

CLINICAL PRACTICE GUIDELINES – *3rd Edition Version 2*

Practitioner

Emergency Medical Technician

PHECC Clinical Practice Guidelines

First Edition 2001

Second Edition 2004

Third Edition 2009

Third Edition Version 2 2011

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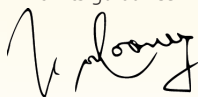


It is my pleasure to write the foreword to this PHECC Clinical Handbook comprising 3rd Edition, version 2, Clinical Practice Guidelines (CPGs). There are now 230 CPGs in all, to guide integrated care across the six levels of Responder and Practitioner. My understanding is that it is a world first to 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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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 3rd edition version 2 offers current best practice guidance. The guidelines have expanded in number and scope – with 59 CPGs in total for Emergency Medical Technicians, 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 utilized.

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 (\leq) 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 their scope of 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;








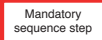



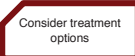
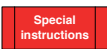







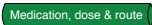
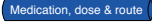
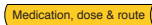


- Advanced Paramedics should use manual defibrillation for all age groups
- Paramedics may consider use of manual defibrillation for all age groups
- EMTs and Responders shall use AED mode for all age groups

Using the 3rd Edition version 2 CPGs

The 3rd Edition version 2 CPGs continue to be printed 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

Clinical Practice Guidelines for Emergency Medical Technician Codes explanation

	Emergency Medical Technician (Level 4) for which the CPG pertains		A parallel process Which may be carried out in parallel with other sequence steps
	Paramedic (Level 5) for which the CPG pertains		A cyclical process in which a number of sequence steps are completed
	Advanced Paramedic (Level 6) for which the CPG pertains		Emergency Medical Technician or lower clinical levels not permitted this route
	A sequence (skill) to be performed		Transport to an appropriate medical facility and maintain treatment en-route
	A mandatory sequence (skill) to be performed		Transport to an appropriate medical facility and maintain treatment en-route, if having contacted Ambulance Control there is no ALS available
	A decision process The Practitioner must follow one route		An instruction box for information
	Given the clinical presentation consider the treatment option specified		Special instructions Which the Practitioner must follow
	Reassess the patient following intervention		A skill or sequence that only pertains to Paramedic or higher clinical levels
	Contact Ambulance Control and request Advanced Life Support (AP or doctor)		Special authorisation This authorises the Practitioner to perform an intervention under specified conditions
	Consider requesting an ALS response, based on the clinical findings		Consider requesting a Paramedic response, based on the clinical findings
	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		
	A medication which may be administered by an EMT or higher clinical level The medication name, dose and route is specified		
	A medication which may be administered by a Paramedic or higher clinical level The medication name, dose and route is specified		
	A medication which may be administered by an Advanced Paramedic The medication name, dose and route is specified		
	A direction to go to a specific CPG following a decision process Note: only go to the CPGs that pertain to your clinical level		
	A clinical condition that may precipitate entry into the specific CPG		

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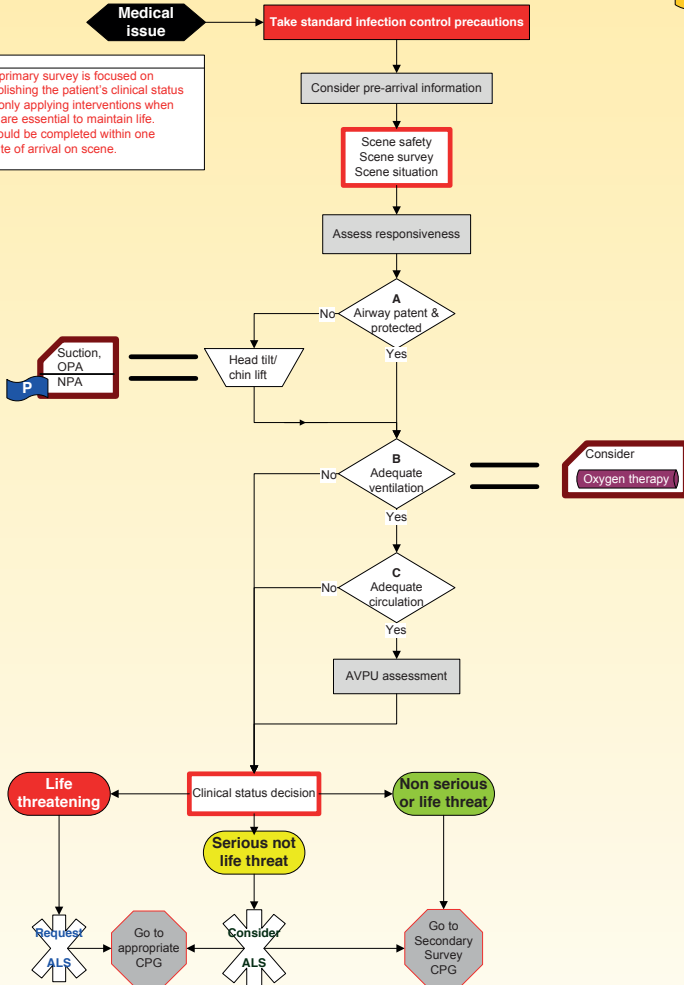
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4/5/6.2.1
Version 2, 03/11

Primary Survey Medical – Adult

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.



PATIENT ASSESSMENT
Primary Survey Medical – Adult

S2

Reference: ILCOR Guidelines 2010

4/5/6.2.2
Version 2, 03/11

Primary Survey Trauma – Adult



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.

Trauma

Take standard infection control precautions

Consider pre-arrival information

Scene safety
Scene survey
Scene situation

Control catastrophic external haemorrhage

Mechanism of injury suggestive of spinal injury

C-spine control

Assess responsiveness

A
Airway patent & protected

Suction, OPA, NPA

Jaw thrust

B
Adequate ventilation

Consider
Oxygen therapy

C
Adequate circulation

AVPU assessment

Treat life threatening injuries only at this point

Life threatening

Clinical status decision

Non serious or life threat

Serious not life threat

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

Request ALS

Go to appropriate CPG

Consider ALS

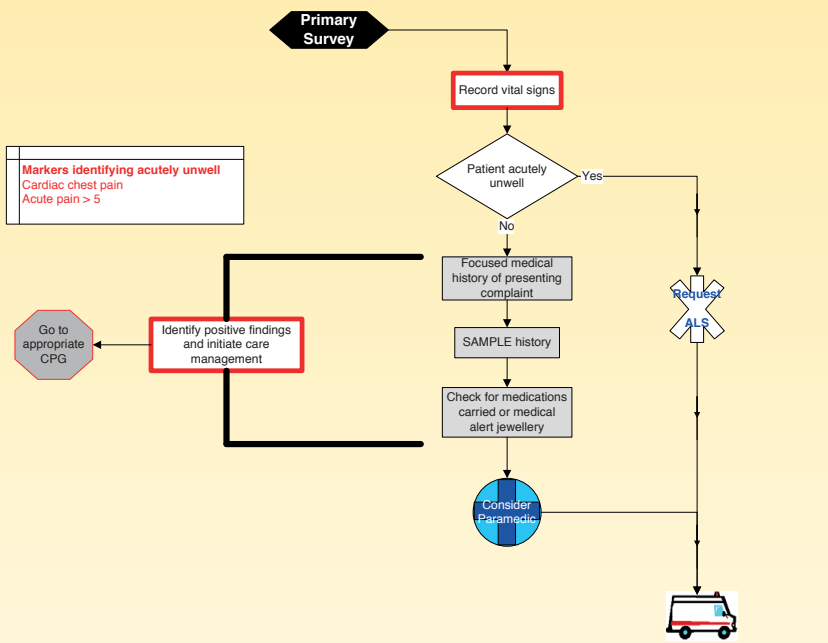
Go to Secondary Survey CPG

Reference: ILCOR Guidelines 2010

4.2.4
Version 2, 09/11

Secondary Survey Medical – Adult

EMT



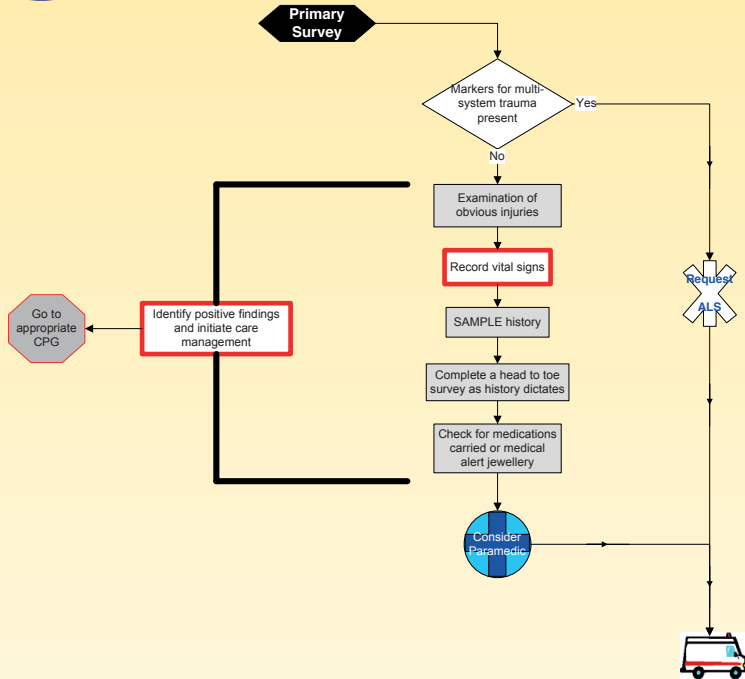
PATIENT ASSESSMENT
Secondary Survey Medical – Adult
S2

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

05/08 4.2.5

Secondary Survey Trauma – Adult

EMT

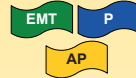


<p>Markers for multi-system trauma Systolic BP < 90 Respiratory rate < 10 or > 29 Heart rate > 120 AVPU = V, P or U on scale Mechanism of Injury</p>
--

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

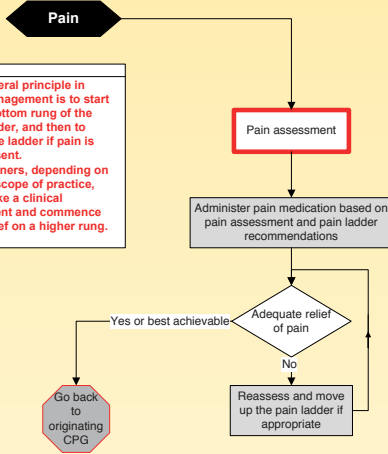
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Version 2, 03/11

Pain Management – Adult

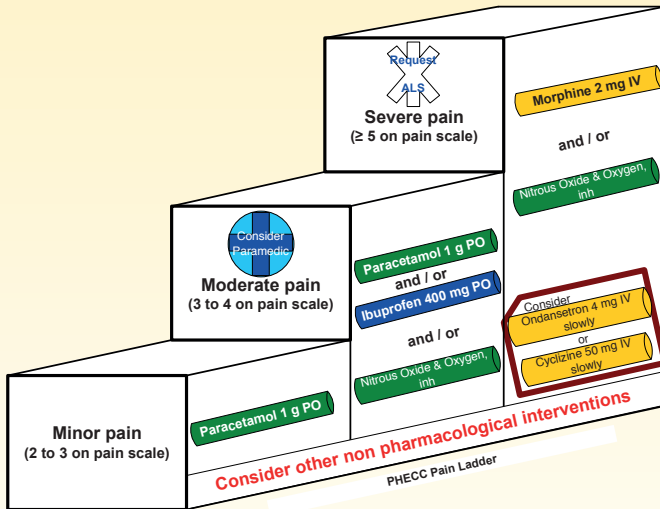


The general principle in pain management is to start at the bottom rung of the pain ladder, and then to climb the ladder if pain is still present. Practitioners, depending on his/her scope of practice, may make a clinical judgement and commence pain relief on a higher rung.

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

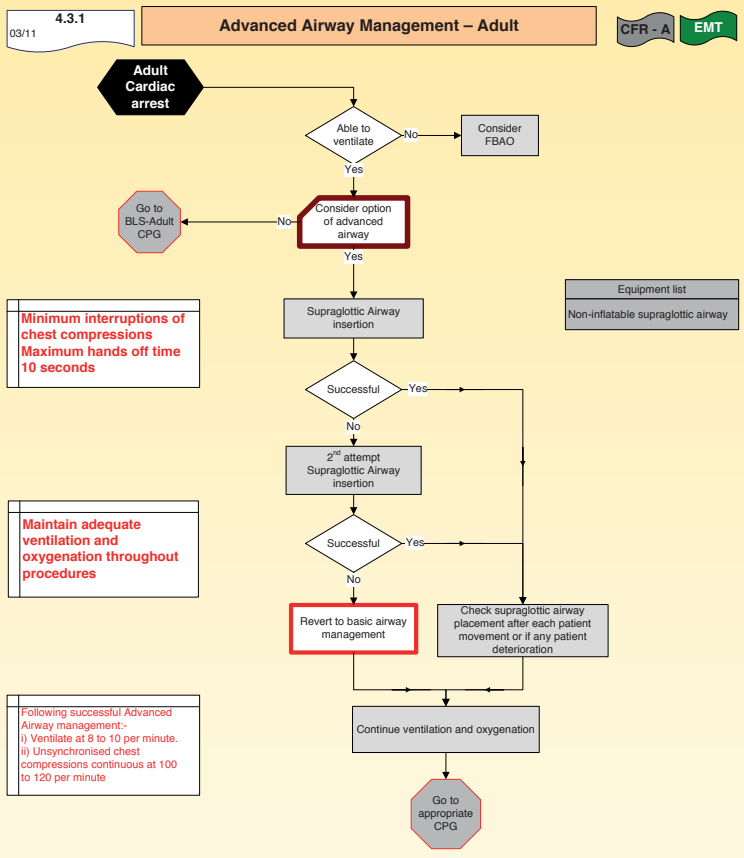


Repeat Morphine at not < 2 min intervals if indicated. Max 10 mg For musculoskeletal pain Max 16 mg

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



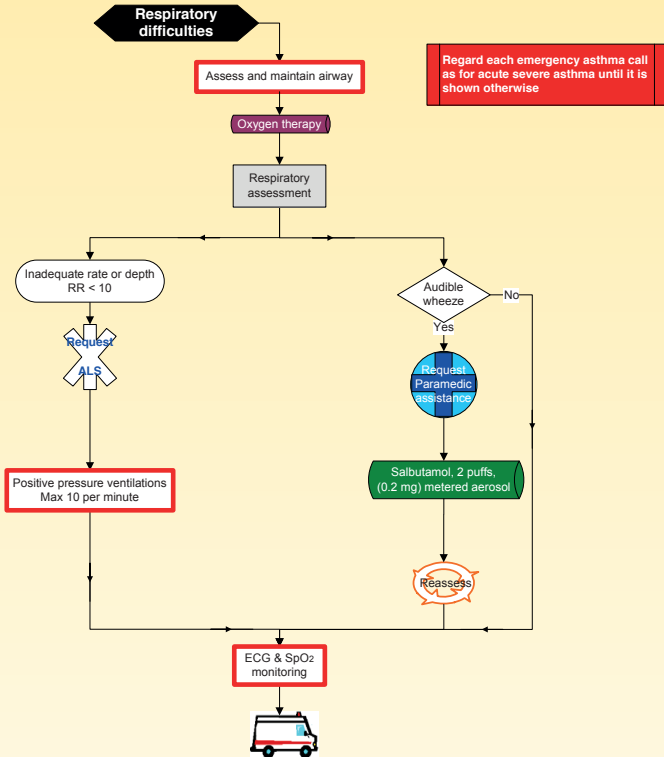
Reference: ILCOR Guidelines 2010

4.3.2
Version 2, 03/11

Inadequate Respirations – Adult

EMT

Equipment list
Volumizer to be used to administer Salbutamol



RESPIRATORY EMERGENCIES
Inadequate Respirations – Adult

S3

Life threatening asthma
Any one of the following in a patient with severe asthma;
SpO₂ < 92%
Silent chest
Cyanosis
Feeble respiratory effort
Bradycardia
Arrhythmia
Hypotension
Exhaustion
Confusion
Unresponsive

Acute severe asthma
Any one of;
Respiratory rate ≥ 25/ min
Heart rate ≥ 110/ min
Inability to complete sentences in one breath

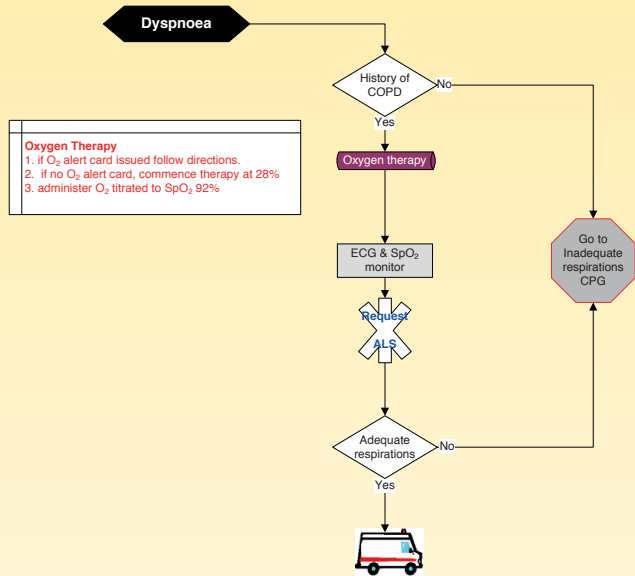
Moderate asthma exacerbation
Increasing symptoms
No features of acute severe asthma

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

05/09 4.3.3

Exacerbation of COPD

EMT



Oxygen Therapy
 1. if O₂ alert card issued follow directions.
 2. if no O₂ alert card, commence therapy at 28%
 3. administer O₂ titrated to SpO₂ 92%

RESPIRATORY EMERGENCIES
Exacerbation of COPD

S3

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



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

Cardiac Arrest

Request
ALS

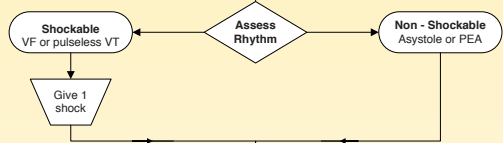
Attach defibrillation pads
Commence CPR while defibrillator is being prepared only if 2nd person available
30 Compressions : 2 ventilations.
Oxygen therapy

Chest compressions
Rate: 100 to 120/ min
Depth: at least 5 cm

Ventilations
Rate: 10/ min (1 every 6 sec)
Volume: 500 to 600 mL

AP Change defibrillator to manual mode
P Consider changing defibrillator to manual mode

Continue CPR while defibrillator is charging

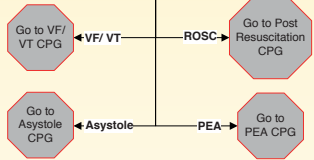


Give 1 shock

Immediately resume CPR x 2 minutes

Minimum interruptions of chest compressions
Maximum hands off time
10 seconds

Rhythm check *



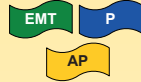
If an Implantable Cardioverter Defibrillator (ICD) is fitted in the patient treat as per CPG. It is safe to touch a patient with an ICD fitted even if it is firing.

