PHECC Clinical Practice Guidelines

First Edition 2001
Second Edition 2004
Third Edition 2009
Fourth Edition April 2012
Fifth Edition July 2014

Published by:

Pre-Hospital Emergency Care Council
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ISBN 978-0-9571028-8-0
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# Clinical Practice Guidelines

## Clinical Practice Guidelines - 2014 Edition

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The role of the Pre-Hospital Emergency Care Council (PHECC) is to protect the public by independently specifying, reviewing, maintaining and monitoring standards of excellence for the delivery of quality pre-hospital emergency care for people in Ireland. The contents of this clinical publication are fundamental to how we achieve this goal.

Clinical Practice Guidelines have been developed for responders and practitioners to aid them in providing world-class pre-hospital emergency care to people in Ireland.

I would like to thank the members of the Medical Advisory Committee, chaired by Dr Mick Molloy for their efforts and expertise in developing these guidelines. The council acknowledge the work of the PHECC Executive in researching and compiling these Guidelines, in particular Mr Brian Power, Programme Development Officer. I also commend the many responders and practitioners whose ongoing feedback has led to the improvement and creation of many of the Guidelines herein.

The publication of these Guidelines builds on the legacy of previous publications and marks yet another important milestone in the development of care delivered by responders and practitioners throughout Ireland. Despite the difficulties faced by responders and licensed service providers, I am proud that they continue to develop their skills and knowledge to provide safer and more effective patient care.

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

- 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)
- Basic Tactical Emergency Care (BTEC)
- Carbon Dioxide ($CO_2$)
- Cardiopulmonary Resuscitation (CPR)
- Cervical Spine (C-spine)
- Chronic Obstructive Pulmonary Disease (COPD)
- Clinical Practice Guideline (CPG)
- Degree ($^\circ$)
- Degrees Centigrade ($^\circ$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)
- Milligram (mg)
- Millilitre (mL)
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<td>Millimole</td>
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<td>Minute</td>
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<td>Modified Early Warning Score</td>
<td>MEWS</td>
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<td>Motor Vehicle Collision</td>
<td>MVC</td>
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<td>Myocardial Infarction</td>
<td>MI</td>
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<td>Nasopharyngeal airway</td>
<td>NPA</td>
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<tr>
<td>Milliequivalent</td>
<td>mEq</td>
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<tr>
<td>Millimetres of mercury</td>
<td>mmHg</td>
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<td>Nebulised</td>
<td>NEB</td>
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<td>Negative decadic logarithm of the H+ ion concentration</td>
<td>pH</td>
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<td>Orally (per os)</td>
<td>PO</td>
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<td>Oropharyngeal airway</td>
<td>OPA</td>
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<td>Oxygen</td>
<td>O₂</td>
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<td>Paramedic</td>
<td>P</td>
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<td>Peak Expiratory Flow</td>
<td>PEF</td>
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<td>Per rectum</td>
<td>PR</td>
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<td>Percutaneous Coronary Intervention</td>
<td>PCI</td>
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<td>Personal Protective Equipment</td>
<td>PPE</td>
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<td>Pulseless Electrical Activity</td>
<td>PEA</td>
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<tr>
<td>Respiration rate</td>
<td>RR</td>
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<tr>
<td>Return of Spontaneous Circulation</td>
<td>ROSC</td>
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<tr>
<td>Revised Trauma Score</td>
<td>RTS</td>
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<tr>
<td>Saturation of arterial oxygen</td>
<td>SpO₂</td>
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<tr>
<td>ST Elevation Myocardial Infarction</td>
<td>STEMI</td>
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<tr>
<td>Subcutaneous</td>
<td>SC</td>
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<tr>
<td>Sublingual</td>
<td>SL</td>
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<tr>
<td>Systolic Blood Pressure</td>
<td>SBP</td>
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<tr>
<td>Therefore</td>
<td>:</td>
</tr>
<tr>
<td>Total body surface area</td>
<td>TBSA</td>
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<tr>
<td>Ventricular Fibrillation</td>
<td>VF</td>
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<td>VT</td>
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<td>When necessary (pro re nata)</td>
<td>prn</td>
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ACKNOWLEDGEMENTS

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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ACKNOWLEDGEMENTS

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SPECIAL THANKS
HSE National Clinical Programme for Acute Coronary Syndrome
HSE National Asthma Programme
HSE National Diabetes Programme
HSE National Clinical Programme for Emergency Medicine
HSE National Clinical Programme for Epilepsy
HSE National Clinical Programme for Paediatrics and Neonatology

A special thanks to all the PHECC team who were involved in this project. In particular Ms Deirdre Borland for her dedication in bringing this project to fruition.

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Mr Austin Florish, Paramedic
Clinical Practice Guidelines for pre-hospital care are under constant review as practices change, new therapies and medications are introduced, and as more pre-hospital clinical pathways are introduced such as Code STEMI and code stroke which are both leading to significant improved outcomes for patients. A measure of how far the process has developed can be gained from comparing the 29 Standard Operating Procedures for pre-hospital care in existence prior to the inception of the Pre-Hospital Emergency Care Council and the now more than 319 guidelines and growing.

The 2014 guidelines include such new developments as the use of intranasal fentanyl for advanced paramedics and harness induced suspension trauma for both practitioners and responders.

Clinical Practice Guidelines recognise that practitioners and responders provide care to the same patients but to different skill levels and utilising additional pharmaceutical interventions depending on the practitioner level.

This edition of the guidelines has introduced some new concepts such as the basic tactical emergency care standard at EFR and EMT level for appropriately employed individuals. As ever feedback on the guidelines from end users or interested parties is always welcomed and may be directed to the Director of PHECC or the Medical Advisory Committee who review each and every one of the guidelines before they are approved by the Council.

Dr Mick Molloy, Chair, Medical Advisory Committee.
Clinical Practice Guidelines

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 a licensed CPG provider (paid or voluntary).
3. The practitioner is privileged by the licensed CPG provider on whose behalf he/she is acting to implement the specific CPG.
4. The practitioner has received training on – and is competent in – the skills and medications specified in the CPG being utilised.

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

Definitions

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<tr>
<td>Adult</td>
<td>A patient of 16 years or greater, unless specified on the CPG.</td>
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<td>Child</td>
<td>A patient between 1 and less than or equal to (≤) 15 years old, unless specified on the CPG</td>
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<tr>
<td>Infant</td>
<td>A patient between 4 weeks and less than 1 year old, unless specified on the CPG</td>
</tr>
<tr>
<td>Neonate</td>
<td>A patient less than 4 weeks old, unless specified on the CPG</td>
</tr>
<tr>
<td>Paediatric patient</td>
<td>Any child, infant or neonate</td>
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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, the provision of emergency care comes from a range of disciplines and includes responders (Cardiac First Responders, First Aid Responders and Emergency First Responders) 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 traumatic 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.

**Emergency Medical Technician - Basic Tactical Emergency Care (EMT-BTEC)**

EMT-BTEC certifies registered EMTs with additional knowledge and skill set for providing pre-hospital emergency care in hostile or austere environments. EMT-BTEC training is restricted to EMTs who have the potential to provide emergency care in hostile or austere environments and who are working or volunteering on behalf of a Licensed CPG Provider with specific approval for BTEC provision.

**Emergency First Response - Basic Tactical Emergency Care (EFR-BTEC)**

EFR-BTEC is a new education and training standard published in 2014. Persons certified at EFR-BTEC learn EFR and the additional knowledge and skill set for providing pre-hospital emergency care in hostile or austere environments. Entry to this course is restricted to people who have the potential to provide emergency first response in hostile or austere environments and who are working or volunteering on behalf of a Licensed CPG Provider with specific approval for BTEC provision.

**First Aid Response**

First Aid Response (FAR) is a new education and training standard published in 2014. This standard offers training and certification to individuals and groups who require a first aid skill set including cardiac first response. This standard is designed to meet basic first aid and basic life support (BLS) requirements that a certified person, known as a “First Aid Responder”, may encounter in their normal daily activities.

**Defibrillation Policy**

The Medical Advisory Committee 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.
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CLINICAL PRACTICE GUIDELINES for PARAMEDIC

(Code Explanation)

- **Clinical Practice Guidelines**
- **PARAMEDEC**

- **Emergency Medical Technician** (Level 4) for which the CPG pertains
- **Paramedic** (Level 5) for which the CPG pertains
- **Advanced Paramedic** (Level 6) for which the CPG pertains
- **Medical Practitioner** (Level 7) for which the CPG pertains

- **A sequence (skill) to be performed**
- **A mandatory sequence (skill) to be performed**
- **A decision process**
  - The Practitioner must follow one route
  - Given the clinical presentation consider the treatment option specified
  - Finding following clinical assessment, leading to treatment modalities
  - Reassess the patient following intervention
  - Contact Ambulance Control and request Advanced Life Support (AP or doctor)
  - Consider requesting an ALS response, based on the clinical findings

- **Consider treatment options**

- **Special instructions**
  - Which the Practitioner must follow
  - Which may be carried out in parallel with other sequence steps
  - In which a number of sequence steps are completed
  - Paramedic or lower clinical levels not permitted this route
  - Transport to an appropriate medical facility and maintain treatment en-route
  - If no ALS available, transport to an appropriate medical facility and maintain treatment en-route, if having contacted Ambulance Control there is no ALS available
  - An instruction box for information
  - A direction to go to a specific CPG following a decision process
  - Note: only go to the CPGs that pertain to your clinical level

- **Go to xxx CPG**

- **A clinical condition that may precipitate entry into the specific CPG**

- **Medication, dose & route**
  - 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

- **Special authorisation**
  - This authorises the Practitioner to perform an intervention under specified conditions
  - Consider requesting a Paramedic response, based on the clinical findings
  - Consider medical oversight

- **Reassess**

- **Request ALS**

- **Special authorisation**

- **4/5/6.4.1**
  - Version 2, 07/11
  - 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

- **EMT**
- **P**
- **AP**
- **MP**
SECTION 1
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 and medications on the Patient Care Report (PCR) or the Ambulatory Care Report (ACR) are consistent principles throughout the guidelines and reflect the practice of practitioners. Care principles are the foundations for risk management and the avoidance of error.

PHECC Care Principles

1. Ensure the safety of yourself, other emergency service personnel, your patients and the public.
2. Seek consent prior to initiating interventions and/or administering medications.
3. Identify and manage life-threatening conditions.
4. Ensure adequate ventilation and oxygenation.
5. Optimise tissue perfusion.
6. Provide appropriate pain relief.
7. Identify and manage other conditions.
8. Place the patient in the appropriate posture according to the presenting condition.
9. Ensure the maintenance of normal body temperature (unless a CPG indicates otherwise).
10. Provide reassurance at all times.
11. Monitor and record patient's vital observations.
12. Maintain responsibility for patient care until handover to an appropriate practitioner.
13. Arrange transport to an appropriate medical facility as necessary and in an appropriate time frame.
14. Complete patient care records following an interaction with a patient.
15. Identify the clinical leader on scene; this shall be the most qualified practitioner on scene. In the absence of a more qualified practitioner, the practitioner providing care during transport shall be designated the clinical leader as soon as practical.
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.

**Medical issue**

- Take standard infection control precautions
- Consider pre-arrival information
  - Scene safety
  - Scene survey
  - Scene situation
  - Assess responsiveness
  - Airway patent & protected
  - Head tilt/ chin lift

**A**
- Yes
  - Special Authorisation: EMTs having completed the BTEC course may be privileged by a licensed CPG provider to insert an NPA on its behalf
- No
  - Suction, OPA

**B**
- Adequate ventilation
  - Yes
  - Consider Oxygen therapy
  - No
    - Adequate circulation
      - Yes
        - AVPU assessment
      - No
        - Go to Secondary Survey CPG

**C**
- Adequate circulation
  - Yes
    - Go to Secondary Survey CPG
  - No
    - Go to appropriate CPG

**Life threatening**
- Request ALS
- Clinical status decision
- Non serious or life threat
  - Serious not life threat

Reference: ILCOR Guidelines 2010
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.

The primary survey includes:
- Scene safety
- Scene survey
- Scene situation
- Mechanism of injury suggestive of spinal injury
- Control catastrophic external haemorrhage
- Assess responsiveness
- Treat life-threatening injuries only at this point
- Clinical status decision
- Maximum time on scene for life-threatening trauma: ≤ 10 minutes

**Considerations:**
- Jaw thrust
- Suction, OPA
- NPA
- Special Authorisation: EMTs having completed the BTEC course may be privileged by a licensed CPG provider to insert an NPA on its behalf.

**Reference:** ILCOR Guidelines 2010
SECTION 2
PATIENT ASSESSMENT

Secondary Survey Medical – Adult

Primary Survey

Record vital signs & GCS

Patient acutely unwell
Yes

No

Focused medical history of presenting complaint

SAMPLE history

Relevant family & social history

Check for medications carried or medical alert jewellery

Examine body systems as appropriate

Go to appropriate CPG

Markers identifying acutely unwell
Cardiac chest pain
Acute pain > 5

Identify positive findings and initiate care management

Gleadle, J. 2003, History and Examination at a glance, Blackwell Science
Rees, JE, 2003, Early Warning Scores, World Anaesthesia Issue 17, Article 10
SECTION 2
PATIENT ASSESSMENT

Secondary Survey Trauma – Adult

Primary Survey

Markers for multi-system trauma present

Yes

No

Examination of obvious injuries

Monitor and record vital signs & GCS

SAMPLE history

Complete a detailed physical exam (head to toe survey) as history dictates

Check for medications carried or medical alert jewellery

Consider repeat primary survey

Identify positive findings and initiate care management

Go to appropriate CPG

SECTION 2
PATIENT ASSESSMENT

**Pain Management – Adult**

**Pain**

**Pain assessment**

Administer pain medication based on pain assessment and pain ladder recommendations

**Adequate relief of pain**

Yes or best achievable

Go back to originating CPG

No

Reassess and move up the pain ladder if appropriate

**Analogue Pain Scale**

0 = no pain……..10 = unbearable

**PHECC Pain Ladder**

**Moderate pain**

(4 to 6 on pain scale)

Paracetamol 1 g PO and / or Ibuprofen 400 mg PO and / or Nitrous Oxide & Oxygen, inh

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

Consider other non-pharmacological interventions

**Severe pain**

(≥ 7 on pain scale)

Paracetamol 1 g PO and / or Ibuprofen 400 mg PO and / or Nitrous Oxide & Oxygen, inh

Consider Ondansetron 4 mg IV slowly

Consider Cyclizine 50 mg IV slowly

**Repeat Fentanyl IN, once only, at not < 10 min after initial dose.**

**Repeat Morphine at not < 2 min intervals if indicated.**

Max 10 mg

For musculoskeletal pain Max 16 mg

**Special Authorisation:**

APs are authorised to administer Morphine, up to 10 mg IM, if IV not accessible, the patient is cardiovascularly stable and no cardiac chest pain present

Reference: World Health Organization, Pain Ladder
SECTION 3
RESPIRATORY EMERGENCIES

Clinical Practice Guidelines

REFERENCE: ILCOR Guidelines 2010
SECTION 3
RESPIRATORY EMERGENCIES

Inadequate Ventilations – Adult

Respiratory difficulty

Airway patent & protected

No

Go to Airway CPG

Yes

Check SpO2

Consider ETCO2

Oxygen therapy

Request ALS

Patient assessment

Consider positive pressure ventilations (Max 10 per minute)

Brain insult

Go to Head injury CPG

Respiratory failure

Go to Respiratory assessment

Substance intake

Go to Poison CPG

Other

Consider pain, posture & neuromuscular disorders

Brain insult

Go to Head injury CPG

Respiratory failure

Go to Respiratory assessment

Substance intake

Go to Poison CPG

Other

Consider pain, posture & neuromuscular disorders

---

100% O2 initially unless patient has known COPD
Titrate O2 to standard as clinical condition improves

Raised ETCO2 + reduced SpO2:
Consider assisted ventilation

Raised ETCO2 + normal SpO2:
Encourage deep breaths

---

Consider collapse, consolidation & fluid

Tension Pneumothorax suspected

Yes

Needle decompression

No

Go to APO CPG

---

Asymmetrical breath sounds

Go to Asthma CPG

Go to Allergy/ Anaphylaxis CPG

Go to COPD CPG

Creations

Go to Sepsis CPG

Other

Consider shock, cardiac/neurological/systemic illness, pain or psychological upset

---

Consider positive pressure ventilations (Max 10 per minute)
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)
**SECTION 3**
**RESPIRATORY EMERGENCIES**

**Asthma – Adult**

Assess and maintain airway

Respiratory assessment

- **Salbutamol, 5 mg, NEB**
- **Salbutamol (0.1 mg) metered aerosol**

Resolved/improved

Yes

No

ECG & SpO2 monitoring

Oxygen therapy

Request

ALS

Resolved/improved

Yes

No

**Salbutamol, 5 mg, NEB**

Moderate Asthma

Resolved/improved

Yes

No

Ipratropium bromide 0.5 mg NEB & salbutamol 5 mg NEB mixed

Resolved/improved

Yes

No

Hydrocortisone, 100 mg slow IV (infusion in 100 mL NaCl)

Resolved/improved

Yes

No

Life-threatening Asthma

Resolved/improved

Yes

No

Consider

Magnesium Sulphate 2 g IV (infusion in 100 mL NaCl)

Salbutamol, 5 mg, NEB

Every 5 minutes prn

If no improvement Salbutamol aerosol, 0.1 mg may be repeated up to 5 times as required

Acute Pulmonary Oedema – Adult

Respiratory distress with Congestion / crepitations

Oxygen therapy

SpO₂, ECG & BP monitoring

12 Lead ECG

Pulmonary oedema

Yes

GTN, 0.8 mg, SL
Repeat x 1 prn

Reassess

Oxygen therapy
Go to Inadequate Respirations CPG

No

Apply Continuous Positive Airway Pressure (CPAP) device

Oxygen

Adequate flow to drive CPAP

Criteria for CPAP
Clinical signs of APO
RR > 25 per min
SpO₂ < 90%

Exclusion Criteria
COPD / Asthma
Inability to sit up
Pneumothorax
Need for immediate intubation
SBP < 100 mmHg / cardiovascular collapse
Life-threatening arrhythmia
Reduced GCS (AVPU < V)
Unable to tolerate CPAP
Vomiting

SECTION 4
MEDICAL EMERGENCIES

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

Oxygen therapy

Shockable
VF or pulseless VT

Assess Rhythm

Non - Shockable
Asystole or PEA

Give 1 shock

Immediately resume CPR x 2 minutes

Rhythm check *

VF/VT
Go to VF/ Pulseless VT CPG

ROSC

Asystole
Go to Asystole CPG

PEA
Go to PEA CPG

Go to Post Resuscitation Care CPG

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

Minimum interruptions of chest compressions.
Maximum hands off time 10 seconds.

