# PREFACE

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# CLINICAL PRACTICE GUIDELINES

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It is my pleasure to write the foreword to this PHECC Clinical Handbook comprising 3rd Edition, version 2, Clinical Practice Guidelines (CPGs). There are now 230 CPGs in all, to guide integrated care across the six levels of Responder and Practitioner. My understanding is that it is a world first to have a Cardiac First Responder using guidance from the same integrated set as all levels of Responders and Practitioners up to Advanced Paramedic. We have come a long way since the publication of the first set of guidelines numbering 35 in 2001, and applying to EMTs only at the time.

I was appointed Chair in June 2008 to what is essentially the second Council since PHECC was established in 2000.

I pay great tribute to the hard work of the previous Medical Advisory Group chaired by Mark Doyle, in developing these CPGs with oversight from the Clinical Care Committee chaired by Sean Creamer, and guidance and authority of the first Council chaired by Paul Robinson. The development and publication of CPGs is an important part of PHECC’s main functions which are:

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

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

Mr Tom Mooney, Chair, Pre-Hospital Emergency Care Council
Advanced Paramedic .......................................................... AP
Advanced Life Support .................................................. ALS
Airway, breathing & circulation ..................................... ABC
All terrain vehicle .......................................................... ATV
Altered level of consciousness ....................................... ALoC
Automated External Defibrillator .................................... AED
Bag Valve Mask ............................................................. BVM
Basic Life Support ......................................................... BLS
Blood Glucose .............................................................. BG
Blood Pressure .............................................................. BP
Carbon dioxide ............................................................. CO₂
Cardiopulmonary Resuscitation ....................................... CPR
Cervical spine ............................................................... C-spine
Chronic obstructive pulmonary disease ......................... COPD
Clinical Practice Guideline ............................................. CPG
Degree ................................................................................
Degrees Centigrade ........................................................ °C
Dextrose 10% in water ..................................................... D₁₀W
Drop (gutta) ........................................................................ gtt
Electrocardiogram .......................................................... ECG
Emergency Department .................................................. ED
Emergency Medical Technician ........................................ EMT
Endotracheal tube .......................................................... ETT
Foreign body airway obstruction ..................................... FBAO
Fracture ............................................................................. #
General Practitioner ....................................................... GP
Glasgow Coma Scale ........................................................ GCS
Gram .................................................................................. g
Greater than ...................................................................... >
Greater than or equal to .................................................. ≥
Heart rate ........................................................................... HR
History ............................................................................... Hx
Impedance Threshold Device ........................................ ITD
Inhalation ........................................................................... Inh
Intramuscular ..................................................................... IM
Intranasal ........................................................................... IN
Intraosseous ....................................................................... IO
Intravenous ........................................................................ IV
Keep vein open ............................................................... KVO
Kilogram ............................................................................. Kg
Less than .............................................................................. <
ACCEPTED ABBREVIATIONS (Cont.)

Less than or equal to .................................................. \( \leq \)
Litre ........................................................................... L
Maximum ...................................................................... Max
Microgram .................................................................. mcg
Milligram .................................................................... mg
Millilitre ..................................................................... mL
Millimole ..................................................................... mmol
Minute ......................................................................... min
Modified Early Warning Score ....................................... MEWS
Motor vehicle collision .................................................. MVC
Myocardial infarction ...................................................... MI
Nasopharyngeal airway .................................................... NPA
Milliequivalent ............................................................... mEq
Millimetres of mercury .................................................. mmHg
Nebulised ..................................................................... NEB
Negative decadic logarithm of the H+ ion concentration ................................................................ pH
Orally (per os) ............................................................... PO
Oropharyngeal airway ...................................................... OPA
Oxygen ......................................................................... O\(_2\)
Paramedic ..................................................................... P
Peak expiratory flow ......................................................... PEF
Per rectum ..................................................................... PR
Percutaneous coronary intervention .................................. PCI
Personal Protective Equipment .......................................... PPE
Pulseless electrical activity ............................................... PEA
Respiration rate ............................................................. RR
Return of spontaneous circulation .................................... ROSC
Revised Trauma Score .................................................... RTS
Saturation of arterial oxygen ........................................... SpO\(_2\)
ST elevation myocardial infarction ..................................... STEMI
Subcutaneous ................................................................ SC
Sublingual ...................................................................... SL
Systolic blood pressure ..................................................... SBP
Therefore ...................................................................... ∴
Total body surface area .................................................. TBSA
Ventricular Fibrillation .................................................... VF
Ventricular Tachycardia ..................................................... VT
When necessary (pro re nata) ............................................. prn
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.