* +/- 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)



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

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

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: 1/3 depth of chest
Child; two hands
Small child; one hand
Infant (< 1); two fingers

AP Change defibrillator to manual mode
P Consider changing defibrillator to manual mode

Yes < 8 years No

Apply paediatric system AED pads

Apply adult defibrillation pads

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

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

Continue CPR while defibrillator is charging

Shockable
VF or pulseless VT

Non - Shockable
Asystole or PEA

Assess Rhythm

Give 1 shock

Immediately resume CPR x 2 minutes

Rhythm check *

Go to VF / VT CPG

Go to Post Resuscitation 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

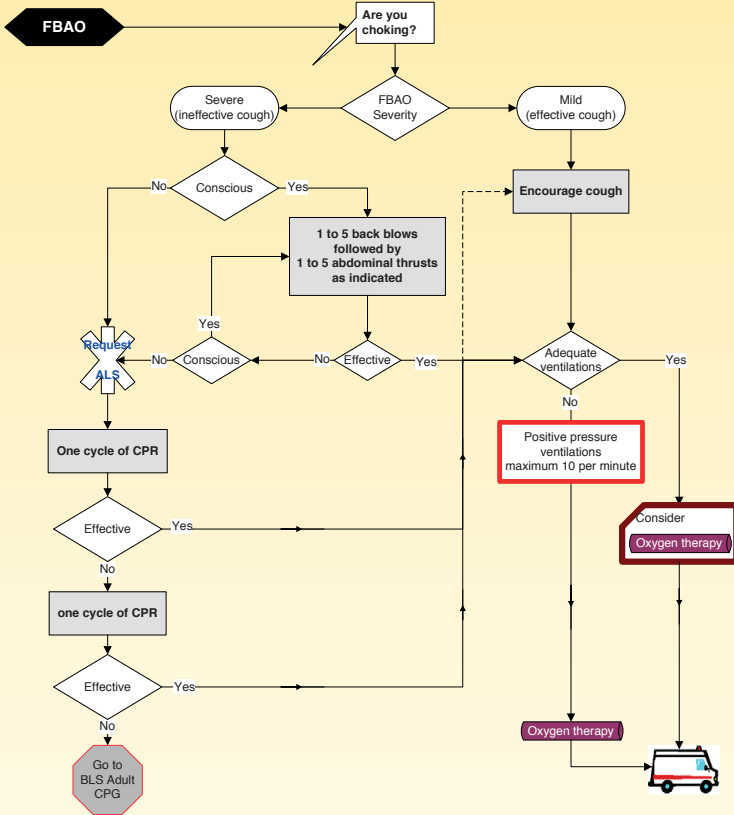
MEDICAL EMERGENCIES
Basic Life Support – Paediatric

S4

05/08 4/5.4.5

Foreign Body Airway Obstruction – Adult

EMT P



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

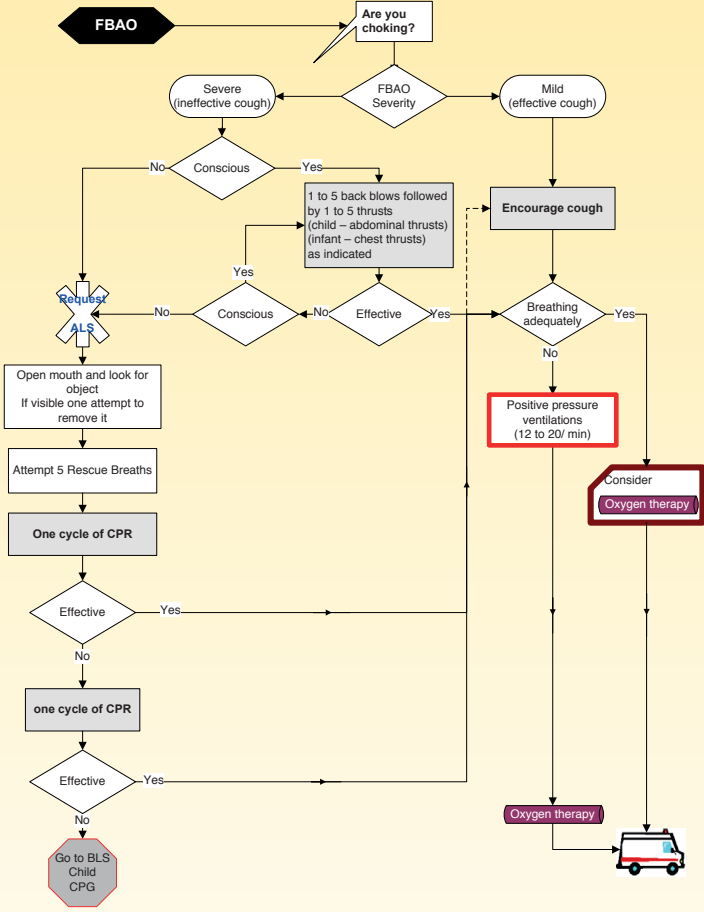
MEDICAL EMERGENCIES
Foreign Body Airway Obstruction – Adult

S4

4/5.4.6
05/08

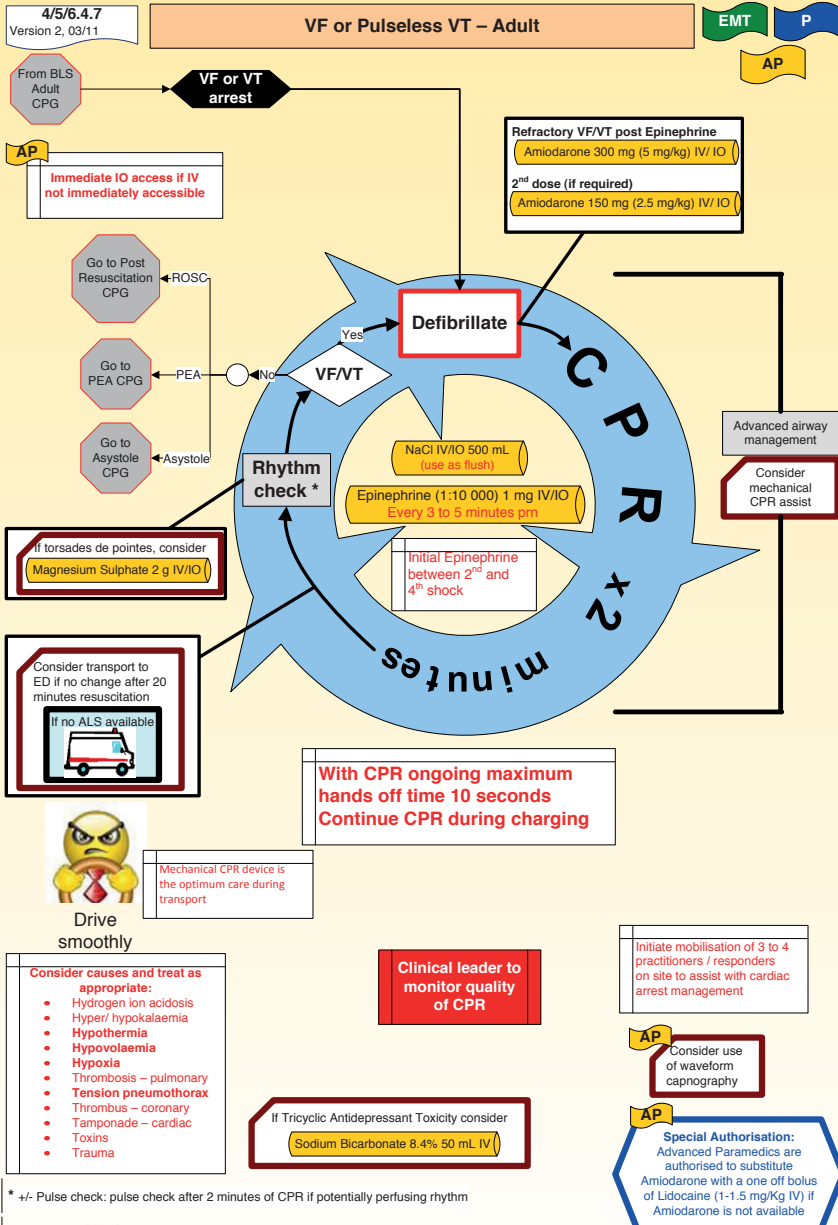
Foreign Body Airway Obstruction – Paediatric (≤ 13 years)

EMT P



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

S4



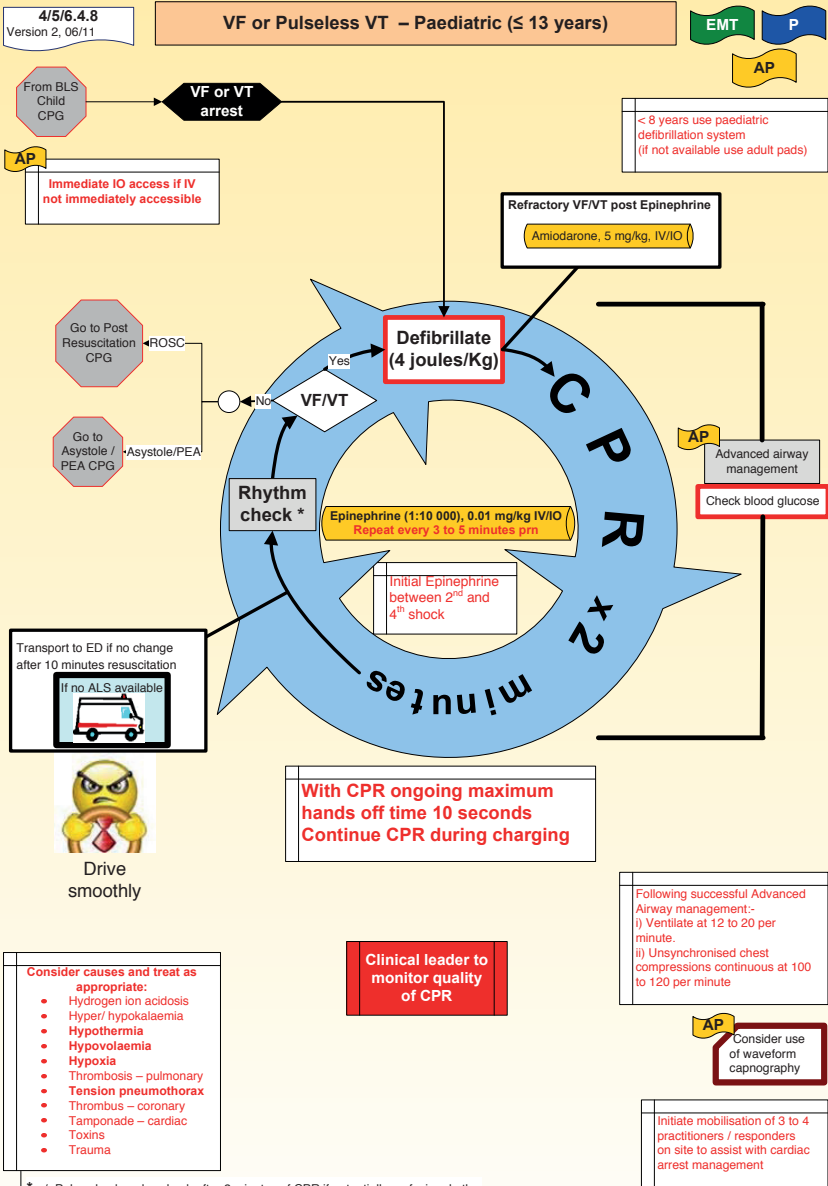
MEDICAL EMERGENCIES
VF or Pulseless VT – Adult

S4

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

Reference: ILCOR Guidelines 2010

MEDICAL EMERGENCIES
VF or Pulseless VT – Paediatric (≤ 13 years)



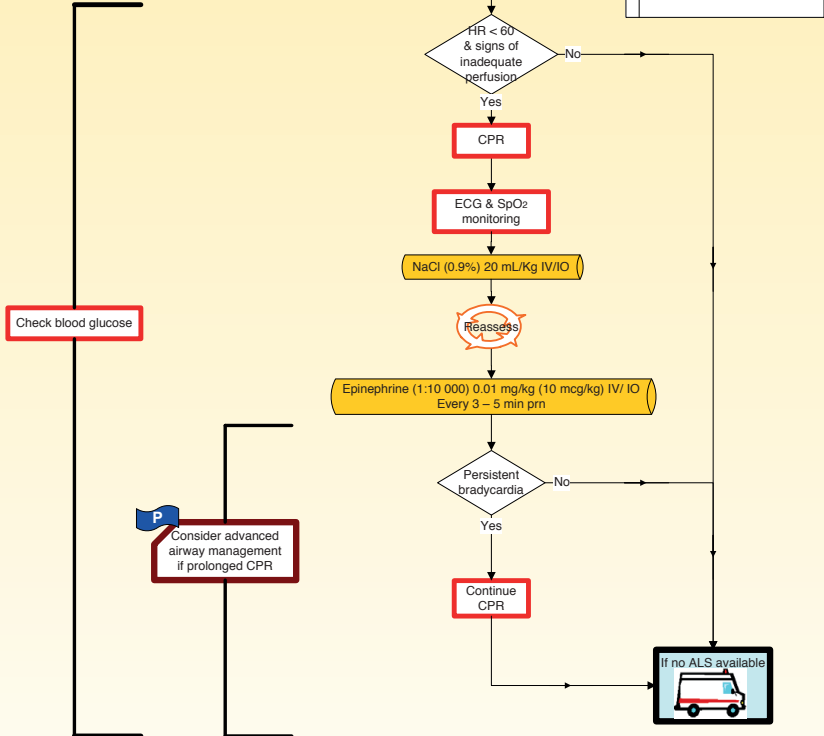
4/5/6.4.9
Version 2, 07/11

Symptomatic Bradycardia – Paediatric (≤ 13 years)

EMT P
AP

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

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



MEDICAL EMERGENCIES
Symptomatic Bradycardia – Paediatric (≤ 13 years)