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
SECTION 4
MEDICAL EMERGENCIES

Foreign Body Airway Obstruction – Adult

Are you choking?

Severe (ineffective cough)

Mild (effective cough)

Conscious

Yes

No

1 to 5 back blows followed by 1 to 5 abdominal thrusts as indicated

Encourage cough

Adequate ventilations

Yes

No

Positive pressure ventilations maximum 10 per minute

Consider
Oxygen therapy

One cycle of CPR

Effective

No

Effective

One cycle of CPR

Effective

No

Go to BLS Adult CPG

After each cycle of CPR open mouth and look for object. If visible attempt once to remove it
Clinical Practice Guidelines  
SECTION 4  
MEDICAL EMERGENCIES

VF or VT arrest

VF or Pulseless VT – Adult

Rhythm check *

VF/VT

Asystole

ROSC

Go to PEA CPG

Go to Asystole CPG

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

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

Defibrillate

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

Initial Epinephrine between 2nd and 4th shock

NaCl IV/IO 500 mL (use as flush)

Consider transport to ED if no change after 20 minutes resuscitation

If no ALS available

Immediate IO access if IV not immediately accessible

Go to Post Resuscitation Care CPG

Consider transport to ED if no change after 20 minutes resuscitation

Asystole

Horsdade de pointes, consider Magnesium Sulphate 2 g IV/I0

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

Drive smoothly

Mechanical CPR device is the optimum care during transport

Clinical leader to monitor quality of CPR

Consider use of waveform capnography

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

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

2nd dose (if required)

Amiodarone 150 mg (2.5 mg/kg) IV/ IO

Refractory VF/VT post Epinephrine

Amiodarone 300 mg (5 mg/kg) IV/ IO

VF/VT – Adult

From BLS Adult CPG

Advanced airway management

Consider mechanical CPR assist

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

Reference: ILCOR Guidelines 2010
Asystole – Adult

Immediate IO access if IV not immediately accessible

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

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

Asystole

From BLS Adult CPG

Go to Post Resuscitation Care CPG

Go to PEA CPG

Go to VF / Pulsless VT CPG

Followling 10 minutes of asystole

Go to Asystole decision CPG

Immediate IO access if IV not immediately accessible

Advanced airway management

Consider mechanical CPR assist

Starting 10 minutes of asystole

Go to Asystole decision CPG

ROSC

PEA

With CPR ongoing maximum hands off time 10 seconds

Clinical leader to monitor quality of CPR

Reference: ILCOR Guidelines 2010

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

Consider fluid challenge

Sodium Bicarbonate (8.4%) 1 mEq/Kg IV/IO

NaCl IV/IO 500 mL (use as flush)

Epinephrine (1:10 000) 1 mg IV/IO

Every 3 to 5 minutes prn

Rhythm check *

Asystole

Yes

No

Go to VF / Pulsless VT CPG

If Tricyclic Antidepressant Toxicity or harness induced suspension trauma consider

NaCl 20 mL/Kg IV/IO

Consider use of waveform capnography
Asystole - Decision Tree

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

Witnessed arrest & CPR prior to arrival of EMS
- Yes
  - Resuscitation continuous for at least 20 minutes in asystole
- No
  - Patient is:
    - Hypothermic or
    - Cold water drowning or
    - Poisoning/ Overdose or
    - Pregnant or
    - < 18 years

Unresponsive
- No signs of life; absence of central pulse and respiration
- Yes
  - Consider ceasing resuscitation efforts

Continue BLS & or ALS

If no ALS available

Record two rhythm strips x 10 sec duration

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

Inform Ambulance Control

If present, inform next of kin

Complete PCR and flag for mandatory clinical audit

Emotional support for relatives should be considered before leaving the scene

Follow local protocol for care of deceased
SECTION 4
MEDICAL EMERGENCIES

Pulseless Electrical Activity – Adult

**From BLS Adult CPG**

1. Immediate IO access if IV not immediately accessible
2. Consider causes and treat as appropriate:
   - Hydrogen ion acidosis
   - Hyper/ hypokalaemia
   - Hypo/hyperthermia
   - Hypovolaemia
   - Hypoxia
   - Thrombosis – pulmonary
   - Tension pneumothorax
   - Thrombus – coronary
   - Tamponade – cardiac
   - Toxins
   - Trauma

3. **Rhythm check**
   - **Yes**
     - VF/VT - ROSC
     - Epinephrine (1:10 000) 1 mg IV/IO
       - Every 3 to 5 minutes prn
     - Clinical leader to monitor quality of CPR
   - **No**
     - Go to Post Resuscitation Care CPG
   - Go to Asystole CPG
   - Go to VF / Pulseless VT CPG

4. **PEA**
   - Consider fluid challenge
     - NaCl 20 mL/Kg IV/IO
   - Rhythm check *
     - Asystole
     - With CPR ongoing maximum hands off time 10 seconds
     - Mechanical CPR device is the optimum care during transport

5. **Immediate IO access if IV not immediately accessible**

**Pulseless Electrical Activity – Adult**

**EMT P**

**AP**

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

**Advanced airway management**

**Consider mechanical CPR assist**

**Reference: ILCOR Guidelines 2010**

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

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SECTION 4
MEDICAL EMERGENCIES

Post-Resuscitation Care – Adult

Return of Spontaneous Circulation

Maintain Oxygen therapy

If return of Spontaneous Circulation

ECG & SpO2 monitoring

Positive pressure ventilations
Max 10 per minute

Adequate ventilation

Yes

No

Request ALS

Maintain patient at rest

Monitor blood pressure and GCS

Symptomatic arrhythmia

Yes

No

Atropine 0.6 mg IV/IO
Repeat at 3 to 5 min intervals prn to max 3 mg

Ventricular Tachycardia

Consider
Amiodarone, 150 mg IV/IO infusion
(in 100 mL D5W)

Check blood glucose

Unresponsive

Yes

No

If persistent hypotensive consider

NaCl (0.9%) IV/IO
(1 L) to maintain Sys BP > 90 mmHg

Consider causes and treat as appropriate:

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

When ALS available consider transporting to primary PCI facility (follow local protocol)

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

Avoid hyperthermia

Cold packs

Equipment list

STEMI

Go to ACS CPG

Yes

No

12 lead ECG

Monitor blood pressure

and GCS

Bradycardia

Maintain patient at rest

ECG & SpO2 monitoring

NaCl (4°C approx) 1 L IV/IO
Repeat x 1 if required

Commence cooling
(Target 32° to 34° C)

Unresponsive

Yes

No

Monitor vital signs

Titrating O2 to 24% - 28%

Reference: ILCOR Guidelines 2010

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End stage terminal illness

Patient becomes acutely unwell

Yes

Respiratory distress

No

Basic airway maintenance

Oxygen therapy

Yes

Planned ambulance transport

No

Recent & reliable evidence from a clinical source stating that the patient is not for resuscitation

Yes

Agreement between caregivers present and Practitioners not to resuscitate

No

It is inappropriate to commence resuscitation

Inform Ambulance Control

Yes

Pulse present

No

Provide supportive care until handover to appropriate Practitioner

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

Complete all appropriate documentation

Keep next of kin informed, if present

Emotional support for relatives should be considered before leaving the scene

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

A planned ambulance transport is a scheduled discharge to home or an interfacility patient transport

Appropriate Practitioner

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

Yes

Go to Primary Survey CPG

Planned ambulance transport

No

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

Go to Primary Survey CPG

No

Confirms and agrees procedure with clinical staff in the event of a death in transit

Go to Primary Survey CPG

No

At least 6.4.8-Version 1, 06/10

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Recognition of Death – Resuscitation not Indicated

Apparent dead body

- Signs of Life
  - Yes
    - Go to Primary survey CPG
  - No
    - Definitive indicators of Death
      - Yes
        - It is inappropriate to commence resuscitation
          - Inform Ambulance Control
          - Complete all appropriate documentation
          - Inform next of kin, if present
          - Follow local protocol for care of deceased
      - No
        - Definitive indicators of death:
          1. Decomposition
          2. Obvious rigor mortis
          3. Obvious pooling (hypostasis)
          4. Incineration
          5. Decapitation
          6. Injuries totally incompatible with life
          7. Unwitnessed traumatic cardiac arrest following blunt trauma (see CPG 5/6.6.11)

Emotional support for relatives should be considered before leaving the scene.
SECTION 4
MEDICAL EMERGENCIES

**Acute Coronary Syndrome**

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

**STEMI:**
St elevation in two or more contiguous leads (2 mm in leads V2 and V3, or 1 mm in any other leads) or LBBB with clinical symptoms of AMI.

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

**Tenecteplase IV**
Followed by Enoxaparin 30 mg IV (> 75 yrs: Enoxaparin 0.75 mg/kg SC)

**Time critical commence transport to nearest appropriate hospital ASAP**

**Transport to Primary PCI facility**

Symptomatic Bradycardia includes:
- Acute altered mental status
- Ischemic chest discomfort
- Acute heart failure
- Hypotension
- Signs of shock

Titrated Atropine to effect (HR > 60)

Atropine, 0.6 mg IV
Repeat at 3 to 5 min intervals prn to max 3 mg

12 lead ECG

NaCl (0.9%) 250 mL IV infusion
(Repeat x one prn)

Reference: ILCOR guidelines 2010
Clinical Practice Guidelines

SECTION 4
MEDICAL EMERGENCIES

Tachycardia – Adult

- ECG and SpO2 monitoring
- Oxygen therapy
- Acquire 12 lead ECG

**Persistent tachyarrhythmia causing any of:**
- Hypotension
- Acutely altered mental status
- Signs of shock
- Ischaemic chest discomfort
- Acute heart failure

**Tachycardia**

**Oxygen therapy**

- Acquire 12 lead ECG

**HR > 150/min**

- Yes
  - No
    - Symptomatic
      - Yes
        - Unstable
          - Yes
            - Consider cardioversion
              - Narrow regular = 50 J
                (synch on) if unresponsive

          - No
            - Persistent tachyarrhythmia causing any of:

          - No
            - No
              - Yes
                - V Fib
                  - PULSELESS
                    - Yes
                      - Go to VF/VT CPG

        - Yes
          - No
            - Persistent tachyarrhythmia causing any of:

          - No
            - No
              - Yes
                - Amiodarone 150 mg IV infusion (in 100 mL D5W)
                  - Converted
                    - Yes
                      - Converted
                        - Yes
                          - Amiodarone 150 mg IV infusion (in 100 mL D5W)

                          - No
                            - No
                              - Yes
                                - Magnesium Sulphate 2 g IV infusion (in 100 mL NaCl)

                              - No
                                - No
                                  - No
                                    - Valsalva / vagal Manoeuvre

                              - No
                                - No
                                  - No
                                    - Valsalva / vagal Manoeuvre

                              - No
                                - No
                                  - No
                                    - Valsalva / vagal Manoeuvre

                              - No
                                - No
                                  - No
                                    - Valsalva / vagal Manoeuvre

                              - No
                                - No
                                  - No
                                    - Valsalva / vagal Manoeuvre

                              - No
                                - No
                                  - No
                                    - Valsalva / vagal Manoeuvre
Diagnosed with Addison’s disease or Adrenal insufficiency

- Recent illness or injury
  - Yes: Check blood glucose
  - No: Consider Hydrocortisone 100 mg IM if IV not available

- Blood glucose
  - Yes: Request ALS
  - No: SBP < 90 mmHg
    - Yes: Hydrocortisone 100 mg IV (in 100 mL NaCl)
    - No: NaCl (0.9%) 1 L IV infusion

Special Authorisation: Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation.
SECTION 4
MEDICAL EMERGENCIES

Altered Level of Consciousness – Adult

V, P or U on AVPU scale

Maintain airway

No

Trauma

Yes

Consider recovery position

Consider Cervical Spine

Obtain SAMPLE history from patient, relative or bystander

ECG & SpO₂ monitoring
Calculate GCS

Check temperature
Check pupillary size & response
Check for skin rash

Check for medications carried or medical alert jewellery

Check blood glucose

Differential Diagnosis

Anaphylaxis

Go to CPG

Symptomatic Bradycardia

Go to CPG

Glycaemic emergency

Go to CPG

Hypothermia

Go to CPG

Poison

Go to CPG

Seizures

Go to CPG

Stroke

Go to CPG

Shock from blood loss

Go to CPG

Submersion incident

Go to CPG

Head injury

Go to CPG

Inadequate respirations

Go to CPG

Post resuscitation care

Go to CPG

Septic shock

Go to CPG

Taser gun

Go to CPG
If bronchospasm consider nebuliser
Salbutamol 5 mg NEB

If bronchospasm consider nebuliser
Salbutamol 5 mg NEB

Epinephrine (1:1 000) 0.5 mg (500 mcg) IM
Repeat at 5 minute intervals if no improvement

Epinephrine administered pre arrival? (within 5 minutes)
Yes
No

Epinephrine (1:1 000) 0.5 mg (500 mcg) IM
Repeat at 5 minute intervals if no improvement

Recurs / deteriorates / no improvement
Yes
No

Special Authorisation:
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation
**SECTION 4**
**MEDICAL EMERGENCIES**

**Decompression Illness (DCI)**

- **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**
  - Yes
    - Maintain Airway, Breathing & Circulation
  - No
    - **Go to Pain Mgt. CPG**

- **Pain relief required**
  - Yes
    - **Go to Nausea & Vomiting CPG**
    - **Entonox absolutely contraindicated**
  - No

- **Nausea**
  - Yes
    - **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**

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

## Epistaxis

**Medical**
- Advise patient to sit forward
- Apply digital pressure for 15 minutes
- Advise patient to breathe through mouth only and not to blow nose

**Trauma**
- Haemorrhage controlled
  - No
    - Consider insertion of a proprietary nasal pack
  - Yes
    - Go to Shock CPG

**Hypovolaemic**
- Yes
  - Request ALS
- No
  - Go to Shock CPG

**Equipment list**
- Proprietary nasal pack

---

**Reference:** Management of Acute Epistaxis 2011, Ola Bamimore, MD; Chief Editor: Steven C Dronen, MD, http://emedicine.medscape.com/article/764719-overview#showall
Clinical Practice Guidelines

SECTION 4
MEDICAL EMERGENCIES

Glycaemic Emergency – Adult

Abnormal blood glucose level

Blood Glucose

< 4 mmol/L

Dextrose 10% 250 mL IV/IO infusion

Or

Glucagon 1 mg IM

Or

Glucose gel 10-20 g buccal

Or

Sweetened drink

Reassess

Allow 5 minutes to elapse following administration of medication

Blood Glucose < 4 mmol/L

Yes

Consider ALS

Blood Glucose > 20 mmol/L

NaCl (0.9%) 1 L IV/IO infusion

Reassess

11 to 20 mmol/L

Repeat if indicated

Dextrose 10%, 250 mL IV/IO infusion

Or

Glucose gel 10-20 g buccal

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

P AP

5/6/4.19
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SECTION 4
MEDICAL EMERGENCIES

Query hypothermia

Hypothermia

Immersion

Yes

Remove patient horizontally from liquid

(Predicted it is safe to do so)

No

Protect patient from wind chill

Complete primary survey
(Commence CPR if appropriate)

Remove wet clothing by cutting

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

ECG & SpO2 monitoring

Check and record core temperature

Mild
34 – 35.9°C

Give hot sweet drinks

Moderate
30 – 33.9°C

If Cardiac Arrest

Follow CPGs but;
- no active re-warming

Severe
< 30°C

Follow CPGs but;
- limit defibrillation to three shocks
- withhold medications until temperature > 30°C
- no active re-warming beyond 32°C

If unresponsive

Yes

Consider advanced airway

No

If Bradycardiac

Follow CPGs but;
- do not use Atropine until temperature > 34°C

Warm fluids to be administered over 30 minutes

NaCl warmed to 40°C approx
Adult: 250 mL IV, Repeat pm to max 1 L
Paediatric: 15 mL/Kg IV, Repeat pm x 1

Hot packs to armpits & groin

Check blood glucose

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

Reference:
Resuscitation (2005) 6751, S135-S170

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SECTION 4
MEDICAL EMERGENCIES

Poisons – Adult

Poison source

Yes

Ingested corrosive:

No

Sips of water or milk

Consider ALS

Poison type

Paraquat

Other

Alcohol

Opiate

With Paraquat poisoning do not administer oxygen unless SpO₂ < 92%  

Check blood glucose

BG < 4 or > 20 mmol/L

No

Yes

Go to Glycaemic Emergency CPG

Adequate ventilations

Yes

No

Consider Oxygen therapy

ECG & SpO₂ monitoring

Naloxone 0.8 mg IN

Or Naloxone 0.4 mg IM/SC

Go to Inadequate Ventilations CPG

Oxymorphone

Reference:
ILCOR Guidelines 2010

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Seizure/Convulsion – Adult

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

- Protect from harm
  - Oxygen therapy
  - Check blood glucose
    - < 4 or > 20 mmol/L

- Seizure status
  - Seizing currently
  - Post seizure
    - Consider other causes of seizures
  - Post seizure
    - Consider other causes of seizures

- Seizure status
  - Seizing currently
    - Oxygen therapy
    - Check blood glucose
      - Midazolam 2.5 mg IV/IO
        - Repeat by one prn
      - Diazepam 5 mg IV/IO
        - Repeat by one prn
      - Midazolam 10 mg buccal
        - Repeat by one prn
      - Midazolam 5 mg IM
        - Repeat by one prn
      - Diazepam 10 mg PR
        - Repeat by one prn
    - Seizure status
      - Consider other causes of seizures