PROJECT LEADER & EDITOR
Mr Brian Power, Programme Development Officer, PHECC.

INITIAL CLINICAL REVIEW
Dr Geoff King, Director, PHECC.
Ms Pauline Dempsey, Programme Development Officer, PHECC.
Ms Jacqueline Egan, Programme Development Officer, PHECC.

MEDICAL ADVISORY GROUP
Dr Zelie Gaffney, (Chair) General Practitioner
Dr David Janes, (Vice Chair) General Practitioner
Prof Gerard Bury, Professor of General Practitioner University College Dublin
Dr Niamh Collins, Locum Consultant in Emergency Medicine, St James’s Hospital
Prof Stephen Cusack, Consultant in Emergency Medicine, Area Medical Advisor, National Ambulance Service South
Mr Mark Doyle, Consultant in Emergency Medicine, Deputy Medical Director HSE National Ambulance Service
Mr Conor Egleston, Consultant in Emergency Medicine, Our lady of Lourdes Hospital, Drogheda

Mr Michael Garry, Paramedic, Chair of Accreditation Committee
Mr Macartan Hughes, Advanced Paramedic, Head of Education & Competency Assurance, HSE National Ambulance Service
Mr Lawrence Kenna, Advanced Paramedic, Education & Competency Assurance Manager, HSE National Ambulance Service
Mr Paul Lambert, Advanced Paramedic, Station Officer Dublin Fire Brigade
Mr Declan Lonergan, Advanced Paramedic, Education & Competency Assurance Manager, HSE National Ambulance Service
Mr Paul Meehan, Regional Training Officer, Northern Ireland Ambulance Service
Dr David Menzies, Medical Director AP programme NASC/UCD
Dr David McManus, Medical Director, Northern Ireland Ambulance Service
Dr Peter O’Connor, Consultant in Emergency Medicine, Medical Advisor Dublin Fire Brigade
Mr Cathal O’Donnell, Consultant in Emergency Medicine, Medical Director HSE National Ambulance Service
Mr John O’Donnell, Consultant in Emergency Medicine, Area Medical Advisor, National Ambulance Service West
Mr Frank O’Malley, Paramedic, Chair of Clinical Care Committee
Mr Martin O’Reilly, Advanced Paramedic, District Officer Dublin Fire Brigade
Dr Sean O’Rourke, Consultant in Emergency Medicine, Area Medical Advisor, National Ambulance Service North Leinster
Ms Valerie Small, Nurse Practitioner, St James's Hospital, Vice Chair Council
Dr Sean Walsh, Consultant in Paediatric Emergency Medicine, Our Lady's Hospital for Sick Children Crumlin
Mr Brendan Whelan, Advanced Paramedic, Education & Competency Assurance Manager, HSE National Ambulance Service

Mr Tony Heffernan, Assistant Director of Nursing, HSE Mental Health Services.
Prof Peter Kelly, Consultant Neurologist, Mater University Hospital.
Dr Brian Maurer, Director of Cardiology St Vincent's University Hospital.
Dr Regína McQuillan, Palliative Medicine Consultant, St James's Hospital.
Dr Sean Murphy, Consultant Physician in Geriatric Medicine, Midlands Regional Hospital, Mullingar.