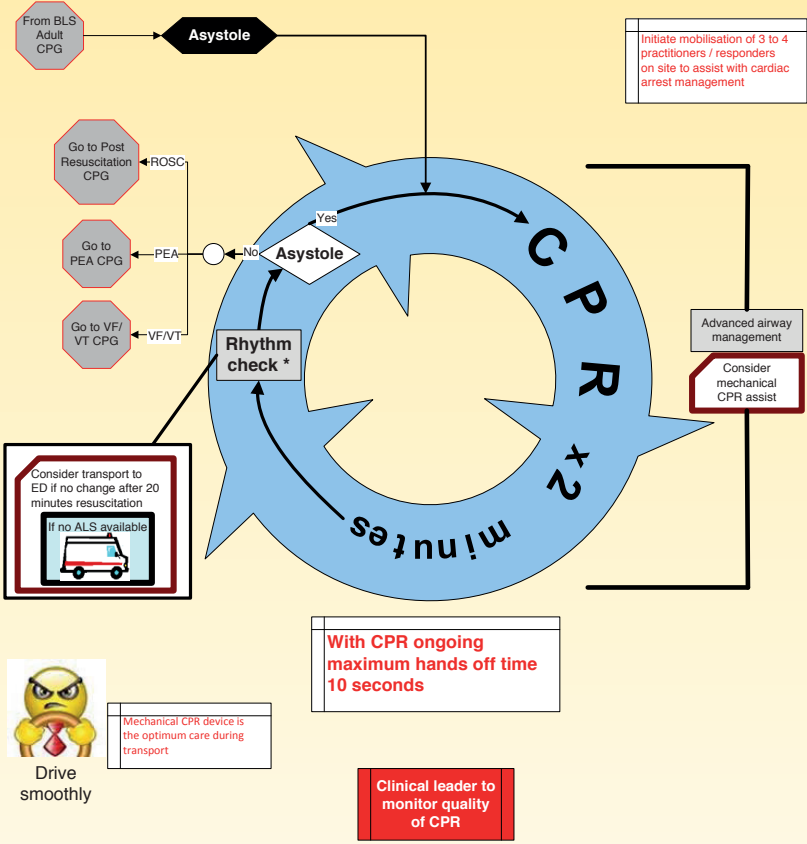
S4

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

4.4.10
Version 2, 03/11

Asystole – Adult

EMT



MEDICAL EMERGENCIES
Asystole – Adult

S4

* +/- 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
CPG

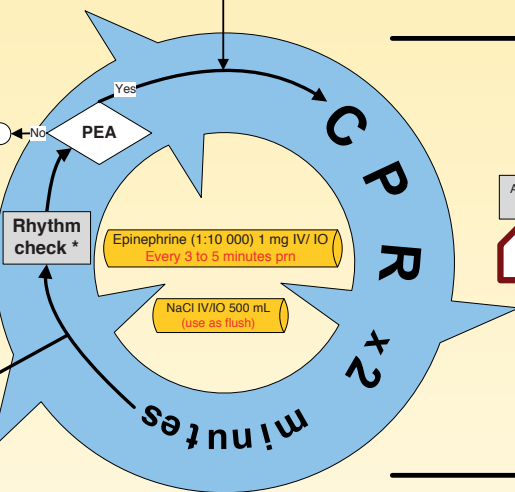
ROSC

Go to
Asystole
CPG

Asystole

Go to VF/
VT CPG

VF/VT



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

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

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

AP
Consider use
of waveform
capnography

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

MEDICAL EMERGENCIES
Pulseless Electrical Activity – Adult

S4

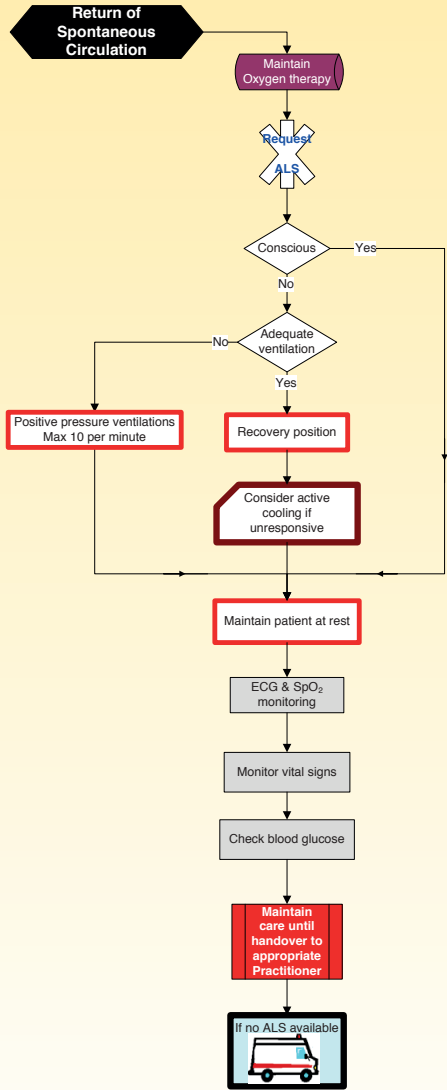
4.4.14
Version 2, 03/11

Post-Resuscitation Care – Adult

EMT

Equipment list
Cold packs

Titrate O₂ to
94% - 98%



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

MEDICAL EMERGENCIES
Post-Resuscitation Care – Adult

S4



Drive smoothly

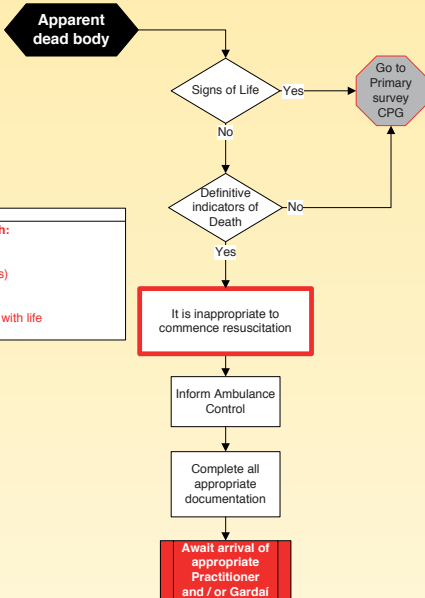
Reference: ILCOR Guidelines 2010

05/08 **4.4.15**

Recognition of Death – Resuscitation not Indicated

EMT

- Definitive indicators of death:**
1. Decomposition
 2. Obvious rigor mortis
 3. Obvious pooling (hypostasis)
 4. Incineration
 5. Decapitation
 6. Injuries totally incompatible with life



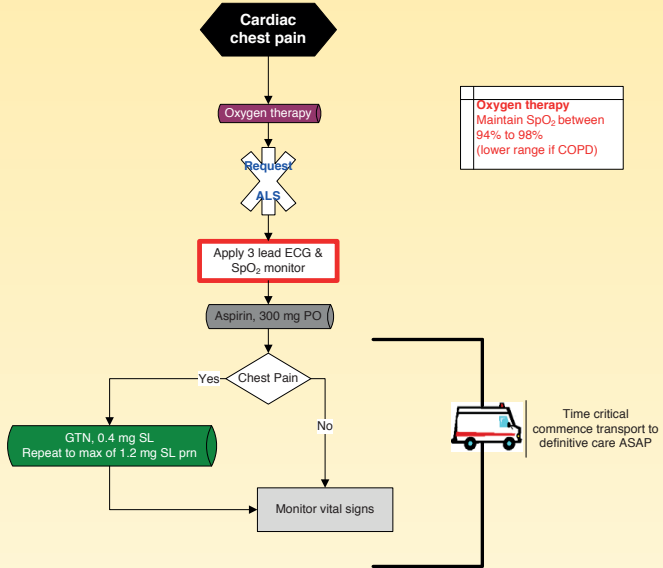
MEDICAL EMERGENCIES
Recognition of Death – Resuscitation not Indicated

S4

4.4.16
Version 2, 09/11

Cardiac Chest Pain – Acute Coronary Syndrome

EMT



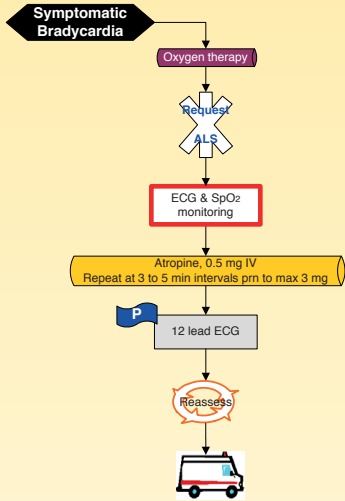
MEDICAL EMERGENCIES
Cardiac Chest Pain – Acute Coronary Syndrome

S4

4/5/6.4.17
05/08

Symptomatic Bradycardia – Adult

EMT P
AP



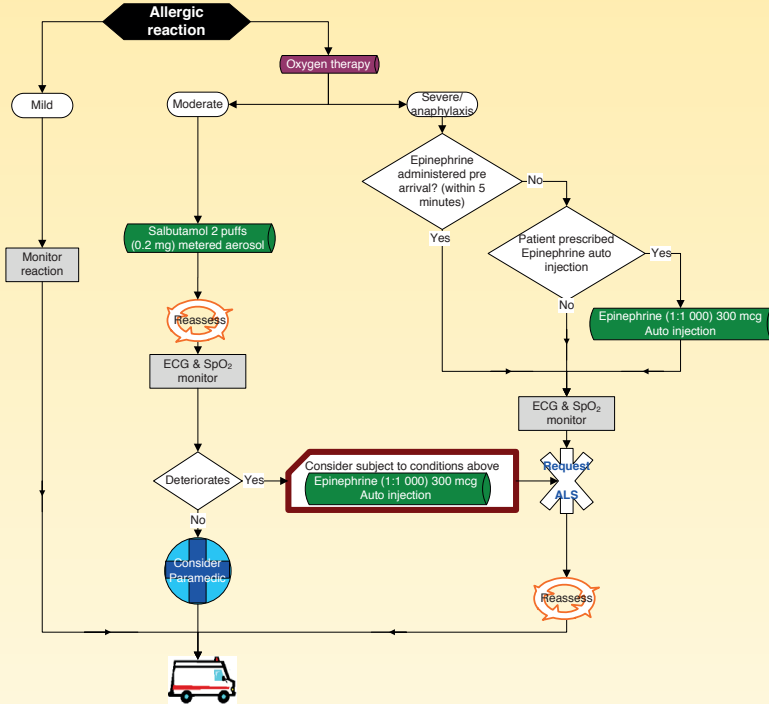
MEDICAL EMERGENCIES
Symptomatic Bradycardia – Adult

S4

4.4.18
Version 2, 03/11

Allergic Reaction/Anaphylaxis – Adult

EMT



Mild Urticaria and or angio oedema
--

Moderate Mild symptoms + simple bronchospasm
--

Severe/ anaphylaxis Moderate symptoms + haemodynamic and or respiratory compromise
--

MEDICAL EMERGENCIES
Allergic Reaction/Anaphylaxis – Adult

S4

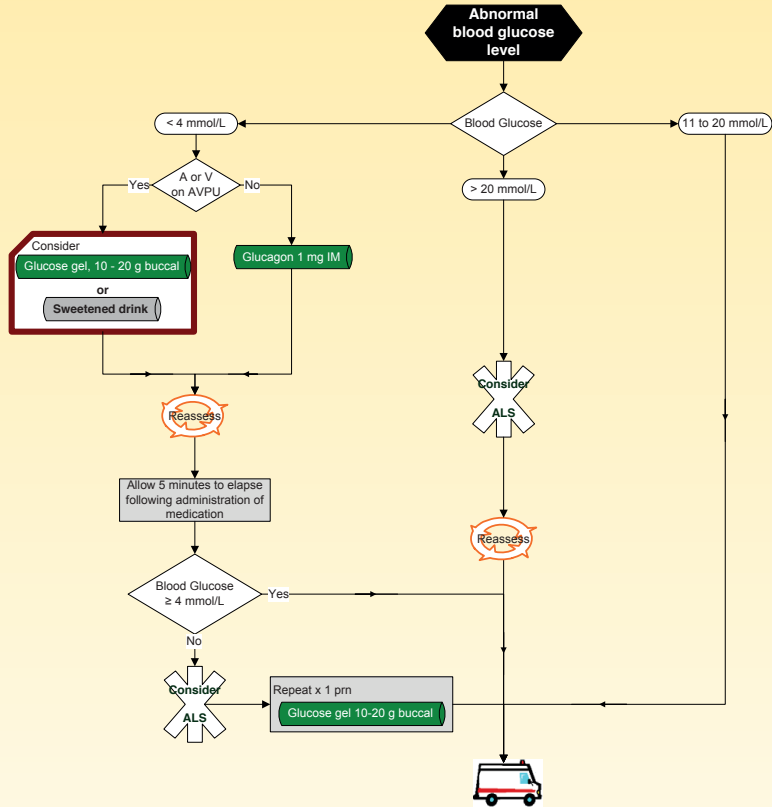
4.4.19
05/08

Glycaemic Emergency – Adult

EMT

MEDICAL EMERGENCIES
Glycaemic Emergency – Adult

S4

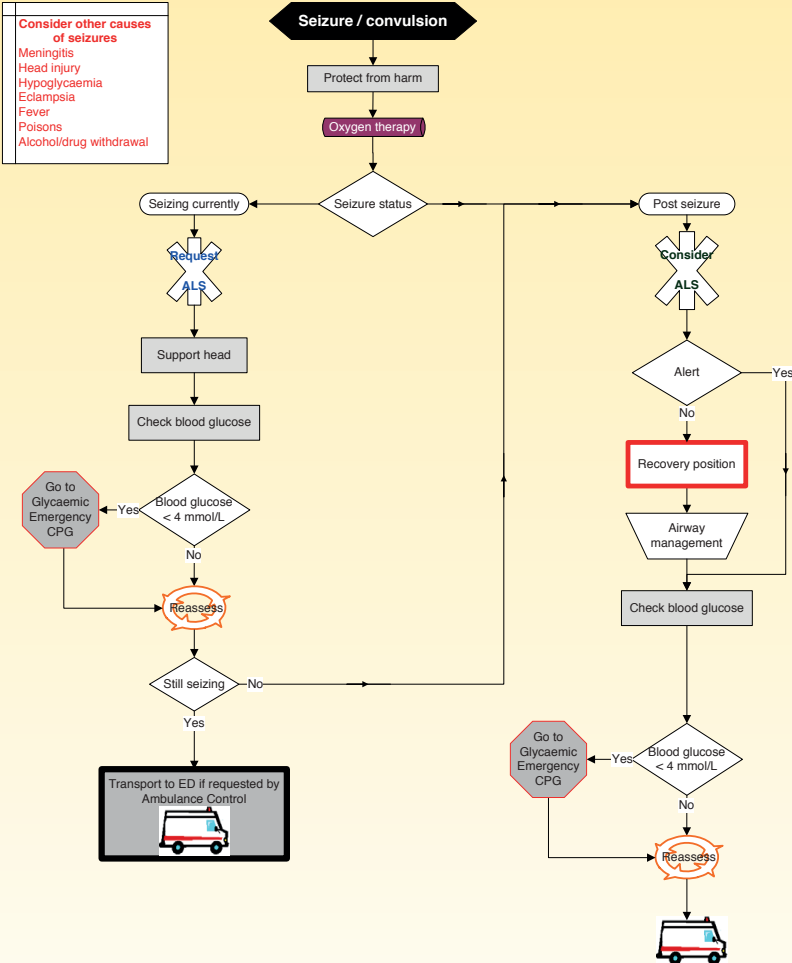


4.4.20
Version 2, 07/11

Seizure/Convulsion – Adult

EMT

- Consider other causes of seizures
- Meningitis
 - Head injury
 - Hypoglycaemia
 - Eclampsia
 - Fever
 - Poisons
 - Alcohol/drug withdrawal



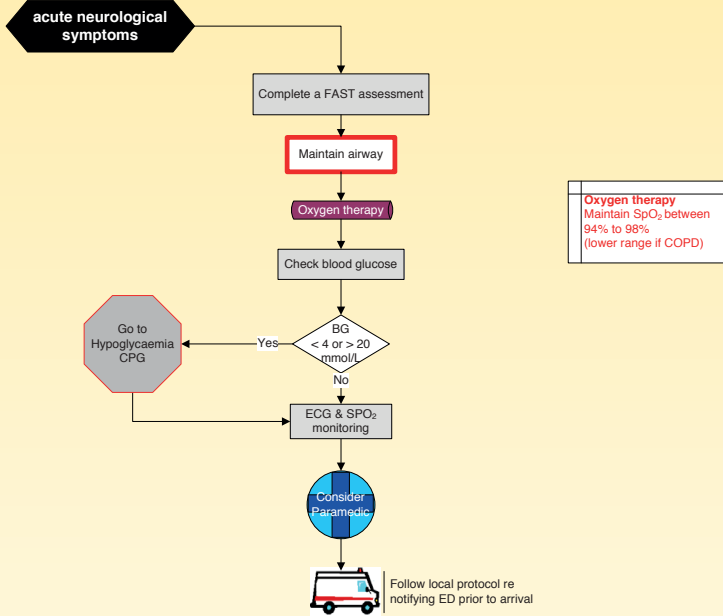
MEDICAL EMERGENCIES
Seizure/Convulsion – Adult

S4

4.4.22
05/08

Stroke

EMT



Oxygen therapy
Maintain SpO₂ between 94% to 98%
(lower range if COPD)

MEDICAL EMERGENCIES
Stroke

S4

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?