- Midazolam 2.5 mg IV/IO
  - Repeat by one prn

- Diazepam 5 mg IV/IO
  - Repeat by one prn

- Midazolam 5 mg IM
  - Repeat by one prn

- Diazepam 10 mg PR
  - Repeat by one prn

- Check blood glucose
  - < 4 or > 20 mmol/L
    - Go to Glycaemic Emergency CPG
  - Yes
    - Maximum two doses of anticonvulsant medication by Practitioner regardless of route
    - If pre-Eclampsia/Eclampsia consider
      - Magnesium Sulphate, 4 g IV (infusion in 100 mL NaCl)

SECTION 4
MEDICAL EMERGENCIES

Sepsis – Adult

**Signs of Systemic Inflammatory Response Syndrome (SIRS)**
- Temperature < 36 or > 38.3°C
- Heart rate > 90
- Respiratory rate > 20
- Acutely confused
- Glucose > 7.7 (not diabetic)
- Has the patient two or more signs (SIRS)

**Could this be a severe infection?**
For example:
- Pneumonia
- Meningitis/ meningooccal disease
- UTI
- Abdominal pain or distension
- Indwelling medical device
- Cellulitis/ septic arthritis/ infected wound
- Chemotherapy < 6 weeks
- Recent organ transplant

**Patient unwell**

If temperature > 38°C consider Paracetamol, 1 g PO

**Oxygen therapy**

**ECG & SpO2 monitoring**

**Request ALS**

Benzylpenicillin, 1,200 mg slow IV or IM

**Signs of shock/ poor perfusion**
- Mottled/ cold peripheries
- Central capillary refill > 2 sec
- SBP < 90 mmHg
- Purpuric rash
- Absent radial pulse

**If meningitis suspected** ensure appropriate PPE is worn; Mask and goggles

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

Oxygen therapy

Request ALS

NaCl (0.9%), 500 mL IV/IO aliquots to maintain palpable radial pulse (SBP 90 - 100 mmHg)

SpO2 and ECG monitoring

Continue fluid therapy until handover at ED

Clinical signs of shock

Shock from Blood Loss (non-trauma) – Adult

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

**Sickle Cell crisis**

- Oxygen therapy
- Pain management required
  - Yes: Go to Pain CPG
  - No: Elevated temperature
    - Yes: Go to Sepsis CPG
    - No: Consider patient's care plan

- If patient is cold ensure that he/she is warmed to normal temperature
- Encourage oral fluids
- Dehydration & unable to take oral fluids
  - Yes: Request ALS
    - NaCl (0.9%) 1 L IV infusion
      - SpO2 & ECG monitor

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

Acute neurological symptoms

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

Go to Glycaemic Emergency CPG

Obtain GCS

Positive FAST assessment
Yes
Maintain airway

Oxygen therapy

Check blood glucose

BG < 4 or > 20 mmol/L
Yes

ECG & SpO2 monitoring

Onset < 4.5 hours
Yes
Specialised Stroke Unit available
Yes
Transport patient to hospital with Specialised Stroke Unit (under local protocol)

Follow local protocol re notifying ED prior to arrival

Reference
ILCOR Guidelines 2010
Prof R Boyle, 2006, Mending hearts and brains, Clinical case for change: Report by Prof R Boyle, National Director for Heart Disease and Stroke, NHS AHA, 2005, Part 9 Adult Stroke, Circulation 2005; 112; 111-120
A. Mohd Nor, et al, Agreement between ambulance paramedic- and physician-recorded neurological signs with Face Arm Speech Test (FAST) in acute stroke patients, Stroke 004; 35;1355-1359
**SECTION 4**

**MEDICAL EMERGENCIES**

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**Mental Health Emergency**

**Behaviour abnormal with previous psychiatric history**

<table>
<thead>
<tr>
<th>Yes</th>
<th>Obtain a history from patient and or bystanders present as appropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Potential to harm self or others</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Yes</th>
<th>Co-operate as appropriate with medical or nursing team</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Transport patient to an Approved Centre</td>
</tr>
</tbody>
</table>

**Obtain a history from patient and or bystanders present as appropriate**

**Attempt verbal de-escalation**

**Aid to Capacity Evaluation**

1. Patient verbalises/communicates understanding of clinical situation?
2. Patient verbalises/communicates appreciation of applicable risk?
3. Patient verbalises/communicates ability to make alternative plan of care?

If no to any of the above consider Patient Incapacity

---

**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**

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

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October 2014

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**RMP – Registered Medical Practitioner**

**RPN – Registered Psychiatric Nurse**
**Clinical Practice Guidelines**

**SECTION 4**

**MEDICAL EMERGENCIES**

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### Behavioural Emergency

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

- **Indications of medical cause of illness**
  - Yes: Go to appropriate CPG
  - No:

  - **Potential to harm self or others**
    - Yes: Request control to inform Gardaí
    - No: Reassure patient

  - **Obtain a history from patient and or bystanders present as appropriate**

- **Injury or illness potentially serious or likely to cause lasting disability**
  - Yes:
    - Inform patient of potential consequences of treatment refusal
    - Request control to inform Gardaí and or Doctor
    - Document refusal of treatment and or transport to ED

  - No:
    - Offer to treat and or transport patient

- **Patient agrees to travel**
  - Yes:
    - Attempt verbal de-escalation

  - No:
    - Await arrival of doctor or Gardaí or receive implied consent

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

---

Reference: HSE Mental Health Services

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October 2014
Consider pulse oximetry

If mother is opiate user consider
Naloxone, 0.01 mg/kg IV/IO
Naloxone, 0.01 mg/kg IM

Consider
NaCl (0.9%), 10 mL/kg IV/IO

> 28 weeks

Gestation
Term
Amniotic fluid clear
Breathing or crying
Good muscle tone

Cover newborn in polythene wrap/bag up to neck without drying first

Provide warmth
Position; Clear airway
(if necessary)
Stimulate, reposition

Breathing, HR > 100 but Cyanotic
Provide positive pressure ventilation for 30 sec

Persistent Cyanosis
Yes

HR < 60
CPR (ratio 3:1) for 30 sec

Breathing, HR > 100 & Pink
Give Supplementary O2

Breathing, HR > 100
Dry baby
Provide warmth

Reference: ILCOR Guidelines 2010
Haemorrhage in Pregnancy Prior to Delivery

Query pregnant < 24 weeks Early pregnancy haemorrhage

Pregnancy ≥ 24 weeks Antepartum haemorrhage

Left lateral tilt

Do not examine abdomen or vagina

Apply absorbent pad to perineum area

Oxygen therapy

Patient is haemodynamically unstable

Yes

Request ALS

Go to Shock CPG

No

Reassess

Postpartum Haemorrhage

2nd stage of labour complete

Apply absorbent pad to perineum area

Oxygen therapy

Syntometrine, 1 mL IM (if not already administered)

Mother is haemodynamically unstable

Yes

No

Request ALS

External massage of the uterus

Elevate lower limbs

Consider inserting a urinary catheter

Go to Shock CPG

Estimate blood loss

Check/ask mother re multiple births prior to administration of Syntometrine


October 2014
**Umbilical Cord Complications**

**Cord complication**

- **Cord around baby's neck**
  - Attempt to slip the cord over the baby's head
  - **Yes** Successful
  - **No** Clamp cord in two places and cut between both clamps
  - Ease the cord from around the neck
  - Go to Childbirth CPG

- **Cord rupture**
  - Apply direct pressure with sterile dressing
  - Apply additional clamps to cord

- **Prolapsed cord**
  - Mother to adopt knee chest position
  - Hold presenting part off the cord using fingers
  - Maintain cord temperature and moisture
  - Consider inserting an indwelling catheter into the bladder and run 500 mL of NaCl into the bladder and clamp catheter

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

Reference:
- Duley, LMM, 2002, Clinical Guideline No 1(B), Tocolytic Drugs for women in preterm labour, Royal College of Obstetricians and gynaecologists
Breech Birth

Breech birth presentation

Request ALS

Oxygen therapy

Mother to adapt the lithotomy position

Support the baby as it emerges — avoid manipulation of the baby’s body

Yes

Successful delivery

No

Nape of neck anteriorly visible at vulva

Yes

No

Place one hand, palm up, onto baby’s face

Grasp both baby’s ankles in other hand

Rotate baby’s legs in an arc in an upward direction as contractions occur

Yes

Successful delivery after 5 contractions

No

Place hand in the vagina with palm towards baby’s face

Form a V with fingers on each side of baby’s nose and gently push baby’s head away from vaginal wall

Request Ambulance Control to contact GP / midwife/ medical team as required by local policy to come to scene or meet en route

Consider Nitrous Oxide & Oxygen

Go to Childbirth CPG
Burns – Adult

Burn or Scald

Cease contact with heat source

Inhalation and/or facial injury

Airway management

Yes

No

Yes

Go to Inadequate Ventilations CPG

No

Respiratory distress

Consider humidified Oxygen therapy

Remove burned clothing & jewellery (unless stuck)

Dressing/covering of burn area

Go to Pain Mgt. CPG

Yes

Pain > 2/10

No


Isolated superficial injury (excluding FHFP)

TBSA burn > 10%

Request ALS

No

ECG & SpO2 monitoring

Yes

> 25% TBSA and or time from injury to ED > 1 hour

NaCl (0.9%), 500 mL, IV/IO

No

Consider

NaCl (0.9%), 1000 mL, IV/IO

Monitor body temperature


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

**Patient trapped**
- **Maintain AcBC**
  - **Oxygen therapy**
  - **Significant compression force maintained**
    - **Yes**
    - **Consider Mobile Surgical Team** (for amputation)
    - Go to Pain Mgt. CPG
  - **No**
    - Co-ordinate with rescue personnel on release timing
    - Go to appropriate CPG

**Prepare all required patient carrying devices and have on standby following extrication**

**NaCl (0.9%) 20 mL/Kg IV/IO**
- **Consider pain relief**
- **ECG & SPO2 monitoring**
- ECG & SPO2 monitoring
- If possible commence IV fluids prior to release
- **Apply standard trauma care during and post extrication**
- Go to appropriate CPG

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

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

**5/6.6.2 Version 1, 05/08**

**AcBC**
- Airway
- Cervical spine
- Breathing
- Circulation
External Haemorrhage – Adult

Open wound

Active bleeding

Yes

Catastrophic haemorrhage

Yes

Posture

Elevation

Examination

Pressure

Posture Elevation Examination Pressure

Consider applying a dressing impregnated with haemostatic agent

Apply tourniquet if limb injury

Request ALS

Special Authorisation: EMTs, having completed the BTEC course, may be privileged by a licensed CPG provider to apply a tourniquet on its behalf

Apply sterile dressing

Consider

Oxygen therapy

Haemorrhage controlled

Yes

Apply additional dressing(s)

No

Haemorrhage controlled

Yes

Depress proximal pressure point

No

Apply tourniquet

Haemorrhage controlled

Yes

Go to Shock CPG

Significant blood loss

Yes

No

Equipment list

Sterile dressing (various sizes)
Crepe bandage (various sizes)
Conforming bandage (various sizes)
Triangular bandage
Trauma tourniquet
Dressing impregnated with haemostatic agent

Reference:

ILCOR Guidelines 2010,
SECTION 6
TRAUMA

Harness Induced Suspension Trauma

Place patient in a horizontal position as soon as practically possible

Harness Induced Suspension Trauma

Fall arrested by harness/rope

NaCl (0.9%) 20 mg/Kg aliquots IV to maintain Sys BP > 90 mmHg

P

EMT

Monitor BP, SpO2 and ECG

Oxygen therapy to maintain SpO2 > 94%

NaCl (0.9%) 20 mg/Kg aliquots IV to maintain Sys BP > 90 mmHg

Go to appropriate CPG

Patients must be transported to ED following suspension trauma regardless of injury status

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

Reference:
Adish A et al, 2009, Evidence-based review of the current guidance on first aid measures for suspension trauma, Health and Safety Executive (UK) Research report RR708
Australian Resuscitation Council, 2009, Guideline 9.1.5 Harness Suspension Trauma first aid management
SECTION 6
TRAUMA

Head Injury – Adult

Head trauma

Maintain Airway (Consider Advanced airway)

Oxygen therapy

Control external haemorrhage

Maintain in-line immobilisation

Consider spinal injury

SpO2 & ECG monitoring

With head injury maintain SBP; with GCS ≤ 8 at 120 mmHg with GCS > 8 at 90 – 100 mmHg

GCS ≤ 12

No

Yes

Request ALS

GCS ≤ 8

Minimise increases in Intra Cranial Pressure

Pain Management

Control nausea & vomiting

10° upward head tilt

Check collar tension

Avoid hypotension

Check blood glucose

Patient seizing

Consider Vacuum mattress

P

AP

Equipment list

Extrication device
Long board
Vacuum mattress
Orthopaedic stretcher
Rigid cervical collar

Reference;

Reference;
SECTION 6
TRAUMA

Heat-Related Emergency – Adult

Collapse from heat-related condition

Remove/ protect from hot environment (providing it is safe to do so)

No

Yes

Alert

Mild Hyperthermia (heat stress)

Consider

Give cool fluids to drink

Maintain airway

Exercise-related dehydration should be treated with oral fluids. (caution with over hydration with water)

Cool patient

SpO2 & ECG monitor

Check blood glucose

Cooling may be achieved by:
- Removing clothing
- Fanning
- Tepid sponging
- Ice packs

Moderate Hyperthermia (Heat exhaustion)

Severe Hyperthermia (Heat stroke) > 40°C

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

Elevate oedematous limbs

Reference: ILCOR Guidelines 2010,
European Resuscitation Guidelines 2010.
RFDS, 2011, Primary Clinical Care Manual
Clinical Practice Guidelines

SECTION 6
TRAUMA

Limb Injury – Adult

Establish need for pain relief

Expose and examine limb

Dress open wounds

Provide manual stabilisation for injured limb

Check CSMs distal to injury site

Injury type

Fracture
Fractured femur
Soft tissue injury
Dislocation

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

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

Clinical Practice Guidelines

SECTION 6
TRAUMA

Control external haemorrhage

Oxygen therapy

Request ALS

Patient trapped

Yes

No

NaCl (0.9%), 500 mL IV/IO

Suspected significant internal/external haemorrhage

Yes

No

Tranexamic acid 1 g IV/IO (in 100 mL NaCl)

With polytrauma consider application of a pelvic splint

Yes

No

NaCl (0.9%), 250 mL IV/IO aliquots to maintain SBP 120 mmHg

NaCl (0.9%), 250 mL IV/IO aliquots to maintain palpable radial pulse (SBP 90 - 100 mmHg)

Head injury with GCS ≤ 8

Yes

No

Maintain normo-temperature

Continue fluid therapy until handover at ED

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

**Spinal Immobilisation – Adult**

**Trauma Initial indications for spinal immobilisation**

- Return head to neutral position unless on movement there is Increase in Pain, Resistance or Neurological symptoms
- Do not forcibly restrain a patient that is combative
- Use clinical judgement if in doubt, immobilise

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

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

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

**Submersion Incident**

If bronchospasm consider Salbutamol:

- ≥ 5 years: 5 mg NEB
- < 5 years: 2.5 mg NEB

Ventilations may be commenced while the patient is still in water by trained rescuers.

Transport to ED for investigation of secondary drowning insult.

Reference:
Traumatic Cardiac Arrest – Adult

EMS Unwitnessed Traumatic Arrest

<table>
<thead>
<tr>
<th>Apnoeic, Pulseless and Asystolic</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blunt trauma</td>
<td>No</td>
</tr>
<tr>
<td>&lt;18 years</td>
<td>Yes</td>
</tr>
<tr>
<td>Hypothermia, Drowning, Lightning strike, Electrical injury</td>
<td>No to any</td>
</tr>
<tr>
<td>Low energy incident</td>
<td>Yes</td>
</tr>
</tbody>
</table>

EMS Witnessed Traumatic Arrest

| Patient responds to BLS or ALS provision within 15 min | Yes |

Commence CPR and ALS

| Request ALS | Yes |

Rapid transport towards ALS

| Consider ceasing resuscitation | No |

Go to Appropriate CPG

Go to Recognition of Death CPG

Go to Asystole Decision Tree CPG

Clinical Practice Guidelines

SECTION 7
PAEDIATRIC EMERGENCIES

Primary Survey Medical – Paediatric (≤ 15 Years)

Medical issue

Take standard infection control precautions

Consider pre-arrival information

Scene safety
Scene survey
Scene situation

Paediatric Assessment Triangle

Give 5
Ventilations

A
Airway patent & protected

Yes

No

Head tilt/chin lift

Suction, GPA, NPA

B
Adequate ventilation

Yes

No

Oxygen therapy

Give 5

C
Pulse < 60 & signs of poor perfusion

Yes

No

AVPU assessment

Life threatening

Clinical status decision

Serious not life threat

Non serious or life threat

Go to Secondary Survey CPG

Go to appropriate CPG

Request ALS

Consider Oxygen therapy

Normal ranges

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

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

October 2014
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.