Ms Annette Thompson, Clinical Nurse Specialist, Beaumont Hospital.
Dr Joe Tracey, Director, National Poisons Information Centre.
Mr Pat O’Riordan, Specialist in Emergency Management, HSE.
Prof Peter Weedle, Adjunct Prof of Clinical Pharmacy, National University of Ireland, Cork.

Mr Pat O’Riordan, Specialist in Emergency Management, HSE.
Prof Peter Weedle, Adjunct Prof of Clinical Pharmacy, National University of Ireland, Cork.

SPECIAL THANKS
A special thanks to all the PHECC team who were involved in this project from time to time, in particular Marion O’Malley, Programme Development Support Officer and Marie Ni Mhurchu, Client Services Manager, for their commitment to ensure the success of the project.
The development of Clinical Practice Guidelines (CPGs) is a continuous process. The publication of the ILCOR Guidelines 2010 was the principle catalyst for updating these CPGs. As research leads to evidence, and as practice evolves, guidelines are updated to offer the best available advice to those who care for the ill and injured in our pre-hospital environment.

This 3rd edition version 2 offers current best practice guidance. The guidelines have expanded in number and scope – with 59 CPGs in total for Emergency Medical Technicians, covering such topics as Post Resuscitation Care for Paediatric patients and End of Life – DNR for the first time. The CPGs continue to recognise the various levels of Practitioner (Emergency Medical Technician, Paramedic and Advanced Paramedic) and Responder (Cardiac First Response, Occupational First Aid and Emergency First Response) who offer care.

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

Mr Cathal O'Donnell
Chair, Medical Advisory Group (2008-2010)
Clinical Practice Guidelines (CPGs) and the Practitioner

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

The CPGs herein may be implemented provided:

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

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

Definitions

<table>
<thead>
<tr>
<th>Adult</th>
<th>a patient of 14 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 (≤) 13 years old, unless specified on the CPG.</td>
</tr>
<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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Care principles

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

Care Principles

1. Ensure the safety of yourself, other emergency service personnel, your patients and the public:
   - review all Ambulance Control Centre dispatch information
   - consider all environmental factors and approach a scene only when it is safe to do so
   - identify potential and actual hazards and take the necessary precautions
   - request assistance as required in a timely fashion, particularly for higher clinical levels
   - ensure the scene is as safe as is practicable
   - take standard infection control precautions.

2. Identify and manage life-threatening conditions:
   - locate all patients. If the number of patients is greater than resources, ensure additional resources are sought
   - assess the patient's condition appropriately
   - prioritise and manage the most life-threatening conditions first
   - provide a situation report to Ambulance Control Centre as soon as possible after arrival on the scene as appropriate.

3. Ensure adequate ventilation and oxygenation.

4. Monitor and record patient's vital observations.

5. Optimise tissue perfusion.

6. Identify and manage other conditions.

7. Provide appropriate pain relief.

8. Place the patient in the appropriate posture according to the presenting condition.

9. Ensure the maintenance of normal body temperature (unless CPG indicates otherwise).
10 Maintain responsibility for patient care until handover to an appropriate Practitioner. Do not hand over responsibility for care of a patient to a Practitioner/Responder who is less qualified or experienced unless the care required is within their scope of practice.

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

12 Provide reassurance at all times.

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

**CPGs and the pre-hospital emergency care team**

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

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

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

CPGs guide the Practitioner in presenting to the acute hospital a patient who has been supported in the very early phase of injury/illness and in whom the danger of deterioration has lessened by early appropriate clinical care interventions.
CPGs presume no intervention has been applied, nor medication administered, prior to the arrival of the Practitioner. In the event of another Practitioner or Responder initiating care during an acute episode, the Practitioner must be cognisant of interventions applied and medication doses already administered and act accordingly.