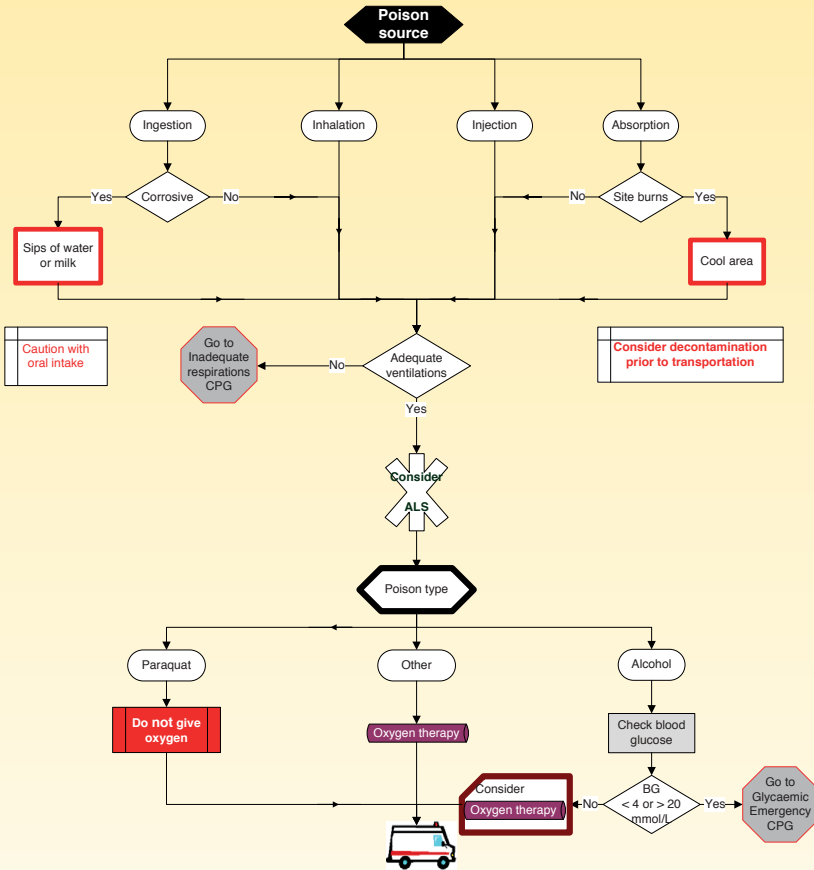
T – time to transport now if positive FAST

Reference: ILCOR Guidelines 2010

4/5.4.23
05/08

Poisons – Adult

EMT P



Caution with oral intake

Go to Inadequate respirations CPG

Consider decontamination prior to transportation

Consider ALS

Do not give oxygen

Consider Oxygen therapy

Go to Glycaemic Emergency CPG

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

MEDICAL EMERGENCIES
Poisons – Adult

S4

Reference:
Dr Joe Tracey, Director, National Poison Information Centre

4/5.4.24
05/08

Hypothermia

EMT P

Query hypothermia

Members of rescue teams should have a clinical leader of at least EFR level

Immersion

Yes

Remove patient horizontally from liquid (Provided it is safe to do so)

No

Protect patient from wind chill

Complete primary survey (Commence CPR if appropriate)

Oxygen therapy

Warmed O₂ if possible

Remove wet clothing by cutting

Place patient in dry blankets/ sleeping bag with outer layer of insulation

ECG & SpO₂ monitoring

Mild (Responsive)

Give hot sweet drinks

Moderate/ severe (Unresponsive)

Request ALS

Pulse check for 30 to 45 seconds

Hypothermic patients should be handled gently & not permitted to walk

If Cardiac Arrest follow CPGs but - no active re-warming

Hot packs to armpits & groin

Check blood glucose



Transport in head down position
Helicopter: head forward
Boat: head aft

Equipment list
Survival bag
Space blanket
Warm air rebreather

MEDICAL EMERGENCIES
Hypothermia

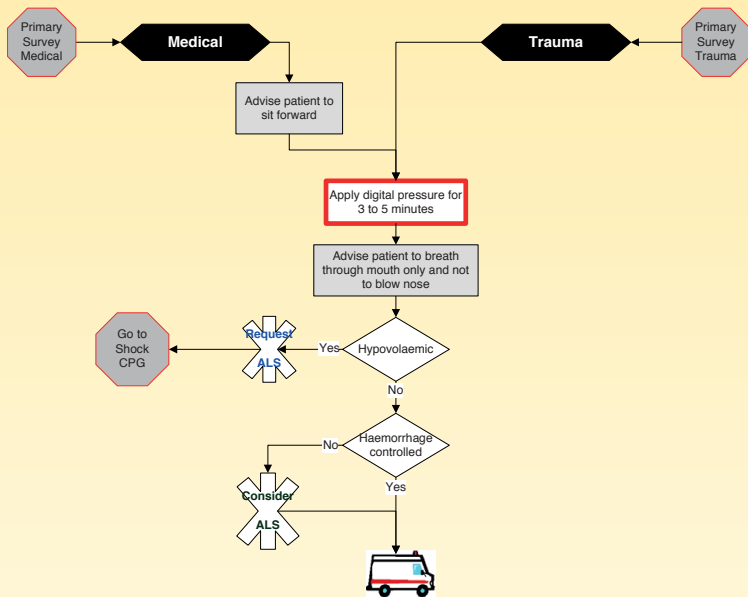
S4

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) 67:51, S135-S170
Pennington M, et al, 1994, Wilderness EMT, Wilderness EMS Institute

4/5/6.4.25
05/08

Epistaxis

EMT P
AP



MEDICAL EMERGENCIES
Epistaxis

S4

4/5/6.4.26
Version 2, 07/11

Decompression Illness (DCI)

EMT P
AP

SCUBA diving within 48 hours

Consider diving buddy as possible patient also

Complete primary survey
(Commence CPR if appropriate)

Treat in supine position

Oxygen therapy
100% O₂

Request
ALS

Conscious

No
Maintain airway,
Breathing & Circulation

Yes

Pain relief required

Go to Pain CPG
Entonox absolutely contraindicated

No

Nausea

Go to Nausea & Vomiting CPG

No

Monitor ECG & SpO₂

NaCl (0.9%) 500 mL IV/IO

Notify control of query DCI & alert ED



Transport is completed at an altitude of < 300 metres above incident site or aircraft pressurised equivalent to sea level

Transport dive computer and diving equipment with patient, if possible

MEDICAL EMERGENCIES
Decompression Illness (DCI)

S4

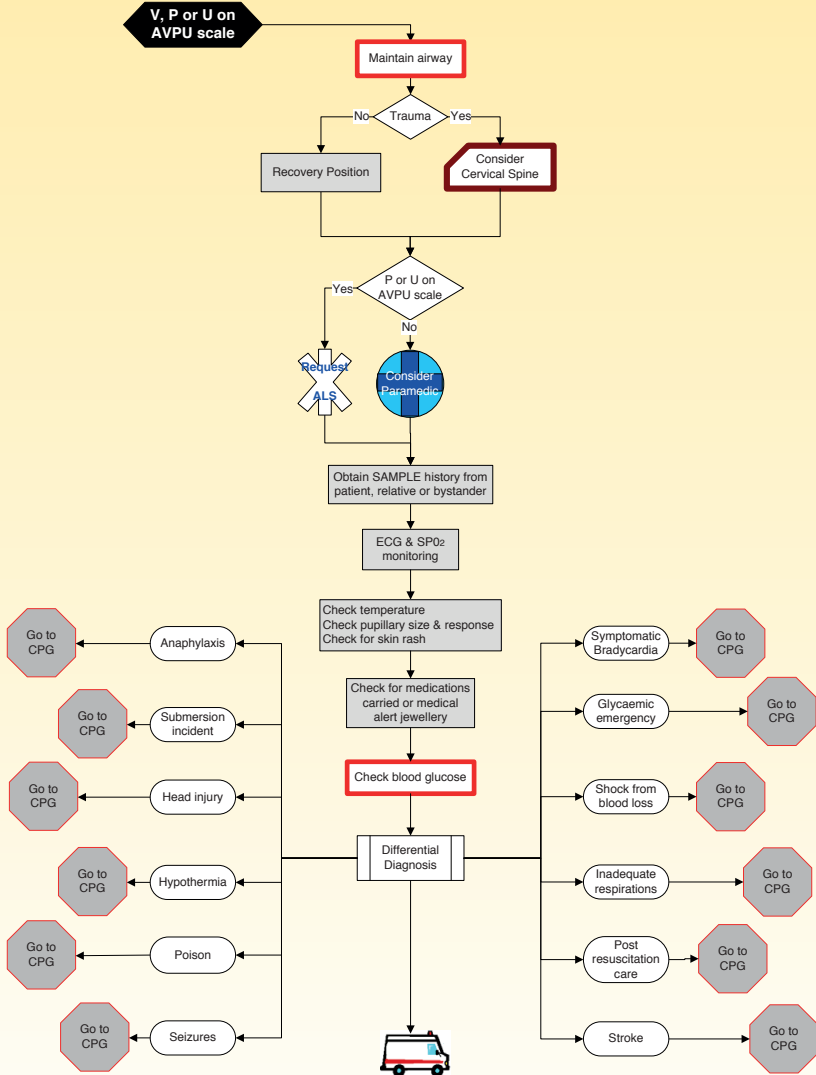
Special Authorisation:
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

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

4.4.27
05/08

Altered Level of Consciousness – Adult

EMT



MEDICAL EMERGENCIES
Altered Level of Consciousness – Adult

S4

4/5/6.4.28
05/08

Behavioural Emergency

EMT P
AP

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

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

Behaviour abnormal

Obtain a history from patient and or bystanders present as appropriate

Indications of medical cause of illness

Go to appropriate CPG

Potential to harm self or others

Request control to inform Gardai

Reassure patient
Explain what is happening at all times
Avoid confrontation

Attempt verbal de-escalation

Patient agrees to travel

Injury or illness potentially serious or likely to cause lasting disability

Offer to treat and or transport patient

Inform patient of potential consequences of treatment refusal

Treatment only

Request control to inform Gardai and or Doctor

Is patient competent to make informed decision

Await arrival of doctor or Gardai or receive implied consent

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

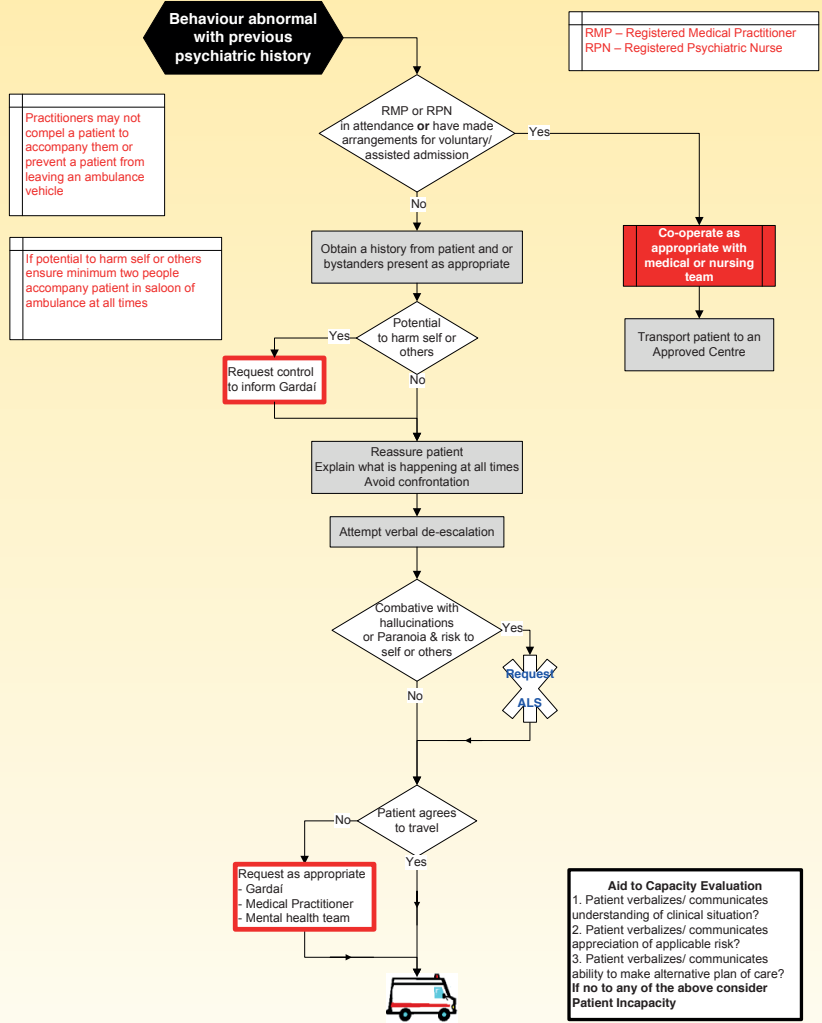
MEDICAL EMERGENCIES
Behavioural Emergency

S4

4/5.4.29
05/08

Mental Health Emergency

EMT P



MEDICAL EMERGENCIES
Mental Health Emergency

S4

Reference: Reference Guide to the Mental Health Act 2001, Mental Health Commission
HSE Mental Health Services

4.4.31
06/10

End of Life – DNR

EMT

End stage terminal illness

Patient becomes acutely unwell

Respiratory distress

Basic airway maintenance

Oxygen therapy

The dying patient, along with his/her family, is viewed as a single unit of care

Confirm and agree procedure with clinical staff in the event of a death in transit

Recent & reliable written instruction from patient's doctor stating that the patient is not for resuscitation

No

Go to Primary survey CPG

Agreement between caregivers present and Practitioners not to resuscitate

No

It is inappropriate to commence resuscitation

Inform Ambulance Control

Pulse present

Provide supportive care until handover to appropriate Practitioner

No

Consult with Ambulance Control re: 'location to transport patient / deceased'

Follow local protocol for care of deceased

Complete all appropriate documentation

Keep next of kin informed, if present

Emotional support for relatives should be considered before leaving the scene

MEDICAL EMERGENCIES
End of Life - DNT

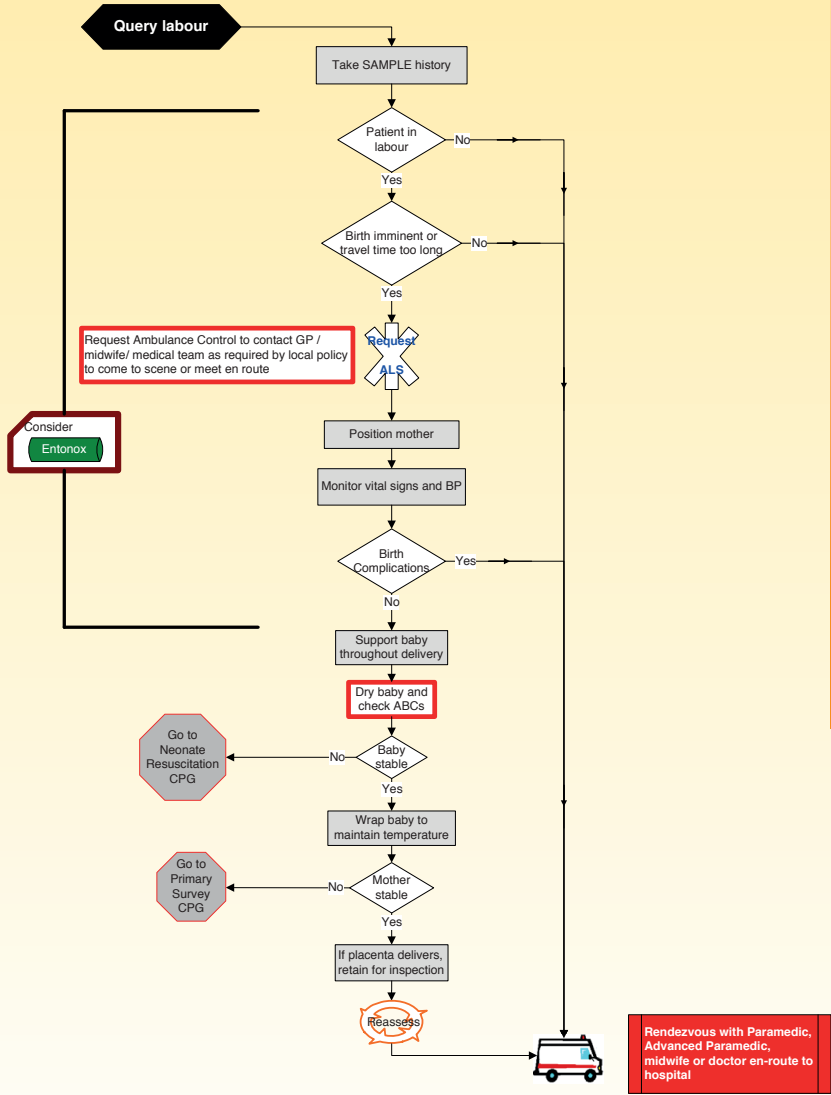
S4

Appropriate Practitioner
Registered Medical Practitioner
Registered Nurse
Registered Advanced Paramedic
Registered Paramedic
Registered EMT