Primary Survey Trauma – Paediatric (≤ 15 years)

1. Trauma
2. Take standard infection control precautions
3. Consider pre-arrival information
4. Scene safety
5. Scene survey
6. Scene situation
7. Paediatric Assessment Triangle
8. Control catastrophic external haemorrhage
9. Mechanism of injury suggestive of spinal injury
10. C-spine control

A. Airway patent & protected
   - Yes
   - No

B. Adequate ventilation
   - Yes
   - No

C. Pulse < 60 & signs of poor perfusion
   - Yes
   - No

AVPU assessment

- Expose & check obvious injuries
- Treat life-threatening injuries only

Life threatening

- Clinical status decision

Serious not life threat

Non serious or life threat

Go to Secondary Survey CPG

Emergency Medical Technician (EMT)

Paediatric Assessment Triangle

Appearance

Work of breathing

Circulation to skin

Refer: Pediatric Education for Prehospital Professionals

Jaw thrust (Head tilt/ chin lift) Suction, OPA (NPA> 1 year)

Give 5 Ventilations

Oxygen therapy

Normal ranges

<table>
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<tr>
<th>Age</th>
<th>Pulse</th>
<th>Respiration</th>
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<tbody>
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<td>Infant</td>
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<tr>
<td>Pre school</td>
<td>80 – 140</td>
<td>22 – 34</td>
</tr>
<tr>
<td>School age</td>
<td>70 – 120</td>
<td>16 – 30</td>
</tr>
</tbody>
</table>

Reference:
- ILCOR Guidelines 2010, American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals
- Department of Children and Youth Affairs, 2011, Children First: National Guidance for the Protection and Welfare of Children
SECTION 7
PAEDIATRIC EMERGENCIES

Secondary Survey – Paediatric (≤ 15 years)

Primary Survey

- Make appropriate contact with patient and/or guardian if possible
- Identify presenting complaint and exact chronology from the time the patient was last well
- Check for normal patterns of:
  - feeding
  - toilet
  - sleeping
  - interaction with guardian
- Identify patient’s weight
- Head to toe examination
  - observing for:
    - pyrexia
    - rash
    - pain
    - tenderness
    - bruising
    - wounds
    - fractures
    - medical alert jewellery
- Recheck vital signs
- Check for current medications
- If child protection concerns are present
- Report findings as per Children First guidelines to ED staff and line manager in a confidential manner

Use age appropriate language for patient

Estimated weight
- Neonate = 3.5 Kg
- Six months = 6 Kg
- One to five years = (age x 2) + 8 Kg
- Greater than 5 years = (age x 3) + 7 Kg

Recheck vital signs

Normal ranges

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Pulse</th>
<th>Respirations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant</td>
<td>100 – 160</td>
<td>30 – 60</td>
</tr>
<tr>
<td>Toddler</td>
<td>90 – 150</td>
<td>24 – 40</td>
</tr>
<tr>
<td>Pre school</td>
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<tr>
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Reference:
Miall, Lawrence et al, 2003, Paediatrics at a Glance, Blackwell Publishing
Department of Children and Youth Affairs, 2011, Children First: National Guidance for the protection and Welfare of Children
Luscombe, M et al 2010, BMJ, Weight estimation in paediatrics: a comparison of the APLS formula and the formula ‘Weight/3(age)+7’
Pain Management – Paediatric (≤ 15 years)

Pain

Pain assessment

Administer pain medication based on pain assessment and pain ladder recommendations

Adequate relief of pain

Yes or best achievable

No

Go back to originating CPG

Reassess and move up the pain ladder if appropriate

Pain assessment recommendation

< 5 years use FLACC scale
5 – 7 years use Wong Baker scale
≥ 8 years use analogue pain scale

Analogue Pain Scale

0 = no pain……..10 = unbearable

Practitioners, depending on his/her scope of practice, may make a clinical judgement and commence pain relief on a higher rung of the pain ladder.

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

Mild pain
(1 to 3 on pain scale)

Paracetamol 20 mg/Kg PO

Consider other non-pharmacological interventions

Mild pain
(4 to 6 on pain scale)

Paracetamol 20 mg/Kg PO and / or Ibuprofen 10 mg/Kg PO

Moderate pain
(≥ 7 on pain scale)

Severe pain

Fentanyl 0.0015 mg/Kg IN
(1.5 mcg/Kg)
Repeat ± 5 min
And / or
Morphine 0.05 mg/Kg PO
Max 10 mg
or

Fentanyl 0.0015 mg/Kg IN, once only, at not < 10 min after initial dose.

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

Consider

Paracetamol 20 mg/Kg PO

Reference: World Health Organization, Pain Ladder

Ibuprofen 10 mg/Kg PO

Nitrous Oxide & Oxygen, inh

And / or

Fentanyl 0.0015 mg/Kg IN
(1.5 mcg/Kg)
Repeat ± 5 min
And / or
Morphine 0.3 mg/Kg PO
Max 10 mg

PHECC Paediatric Pain Ladder

Pain assessment recommendation

< 5 years use FLACC scale
5 – 7 years use Wong Baker scale
≥ 8 years use analogue pain scale

Analogue Pain Scale

0 = no pain……..10 = unbearable

Paracetamol 20 mg/Kg PO

and / or

Nitrous Oxide & Oxygen, inh

and / or

Consider

Ondansetron 0.1 mg/Kg
IV slowly (Max 4 mg)

Repeat Fentanyl IN, once only, at not < 10 min after initial dose.

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

Practitioners, depending on his/her scope of practice, may make a clinical judgement and commence pain relief on a higher rung of the pain ladder.

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

Reference: World Health Organization, Pain Ladder
SECTION 7
PAEDIATRIC EMERGENCIES

Advanced Airway Management – Paediatric (≥ 8 years)

Prolonged CPR

- Ventilations maintained
  - Yes
  - No
    - Consider FBAO

- Supraglottic airway insertion
  - Successful
    - Yes
    - No
      - Revert to basic airway management
      - Ensure CO2 detection device in ventilation circuit

- Minimum interruptions of chest compressions.
  - Maximum hands off time 10 seconds.

- Maintain adequate ventilation and oxygenation throughout procedures

- Continue ventilation and oxygenation

Go to appropriate CPG

Following successful Advanced Airway management:
  1. Ventilate at 12 to 20 per minute.
  2. Unsynchronised chest compressions continuous at 100 to 120 per minute

Reference: ILCOR Guidelines 2010, Paediatric basic and advanced life support
Inadequate Ventilations – Paediatric (≤ 15 years)

**Respiratory difficulty**

- Airway patent & protected: No → Go to Airway CPG
- Airway patent & protected: Yes → Check SpO₂
  - Check ETCO₂
  - Oxygen therapy
  - Request ALS

**Patient assessment**

Consider positive pressure ventilations (12 to 20 per minute) via BVM

**Brain insult**

- Go to Head injury CPG

**Respiratory failure**

- Check SpO₂
  - Check ETCO₂
  - Oxygen therapy
  - Consider assisted ventilation
  - Encourage deep breaths

**Substance intake**

- Substance intake

Consider positive pressure ventilations (12 to 20 per minute) via BVM

**Other**

- Consider shock, cardiac/ neurological systemic illness, pain or psychological upset

** Bronchospasm/ known asthma **

- Go to Asthma CPG

** Asymmetrical breath sounds**

- Asymmetrical breath sounds

** Crepitations**

- Crepitations

** Other**

- Other

** Needle decompression**

100% O₂ initially, Titrate O₂ to standard as clinical condition improves

1% O₂ initially, Titrate O₂ to standard as clinical condition improves

4% O₂ initially, Titrate O₂ to standard as clinical condition improves

Naloxone, 0.01 mg/Kg IM/SC

Naloxone, 0.02 mg/Kg IN

Naloxone, 0.01 mg/Kg IV/IO

Repeat Naloxone prn to Max 0.1 mg/Kg or 2 mg
Assess and maintain airway

Asthma – Paediatric (≤ 15 years)

- < 5 years Salbutamol 2.5 mg NEB
- ≥ 5 years Salbutamol 5 mg, NEB

- Salbutamol (0.1 mg) metered aerosol

Resolved/improved

No

ECG & Spo2 monitoring

Oxygen therapy

Request ALS

Resolved/improved

No

Salbutamol, age-specific dose, NEB

Resolved/improved

No

Hydrocortisone (in 100 mL NaCl)

- < 1 year 25 mg IV
- 1 – 5 years 50 mg IV
- > 5 years 100 mg IV

Salbutamol, age-specific dose, NEB

Resolved/improved

No

Salbutamol, age-specific dose, NEB

Every 9 minutes pm

If no improvement, salbutamol aerosol, 0.1 mg may be repeated; for < 5 year olds up to 3 times, for ≥ 5 year olds up to 5 times, as required.

SECTION 7
PAEDIATRIC EMERGENCIES

**Stridor – Paediatric (≤ 15 years)**

- **Consider FBBO**
- **Assess & maintain airway**
  - **Group or epiglottitis suspected**
    - **Yes**
      - Do not insert anything into the mouth
    - **No**
      - **Do not distress**
      - Transport in position of comfort
- **Humidified O₂ – as high a concentration as tolerated**
- **Oxygen therapy**
- **ECG & SpO₂ monitoring**
- **Transport**

October 2014
Basic Life Support – Paediatric (≤ 15 Years)

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

Give 5 rescue ventilations
Oxygen therapy

Assess Rhythm

Shockable
VF or pulseless VT
Give 1 shock
Immediately resume CPR x 2 minutes
Rhythm check *

Non - Shockable
Asystole or PEA

Assess Rhythm

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

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

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

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

Chest compressions
Rate: 100 to 120/ min
Depth: 1/3 depth of chest
Child: two hands
Small child: one hand
Infant (< 1); two fingers

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

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

Apply paediatric system AED pads
Apply adult defibrillation pads

Consider changing defibrillator to manual mode

Change defibrillator to manual mode

Minimum interruptions of chest compressions.
Maximum hands off time 10 seconds.

Compressions:
Child; two hands
Small child; one hand
Infant (< 1); two fingers

Reference: ILCOR Guidelines 2010

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
Foreign Body Airway Obstruction – Paediatric (≤ 15 years)

Are you choking?

- Severe (ineffective cough)
  - Conscious
    - No
      - Request ALS
    - Yes
      - 1 to 5 back blows followed by 1 to 5 thrusts (child – abdominal thrusts) (infant – chest thrusts) as indicated

- Mild (effective cough)
  - Conscious
    - No
      - Effective
        - Yes
          - Encourage cough
        - No
          - Go to BLS Paediatric CPG
    - Yes
      - Effective
        - Yes
          - Positive pressure ventilations (12 to 20/min)
        - No
          - Oxygen therapy

- One cycle of CPR
  - Effective
    - Yes
      - After each cycle of CPR open mouth and look for object. If visible attempt once to remove it
    - No
      - Go to BLS Paediatric CPG
  - No
**VF or Pulseless VT – Paediatric (≤ 15 years)**

- **VF or VT arrest**
  - Immediate IO access if IV not immediately accessible

- **Defibrillate (4 joules/Kg)**
  - VF/VT
  - Rhythm check *
  - Epinephrine (1:10 000), 0.01 mg/kg IV/IO
    - Repeat every 3 to 5 minutes prn
  - Check blood glucose

- **VF/VT**
  - Initial Epinephrine between 2nd and 4th shock
  - Refractory VF/VT post Epinephrine
    - Amiodarone, 5 mg/kg, IV/IO

- **Asystole/PEA**
  - ROSC
  - VF/VT

- **Advanced airway management**
  - Check blood glucose

- **CPR + x2 minutes**
  - With CPR ongoing maximum hands off time 10 seconds
  - Continue CPR during charging

- **Clinical leader to monitor quality of CPR**
  - Consider causes and treat as appropriate:
    - Hydrogen ion acidosis
    - Hyper/hypokalaemia
    - Hypothermia
    - Hypovolaemia
    - Hypoxia
    - Tachyarrhythmia – pulmonary
    - Tension pneumothorax
    - Thrombus – coronary
    - Tamponade – cardiac
    - Toxins
    - Trauma

- **Defibrillation**
  - 4 joules/Kg

- **Immediate IO access if IV not immediately accessible**

- **Follow-up:**
  - Advanced Airway management:
    1. Ventilate at 12 to 20 per minute.
    2. Unsynchronised chest compressions continuous at 100 to 120 per minute
  - Consider use of waveform capnography

- **Transport to ED if no change after 10 minutes resuscitation**
  - No ALS available

- **Consider mobilisation of 3 to 4 practitioners / responders on site to assist with cardiac arrest management**

**Reference:** ILCOR Guidelines 2010
Asystole/PEA – Paediatric (≤ 15 years)

**Rhythm check***

- Asystole/PEA
- VF/Pulseless VT

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

**Clinical practice guidelines**

- Immediate IO access if IV not immediately accessible
- Drive smoothly
- With CPR ongoing maximum hands off time 10 seconds
- Consider causes and treat as appropriate:
  - Hydrogen ion acidosis
  - Hyper/hypokalaemia
  - Hypothermia
  - Hypovolaemia
  - Hypoxia
  - Thrombosis – pulmonary
  - Tension pneumothorax
  - Thrombus – coronary
  - Tamponade – cardiac
  - Toxins
  - Trauma

**Clinical leader to monitor quality of CPR**

**Consider fluid challenge**

- **NaCl (0.9%) 20 mL/Kg IV/IO**

**Reference:** ILCOR Guidelines 2010

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

**Advanced airway management**

- Check blood glucose

**Transport to ED if no change after 10 minutes resuscitation**

**If no ALS available**

- Consider use of waveform capnography

**Following successful Advanced Airway management:**
- Ventilate at 12 to 20 per minute.
- Un synchronised chest compressions continuous at 100 to 120 per minute

**VF/Pulseless VT**

- Go to VF/Pulseless VT CPG

**ROSC**

- Go to Post Resuscitation Care CPG

**CPR minutes**

- Drive smoothly

**Yes**

- Asystole/PEA

**No**

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

**Asystole/PEA arrest**

- Check blood glucose

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

- Go to Post Resuscitation Care CPG

- Immediate IO access if IV not immediately accessible
Symptomatic Bradycardia – Paediatric (≤ 15 years)

- Collectively, signs of inadequate perfusion:
  - Tachypnoea
  - Diminished/absent peripheral pulses
  - Delayed capillary refill
  - Cool extremities, mottling
  - Unresponsive

- Consider positive pressure ventilations (12 to 20/ min)

- Oxygen therapy

- Yes: Hypoxia
  - No

- Yes: CPR
  - ECG & SpO2 monitoring
  - NaCl (0.9%) 20 mL/Kg IV/IO

- Yes: Epinephrine (1-10 000) 0.01 mg/kg (10 mcg/kg) IV/IO
  - Every 3 – 5 min prn

- Yes: Persistent bradycardia
  - Continue CPR

- If no ALS available

SECTION 7
PAEDIATRIC EMERGENCIES

Post-Resuscitation Care – Paediatric (≤ 15 years)

Return of Spontaneous Circulation

- Maintain Oxygen therapy
- Request ALS
- Unresponsive
  - No
  - Yes, Adequate ventilation
    - Yes
      - Commence active cooling
      - Maintain patient at rest
      - ECG & SpO₂ monitoring
      - Monitor blood pressure and GCS
      - Check blood glucose
      - Monitor vital signs
      - Transport quietly and smoothly

- No
  - Positive pressure ventilations
    - Max 12 to 20 per minute

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

Titrated O₂: 96% - 98%

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

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

Transport quietly and smoothly

Consider causes and treat as appropriate:

Reference: ILCOR Guidelines 2010

October 2014

Equipment list
- Cold packs
Adrenal Insufficiency – Paediatric (≤ 15 years)

Diagnosed with Addison’s disease or Adrenal insufficiency

1. Recent illness or injury
   - Yes → Check blood glucose
   - No → No

2. Check blood glucose
   - Poor perfusion
     - Yes → Request ALS
     - No → Reassess

3. Hydrocortisone IV (in 100 mL NaCl)
   - 6 mth ≤ 5 years: 50 mg
   - > 5 years: 100 mg
   - Consider if IV not available

4. Reassess
   - NaCl (0.9%) 20 mL/Kg IV

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

Clinical Practice Guidelines

SECTION 7
PAEDIATRIC EMERGENCIES

Allergic Reaction/Anaphylaxis – Paediatric (≤ 15 years)

Epinephrine (1:1 000) IM

≤ 6 months: 0.05 mg (50 mcg) IM
6 months to 5 years: 0.125 mg (125 mcg) IM
6 to 8 years: 0.25 mg (250 mcg) IM
> 8 years: 0.5 mg (500 mcg) IM

Repeat Epinephrine at 5 minute intervals if no improvement

Oxygen therapy

ECG & SpO2 monitor

Severe or recurrent reactions and or patients with asthma

Hydrocortisone

< 1 yr: 1 mg/kg/hour IV or IM
1-5 yrs: 50 mg IV or IM
> 5 yrs: 100 mg IV or IM

Moderate symptoms + haemodynamic and or respiratory compromise

Severe symptoms + haemodynamic and or respiratory compromise

If bronchospasm consider nebuliser

Salbutamol NEB
< 5 yrs: 2.5 mg
≥ 5 yrs: 5 mg

If bronchospasm consider nebuliser

Salbutamol aerosol 0.1 mg.

If no improvement Salbutamol may be repeated; for < 5 year olds up to 3 times, for ≥ 5 year olds up to 5 times, prn

ECG & SpO2 monitor

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

NaCl (0.9%), 20 mL/Kg IV/IO bolus Repeat by one prn

If bronchospasm consider nebuliser

Salbutamol NEB
See age-related doses above

No improvement

Reoccurs / deteriorates / no improvement

Yes

No

Reassess

Yes

Repeat Salbutamol NEB

If no improvement Salbutamol may be repeated; for < 5 year olds up to 3 times, for ≥ 5 year olds up to 5 times, prn

Monitor reaction

Mild
Urticaria and or angioedema

Moderate
Mild symptoms + simple bronchospasm

Severe
Moderate symptoms + haemodynamic and or respiratory compromise

Deteriorates

No

Yes

Request ALS

If bronchospasm consider nebuliser

Salbutamol NEB
See age-related doses above

Repeat Epinephrine at 5 minute intervals if no improvement

Request ALS

No

Yes

Repeat Epinephrine at 5 minute intervals if no improvement

Epinephrine administered pre arrival? (within 5 minutes)

No

Yes

Salbutamol NEB may be substituted with Salbutamol aerosol 0.1 mg.