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

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

**Defibrillation policy**
The Medical Advisory Group has recommended the following pre-hospital defibrillation policy;
- Advanced Paramedics should use manual defibrillation for all age groups
- Paramedics may consider use of manual defibrillation for all age groups
- EMTs and Responders shall use AED mode for all age groups

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

Primary Survey – Adult

KEY/CODES EXPLANATION

- **EMT**: Emergency Medical Technician (Level 4) for which the CPG pertains
- **P**: Paramedic (Level 5) for which the CPG pertains
- **AP**: Advanced Paramedic (Level 6) for which the CPG pertains

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

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

**A decision process**
- The Practitioner must follow one route

**Consider treatment options**
- Given the clinical presentation consider the treatment option specified

**Reassess 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**

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

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

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

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

Take standard infection control precautions

Consider pre-arrival information

Scene safety
Scene survey
Scene situation

Assess responsiveness

A
Airway patent & protected

B
Adequate ventilation

C
Adequate circulation

AVPU assessment

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.

Reference: ILCOR Guidelines 2010
The primary survey is focused on establishing the patient’s clinical status and only applying interventions when they are essential to maintain life. It should be completed within one minute of arrival on scene.

Primary Survey Trauma – Adult

- Take standard infection control precautions
- Consider pre-arrival information
- Scene safety
- Scene survey
- Scene situation
- Mechanism of injury suggestive of spinal injury
  - Yes
    - C-spine control
  - No
- Assess responsiveness
  - Airway patent & protected
    - Yes
    - No
    - Jaw thrust
    - Suction, OPA, NPA
  - Adequate ventilation
    - Yes
    - No
    - Consider
    - Oxygen therapy
  - Adequate circulation
    - Yes
    - No
- AVPU assessment
- Treat life threatening injuries only at this point
- Life threatening
- Clinical status decision
  - Life threatening
    - Request ALS
    - Go to appropriate CPG
  - Non serious or life threat
    - Consider
    - Go to Secondary Survey CPG
- Serious not life threat
- Maximum time on scene for life threatening trauma: ≤ 10 minutes

Reference: ILCOR Guidelines 2010
SECTION 2 - PATIENT ASSESSMENT

Secondary Survey Medical – Adult

Primary Survey

Record vital signs

Patient acutely unwell

Yes

Identify positive findings and initiate care management

Request ALS

Identify positive findings and initiate care management

Focal medical history of presenting complaint

SAMPLE history

Check for medications carried or medical alert jewellery

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

Markers identifying acutely unwell
Cardiac chest pain
Acute pain > 5
SECTION 2 - PATIENT ASSESSMENT

Secondary Survey Trauma – Adult

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<td>Systolic BP &lt; 90</td>
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<td>Respiratory rate &lt; 10 or &gt; 29</td>
</tr>
<tr>
<td>Heart rate &gt; 120</td>
</tr>
<tr>
<td>AVPU = V, P or U on scale</td>
</tr>
<tr>
<td>Mechanism of Injury</td>
</tr>
</tbody>
</table>

**SECTION 2 - PATIENT ASSESSMENT**

**Pain Management – Adult**

**Analogue Pain Scale**

0 = no pain

1 = slight discomfort

2 = mild discomfort

3 = moderate discomfort

4 = severe discomfort

5 = very severe discomfort

6 = unbearable

**Pain**

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

**Pain assessment**

Administer pain medication based on pain assessment and pain ladder recommendations.

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

**Adequate relief of pain**

Yes or best achievable

No

Go back to originating CPG

Reassess and move up the pain ladder if appropriate.

