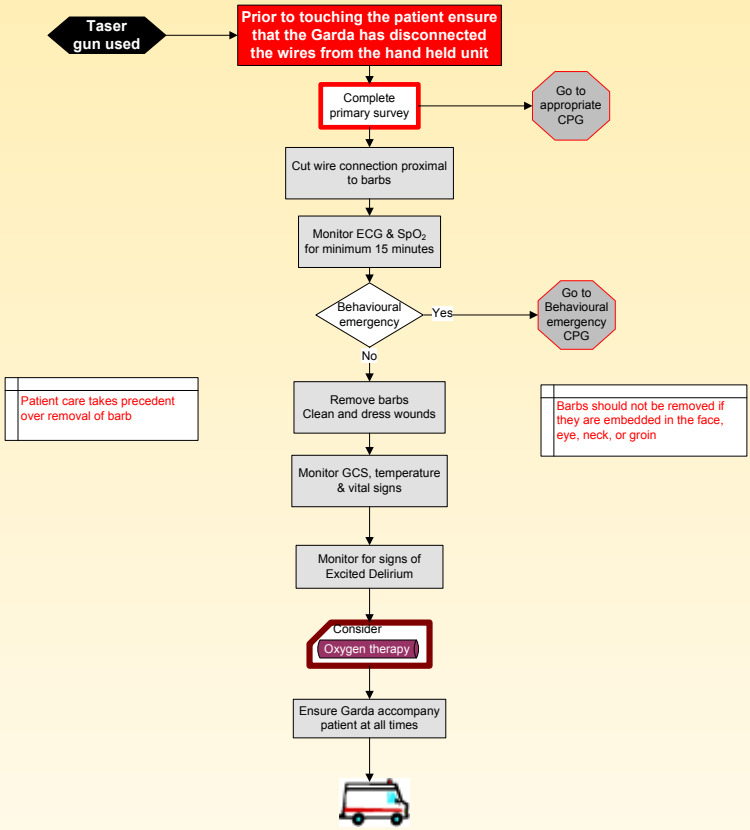
Eye Opening	Spontaneous To Voice To Pain None	4 3 2 1
Verbal Response	Oriented Confused Inappropriate words Incomprehensible sounds None	5 4 3 2 1
Motor Response	Obeys commands Localises pain Withdraw (pain) Flexion (pain) Extension (pain) None	6 5 4 3 2 1
Glasgow Coma Scale		

The principles and terminology of Major Incident Medical management and Support (MIMMS) has been used with the kind permission of the Advanced Life Support Group, UK

5/6.8.5
05/08

Conducted Electrical Weapon (Taser)

P AP



Note:
This CPG was developed in conjunction with the Chief Medical Officer, An Garda Síochána

Reference:
DSAC Sub-committee on the Medical Implications of Less-lethal Weapons 2004, Second statement on the medical implications of the use of the M26 Advanced Taser.
United States Government Accountability Office, 2005, The use of Taser by selected law enforcement agencies
Manitoba health Emergency Medical Services, 2007 Taser Dart Removal Protocol

The Medication Formulary is published by the Pre-Hospital Emergency Care Council (PHECC) to enable pre-hospital emergency care Practitioners to be competent in the use of medications permitted under SI 512 of 2008 schedule 7. This is a summary document only and Practitioners are advised to consult with official publications to obtain detailed information about the medications used.

The Medication Formulary is recommended by the Medical Advisory Group (MAG) and ratified by the Clinical Care Committee (CCC) prior to publication by Council.

The medications herein may be administered provided:

1 The Practitioner is in good standing on the PHECC Practitioner's Register.
2 The Practitioner complies with the Clinical Practice Guidelines (CPGs) published by PHECC.
3 The Practitioner is acting on behalf of an organisation (paid or voluntary) that is approved by PHECC to implement the CPGs.
4 The Practitioner is authorised, by the organisation on whose behalf he/she is acting, to administer the medications.
5 The Practitioner has received training on, and is competent in, the administration of the medication.
6 The medications are listed on the Medicinal Products Schedule 7.

The context for administration of the medications listed here is outlined in the CPGs. Every effort has been made to ensure accuracy of the medication doses herein. The dose specified on the relevant CPG shall be the definitive dose in relation to Practitioner administration of medications. The principle of titrating the dose to the desired effect shall be applied. The onus rests on the Practitioner to ensure that he/she is using the latest versions of CPGs which are available on the PHECC website www.phecc.ie
Sodium Chloride 0.9% (NaCl) is the IV/IO fluid of choice for pre-hospital emergency care.
All medication doses for patients (≤ 13 years) shall be calculated on a weight basis unless an age related dose is specified for that medication.

THE DOSE FOR PAEDIATRIC PATIENTS MAY NEVER EXCEED THE ADULT DOSE.

Paediatric weight calculations acceptable to PHECC are;

- (age x 3) + 7 Kg
- Length based resuscitation tape (Broselow® or approved equivalent)

Reviewed on behalf of PHECC by Prof Peter Weedle, Adjunct Professor of Clinical Pharmacy, School of Pharmacy, University College Cork.
This version contains 36 medications.

AMENDMENTS TO THE 2012 VERSION INCLUDE:

CLOPIDOGREL	
Heading	Add
Additional information	Special authorisation: Paramedics are authorised to administer Clopidogrel PO following identification of STEMI and medical practitioner instruction.

DIAZEPAM INJECTION	
Heading	Add
Contraindications	Shock. Depressed vital signs or alcohol related altered level of consciousness.

DIAZEPAM RECTAL SOLUTION	
Heading	Add
Contraindications	Shock. Depressed vital signs or alcohol related altered level of consciousness.

MIDAZOLAM SOLUTION	
Heading	Add
Presentation	10 mg in 1 mL pre-filled syringe.
Contraindications	Respiratory depression.

MORPHINE		
Heading	Add	Delete
Usual Doses	0.3 mg/Kg (300 mcg/Kg).	0.3 mg/Kg (100 mcg/Kg)

TENECTEPLASE POWDER FOR INJECTION		
Heading	Add	Delete
Indications	(medical practitioner discretion if > 75 years). MI Symptoms > 20 Min & ≤ 6 hours.	MI Symptoms ≤ 3 hours

Index of medication formulary *(Adult ≥ 14 and Paediatric ≤ 13 unless otherwise stated)*

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Epinephrine 1mg/1mL (1:1 000) 106
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CLINICAL LEVEL: AP

MEDICATION	AMIODARONE
Class	Antiarrhythmic agent.
Descriptions	Class III antiarrhythmic agent used to treat ventricular arrhythmias.
Presentation	150 mg in 3 mL solution. Pre-filled syringes 10 mL (30 mg/mL).
Administration	Intravenously (IV). Intraosseous (IO). (CPG: 4/5/6.4.7, 4/5/6.4.8).
Indications	Ventricular Fibrillation (VF) and Pulseless Ventricular Tachycardia (VT).
Contra-Indications	Known severe adverse reaction, Known hypersensitivity to Iodine.
Usual Dosages	**Adult:** VF/VT: 5 mg/Kg IV/IO. (loading dose for cardiac arrest; 300 mg and one supplemental dose 150 mg). **Paediatric:** 5 mg/Kg IV/IO.
Pharmacology/ Action	**Antiarrhythmic** Prolongs the action potential. Prolongs the refractory period. Prolongs atrioventricular conduction. Prolongs QT interval.
Side effects	Inflammation of peripheral veins. Bradycardia. AV conducting abnormalities.
Additional information	If diluted mix with Dextrose 5% May be flushed with NaCl

CLINICAL LEVEL: CFR - A | EFR | EMT | P | AP

MEDICATION	ASPIRIN
Class	Platelet aggregator inhibitor.
Descriptions	Anti-inflammatory agent and an inhibitor of platelet function Useful agent in the treatment of various thromboembolic diseases such as acute myocardial infarction.
Presentation	300 mg soluble tablet.
Administration	Orally (PO) - If soluble, disperse in water. If not solublt, to be chewed. (CPG: 5/6.4.16, 4.4.16, 1/2/3.4.16).
Indications	Cardiac chest pain or suspected Myocardial Infarction.
Contra-Indications	Active symptomatic gastrointestinal (GI) ulcer. Bleeding disorder (e.g. haemophilia). Known severe adverse reaction. Patients < 16 years old.
Usual Dosages	**Adult:** 300 mg tablet. **Paediatric:** Not indicated.
Pharmacology/ Action	Antithrombotic Inhibits the formation of thromboxane A2, which stimulates platelet aggregation and artery constriction. This reduces clot/thrombus formation in an MI.
Side effects	Epigastric pain and discomfort. Bronchospasm. Gastrointestinal haemorrhage.
Long term effects	Generally mild and infrequent but incidence of gastro-intestinal irritation with slight asymptomatic blood loss, increased bleeding time, bronchospasm and skin reaction in hypersensitive patients.
Additional information	Aspirin 300 mg is indicated for cardiac chest pain regardless if patient is on anti coagulants or is already on aspirin. If the patient has swallowed an aspirin (enteric coated) preparation without chewing it, the patient should be regarded as not having taken any aspirin; administer 300 mg PO.

CLINICAL LEVEL: AP

MEDICATION	ATROPINE
Class	Anticholinergic (parasympatholytic).
Descriptions	Parasympatholytic (Anticholinergic) that is derived from parts of the *Atropa belladonna* plant.
Presentation	Pre-filled disposable syringe 1 mg/10 mL. Ampoule 0.6 mg in 1 mL
Administration	Intravenous (IV). Intraosseous (IO). (CPG: 5/6.4.14, 4/5/6.4.17, 6.4.23).
Indications	**Adult:** Symptomatic bradycardia. Organophosphate poison. **Paediatric:** (CPG not published) Organophosphate poison.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult**: Organophosphate poison -1 mg IV, Repeat at 3-5 min intervals to ensure minimal salivary secretions. Symptomatic Bradycardia – 0.5 mg (500 mcg) IV. Repeat at 3-5 min intervals to Max 3 mg. **Paediatric**: Not indicated.
Pharmacology/Action	**Anticholinergic agent** Blocks acetylcholine receptors. - enhances SA node automaticity - enhance AV node conduction - increases heart rate
Side effects	Tachycardia. Dry mouth. Dilated pupils.
Additional information	Accidental exposure to the eye causes blurred vision.

