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# CLINICAL PRACTICE GUIDELINES

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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
# Clinical Practice Guidelines

## EMERGENCY MEDICAL TECHNICIAN

## ACCEPTED ABBREVIATIONS

### Accepted abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AP</td>
<td>Advanced Paramedic</td>
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<tr>
<td>ALS</td>
<td>Advanced Life Support</td>
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<tr>
<td>ABC</td>
<td>Airway, Breathing &amp; Circulation</td>
</tr>
<tr>
<td>ATV</td>
<td>All Terrain Vehicle</td>
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<tr>
<td>ALoC</td>
<td>Altered Level of Consciousness</td>
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<tr>
<td>AED</td>
<td>Automated External Defibrillator</td>
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<td>BVM</td>
<td>Bag Valve Mask</td>
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<tr>
<td>BLS</td>
<td>Basic Life Support</td>
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<tr>
<td>BG</td>
<td>Blood Glucose</td>
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<tr>
<td>BP</td>
<td>Blood Pressure</td>
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<tr>
<td>BTEC</td>
<td>Basic Tactical Emergency Care</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon Dioxide</td>
</tr>
<tr>
<td>CPR</td>
<td>Cardiopulmonary Resuscitation</td>
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<tr>
<td>C-spine</td>
<td>Cervical Spine</td>
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<tr>
<td>COPD</td>
<td>Chronic Obstructive Pulmonary Disease</td>
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<tr>
<td>CPG</td>
<td>Clinical Practice Guideline</td>
</tr>
<tr>
<td>°</td>
<td>Degree</td>
</tr>
<tr>
<td>°C</td>
<td>Degrees Centigrade</td>
</tr>
<tr>
<td>D₁₀₀₀W</td>
<td>Dextrose 10% in water</td>
</tr>
<tr>
<td>gtt</td>
<td>Drop (gutta)</td>
</tr>
<tr>
<td>ECG</td>
<td>Electrocardiogram</td>
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<tr>
<td>ED</td>
<td>Emergency Department</td>
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<tr>
<td>EMT</td>
<td>Emergency Medical Technician</td>
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<td>ETT</td>
<td>Endotracheal Tube</td>
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<td>FBAO</td>
<td>Foreign Body Airway Obstruction</td>
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<td>#</td>
<td>Fracture</td>
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<tr>
<td>GP</td>
<td>General Practitioner</td>
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<tr>
<td>GCS</td>
<td>Glasgow Coma Scale</td>
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<tr>
<td>g</td>
<td>Gram</td>
</tr>
<tr>
<td>mg</td>
<td>Milligram</td>
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<tr>
<td>mL</td>
<td>Millilitre</td>
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</tbody>
</table>
Millimole ................................................................. mmol
Minute ........................................................................ min
Modified Early Warning Score ..................................... MEWS
Motor Vehicle Collision ............................................. MVC
Myocardial Infarction .................................................. MI
Nasopharyngeal airway .............................................. NPA
Milliequivalent .......................................................... mEq
Millimetres of mercury ............................................. mmHg
Nebulised ................................................................. NEB
Negative decadic logarithm of the H+ ion concentration ... pH
Orally (per os) ............................................................ PO
Oropharyngeal airway ................................................ OPA
Oxygen ...................................................................... $O_2$
Paramedic ................................................................. P
Peak Expiratory Flow ................................................ PEF
Per rectum ................................................................. PR
Percutaneous Coronary Intervention ............................... PCI
Personal Protective Equipment .................................... PPE
Pulseless Electrical Activity ......................................... PEA
Respiration rate ......................................................... RR
Return of Spontaneous Circulation ............................... ROSC
Revised Trauma Score ................................................ RTS
Saturation of arterial oxygen ....................................... $SpO_2$
ST Elevation Myocardial Infarction ............................... STEMI
Subcutaneous ............................................................ SC
Sublingual ................................................................. SL
Systolic Blood Pressure .............................................. SBP
Therefore ...................................................................... .
Total body surface area ............................................. TBSA
Ventricular Fibrillation .............................................. VF
Ventricular Tachycardia ............................................... VT
When necessary (pro re nata) ...................................... prn
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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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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Ms Joanne Fitzroy, EMT
Ms Niamh O’Leary, EMT
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 (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

<table>
<thead>
<tr>
<th>Adult</th>
<th>A patient of 16 years or greater, unless specified on the CPG</th>
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<tbody>
<tr>
<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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</table>

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 EMERGENCY MEDICAL TECHNICIAN

(CODES EXPLANATION)

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

- A sequence (skill) to be performed
  - A mandatory sequence (skill) to be performed
  - A decision process
    - The Practitioner must follow one route
  - Special instructions
  - Consider treatment options
  - 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

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

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

- A medication which may be administered by an Advanced Paramedic
  - The medication name, dose and route is specified

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

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

- Emergency Medical Technician 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

- Consider treatment options
  - 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

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

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

- A medication which may be administered by an Advanced Paramedic
  - The medication name, dose and route is specified

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

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

CPG numbering system

4/5/6.4.1 Version 2, 07/11

x = section in CPG manual, y = CPG number in sequence

mm/yy = month/year CPG published

Consider requesting a Paramedic response, based on the clinical findings

Special instructions

Which the Practitioner must follow

A skill or sequence that only pertains to Paramedic or higher clinical levels

Special authorisation

This authorises the Practitioner to perform an intervention under specified conditions

Go to xxx CPG

Start from
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.
SECTION 2
PATIENT ASSESSMENT

Primary Survey Medical – Adult

Take standard infection control precautions

Consider pre-arrival information

Scene safety
Scene survey
Scene situation

Assess responsiveness

A
Airway patent & protected

Yes

Head tilt/ chin lift

No

B
Adequate ventilation

Yes

Consider
Oxygen therapy

No

C
Adequate circulation

Yes

AVPU assessment

Non serious or life threat

Life threatening

Clinical status decision

Serious not life threat

Request
ALS

Go to appropriate CPG

Consider
ALS

Go to Secondary Survey CPG

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.
1. 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.

2. Consider pre-arrival information
   - Scene safety
   - Scene situation

3. Control catastrophic external haemorrhage
   - Mechanism of injury suggestive of spinal injury
     - Yes → C-spine control
     - No → Assess responsiveness

4. Assess responsiveness
   - A Airway patent & protected
     - Yes → Jaw thrust
     - No → Suction, OPA, NPA
   - B Adequate ventilation
     - Yes → AVPU assessment
     - No → C Adequate circulation
       - Yes → AVPU assessment
       - No → AVPU assessment

5. Treat life-threatening injuries only at this point

6. Clinical status decision:
   - Life threatening
     - Request ALS
     - Go to appropriate CPG
   - Non serious or life threat
     - Consider ALS
     - Go to Secondary Survey CPG

7. Maximum time on scene for life-threatening trauma: ≤ 10 minutes
SECTION 2
PATIENT ASSESSMENT

EMT Secondary Survey Medical – Adult

Primary Survey

Identify positive findings and initiate care management

Record vital signs

Patient acutely unwell

Yes

Check for medications carried or medical alert jewellery

Identify positive findings and initiate care management

No

Focused medical history of presenting complaint

SAMPLE history

Consider Paramedic

Markers identifying acutely unwell
Cardiac chest pain
Acute pain > 5

Go to appropriate CPG

Request ALS

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

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

Go to appropriate CPG
Identify positive findings and initiate care management

Record vital signs
SAMPLE history
Complete a head to toe survey as history dictates
Check for medications carried or medical alert jewellery

Consider Paramedic
Request ALS

SECTION 2
PATIENT ASSESSMENT

**Pain Management – Adult**

- **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.

- **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

**Pain**

- **Pain assessment**

**Analogue Pain Scale**

0 = no pain …… 10 = unbearable

**Reference**: World Health Organization, Pain Ladder

**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

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Clinical Practice Guidelines
EMERGENCY MEDICAL TECHNICIAN

SECTION 3
RESPIRATORY EMERGENCIES

Advanced Airway Management – Adult

- Adult Cardiac arrest
  - Able to ventilate
    - Yes
      - Go to BLS-Adult CPG
    - No
      - Consider option of advanced airway
  - No
    - Consider FBAO

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

Supraglottic Airway insertion

- Successful
  - Yes
    - Go to appropriate CPG
  - No
    - 2nd attempt Supraglottic Airway insertion

- No
  - Revert to basic airway management

Maintain adequate ventilation and oxygenation throughout procedures.

Check supraglottic airway placement after each patient movement or if any patient deterioration.

Continue ventilation and oxygenation

Go to appropriate CPG

Special Authorisation:
EMTs may use cuffed supraglottic airways subject to maintaining competence and Medical Director authorisation.