**Pain**

**Severe pain** (≥ 5 on pain scale)

- Morphine 2 mg IV
- and / or
- Ondansetron 4 mg IV
- and / or
- Nitrous Oxide & Oxygen, inh

**Consider**

Ondansetron 4 mg IV

**or**

Diphenhydramine 50 mg IV, inh

**Consider other non pharmacological interventions**

**Moderate pain** (3 to 4 on pain scale)

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

**Consider**

Paracetamol 1 g PO

**Minor pain** (2 to 3 on pain scale)

- Paracetamol 1 g PO

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

**Repeat Morphine at not < 2 min intervals if indicated. Max 10 mg.**

For musculoskeletal pain Max 16 mg.

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

**Consider other non pharmacological interventions**

**PHECC Pain Ladder**

**Special Authorisation:**

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

**Special Authorisation:**

Advanced Paramedics 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.
SECTION 3 - RESPIRATORY EMERGENCIES

Advanced Airway Management - Adult

Minimum interruptions of chest compressions
Maximum hands off time 10 seconds

Maintain adequate ventilation and oxygenation throughout procedures

Following successful Advanced Airway management:

i) Ventilate at 8 to 10 per minute.
ii) Unsynchronised chest compressions continuous at 100 to 120 per minute

Reference: ILCOR Guidelines 2010
SECTION 3 - RESPIRATORY EMERGENCIES

Inadequate Respirations – Adult

Respiratory difficulties

Assess and maintain airway

Oxygen therapy

Respiratory assessment

Inadequate rate or depth

RR < 10

Yes

No

Request ALS

Audible wheeze

Yes

Positive pressure ventilations

Max 10 per minute

No

Salbutamol, 2 puffs,
(0.2 mg) metered aerosol

Reassess

Respiratory assessment

ECG & SpO2 monitoring


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

Acute severe asthma
Any one of:

Respiratory rate ≥ 25/ min
Heart rate ≥ 110/ min
Inability to complete sentences in one breath

Moderate asthma exacerbation
Increasing symptoms
No features of acute severe asthma

Pre-Hospital Emergency Care Council

PHECC Clinical Practice Guidelines - Emergency Medical Technician

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An exacerbation of COPD is defined as:
An event in the natural course of the disease characterised by a change in the patient's baseline dyspnoea, cough and/or sputum beyond day-to-day variability sufficient to warrant a change in management. (European Respiratory Society)
SECTION 4 - MEDICAL EMERGENCIES

Basic Life Support – Adult

Cardiac Arrest

**Rhythm**
- Shockable VF or pulseless VT: Give 1 shock.
- Non-Shockable Asystole or PEA: Go to Asystole CPG.
- Asystole: Go to Asystole CPG.
- VF/VT: Go to VF/VT CPG.
- PEA: Go to PEA CPG.
- ROSC: Go to Post Resuscitation CPG.

Consider changing defibrillator to manual mode.

Immediately resume CPR x 2 minutes

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

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

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

Minimum interruptions of chest compressions
Maximum hands off time 10 seconds

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

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

Reference: ILCOR Guidelines 2010

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

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

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

4/5/6.4.1
Version 2, 06/11

PHECC Clinical Practice Guidelines - Emergency Medical Technician
SECTION 4 - MEDICAL EMERGENCIES

Basic Life Support – Paediatric (≤ 13 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

Assess Rhythm

Shockable

VF or pulseless VT

Give 1 shock

Immediately resume CPR x 2 minutes

Rhythm check *

Go to VF / VT CPG

ROSC

Go to Post Resuscitation CPG

Non - Shockable

Asystole or PEA

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

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

Infant AED

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

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

Reference: ILCOR Guidelines 2010

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

Minimum interruptions of chest compressions Maximum hands off time 10 seconds

Change defibrillator to manual mode

Consider changing defibrillator to manual mode

Continue CPR while defibrillator is charging

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

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

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

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

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

Minimum interruptions of chest compressions Maximum hands off time 10 seconds

Change defibrillator to manual mode

Consider changing defibrillator to manual mode

Continue CPR while defibrillator is charging

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Two rescuer CPR 15 : 2
Compressions : Ventilations

< 8 years use paediatric defibrillation system (if not available use adult pads)
SECTION 4 - MEDICAL EMERGENCIES

FOREIGN BODY AIRWAY OBSTRUCTION - ADULT

Are you choking?