05/08 4.5.1

Pre-Hospital Emergency Childbirth

EMT



OBSTETRIC EMERGENCIES
Pre-Hospital Emergency Childbirth

S5

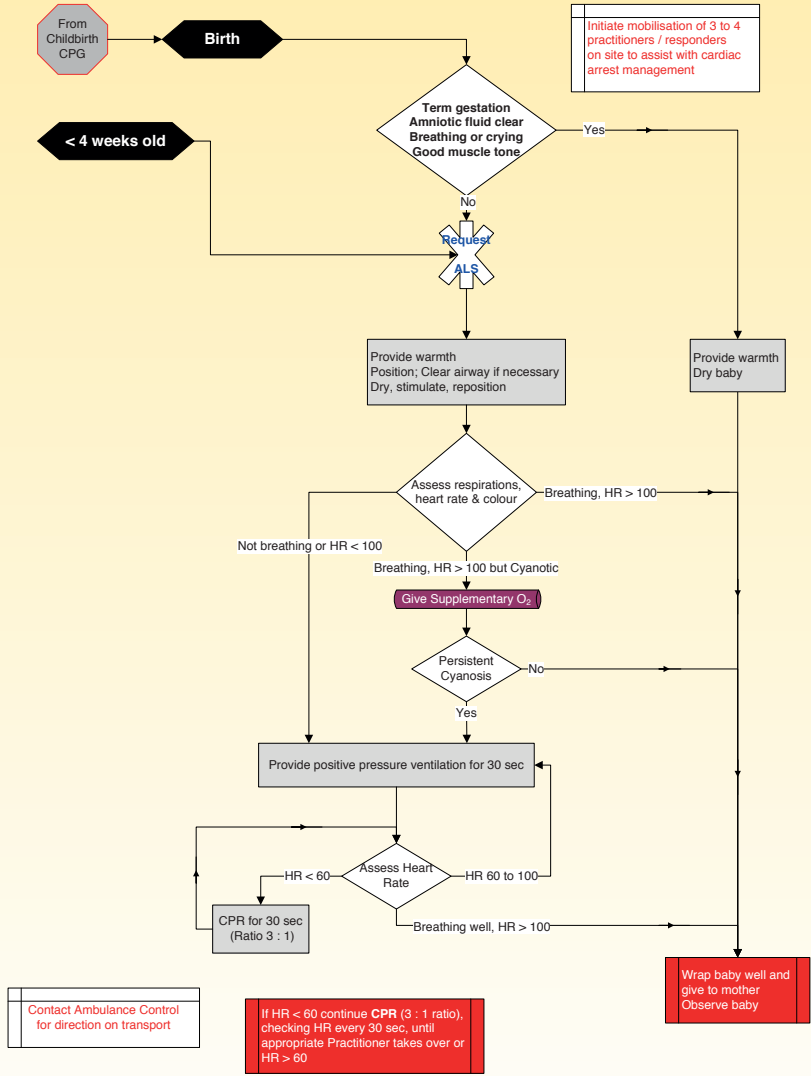
05/08 4.5.2

Basic Life Support – Neonate (< 4 weeks)

EMT

OBSTETRIC EMERGENCIES
Basic Life Support – Neonate (< 4 weeks)

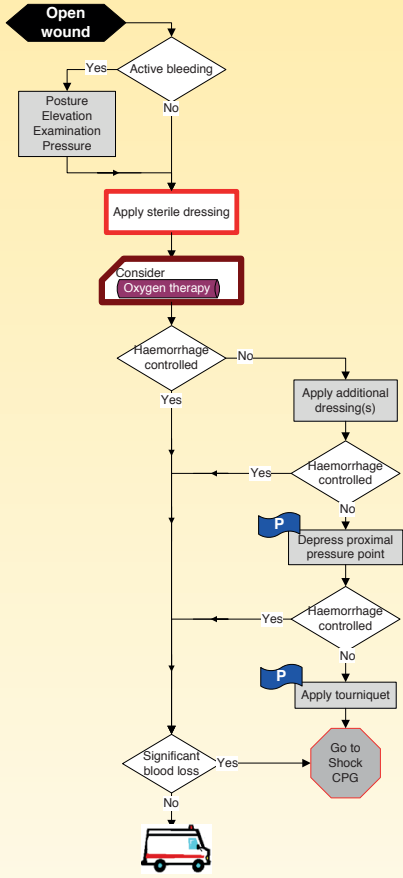
S5



4/5/6.6.1
05/08

External Haemorrhage – Adult

EMT P
AP



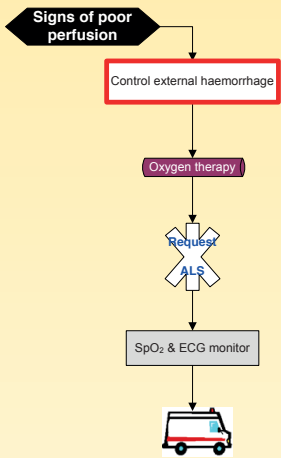
TRAUMA
External Haemorrhage – Adult

S6

05/08 4.6.2

Shock from Blood Loss – Adult

EMT



- | Signs of poor perfusion |
|-------------------------------------|
| Tachycardia |
| Diminished/absent peripheral pulses |
| Tachypnea |
| Irritability/ confusion / ALoC |
| Cool, pale & moist skin |
| Delayed capillary refill |

TRAUMA
Shock from Blood Loss – Adult

S6

05/08 4.6.3

Spinal Immobilisation – Adult

EMT

If in doubt, treat as spinal injury

Do not forcibly restrain a patient that is combative

Trauma Indications for spinal immobilisation

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

Stabilise cervical spine

Consider Paramedic

Remove helmet (if worn)

Life Threatening

Apply cervical collar

Patient in sitting position

Prepare extrication device for use
Follow direction of Paramedic, Advanced Paramedic or doctor

Load onto vacuum mattress/ long board

Rapid extrication with long board and cervical collar

Consider Vacuum mattress



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

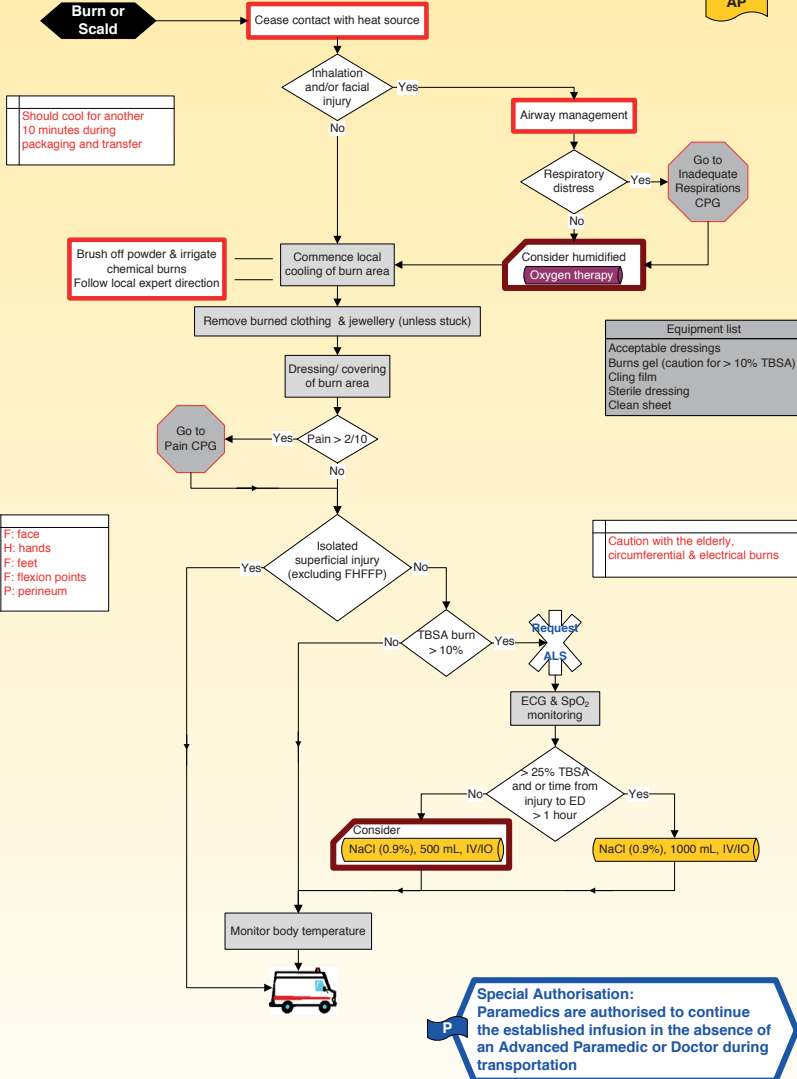
- Dangerous mechanism include;
- Fall ≥ 1 meter/ 5 steps
 - Axial load to head
 - MVC > 100 km/hr, rollover or ejection
 - ATV collision
 - Bicycle collision
 - Pedestrian v vehicle

TRAUMA
Spinal Immobilisation – Adult

S6

4/5/6.6.4
Version 2, 07/11

Burns – Adult



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

TRAUMA
Burns – Adult

S6

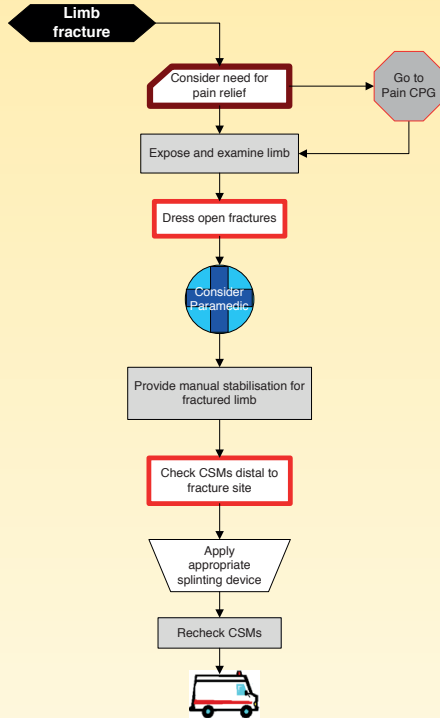
Reference: Allison, K et al. 2004, Consensus on the prehospital approach to burns patient management, Emerg Med J 2004; 21:112-114
 Sanders, M, 2001, Paramedic Textbook 2nd Edition, Mosby

05/08 4.6.5

Limb Fractures – Adult

EMT

Equipment list
Box splint
Frac straps
Triangular bandages
Vacuum splints
Long board
Orthopaedic stretcher



TRAUMA
Limb Fractures – Adult

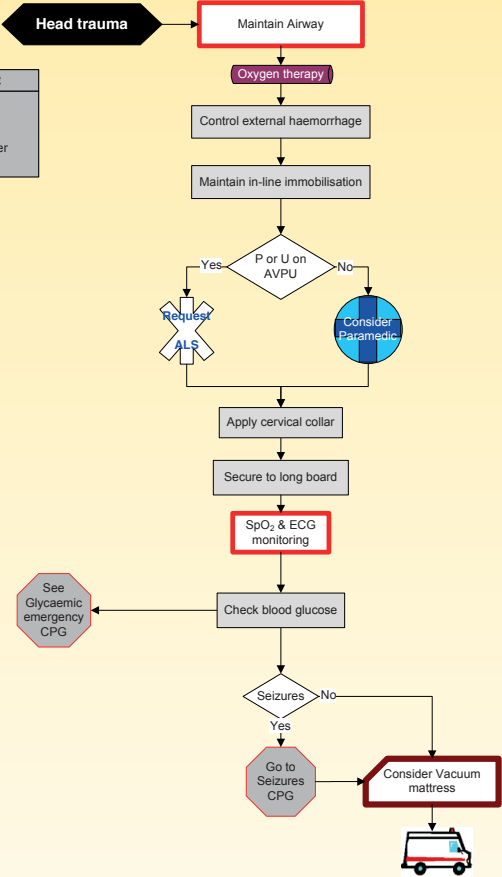
S6

4.6.6
05/08

Head Injury – Adult

EMT

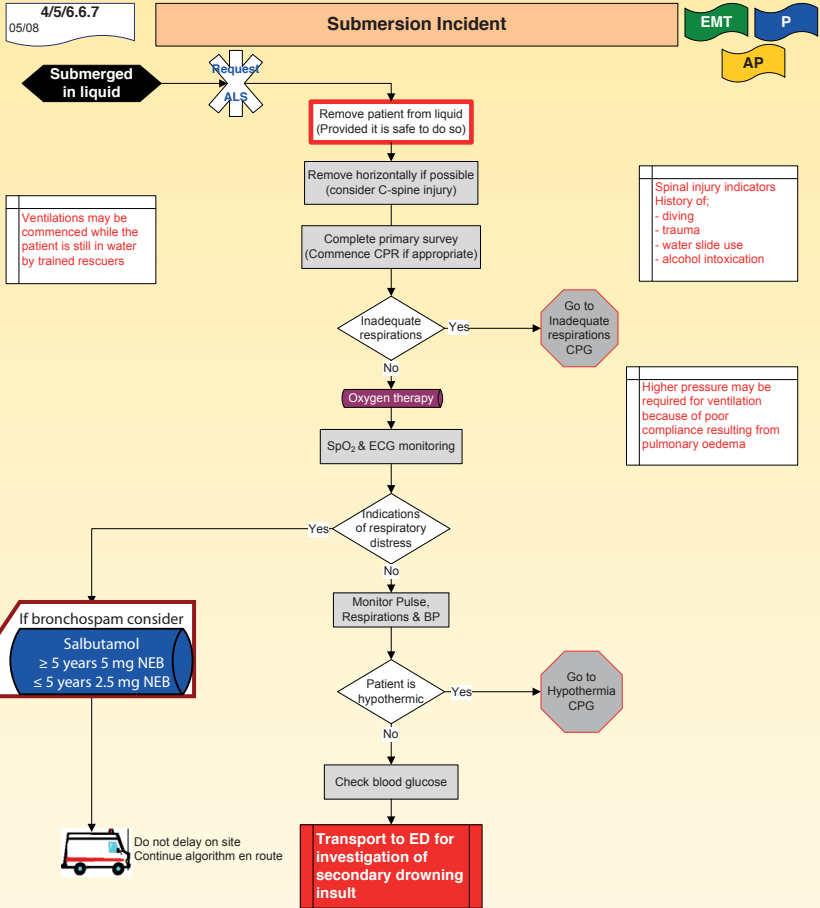
Equipment list
Extraction device
Long board
Vacuum mattress
Orthopaedic stretcher
Rigid cervical collar



TRAUMA
Head Injury – Adult

S6

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



TRAUMA
Submersion Incident

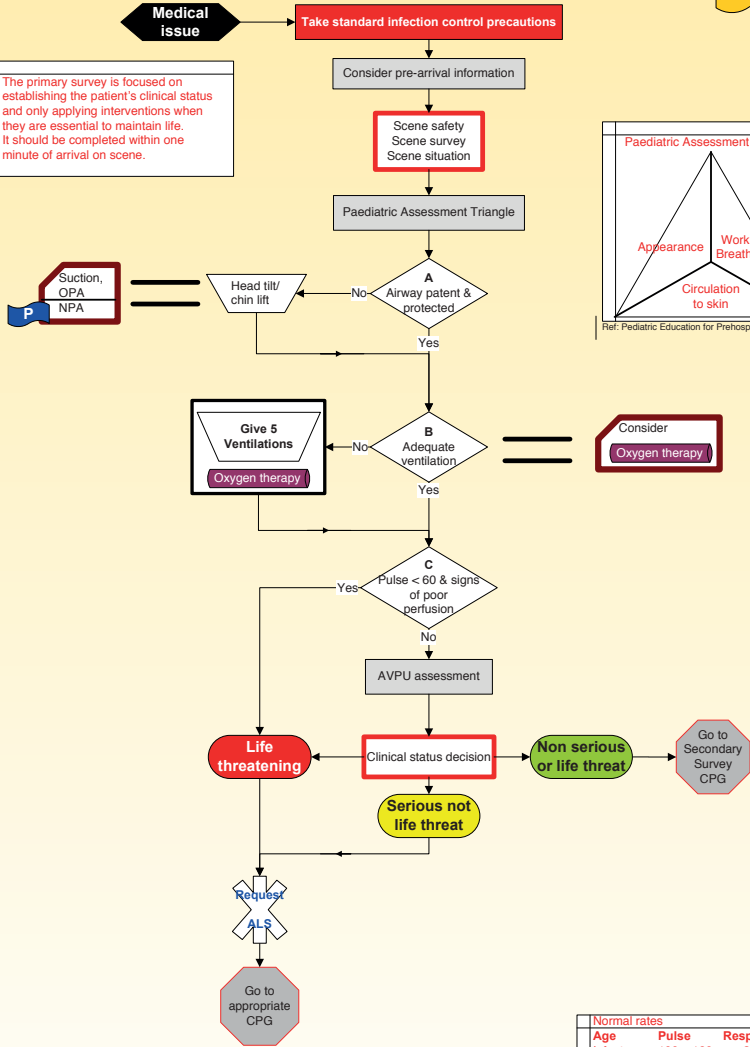
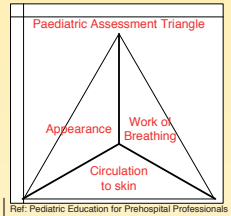
Reference: Golden, F & Tipton M, 2002, Essentials of Sea Survival, Human Kinetics
 Verie, M, 2007, Near Drowning, E medicine, www.emedicine.com/ped/topic20570.htm
 Shepherd, S, 2005, Submersion Injury, Near Drowning, E Medicine, www.emedicine.com/emerg/topic744.htm
 AHA, 2005, Part 10.3: Drowning, Circulation 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