Reference: ILCOR Guidelines 2010

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Inadequate Ventilations – Adult

Respiratory difficulty

- Airway patent & protected: No
  - Go to Airway CPG
  - Check SpO2
  - ETCO2

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

- Request ALS

Patient assessment

- Consider positive pressure ventilations (Max 10 per minute)

Brain insult
- Go to Head injury CPG

Respiratory failure
- Go to Stroke CPG

Substance intake
- Go to Poison CPG

Other
- Consider pain, posture & neuromuscular disorders

Asymmetrical breath sounds
- Go to Asthma CPG
- Go to Allergy/Anaphylaxis CPG
- Go to COPD CPG

Crepitations
- Go to Sepsis CPG

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

Tension Pneumothorax suspected
- Needle decompression

Consider collapse, consolidation & fluid

- AP

- AP
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)
Assess and maintain airway

Respiratory assessment

Asthma – Adult

Salbutamol, 5 mg, NEB

OR

Salbutamol (0.1 mg) metered aerosol

Resolved/improved

No

ECG & SpO2 monitoring

Oxygen therapy

Request ALS

Resolved/improved

No

Salbutamol, 5 mg, NEB

Ipratropium bromide 0.5 mg NEB & salbutamol 5 mg NEB mixed

Resolved/improved

No

Salbutamol, 5 mg, NEB

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

Resolved/improved

No

Salbutamol, 5 mg, NEB

Consider

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

Salbutamol, 5 mg, NEB

Every 5 minutes prn

Mild Asthma

Moderate Asthma

Severe Asthma

Life threatening Asthma

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

**SECTION 4**

**MEDICAL EMERGENCIES**

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**Cardiac Arrest**

- **Request ALS**
- **Attach defibrillation pads**
  - Commence CPR while defibrillator is being prepared only if 2nd person available
  - 30 Compressions : 2 ventilations.
  - **Shockable** VF or pulseless VT
  - **Non-Shockable** Asystole or PEA

**Oxygen therapy**

**Assess Rhythm**

- **Give 1 shock**
- **Immediately resume CPR x 2 minutes**

**Rhythm check * +/– Pulse check**

- **Go to VF/VT CPG**
- **Go to PEA CPG**
- **Go to Asystole CPG**
- **Go to Post Resuscitation Care CPG**

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

---

- **Change defibrillator to manual mode**
- **Continue CPR while defibrillator is charging**
- **Consider changing defibrillator to manual mode**

---

* *= Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

---

**Reference:** ILCOR Guidelines 2010
Foreign Body Airway Obstruction – Adult

Are you choking?

- Severe (ineffective cough)
  - Conscious: No
  - Encourage cough

- FBAO Severity
  - Mild (effective cough)
    - 1 to 5 back blows followed by 1 to 5 abdominal thrusts as indicated
    - Encourage cough

Request ALS

One cycle of CPR

- Effective: Yes
  - Positive pressure ventilations maximum 10 per minute
  - Consider Oxygen therapy

- 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
SECTION 4
MEDICAL EMERGENCIES

VF or Pulseless VT – Adult

1. Immediate IO access if IV not immediately accessible
2. Go to Post Resuscitation Care CPG
3. Go to PEA CPG
4. Go to Asystole CPG

Defibrillate

VF/VT

Rhythm check *

VF/VT

Yes

Asystole

ROSC

PEA

 VF or VT arrest

VF or Pulseless VT – Adult

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

Epinephrine between 2nd and 4th shock

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

Early EP for torsades de pointes

Magnesium Sulphate 2 g IV/IO

Initial Epinephrine between 2nd and 4th shock

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

2nd dose (if required)

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

Consider transport to ED if no change after 20 minutes resuscitation

If no ALS available

Initial NaCl IV/IO 500 mL (use as flush)

Go to Post Resuscitation Care CPG

Consider use of waveform capnography

Clinical leader to monitor quality of CPR

Mechanical CPR device is the optimum care during transport

Intravenous bolus of 1-1.5 mg/kg IV of Lidocaine for adults

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

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EMERGENCY MEDICAL TECHNICIAN

SECTION 4
MEDICAL EMERGENCIES

VF or Pulseless VT – Adult

AP

Immediate IO access if IV not immediately accessible

AP

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

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

Reference: ILCOR Guidelines 2010

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

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

Drive smoothly
**SECTION 4**

**MEDICAL EMERGENCIES**

**Asystole – Adult**

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

**From BLS Adult CPG**

- **Asystole**
  - Go to Post Resuscitation Care CPG
  - Go to PEA CPG
  - Go to VF / Pulseless VT CPG

**Rhythm check ***

- **Yes**
  - ROSC
- **No**
  - Asystole

**With CPR ongoing maximum hands off time 10 seconds**

- **Clinical leader to monitor quality of CPR**

**Mechanical CPR device is the optimum care during transport**

- **Drive smoothly**

**Consider transport to ED if no change after 20 minutes resuscitation**

- **If no ALS available**

**Consider transport to ED if no change after 20 minutes resuscitation**

- **Reference: ILCOR Guidelines 2010**

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

**EMERGENCY MEDICAL TECHNICIAN**

**SECTION 4**

**MEDICAL EMERGENCIES**

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**Pulseless Electrical Activity – Adult**

- **From BLS Adult CPG**
- **Immediate IO access if IV not immediately accessible**
- **Go to Post Resuscitation Care CPG**
- **Consider causes and treat as appropriate:**
  - Hydrogen ion acidosis
  - Hyper/hypokalaemia
  - Hypothermia
  - Hypovolaemia
  - Hypoxia
  - Thrombosis – pulmonary
  - Tension pneumothorax
  - Thrombus – coronary
  - Tamponade – cardiac
  - Toxins
  - Trauma

**Consider transport to ED if no change after 20 minutes resuscitation**

**Mechanical CPR device is the optimum care during transport**

**If no ALS available with CPR ongoing maximum hands off time 10 seconds**

**If Tricyclic Antidepressant Toxicity or harness induced suspension trauma consider Sodium Bicarbonate (8.4%) 1 mEq/Kg IV/IO**

**Reference:** ILCOR Guidelines 2010

---

**Rhythm check**

- **Yes**
  - Go to VF / Pulseless VT CPG
  - **Epinephrine (1:10 000) 1 mg IV/IO**
    - Every 3 to 5 minutes prn
  - **NaCl IV/IO 500 mL** (use as flush)
  - If Tricyclic Antidepressant Toxicity or harness induced suspension trauma consider Sodium Bicarbonate (8.4%) 1 mEq/Kg IV/IO

- **No**
  - Go to Asystole CPG
  - **Epinephrine (1:10 000) 1 mg IV/IO**
    - Every 3 to 5 minutes prn
  - **NaCl IV/IO 500 mL** (use as flush)
  - **Consider transport to ED if no change after 20 minutes resuscitation**

---

**Clinical leader to monitor quality of CPR**

**Consider use of waveform capnography**

**Consider fluid challenge**

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SECTION 4  
MEDICAL EMERGENCIES

Post-Resuscitation Care – Adult

Return of Spontaneous Circulation

- Maintain patient at rest

- Monitor vital signs

- Maintain Oxygen therapy

- Request ALS

- Conscious
  - Yes
  - No

- Adequate ventilation
  - Yes
  - No

- Recovery position

- Consider active cooling if unresponsive

- Maintain patient at rest

- ECG & SpO2 monitoring

- Monitor vital signs

- Blood glucose < 4 mmol/L
  - Yes
  - No

- Maintain care until handover to appropriate Practitioner

- If no ALS available

- Drive smoothly

Equipment list
- Cold packs

Reference: ILCOR Guidelines 2010
SECTION 4
MEDICAL EMERGENCIES

End of Life – DNR

End stage terminal illness

Patient becomes acutely unwell

Yes

Respiratory distress

No

Basic airway maintenance

Oxygen therapy

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

Yes

Agreement between caregivers present and Practitioners not to resuscitate

No

Go to Primary survey CPG

It is inappropriate to commence resuscitation

Inform Ambulance Control

Pulse present

Yes

Provide supportive care until handover to appropriate Practitioner

No

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

Complete all appropriate documentation

Keep next of kin informed, if present

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

Follow local protocol for care of deceased

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

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

- Yes: Go to Primary survey CPG
- No: Definitive indicators of Death

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

**It is inappropriate to commence resuscitation**

- Inform Ambulance Control
- Complete all appropriate documentation
- Await arrival of appropriate Practitioner and/or Gardai
Cardiac Chest Pain – Acute Coronary Syndrome

Cardiac chest pain

- Oxygen therapy
- Request ALS
- Apply 3 lead ECG & SpO2 monitor
- Aspirin, 300 mg PO

Yes - Chest Pain
- GTN, 0.4 mg SL
- Repeat at 3 to 5 min prn (max 1.2 mg SL)

No
- Monitor vital signs

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

Time critical
- Commence transport to definitive care ASAP

Reference: ILCOR Guidelines 2010
Symptomatic Bradycardia – Adult

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

Titrate Atropine to effect (HR > 60)

Oxygen therapy

Request ALS

ECG & SpO2 monitoring

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 as one prn)