Severe (ineffective cough)

Mild (effective cough)

Encourage cough

Positive pressure ventilations maximum 10 per minute

Consider Oxygen therapy

One cycle of CPR

Effective

Adequate ventilations

No

Yes

Encourage cough

Effective

Yes

Adequate ventilations

No

Yes

Consider Oxygen therapy

Go to BLS Adult CPG

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

Sense of urgency is present

Emphasize adequate ventilations

One cycle of CPR

Effective
SECTION 4 - MEDICAL EMERGENCIES

Foreign Body Airway Obstruction – Paediatric (≤ 13 years)

Are you choking?

- Severe (ineffective cough)
  - Yes
  - Conscious
  - FBAO Severity

- Mild (effective cough)
  - Yes
  - Encourage cough

- No
  - Conscious
  - Request ALS

- Effective
  - Yes
  - Breathing adequately
  - Positive pressure ventilations (12 to 20/min)

- No
  - Effective
  - Yes
  - Consider Oxygen therapy

- No
  - Effective
  - No
  - Go to BLS Child CPG

Open mouth and look for object
If visible attempt once to remove it

Attempt 5 Rescue Breaths
One cycle of CPR

Effective
- Yes
- Go to BLS Child CPG

Effective
- No
- Go to BLS Child CPG

After each cycle of CPR open mouth and look for object
If visible attempt once to remove it
VF or Pulseless VT – Adult

VF or VT arrest

VF/VT

Defibrillate

Rhythm check *

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

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

Clinical leader to monitor quality of CPR

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

Sodium Bicarbonate 8.4% 50 mL IV

Epinephrine between 2nd and 4th shock

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

Consider transport to ED if no change after 20 minutes resuscitation

Emergency IO access if IV not immediately accessible

Advanced airway management
Consider mechanical CPR assist

S4 MEDICAL EMERGENCIES
VF or Pulseless VT - Adult

EMT P

AP

Immediate IO access if IV not immediately accessible

 literature

Defibrillation

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

Amiodarone 300 mg (5 mg/kg) IV/IO
2nd dose (if required)
Amiodarone 150 mg (2.5 mg/kg) IV/IO

NaCl IV/IO 500 mL (use as flush)

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

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

Reference: ILCOR Guidelines 2010
VF or Pulseless VT – Paediatric (≤ 13 years)

**VF or VT arrest**

- Immediate IO access if IV not immediately accessible

**VF/VT**

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

**Rhythm check**

- Defibrillate (4 joules/Kg)

**Epinephrine**

- Initial Epinephrine between 2nd and 4th shock

**VF/VT**

- Refractory VF/VT post Epinephrine
  - Amiodarone, 5 mg/kg, IV/IO
- Drive smoothly
- With CPR ongoing maximum hands off time 10 seconds
- Continue CPR during charging

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

- If no ALS available

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

**Clinical leader to monitor quality of CPR**

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

- Consider use of waveform capnography

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

Reference: ILCOR Guidelines 2010
**Symptomatic Bradycardia – Paediatric (≤ 13 years)**