4/5/6.7.1
Version 2, 03/11

Primary Survey Medical – Paediatric (≤ 13 Years)



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 EMERGENCIES
 Primary Survey Medical – Paediatric (≤ 13 years)

S7

Normal rates		
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

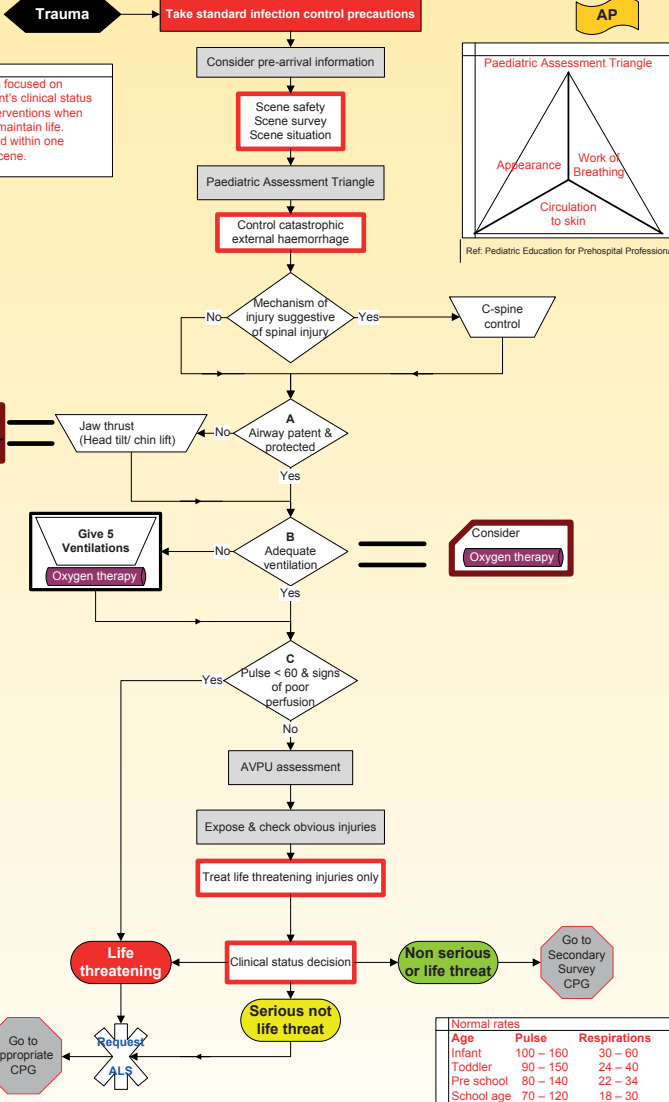
Reference: ILCOR Guidelines 2010, American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals

4/5/6.7.2
Version 2, 03/11

Primary Survey Trauma – Paediatric (≤ 13 years)



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 EMERGENCIES
Primary Survey Trauma – Paediatric (≤ 13 years)

Reference: ILCOR Guidelines 2010, American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals

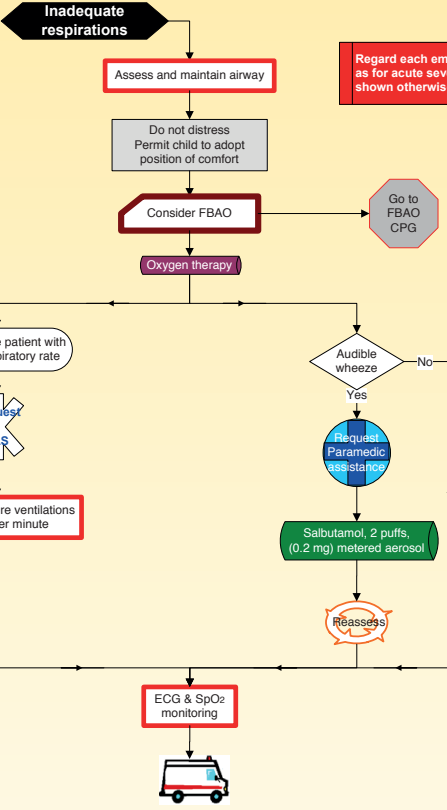
4.7.5
Version 2, 03/11

Inadequate Respirations – Paediatric (≤ 13 years)

EMT

Equipment list
Volumizer to be used to administer Salbutamol

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



PAEDIATRIC EMERGENCIES
Inadequate Respirations – Paediatric (≤ 13 years)

S7

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

Moderate asthma exacerbation (2)
Increasing symptoms
No features of acute severe asthma

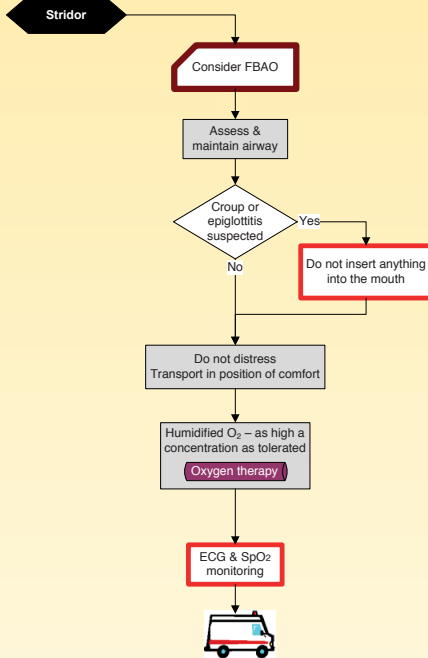
Acute severe asthma
Any one of;
Inability to complete sentences in one breath or too breathless to talk or feed
Respiratory rate > 30/ min for > 5 years old
> 50/ min for 2 to 5 years old
Heart rate > 120/ min for > 5 years old
> 130/ min for 2 to 5 years old

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



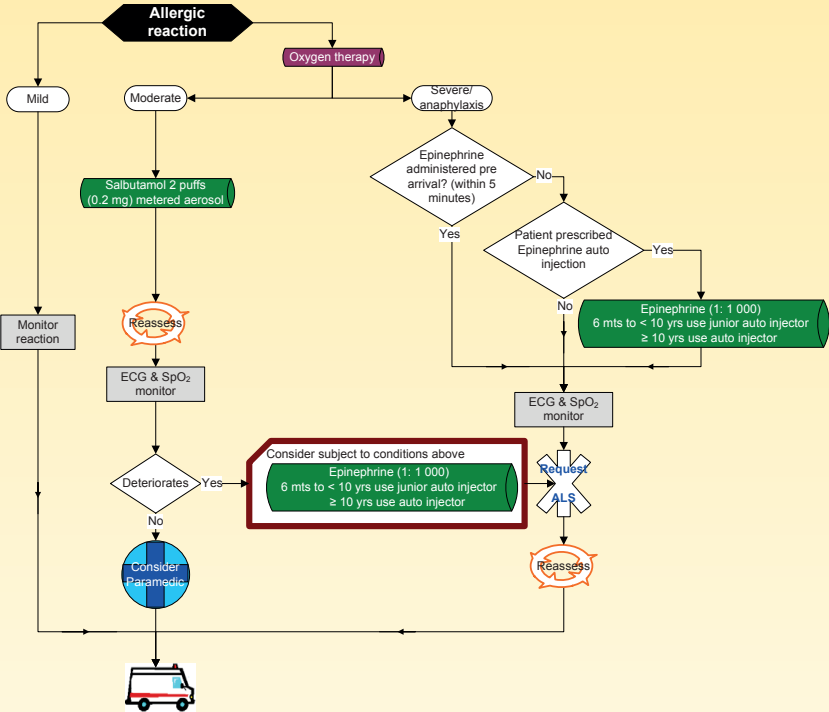
PAEDIATRIC EMERGENCIES
Stridor – Paediatric (≤ 13 years)

S7

4.7.8
Version 2, 03/11

Allergic Reaction/Anaphylaxis – Paediatric (≤ 13 years)

EMT



PAEDIATRIC EMERGENCIES
Allergic Reaction/Anaphylaxis – Paediatric (≤ 13 years)

S7

Mild Urticaria and or angio oedema
--

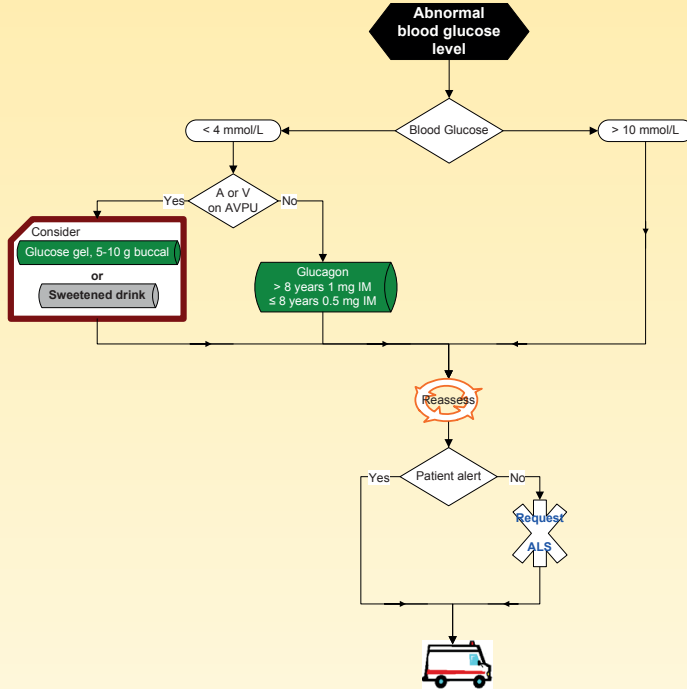
Moderate Mild symptoms + simple bronchospasm
--

Severe Moderate symptoms + haemodynamic and or respiratory compromise

05/08 4.7.9

Glycaemic Emergency – Paediatric (≤ 13 years)

EMT



PAEDIATRIC EMERGENCIES
Glycaemic Emergency – Paediatric (≤ 13 years)

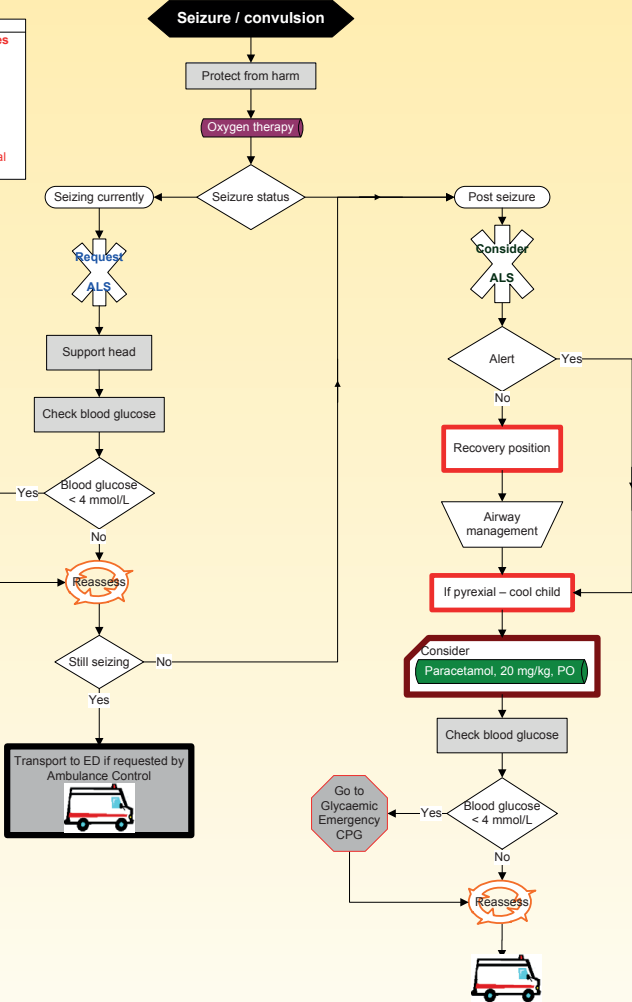
S7

4.7.10
Version 2, 07/11

Seizure/Convulsion – Paediatric (≤ 13 years)

EMT

- Consider other causes of seizures**
- Meningitis
 - Head injury
 - Hypoglycaemia
 - Eclampsia
 - Fever
 - Poisons
 - Alcohol/drug withdrawal



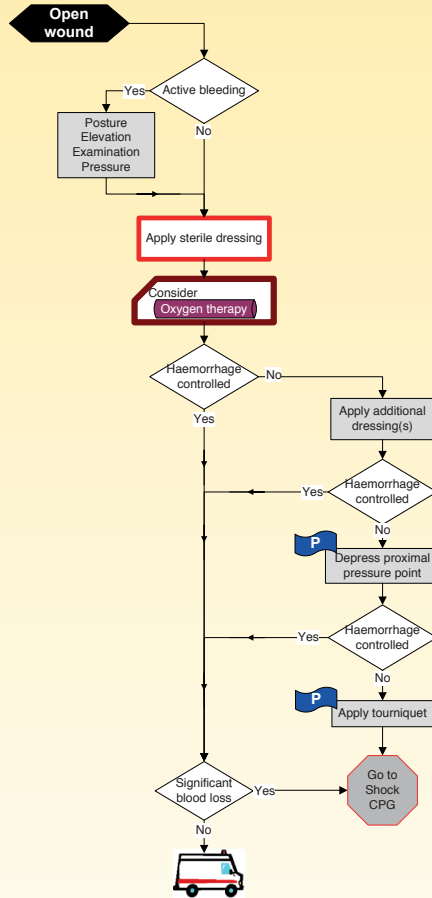
PAEDIATRIC EMERGENCIES
 Seizure/Convulsion – Paediatric (≤ 13 years)

S7

4/5/6.7.11
05/08

External Haemorrhage – Paediatric (≤ 13 years)

EMT P
AP



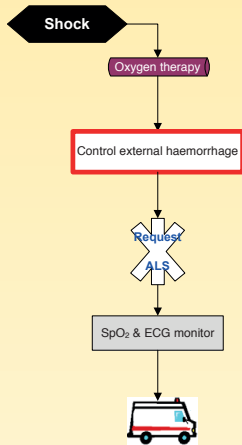
PAEDIATRIC EMERGENCIES
External Haemorrhage – Paediatric (≤ 13 years)

S7

4.7.13
05/08

Shock from Blood Loss – Paediatric (≤ 13 years)

E.M.T



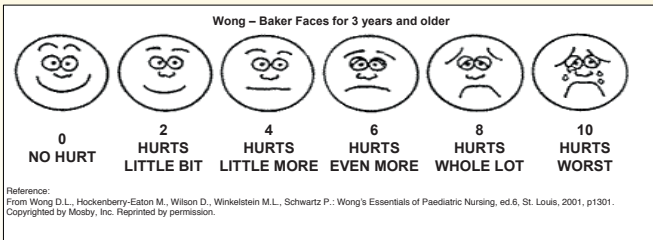
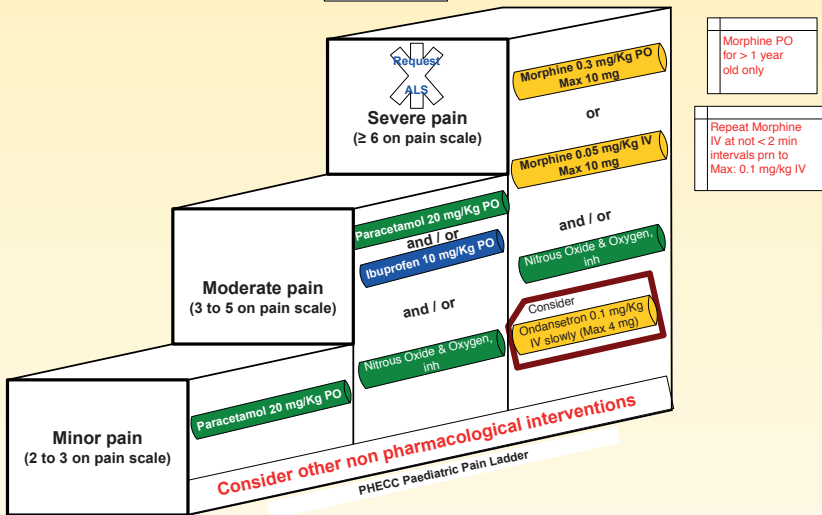
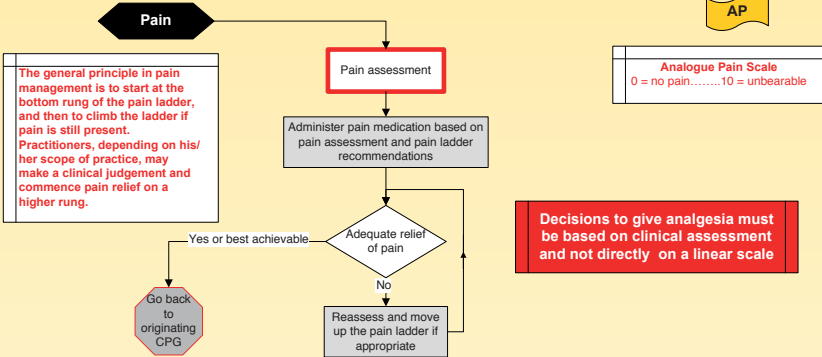
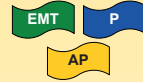
Signs of inadequate perfusion
Tachycardia
Diminished/absent peripheral pulses
Tachypnea
Irritability/ confusion / ALoC
Cool extremities, mottling
Delayed capillary refill