Reference: ILCOR guidelines 2010
Altered Level of Consciousness – Adult

Maintain airway

No

Trauma

Yes

Recovery Position

Consider Cervical Spine

Yes

P or U on AVPU scale

No

V, P or U on AVPU scale

Obtain SAMPLE history from patient, relative or bystander

ECG & SP02 monitoring

Check for medications carried or medical alert jewellery

Check temperature

Check for skin rash

Check for medications carried or medical alert jewellery

Check blood glucose

Differential Diagnosis

Symptomatic Bradycardia

Glycaemic emergency

Shock from blood loss

Inadequate respirations

Post resuscitation care

Stroke

Anaphylaxis

Submersion incident

Head injury

Hypothermia

Poison

Seizures

Go to CPG

Go to CPG

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Consider Epinephrine administered pre arrival? (within 5 minutes)

Yes

Epinephrine (1:1 000) 0.3 mg
Auto injection
Repeat at 5 min prn

No

Oxygen therapy

Salbutamol 5 mg NEB
Repeat at 5 min prn

Consider Paramedic

Deteriorates

Yes

Monitor reaction

ECG & SpO₂ monitor

Reassess

No

Nebulised Salbutamol may be substituted with up to 5 puffs of Salbutamol aerosol

Moderate symptoms + haemodynamic and or respiratory compromise

Severe/ anaphylaxis

Mild symptoms + simple bronchospasm

Mild

Urticaria and/or angioedema

Allergic Reaction/Anaphylaxis – Adult

Mild

Moderate

Deteriorates

Yes

ECG & SpO₂ monitor

Repeat at 5 min prn

Reassess

No

Monitor reaction

Oxygen therapy

Epinephrine (1:1 000) 0.3 mg
Auto injection

Request ALS

Consider Paramedic
Decompression Illness (DCI)

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

Pain relief required

Yes

Go to Pain Mgt. CPG

Entonox absolutely contraindicated

No

Go to Nausea & Vomiting CPG

Nausea

Yes

Monitor ECG & SpO₂

NaCl (0.9%) 500 mL IV/IO

No

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

Transport dive computer and diving equipment with patient, if possible

Epistaxis

Primary Survey Medical

Medical

Advise patient to sit forward

Apply digital pressure for 15 minutes

Advise patient to breathe through mouth only and not to blow nose

Haemorrhage controlled

Yes

Consider insertion of a proprietary nasal pack

No

Hypovolaemic

Yes

Go to Shock CPG

No

Trauma

Primary Survey Trauma

Consider ALS

Equipment list

Proprietary nasal pack

Glycaemic Emergency – Adult

Blood Glucose

- < 4 mmol/L
  - No
  - Yes: Allow 5 minutes to elapse following administration of medication
    - Glucagon 1 mg IM

- ≥ 4 mmol/L
  - No: Consider
    - Glucose gel 10-20 g buccal
    - Sweetened drink
  - Yes: Reassess

- > 11 mmol/L
  - No: Consider ALS
  - Yes: Reassess

- 11 to 20 mmol/L
  - No: Consider or Glucose gel 10-20 g buccal
  - Yes: Reassess

- > 20 mmol/L
  - No: Consider ALS
  - Yes: Reassess

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Version 1, 05/08

Repeat x 1 pm
Glucose gel 10-20 g buccal
Hypothermia

**Query hypothermia**

- **Immersion**
  - Yes: Remove patient horizontally from liquid (Provided it is safe to do so)
  - No: Protect patient from wind chill

**Protect patient from wind chill**

**Complete primary survey**

- **Remove wet clothing by cutting**

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

**ECG & SpO2 monitoring**

**Mild (Responsive)**
- Give hot sweet drinks

**Moderate/Severe (Unresponsive)**
- **Request ALS**
  - Pulse check for 30 to 45 seconds

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

**Hot packs to armpits & groin**

**Check blood glucose**

**Transport in head down position**

- Helicopter: head forward
- Boat: head aft

**Equipment list**

- Survival bag
- Space blanket
- Hot pack

Reference:
- Pennington M, et al, 1994, Wilderness EMT, Wilderness EMS Institute
Poisons – Adult

Poison source
- Ingested corrosive
  - Yes
  - Sips of water or milk
  - No
    - Consider ALS

Poison type
- Paraquat
  - With Paraquat poisoning do not administer oxygen unless SpO₂ < 92%
- Other
  - Alcohol
    - Check blood glucose
      - BG < 4 or > 20 mmol/L
        - Yes
        - Go to Glycaemic Emergency CPG
      - No
        - Go to Inadequate Ventilations CPG
  - Opiate
    - Adequate ventilations
      - Yes
      - Oxygen therapy
      - ECG & SpO₂ monitoring
      - Go to Inadequate Ventilations CPG
    - No
      - Naloxone 0.8 mg IN (Repeat x one prn)
        - Or
        - Naloxone 0.4 mg IM/SC
          - Go to Inadequate Ventilations CPG

Reference:
ILCOR Guidelines 2010
Seizure/Convulsion – Adult

Seizure / convulsion

Protect from harm

Oxygen therapy

Seizure status

Seizing currently

Request ALS

Support head

Check blood glucose

Blood glucose < 4 mmol/L

No

Seizure status

No

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

Yes

Transport to ED if requested by Ambulance Control

Seizure status

Reassess

Seizure status

Post seizure

Alert

Still seizing

No

Consider ALS

Yes

Transport to ED if requested by Ambulance Control

Check blood glucose

Blood glucose < 4 mmol/L

No

Recovery position

Airway management
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/ meningococcal disease
- UTI
- Abdominal pain or distension
- Indwelling medical device
- Cellulitis/ septic arthritis/ infected wound
- Chemotherapy < 6 weeks
- Recent organ transplant

Comence with 100% O2.
Caution with patients with COPD

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

Sickle Cell Crisis - Adult

1. **Sickle Cell crisis**
2. **Oxygen therapy**
   - **Pain management required**
     - Yes: Go to Pain CPG
     - No: Elevated temperature
3. **Elevated temperature**
   - Yes: Go to Sepsis CPG
   - No: If patient is cold ensure that he/she is warmed to normal temperature
4. **Encourage oral fluids**
5. **Dehydration & unable to take oral fluids**
   - Yes: Request ALS
     - **NaCl (0.9%) 1 L IV infusion**
     - **SpO2 & ECG monitor**
6. **Consider patient’s care plan**

**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**

**Stroke**

- **Acute neurological symptoms**
- Complete a FAST assessment
  - Maintain airway
  - Oxygen therapy
  - Check blood glucose
    - Yes: Go to Glycaemic Emergency CPG
    - No: ECG & SPO2 monitoring
      - Follow local protocol re notifying ED prior to arrival

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

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

**Blood glucose**
- BG < 4 or > 20 mmol/L
  - Yes: Go to Glycaemic Emergency CPG
  - No: ECG & SPO2 monitoring

**Reference:** ILCOR Guidelines 2010
Mental Health Emergency

Behaviour abnormal with previous psychiatric history

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

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

Obtain a history from patient and or bystanders present as appropriate

Potential to harm self or others

Request control to inform Gardaí

Reassure patient
Explain what is happening at all times
Avoid confrontation

Attempt verbal de-escalation

Combative with hallucinations or Paranoia & risk to self or others

Request ALS

Transport patient to an Approved Centre

Co-operate as appropriate with medical or nursing team

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

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

RMP – Registered Medical Practitioner
RPN – Registered Psychiatric Nurse

HSE Mental Health Services
Clinical Practice Guidelines

EMERGENCY MEDICAL TECHNICIAN

SECTION 4

MEDICAL EMERGENCIES

Behavioural Emergency

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

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

Indications of medical cause of illness:

- Yes: Go to appropriate CPG
- No:

Potential to harm self or others:

- Yes: Request control to inform Gardaí
- No:

Reassure patient

- Explain what is happening at all times
- Avoid confrontation

Attempt verbal de-escalation

Is patient competent to make informed decision?

- Yes
- No:

Injury or illness potentially serious or likely to cause lasting disability:

- Yes: Inform patient of potential consequences of treatment refusal
- No:

Offer to treat and or transport patient

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.

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

Await arrival of doctor or Gardaí or receive implied consent.