Repeat Epinephrine at 5 minute intervals if no improvement

October 2014
Consider Glycaemic Emergency – Paediatric (≤ 15 years)

Glycaemic Emergency – Paediatric (≤ 15 years)

Abnormal blood glucose level

Blood Glucose

< 4 mmol/L

> 20 mmol/L

> 11 to 20 mmol/L

Dextrose 10% 5 mL/Kg IV/IO bolus

Repeat x 1 prn

< 4 mmol/L

Glucagon

≤ 8 years 0.5 mg IM

> 8 years 1 mg IM

Consider

Glucose gel

≤ 8 years 5-10 g Buccal

> 8 years 10-20 g Buccal

No

Yes

Dehydration

No

Yes

NaCl (0.9%) 10 mL/Kg IV/IO bolus

Request ALS

Yes

No

Special Authorisation:

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

Reference: Dehydration- Paramedic Textbook 2nd E p 1229
Seizure/Convulsion – Paediatric (≤ 15 years)

Seizure / convulsion

- Protect from harm
- Oxygen therapy

Seizure status

- Seizing currently
- Post seizure

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

Maximum two doses of anticonvulsant medication by Practitioner regardless of route
Do not exceed adult dose

Midazolam buccal
- < 1 year: 2.5 mg
- 1 year to < 5 years: 5 mg
- 5 years to < 10 years: 7.5 mg
- 10 years: 10 mg
- Repeat by one pm

Or
Midazolam 0.2 mg/Kg IN
- Repeat by one pm

Or
Diazepam PR
- < 3 years: 2.5 mg PR
- 3 to 7 years: 5 mg PR
- ≥ 8 years: 10 mg PR
- Repeat by one pm

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

Select anticonvulsant for age
- Midazolam 0.1 mg/Kg IV/IO
- Repeat by one pm
- Diazepam 0.1 mg/Kg IV/IO
- Repeat by one pm

Seizure status

Yes
- Request ALS

No
- Midazolam buccal
- Midazolam 0.2 mg/Kg IN
- Diazepam PR

Post seizure

Yes
- Consider ALS

No
- Pyrexia

Check blood glucose

Pyrexia

Yes
- Go to Pyrexia CPG

No
- Reassess
Septic Shock – Paediatric (≤ 15 years)

Clinical signs of shock

Oxygen therapy

Request ALS

NaCl (0.9%), 20 mL/Kg IV/IO

Meningococcal disease suspected

Yes

Benzylpenicillin IV/IO over 3 to 5 minutes or IM

< 1 year 300 mg

1 – 8 years 600 mg

> 8 years 1 200 mg (1.2 g)

No

NaCl (0.9%), 20 mL/Kg IV/IO aliquots if signs of inadequate perfusion

ECG & SpO2 monitoring

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

Ensure appropriate PPE worn:
Mask and goggles

Signs of inadequate perfusion

A: (not directly affected)

B: Increased respiratory rate (without increased effort)

C: Tachycardia

Diminished/absent peripheral pulses

Delayed capillary refill

D: Irritability/ confusion / ALoC

E: Cool extremities, mottling
Pyrexia – Paediatric (≤ 15 years)

Child with elevated temperature

- Remove/ protect from hot environment (providing it is safe to do so)

  - Yes
  - No

  - Alert
  - Recovery position (maintain airway)

  - Yes
  - Cool patient

  - No

  - Give cool fluids to drink

  - Check blood glucose

4/5/6.7.35

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Reference: ILCOR Guidelines 2010
RFDS, 2011, Primary Clinical Care Manual
**Sickle Cell Crisis – Paediatric (≤ 15 years)**

- **Oxygen therapy**
  - **Pain management required**
    - **Yes**
      - Go to Pain CPG
    - **No**
      - Elevated temperature

- **Elevated temperature**
  - **Yes**
    - If patient is cold ensure that he/she is warmed to normal temperature
  - **No**
    - Encourage oral fluids

- **Dehydration & unable to take oral fluids**
  - **Yes**
    - Request ALS
      - NaCl (0.9%) 10 mL/Kg IV
  - **No**

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

External Haemorrhage – Paediatric (≤ 15 years)

Open wound

Active bleeding

Yes

Catastrophic haemorrhage

Yes

Posture Height

Elevation Examination Pressure

Consider applying a dressing impregnated with haemostatic agent

Apply sterile dressing

Consider Oxygen therapy

Haemorrhage controlled

Yes

Apply additional dressing(s)

Yes

Haemorrhage controlled

No

Depress proximal pressure point

P

Yes

Apply tourniquet

P

No

Go to Shock CPG

Significant blood loss

Yes

Go to Shock CPG

No

Reference:

ILCOR Guidelines 2010,

Equipment list

Sterile dressing (various sizes)
Crepe bandage (various sizes)
Conforming bandage (various sizes)
Triangular bandage
Trauma tourniquet
Dressing impregnated with haemostatic agent
Clinical Practice Guidelines

SECTION 7
PAEDIATRIC EMERGENCIES

Shock from Blood Loss – Paediatric (≤ 15 years)

Clinical signs of shock

Control external haemorrhage

Oxygen therapy

Request ALS

Patient trapped

Yes

No

NaCl (0.9%) 10 mL/Kg IV/IO

Reassess

NaCl (0.9%), 10 mL/Kg IV/IO aliquots if signs of inadequate perfusion

Continue fluid therapy until handover at ED

ECG & SpO2 monitoring

Signs of inadequate perfusion

A: (not directly affected)
B: Increased respiratory rate (without increased effort)
C: Tachycardia
D: Diminished/absent peripheral pulses
E: Delayed capillary refill
F: Irritability/ confusion / Altered LOC
G: Cool extremities, mottling

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

Reference:
American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals, Jones and Bartlett.
SECTION 7
PAEDIATRIC EMERGENCIES

Spinal Immobilisation – Paediatric (≤ 15 years)

Trauma Initial indications for spinal immobilisation

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

Remove helmet (£ worn)

No

Neck or back pain or midline spinal tenderness

Yes

Dangerous mechanism of injury or significant distracting injury

No

Yes

Are all of the factors listed present;
- GCS = 15
- Communication effective (not intoxicated with alcohol or drugs)
- Absence of numbness, tingling or weakness in extremities
- Presence of low risk factors which allow safe assessment of range of motion
- Patient voluntarily able to rotate neck 45° left & right without pain
- Patient can walk without pain

Yes

Immobilisation may not be indicated

No

Immobilise in child seat

Yes

Go to appropriate CPG

Load onto vacuum mattress, paediatric board or long board

Consider Vacuum mattress

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

References:
- Slack, S. & Clancy, M, 2004, Clearing the cervical spine of paediatric trauma patients, EMJ 21; 189-193

Equipment list
- Extrication device
- Long board
- Vacuum mattress
- Orthopaedic stretcher
- Rigid cervical collar
**Clinical Practice Guidelines**

**PARAMEDIC**

**SECTION 8**

**PRE-HOSPITAL EMERGENCY CARE OPERATIONS**

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**Major Emergency (Major Incident) – First Practitioners on site**

**Possible Major Emergency**

- Take standard infection control precautions
- Consider pre-arrival information
- PPE (high visibility jacket and helmet) must be worn

---

**Practitioner 1**

- Park at the scene as safety permits and in conjunction with Fire & Garda if present
- Leave blue lights on as vehicle acts as Forward Control Point pending the arrival of the Mobile Control Vehicle
- Confirm arrival at scene with Ambulance Control and provide an initial visual report stating Major Emergency (Major Incident) Standby or Declared
- Maintain communication with Practitioner 2
- Leave the ignition keys in place and remain with vehicle
- Carry out Communications Officer role until relieved

---

**Practitioner 2 (Ideally MIMMS trained)**

- Carry out scene survey
- Give situation report to Ambulance Control using METHANE message
- Carry out HSE Controller of Operations (Ambulance Incident Officer) role until relieved
- Liaise with Garda Controller of Operations (Police Incident Officer) and Local Authority Controller of Operations (Fire Incident Officer)
- Select location for Holding Area (Ambulance Parking Point)
- Set up key areas in conjunction with other Principal Response Agencies on site;
  - Site Control Point (Ambulance Control Point),
  - Casualty Clearing Station
  - Ambulance loading point
  - On site co-ordination centre

---

**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

---

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

---

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

---

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

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

---

October 2014
Major Emergency (Major Incident) – Operational Control

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

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


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
Triage is a dynamic process

Multiple casualty incident

Can casualty walk?

Yes

No

Is casualty breathing?

Yes

No

Open airway one attempt

Breathing now?

Yes

No

Respiratory rate < 10 or > 29?

Yes

No

Capillary refill > 2 sec. Or Pulse > 120?

Yes

No

Priority 1 (Immediate)
RED

Priority 2 (Urgent)
YELLOW

Priority 3 (Delayed)
GREEN

DEAD

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
Multiple casualty incident

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

Triage Revised Trauma Score = A + B + C

Triage is a dynamic process

Priority 1 (Immediate) RED
Priority 2 (Urgent) YELLOW
Priority 3 (Delayed) GREEN
DEAD
SECTION 8
PRE-HOSPITAL EMERGENCY CARE OPERATIONS

Clinically, the treatment of Taser injuries is similar to that of any electrical injury. The most important aspects of care are to monitor vital signs and monitor for signs of excited delirium. Excited delirium is a serious condition that can be life-threatening. It is characterized by symptoms such as agitation, hyperthermia, and hallucinations.

Prior to touching the patient ensure that the Garda has disconnected the wires from the hand held unit. Complete primary survey. Cut wire connection proximal to barbs. Monitor ECG & SpO2 for minimum 15 minutes. Go to appropriate CPG. Taser gun used.

Ensure Garda accompanies patient at all times. Consider Oxygen therapy. Monitor for signs of Excited Delirium. Patient care takes precedent over removal of barb. Barbs should not be removed if they are embedded in the face, eye, neck, or groin. Remove barbs. Clean and dress wounds. Go to Behavioural emergency CPG. Barbs should not be removed if they are embedded in the face, eye, neck, or groin. Barbs should not be removed if they are embedded in the face, eye, neck, or groin.

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

Reference:
Clinical Practice Guidelines
PARAMEDIC

SECTION 9
TREAT & REFERRAL

Clinical Care Pathway Decision – Treat & Referral

Non serious or non life threat

Administer specific treatment & provide patient with the opportunity to recover/respond

Patient responds to intervention(s)

No

Yes

Conduct complete patient assessment
Focused history
Systematic physical examination

All generic inclusion criteria present

No

Yes

Practitioner satisfied with non ED care

No

Yes

CPG for treat & referral available for condition

No

Yes

An adult carer, both capable & willing to accept responsibility, available

No

Yes

Explain clinical pathway options to patient and carer

Patient & carer accepts non ED care

No

Yes

Go to appropriate T&R CPG

Generic patient inclusion
1. ≥ 18 years & ≤ 60 years.
2. Not pregnant.
3. Social support available.
4. Demonstrates capacity and willing to engage.
5. Reliable history.
6. Vital signs within normal range (following care).
7. Compliant with treatment, including own medications.
8. Clinical status of ‘Non serious or non life threat (following care).
10. No observed significant relevant co-morbidity.
11. 1st call for same condition within 30 days.
12. Registered with general practitioner.
If in any doubt about generic inclusions the practitioner should transport to ED

Transport to ED

If medical practitioner is present, follow direction on transport decision

Vital sign
Respiratory Rate
SpO₂
Inspired O₂
Systolic BP
Pulse (BPM)
AVPU/CNS Response
Temperature (°C)

Normal range
12 – 20
≥ 96%
Room air
111 - 150
51 - 90
Alert
36 – 37.5

Clinical Care Pathway options
CP1 Treat & Transport to an Emergency Department
CP2 Treat & Referral for follow-up care within 2 hours (arranged with local practitioner)
CP3 Treat & Referral for follow-up care within 48 hours or as soon as practicable
CP4 Treat & Referral to self-care with after-care instructions

HSE Acute Medicine Programme, 2011, Guiding Framework and Policy for the National Early Warning Score System to Recognise and Respond to Clinical Deterioration
Clinical Practice Guidelines

SECTION 9
TREAT & REFERRAL

### Hypoglycaemia – Treat & Referral

#### Previous diagnosis with diabetes

If the patient expresses a wish to attend an Emergency Department then arrangements shall be made to transport him/her there.

#### Specific Hypoglycaemic exclusion

1. First ever hypoglycaemic episode.
2. < 30 days since last episode.
3. Unable or unwilling to eat.
4. Latest blood glucose < 4.0 mmol/L (after treatment).
5. No serial improvement of blood glucose.
6. On oral hypoglycaemics (sulphonylurea tablets in particular).
7. Recent medication change or additional medications prescribed (within 30 days).
8. Seizure in association with hypoglycaemia.
9. Insulin or oral hypoglycaemics overdose.

If in any doubt about 1 to 9 above the practitioner should transport to ED.

#### Decision

1. Complete after-care instructions and give a copy to the patient or carer.
2. Complete the PCR and mark for Clinical Audit.

### Exclusions

- Present
- Specific Hypoglycaemic exclusion

- CP 1: Transport
- CP 2: Self-care
- CP 3: Immediate
- CP 4: 48 hours

Ensure patient takes in both quick (lucozade, fruit juice or sweets) and longer-acting (bread, toast, biscuit) carbohydrates.

Flush line with 10 mL NaCl following removal of 10% Dextrose infusion.

If the patient expresses a wish to attend an Emergency Department then arrangements shall be made to transport him/her there.

**Isolated seizure – Treat & Referral**

**Specific seizure exclusion**

1. First seizure.
2. Anticonvulsant administered.
3. Concurrent acute illness (including abnormal temperature).
4. History of multi seizure presentations.
5. History of recent head injury.
6. Increased frequency of seizures.
7. Seizure involving submersion or injury.
8. Seizure type or pattern differing to usual presentation.
10. Unwitnessed seizure.
11. Two or more seizures within 24 hours.
12. Glucose < 4 mmol/L.
13. Recent medication change or additional medications prescribed (within 30 days).

If in any doubt about 1 to 13 above the practitioner should transport to ED

1. Complete after-care instructions and give a copy to the patient or carer
2. Complete the PCR and mark for Clinical Audit

**Known epileptic**

- [ ] Exclusions present
- [ ] No

**Isolated seizure:**
- Lasting < 5 minutes
- Similar to previous events

**If the patient expresses a wish to attend an Emergency Department then arrangements shall be made to transport him/her there.**

Reference:
- HSE Epilepsy Programme 2012
- Ambulance Service of NSW, 2008, CARE Clinical Pathways
APPENDIX 1
MEDICATION FORMULARY

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 the Medicinal Products 7th Schedule (SI 300 of 2014). 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 Committee (MAC) 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 a PHECC licensed CPG provider.
4. The practitioner is privileged, 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 7th Schedule.

The context for administration of the medications listed here is outlined in the CPGs.

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

Sodium Chloride 0.9% (NaCl) is the IV/IO fluid of choice for pre-hospital emergency care.

Water for injection shall be used when diluting medications, however if not available NaCl (0.9%) may be used if not contraindicated.

All medication doses for patients ≤ 15 years shall be calculated on a weight basis unless an age-related dose is specified for that medication.

The route of administration should be appropriate to the patients clinical presentation. IO access is authorised for Advanced Paramedics for life threatening emergencies (or under medical direction).

The dose for paediatric patients may never exceed the adult dose.

Paediatric weight estimations acceptable to PHECC are:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonate</td>
<td>3.5 Kg</td>
</tr>
<tr>
<td>Six months</td>
<td>6 Kg</td>
</tr>
<tr>
<td>One to five</td>
<td>(age x 2) + 8 Kg</td>
</tr>
<tr>
<td>Greater than 5</td>
<td>(age x 3) + 7 Kg</td>
</tr>
</tbody>
</table>

Reviewed on behalf of PHECC by Prof Peter Weedle, Adjunct Professor of Clinical Pharmacy, School of Pharmacy, University College Cork.
This version contains 17 medications.
Amendments to the 2012 Edition

The paediatric age range has been increased to reflect the HSE National Clinical Programme for Paediatrics and Neonatology age profile:

A paediatric patient is defined as a patient up to the eve of his/her 16th birthday (≤ 15 years).

Water for injection shall be used when diluting medications, however if not available NaCl (0.9%) may be used if not contraindicated.

The paediatric weight estimation formulae have been modified.