PAEDIATRIC EMERGENCIES
Shock from Blood Loss – Paediatric (≤ 13 years)

S7

4/5/6.7.14
Version 2, 03/11

Pain Management – Paediatric (≤ 13 years)



Reference: World Health Organization, Pain Ladder

PAEDIATRIC EMERGENCIES
Pain Management – Paediatric (≤ 13 years)

05/08 4.7.15

Spinal Immobilisation – Paediatric (≤ 13 years)

EMT

Trauma Indications for spinal immobilisation

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

If in doubt, treat as spinal injury

Stabilise cervical spine



Do not forcibly restrain a paediatric patient that is combative

Remove helmet (if worn)

Life Threatening

Rapid extrication with long board and cervical collar

Apply cervical collar

Patient in sitting position

Equipment list
Long board
Vacuum mattress
Orthopaedic stretcher
Rigid cervical collar

Note: equipment must be age appropriate

Patient in undamaged child seat

Immobilise in the child seat

Prepare extrication device for use
Follow direction of Paramedic, Advanced Paramedic or doctor

Load onto vacuum mattress/ long board/ paediatric board

Consider Vacuum mattress

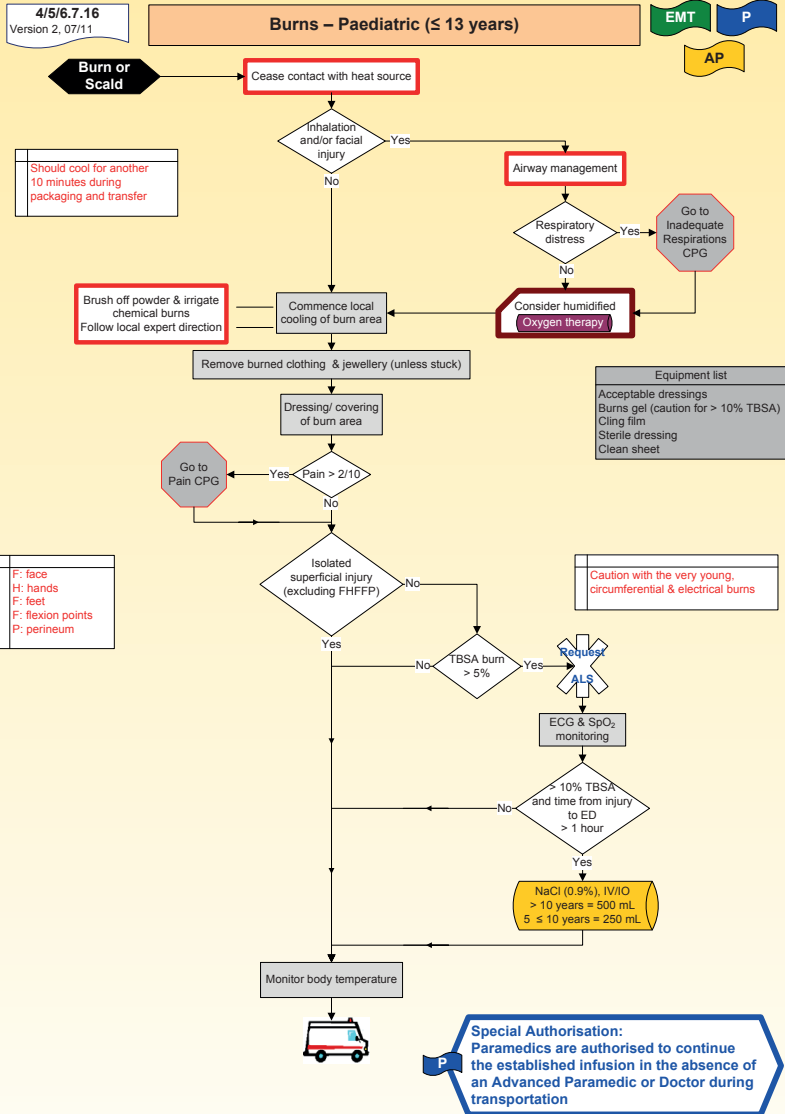


Paediatric spinal injury indications include
Pedestrian v auto
Passenger in high speed vehicle collision
Ejection from vehicle
Sports/ playground injuries
Falls from a height
Axial load to head

PAEDIATRIC EMERGENCIES
Spinal Immobilisation – Paediatric (≤ 13 years)

S7

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



PAEDIATRIC EMERGENCIES
Burns – Paediatric (≤ 13 years)

S7

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

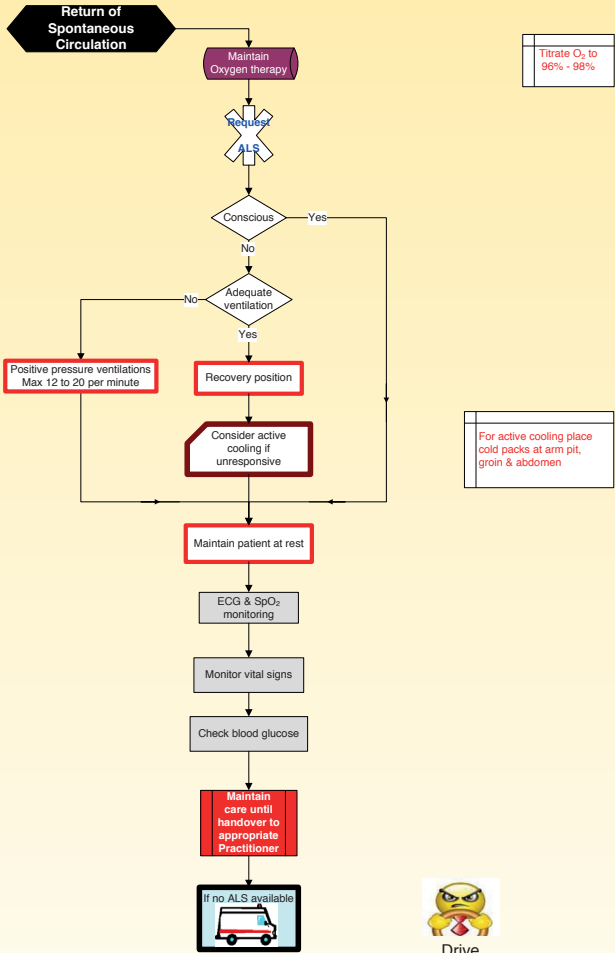
03/11 4.7.17

Post-Resuscitation Care – Paediatric

EMT

Equipment list
Cold packs

Titrate O₂ to
96% - 98%



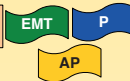
PAEDIATRIC EMERGENCIES
Post Resuscitation Care – Paediatric

S7

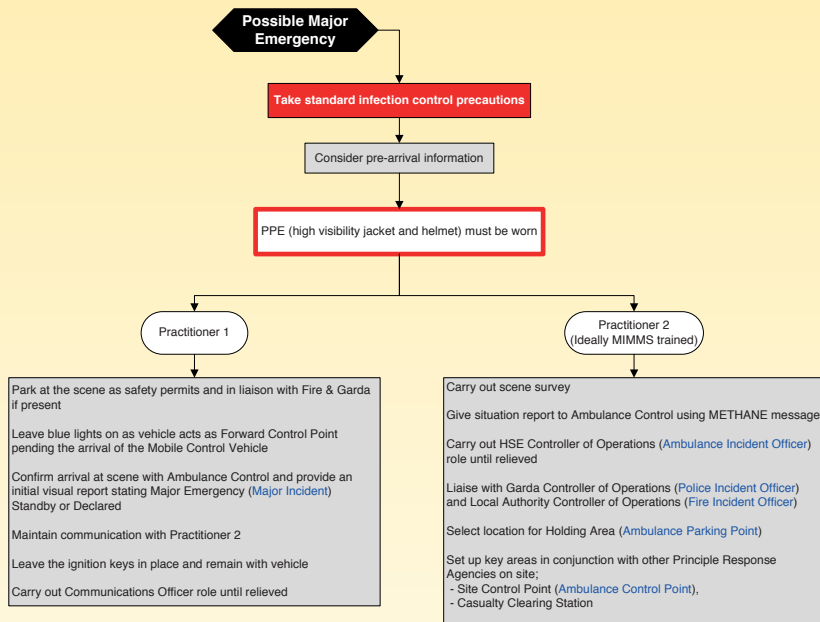
Reference: ILCOR Guidelines 2010

4/5/6.8.1
05/08

Major Emergency (Major Incident) – First Practitioners on site



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



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

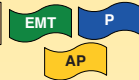
The first ambulance crew does not provide care or transport of patients as this interferes with their ability to liaise with other services, to assess the scene and to provide continuous information as the incident develops

PRE-HOSPITAL EMERGENCY CARE OPERATIONS
Major Emergency – First Practitioners on site

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

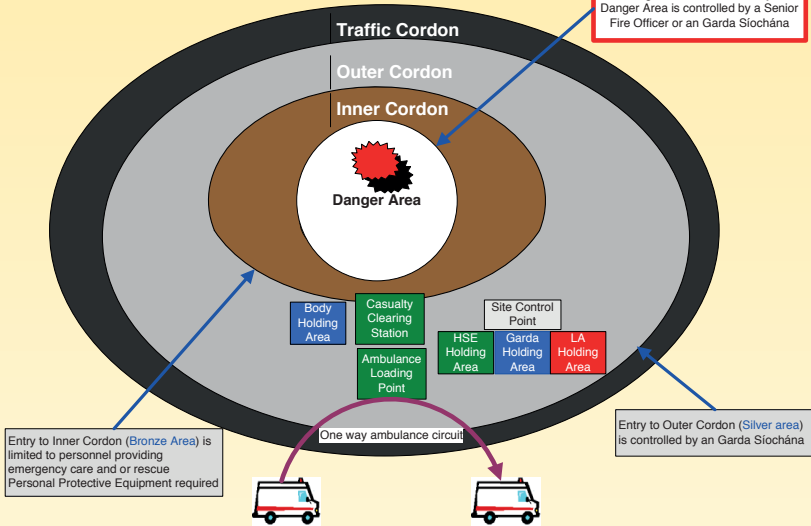
4/5/6.8.2
05/08

Major Emergency (Major Incident) – Operational Control



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



PRE-HOSPITAL EMERGENCY CARE OPERATIONS
Major Emergency - Operational Control

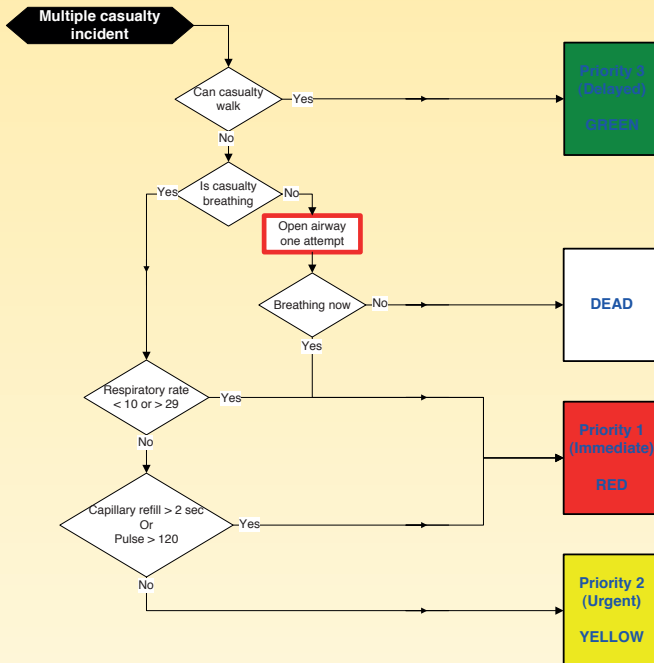
S8

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



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

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.

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;

- $(\text{age} \times 3) + 7$ 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 9 medications for EMT level.

Please visit www.phecc.ie for the latest edition/version.

AMENDMENTS TO THE 3RD EDITION VERSION 2 INCLUDE:

ASPIRIN		
Heading	Add	Delete
Additional information	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.	

OXYGEN		
Heading	Add	Delete
Indications	SpO ₂ < 94% adults Et < 96% paediatrics	SpO ₂ < 97%
Usual dosages	<p>Adult: Life threats identified during primary survey; 100% until a reliable SpO₂ measurement obtained then titrate O₂ to achieve SpO₂ of 94% - 98%. All other acute medical and trauma titrate O₂ to achieve SpO₂ 94% -98%.</p> <p>Paediatric: Life threats identified during primary survey; 100% until a reliable SpO₂ measurement obtained then titrate O₂ to achieve SpO₂ of 96% - 98%. All other acute medical and trauma titrate O₂ to achieve SpO₂ of 96% - 98%.</p>	<p>Adult: via BVM, Pneumothorax; 100 % via high concentration reservoir mask. All other acute medical and trauma titrate to SpO₂ > 97%.</p> <p>Paediatric: via BVM, All other acute medical and trauma titrate to SpO₂ > 97%.</p>
Additional information	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.	

PARACETAMOL		
Heading	Add	Delete
Indications	Minor or moderate pain (2 – 6 on pain scale) for adult and paediatric patients	moderate pain (2 – 6 on pain scale)
Contra indications	Chronic liver disease	Paracetamol given in previous 4 hours
Additional information	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	

SALBUTAMOL		
Heading	Add	Delete
Additional information	If an oxygen driven nebulizer is used to administer Salbutamol for a patient with acute exacerbation of COPD it should be limited to 6 minutes maximum	

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

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Oxygen.....	88
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CLINICAL LEVEL:



DRUG NAME	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) - dispersed in water - if soluble or to be chewed, if not soluble. (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 A ₂ , 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 side effects	Generally mild and infrequent but high incidence of gastrointestinal 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 has taken anti coagulants or is already on aspirin. One 300 mg tablet in 24 hours. 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:



DRUG NAME	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	<p>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.</p> <p>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)</p> <p>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.</p>
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:



DRUG NAME	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. Phaechromocytoma.
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 and 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:



DRUG NAME	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:



DRUG NAME	
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). EFR: 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 hr. 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. EFR: 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:



DRUG NAME	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:



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: <ul style="list-style-type: none"> - 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:



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 (2 - 6 on pain scale) for adult and paediatric patients.
Contra-Indications	Known severe adverse reaction. Chronic liver disease
Usual Dosages	Adult: 1 g PO. Paediatric: PR PO < 1 year - 60 mg PR. 20 mg/Kg PO. 1-3 years - 180 mg PR. 4-8 years - 360 mg PR.
Pharmacology/Action	Analgesic – central prostaglandin inhibitor. Antipyretic – prevents the hypothalamus from synthesising prostaglandin E, inhibiting the body temperature from rising further.
Side effects Long term side effects	None 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 2 nd 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:



DRUG NAME	SALBUTAMOL
Class	Sympathetic agonist.
Descriptions	Sympathomimetic that is selective for beta-two 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). EMT & EFR: 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). EMT & EFR: 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 nebulizer is used to administer Salbutamol for a patient with acute exacerbation of COPD it should be limited to 6 minutes maximum

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®)					✓	✓	✓
Paracetamol PO					✓	✓	✓
Morphine IM					URMPIO	URMPIO	✓SA
Epinephrine (1: 1,000) IM					✓	✓	✓

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
MEDICATION							
Ibuprofen PO						✓	✓
Midazolam IM/Buccal/IN						✓	✓
Naloxone IM						✓	✓
Salbutamol nebule						✓	✓
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							✓
Clopidogrel PO							✓
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							✓
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							✓
Laryngoscopy and Magill forceps							✓
Supraglottic airway child							✓
Nasogastric tube							✓