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

Document refusal of treatment and or transport to ED.
Pre-Hospital Emergency Childbirth

Query labour

Take SAMPLE history

Patient in labour
Yes
No

Birth imminent or travel time too long
Yes
No

Position mother

Monitor vital signs and BP

Birth Complications
Yes
No

Support baby throughout delivery

Dry baby and check ABCs

Baby stable
Yes
No

Wrap baby to maintain temperature

Go to BLS Neonate CPG

Go to Primary Survey CPG

If placenta delivers, retain for inspection

Rendezvous with Paramedic, Advanced Paramedic, midwife or doctor en-route to hospital

Consider Nitrous Oxide & Oxygen

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

EMT

SECTION 5
OBSTETRIC EMERGENCIES
Basic Life Support – Neonate (< 4 weeks)

From Childbirth CPG

< 4 weeks old

Birth

Term gestation
Amniotic fluid clear
Breathing or crying
Good muscle tone

Yes

No

Request ALS

Provide warmth
Position, Clear airway if necessary
Dry, stimulate, reposition

Assess respirations, heart rate & colour

Breathing, HR > 100

Not breathing or HR < 100

Breathing, HR > 100 but Cyanotic

Give Supplementary O₂

Persistent Cyanosis

No

Yes

Provide positive pressure ventilation for 30 sec

HR < 60

Assess Heart Rate

HR 60 to 100

Breathing well, HR > 100

CPR for 30 sec
(Ratio 3 : 1)

Wrap baby well and give to mother
Observe baby

Contact Ambulance Control for direction on transport

If HR < 60 continue CPR (3 : 1 ratio), checking HR every 30 sec, until appropriate Practitioner takes over or HR > 60

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

Term gestation
Amniotic fluid clear
Breathing or crying
Good muscle tone

Yes

No

Yes

Give Supplementary O₂

Provide warmth
Dry baby

Assess Heart Rate

Breathing, HR > 100 but Cyanotic

Persistent Cyanosis

No

Yes

Provide positive pressure ventilation for 30 sec

HR < 60

Assess Heart Rate

HR 60 to 100

Breathing well, HR > 100

CPR for 30 sec
(Ratio 3 : 1)

Wrap baby well and give to mother
Observe baby

Contact Ambulance Control for direction on transport

If HR < 60 continue CPR (3 : 1 ratio), checking HR every 30 sec, until appropriate Practitioner takes over or HR > 60

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

Term gestation
Amniotic fluid clear
Breathing or crying
Good muscle tone

Yes

No

Request ALS

Provide warmth
Position, Clear airway if necessary
Dry, stimulate, reposition

Assess respirations, heart rate & colour

Breathing, HR > 100

Not breathing or HR < 100

Breathing, HR > 100 but Cyanotic

Give Supplementary O₂

Persistent Cyanosis

No

Yes

Provide positive pressure ventilation for 30 sec

HR < 60

Assess Heart Rate

HR 60 to 100

Breathing well, HR > 100

CPR for 30 sec
(Ratio 3 : 1)

Wrap baby well and give to mother
Observe baby

Contact Ambulance Control for direction on transport

If HR < 60 continue CPR (3 : 1 ratio), checking HR every 30 sec, until appropriate Practitioner takes over or HR > 60

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

Term gestation
Amniotic fluid clear
Breathing or crying
Good muscle tone

Yes

No

Request ALS

Provide warmth
Position, Clear airway if necessary
Dry, stimulate, reposition

Assess respirations, heart rate & colour

Breathing, HR > 100

Not breathing or HR < 100

Breathing, HR > 100 but Cyanotic

Give Supplementary O₂

Persistent Cyanosis

No

Yes

Provide positive pressure ventilation for 30 sec

HR < 60

Assess Heart Rate

HR 60 to 100

Breathing well, HR > 100

CPR for 30 sec
(Ratio 3 : 1)
Burns – Adult

Burn or Scald

Cease contact with heat source

Isolated superficial injury (excluding FHFFP)

Yes

No

Inhalation and/or facial injury

Yes

Airway management

No

Consider humidified Oxygen therapy

Respiratory distress

Yes

Inadequate Ventilations CPG

Go to

No

Commence local cooling of burn area

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 FHFFP)

Yes

No

TBSA burn > 10%

Yes

Request ALS

ECG & SpO2 monitoring

No

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

Yes

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

No

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

External Haemorrhage – Adult

Open wound

Active bleeding

Yes

Catastrophic haemorrhage

Yes

No

Posture Elevation Examination Pressure

Consider applying a dressing impregnated with haemostatic agent

Apply sterile dressing

Consider Oxygen therapy

Haemorrhage controlled

Yes

No

Apply additional dressing(s)

Haemorrhage controlled

Yes

No

Depress proximal pressure point

Haemorrhage controlled

Yes

No

Apply tourniquet

Significant blood loss

Yes

Go to Shock CPG

No

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

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
Harness Induced Suspension Trauma

Fall arrested by harness/rope

Patient still suspended

Yes

Advise patient to move legs to encourage venous return

Elevate lower limbs if possible during rescue

No

Place patient in a horizontal position as soon as practically possible

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

Consider removing a harness suspended person from suspension in the direction of gravity i.e. downwards, so as to avoid further negative hydrostatic force, however this measure should not otherwise delay rescue.

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.
Head Injury – Adult

**Head trauma**

- **Maintain Airway**
  - Oxygen therapy
- **Control external haemorrhage**
- **Maintain in-line immobilisation**

**Consider mechanism of injury; is spinal immobilisation indicated?**

- Yes, V, P or U on AVPU
- No, Request ALS

**Immobilise spine appropriately**

- SpO2 & ECG monitoring

**Check blood glucose**

**Patient seizing**

- Consider Vacuum mattress

**Equipment list**

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

**Reference:**

Heat-Related Emergency – Adult

Collapse from heat-related condition

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

Yes
Alert
No

Mild Hyperthermia
(heat stress)

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

Moderate Hyperthermia
(Heat exhaustion)

Severe Hyperthermia
(Heat stroke) > 40°C

Cool patient

Check blood glucose

SpO2 & ECG monitor

Consider ALS

Consider

NaCl (0.9%) 1 L IV

Elevate oedematous limbs

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

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

SECTION 6
TRAUMA

Limb Injury – Adult

1. Establish need for pain relief
2. Expose and examine limb
3. Dress open wounds
4. Provide manual stabilisation for injured limb
5. Check CSMs distal to injury site

Injury type:
1. Fracture
2. Fractured femur
3. Soft tissue injury
4. Dislocation

Fracture
- Neck of femur
- Mid shaft of femur
- Other

Fractured femur
- Neck of femur
- Mid shaft of femur
- Other

Soft tissue injury

Dislocation
- Isolated lateral dislocation of patella

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
**Shock from Blood Loss – Adult**

**Signs of poor perfusion**

- A: (Not affected)
- B: Tachypnea
- C: Tachycardia
- D: V, P or U / Irritability / confusion
- E: Cool, pale & moist skin

1. Lie patient flat with legs elevated (if safe to do so)
2. Control external haemorrhage
3. Oxygen therapy
4. Request ALS
5. SpO2 & ECG monitor
Clinical Practice Guidelines
EMERGENCY MEDICAL TECHNICIAN

SECTION 6
TRAUMA

Spinal Immobilisation – Adult

If in doubt, treat as spinal injury

Indications for spinal immobilisation

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

Stabilise cervical spine

Remove helmet (if worn)

Life Threatening

Apply cervical collar

Patient in sitting position

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

Rapid extrication with long board and cervical collar

Consider Vacuum mattress

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

Do not forcibly restrain a patient that is combative
SECTION 6
TRAUMA

Submersion Incident

- Submerged in liquid
- Ventilations may be commenced while the patient is still in water by trained rescuers
- Remove patient from liquid (Provided it is safe to do so)
- Remove horizontally if possible (consider C-spine injury)
- Complete primary survey (Commence CPR if appropriate)
- Adequate ventilations
  - Yes: Oxygen therapy
    - SpO2 & ECG monitoring
      - Indications of respiratory distress
        - No: Monitor Pulse, Respirations & BP
          - Patient is hypothermic
            - Yes: Go to Hypothermia CPG
            - No: Check blood glucose
  - No: Go to Inadequate Ventilations CPG
- If bronchospasm consider
  - Salbutamol
    - ≥ 5 years: 5 mg NEB
    - < 5 years: 2.5 mg NEB
- Do not delay on site
- Transport to ED for investigation of secondary drowning insult
- Spinal injury indicators
  - History of:
    - diving
    - trauma
    - water slide use
    - alcohol intoxication
- Higher pressure may be required for ventilation because of poor compliance resulting from pulmonary oedema

Reference:
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

Paediatric Assessment Triangle

Give 5 Ventilations

Oxygen therapy

A

Airway patent & protected

No

Yes

B

Adequate ventilation

No

Yes

C

Pulse < 60 & signs of poor perfusion

No

AVPU assessment

Life threatening
Clinical status decision

Non serious or life threat

Serious not life threat

Life threatening

Non serious or life threat

Serious not life threat

Report findings as per Children First guidelines to ED staff and line manager in a confidential manner

If child protection concerns are present

Go to Secondary Survey CPG

Go to appropriate CPG

Normal ranges

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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
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.