CLINICAL LEVEL: AP

MEDICATION	BENZYLPENICILLIN
Class	Antibiotic, Antibacterial.
Descriptions	Benzylpenicillin is an antibiotic agent.
Presentation	600 mg powder in vial for reconstitution.
Administration	Intravenous (IV) or Intraosseous (IO). May give by intramuscular (IM) injection if no IV access. IV/IO: Reconstitute each 600 mg vial with 4 mL of water for injection and give by slow IV injection (i.e. over 3-5 min). IM: Reconstitute each 600 mg vial with 2 mL of water for injection. (CPG: 5/6.4.21, 5/6.7.12).
Indications	Suspected or confirmed meningococcal sepsis.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** 1 200 mg IV, IO or IM. **Paediatric:** >8 yrs: 1 200 mg IV, IO or IM. 1-8 yrs: 600 mg IV, IO or IM. <1 yr: 300 mg IV, IO or IM.
Pharmacology/Action	Antibacterial. Gram positive cocci antibiotic.
Side effects	Gastro intestinal disturbances. Hypersensitivity reactions.
Additional information	Also called Penicillin G.

CLINICAL LEVEL: P AP

MEDICATION	CLOPIDOGREL
Class	Platelet aggregation inhibitor.
Descriptions	An inhibitor of platelet function.
Presentation	300 mg tablet. 75 mg tablet.
Administration	Orally (PO). (CPG: 5/6.4.16).
Indications	Identification of ST Elevation Myocardial Infarction (STEMI).
Contra-Indications	Known severe adverse reaction. Active pathological bleeding. Severe liver impairment.
Usual Dosages	**Adult:** 600 mg PO. > 75 years: 75 mg PO. **Paediatric:** Not indicated.
Pharmacology/Action	Clopidogrel selectively inhibits the binding of adenosine diphosphate (ADP) to its platelet receptor, and the subsequent ADP-mediated activation of the GPIIb/IIIa complex, thereby inhibiting platelet aggregation. Biotransformation of Clopidogrel is necessary to produce inhibition of platelet aggregation. Clopidogrel acts by irreversibly modifying the platelet ADP receptor.
Side effects	Abdominal pain, Dyspepsia, Diarrhoea.
Additional information	**Special authorisation:** Paramedics are authorised to administer Clopidogrel PO following identification of STEMI and medical practitioner instruction.

CLINICAL LEVEL: AP

MEDICATION	CYCLIZINE
Class	Anti-emetic.
Descriptions	Used in management of nausea & vomiting.
Presentation	Ampoule 50 mg in 1 mL.
Administration	Intravenous (IV). Intraosseous (IO). (CPG: 4/5/6.2.6, 6.4.30).
Indications	Management, prevention and treatment of nausea & vomiting.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** 50 mg slow IV/IO. **Paediatric:** Not indicated
Pharmacology/Action	Anti-emetic.
Side effects	Tachycardia. Dry Mouth. Sedation.
Additional information	IM route should only be utilised where IV or IO access is not available.

CLINICAL LEVEL: P AP

MEDICATION	DEXTROSE 10% SOLUTION
Class	Carbohydrate.
Descriptions	Dextrose is used to describe the six-carbon sugar d-glucose, which is the principal form of carbohydrate used by the body. $D_{10}W$ is a hypertonic solution.
Presentation	Soft pack for infusion 250 mL and 500 mL.
Administration	Intravenous (IV) infusion/bolus. Intraosseous (IO). Paramedic: maintain infusion once commenced. (CPG: 5/6.4.19, 5/6.7.9)
Indications	Hypoglycaemic emergency. Blood glucose level < 4 mmol/L.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** 250 mL IV/IO infusion. Repeat x 1 prn. **Paediatric:** 5 mL/Kg IV/IO. Repeat X 1 prn.
Pharmacology/Action	Hypertonic glucose solution. Dextrose is a readily utilisable energy source.
Side effects	Necrosis of tissue around IV access.
Additional information	Also called Glucose. Cannula patency will reduce the effect of tissue necrosis.

CLINICAL LEVEL: AP

MEDICATION	DIAZEPAM INJECTION
Class	Benzodiazepine.
Descriptions	It is a benzodiazepine that is used to terminate seizures.
Presentation	10 mg in 2 mL ampoule.
Administration	Intravenous (IV). Intraosseous (IO). (CPG: 5/6.4.20, 5/6.7.10).
Indications	Seizure.
Contra-Indications	Known severe adverse reaction. Respiratory depression. Shock Depressed vital signs or alcohol related altered level of consciousness
Usual Dosages	**Adult:** 5 mg IV/IO. Repeat prn to Max 10 mg. **Paediatric:** 0.1 mg/Kg IV/IO. Repeat prn to Max 0.4 mg/Kg or 10 mg which ever is least.
Pharmacology/Action	Benzodiazepine sedative Inhibits the firing of hyperexcitable neurones through enhancement of the action of the inhibitory transmitter, GABA. This results in CNS depressant, anticonvulsant, sedative and skeletal muscle relaxant effects.
Side effects Long term side effects	Hypotension. Respiratory depression. Drowsiness and light-headedness (the next day). Confusion and ataxia (especially in the elderly), amnesia, dependence, paradoxical increase in aggression and muscle weakness.
Additional information	Diazepam IV should be titrated to effect. The maximum dose of Diazepam includes that administered by caregiver prior to arrival of Practitioner

CLINICAL LEVEL: AP

MEDICATION	DIAZEPAM RECTAL SOLUTION
Class	Benzodiazepine.
Descriptions	It is a benzodiazepine that is used to terminate seizures.
Presentation	Rectal tube. Available as: 2.5 mg/1.25 mL (2 mg/mL) 5 mg/ 2.5 mL (2 mg/mL) 10 mg/ 2.5 mL (4 mg/mL)
Administration	Per Rectum (PR). **(CPG:** 5/6.4.20, 5/6.7.10).
Indications	Seizure.
Contra-Indications	Known severe adverse reaction. Respiratory depression. Shock Depressed vital signs or alcohol related altered level of consciousness
Usual Dosages	**Adult:** 10 mg PR. Repeat X 1 after 5 minutes if indicated. Max 20 mg PR. **Paediatric:** < 3 years: 2.5 mg PR. 3 to 7 years: 5 mg PR. ≥ 8 years: 10 mg PR. Repeat all x 1 after 5 mins if seizure persists or reoccurs.
Pharmacology/ Action	Benzodiazepine sedative Inhibits the firing of hyperexcitable neurones through enhancement of the action of the inhibitory transmitter, GABA. This results in CNS depressant, anticonvulsant, sedative and skeletal muscle relaxant effects.
Side effects Long term side effects	Hypotension. Respiratory depression. Drowsiness and light-headedness (the next day). Confusion and ataxia (especially in the elderly), amnesia, dependence, paradoxical increase in aggression and muscle weakness.
Additional information	Be aware of modesty of patient. Should be administered in the presence of a 2nd person. Egg and soya proteins are used in the manufacture of diazepam rectal solution, allergies to these proteins may be encountered. The maximum dose of Diazepam includes that administered by caregiver prior to arrival of Practitioner

CLINICAL LEVEL: AP

MEDICATION	ENOXAPARIN SODIUM SOLUTION
Class	Anticoagulant.
Descriptions	Enoxaparin is a Low Molecular Weight Heparin used in conjunction with a thrombolytic agent for the treatment of STEMI.
Presentation	Pre filled Syringes (100 mg/mL).
Administration	Intravenous (IV). **(CPG:** 5/6.4.16).
Indications	Acute ST-segment Elevation Myocardial Infarction (STEMI) immediately following the administration of a thrombolytic agent.
Contra-Indications	Active major bleeding disorders and conditions with a high risk of uncontrolled haemorrhage, including recent hemorrhagic stroke or subdural haematoma; in jaundice; active gastric or duodenal ulceration; hiatal ulceration; threatened abortion, or retinopathy. Hypersensitivity to Enoxaparin or other Low Molecular Weight Heparins. Known severe adverse reaction.
Usual Dosages	**Adult:** 30 mg IV bolus. **Paediatric:** Not indicated.
Pharmacology/Action	It binds to the natural inhibitor of coagulation, antithrombin III and makes certain clotting factors inactive. This results in an increase in the clotting time.
Side effects	Pain, haematoma and mild local irritation may follow the subcutaneous injection.
Additional information	Do not store above 25°C. Do not refrigerate or freeze. **Medical Practitioners:** Due to the significant increased risk of intra-cerebral bleed for patients aged > 75 years **do not** administer IV Enoxaparin. Enoxaparin 0.75 mg/kg SC (Max 75 mg SC) is the recommended dose and route.

CLINICAL LEVEL: AP

MEDICATION	EPINEPHRINE (1:10 000)
Class	Sympathetic agonist.
Descriptions	Naturally occurring catecholamine. It is a potent alpha and beta adrenergic stimulant; however, its effect on beta-receptors is more profound.
Presentation	Pre-filled syringe. 1 mg/10 mL (1:10 000) as 0.1 mg/mL.
Administration	Intravenous (IV). Intraosseous (IO). (CPG: 4/5/6.4.3, 4/5/6.4.7, 4/5/6.4.8, 4/5/6.4.9, 5/6.4.10, 4/5/6.4.11, 4/5/6.4.12, 5/6.5.2).
Indications	Cardiac arrest. Paediatric bradycardia unresponsive to other measures.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** Cardiac arrest: 1 mg (1:10 000) IV/IO. Repeat every 3-5 mins. **Paediatric:** Cardiac arrest: 0.01 mg/Kg (10 mcg/Kg) (0.1 mL/Kg of 1:10 000) IV/IO. Repeat every 3-5 mins. Bradycardia: 0.01 mg/Kg (10 mcg/Kg) (0.1 mL/Kg of 1:10 000) IV/IO. Repeat every 3-5 mins.
Pharmacology/ Action	Alpha and beta adrenergic stimulant Increases heart rate – Chronotropic effect. Increases myocardial contractions – Inotropic effect. Increases B/P. Increases electrical activity in the myocardium. Increases cerebral & coronary blood flow. Dilation of bronchioles.
Side effects	In non cardiac arrest patients - Palpitations - Tachyarrhythmias - Hypertension
Additional Information	N.B. Double check concentrations on pack before use.