New Medications introduced;

- Hydrocortisone
- Ticagrelor

### Clopidogrel

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indications</td>
<td>ST Elevation Myocardial Infarction (STEMI) if the patient is not suitable for PPCI</td>
<td>Identification of ST Elevation Myocardial Infarction (STEMI)</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>300 mg PO</td>
<td>600 mg PO</td>
</tr>
<tr>
<td></td>
<td>≥ 75 years</td>
<td>&gt; 75 years</td>
</tr>
<tr>
<td>Additional information</td>
<td></td>
<td>Paramedics are authorised to administer Clopidogrel PO following identification of STEMI and medical practitioner instruction</td>
</tr>
</tbody>
</table>

### Epinephrine (1:1,000)

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Usual Dosages</td>
<td>Auto-injector</td>
<td>EpiPen® Jr</td>
</tr>
</tbody>
</table>
### Ibuprofen

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Level</td>
<td>EMT</td>
<td></td>
</tr>
<tr>
<td>Presentation</td>
<td>400 mg tablet</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>It is an anti-inflammatory analgesic</td>
<td>It is used to reduce mild to moderate pain</td>
</tr>
</tbody>
</table>
| Additional information | Caution with significant burns or poor perfusion due to risk of kidney failure  
Caution if concurrent NSAIDs use |        |

### Ipratropium Bromide

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Level</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>CPG: 4/5/6.3.3, 4/5/6.3.4, 4/5/6.7.18</td>
<td>CPG: 5/6.3.2, 5/6.7.5</td>
</tr>
</tbody>
</table>
| Usual Dosages | Paediatric  
< 12 years: 0.25 mg NEB  
≥ 12 years: 0.5 mg NEB | Paediatric  
0.25 mg NEB |
## Midazolam Solution

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Administration</strong></td>
<td>2.5 mg in 0.5 mL pre-filled syringe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 mg in 1 mL pre-filled syringe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.5 mg in 1.5 mL pre-filled syringe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 mg in 2 mL pre-filled syringe</td>
<td></td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Combative with hallucinations or paranoia and risk to self or others</td>
<td>Psychostimulant overdose</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Seizure:</strong></td>
<td>Hallucinations or paranoia</td>
</tr>
<tr>
<td></td>
<td>&lt; 1 year: 2.5 mg buccal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 year to &lt; 5 years: 5 mg buccal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 years to &lt; 10 years: 7.5 mg buccal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥ 10 years: 10 mg buccal</td>
<td></td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>No more than two doses by practitioners. Practitioners should take into account the dose administered by caregivers prior to arrival of practitioner.</td>
<td>The maximum dose of Midazolam includes that administered by caregiver prior to arrival of Practitioner</td>
</tr>
</tbody>
</table>

## Naloxone

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical level</strong></td>
<td>Intranasal (IN). CPG: 6.4.23, 4/5.4.23, 4/5/6.7.5</td>
<td>CPG: 5/6.3.2, 5/6.7.5</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Inadequate respiration and/or ALoC following known or suspected narcotic overdose</td>
<td>Respiratory rate &lt; 10 secondary to known or suspected narcotic overdose</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> 0.8 mg (800 mcg) IN (EMT)</td>
<td>(Paramedic repeats by one prn)</td>
</tr>
<tr>
<td></td>
<td><strong>Paediatric:</strong> 0.02 mg/Kg (20 mcg/Kg) IN (EMT)</td>
<td></td>
</tr>
</tbody>
</table>

## Nitrous Oxide 50% and Oxygen 50% (Entonox®)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Additional information</strong></td>
<td>Caution when using Entonox for greater than one hour for Sickle Cell Crisis</td>
<td></td>
</tr>
</tbody>
</table>
# APPENDIX 1
## MEDICATION FORMULARY

### Oxygen

<table>
<thead>
<tr>
<th>HEADING</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Contraindications</td>
<td></td>
<td>Paraquat poisoning</td>
</tr>
<tr>
<td>Indications</td>
<td>Sickle Cell Disease - 100%</td>
<td></td>
</tr>
<tr>
<td>Additional Information</td>
<td>Caution with paraquat poisoning, administer oxygen if SpO₂ &lt; 92%</td>
<td></td>
</tr>
</tbody>
</table>

### Paracetamol

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation</td>
<td>250 mg in 5 mL</td>
<td></td>
</tr>
<tr>
<td>Indications</td>
<td>Pyrexia</td>
<td>Pyrexia following seizure for paediatric patients.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Contraindications</td>
<td>&lt; 1 month old</td>
<td></td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>&gt; 1 month &lt; 1 year - 90 mg PR</td>
<td>&lt; 1 year - 60 mg PR</td>
</tr>
</tbody>
</table>

### Salbutamol

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td></td>
<td>Advanced Paramedics may repeat Salbutamol x 3</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td><strong>Adult:</strong> (or 0.1 mg metered aerosol spray x 5) Repeat at 5 min prn (EFRs: 0.1 mg metered aerosol spray x 2)</td>
<td><strong>Adult:</strong> Repeat at 5 min prn (APs x 3 and Ps x 1) (EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2) Paediatric: Repeat at 5 min prn (APs x 3 and Ps x 1) (EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
<tr>
<td></td>
<td><strong>Paediatric:</strong> &lt; 5 yrs...(or 0.1 mg metered aerosol spray x 3) Repeat at 5 min prn (EFRs: 0.1 mg metered aerosol spray x 2)</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 1
MEDICATION FORMULARY

### Sodium Chloride 0.9%

<table>
<thead>
<tr>
<th>HEADING</th>
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</thead>
<tbody>
<tr>
<td><strong>Usual Dosages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspension Trauma, PEA or Asystole: 20 mL/Kg IV/IO infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adrenal insufficiency: 1,000 mL IV/IO infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat-Related Emergency: 1,000 mL IV/IO infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypothermia, Sepsis, # neck of femur and Bradycardia: …Repeat to max 1 L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-resuscitation care: 1,000 mL IV/IO infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock from blood loss; … to maintain systolic BP of 90 – 100 mmHg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sickle Cell Crisis: 1,000 mL IV/IO infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td># neck of femur, sepsis: 250 mL IV infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sepsis with poor perfusion: 500 mL IV/IO infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post partum haemorrhage: 1,000 mL IV/IO infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paediatric:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycaemic emergency: 10 mL/Kg IV/IO infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypothermia: 10 mL/Kg IV/IO infusion … Repeat prn x 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adrenal insufficiency, Septic shock, Symptomatic Bradycardia, Asystole/PEA: 20 mL/Kg IV/IO infusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burns: …. &gt; 1 hour ......</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please visit [www.phecc.ie](http://www.phecc.ie) for the latest edition/version.
## APPENDIX 1
### MEDICATION FORMULARY

### LIST OF MEDICATIONS

<table>
<thead>
<tr>
<th>Medication</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>110</td>
</tr>
<tr>
<td>Clopidogrel</td>
<td>111</td>
</tr>
<tr>
<td>Epinephrine 1mg/1ml (1:1000)</td>
<td>112</td>
</tr>
<tr>
<td>Glucagon</td>
<td>113</td>
</tr>
<tr>
<td>Glucose gel</td>
<td>114</td>
</tr>
<tr>
<td>Glyceryl Trinitrate (GTN)</td>
<td>115</td>
</tr>
<tr>
<td>Hydrocortisone</td>
<td>116</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>118</td>
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<tr>
<td>Ipratropium Bromide</td>
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<tr>
<td>Midazolam Solution</td>
<td>121</td>
</tr>
<tr>
<td>Naloxone</td>
<td>122</td>
</tr>
<tr>
<td>Nitrous Oxide 50% and Oxygen 50% (Entonox®)</td>
<td>123</td>
</tr>
<tr>
<td>Oxygen</td>
<td>124</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>125</td>
</tr>
<tr>
<td>Salbutamol</td>
<td>126</td>
</tr>
<tr>
<td>Sodium Chloride 0.9% (NaCl)</td>
<td>128</td>
</tr>
<tr>
<td>Ticagrelor</td>
<td>129</td>
</tr>
</tbody>
</table>
### Aspirin

<table>
<thead>
<tr>
<th>Medication</th>
<th>Aspirin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Platelet aggregation inhibitor</td>
</tr>
<tr>
<td>Descriptions</td>
<td>Anti-inflammatory agent and an inhibitor of platelet function. Useful agent in the treatment of various thromboembolic diseases such as acute myocardial infarction</td>
</tr>
<tr>
<td>Presentation</td>
<td>300 mg dispersible tablet</td>
</tr>
<tr>
<td>Administration</td>
<td>Orally (PO) - dispersed in water, or to be chewed - if not dispersible form (CPG: 5/6.4.10, 4.4.10, 1/2/3.4.10)</td>
</tr>
<tr>
<td>Indications</td>
<td>Cardiac chest pain or suspected Myocardial Infarction</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Active symptomatic gastrointestinal (GI) ulcer, Bleeding disorder (e.g. haemophilia), Known severe adverse reaction, Patients &lt; 16 years old</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adult: 300 mg tablet, Paediatric: Contraindicated</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Antithrombotic, Inhibits the formation of thromboxane A2, which stimulates platelet aggregation and artery constriction. This reduces clot/thrombus formation in an MI.</td>
</tr>
<tr>
<td>Side effects</td>
<td>Epigastric pain and discomfort, Bronchospasm, Gastrointestinal haemorrhage</td>
</tr>
<tr>
<td>Long-term effects</td>
<td>Generally mild and infrequent but incidence of gastro-intestinal irritation with slight asymptomatic blood loss, increased bleeding time, bronchospasm and skin reaction in hypersensitive patients.</td>
</tr>
<tr>
<td>Additional information</td>
<td>Aspirin 300 mg is indicated for cardiac chest pain regardless if patient is on anticoagulants or is already on Aspirin. If the patient has swallowed an aspirin (enteric coated) preparation without chewing it, the patient should be regarded as not having taken any aspirin; administer 300 mg PO.</td>
</tr>
</tbody>
</table>
## APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL:** P AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Clopidogrel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Platelet aggregation inhibitor</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>An inhibitor of platelet function</td>
</tr>
</tbody>
</table>
| **Presentation** | 300 mg tablet  
75 mg tablet |
| **Administration** | Orally (PO)  
(CPG: 5/6.4.10) |
| **Indications** | ST Elevation Myocardial Infarction (STEMI) if the patient is not suitable for PPCI |
| **Contraindications** | Known severe adverse reaction  
Active pathological bleeding  
Severe liver impairment |
| **Usual Dosages** | **Adult:** 300 mg PO  
≥ 75 years; 75 mg PO  
**Paediatric:** Not indicated |
| **Pharmacology/Action** | Clopidogrel selectively inhibits the binding of adenosine diphosphate (ADP) to its platelet receptor, and the subsequent ADP-mediated activation of the GPIIb/IIIa complex, thereby inhibiting platelet aggregation. Biotransformation of Clopidogrel is necessary to produce inhibition of platelet aggregation. Clopidogrel acts by irreversibly modifying the platelet ADP receptor. |
| **Side effects** | Abdominal pain  
Dyspepsia  
Diarrhoea |
| **Additional information** | If a patient has been loaded with an anti-platelet medication (other than Aspirin), prior to the arrival of the practitioner, the patient should not have Clopidogrel administered. |
### Epinephrine (1:1,000)

<table>
<thead>
<tr>
<th>Class</th>
<th>Sympathetic agonist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Naturally occurring catecholamine. It is a potent alpha and beta adrenergic stimulant; however, its effect on beta receptors is more profound.</td>
</tr>
<tr>
<td>Presentation</td>
<td>Pre-filled syringe, ampoule or Auto injector (for EMT use) 1 mg/1 mL (1:1,000)</td>
</tr>
<tr>
<td>Administration</td>
<td>Intramuscular (IM)  (CPG: 5/6.4.15, 4.4.15, 2/3.4.16, 5/6.7.31, 4.7.31, 2/3.7.31)</td>
</tr>
<tr>
<td>Indications</td>
<td>Severe anaphylaxis</td>
</tr>
<tr>
<td>Contraindications</td>
<td>None known</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Usual Dosages</strong></td>
</tr>
<tr>
<td><strong>Adult:</strong></td>
<td><strong>Paediatric:</strong></td>
</tr>
<tr>
<td>EMT &amp; (EFR assist patient) 0.3 mg (Auto injector) Repeat every 5 minutes prn</td>
<td>0.05 mg (50 mcg) IM (0.05 mL of 1:1 000) EMT &amp; (EFR assist patient): 0.125 mg (125 mcg) IM (0.13 mL of 1:1 000) 6 months to 5 years: 0.25 mg (250 mcg) IM (0.25 mL of 1:1 000) &gt; 8 years: 0.5 mg (500 mcg) IM (0.5 mL of 1:1 000) 6 months &lt; 10 years: 0.15 mg (Auto injector) ≥ 10 years: 0.3 mg (Auto injector) Repeat every 5 minutes prn</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Alpha and beta adrenergic stimulant Reversal of laryngeal oedema &amp; bronchospasm in anaphylaxis Antagonises the effects of histamine</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Palpitations Tachyarrhythmias Hypertension Angina-like symptoms</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>N.B. Double check the concentration on pack before use</td>
</tr>
</tbody>
</table>
## APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Glucagon</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Hormone and Antihypoglycaemic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>1 mg vial powder and solution for reconstitution (1 mL)</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intramuscular (IM) (CPG: 5/6.4.19, 4.4.19, 5/6.7.32, 4.7.32)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Hypoglycaemia in patients unable to take oral glucose or unable to gain IV access, with a blood glucose level &lt; 4 mmol/L.</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Known severe adverse reaction Phaeochromocytoma</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> 1 mg IM&lt;br&gt;<strong>Paediatric:</strong> ≤ 8 years 0.5 mg (500 mcg) IM&lt;br&gt; &gt; 8 years 1 mg IM</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Glycogenolysis Increases plasma glucose by mobilising glycogen stored in the liver</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Rare, may cause hypotension, dizziness, headache, nausea &amp; vomiting.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>May be ineffective in patients with low stored glycogen e.g. prior use in previous 24 hours, alcoholic patients with liver disease. Store in refrigerator Protect from light</td>
</tr>
</tbody>
</table>
# APPENDIX 1
## MEDICATION FORMULARY

### CLINICAL LEVEL:

<table>
<thead>
<tr>
<th>Medication</th>
<th>Glucose gel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Antihypoglycaemic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Synthetic glucose paste</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Glucose gel in a tube or sachet</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>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, 4.4.19, 2/3.4.19, 5/6.7.32, 4.7.32)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Hypoglycaemia</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Known severe adverse reaction</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> 10 – 20 g buccal Repeat prn</td>
</tr>
<tr>
<td></td>
<td><strong>Paediatric:</strong> ≤ 8 years; 5 – 10 g buccal &gt; 8 years: 10 – 20 g buccal Repeat prn</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Increases blood glucose levels</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>May cause vomiting in patients under the age of five if administered too quickly</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Glucose gel will maintain glucose levels once raised but should be used secondary to Dextrose to reverse hypoglycaemia.</td>
</tr>
<tr>
<td></td>
<td><strong>Proceed with caution:</strong></td>
</tr>
<tr>
<td></td>
<td>Patients with airway compromise</td>
</tr>
<tr>
<td></td>
<td>Altered level of consciousness</td>
</tr>
</tbody>
</table>
## Glyceryl Trinitrate (GTN)

<table>
<thead>
<tr>
<th>Class</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Special preparation of Glyceryl trinitrate in an aerosol form that delivers precisely 0.4 mg of Glyceryl trinitrate per spray.</td>
</tr>
<tr>
<td>Presentation</td>
<td>Aerosol spray: metered dose 0.4 mg (400 mcg)</td>
</tr>
<tr>
<td>Administration</td>
<td>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: 5/6.3.5, 4.4.10, 5/6.4.10)</td>
</tr>
<tr>
<td>Indications</td>
<td>Angina. Suspected Myocardial Infarction (MI). EFRs may assist with administration. Advanced Paramedic and Paramedic – Pulmonary oedema</td>
</tr>
<tr>
<td>Contraindications</td>
<td>SBP &lt; 90 mmHg. Viagra or other phosphodiesterase type 5 inhibitors (Sildenafil, Tadalafil and Vardenafil) used within previous 24 hours. Known severe adverse reaction</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td><strong>Adult:</strong> Angina or MI: 0.4 mg (400 mcg) Sublingual. Repeat at 3-5 min intervals, Max: 1.2 mg (EFRs 0.4 mg sublingual max, assist patient). <strong>Pulmonary oedema:</strong> 0.8 mg (800 mcg) sublingual. Repeat x 1. <strong>Paediatric:</strong> Not indicated</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>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’s workload. Reduces BP.</td>
</tr>
<tr>
<td>Side effects</td>
<td>Headache. Transient Hypotension. Flushing. Dizziness</td>
</tr>
<tr>
<td>Additional information</td>
<td>If the pump is new or has not been used for a week or more, the first spray should be released into the air.</td>
</tr>
</tbody>
</table>
## Hydrocortisone

<table>
<thead>
<tr>
<th>Class</th>
<th>Corticosteroid and anti-inflammatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Hydrocortisone is a potent corticosteroid with anti-inflammatory properties</td>
</tr>
<tr>
<td>Presentation</td>
<td>Powder and solvent for solution for injection or infusion. Vial containing off-white powder and vial containing water for injections. Prepare the solution aseptically by adding not more than 2 mL of Sterile Water for Injections to the contents of one 100 mg vial, shake and withdraw for use.</td>
</tr>
<tr>
<td>Administration</td>
<td>Intravenous (IV) infusion Intramuscular (IM) The preferred route for initial emergency use is intravenous (CPG: 4/5/6.3.3, 4/5/6.3.4, 5/6.4.13, 5/6.4.15, 4/5/6.7.12, 5/6.7.30, 5/6.7.31)</td>
</tr>
<tr>
<td>Indications</td>
<td>Severe or recurrent anaphylactic reactions Asthma refractory to Salbutamol and Ipratropium Bromide Exacerbation of COPD (Advanced Paramedic) Adrenal insufficiency (Paramedic)</td>
</tr>
<tr>
<td>Contraindications</td>
<td>No major contraindications in acute management of anaphylaxis</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td><strong>Adult:</strong> Anaphylactic reaction and Exacerbation of COPD (AP): 200 mg IV (infusion in 100 mL NaCl) or IM Asthma (AP): 100 mg IV (infusion in 100 mL NaCl) Adrenal insufficiency (P &amp; AP): 100 mg IV (infusion in 100 mL NaCl) or IM <strong>Paediatric:</strong> Anaphylactic reaction (AP): &lt; 1 year 25 mg IV (infusion in 100 mL NaCl) or IM 1 to 5 years 50 mg IV (infusion in 100 mL NaCl) or IM &gt; 5 years 100 mg IV (infusion in 100 mL NaCl) or IM Paediatric: Asthma (AP): &lt; 1 year 25 mg IV (infusion in 100 mL NaCl) 1 to 5 years 50 mg IV (infusion in 100 mL NaCl) &gt; 5 years 100 mg IV (infusion in 100 mL NaCl) Adrenal insufficiency (P &amp; AP): 6 mths to ≤ 5 years: 50 mg IV (AP) (infusion in 100 mL NaCl) or IM (P) &gt; 5 years: 100 mg IV (AP) (infusion in 100 mL NaCl) or IM (P)</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Potent anti-inflammatory properties and inhibits many substances that cause inflammation</td>
</tr>
</tbody>
</table>
### Medication Formulary

<table>
<thead>
<tr>
<th>Medication</th>
<th>Hydrocortisone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Side effects</strong></td>
<td>CCF, hypertension, abdominal distension, vertigo, headache, nausea, malaise and hiccups</td>
</tr>
<tr>
<td><strong>Long-term side effects</strong></td>
<td>Adrenal cortical atrophy develops during prolonged therapy and may persist for months after stopping treatment</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Intramuscular injection should avoid the deltoid area because of the possibility of tissue atrophy. Dosage should not be less than 25 mg.</td>
</tr>
</tbody>
</table>
## Applicability

**Ibuprofen**

### Class
Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

### Description
It is an anti-inflammatory analgesic

### Presentation
- Suspension 100 mg in 5 mL
- 200 mg tablet, 400 mg tablet

### Administration
- Orally (PO)
  - (CPG: 4/5/6.2.6, 4/5/6.7.5)

### Indications
Mild to moderate pain

### Contraindications
- Not suitable for children under 3 months
- Patient with history of asthma exacerbated by aspirin
- Pregnancy
- Peptic ulcer disease
- Known severe adverse reaction

### Usual Dosages

<table>
<thead>
<tr>
<th>Medication</th>
<th>Adult</th>
<th>Paediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ibuprofen</td>
<td>400 mg PO</td>
<td>10 mg/Kg PO</td>
</tr>
</tbody>
</table>

### Pharmacology/Action
Suppresses prostaglandins, which cause pain via the inhibition of cyclooxygenase (COX). Prostaglandins are released by cell damage and inflammation.