- **Scene safety**
- **Scene survey**
- **Scene situation**

**Paediatric Assessment Triangle**

- **Appearance**
- **Work of breathing**
- **Circulation to skin**

**Primary Survey Trauma – Paediatric (≤ 15 years)**

1. **Scene safety**
2. **Scene survey**
3. **Scene situation**

**Paediatric Assessment Triangle**

- **Control catastrophic external haemorrhage**

**Work of breathing**

- **Breathing**
- **Appearance**
- **Circulation**

**Paediatric Assessment Triangle**

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

**Life threatening**

**Critical status decision**

- **Go to appropriate CPG**

**Serious not life threat**

- **Go to Secondary Survey CPG**

**Normal ranges**

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- 2000, Pediatric Education for Prehospital Professionals
- Department of Children and Youth Affairs, 2011, Children First: National Guidance for the Protection and Welfare of Children
- Pre-Hospital Emergency Care Council

October 2014
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

Go to appropriate CPG

Identify positive findings and initiate care management

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

Normal ranges

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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”
SECTION 7
PAEDIATRIC EMERGENCIES

Pain Management – Paediatric (≤ 15 years)

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**

---

### Inadequate Ventilations – Paediatric (≤ 15 years)

**Respiratory difficulty**

- Airway patent & protected: No
  - Check SpO₂
  - Consider ETCO₂
  - Oxygen therapy
  - Request ALS
  - Patient assessment
  - Consider positive pressure ventilations (12 to 20 per minute) via BVM

- Respiratory difficulty: Yes
  - Go to Airway CPG

---

### Brain insult

- Go to Head injury CPG

---

### Respiratory failure

- Go to Asthma CPG
- Go to Anaphylaxis CPG

---

### Substance intake

- Suspected narcotic OD: Consider
  - Naloxone, 0.01 mg/Kg IV/IO
  - Naloxone, 0.01 mg/Kg IM/SC
  - Naloxone, 0.02 mg/Kg IN

- Raised ETCO₂ + reduced SpO₂: Consider assisted ventilation
- Raised ETCO₂ + normal SpO₂: Encourage deep breaths

---

### Other

- Consider pain, posture & neuromuscular disorders

---

### Bronchospasm/known asthma

- Go to Asthma CPG

---

### Asymmetrical breath sounds

- Go to Anaphylaxis CPG

---

### Crepitations

- Go to Sepsis CPG

---

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

---

**100% O₂ initially. Titrate O₂ to standard as clinical condition improves**
Asthma – Paediatric (≤ 15 years)

Assess and maintain airway
Respiratory assessment

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

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

Resolved/ improved
Yes

ECG & SpO2 monitoring
Oxygen therapy

No

Request ALS

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

No

Resolved/ improved

< 12 years 0.25 mg NEB
≥ 12 years 0.5 mg NEB
& age specific Salbutamol NEB mixed

Yes

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

Resolved/ improved
Yes

Salbutamol, age-specific dose, NEB

No

Hydrocortisone (in 100 mL NaCl)
< 1 year 25 mg IV
1 – 5 years 50 mg IV
> 5 years 100 mg IV

Resolved/ improved
Yes

Salbutamol, age-specific dose, NEB

No

Salbutamol, age-specific dose, NEB
Every 9 minutes pm

Stridor – Paediatric (≤ 15 years)

Consider FBAO

Assess & maintain airway

Group or epiglottis 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

Stridor
Basic Life Support – Paediatric (≤ 15 Years)

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

Give 5 rescue ventilations
Oxygen therapy

Request

ALS

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

Yes

< 8 years

No

Apply paediatric system AED pads
Apply adult defibrillation pads

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

Change defibrillator to manual mode
Consider changing defibrillator to manual mode

Shockable
Assess Rhythm

VF or pulseless VT

Non-Shockable
Asystole or PEA

Give 1 shock

Immediately resume CPR x 2 minutes

Rhythm check *

Go to VF / Pulseless VT CPG

Go to Post Resuscitation Care CPG

Asystole / PEA

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

Reference: ILCOR Guidelines 2010

October 2014
Foreign Body Airway Obstruction – Paediatric (≤ 15 years)

- Are you choking?
  - Severe (ineffective cough)
    - Consciously: 1 to 5 back blows followed by 1 to 5 thrusts (child – abdominal thrusts) (infant – chest thrusts) as indicated
    - Effective: Encourage cough
  - Mild (effective cough)
    - Conscious: Positive pressure ventilations (12 to 20/ min)
    - Effective: Oxygen therapy

- Open mouth and look for object. If visible attempt once to remove it
- Attempt 5 Rescue Breaths
- One cycle of CPR
  - Effective: Go to BLS Paediatric CPG
  - No: Effective
  - No: One cycle of CPR

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

EMT P

4/5.7.21 Version 2, 12/13

SECTION 7
PAEDIATRIC EMERGENCIES
VF or Pulseless VT – Paediatric (≤ 15 years)

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

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

Check blood glucose

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

Defibrillate (4 joules/Kg)

Rhythm check *

VF/VT

Yes

No

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

Initial Epinephrine between 2nd and 4th shock

Refractory VF/VT post Epinephrine

Amiodarone, 5 mg/kg, IV/IO

Transport to ED if no change after 10 minutes resuscitation

If no ALS available

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
- Thrombosis – pulmonary
- Tension pneumothorax
- Thrombus – coronary
- Tamponade – cardiac
- Toxins
- Trauma

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

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

For Asystole/PEA arrest:
- Check blood glucose

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

Consider fluid challenge:
- 

With CPR ongoing maximum hands off time 10 seconds

Clinical leader to monitor quality of CPR

Transport to ED if no change after 10 minutes resuscitation

Immediate IO access if IV not immediately accessible

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

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

Reference: ILCOR Guidelines 2010
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
    - Yes
      - Reassess
    - No
      - Continue CPR

- No
  - Reassess

- Yes
  - CPR
    - ECG & SpO2 monitoring
    - NaCl (0.9%) 20 mL/Kg IV/IO
    - Epinephrine (1:10 000) 0.01 mg/kg (10 mcg/kg) IV/IO
      - Every 3 – 5 min prn
    - Persistent bradycardia
      - Yes
        - Continue CPR
      - No
        - If no ALS available

- No
  - Immediate IO access if IV not immediately accessible

Post-Resuscitation Care – Paediatric (≤ 15 years)

Return of Spontaneous Circulation

Maintain patient at rest

Check blood glucose

Maintain care until handover to appropriate Practitioner

If no ALS available

Drive smoothly

Reference: ILCOR Guidelines 2010

October 2014
Allergic Reaction/Anaphylaxis – Paediatric (≤ 15 years)

- **Mild**
  - Urticaria and or angioedema
  - Monitor reaction

- **Moderate**
  - Mild symptoms + simple bronchospasm
  - ECG & SpO2 monitor
  - If bronchospasm consider nebuliser
  - Salbutamol NEB
    - < 5 yrs: 2.5 mg
    - ≥ 5 yrs: 5 mg
  - Deteriorates
    - Reassess
  - Severe anaphylaxis
    - Epinephrine administered pre arrival? (within 5 minutes)
      - No
      - Oxygen therapy
      - Reassess
    - Yes
      - Epinephrine (1:1,000)
        - 6 mts to < 10 yrs 0.15 mg (auto injector)
        - ≥ 10 yrs 0.3 mg (auto injector)
      - Reassess
      - Request ALS

- **Severe**
  - Moderate symptoms + haemodynamic and or respiratory compromise
  - ECG & SpO2 monitor
  - Repeat Epinephrine at 5 minute intervals if no improvement

---

Salbutamol NEB may be substituted with 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

---

<table>
<thead>
<tr>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urticaria and or angioedema</td>
<td>Mild symptoms + simple bronchospasm</td>
<td>Moderate symptoms + haemodynamic and or respiratory compromise</td>
</tr>
</tbody>
</table>
**SECTION 7**

**PAEDIATRIC EMERGENCIES**

---

**Glycaemic Emergency – Paediatric (≤ 15 years)**

**Abnormal blood glucose level**

- **< 4 mmol/L**
  - Consider: Glucose gel
    - ≤ 8 years: 5-10 g Buccal
    - > 8 years: 10-20 g Buccal
    - or Sweetened drink

- **> 10 mmol/L**
  - Glucagon
    - ≤ 8 years: 0.5 mg IM
    - > 8 years: 1 mg IM
  - Request ALS

**Blood Glucose**

- A or V on AVPU
- Yes
- No

**Reassess**

- Yes: Patient alert
- No: Request ALS

---

*EMT*

---

*4.7.32 Version 3, 12/13*
SECTION 7
PAEDIATRIC EMERGENCIES

Seizure/Convulsion – Paediatric (≤ 15 years)

- Protect from harm
- Oxygen therapy
- Seizing currently
  - Request ALS
  - Support head
  - Check blood glucose
- Seizure status
- Post seizure
  - Consider ALS
  - Alert
- Seizure status
  - Yes
  - Reassess
  - No
  - Recovery position
  - Airway management
  - Pyrexia
    - Yes
    - Go to Pyrexia CPG
    - No
    - Go to Glycaemic Emergency CPG
  - Still seizing
    - Yes
    - Transport to ED if requested by Ambulance Control
    - No
    - Reassess
Pyrexia – Paediatric (≤ 15 years)