CLINICAL LEVEL: EMT P AP

MEDICATION	EPINEPHRINE (1:1 000)
Class	Sympathetic agonist.
Descriptions	Naturally occurring catecholamine. It is a potent alpha and beta adrenergic stimulant; however, its effect on beta receptors is more profound.
Presentation	Pre-filled syringe, ampoule or auto injector (for EMT use). 1 mg/1 mL (1:1 000).
Administration	Intramuscular (IM). (CPG: 5/6.4.18, 5/6.7.8, 4.4.18, 4.7.8).
Indications	Severe anaphylaxis.
Contra-Indications	None known.
Usual Dosages	**Adult:** 0.5 mg (500 mcg) IM (0.5 mL of 1: 1 000). EMT use auto injector (0.3 mg). Repeat every 5 minutes if indicated. **Paediatric:** < 6 months: 0.05 mg (50 mcg) IM (0.05 mL of 1:1 000). 6 months to 5 years: 0.125 mg (125 mcg) IM (0.13 mL of 1:1 000) . 6 to 8 years: 0.25 mg (250 mcg) IM (0.25 mL of 1:1 000). >8 years: 0.5 mg (500 mcg) IM (0.5 mL of 1:1 000). **EMT:** for 6 months <10 years use EpiPen® Jr (0.15 mg). for ≥ 10 years use auto injector (0.3 mg). Repeat every 5 minutes if indicated.
Pharmacology/Action	Alpha and beta adrenergic stimulant. Reversal of laryngeal oedema & bronchospasm in anaphylaxis. Antagonises the effects of histamine.
Side effects	Palpitations. Tachyarrhythmias. Hypertension. Angina like symptoms.
Additional information	N.B. Double check the concentration on pack before use.

CLINICAL LEVEL: AP

MEDICATION	FUROSEMIDE INJECTION
Class	Diuretic.
Descriptions	A loop diuretic.
Presentation	10 mg per mL. 2 mL, 5 mL and 25 mL per ampoule.
Administration	Intravenous (IV). (CPG: 5/6.3.2).
Indications	Pulmonary oedema.
Contra-Indications	Pregnancy, hypokalaemia. Known severe adverse reaction.
Usual Dosages	**Adult:** 40 mg IV. **Paediatric:** Not indicated.
Pharmacology/Action	Acts on the ascending loop of Henle by inhibiting the reabsorption of chloride and sodium ions into the interstitial fluid. This results in a relative hypertonic state. Water is therefore retained in the loop and eliminated via the bladder. It also causes venodilation which reduces venous return to the heart.
Side effects	Headache, dizziness, hypotension, arrhythmias, transient deafness, diarrhoea, nausea & vomiting.
Long term side effects	Hyperuricaemia, gout, hypokalaemia and hyperglycaemia
Additional information	Furosemide should be protected from light.

CLINICAL LEVEL: EMT P AP

MEDICATION	GLUCAGON
Class	Hormone and Antihypoglycaemic.
Descriptions	Glucagon is a protein secreted by the alpha cells of the Islets of Langerhans in the pancreas. It is used to increase the blood glucose level in cases of hypoglycaemia in which an IV cannot be immediately placed.
Presentation	1 mg vial powder and solution for reconstitution (1 mL).
Administration	Intramuscular (IM). (CPG: 5/6.4.19, 5/6.7.9, 4.4.19, 4.7.9).
Indications	Hypoglycaemia in patients unable to take oral glucose or unable to gain IV access with a blood glucose level < 4 mmol/L.
Contra-Indications	Known severe adverse reaction. Phaeochromocytoma.
Usual Dosages	**Adult:** 1 mg IM. **Paediatric:** ≤ 8 years: 0.5 mg (500 mcg) IM. >8 years: 1 mg IM.
Pharmacology/Action	Glycogenolysis. Increases plasma glucose by mobilising glycogen stored in the liver.
Side effects	Rare, may cause hypotension, dizziness, headache, nausea & vomiting.
Additional information	May be ineffective in patients with low stored glycogen e.g. prior use in previous 24 hours, alcoholic patients with liver disease. Protect from light.

CLINICAL LEVEL: EFR EMT P AP

MEDICATION	GLUCOSE GEL
Class	Antihypoglycaemic.
Descriptions	Synthetic glucose paste.
Presentation	Glucose gel in a tube or sachet.
Administration	Buccal administration: Administer gel to the inside of the patient's cheek and gently massage the outside of the cheek. (CPG: 5/6.4.19, 5/6.7.9, 4.4.19, 4.7.9, 2/3.4.19).
Indications	Hypoglycaemia. Blood glucose < 4 mmol/L. EFR – Known diabetic with confusion or altered levels of consciousness.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** 10 – 20 g buccal. Repeat prn. **Paediatric:** ≤ 8 years: 5 – 10 g buccal. >8 years: 10 – 20 g buccal. Repeat prn.
Pharmacology/Action	Increases blood glucose levels.
Side effects	May cause vomiting in patients under the age of five if administered too quickly.
Additional information	Glucose gel will maintain glucose levels once raised but should be used secondary to Dextrose or Glucagon to reverse hypoglycaemia. Proceed with caution: - patients with airway compromise. - altered level of consciousness.

CLINICAL LEVEL: EFR EMT P AP

MEDICATION	GLYCERYL TRINITRATE (GTN)
Class	Nitrate.
Descriptions	Special preparation of Glyceryl trinitrate in an aerosol form that delivers precisely 0.4 mg of Glyceryl trinitrate per spray.
Presentation	Aerosol spray: metered dose 0.4 mg (400 mcg).
Administration	Sublingual (SL): Hold the pump spray vertically with the valve head uppermost. Place as close to the mouth as possible and spray under the tongue. The mouth should be closed after each dose. (CPG: 5/6.3.2, 5/6.4.16, 4.4.16, 1/2/3.4.16).
Indications	Angina. Suspected Myocardial Infarction (MI). EFRs may assist with administration. Advanced Paramedic and Paramedic - Pulmonary oedema.
Contra-Indications	SBP < 90 mmHg. Viagra or other phosphodiesterase type 5 inhibitors (Sildenafil, Tadalafil and Vardenafil) used within previous 24 hours. Known severe adverse reaction.
Usual Dosages	**Adult:** Angina or MI: 0.4 mg (400 mcg) Sublingual. Repeat at 3-5 min intervals, Max 1.2 mg. EFRs: 0.4 mg sublingual max. Pulmonary oedema: 0.8 mg (800 mcg) sublingual. Repeat x 1. **Paediatric:** Not indicated.
Pharmacology/ Action	Vasodilator. Releases nitric oxide which acts as a vasodilator. Dilates coronary arteries particularly if in spasm increasing blood flow to myocardium. Dilates systemic veins reducing venous return to the heart (pre load) and thus reduces the heart workload. Reduces BP.
Side effects	Headache. Transient Hypotension. Flushing. Dizziness.
Additional information	If the pump is new or it has not been used for a week or more the first spray should be released into the air.

CLINICAL LEVEL: P AP

MEDICATION	HARTMANN'S SOLUTION
Class	Isotonic crystalloid solution.
Descriptions	Hartmann's solution is an isotonic crystalloid solution containing Sodium chloride 0.6%, Sodium lactate 0.25%, Potassium chloride 0.04%, Calcium chloride 0.027%.
Presentation	500 mL & 1000 mL. Soft pack for infusion.
Administration	Intravenous (IV) infusion. Intraosseous (IO) infusion. **Paramedic:** maintain infusion once commenced. (CPG: 5/6.4.18, 5/6.4.21, 4/5/6.4.26, 5/6.6.2, 5/6.7.8, 5/6.7.12, 5/6.7.13).
Indications	When NaCl is unavailable it may be substituted with Hartmann's Solution IV/IO, except for crush injuries, burns, renal failure and hyperglycaemia.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** *Anaphylaxis:* 1000 mL IV/IO infusion, repeat x one *Decompression illness:* 500 mL IV/IO infusion. *Shock:* 500 mL IV/IO infusion. Repeat in aliquots of 250 mL prn to maintain systolic BP of: - 100 mmHg (hypovolaemia or septic). - 90 – 100 mmHg (head injury GCS > 8) - 120 mmHg (head injury GCS ≤ 8) **Paediatric:** *Anaphylaxis:* 20 mL/Kg IV/IO infusion, repeat x one *Haemorrhagic shock:* 10 mL/Kg IV/IO, repeat prn if signs of inadequate perfusion.
Pharmacology/ Action	Increases extracellular volume.
Side effects	If administered in large amounts may cause oedema.
Additional information	Observe caution with patients with history of heart failure Also called: Sodium Lactate Intravenous Solution or Compound Ringer Lactate Solution for Injection Warm fluids prior to administration if possible.