### Side Effects
Skin rashes, gastrointestinal intolerance and bleeding

### Long-term side effects
Occasionally gastrointestinal bleeding and ulceration occurs. May also cause acute renal failure, interstitial nephritis and NSAID-associated nephropathy.

### Additional Information
- If ibuprofen administered in previous 6 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 10 mg/Kg.
- Caution with significant burns or poor perfusion due to risk of kidney failure.
- Caution if concurrent NSAIDs use.
## Ipratropium Bromide

<table>
<thead>
<tr>
<th>Class</th>
<th>Anticholinergic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>It is a parasympatholytic bronchodilator that is chemically related to atropine.</td>
</tr>
<tr>
<td>Presentation</td>
<td>Nebuliser Solution 0.25 mg (250 micrograms) in 1 mL</td>
</tr>
<tr>
<td>Administration</td>
<td>Nebulised (NEB) mixed with age-specific dose of Salbutamol (CPG: 4/5/6.3.3, 4/5/6.3.4, 4/5/6.7.12)</td>
</tr>
<tr>
<td>Indications</td>
<td>Acute moderate asthma or exacerbation of COPD not responding to initial Salbutamol dose.</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Known severe adverse reaction</td>
</tr>
</tbody>
</table>
| Usual Dosages  | **Adult:** 0.5 mg NEB  
**Paediatric:**  
< 12 years: 0.25 mg NEB  
≥ 12 years: 0.5 mg NEB |
| Pharmacology/Action | It blocks muscarinic receptors associated with parasympathetic stimulation of the bronchial air passageways. This results in bronchial dilation and reduced bronchial secretions. |
| Side effects   | Transient dry mouth, blurred vision, tachycardia and headache. |
**APPENDIX 1**
**MEDICATION FORMULARY**

**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Midazolam Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Benzodiazepine</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>It is a potent sedative agent. Clinical experience has shown Midazolam to be 3 to 4 times more potent per mg as Diazepam.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Ampoule 10 mg in 2 mL or ampoule 10 mg in 5 mL. Buccal liquid 50 mg in 5 mL. Pre-filled syringe 2.5 mg in 0.5 mL. Pre-filled syringe 5 mg in 1 mL. Pre-filled syringe 7.5 mg in 1.5 mL. Pre-filled syringe 10 mg in 2 mL. Pre-filled syringe 10 mg in 1 mL.</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV). Intraosseous (IO). Intramuscular (IM). Buccal. Intranasal (IN) (50% in each nostril). (CPG: 5/6.4.23, 6.4.29, 5/6.7.33).</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Seizures. Combative with hallucinations or paranoia and risk to self or others.</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Shock. Depressed vital signs or alcohol-related altered level of consciousness. Respiratory depression. Known severe adverse reaction.</td>
</tr>
</tbody>
</table>
| **Usual Dosages**              | Adults: **Seizure or combative patient.** 2.5 mg IV/IO (AP) or 5 mg IM or 10mg buccal or 5 mg intranasal (P & AP) (Repeat x 1 prn) **Paramedic:** IM, buccal or IN only.  
Paediatric: **Seizure:**  
< 1 year: 2.5 mg buccal  
1 year to < 5 years: 5 mg buccal  
5 years to < 10 years: 7.5 mg buccal  
≥ 10 years: 10 mg buccal  
or  
0.2 mg/Kg intranasal or 0.1 mg/Kg IV/IO (Repeat x 1 prn) **Paramedic:** buccal or IN only |
| **Pharmacology/Action**        | It affects the activity of a chemical that transmits impulses across nerve synapses called Gamma-AminoButyric Acid (GABA). GABA is an inhibitory neurotransmitter. Midazolam works... |
**APPENDIX 1**  
**MEDICATION FORMULARY**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Midazolam Solution (<em>contd</em>)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>by increasing the effects of GABA at these receptors.</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Respiratory depression, headache, hypotension &amp; drowsiness</td>
</tr>
</tbody>
</table>
| **Additional information** | Midazolam IV should be titrated to effect.  
Ensure oxygen and resuscitation equipment are available prior to administration.  
No more than two doses by practitioners.  
Practitioners should take into account the dose administered by carers prior to arrival of practitioner.  
Contraindications, other than KSAR, refer to non seizing patients. |
# Appendix 1: Medication Formulary

**Clinical Practice Guidelines**

## Medication: Naloxone

<table>
<thead>
<tr>
<th>Class</th>
<th>Narcotic antagonist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Effective in management and reversal of overdoses caused by narcotics or synthetic narcotic agents.</td>
</tr>
<tr>
<td>Presentation</td>
<td>Ampoules 0.4 mg in 1 mL (400 mcg /1 mL) or pre-loaded syringe</td>
</tr>
<tr>
<td>Administration</td>
<td>Intravenous (IV) Intramuscular (IM) Subcutaneous (SC) Intraosseous (IO) Intranasal (IN) (CPG: 6.4.22, 4/5.4.22, 5/6.5.2, 4/5/6.7.11)</td>
</tr>
<tr>
<td>Indications</td>
<td>Inadequate respiration and/or ALoC following known or suspected narcotic overdose.</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Known severe adverse reaction</td>
</tr>
</tbody>
</table>
| Usual Dosages          | **Adult:** 0.4 mg (400 mcg) IV/IO (AP) 0.4 mg (400 mcg) IM or SC (P) 0.8 mg (800 mcg) IN (EMT) Repeat after 3 min prn to a Max 2 mg  
**Paediatric:** 0.01 mg/Kg (10 mcg/Kg) IV/IO (AP) 0.01 mg/Kg (10 mcg/Kg) IM/SC (P) 0.02 mg/Kg (20 mcg/Kg) IN (EMT) Repeat dose prn to maintain opioid reversal to Max 0.1 mg/Kg or 2 mg |
| Pharmacology/Action    | Narcotic antagonist  Reverse the respiratory depression and analgesic effect of narcotics |
| Side effects           | Acute reversal of narcotic effect ranging from nausea & vomiting to agitation and seizures. |
| Additional information | Use with caution in pregnancy.  Administer with caution to patients who have taken large dose of narcotics or are physically dependent.  Rapid reversal will precipitate acute withdrawal syndrome.  Prepare to deal with aggressive patients. |

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**Pre-Hospital Emergency Care Council**

October 2014
## Nitrous Oxide 50% and Oxygen 50% (Entonox®)

<table>
<thead>
<tr>
<th>Class</th>
<th>Analgesic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Potent analgesic gas contains a mixture of both nitrous oxide and oxygen.</td>
</tr>
<tr>
<td>Presentation</td>
<td>Cylinder, coloured blue with white and blue triangles on cylinder shoulders. Medical gas: 50% Nitrous Oxide &amp; 50% Oxygen</td>
</tr>
<tr>
<td>Administration</td>
<td>Self-administered Inhalation by demand valve with face-mask or mouthpiece (CPG: 4/5/6.2.6, 5/6.5.1, 4.5.1, 5/6.5.6, 4/5/6.7.5)</td>
</tr>
<tr>
<td>Indications</td>
<td>Pain relief</td>
</tr>
<tr>
<td>Contraindications</td>
<td>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</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adult: Self-administered until pain relieved, Paediatric: Self-administered until pain relieved</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Analgesic agent gas: - CNS depressant, - Pain relief</td>
</tr>
<tr>
<td>Side effects</td>
<td>Disinhibition, Decreased level of consciousness, Lightheadedness</td>
</tr>
<tr>
<td>Additional information</td>
<td>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. Caution when using Entonox for greater than one hour for Sickle Cell Crisis.</td>
</tr>
</tbody>
</table>
## Oxygen

<table>
<thead>
<tr>
<th>Class</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Odourless, tasteless, colourless gas necessary for life.</td>
</tr>
<tr>
<td>Presentation</td>
<td>D, E or F cylinders, coloured black with white shoulders. CD cylinder; white cylinder Medical gas</td>
</tr>
<tr>
<td>Administration</td>
<td>Inhalation via: High concentration reservoir (non-rebreather) mask Simple face mask Venturi mask Tracheostomy mask Nasal cannulae Bag Valve Mask (CPG: Oxygen is used extensively throughout the CPGs)</td>
</tr>
</tbody>
</table>
| Indications            | Absent/inadequate ventilation following an acute medical or traumatic event \[
|                        | $\text{SpO}_2 < 94\%$ adults and < 96\% paediatrics \[
|                        | $\text{SpO}_2 < 92\%$ for patients with acute exacerbation of COPD |
| Contraindications      | Bleomycin lung injury                                                |
| Usual Dosages          | **Adult:** Cardiac and respiratory arrest or Sickle Cell Crisis; 100\% Life threats identified during primary survey; 100\% until a reliable $\text{SpO}_2$ measurement obtained then titrate $O_2$ to achieve $\text{SpO}_2$ of 94\% - 98\% For patients with acute exacerbation of COPD, administer $O_2$ titrate to achieve $\text{SpO}_2$ 92\% or as specified on COPD Oxygen Alert Card All other acute medical and trauma titrate $O_2$ to achieve $\text{SpO}_2$ of 94\% - 98\% \[
|                        | **Paediatric:** Cardiac and respiratory arrest or Sickle Cell Crisis; 100\% Life threats identified during primary survey; 100\% until a reliable $\text{SpO}_2$ measurement obtained then titrate $O_2$ to achieve $\text{SpO}_2$ of 96\% - 98\% All other acute medical and trauma titrate $O_2$ to achieve $\text{SpO}_2$ 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. Caution with paraquat poisoning, administer oxygen if $\text{SpO}_2 < 92\%$ Avoid naked flames, powerful oxidising agent. |
**APPENDIX 1 MEDICATION FORMULARY**

**CLASSICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Paracetamol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Analgesic and antipyretic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Paracetamol is used to reduce pain and body temperature</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Rectal suppository 180 mg, 90 mg and 60 mg Suspension 120 mg in 5 mL or 250 mg in 5 mL 500 mg tablet</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Per Rectum (PR) Orally (PO) (CPG: 4/5/6.2.6, 4/5/6.4.24, 4/5/6.7.5, 4/5/6.7.35)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Pyrexia Minor or moderate pain (1 - 6 on pain scale) for adult and paediatric patients</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Known severe adverse reaction Chronic liver disease &lt; 1 month old</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> 1 g PO <strong>Paediatric:</strong> PR (AP) &gt; 1 mth &lt; 1 year - 90 mg PR 1-3 years - 180 mg PR 4-8 years - 360 mg PR PO (AP, P &amp; EMT) 20 mg/Kg PO</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Analgesic – central prostaglandin inhibitor. Antipyretic – prevents the hypothalamus from synthesising prostaglandin E, inhibiting the body temperature from rising further.</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Long-term side effects</strong></td>
<td>Long-term use at high dosage or over dosage can cause liver damage and less frequently renal damage.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Note: Paracetamol is contained in Paracetamol Suspension and other over-the-counter drugs. Consult with parent/guardian in relation to medication prior to arrival on scene. For PR use be aware of modesty of patient, should be administered in presence of a 2nd person. If Paracetamol administered in previous 4 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 20 mg/Kg.</td>
</tr>
</tbody>
</table>

October 2014
## Clinical Practice Guidelines

### APPENDIX 1

### MEDICATION FORMULARY

**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Salbutamol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Sympathetic agonist</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Sympathomimetic that is selective for beta-2 adrenergic receptors</td>
</tr>
</tbody>
</table>
| **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  
(CPG: 4/5/6.3.3, 4/5/6.3.4, 3.3.4, 5/6.4.15, 4.4.15, 2/3.4.16, 4/5/6.10, 4/5/6.12, 3.7.12, 5/6.7.31, 4.7.31, 2/3.7.31) |
| **Indications** | Bronchospasm  
Exacerbation of COPD  
Respiratory distress following submersion incident |
| **Contraindications** | Known severe adverse reaction |
| **Usual Dosages** | **Adult:**  
5 mg NEB (or 0.1 mg metered aerosol spray x 5)  
Repeat at 5 min prn  
(EFRs: 0.1 mg metered aerosol spray x 5, assist patient)  

**Paediatric:**  
< 5 yrs - 2.5 mg NEB (or 0.1 mg metered aerosol spray x 3)  
≥ 5 yrs - 5 mg NEB (or 0.1 mg metered aerosol spray x 5)  
Repeat at 5 min prn  
(EFRs: 0.1 mg metered aerosol spray x 2, assist patient) |
| **Pharmacology/Action** | Beta-2 agonist  
Bronchodilation  
Relaxation of smooth muscle |
| **Side effects** | Tachycardia  
Tremors  
Tachyarrhythmias  
High doses may cause hypokalaemia |
| **Additional information** | It is more efficient to use a volumizer in conjunction with an aerosol inhaler when administering Salbutamol.  
If an oxygen driven nebuliser is used to administer Salbutamol for a patient with acute exacerbation of COPD it should be limited to 6 minutes maximum. |
APPENDIX 1
MEDICATION FORMULARY

<table>
<thead>
<tr>
<th>Medication</th>
<th>Sodium Chloride 0.9% (NaCl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Isotonic crystalloid solution</td>
</tr>
<tr>
<td>Description</td>
<td>Solution of sodium and chloride, also known as normal saline (NaCl)</td>
</tr>
<tr>
<td>Presentation</td>
<td>Soft pack for infusion 100 mL, 500 mL &amp; 1,000 mL</td>
</tr>
<tr>
<td>Administration</td>
<td>Intravenous (IV) infusion, Intravenous (IV) flush, Intraosseous (IO)</td>
</tr>
<tr>
<td></td>
<td>Paramedic: maintain infusion once commenced</td>
</tr>
<tr>
<td></td>
<td>(CPG: Sodium Chloride 0.9% is used extensively throughout the CPGs)</td>
</tr>
<tr>
<td>Indications</td>
<td>IV/IO fluid for pre-hospital emergency care</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Known severe adverse reaction</td>
</tr>
</tbody>
</table>

### Usual Dosages

**ADULT**
- Keep vein open (KVO) or medication flush for cardiac arrest prn

**Crush injury, Suspension Trauma, PEA or Asystole:**
- 20 mL/Kg IV/IO infusion

**Hypothermia:**
- 250 mL IV/IO infusion (warmed to 40°C approx) Repeat to max 1 L

**# neck of femur, sepsis, symptomatic bradycardia:**
- 250 mL IV infusion

**Decompression illness, sepsis with poor perfusion:**
- 500 mL IV/IO infusion

**Shock from blood loss:**
- 500 mL IV/IO infusion. Repeat in aliquots of 250 mL prn to maintain systolic BP of;
  - 90 – 100 mmHg
  - 120 mmHg (head injury GCS ≤ 8)

**Burns:**
- > 25% TBSA and/or 1 hour from time of injury to ED, 1000 mL IV/IO infusion
- > 10% TBSA consider 500 mL IV/IO infusion

**Adrenal insufficiency, Glycaemic emergency, Heat-related Emergency, Sickle Cell Crisis:**
- 1,000 mL IV/IO infusion

**Anaphylaxis:**
- 1,000 mL IV/IO infusion, repeat x one prn

**Post-resuscitation care:**
- 1,000 mL IV/IO infusion (at 4°C approx). If persistent hypotension maintain Sys BP > 90 mmHg

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*October 2014*
# Sodium Chloride 0.9% (NaCl) (contd)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Sodium Chloride 0.9% (NaCl) (contd)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAEDIATRIC</strong></td>
<td>Keep vein open (KVO) or medication flush for cardiac arrest prn</td>
</tr>
<tr>
<td>Glycaemic emergency, Neonatal resuscitation, Sickle Cell Crisis:</td>
<td>10 mL/Kg IV/IO infusion</td>
</tr>
<tr>
<td>Hypothermia:</td>
<td>10 mL/Kg IV/IO infusion (warmed to 40°C approx). Repeat prn x 1</td>
</tr>
<tr>
<td>Haemorrhagic shock;</td>
<td>10 mL/Kg IV/IO, repeat prn if signs of inadequate perfusion</td>
</tr>
<tr>
<td>Anaphylaxis;</td>
<td>20 mL/Kg IV/IO infusion, repeat x one prn</td>
</tr>
<tr>
<td>Adrenal insufficiency, Crush injury, Septic shock, Suspension Trauma, Symptomatic Bradycardia, Asystol/PEA:</td>
<td>20 mL/Kg IV/IO infusion</td>
</tr>
<tr>
<td>Post-resuscitation care:</td>
<td>20 mL/Kg IV/IO infusion if persistent poor perfusion</td>
</tr>
<tr>
<td>Burns:</td>
<td>&gt; 10% TBSA and/or &gt; 1 hour from time of injury to ED:</td>
</tr>
<tr>
<td></td>
<td>5 – 10 years: 250 mL IV/IO</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 years: 500 mL IV/IO</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Isotonic crystalloid solution</td>
</tr>
<tr>
<td></td>
<td>Fluid replacement</td>
</tr>
<tr>
<td>Side effects</td>
<td>Excessive volume replacement may lead to heart failure</td>
</tr>
<tr>
<td>Additional information</td>
<td>NaCl is the IV/IO fluid of choice for pre-hospital emergency care</td>
</tr>
<tr>
<td></td>
<td>For KVO use 500 mL pack only</td>
</tr>
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</table>
# APPENDIX 1
# MEDICATION FORMULARY

**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Ticagrelor</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Class</strong></th>
<th>Platelet aggregation inhibitor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>An inhibitor of platelet function</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>90 mg tablets</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Orally (PO) (CPG: 5/6.4.10)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Identification of ST Elevation Myocardial Infarction (STEMI) if transporting to PPCI centre</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Hypersensitivity to the active substance (Ticagrelor) or to any of the excipients, Active pathological bleeding, History of intracranial haemorrhage, Moderate to severe hepatic impairment</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> Loading dose 180 mg PO&lt;br&gt;<strong>Paediatric:</strong> Not indicated</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Ticagrelor is a selective adenosine diphosphate (ADP) receptor antagonist acting on the P2Y12 ADP-receptor that can prevent ADP-mediated platelet activation and aggregation. Ticagrelor is orally active, and reversibly interacts with the platelet P2Y12 ADP-receptor. Ticagrelor does not interact with the ADP binding site itself, but interacts with platelet P2Y12 ADP-receptor to prevent signal transduction.</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Common: Dyspnoea, epistaxis, gastrointestinal haemorrhage, subcutaneous or dermal bleeding, bruising and procedural site haemorrhage. Other undesirable effects include intracranial bleeding, elevations of serum creatinine and uric acid levels. Consult SmPC for a full list of undesirable effects.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td><strong>Special authorisation:</strong> Advanced paramedics and paramedics are authorised to administer Ticagrelor 180 mg PO following identification of STEMI and medical practitioner instruction. If a patient has been loaded with an anti-platelet medication (other than aspirin), prior to the arrival of the practitioner, the patient should not have Ticagrelor administered.</td>
</tr>
</tbody>
</table>
## APPENDIX 2
### MEDICATIONS & SKILLS MATRIX

**NEW FOR 2014**

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
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<tr>
<td>SpO₂ monitoring</td>
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<td></td>
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<tr>
<td>Move and secure a patient to a paediatric board</td>
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<td></td>
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<tr>
<td>Ibuprofen PO</td>
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<tr>
<td>Treat and referral</td>
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<td>✓</td>
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</tbody>
</table>

**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. Practitioners must be privileged by a licensed CPG provider to administer specific medications and perform specific clinical interventions.