Child with elevated temperature

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

- Yes: Alert
- No: Recovery position (maintain airway)

Give cool fluids to drink

Cool patient

≥ 38°C temperature with signs of distress or pain

- Yes: Paracetamol, 20 mg/Kg PO
- No: Consider ALS

Paracetamol: 90 mg PR for 1 to 3 months, 180 mg PR for 1 to 3 years, 360 mg PR for 4 to 8 years

- Query severe sepsis
  - No: SpO2 & ECG monitor
  - Yes: Go to Septic Shock CPR

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

Sickle Cell crisis

Oxygen therapy

Pain management required

Yes

Go to Pain CPG

No

Elevated temperature

Yes

Go to Pyrexia CPG

No

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%) 10 mL/Kg IV

SpO₂ & ECG monitor

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)

**Flowchart:***
- Open wound
  - Active bleeding
    - Yes: Haemorrhage controlled
    - No: Posture Elevation Examination Pressure
  - Catastrophic haemorrhage: Yes
    - Apply tourniquet if limb injury
    - Consider applying a dressing impregnated with haemostatic agent
    - HAEM
- Posture Elevation Examination Pressure
  - Yes: Apply sterile dressing
    - Consider Oxygen therapy
    - Haemorrhage controlled
      - Yes: Apply additional dressing(s)
      - No: Depress proximal pressure point
  - No: Apply additional dressing(s)
    - Haemorrhage controlled
      - Yes: Go to Shock CPG
      - No: Depress proximal pressure point

**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,
Control external haemorrhage

**Signs of poor perfusion**

- Oxygen therapy

**SpO2 & ECG monitor**

**EMT**

**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
**Spinal Immobilisation – Paediatric (≤ 15 years)**

**Trauma Indications for spinal immobilisation**
- Return head to neutral position unless on movement there is Increase in Pain, Resistance or Neurological symptoms

**Stabilise cervical spine**
- Notify paramedic, advanced paramedic or doctor

**Remove helmet (if worn)**

**Life Threatening**
- Yes
- No

**Apply cervical collar**

**Patient in sitting position**
- Yes
- No

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

**Rapid extrication with long board and cervical collar**

**Consider Vacuum mattress**

**Load onto vacuum mattress/ long board/ paediatric board**

**Patient in undamaged child seat**
- Yes
- No

**Immobilise in the child seat**

**Equipment list**
- Long board
- Vacuum mattress
- Orthopaedic stretcher
- Rigid cervical collar
- Note: equipment must be age appropriate

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

**References:**
- Slack, S. & Clancy, M, 2004, Clearing the cervical spine of paediatric trauma patients, EMJ 21; 189-193
Burns – Paediatric (≤ 15 years)

- Cease contact with heat source
- Brush off powder & irrigate chemical burns
- Follow local expert direction
- Remove burned clothing & jewellery (unless stuck)
- Commence local cooling of burn area
- Dressing/ covering of burn area
- Isolated superficial injury (excluding F/HFP)
- Pain > 2/10

- Inhalation and/or facial injury
- Yes
- No
- Airway management
- Yes
- No
- Respiratory distress
- Yes
- No
- Go to Inadequate Ventilations CPG
- Consider humidified Oxygen therapy

- TBSA burn > 5%
- Yes
- No
- > 10% TBSA and/or time from injury to ED > 1 hour
- Yes
- No
- ECG & SpO2 monitoring
- > 10% TBSA and/or time from injury to ED > 1 hour
- Yes
- No
- Special Authorisation:
  Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

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

**Caution with**
- The very young
- Circumferential & electrical burns

**Reference:**

October 2014
SECTION 8
PRE-HOSPITAL EMERGENCY CARE OPERATIONS

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

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

Major Emergency (Major Incident) – Operational Control

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

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

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

Please note that Controller of Operations may be other than ambulance or fire officers, depending on the nature of the emergency.


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.

**Triage Sieve**

**Multiple casualty incident**

- **Can casualty walk?**
  - Yes → **Priority 3 (Delayed)**
    - GREEN
  - No → **Is casualty breathing?**
    - Yes → **Open airway one attempt**
    - No → **Breathing now?**
      - Yes → **Priority 1 (Immediate)**
        - RED
      - No → **Respiratory rate < 10 or > 29?**
        - Yes → **Priority 1 (Immediate)**
          - RED
        - No → **Capillary refill > 2 sec or Pulse > 120?**
          - Yes → **Priority 2 (Urgent)**
            - YELLOW
          - No → **Priority 3 (Delayed)**
            - GREEN

- **Is casualty breathing?**
  - No → **DEAD**

**Priority 1 (Immediate)**

**Priority 2 (Urgent)**

**Priority 3 (Delayed)**

---

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.
Clinical Practice Guidelines
EMERGENCY MEDICAL TECHNICIAN

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 patient’s 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:

<table>
<thead>
<tr>
<th>Age</th>
<th>Weight</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 years</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 11 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;

- Ibuprofen
- Naloxone

### Epinephrine (1:1,000)

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</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><strong>EMT</strong></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>
<tr>
<td>Additional information</td>
<td>Caution with significant burns or poor perfusion due to risk of kidney failure</td>
<td>Caution if concurrent NSAIDs use</td>
</tr>
</tbody>
</table>
## Naloxone

<table>
<thead>
<tr>
<th>Clinical level</th>
<th>Administration</th>
<th>Indications</th>
<th>Usual Dosages</th>
</tr>
</thead>
</table>
| EMT            | Intranasal (IN). CPG: 6.4.23, 4/5.4.23, 4/5/6.7.5 | Inadequate respiration and/or ALoC following known or suspected narcotic overdose | **Adult:** 0.8 mg (800 mcg) IN (EMT)  
**Paediatric:** 0.02 mg/Kg (20 mcg/Kg) IN (EMT) |

**Additional Dosages:** (Paramedic repeats by one prn)

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

<table>
<thead>
<tr>
<th>Additional information</th>
<th>Caution when using Entonox for greater than one hour for Sickle Cell Crisis</th>
</tr>
</thead>
</table>

### Oxygen

<table>
<thead>
<tr>
<th>Contraindications</th>
<th>Paraquat poisoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indications</td>
<td>Sickle Cell Disease ~ 100%</td>
</tr>
</tbody>
</table>

**Additional Information:** Caution with paraquat poisoning, administer oxygen if SpO₂ < 92%
### 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></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adult:</td>
<td>Adult: Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td>(. or 0.1 mg metered aerosol spray x 5)</td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
<tr>
<td></td>
<td>Repeat at 5 min prn</td>
<td>Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td>(EFRs: 0.1 mg metered aerosol spray x 2)</td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
<tr>
<td></td>
<td>Paediatric:</td>
<td>Paediatric: Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td>&lt; 5 yrs...(or 0.1 mg metered aerosol spray x 3)</td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
<tr>
<td></td>
<td>≥ 5 yrs...(or 0.1 mg metered aerosol spray x 5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repeat at 5 min prn</td>
<td>Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td>(EFRs: 0.1 mg metered aerosol spray x 2)</td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
</tbody>
</table>

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

## LIST OF MEDICATIONS

<table>
<thead>
<tr>
<th>Medication</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>89</td>
</tr>
<tr>
<td>Epinephrine 1mg/1ml (1:1000)</td>
<td>90</td>
</tr>
<tr>
<td>Glucagon</td>
<td>91</td>
</tr>
<tr>
<td>Glucose gel</td>
<td>92</td>
</tr>
<tr>
<td>Glyceryl Trinitrate (GTN)</td>
<td>93</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>94</td>
</tr>
<tr>
<td>Naloxone</td>
<td>95</td>
</tr>
<tr>
<td>Nitrous Oxide 50% and Oxygen 50% (Entonox®)</td>
<td>96</td>
</tr>
<tr>
<td>Oxygen</td>
<td>97</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>98</td>
</tr>
<tr>
<td>Salbutamol</td>
<td>99</td>
</tr>
</tbody>
</table>
# Clinical Practice Guidelines
## EMERGENCY MEDICAL TECHNICIAN

## APPENDIX 1
### MEDICATION FORMULARY

**CLASSIFICATION LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Aspirin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Platelet aggregation inhibitor</td>
</tr>
<tr>
<td><strong>Descriptions</strong></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><strong>Presentation</strong></td>
<td>300 mg dispersible tablet</td>
</tr>
<tr>
<td><strong>Administration</strong></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><strong>Indications</strong></td>
<td>Cardiac chest pain or suspected Myocardial Infarction</td>
</tr>
</tbody>
</table>
| **Contraindications** | Active symptomatic gastrointestinal (GI) ulcer  
Bleeding disorder (e.g. haemophilia)  
Known severe adverse reaction  
Patients < 16 years old |
| **Usual Dosages** | **Adult:** 300 mg tablet  
**Paediatric:** Contraindicated |
| **Pharmacology/Action** | Antithrombotic  
Inhibits the formation of thromboxane A2, which stimulates platelet aggregation and artery constriction. This reduces clot/thrombus formation in an MI. |
| **Side effects** | Epigastric pain and discomfort  
Bronchospasm  
Gastrointestinal haemorrhage |
| **Long-term effects** | Generally mild and infrequent but incidence of gastro-intestinal irritation with slight asymptomatic blood loss, increased bleeding time, bronchospasm and skin reaction in hypersensitive patients. |
| **Additional information** | Aspirin 300 mg is indicated for cardiac chest pain regardless if patient is on 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. |
# Medication Formulary