CLINICAL LEVEL: AP

MEDICATION	HYDROCORTISONE
Class	Corticosteroid and anti-inflammatory
Descriptions	Hydrocortisone is a potent corticosteroid with anti-inflammatory properties.
Presentation	Powder and solvent for solution for injection or infusion. Vial containing off-white powder and vial containing water for injections. Prepare the solution aseptically by adding not more than 2 mL of Sterile Water for Injections to the contents of one 100 mg vial, shake and withdraw for use.
Administration	Intravenous (IV) infusion. Intramuscular (IM). The preferred route for initial emergency use is intravenous. (CPG: 5/6.3.3, 5/6.4.18, 5/6.7.8)
Indications	Severe or recurrent anaphylactic reactions Patients with asthma following an anaphylactic reaction Exacerbation of COPD
Contra-Indications	No major contraindications in acute management of anaphylaxis.
Usual Dosages	**Adult:** 200 mg IM or slow IV (over 1 to 10 minutes) **Paediatric:** < 1 year 25 mg IM or slow IV (over 1 to 10 minutes) 1 to 5 years 50 mg IM or slow IV (over 1 to 10 minutes) 6 to 12 years 100 mg IM or slow IV (over 1 to 10 minutes) >12 years 130 mg IM or slow IV (over 1 to 10 minutes)
Pharmacology/ Action	Potent anti-inflammatory properties and inhibit many substances that cause inflammation. The half life is 90 minutes.
Side effects	CCF, hypertension, abdominal distension, vertigo, headache, nausea, malaise and hiccups.
Long term side effects	Adrenal cortical atrophy develops during prolonged therapy and may persist for months after stopping treatment.
Additional information	Intramuscular injection should avoid the deltoid area because of the possibility of tissue atrophy. Dosage should not be less than 25 mg

CLINICAL LEVEL: P AP

MEDICATION	IBUPROFEN
Class	Non-Steroidal Anti-Inflammatory Drugs (NSAIDs).
Descriptions	It is used to reduce mild to moderate pain.
Presentation	Suspension 100 mg in 5 mL. 200 mg tablet.
Administration	Orally (PO). (CPG: 4/5/6.2.6, 4/5/6.7.14).
Indications	Mild to moderate pain.
Contra-Indications	Not suitable for children under 3 months. Patient with history of asthma exacerbated by aspirin. Pregnancy. Peptic ulcer disease. Known severe adverse reaction.
Usual Dosages	**Adult:** 400 mg PO. **Paediatric:** 10 mg/Kg PO.
Pharmacology/Action	Suppresses prostaglandins, which cause pain via its inhibition of cyclooxygenase (COX). Prostaglandins are released by cell damage and inflammation.
Side effects Long term side effects	Skin rashes, gastrointestinal intolerance and bleeding. Occasionally gastrointestinal bleeding and ulceration occurs. May also cause acute renal failure, interstitial nephritis and nephritic syndrome.
Additional information	If Ibuprofen administered in previous 6 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 10 mg/Kg.

CLINICAL LEVEL: AP

MEDICATION	IPRATROPIUM BROMIDE
Class	Anticholinergic.
Descriptions	It is a parasympatholytic bronchodilator that is chemically related to atropine.
Presentation	0.25 mg (250 micrograms) in 1 mL Nebuliser Solution.
Administration	Nebulised (NEB) mixed with age specific dose of Salbutamol. (CPG: 5/6.3.2, 5/6.7.5).
Indications	Acute severe asthma not responding to initial Salbutamol dose.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** 0.5 mg NEB. **Paediatric:** 0.25 mg NEB.
Pharmacology/Action	It blocks muscarinic receptors associated with parasympathetic stimulation of the bronchial air passageways. This results in bronchial dilation and reduced bronchial secretions.
Side effects	Transient dry mouth, blurred vision, tachycardia and headache.
Additional information	

CLINICAL LEVEL: AP

MEDICATION	LIDOCAINE
Class	Antiarrhythmic.
Descriptions	Ventricular antiarrhythmic agent.
Presentation	Lidocaine Injection Mini jet 1% w/v 100 mg per 10 mL.
Administration	Intravenous (IV). Intraosseous (IO). (CPG: 4/5/6.4.7).
Indications	When Amiodarone is unavailable it may be substituted with Lidocaine.
Contra-Indications	No contraindications for cardiac arrest.
Usual Dosages	**Adult:** 1 – 1.5 mg/Kg IV. Max 3 mg/Kg. **Paediatric:** Not indicated.
Pharmacology/Action	Reduces automaticity by decreasing the rate of diastolic depolarisation. Stabilises the neuronal membrane and prevents the initiation and transmission of nerve impulses, action is rapid and blockade may last up to 2 hours.
Side effects	Drowsiness, dizziness, twitching, paraesthesia, convulsions, Bradycardia. Respiratory depression.
Additional information	Lidocaine may not be administered if Amiodarone has been administered.

CLINICAL LEVEL: AP

MEDICATION	LORAZEPAM
Class	Benzodiazepine.
Descriptions	It is an anxiolytic used as a sedative.
Presentation	1 mg tablet.
Administration	Orally (PO). (CPG: 6.4.29)
Indications	Combative with hallucinations or paranoia & risk to self or others.
Contra-Indications	History of sensitivity to benzodiazepines. Severe hepatic or pulmonary insufficiency. Suspected significant alcohol and or sedatives ingested. Known severe adverse reaction.
Usual Dosages	**Adults:** 2 mg PO. **Paediatric:** Not indicated.
Pharmacology/Action	Acts on CNS receptors to potentiate the inhibitory action of GABA.
Side effects	Drowsiness, confusion headache, dizziness, blurred vision & nausea/vomiting. On rare occasions – hypotension, hypertension.
Additional information	

CLINICAL LEVEL: AP

MEDICATION	MAGNESIUM SULPHATE INJECTION
Class	Electrolyte and Tocolytic agent.
Descriptions	It is a salt that is an essential element in numerous biochemical reactions that occur within the body.
Presentation	5 g in 10 mL ampoule.
Administration	Intravenous (IV). Intraosseous (IO). (CPG: 5/6.3.2, 4/5/6.4.7).
Indications	Torsades de pointes. Persistent bronchospasm.
Contra-Indications	None in cardiac arrest. Known severe adverse reaction.
Usual Dosages	**Adults:** Torsades de pointes: 2 g IV/IO infusion over 15 minutes. Persistent bronchospasm: 1.5 g IV/IO infusion over 20 minutes. **Paediatric:** Not indicated.
Pharmacology/Action	It acts as a physiological calcium channel blocker and blocks neuromuscular transmission.
Side effects	Decreased deep tendon reflexes, respiratory depression, bradycardia and hypothermia
Additional information	Dilute in 100 mL NaCl for infusion.

CLINICAL LEVEL: P AP

MEDICATION	MIDAZOLAM SOLUTION
Class	Benzodiazepine.
Descriptions	It is a potent sedative agent. Clinical experience has shown Midazolam to be 3 to 4 times more potent per mg as Diazepam.
Presentation	10 mg in 2 mL ampoule or 10 mg in 5 mL ampoule. Buccal liquid 50 mg in 5 mL or 10 mg in 1 mL pre-filled syringe.
Administration	Intravenous (IV). Intraosseous (IO). Intramuscular (IM). Buccal. Intranasal (IN) (50% in each nostril). (CPG: 5/6.4.20, 6.4.23, 6.4.29, 5/6.7.10).
Indications	Seizures. Psychostimulant overdose. Hallucinations or paranoia.
Contra-Indications	Shock. Depressed vital signs or alcohol related altered level of consciousness. Known severe adverse reaction. Respiratory depression.
Usual Dosages	**Adults:** *Seizure:* 2.5 mg IV or 5 mg IM or 10 mg buccal or 5 mg intranasal (Repeat x 1 prn). Paramedic: IM, buccal or IN only. *Psychostimulant overdose:* 2.5 mg IV or 5 mg IM (Repeat x 2 prn). (AP only) *Hallucinations or paranoia:* 5 mg IV/IM. (AP only) **Paediatric:** *Seizure:* 0.5 mg/Kg buccal or 0.2 mg/Kg intranasal or 0.1 mg/Kg IV/IO (Repeat x 1 prn). Paramedic: buccal or IN only
Pharmacology/Action	It affects the activity of a chemical that transmits impulses across nerve synapses called Gamma-AminoButyric Acid (GABA). GABA is an inhibitory neurotransmitter. Midazolam works by increasing the effects of GABA at these receptors.
Side effects	Respiratory depression, headache, hypotension & drowsiness.
Additional information	Midazolam IV should be titrated to effect. Ensure oxygen and resuscitation equipment are available prior to administration. The maximum dose of Midazolam includes that administered by caregiver prior to arrival of Practitioner.

CLINICAL LEVEL: AP

MEDICATION	MORPHINE
Class	Narcotic analgesic.
Descriptions	CNS depressant and a potent analgesic with haemodynamic properties that make it extremely useful in emergency medicine.
Presentation	Ampoule 10 mg in 1 mL (dilute in 9 mL of NaCl). Suspension (10 mg/5 ml).
Administration	Intravenous (IV). Intraosseous (IO). Orally (PO). Intramuscular (IM). (CPG: 4/5/6.2.6, 4/5/6.7.14)
Indications	**Adult:** Severe pain (≥ 5 on pain scale). **Paediatric:** Severe pain (≥ 6 on pain scale).
Contra-Indications	PO < 1 year old Known severe adverse reaction. Brain Injury. Labour pains. Acute respiratory depression. Acute alcoholism. Systolic BP < 90 mmHg. Migraine.
Usual Dosages	**Adult:** 2 mg IV/IO. Repeat at not < 2 minute intervals if indicated to Max 10 mg. For musculoskeletal pain Max 16 mg. Up to 10 mg IM (if not cardiac chest pain and no IV access). **Paediatric:** 0.3 mg/Kg (300 mcg/Kg) PO (Max 10 mg). 0.05 mg/Kg (50 mcg/Kg) IV/IO. Repeat at not < 2 min prn to Max of 0.1 mg/Kg IV/IO
Pharmacology/ Action	**Opiate Analgesic** Acts on Central Nervous System to reduce pain & anxiety Vasodilatation resulting in reduced pre-load to myocardium.
Side effects	Respiratory depression, Drowsiness, Nausea & vomiting, Constipation.
Long term side effects	Long term use may lead to dependence.
Additional information	Use with extreme caution particularly with elderly/young. Caution with acute respiratory distress. N.B. Controlled under Misuse of Drugs Act (1977, 1984)