### KEY

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>Authorised under PHECC CPGs</td>
</tr>
<tr>
<td>URMPIO</td>
<td>Authorised under PHECC CPGs under registered medical practitioner's instructions only</td>
</tr>
<tr>
<td>APO</td>
<td>Authorised under PHECC CPGs to assist practitioners only (when applied to EMT, to assist Paramedic or higher clinical levels)</td>
</tr>
<tr>
<td>SA</td>
<td>Authorised subject to special authorisation as per CPG</td>
</tr>
<tr>
<td>BTEC</td>
<td>Authorised subject to Basic Tactical Emergency Care rules</td>
</tr>
</tbody>
</table>
# APPENDIX 2

## MEDICATIONS & SKILLS MATRIX

<table>
<thead>
<tr>
<th>MEDICATIONS</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
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</tr>
<tr>
<td>Epinephrine (1:1,000) auto injector</td>
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<td>Glucagon IM</td>
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<td>✓</td>
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<tr>
<td>Nitrous oxide &amp; Oxygen (Entonox©)</td>
<td></td>
<td></td>
<td>✓</td>
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### MEDICATIONS & SKILLS MATRIX

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#### AIRWAY & BREATHING MANAGEMENT

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## HAEMORRHAGE CONTROL

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## MEDICATIONS & SKILLS MATRIX

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<td>Splinting device application to upper limb</td>
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<td>Log roll</td>
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APPENDIX 2
MEDICATIONS & SKILLS MATRIX

### TRAUMA (contd)

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<tr>
<td>Pelvic Splinting device</td>
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<td>Move and secure a patient to a paediatric board</td>
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### OTHER

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### PATIENT ASSESSMENT

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### APPENDIX 2
### MEDICATIONS & SKILLS MATRIX

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APPENDIX 3
CRITICAL INCIDENT STRESS MANAGEMENT

Your Psychological Well-Being

As a Practitioner 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. 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

Post-Traumatic Stress Reactions

Normally the symptoms of Critical Incident Stress 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 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.

Where to find help?
Your own CPG approved organisation will have a CISM support network or system. We recommend that you contact them for help and advice. (i.e. your peer support worker/coordinator/staff support officer).

• For a self-help guide, please go to www.cismnetworkireland.ie
• NAS CISM/ CISM Network published a booklet called ‘Critical Incident Stress Management for Emergency Personnel.’ It can be purchased by emailing info@cismnetworkireland.ie
• The NAS CISM committee in partnership with PHECC developed an eLearning CISM Stress Awareness Training (SAT) module. It can be accessed by all PHECC registered practitioners using their PHECC eLearning username and password. In due course PHECC will launch a CISM SAT module for non-PHECC registered personnel.
• See a health professional who specialises in traumatic stress.
Clinical Practice Guidelines

APPENDIX 4

CPG UPDATES FOR PARAMEDICS

CPG updates 2014

For administrative purposes the numbering system on some CPGs has been changed.

The paediatric age range has been extended to reflect the new national paediatric age (≤ 15 years), as outlined by The National Clinical Programme for Paediatrics and Neonatology.

CPGs that have content changes are outlined below.

Updated CPGs from the 2012 version.

<table>
<thead>
<tr>
<th>CPGs</th>
<th>The principal differences are</th>
<th>Theory</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPG 4/5/6.2.1 Primary Survey Medical – Adult</td>
<td>EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to insert an NPA following appropriate training.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.2.2 Primary Survey Trauma – Adult</td>
<td>EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to insert an NPA following appropriate training.</td>
<td>✓</td>
<td>x</td>
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<tr>
<td>CPG 5/6.2.5 Secondary Survey Trauma – Adult</td>
<td>ECG &amp; $SpO_2$ monitoring inserted on multi-system trauma arm. Add ‘consider repeat primary survey’.</td>
<td>✓</td>
<td>x</td>
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<tr>
<td>CPG 4/5/6.2.6 Pain Management – Adult</td>
<td>Delete ‘Minor pain (2 to 3 on pain scale)’ replace with ‘Mild pain (1 to 3 on pain scale)’</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Change Moderate pain to ‘4 to 6 on the pain scale’</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Change Severe pain to ‘≥ 7 on the pain scale’</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Add Fentanyl IN for advanced paramedic practice</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Add Ibuprofen PO for EMT practice</td>
<td>✓</td>
<td>x</td>
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<tr>
<td>CPG 5/6.3.1 Advanced Airway Management – Adult</td>
<td>The age range from 8 years has been replaced by standard adult range.</td>
<td>✓</td>
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</tr>
<tr>
<td></td>
<td>It is now explicit that following two unsuccessful attempts at intubation an AP may attempt insertion of a supraglottic airway.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.3.2 Inadequate Ventilations – Adult</td>
<td>This CPG replaces Inadequate Respirations – Adult (5/6.3.2 and 4.3.2) incorporating all three practitioner levels in one CPG.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>This CPG outlines generic care for all patients with inadequate ventilation and then offers pathways for specific clinical issues.</td>
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## APPENDIX 4
### CPG UPDATES FOR PARAMEDICS

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<td>CPG 4/5/6.3.3 Exacerbation of COPD</td>
<td>This CPG incorporates all three practitioner levels in one CPG replacing 4.3.3 at EMT level.</td>
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<td></td>
<td>Peak expiratory flow measurement is now within the scope of practice for paramedics.</td>
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<td>✓</td>
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<tr>
<td></td>
<td>Salbutamol Neb is now within the scope of practice for EMTs.</td>
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<td>x</td>
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<tr>
<td></td>
<td>Ipratropium bromide Neb is now within the scope of practice for paramedics.</td>
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<td>✓</td>
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<tr>
<td>CPG 5/6.4.10 Acute Coronary Syndrome</td>
<td>Thrombolysis has been removed from the scope of practice for advanced paramedics.</td>
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<tr>
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<td>Ticagrelor is now within the scope of practice for paramedics and advanced paramedics.</td>
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<td>✓</td>
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<td></td>
<td>The dose for Clopidogrel has been reduced from 600 mg to 300 mg.</td>
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<td>x</td>
</tr>
<tr>
<td></td>
<td>The indication for Clopidogrel has been changed; it is now indicated for patients with confirmed STEMI who are not transported to a PPCI centre.</td>
<td>✓</td>
<td>x</td>
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<tr>
<td>CPG 4/5/6.4.11 Symptomatic Bradycardia – Adult</td>
<td>The dose of Atropine has been increased from 0.5 mg to 0.6 mg.</td>
<td>✓</td>
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<tr>
<td></td>
<td>Add ‘NaCl infusion 250 mL (repeat by one)’</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Insert information box; ‘Titrate Atropine to effect (HR &gt; 60)’</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.4.17 Epistaxis</td>
<td>Digital pressure has been increased to 15 minutes.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>The insertion of a proprietary nasal pack is now within the scope of practice for paramedics and advanced paramedics.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CPG 5/6.4.21 Hypothermia</td>
<td>Paramedic has been included in this CPG.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Warmed O₂ has been removed.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Mild hypothermia is now defined as 34 – 35.9°C.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Moderate hypothermia is now defined as 30 – 33.9°C.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Paediatric dose for NaCl has been reduced from 20 mL/Kg to 10 mL/Kg.</td>
<td>✓</td>
<td>x</td>
</tr>
</tbody>
</table>
## APPENDIX 4
CPG UPDATES FOR PARAMEDICS

<table>
<thead>
<tr>
<th>CPGs</th>
<th>The principal differences are</th>
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<tbody>
<tr>
<td>CPG 4/5.4.22 Poisons – Adult</td>
<td>The methods of introduction of a poison have been removed. Naloxone has been added to this CPG for opiate induced poison. Naloxone IN is now within the scope of practice for EMTs and paramedics. The absolute contraindication for O2 has been removed following paraquat poisoning.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 5/6.4.23 Seizure/Convulsion – Adult</td>
<td>Magnesium sulphate may be considered by advanced paramedics to manage a pre-eclampsia patient who is seizing.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 4/5/6.4.24 Sepsis – Adult</td>
<td>This CPG replaces Septic Shock - Adult. It authorises the administration of Paracetamol for pyrexic patients. It authorises the administration, by advanced paramedics, of Benzylpenicillin for severe sepsis. Advanced paramedics may consider additional aliquots of NaCl to maintain systolic BP &gt; 100 mmHg.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 4/5/6.6.1 Burns – Adult</td>
<td>Add ‘Caution with hypothermia’</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 4/5/6.6.3 External Haemorrhage – Adult</td>
<td>This CPG has been updated to reflect the importance of managing catastrophic haemorrhage immediately. Dressings impregnated with haemostatic agents are now within the scope of practice for EMTs, paramedics and advanced paramedics. EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to apply a tourniquet.</td>
<td>✓</td>
<td>✗</td>
</tr>
</tbody>
</table>
### APPENDIX 4

**CPG UPDATES FOR PARAMEDICS**

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<tr>
<td>CPG 5/6.6.5 Head Injury – Adult</td>
<td>LoC history has been replaced with ‘consider spinal injury’&lt;br&gt;Collar and long board have been replaced with ‘see Spinal injury CPG’ to avoid repetition.&lt;br&gt;A ‘GCS of &lt; 12’ has been replaced with a ‘GCS of ≤ 12’&lt;br&gt;An emphasis has been placed on minimising Intra Cranial Pressure; using pain management, control of nausea &amp; vomiting, 10° upward head tilt and ensuring that the collar is not too tight.&lt;br&gt;‘Maintain SBP &gt; 120 mmHg’ has been replaced with ‘avoid hypotension’&lt;br&gt;‘Transport to most appropriate ED according to local protocol’ has been deleted</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.6.7 Limb Injury – Adult</td>
<td>Fractured neck of femur has been included.&lt;br&gt;With a fractured neck of femur, if the transport time to ED is &gt; 20 minutes, ALS should be requested.&lt;br&gt;With a fractured neck of femur advanced paramedics should consider NaCl infusion.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 5/6.6.8 Shock from Blood Loss (trauma) – Adult</td>
<td>This CPG has been renamed from ‘Shock from Blood Loss – Adult’.&lt;br&gt;Add; with polytrauma consider application of a pelvic splint.&lt;br&gt;Change ‘Trauma’ to ‘Suspected significant internal/ external haemorrhage’&lt;br&gt;Tranexamic acid is now within the scope of practice for advanced paramedics.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.6.10 Submersion Incident</td>
<td>Salbutamol is now within the scope of practice for EMTs.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.7.4 Secondary Survey – Paediatric</td>
<td>The estimated weight formula has been updated;&lt;br&gt;Neonate = 3.5 Kg&lt;br&gt;Six months = 6 Kg&lt;br&gt;One to five years = (age x 2) + 8 Kg&lt;br&gt;Greater than 5 years = (age x 3) + 7 Kg</td>
<td>✓</td>
<td>x</td>
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</table>
APPENDIX 4
CPG UPDATES FOR PARAMEDICS

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| CPG 4/5/6.7.5 Pain Management – Paediatric | Pain assessment recommendations;  
< 5 years use FLACC scale  
5 – 7 years use Wong Baker scale  
≥ 8 years use analogue pain scale  
Delete ‘Minor pain (2 to 3 on pain scale)’ replace with ‘Mild pain (1 to 3 on pain scale)’  
Change Moderate pain to ‘4 to 6 on the pain scale’  
Change Severe pain to ‘≥ 7 on the pain scale’  
Fentanyl IN is now within the scope of practice for advanced paramedics.  
Ibuprofen PO is now within the scope of practice for EMTs. | ✓ | ✓ |
| CPG 4/5/6.7.11 Inadequate Ventilations – Paediatric | This CPG replaces Inadequate Respirations – Paediatric (5/6.7.5 and 4.7.5) incorporating all three practitioner levels in one CPG.  
This CPG outlines generic care for all patients with inadequate ventilation and then offers pathways for specific clinical issues.  
Naloxone IN is now within the scope of practice for EMTs, paramedics and advanced paramedics. | ✓ | ✗ |
| CPG 4/5/6.7.24 Symptomatic Bradycardia – Paediatric | 'The routine ventilations' has been changed to 'ventilations if hypoxic'.  
Unresponsive has been added as a criteria for CPR  
Consider advanced airway management if prolonged CPR has been removed. | ✓ | ✗ |
| CPG 5/6.7.32 Glycaemic Emergency – Paediatric | The dose of NaCl has been reduced from 20 mL/Kg to 10 mL/Kg. | ✓ | ✗ |
| CPG 5/6.7.33 Seizure/Convulsion – Paediatric | The dose of Midazolam buccal has been changed from weight based to age based. | ✓ | ✓ |
| CPG 4/5/6.7.50 External Haemorrhage – Paediatric | This CPG has been updated to reflect the importance of managing catastrophic haemorrhage immediately.  
Dressings impregnated with haemostatic agents are now within the scope of practice for EMTs, paramedics and advanced paramedics.  
EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to apply a tourniquet. | ✓ | ✗ |
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<tr>
<td>CPG 4/5/6.7.53 Burns – Paediatric</td>
<td>Add ‘Caution with hypothermia’</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>4/5/6.8.1 Major Emergency – First Practitioners on site</td>
<td>Add ‘ambulance loading point’</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Add ‘On site co-ordination centre’</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>4/5/6.8.2 Major Emergency – Operational Control</td>
<td>Add information box ‘Controller of Operations may be other than ambulance or fire officers, depending on nature of emergency’</td>
<td>✓</td>
<td>x</td>
</tr>
</tbody>
</table>
# New CPGs

<table>
<thead>
<tr>
<th>New CPGs</th>
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</tr>
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<tbody>
<tr>
<td>CPG 4/5/6.3.4 Asthma – Adult</td>
<td>This CPG outlines the care for a patient with an acute asthma episode.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 5/6.3.5 Acute Pulmonary Oedema</td>
<td>This CPG outlines the care for a patient with an acute pulmonary oedema episode.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CPG 5/6.4.12 Tachycardia – Adult</td>
<td>This CPG outlines the care for a patient with a tachycardia episode.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 5/6.4.13 Adrenal Insufficiency – Adult</td>
<td>This CPG outlines the care for a patient with an adrenal crisis.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CPG 5/6.4.25 Shock from Blood Loss (non-trauma) – Adult</td>
<td>This CPG outlines the care for a patient with non traumatic blood loss.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.4.27 Sickle Cell Crisis – Adult</td>
<td>This CPG outlines the care for a patient with a sickle cell crisis.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.6.4 Harness Induced Suspension Trauma</td>
<td>This CPG outlines, in particular, the correct posture for patients following harness induced suspension trauma.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.6.6 Heat Related Emergency – Adult</td>
<td>This CPG outlines the care for a patient with a heat-related emergency.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 5.7.10 Advanced Airway Management – Paediatric (≥ 8 years)</td>
<td>This CPG outlines the advanced airway management for a paediatric patient ≥ 8 years old.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.7.12 Asthma – Paediatric</td>
<td>This CPG outlines the care for a paediatric patient with an acute asthma episode.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 5/6.7.30 Adrenal Insufficiency – Paediatric</td>
<td>This CPG outlines the care for a paediatric patient with an adrenal crisis.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CPG 4/5/6.7.35 Pyrexia – Paediatric</td>
<td>This CPG outlines the care for a paediatric patient with a pyrexia episode.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.7.36 Sickle Cell Crisis – Paediatric</td>
<td>This CPG outlines the care for a paediatric patient with a sickle cell crisis.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 5/6.9.1 Clinical Care Pathway Decision – Treat &amp; Referral</td>
<td>This CPG outlines the inclusion process to select patients for a clinical care pathway other than ED care.</td>
<td>✓</td>
<td>x</td>
</tr>
</tbody>
</table>
## New CPGs

<table>
<thead>
<tr>
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<th>The new skills and medications incorporated in the CPG are:</th>
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<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPG 5/6.9.2 Hypoglycaemia – Treat &amp; Referral</td>
<td>This CPG outlines the exclusion process to select patients following a hypoglycaemic event for a clinical care pathway other than ED care.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 5/6.9.3 Isolated Seizure – Treat &amp; Referral</td>
<td>This CPG outlines the exclusion process to select patients following an isolated seizure for a clinical care pathway other than ED care.</td>
<td>✓</td>
<td>x</td>
</tr>
</tbody>
</table>
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.
APPENDIX 5
PRE-HOSPITAL DEFIBRILLATION POSITION PAPER

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.

8 Cardioversion
8.1 Advanced paramedics are authorised to use synchronised cardioversion for unresponsive patients with a tachycardia greater than 150.