## 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>
</tbody>
</table>

### Usual Dosages

| Adult | 0.5 mg (500 mcg) IM (0.5 mL of 1:1,000)  
EMT & (EFR assist patient) 0.3 mg (Auto injector)  
Repeat every 5 minutes prn |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Paediatric</td>
<td></td>
</tr>
</tbody>
</table>
< 6 months: 0.05 mg (50 mcg) IM (0.05 mL of 1:1,000)  
6 months to 5 years: 0.125 mg (125 mcg) IM (0.13 mL of 1:1,000)  
6 to 8 years: 0.25 mg (250 mcg) IM (0.25 mL of 1:1,000)  
> 8 years: 0.5 mg (500 mcg) IM (0.5 mL of 1:1,000)  
EMT & (EFR assist patient):  
6 months < 10 years: 0.15 mg (Auto injector)  
≥ 10 years: 0.3 mg (Auto injector)  
Repeat every 5 minutes prn |

### Pharmacology/Action

- Alpha and beta adrenergic stimulant
- Reversal of laryngeal oedema & bronchospasm in anaphylaxis
- Antagonises the effects of histamine

### Side effects

- Palpitations
- Tachyarrhythmias
- Hypertension
- Angina-like symptoms

### Additional information

N.B. Double check the concentration on pack before use
Clinical Practice Guidelines
EMERGENCY MEDICAL TECHNICIAN

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</td>
</tr>
<tr>
<td></td>
<td><strong>Paediatric:</strong> ≤ 8 years 0.5 mg (500 mcg) IM &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>
## Medication Formulary

### Glucose Gel

<table>
<thead>
<tr>
<th>Class</th>
<th>Antihypoglycaemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Synthetic glucose paste</td>
</tr>
<tr>
<td>Presentation</td>
<td>Glucose gel in a tube or sachet</td>
</tr>
<tr>
<td>Administration</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>Indications</td>
<td>Hypoglycaemia Blood glucose &lt; 4 mmol/L EFR – Known diabetic with confusion or altered levels of consciousness</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Known severe adverse reaction</td>
</tr>
</tbody>
</table>
| Usual Dosages  | **Adult:** 10 – 20 g buccal Repeat prn  
**Paediatric:** ≤ 8 years: 5 – 10 g buccal  
> 8 years: 10 – 20 g buccal Repeat prn |
| Pharmacology/Action | Increases blood glucose levels |
| Side effects   | May cause vomiting in patients under the age of five if administered too quickly |
| Additional information | Glucose gel will maintain glucose levels once raised but should be used secondary to Dextrose to reverse hypoglycaemia.  
**Proceed with caution:** Patients with airway compromise Altered level of consciousness |
## 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>
</tbody>
</table>
| Administration | Sublingual (SL):  
Hold the pump spray vertically with the valve head uppermost  
Place as close to the mouth as possible and spray under the tongue  
The mouth should be closed after each dose  
(CPG: 5/6.3.5, 4.4.10, 5/6.4.10) |
| Indications | Angina  
Suspected Myocardial Infarction (MI)  
EFRs may assist with administration  
Advanced Paramedic and Paramedic – Pulmonary oedema |
| Contraindications | SBP < 90 mmHg  
Viagra or other phosphodiesterase type 5 inhibitors (Sildenafil, Tadalafil and Vardenafil) used within previous 24 hours.  
Known severe adverse reaction. |
| Usual Dosages | **Adult:**  
Angina or MI: 0.4 mg (400 mcg) Sublingual  
Repeat at 3-5 min intervals, Max: 1.2 mg  
EFRs 0.4 mg sublingual max, assist patient  
Pulmonary oedema: 0.8 mg (800 mcg) sublingual  
Repeat x 1 |
| Paediatric | Not indicated |
| Pharmacology/Action | Vasodilator  
Releases nitric oxide which acts as a vasodilator. Dilates coronary arteries particularly if in spasm increasing blood flow to myocardium.  
Dilates systemic veins reducing venous return to the heart (pre load) and thus reduces the heart’s workload.  
Reduces BP |
| Side effects | Headache  
Transient Hypotension  
Flushing  
Dizziness |
| Additional information | If the pump is new or has not been used for a week or more, the first spray should be released into the air. |
## Ibuprofen

<table>
<thead>
<tr>
<th>Class</th>
<th>Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>It is an anti-inflammatory analgesic</td>
</tr>
<tr>
<td>Presentation</td>
<td>Suspension 100 mg in 5 mL 200 mg tablet, 400 mg tablet</td>
</tr>
<tr>
<td>Administration</td>
<td>Orally (PO)  (CPG: 4/5/6.2.6, 4/5/6.7.5)</td>
</tr>
<tr>
<td>Indications</td>
<td>Mild to moderate pain</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Not suitable for children under 3 months</td>
</tr>
<tr>
<td></td>
<td>Patient with history of asthma exacerbated by aspirin</td>
</tr>
<tr>
<td></td>
<td>Pregnancy</td>
</tr>
<tr>
<td></td>
<td>Peptic ulcer disease</td>
</tr>
<tr>
<td></td>
<td>Known severe adverse reaction</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adult: 400 mg PO</td>
</tr>
<tr>
<td></td>
<td>Paediatric: 10 mg/Kg PO</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Suppresses prostaglandins, which cause pain via the inhibition of cyclooxygenase (COX). Prostaglandins are released by cell damage and inflammation.</td>
</tr>
<tr>
<td>Side effects</td>
<td>Skin rashes, gastrointestinal intolerance and bleeding</td>
</tr>
<tr>
<td>Long-term side effects</td>
<td>Occasionally gastrointestinal bleeding and ulceration occurs May also cause acute renal failure, interstitial nephritis and NSAID-associated nephropathy</td>
</tr>
<tr>
<td>Additional information</td>
<td>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.</td>
</tr>
</tbody>
</table>
Medication Formulary

<table>
<thead>
<tr>
<th>Medication</th>
<th>Naloxone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Narcotic antagonist</td>
</tr>
<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) Intravenous (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>
<tr>
<td>Usual Dosages</td>
<td><strong>Adult:</strong> 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 <strong>Paediatric:</strong> 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</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Narcotic antagonist Reverse the respiratory depression and analgesic effect of narcotics</td>
</tr>
<tr>
<td>Side effects</td>
<td>Acute reversal of narcotic effect ranging from nausea &amp; vomiting to agitation and seizures</td>
</tr>
<tr>
<td>Additional information</td>
<td>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.</td>
</tr>
</tbody>
</table>
**APPENDIX 1**

**MEDICATION FORMULARY**

**CLINICAL LEVEL:** EMT, P, AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Nitrous Oxide 50% and Oxygen 50% (Entonox®)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Analgesic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Potent analgesic gas contains a mixture of both nitrous oxide and oxygen</td>
</tr>
</tbody>
</table>
| **Presentation** | Cylinder, coloured blue with white and blue triangles on cylinder shoulders  
Medical gas: 50% Nitrous Oxide & 50% Oxygen |
| **Administration** | Self-administered  
Inhalation by demand valve with face-mask or mouthpiece  
(CPG: 4/5/6.2.6, 5/6.5.1, 4.5.1, 5/6.5.6, 4/5/6.7.5) |
| **Indications** | Pain relief |
| **Contraindications** | Altered level of consciousness  
Chest Injury/Pneumothorax  
Shock  
Recent scuba dive  
Decompression sickness  
Intestinal obstruction  
Inhalation Injury  
Carbon monoxide (CO) poisoning  
Known severe adverse reaction |
| **Usual Dosages** | **Adult:** Self-administered until pain relieved  
**Paediatric:** Self-administered until pain relieved |
| **Pharmacology/Action** | Analgesic agent gas:  
- CNS depressant  
- Pain relief |
| **Side effects** | Disinhibition  
Decreased level of consciousness  
Light-headedness |
| **Additional information** | Do not use if patient unable to understand instructions.  
In cold temperatures warm cylinder and invert to ensure mix of gases.  
Advanced Paramedics may use discretion with minor chest injuries.  
Brand name: Entonox®.  
Has an addictive property.  
Caution when using Entonox for greater than one hour for Sickle Cell Crisis. |
**Clinical Practice Guidelines**