CLINICAL LEVEL: P AP

MEDICATION	NALOXONE
Class	Narcotic antagonist.
Descriptions	Effective in management and reversal of overdoses caused by narcotics or synthetic narcotic agents.
Presentation	Ampoules 0.4 mg in 1 mL (400 mcg /1 mL) or pre-loaded syringe.
Administration	Intravenous (IV). Intramuscular (IM). Subcutaneous (SC). Intraosseous (IO). (CPG: 5/6.3.2, 5/6.5.2, 5/6.7.5).
Indications	Respiratory rate < 10 secondary to known or suspected narcotic overdose.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** 0.4 mg (400 mcg) IV/IO/IM or SC. Repeat after 3 min if indicated to a Max 2 mg. (Paramedic repeat by one prn). **Paediatric:** 0.01 mg/Kg (10 mcg/Kg) IV/IO/IM or SC. Repeat dose prn to maintain opioid reversal to Max 0.1 mg/Kg or 2 mg. (Paramedic repeat by one prn).
Pharmacology/Action	**Narcotic antagonist.** Reverse the respiratory depression and analgesic effect of narcotics.
Side effects	Acute reversal of narcotic effect ranging from nausea & vomiting to agitation and seizures.
Additional information	Use with caution in pregnancy. Administer with caution to patients who have taken large dose of narcotics or are physically dependent. Rapid reversal will precipitate acute withdrawal syndrome. Prepare to deal with aggressive patients.

CLINICAL LEVEL: AP

MEDICATION	NIFEDIPINE
Class	Tocolytic agent and calcium channel blocker
Descriptions	Dihydropyridine calcium channel blocker
Presentation	20 mg tablet.
Administration	Orally (PO). **(CPG:** 5/6.5.5).
Indications	Prolapsed cord.
Contra-Indications	Hypotension. Known severe adverse reaction.
Usual Dosages	**Adults:** 20 mg PO. **Paediatric:** Not indicated.
Pharmacology/Action	Inhibits muscle contraction by interfering with the movement of calcium ions through the slow channels of active cell membrane.
Side effects	Hypotension. Headache. Bradycardia. Nausea & vomiting.
Additional information	Close monitoring of maternal pulse & BP is required and continuous foetal monitoring should be carried out if possible.

CLINICAL LEVEL: EMT P AP

MEDICATION	NITROUS OXIDE 50% AND OXYGEN 50% (ENTONOX®)
Class	Analgesic.
Descriptions	Potent analgesic gas contains a mixture of both nitrous oxide and oxygen.
Presentation	Cylinder, coloured blue with white and blue triangles on cylinder shoulders. Medical gas: 50% Nitrous Oxide & 50% Oxygen.
Administration	Self administered. Inhalation by demand valve with face-mask or mouthpiece. (CPG: 4/5/6.2.6, 4/5/6.7.14, 5/6.5.1, 5/6.5.6, 4.5.1).
Indications	Pain relief.
Contra-Indications	Altered level of consciousness. Chest Injury/Pneumothorax. Shock. Recent scuba dive. Decompression sickness. Intestinal obstruction. Inhalation Injury. Carbon monoxide (CO) poisoning. Known severe adverse reaction.
Usual Dosages	**Adult:** Self-administered until pain relieved. **Paediatric:** Self-administered until pain relieved.
Pharmacology/Action	Analgesic agent gas: - CNS depressant. - pain relief.
Side effects	Disinhibition. Decreased level of consciousness. Light headedness.
Additional information	Do not use if patient unable to understand instructions. In cold temperatures warm cylinder and invert to ensure mix of gases. Advanced Paramedics may use discretion with minor chest injuries. Brand name: Entonox®. Has an addictive property.

CLINICAL LEVEL: AP

MEDICATION	ONDANSETRON
Class	Anti-emetic.
Descriptions	Used in management of nausea & vomiting. Potent, highly selective 5 HT3 receptor-antagonists.
Presentation	Ampoule 2 mL (4 mg in 2 mL).
Administration	Intravenous (IV). (CPG: 4/5/6.2.6, 6.4.30, 4/5/6.7.14).
Indications	Management, prevention and treatment of nausea & vomiting
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** 4 mg slow IV. **Paediatric:** 0.1 mg/Kg IV slowly to a Max of 4 mg.
Pharmacology/Action	Precise mode of action in the control of nausea & vomiting is not known.
Side effects	Headache. Sensation of warmth. Flushing. Hiccups.
Additional information	

CLINICAL LEVEL: CFR - A | EFR | EMT | P | AP

MEDICATION	OXYGEN
Class	Gas.
Descriptions	Odourless, tasteless, colourless gas necessary for life.
Presentation	D, E or F cylinders, coloured black with white shoulders. CD cylinder; white cylinder. Medical gas.
Administration	Inhalation via: - high concentration reservoir (non-rebreather) mask - simple face mask - venturi mask - tracheostomy mask - nasal cannulae - Bag Valve Mask (CPG: Oxygen is used extensively throughout the CPGs)
Indications	Absent/inadequate ventilation following an acute medical or traumatic event. SpO_2 < 94% adults and < 96% paediatrics. SpO_2 < 92% for patients with acute exacerbation of COPD.
Contra-Indications	Paraquat poisoning & Bleomycin lung injury.
Usual Dosages	**Adult:** Cardiac and respiratory arrest: 100%. Life threats identified during primary survey: 100% until a reliable SpO_2 measurement obtained then titrate O_2 to achieve SpO_2 of 94% - 98%. For patients with acute exacerbation of COPD, administer O_2 titrate to achieve SpO_2 92% or as specified on COPD Oxygen Alert Card. All other acute medical and trauma titrate O_2 to achieve SpO_2 94% -98%. **Paediatric:** Cardiac and respiratory arrest: 100%. Life threats identified during primary survey; 100% until a reliable SpO_2 measurement obtained then titrate O_2 to achieve SpO_2 of 96% - 98%. All other acute medical and trauma titrate O_2 to achieve SpO_2 of 96% - 98%.
Pharmacology/ Action	Oxygenation of tissue/organs.
Side effects	Prolonged use of O_2 with chronic COPD patients may lead to reduction in ventilation stimulus.
Additional information	A written record must be made of what oxygen therapy is given to every patient. Documentation recording oximetry measurements should state whether the patient is breathing air or a specified dose of supplemental oxygen. Consider humidifier if oxygen therapy for paediatric patients is >30 minute duration. Avoid naked flames, powerful oxidising agent.

CLINICAL LEVEL: EMT P AP

MEDICATION	PARACETAMOL
Class	Analgesic and antipyretic.
Descriptions	Paracetamol is used to reduce pain and body temperature.
Presentation	Rectal suppository 180 mg and 60 mg. Suspension 120 mg in 5 mL. 500 mg tablet.
Administration	Per Rectum (PR). Orally (PO). (CPG: 4/5/6.2.6, 5/6.7.10, 4/5/6.7.14, 4.7.10).
Indications	Pyrexia following seizure for paediatric patients. **Advanced Paramedics** may administer Paracetamol, in the absence of a seizure for the current episode, provided the paediatric patient is pyrexial and has a previous history of febrile convulsions. Minor or moderate pain for adult and paediatric patients.
Contra-Indications	Known severe adverse reaction. Chronic liver disease.
Usual Dosages	**Adult:** 1 g PO. **Paediatric:** **PR** (AP Only) < 1 year - 60 mg PR. 1-3 years - 180 mg PR. 4-8 years - 360 mg PR. **PO** 20 mg/Kg PO.
Pharmacology/Action	Analgesic – central prostaglandin inhibitor. Antipyretic – prevents the hypothalamus from synthesising prostaglandin E, inhibiting the body temperature from rising further.
Side effects	None.
Long term side effects	Long term use at high dosage or over dosage can cause liver damage and less frequently renal damage.
Additional information	Note: Paracetamol is contained in Paracetamol Suspension and other over the counter drugs. Consult with parent/guardian in relation to medication prior to arrival on scene. For PR use be aware of modesty of patient, should be administered in presence of a 2nd person. If Paracetamol administered in previous 4 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 20 mg/Kg.

CLINICAL LEVEL: EFR EMT P AP

MEDICATION	SALBUTAMOL
Class	Sympathetic agonist.
Descriptions	Sympathomimetic that is selective for beta-2 adrenergic receptors.
Presentation	Nebule 2.5 mg in 2.5 mL. Nebule 5 mg in 2.5 mL. Aerosol inhaler: metered dose 0.1 mg (100 mcg).
Administration	**Nebuliser (NEB).** Inhalation via aerosol inhaler. Advanced Paramedics may repeat Salbutamol x 3. (CPG: 5/6.3.2, 5/6.3.3, 5/6.4.18, 4/5/6.6.7, 5/6.7.5, 5/6.7.8, 4.3.2, 4.4.18, 4.7.5, 4.7.8, 3.3.2, 3.7.5).
Indications	Bronchospasm. Exacerbation of COPD. Respiratory distress following submersion incident.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** 5 mg NEB. Repeat at 5 min prn (APs x 3 and Ps x 1). (EMTs & EFRs: 0.1 mg metered aerosol spray x 2). **Paediatric:** < 5 yrs - 2.5 mg NEB. ≥ 5 yrs - 5 mg NEB. Repeat at 5 min prn (APs x 3 and Ps x 1). (EMTs & EFRs: 0.1 mg metered aerosol spray x 2).
Pharmacology/Action	Beta 2 agonist . Bronchodilation. Relaxation of smooth muscle.
Side effects	Tachycardia. Tremors. Tachyarrhythmias.
Long term side effects	High doses may cause hypokalaemia.
Additional information	It is more efficient to use a volumizer in conjunction with an aerosol inhaler when administering Salbutamol. If an oxygen driven nebuliser is used to administer Salbutamol for a patient with acute exacerbation of COPD it should be limited to 6 minutes maximum.