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
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	✓	✓	✓
Sublingual				✓SA	✓	✓	✓

CLINICAL LEVEL	CFR - C	CFR - A	OFA	EFR	EMT	P	AP
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	✓	✓	✓

CLINICAL LEVEL	CFR – C	CFR – A	OFA	EFR	EMT	P	AP
Splinting device application to lower limb				APO	✓	✓	✓
Secure and move a patient with an extrication device				APO	APO	✓	✓
Active re-warming					✓	✓	✓
Move and secure patient into a vacuum mattress					✓	✓	✓
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							✓

CLINICAL LEVEL	CFR - C	CFR - A	OFA	EFR	EMT	P	AP
Patient assessment							
Assess responsiveness	✓	✓	✓	✓	✓	✓	✓
Check breathing	✓	✓	✓	✓	✓	✓	✓
FAST assessment	✓	✓	✓	✓	✓	✓	✓
AVPU			✓	✓	✓	✓	✓
Breathing & pulse rate			✓	✓	✓	✓	✓
Primary survey			✓	✓	✓	✓	✓
SAMPLE history			✓	✓	✓	✓	✓
Secondary survey			✓	✓	✓	✓	✓
Capillary refill				✓	✓	✓	✓
CSM assessment				✓	✓	✓	✓
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 °C					✓	✓	✓
Triage sieve					✓	✓	✓
Chest auscultation						✓	✓
GCS						✓	✓
Revised Trauma Score						✓	✓
Triage sort						✓	✓



Ambulance Service

Critical Incident Stress Management

Committee

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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Critical Incident Stress Management

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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 EMERGENCY MEDICAL TECHNICIANS 3RD EDITION VERSION 2

- i) A policy decision has been made in relation to Oxygen Therapy, which is a generic term used on the CPGs to describe the administration of oxygen. Oxygen is a medication that is recommended on the majority of CPGs and should always be considered. Research has demonstrated that 100% oxygen delivered to all patients may be harmful therefore oxygen should be titrated to the desired effect. For all life threatening conditions the initial response should be the administration of 100% O₂. For other conditions and patients who have been stabilised oxygen should be titrated to an SpO₂ of between 94% & 98% for adults and 96% & 98% for paediatric patients. For patients with acute exacerbation of COPD, administer O₂ titrated to SpO₂ 92% or as specified on the COPD Oxygen Alert Card.
- ii) A policy decision has been made in relation to pre-hospital IV fluids as best practice is to have only one fluid type available to avoid confusion. Replace Hartmann's solution with Sodium Chloride 0.9% (NaCl) on all CPGs. Hartmann's solution to still be considered a suitable option if NaCl not available.

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4/5/6.4.9 Symptomatic Bradycardia – Paediatric	<ul style="list-style-type: none"> • NaCl (0.9%) has replaced Hartmann's solution.
CPG 4/5/6.4.26 Decompression Illness (DCI)	<ul style="list-style-type: none"> • NaCl (0.9%) has replaced Hartmann's solution.
CPG 4/5/6.6.4 Burns – Adult	<ul style="list-style-type: none"> • NaCl (0.9%) has replaced Hartmann's solution. • The layout has been modified to simplify the CPG. • The restriction on burns gel has been reduced to a caution if > 10% TBSA is burnt. • 'Minimum 15 minutes cooling of area is recommended' has been replaced with 'should cool for another 10 minutes during packaging and transfer'

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4/5/6.7.16 Burns – Paediatric	<ul style="list-style-type: none"> • NaCl (0.9%) has replaced Hartmann's solution. • The layout has been modified to simplify the CPG. • The restriction on burns gel has been reduced to a caution if > 10% TBSA is burnt. • 'Minimum 15 minutes cooling of area is recommended' has been replaced with 'should cool for another 10 minutes during packaging and transfer'

iii) Operational practice has identified the need to update the following CPGs.

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4.2.4 Secondary Survey Medical – Adult	<ul style="list-style-type: none"> • The Modified Early Warning Score (MEWS) has been removed from the CPG
CPG 4/5/6.2.6 Pain Management – Adult	<ul style="list-style-type: none"> • This CPG has been redesigned to reflect pain management as a stepped approach and not as a liner approach. • The PHECC Pain Ladder has been developed to reflect the World Health Organisation (WHO) approach to pain. The PHECC Pain Ladder has three steps; minor pain, moderate pain and severe pain.
CPG 4.3.2 Inadequate Respiration – Adult	<ul style="list-style-type: none"> • 'Prescribed Salbutamol previously' is no longer a criterion for the administration of Salbutamol for EMTs.
CPG 4.4.16 Cardiac Chest Pain – Acute Coronary Syndrome	<ul style="list-style-type: none"> • For ACS patients' oxygen therapy should be titrated to between 94% and 98%.

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4.4.18 Allergic Reaction/ Anaphylaxis – Adult	<ul style="list-style-type: none"> • The route into the CPG has been changed from 'Anaphylaxis' to 'Allergic reaction' • 'Prescribed Salbutamol previously' is no longer a criterion for the administration of Salbutamol for EMTs.
CPG 4.4.20 Seizure/Convulsion – Adult	<ul style="list-style-type: none"> • 'Alcohol/drug withdrawal' has been added as possible causes of seizure.
CPG 4.4.22 Stroke	<ul style="list-style-type: none"> • Maintain Oxygen therapy between an SpO₂ of 94% and 98%, unless COPD, maintain it at the lower range.
CPG 4.7.5 Inadequate Respiration – Paediatric	<ul style="list-style-type: none"> • 'Prescribed Salbutamol previously' is no longer a criterion for the administration of Salbutamol for EMTs.
CPG 4.7.8 Allergic Reaction/ Anaphylaxis – Paediatric	<ul style="list-style-type: none"> • The route into the CPG has been changed from 'Anaphylaxis' to 'Allergic reaction' • 'Prescribed Salbutamol previously' is no longer a criterion for the administration of Salbutamol for EMTs.
CPG 4.7.10 Seizure/Convulsion – Paediatric	<ul style="list-style-type: none"> • 'Alcohol/drug withdrawal' has been added as possible causes of seizure.
CPG 4/5/6.7.14 Pain Management – Paediatric	<ul style="list-style-type: none"> • This CPG has been redesigned to reflect pain management as a stepped approach and not as a liner approach. • The PHECC Pain Ladder has been developed to reflect the World Health Organisation (WHO) approach to pain. The PHECC Pain Ladder has three steps; minor pain, moderate pain and severe pain.

- iv) Following the publication of ILCOR guidelines 2010, PHECC has updated several CPGs to reflect best international practice. The following describe the changes of the affected CPGs.

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4/5/6.2.1 Primary Survey Medical – Adult	<ul style="list-style-type: none"> • If, following the check for breathing, the patient is not breathing the two initial ventilations are no longer recommended. • The practitioner is directed to make a clinical status decision as soon as he/she identifies a 'life threat'. • Following the primary survey the practitioner may go directly to an 'appropriate CPG' or the 'Secondary Survey CPG' depending on the clinical findings. • Suction, OPA & NPA are in parallel with airway therefore the practitioner uses clinical judgement in relation to their use. • Oxygen therapy is in parallel with ventilation therefore the practitioner uses clinical judgement in relation to its administration.
CPG 4/5/6.2.2 Primary Survey Trauma – Adult.	<ul style="list-style-type: none"> • Control of catastrophic external haemorrhage is the first intervention during the primary survey trauma. • If, following the check for breathing, the patient is not breathing the two initial ventilations are no longer recommended. • The practitioner is directed to make a clinical status decision as soon as he/she identifies a life threat. • Following the primary survey the practitioner may go directly to an 'appropriate CPG' or the 'Secondary Survey CPG' depending on the clinical findings. • Suction, OPA & NPA are in parallel with airway therefore the practitioner uses clinical judgement in relation to their use. • Oxygen therapy is in parallel with ventilation therefore the practitioner uses clinical judgement in relation to its administration.

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4/5/6.4.1 Basic Life Support – Adult	<ul style="list-style-type: none"> • Differentiating between witnessed and unwitnessed cardiac arrest is no longer recommended. The practitioner should attach the defibrillation pads as soon as a cardiac arrest is identified, decide if defibrillation is required and treat as appropriate. If a second practitioner/responder is present CPR should be ongoing during this process. • The compression rate has been increased to between 100 and 120 per minute. The depth has been increased to 'at least 5 cm'. • The ventilation volume should be targeted at between 500 and 600 mL, at a rate of one every six seconds. • The practitioner/ responder is directed to continue CPR while the defibrillator is charging. • A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing the patient/ rhythm should not exceed 10 seconds. • For information; if an implantable cardioverter defibrillator (ICD) is fitted in the patient, treat the patient as per CPG. It is safe to touch a patient with an ICD fitted even if it is firing.
CPG 4/5/6.4.2 Basic Life Support – Child	<ul style="list-style-type: none"> • Basic Life Support – Child CPG has been incorporated into a new CPG, Basic Life Support – Paediatric (see below for details).
CPG 5/4.4.3 Basic Life Support – Infant	<ul style="list-style-type: none"> • Basic Life Support – Infant CPG has been incorporated into a new CPG, Basic Life Support – Paediatric (see below for details).

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4/5/6.4.7 VF or Pulseless VT – Adult	<ul style="list-style-type: none"> • This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR and defibrillation. All other interventions are regarded as secondary to this process. • A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing or carrying out an intervention should not exceed 10 seconds. • CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation. • The indication for transport to ED is now expressed as a time frame, '20 minutes of resuscitation' and not a specific number of shocks delivered. • While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient. • Practitioners are advised that mechanical CPR devices are the optimum care during transport for a cardiac arrest patient. • Advanced airway management has been authorised for EMTs
CPG 4/5/6.4.8 VF or Pulseless VT – Paediatric	<ul style="list-style-type: none"> • Basic Life Support – Infant CPG has been incorporated into this CPG in relation to VF/VT management. • EMTs are now authorised to defibrillate infants. • This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR and defibrillation. All other interventions are regarded as secondary to this process. • A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing or carrying out an intervention should not exceed 10 seconds. • CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation. • The indication for transport to ED is now expressed as a time frame, '10 minutes of resuscitation' and not a specific number of shocks delivered. • While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient.

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4.4.10 Asystole – Adult	<ul style="list-style-type: none"> • This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR. All other interventions are regarded as secondary to this process. • A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing or carrying out an intervention should not exceed 10 seconds. • CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation. • The indication for transport to ED is now expressed as a time frame, '20 minutes of resuscitation' and not a specific number of shocks attempted. • While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient. • Practitioners are advised that mechanical CPR devices are the optimum care during transport for a cardiac arrest patient. • Advanced airway management has been authorised for EMTs
CPG 4/5/6.4.11 Pulseless Electrical Activity – Adult	<ul style="list-style-type: none"> • This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR. All other interventions are regarded as secondary to this process. • A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing or carrying out an intervention should not exceed 10 seconds. • CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation. • The indication for transport to ED is now expressed as a time frame, '20 minutes of resuscitation' and not a specific number of shocks attempted. • While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient. • Practitioners are advised that mechanical CPR devices are the optimum care during transport for a cardiac arrest patient. • Advanced airway management has been authorised for EMTs

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4/5/6.4.12 Asystole / PEA – Paediatric	<ul style="list-style-type: none"> • Basic Life Support – Infant CPG has been incorporated into this CPG in relation to Asystole/PEA management. • This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR. All other interventions are regarded as secondary to this process. • A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing or carrying out an intervention should not exceed 10 seconds. • CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation. • The indication for transport to ED is now expressed as a time frame, '10 minutes of resuscitation' and not a specific number of shocks attempted. • While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient.
CPG 4.4.14 Post Resuscitation Care – Adult	<ul style="list-style-type: none"> • For ROSC patients' oxygen therapy should be titrated to between 94% and 98%. • EMTs are authorised to actively cool patients following ROSC. • While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient. • Follow local protocol for transport to appropriate facility.

CPGS	THE PRINCIPAL DIFFERENCES ARE
CPG 4/5/6.7.1 Primary Survey Medical – Paediatric	<ul style="list-style-type: none"> • The findings as a result of the paediatric assessment triangle (PAT) may no longer permit the practitioner to bypass the ABCED approach to primary survey. • Suction, OPA & NPA are in parallel with airway therefore the practitioner uses clinical judgement in relation to their use. • If, following the check for breathing, the patient is not breathing the practitioner is directed to give five initial ventilations. • Oxygen therapy is in parallel with ventilation therefore the practitioner uses clinical judgement in relation to its administration. • There is no longer a differentiation between an infant and child in relation to circulation checks. If the pulse is < 60 and signs of poor perfusion are present it is regarded as life threatening and CPR should be commenced. • The practitioner is directed to make a clinical status decision as soon as he/she identifies a life threat.
CPG 4/5/6.7.2 Primary Survey Trauma – Paediatric	<ul style="list-style-type: none"> • The findings as a result of the paediatric assessment triangle (PAT) may no longer permit the practitioner to bypass the ABCED approach to primary survey. • Control of catastrophic external haemorrhage is the first intervention during the primary survey trauma. • Suction, OPA & NPA are in parallel with airway therefore the practitioner uses clinical judgement in relation to their use. • If, following the check for breathing, the patient is not breathing the practitioner is directed to give five initial ventilations. • Oxygen therapy is in parallel with ventilation therefore the practitioner uses clinical judgement in relation to its administration. • There is no longer a differentiation between an infant and child in relation to circulation checks. If the pulse is < 60 and signs of poor perfusion are present it is regarded as life threatening and CPR should be commenced. • The practitioner is directed to make a clinical status decision as soon as he/she identifies a life threat.

NEW CPGS INTRODUCED INTO THIS VERSION INCLUDE

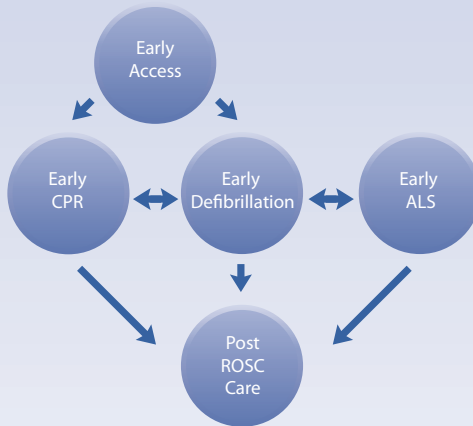
NEW CPGS	THE NEW SKILLS AND MEDICATIONS INCORPORATED INTO THE CPG ARE;
CPG 4.3.1 Advanced Airway Management – Adult	<ul style="list-style-type: none"> • EMTs have been authorised to insert a non inflatable supraglottic airway for patients in cardiac arrest. • A maximum of two attempts are permitted at the insertion of the supraglottic airway • The key consideration when inserting an advanced airway is to ensure that CPR is ongoing. A maximum of 10 seconds 'hands off time' is permitted. • Once the advanced airway is successfully inserted the patient should be ventilated at 8 to 10 ventilations per minute, one every six seconds. Unsynchronised chest compressions should be performed continuously at 100 to 120 per minute.
CPG 4/5/6.4.4 Basic Life Support – Paediatric	<ul style="list-style-type: none"> • Basic Life Support – Child and Basic Life Support – Infant CPGs have been incorporated into this new CPG. • The indication for CPR for all paediatric patients is: cardiac arrest or pulse < 60 with signs of poor perfusion. • Resuscitation is commenced with 5 rescue breaths. • CPR is continued until the defibrillation pads are applied. • The compression rate has been increased to between 100 and 120 per minute. The depth is specified as being '1/3 depth of chest'. • EMTs are authorised to defibrillate infants. • The practitioner is directed to continue CPR while the defibrillator is charging. • A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing the patient/ rhythm should not exceed 10 seconds.

NEW CPGS	THE NEW SKILLS AND MEDICATIONS INCORPORATED INTO THE CPG ARE;
CPG 4.4.31 End of Life – DNR	<ul style="list-style-type: none"> • This is a new CPG designed for patients who are at end stage of a terminal illness. • For a patient involved in a planned ambulance transport the EMT should receive recent & reliable written instructions from the patient's doctor stating that the patient is not for resuscitation. • Agreement must be sought between the caregivers present and the EMT not to resuscitate. • If the criteria above are met it is inappropriate to commence resuscitation. • If the patient has a cardiac output the EMT should provide supportive care such as basic airway management and oxygen therapy until handover to an appropriate practitioner. Ventilations and or chest compressions should not be commenced. • Consult with ambulance control re transport decision. Follow local protocol for care of deceased.
CPG 4.7.17 Post Resuscitation Care – Paediatric	<ul style="list-style-type: none"> • For paediatric ROSC patients' oxygen therapy should be titrated to between 96% and 98%. • If the patient is unresponsive following ROSC and airway & ventilation functions are being maintained the practitioner is directed to commence active cooling. • While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient. • Practitioners are reminded to check blood glucose on all ROSC patients.

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.