**APPENDIX 1**

**MEDICATION FORMULARY**

**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Gas</td>
</tr>
<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>
<tr>
<td>Indications</td>
<td>Absent/inadequate ventilation following an acute medical or traumatic event SpO$_2$ &lt; 94% adults and &lt; 96% paediatrics SpO$_2$ &lt; 92% for patients with acute exacerbation of COPD</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Bleomycin lung injury</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td><strong>Adult:</strong> Cardiac and respiratory arrest or Sickle Cell Crisis; 100% Life threats identified during primary survey; 100% until a reliable SpO$_2$ measurement obtained then titrate O$_2$ to achieve SpO$_2$ of 94% - 98% For patients with acute exacerbation of COPD, administer O$_2$ titrate to achieve SpO$_2$ 92% or as specified on COPD Oxygen Alert Card All other acute medical and trauma titrate O$_2$ to achieve SpO$_2$ 94% - 98% <strong>Paediatric:</strong> Cardiac and respiratory arrest or Sickle Cell Crisis; 100% Life threats identified during primary survey; 100% until a reliable SpO$_2$ measurement obtained then titrate O$_2$ to achieve SpO$_2$ of 96% - 98% All other acute medical and trauma titrate O$_2$ to achieve SpO$_2$ of 96% - 98%</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Oxygenation of tissue/organs</td>
</tr>
<tr>
<td>Side effects</td>
<td>Prolonged use of O$_2$ with chronic COPD patients may lead to reduction in ventilation stimulus.</td>
</tr>
<tr>
<td>Additional information</td>
<td>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 &gt; 30 minute duration. Caution with paraquat poisoning, administer oxygen if SpO$_2$ &lt; 92% Avoid naked flames, powerful oxidising agent.</td>
</tr>
</tbody>
</table>
### Medication Formulary

**Paracetamol**

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

## EMERGENCY MEDICAL TECHNICIAN

### APPENDIX 1

## MEDICATION FORMULARY

**CLINICAL LEVEL:** EFR EMT P AP

<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, 4/5/6.6.10, 4/5/6.7.12, 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 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>
</tr>
</thead>
<tbody>
<tr>
<td>Burns care</td>
<td>❌</td>
<td>❌</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Soft tissue injury</td>
<td>❌</td>
<td>❌</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SpO₂ monitoring</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move and secure a patient to a paediatric board</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Ibuprofen PO</td>
<td></td>
<td></td>
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<tr>
<td>Salbutamol Nebule</td>
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<tr>
<td>Subcutaneous injection</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>Naloxone IN</td>
<td></td>
<td></td>
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<td>✓</td>
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</tr>
<tr>
<td>Pain assessment</td>
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<td></td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Haemostatic agent</td>
<td></td>
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<tr>
<td>End Tidal CO₂ monitoring</td>
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<td>Hydrocortisone IM</td>
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<tr>
<td>Ipratropium Bromide Nebule</td>
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</tr>
<tr>
<td>CPAP / BiPAP</td>
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<td>✓</td>
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<tr>
<td>Naloxone SC</td>
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<td></td>
<td></td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Nasal pack</td>
<td>✓</td>
<td></td>
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<td>✓</td>
</tr>
<tr>
<td>Ticagrelor</td>
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<td></td>
<td></td>
<td></td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Treat and referral</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tranexamic Acid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</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**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></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>
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<td>SA</td>
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## APPENDIX 2

### MEDICATIONS & SKILLS MATRIX

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### AIRWAY & BREATHING MANAGEMENT

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## APPENDIX 2
MEDICATIONS & SKILLS MATRIX

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### MEDICATIONS & SKILLS MATRIX

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Clinical Practice Guidelines
EMERGENCY MEDICAL TECHNICIAN

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
• Dreaded 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
• The 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.
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 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>
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<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 licenced CPG provider to insert an NPA following appropriate training</td>
<td>✓</td>
<td>BTEC only</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 licenced CPG provider to insert an NPA following appropriate training</td>
<td>✓</td>
<td>BTEC only</td>
</tr>
<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>✓</td>
</tr>
<tr>
<td>CPG 4.3.1 Advanced Airway Management – Adult</td>
<td>Special authorisation may be given to EMTs to insert a cuffed supraglottic airway subject to maintaining competence and Medical Director authorisation</td>
<td>✓</td>
<td>✓ if authorised</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>
<td>✓</td>
<td>x</td>
</tr>
</tbody>
</table>
## APPENDIX 4
### CPG UPDATES FOR EMERGENCY MEDICAL TECHNICIANS

<table>
<thead>
<tr>
<th>CPGs</th>
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</table>
| CPG 4/5/6.3.3  Exacerbation of COPD | This CPG incorporating all three practitioner levels in one CPG replacing 4.3.3 at EMT level  
Peak expiratory flow measurement is now within the scope of practice for paramedics  
Salbutamol Neb is now within the scope of practice for EMTs  
Ipratropium bromide Neb is now within the scope of practice for paramedics | ✓ | x |
| CPG 4/5/6.4.11  Symptomatic Bradycardia – Adult | The dose of Atropine has been increased from 0.5 mg to 0.6 mg  
Add ‘NaCL infusion 250 mL (repeat by one)’  
Insert information box; ‘Titrate Atropine to effect (HR > 60)’ | ✓ | x |
| CPG 4.4.15  Allergic Reaction/Anaphylaxis – Adult | Salbutamol NEB is now within the scope of practice for EMTs  
The conditions for use of Epinephrine auto injector has been changed; it is now indicated for all patients with severe anaphylaxis regardless of whether it has been previously prescribed or not. | ✓ | x |
| CPG 4/5/6.4.17  Epistaxis | Digital pressure has been increased to 15 minutes  
The insertion of a proprietary nasal pack is now within the scope of practice for paramedics and advanced paramedics | ✓ | x |
| CPG 4.4.21  Hypothermia | Paramedic has been removed from this CPG  
Warmed O2 has been removed | ✓ | x |
| CPG 4/5.4.22  Poisons – Adult | 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 | ✓ | x |
| CPG 4/5/6.4.24  Sepsis – Adult | 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 sever sepsis.  
Advanced paramedics may consider additional aliquots of NaCl to maintain systolic BP > 100 mmHg | ✓ | x |
## APPENDIX 4

**CPG UPDATES FOR EMERGENCY MEDICAL TECHNICIANS**

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<tbody>
<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 licenced CPG provider to apply a tourniquet.</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
| CPG 4.6.5 Head Injury – Adult | Add V as a rationale for requesting ALS  
Add ‘consider mechanism of injury; is spinal immobilisation indicated?’  
Replace ‘apply cervical collar’ and ‘secure to long board’ with ‘immobilise spine appropriately’ | ✔      | ✗       |
| CPG 4/5/6.6.7 Limb Injury – Adult | Fractured neck of femur has been included  
With a fractured neck of femur, if the transport time to ED is > 20 minutes, ALS should be requested.  
With a fractured neck of femur advanced paramedics should consider NaCl infusion | ✔      | ✗       |
| CPG 4.6.8 Shock from Blood Loss – Adult | The signs of poor perfusion have been presented in an ABCDE format | ✔      | ✗       |
| CPG 4/5/6.6.10 Submersion Incident | Salbutamol is now within the scope of practice for EMTs                                         | ✔      | ✔       |
| CPG 4/5/6.7.4 Secondary Survey – Paediatric | The estimated weight formula has been updated;  
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 | ✔      | ✗       |
# Clinical Practice Guidelines

## Emergency Medical Technician

## Appendix 4

### CPG Updates for Emergency Medical Technicians

<table>
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<tr>
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</table>
| 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 4.7.31 Allergic Reaction/ Anaphylaxis – Paediatric | Salbutamol NEB is now within the scope of practice for EMTs  
The conditions for use of Epinephrine auto injector has been changed; it is now indicated for all patients with severe anaphylaxis regardless of whether it has been previously prescribed or not. | ✔️     | ✔️     |
| CPG 4.7.32 Glycaemic Emergency – Paediatric | A dose of Glucose gel for > 8 year olds has been added | ✔️     | ✔️     |
| CPG 4.7.33 Seizure/ Convulsion – Paediatric | Paracetamol has been removed and replaced with a direction to go to the pyrexia CPG | ✔️     | ✔️     |
### CPG UPDATES FOR EMERGENCY MEDICAL TECHNICIANS

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<th>CPGs</th>
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<tbody>
<tr>
<td>CPG 4/5/6.7.50 External Haemorrhage – Paediatric</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 licenced CPG provider to apply a tourniquet.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4.7.51 Shock from Blood Loss – Paediatric</td>
<td>The entry to this CPG has been changed from 'shock' to 'signs of poor perfusion'. An additional care management step has been introduced; Lie patient flat and elevate the legs (if safe to do so).</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4.7.52 Spinal Immobilisation – Paediatric</td>
<td>‘Consider Paramedic’ has been changed to ‘Notify a paramedic, advanced paramedic or doctor’.</td>
<td>✓</td>
<td>x</td>
</tr>
<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’. 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>
<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 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>✔️</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>✗</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>✗</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>✗</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>✔️</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>✗</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>✗</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.
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.