CLINICAL LEVEL: AP

MEDICATION	SODIUM BICARBONATE INJECTION BP
Class	Alkalinizing agent.
Descriptions	A salt that is an alkalinizing agent and electrolyte supplement.
Presentation	Glass vial 8.4% in 50 mL.
Administration	Intravenous (IV). (CPG: 4/5/6.4.7, 5/6.4.10, 4/5/6.4.11, 6.4.23).
Indications	Wide complex QRS arrhythmias and or seizures following Tricyclic (TCA) overdose. Cardiac arrest folowing Tricyclic overdose.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** 1 mEq/Kg (1mL/Kg 8.4% solution). **Paediatric:** Not indicated.
Pharmacology/Action	TCA excretion from the body is enhanced by making the urine more alkaline (raising the pH).
Side effects	Nil when used for emergencies.
Additional information	

CLINICAL LEVEL: P AP

MEDICATION	SODIUM CHLORIDE 0.9% (NaCl)
Class	Isotonic crystalloid solution.
Descriptions	Solution of sodium and chloride, also known as normal saline (NaCl).
Presentation	100 mL, 500 mL & 1000 mL soft pack for infusion. 10 mL ampoules.
Administration	Intravenous (IV) infusion, Intravenous (IV) flush, Intraosseous (IO). **Paramedic:** maintain infusion once commenced. (CPG: 4/5/6.4.7, 4/5/6.4.9, 5/6.4.10, 4/5/6.4.11, 4/5/6.4.12, 5/6.4.14, 5/6.4.18, 5/6.4.19, 5/6.4.21, 6.4.24, 4/5/6.4.26, 5/6.5.2, 5/6.6.2, 4/5/6.6.4, 5/6.6.8, 5/6.7.8, 5/6.7.9, 5/6.7.12, 5/6.7.13, 4/5/6.7.16, 5/6.7.17).
Indications	IV/IO fluid for pre-hospital emergency care.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	**Adult:** *Anaphylaxis:* 1000 mL IV/IO infusion, repeat x one. *Burns* > 10% TBSA consider 500 mL IV/IO infusion. > 25% TBSA and or 1 hour from time of injury to ED, 1000 mL IV/IO infusion. *Crush injury:* 20 mL/Kg IV/IO infusion. *Decompression illness:* 500 mL IV/IO infusion. *Glycaemic emergency:* 1000 mL IV/IO infusion. *Hypothermia:* 250 mL IV/IO infusion (warmed to 40°C approx) max 1 L. Keep vein open (KVO) or medication flush for cardiac arrest prn. *Post-resuscitation care:* 500 mL IV/IO infusion (at 4°C approx). If persistent hypotensive maintain Sys BP > 90 mmHg. *Shock:* 500 mL IV/IO infusion. Repeat in aliquots of 250 mL prn to maintain systolic BP of: - 100 mmHg (hypovolaemia or septic). - 90 – 100 mmHg (head injury GCS > 8). - 120 mmHg (head injury GCS ≤ 8). Cardiac Arrest: 20 mg/Kg IV **Paediatric:** *Anaphylaxis:* 20 mL/Kg IV/IO bolus, repeat x one. *Burns* > 10% TBSA and or 1 hour from time of injury to ED: 5 ≤ 10 years: 250 mL IV/IO, >10 years: 500 mL IV/IO. *Crush injury:* 20 mL/Kg IV/IO bolus. *Glycaemic emergency:* 20 mL/Kg IV/IO bolus. *Haemorrhagic shock:* 10 mL/Kg IV/IO, repeat prn if signs of inadequate perfusion. *Hypothermia:* 20 mL/Kg IV/IO infusion (warmed to 40°C approx). Keep vein open (KVO) or medication flush for cardiac arrest prn. *Neonatal resuscitation:* 10 mL/Kg IV/IO. *Post-resuscitation care:* 20 mL/Kg IV/IO infusion if persistent poor perfusion. *Shock:* 20 mL/Kg IV/IO infusion. Cardiac Arrest: 20 mg/Kg IV
Pharmacology/ Action	Isotonic crystalloid solution. Fluid replacement.
Side effects	Excessive volume replacement may lead to heart failure.
Additional information	NaCl is the IV/IO fluid of choice for pre-hospital emergency care. For KVO use 500 mL pack only.

CLINICAL LEVEL: AP

MEDICATION	SYNTOMETRINE
Class	Synthetic hormone.
Descriptions	Ergometrine maleate 0.5 mg and synthetic oxytocin 5 units per mL.
Presentation	1 mL ampoule.
Administration	Intramuscular (IM). **(CPG:** 5/6.5.4).
Indications	Control of post-partum haemorrhage.
Contra-Indications	Severe kidney, liver or cardiac dysfunction. Sepsis. Known severe adverse reaction.
Usual Dosages	**Adult:** 1 mL IM. **Paediatric:** Not indicated.
Pharmacology/Action	Causes rhythmic contraction of uterine smooth muscle, thereby constricting uterine blood vessels.
Side effects	Nausea & vomiting. Abdominal pain. Headache. Dizziness. Cardiac arrhythmias.
Additional information	Ensure that a second foetus is not in the uterus prior to administration.

CLINICAL LEVEL: AP

MEDICATION	TENECTEPLASE POWDER FOR INJECTION
Class	Thrombolytic agent.
Descriptions	A recombinant fibrin-specific plasminogen activator.
Presentation	Powder and solvent for solution. 1 vial contains 10,000 units (50 mg) tenecteplase. 1 prefilled syringe contains 10 ml water for injections. The reconstituted solution contains 1,000 units (5 mg) tenecteplase per mL.
Administration	**Intravenous (IV).** **(CPG:** 5/6.4.16).
Indications	Patient conscious, coherent and understands therapy. Patient consent obtained. Less than 75 years old (medical practitioner discretion if > 75 years). Confirmed STEMI. MI Symptoms > 20 Min & ≤ 6 hours. Time to PPCI centre > 90 minutes of STEMI confirmation on 12 lead ECG.
Contra-Indications	Haemorrhagic stroke or stroke of unknown origin at any time. Ischemic stroke in previous 6 months. Central nervous system damage or neoplasms. Recent major trauma/ surgery/ head injury (within 3 weeks). Gastro-intestinal bleeding within the last month. Active peptic ulcer. Known bleeding disorder. Oral anticoagulant therapy. Aortic dissection. Transient ischaemic attack in preceding 6 months. Pregnancy and within one week post partum. Non-compressible punctures. Traumatic resuscitation. Refractory hypertension (Sys BP > 180 mmHg). Advanced liver disease. Infective endocarditis.
Usual Dosages	**Adult:** Kg / Units / mg / mL < 60 / 6,000 / 30 / 6 ≥ 60 < 70 / 7,000 / 35 / 7 ≥ 70 < 80 / 8,000 / 40 / 8 ≥ 80 < 90 / 9,000 / 45 / 9 ≥ 90 / 10,000 / 50 / 10 **Paediatric:** Not indicated

See over for more details

MEDICATION	TENECTEPLASE POWDER FOR INJECTION
Pharmacology/ Action	Tenecteplase is a recombinant fibrin-specific plasminogen activator that is derived from native t-PA by modifications at three sites of the protein structure. It binds to the fibrin component of the thrombus (blood clot) and selectively converts thrombus-bound plasminogen to plasmin, which degrades the fibrin matrix of the thrombus.
Side effects	Haemorrhage predominantly superficial at the injection site. Ecchymoses are observed commonly but usually do not require any specific action. Stroke (including intracranial bleeding) and other serious bleeding episodes.
Additional information	Enoxaparin should be used as antithrombotic adjunctive therapy

NEW FOR 2012:

Clopidogrel						✓SA	
Pelvic splinting device					✓	✓	✓

Care management including the administration of medications as per level of training and division on the PHECC Register and Responder levels.

Pre-Hospital Responders and Practitioners shall only provide care management including medication administration for which they have received specific training.

KEY:	
✓	Authorised under PHECC CPGs
URMPIO	Authorised under PHECC CPGs **under registered medical practitioner's instructions only**
APO	Authorised under PHECC CPGs to **assist practitioners only** (when applied to EMT, to assist Paramedic or higher clinical levels)
✓SA	Authorised subject to **special authorisation** as per CPG

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
Medication							
Aspirin PO	✓	✓	✓	✓	✓	✓	✓
Oxygen		✓		✓	✓	✓	✓
Glucose Gel Buccal				✓SA	✓	✓	✓
GTN SL				✓SA	✓	✓	✓
Salbutamol Aerosol				✓SA	✓	✓	✓
Epinephrine (1:1,000) auto injector					✓	✓	✓
Glucagon IM					✓	✓	✓
Nitrous oxide & Oxygen (Entonox ®)					✓	✓	✓

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
Medication							
Paracetamol PO					✓	✓	✓
Morphine IM					URMPIO	URMPIO	✓SA
Epinephrine (1: 1,000) IM						✓	✓
Ibuprofen PO						✓	✓
Midazolam IM/Buccal/IN						✓	✓
Naloxone IM						✓	✓
Salbutamol nebule						✓	✓
Clopidogrel PO						✓SA	✓
Dextrose 10% IV						✓SA	✓
Hartmann's Solution IV/IO						✓SA	✓
Sodium Chloride 0.9% IV/IO						✓SA	✓
Amiodarone IV/IO							✓
Atropine IV/IO							✓
Benzylpenicillin IM/IV/IO							✓
Cyclizine IV							✓
Diazepam IV/PR							✓
Enoxaparin IV/SC							✓
Epinephrine (1:10,000) IV/IO							✓
Furosemide IV/IM							✓
Hydrocortisone IV/IM							✓
Ipratropium bromide Nebule							✓
Lorazepam PO							✓
Magnesium Sulphate IV							✓
Midazolam IV							✓
Morphine IV/PO							✓
Naloxone IV/IO							✓
Nifedipine PO							✓
Ondansetron IV							✓
Paracetamol PR							✓
Sodium Bicarbonate IV/ IO							✓

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
Medication							
Syntometrine IM							✓
Tenecteplase IV							✓
Lidocaine IV							✓SA

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
Airway & Breathing Management							
FBAO management	✓	✓	✓	✓	✓	✓	✓
Head tilt chin lift	✓	✓	✓	✓	✓	✓	✓
Pocket mask	✓	✓	✓	✓	✓	✓	✓
Recovery position	✓	✓	✓	✓	✓	✓	✓
Non rebreather mask		✓		✓	✓	✓	✓
OPA		✓		✓	✓	✓	✓
Suctioning		✓		✓	✓	✓	✓
Venturi mask		✓		✓	✓	✓	✓
Jaw Thrust				✓	✓	✓	✓
BVM		✓		✓SA	✓	✓	✓
Nasal cannula		✓			✓	✓	✓
Supraglottic airway adult		✓			✓	✓	✓
SpO_2 monitoring		✓SA			✓	✓	✓
Cricoid pressure					✓	✓	✓
Oxygen humidification					✓	✓	✓
Flow restricted oxygen powered ventilation device						✓	✓
NPA						✓	✓
Peak Expiratory flow						✓	✓
End Tidal CO_2 monitoring							✓
Endotracheal intubation							✓

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
Laryngoscopy and Magill forceps							✓
Supraglottic airway child							✓
Nasogastric tube							✓
Needle cricothyrotomy							✓
Needle thoracocentesis							✓
Cardiac							
AED adult & paediatric	✓	✓	✓	✓	✓	✓	✓
CPR adult, child & infant	✓	✓	✓	✓	✓	✓	✓
Emotional support	✓	✓	✓	✓	✓	✓	✓
Recognise death and resuscitation not indicated	✓	✓	✓	✓	✓	✓	✓
2-rescuer CPR		✓			✓	✓	✓
Active cooling		✓SA			✓	✓	✓
CPR newly born					✓	✓	✓
ECG monitoring (lead II)					✓	✓	✓
Mechanical assist CPR device					✓	✓	✓
12 lead ECG						✓	✓
Cease resuscitation						✓	✓
Manual defibrillation						✓	✓
Haemorrhage control							
Direct pressure			✓	✓	✓	✓	✓
Nose bleed			✓	✓	✓	✓	✓
Pressure points						✓	✓
Tourniquet use						✓	✓
Medication administration							
Oral	✓	✓	✓	✓	✓	✓	✓
Buccal route				✓SA	✓	✓	✓
Per aerosol				✓SA	✓	✓	✓

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
Sublingual				✓SA	✓	✓	✓
Intramuscular injection					✓	✓	✓
Per nebuliser						✓	✓
Intranasal						✓	✓
IV & IO Infusion maintenance						✓SA	✓
Infusion calculations							✓
Intraosseous injection/infusion							✓
Intravenous injection/infusion							✓
Per rectum							✓
Subcutaneous injection							✓
Trauma							
Cervical spine manual stabilisation			✓	✓	✓	✓	✓
Application of a sling			✓	✓	✓	✓	✓
Cervical collar application				✓	✓	✓	✓
Helmet stabilisation/removal				✓	✓	✓	✓
Splinting device application to upper limb				✓	✓	✓	✓
Move and secure patient to a long board				✓SA	✓	✓	✓
Rapid Extraction				✓SA	✓	✓	✓
Log roll				APO	✓	✓	✓
Move patient with a carrying sheet				APO	✓	✓	✓
Move patient with an orthopaedic stretcher				APO	✓	✓	✓
Splinting device application to lower limb				APO	✓	✓	✓
Secure and move a patient with an extrication device				APO	APO	✓	✓
Active re-warming					✓	✓	✓

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
Move and secure patient into a vacuum mattress					✓	✓	✓
Pelvic splinting device					✓	✓	✓
Traction splint application					APO	✓	✓
Move and secure a patient to a paediatric board						✓	✓
Spinal Injury Decision						✓	✓
Taser gun barb removal						✓	✓
Other							
Assist in the normal delivery of a baby				APO	✓	✓	✓
De-escalation and breakaway skills					✓	✓	✓
Glucometry					✓	✓	✓
Broselow tape						✓	✓
Delivery Complications						✓	✓
External massage of uterus						✓	✓
Intraosseous cannulisation							✓
Intravenous cannulisation							✓
Urinary catheterisation							✓
Patient assessment							
Assess responsiveness	✓	✓	✓	✓	✓	✓	✓
Check breathing	✓	✓	✓	✓	✓	✓	✓
FAST assessment	✓	✓	✓	✓	✓	✓	✓
AVPU			✓	✓	✓	✓	✓
Breathing & pulse rate			✓	✓	✓	✓	✓
Primary survey			✓	✓	✓	✓	✓
SAMPLE history			✓	✓	✓	✓	✓
Secondary survey			✓	✓	✓	✓	✓
Capillary refill				✓	✓	✓	✓
CSM assessment				✓	✓	✓	✓

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
Rule of Nines				✓	✓	✓	✓
Pulse check (cardiac arrest)		✓SA			✓	✓	✓
Assess pupils					✓	✓	✓
Blood pressure					✓	✓	✓
Capacity evaluation					✓	✓	✓
Do Not Resuscitate					✓	✓	✓
Pre-hospital Early Warning Score					✓	✓	✓
Paediatric Assessment Triangle					✓	✓	✓
Patient Clinical Status					✓	✓	✓
Temperature ^{0}C					✓	✓	✓
Triage sieve					✓	✓	✓
Chest auscultation						✓	✓
GCS						✓	✓
Revised Trauma Score						✓	✓
Triage sort						✓	✓

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CRITICAL INCIDENT STRESS AWARENESS

Your psychological well being

As a Practitioner/Responder it is extremely important for your psychological well being that you do not expect to save every critically ill or injured patient that you treat. For a patient who is not in hospital, whether they survive a cardiac arrest or multiple trauma depends on a number of factors including any other medical condition the patient has. Your aim should be to perform your interventions well and to administer the appropriate medications within your scope of practice. You are successful as a Practitioner/Responder if you follow your CPGs well. However sometimes you may encounter a situation which is highly stressful for you, giving rise to Critical Incident Stress (CIS).

A critical incident is an incident or event which may overwhelm or threaten to overwhelm our normal coping responses. As a result of this we can experience CIS. Symptoms of CIS include some or all of the following:

Examples of physical symptoms:

- Feeling hot and flushed, sweating a lot
- Dry mouth, churning stomach
- Diarrhoea and digestive problems
- Needing to urinate often
- Muscle tension
- Restlessness, tiredness, sleep difficulties, headaches
- Increased drinking or smoking
- Overeating, or loss of appetite
- Loss of interest in sex
- Racing heart, breathlessness and rapid breathing

Examples of psychological symptoms:

- Feeling overwhelmed
- Loss of motivation
- Dreading going to work
- Becoming withdrawn
- Racing thoughts
- Confusion
- Not looking after yourself properly
- Difficulty making decisions
- Poor concentration
- Poor memory
- Anger
- Anxiety
- Depression

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POST-TRAUMATIC STRESS REACTIONS

Normally the symptoms listed above subside within a few weeks or less. Sometimes, however, they may persist and develop into a post-traumatic stress reaction and you may also experience the following emotional reactions:

Anger at the injustice and senselessness of it all.

Sadness and depression caused by an awareness of how little can be done for people who are severely injured and dying, sense of a shortened future, poor concentration, not being able to remember things as well as before.

Guilt caused by believing that you should have been able to do more or that you could have acted differently.

Fear of 'breaking down' or 'losing control', not having done all you could have done, being blamed for something or a similar event happening to you or your loved ones.

Avoiding the scene of the trauma or anything that reminds you of it.

Intrusive thoughts in the form of memories or flashbacks which cause distress and the same emotions as you felt at the time.

Irritability outbursts of anger, being easily startled and constantly being on guard for threats.

Feeling numb leading to a loss of your normal range of feelings, for example, being unable to show affection, feeling detached from others.

Experiencing signs of excessive stress

If the range of physical, emotional and behavioural signs and symptoms already mentioned do not reduce over time (for example, after two weeks), it is important that you get support and help.

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WHERE TO FIND HELP?

- Your own **CPG approved organisation** will have a support network or system. We recommend that you contact them for help and advice.
- Speak to your **GP**.
- See a **private counsellor** who has specialised in traumatic stress. (You can get names and contact numbers for these counsellors from your local co-ordinator or from the www.cism.ie).
- For a self-help guide, please go to the website: **www.cism.ie**
- The National Ambulance Service CISM committee has recently published a booklet called 'Critical Incident Stress Management for Emergency Personnel' and you can buy it by emailing info@cismnetworkireland.ie.

We would like to thank the National Ambulance Service CISM Committee for their help in preparing this section.

CPG UPDATES FOR ADVANCED PARAMEDICS 2012 VERSION

A policy decision has been made to publish new an update clinical practice guidelines in April and October each year.

UPDATED CPGS FROM THE PREVIOUS VERSION.

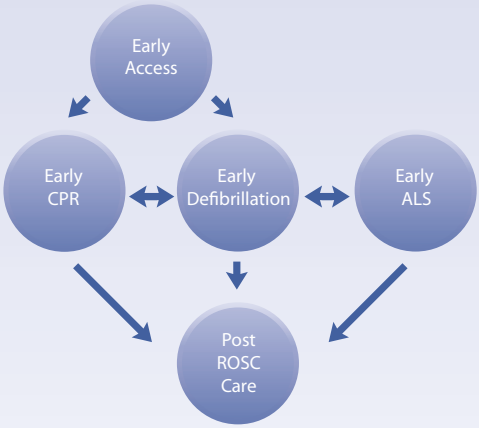
CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 5/6.4.16 Acute Coronary Syndrome	• Cardiac Chest Pain – Acute Coronary Syndrome CPG has been renamed. • Medical practitioner discretion for thrombolysis has been clarified to apply to patients over 75 years old. • Paramedics have been given special authorisation to administer Clopidogrel PO following identification of STEMI and medical practitioner instruction. • The definitive care for patients with STEMI is primary PCI. The window of opportunity however is to present the patient at a primary PCI centre within 90 minutes of identification of STEMI. This procedure will be rolled out across the country over the next 12 to 18 months (please follow Medical Director/Advisor directives for implementation). • Pre-Hospital Thrombolysis is limited therefore to patients with STEMI who cannot be presented to a primary PCI centre within the required time frame. The 'less than three hour symptoms' rule no longer applies.
CPG 5/6.4.22 Stroke	• A typographical error indicated to go to 'Hypoglycaemia' CPG, which has been corrected to 'Glycaemic Emergency' CPG.
CPG 6.4.29 Mental Health Emergency	• A typographical error on the dose of Midazolam has been corrected. Now reads: 2.5 mg IV or 5 mg IM

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4/5/6.6.5 Limb Injury – Adult	• CPG 5/6.6.5 Limb Fractures – Adult has been renamed Limb Injury – Adult to broaden the scope of the CPG. • The CPG now deals with fractures, soft tissue injuries and dislocations. • Pain relief has been changed from 'consider' to 'establish need for'. • There is now a requirement to pre-alert the Emergency Department for limb threatening injuries. • A pelvic splinting device is now authorised for use by advanced paramedics.
CPG 4/5/6.7.1 Primary Survey Medical – Paediatric	• Children First Guidelines requirements have been added to this CPG.
CPG 4/5/6.7.2 Primary Survey Trauma – Paediatric	• Children First Guidelines requirements have been added to this CPG.
CPG 4/5/6.7.4 Secondary Survey – Paediatric	• This CPG outlines the progress through the secondary survey for a paediatric patient, some of the text boxes have been amalgamated to simplify the CPG. • Children First Guidelines requirements have been added to this CPG. • A typographical error with the weight based calculations has been corrected to '(Age x 3) + 7 Kg'.
CPD 5/6.7.9 Glycaemic Emergency– Paediatric	• Glucose gel dose has been divided into ≤ 8 and > 8 years.

PRE-HOSPITAL DEFIBRILLATION POSITION PAPER

Defibrillation is a lifesaving intervention for victims of sudden cardiac arrest (SCA). Defibrillation in isolation is unlikely to reverse SCA unless it is integrated into the chain of survival. The chain of survival should not be regarded as a linear process with each link as a separate entity but once commenced with 'early access' the other links, other than 'post return of spontaneous circulation (ROSC) care', should be operated in parallel subject to the number of people and clinical skills available.

Cardiac arrest management process



ILCOR guidelines 2010 identified that without ongoing CPR, survival with good neurological function from SCA is highly unlikely. Defibrillators in AED mode can take up to 30 seconds between analysing and charging during which time no CPR is typically being performed. The position below is outlined to ensure maximum resuscitation efficiency and safety.

POSITION

1. Defibrillation mode

1.1 Advanced Paramedics, and health care professionals whose scope of practice permits, should use defibrillators in manual mode for all age groups.

1.2 Paramedics may consider using defibrillators in manual mode for all age groups.

1.3 EMTs and Responders shall use defibrillators in AED mode for all age groups.

2. Hands off time (time when chest compressions are stopped)

2.1 Minimise hands off time, absolute maximum 10 seconds.

2.2 Rhythm and/or pulse checks in manual mode should take no more than 5 to 10 seconds and CPR should be recommenced immediately.

2.3 When defibrillators are charging CPR should be ongoing and only stopped for the time it takes to press the defibrillation button and recommenced immediately without reference to rhythm or pulse checks.

2.4 It is necessary to stop CPR to enable some AEDs to analyse the rhythm. Unfortunately this time frame is not standard with all AEDs. As soon as the analysing phase is completed and the charging phase has begun CPR should be recommenced.

3 Energy

3.1 Biphasic defibrillation is the method of choice.

3.2 Biphasic truncated exponential (BTE) waveform energy commencing at 150 to 200 joules shall be used.

3.3 If unsuccessful the energy on second and subsequent shocks shall be as per manufacturer of defibrillator instructions.

3.4 Monophasic defibrillators currently in use, although not as effective as biphasic defibrillators, may continue to be used until they reach the end of their lifespan.

4 Safety

4.1 For the short number of seconds while a patient is being defibrillated no person should be in contact with the patient.

4.2 The person pressing the defibrillation button is responsible for defibrillation safety.

4.3 Defibrillation pads should be used as opposed to defibrillation paddles for pre-hospital defibrillation.

5 Defibrillation pad placement

5.1 The right defibrillation pad should be placed mid clavicular directly under the right clavicle.

5.2 The left defibrillation pad should be placed mid-axillary with the top border directly under the left nipple.

5.3 If a pacemaker or Implantable Cardioverter Defibrillator (ICD) is fitted, defibrillator pads should be placed at least 8 cm away from these devices. This may result in anterior and posterior pad placement which is acceptable.

6 Paediatric defibrillation

6.1 Paediatric defibrillation refers to patients less than 8 years of age.

6.2 Manual defibrillator energy shall commence and continue with 4 joules/Kg.

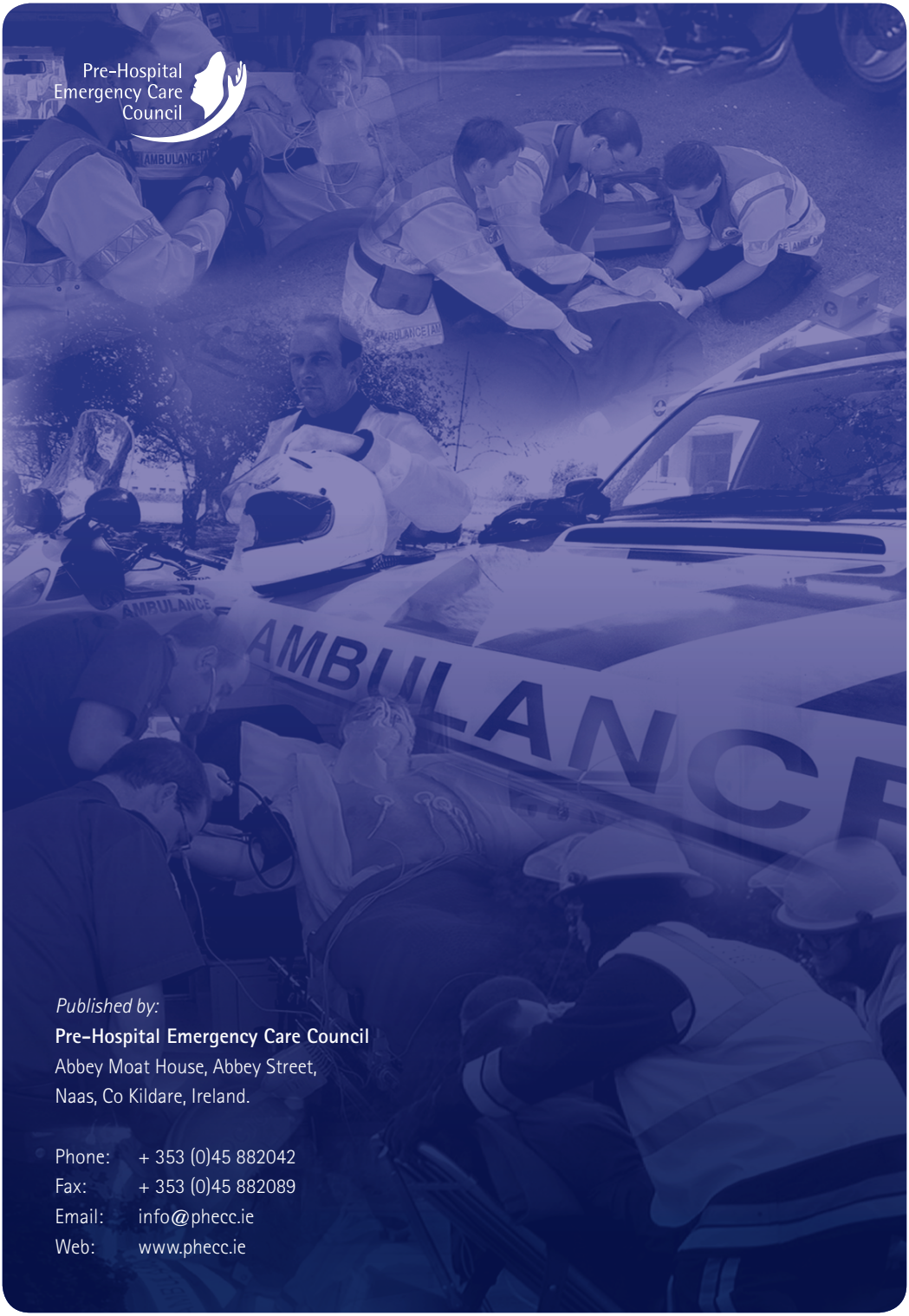
6.3 AEDs should use paediatric energy attenuator systems.

6.4 If a paediatric energy attenuator system is not available an adult AED may be used.

6.5 It is extremely unlikely to ever have to defibrillate a child less than 1 year old. Nevertheless, if this were to occur the approach would be the same as for a child over the age of 1. The only likely difference being, the need to place the defibrillation pads anterior and posterior, because of the infant's small size.

7 Implantable Cardioverter Defibrillator (ICD)

7.1 If an Implantable Cardioverter Defibrillator (ICD) is fitted in the patient, treat as per CPG. It is safe to touch a patient with an ICD fitted even if it is firing.



Pre-Hospital Emergency Care Council

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