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

**Positive pressure ventilations (12 to 20/min)**

**Oxygen therapy**

**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

**Consider advanced airway management if prolonged CPR**

**Request ALS**

**FHR < 80 & signs of inadequate perfusion**

**Yes**

**CPR**

**ECG & SpO2 monitoring**

**Reassess**

**Epinephrine (1:10 000) 0.01 mg/kg (10 mcg/kg) IV/IO**

Every 3 – 5 min prn

**Persistent bradycardia**

**Yes**

**Continue CPR**

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

**If no ALS available**

**S4**

SECTION 4 - MEDICAL EMERGENCIES

Asystole – Adult

4.4.10
Version 2, 03/11

From BLS Adult CPG

Asystole

Go to Post Resuscitation CPG

Rhythm check *

Yes

No

Go to PEA CPG

VF/VT CPG

Asystole

Advanced airway management

Consider mechanical CPR assist

If no ALS available

Consider transport to ED if no change after 20 minutes resuscitation

If no ALS available

With CPR ongoing maximum hands off time 10 seconds

Clinical leader to monitor quality of CPR

Drive smoothly

Mechanical CPR device is the optimum care during transport

Reference: ILCOR Guidelines 2010

* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm
SECTION 4 - MEDICAL EMERGENCIES

Pulseless Electrical Activity – Adult

**From BLS Adult CPG**

- Immediate IO access if IV not immediately accessible

- Go to Asystole CPG
- Go to VF/VT CPG
- Go to Post Resuscitation CPG

**Rhythm check**

<table>
<thead>
<tr>
<th>VF/VT</th>
<th>Asystole</th>
<th>ROSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**PEA**

**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 consider**

| Sodium Bicarbonate 8.4% 50 mL IV |

**Clinical leader to monitor quality of CPR**

- Consider use of waveform capnography

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

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

**If no ALS available**

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

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

**Reference: ILCOR Guidelines 2010**
Asystole/PEA – Paediatric (≤ 13 years)

**From BLS Child CPG**

- **Asystole/PEA arrest**
- Immediate IO access if IV not immediately accessible

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

**Rhythm check**

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

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

**Consider fluid challenge**
- NaCl 20 mL/Kg IV/IO

**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**

If no ALS available:
- Consider use of waveform capnography

**Advanced airway management**

**Check blood glucose**

**Go to Post Resuscitation CPG**

**Go to VF/VT CPG**

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

**Drive smoothly**

**Consider causes and treat as appropriate:**

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

Reference: ILCOR Guidelines 2010

* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm
Post-Resuscitation Care – Adult

Return of Spontaneous Circulation

- Maintain patient at rest
- Monitor vital signs
- Check blood glucose
- Maintain care until handover to appropriate Practitioner

Yes

- Conscious
- Adequate ventilation
- Recovery position

- Consider active cooling if unresponsive

No

- Positive pressure ventilations Max 10 per minute

EMT

Equipment list
Cold packs

Titrated O₂ to 94% - 98%

ECG & SpO₂ monitoring

Monitor vital signs

Maintain Oxygen therapy

Request ALS

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

Drive smoothly

Reference: ILCOR Guidelines 2010
Recognition of Death – Resuscitation not Indicated

- **Apparent dead body**
  - Signs of Life: Yes → Go to Primary survey CPG
    - Definitive indicators of Death: Yes → It is inappropriate to commence resuscitation
    - Definitive indicators of Death: No → Go to Primary survey CPG
  - Signs of Life: No → Complete all appropriate documentation

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

- Inform Ambulance Control
- Await arrival of appropriate Practitioner and/or Gardaí
Cardiac Chest Pain – Acute Coronary Syndrome

Cardiac chest pain

Oxygen therapy

Request ALS

Apply 3 lead ECG & SpO2 monitor

Aspirin, 300 mg PO

Monitor vital signs

Yes

GTN, 0.4 mg SL
Repeat to max of 1.2 mg SL prn

No

Chest Pain

Time critical commence transport to definitive care ASAP

EMT

Oxygen therapy

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

4.4.16
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PHECC Clinical Practice Guidelines - Emergency Medical Technician

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**Symptomatic Bradycardia – Adult**

- **Oxygen therapy**
- **ECG & SpO2 monitoring**
- **Atropine, 0.5 mg IV**
  Repeat at 3 to 5 min intervals pm to max 3 mg
- **12 lead ECG**
- **Request ALS**
### Allergic Reaction/Anaphylaxis – Adult

**Mild**
- Urticaria and or angioedema

**Moderate**
- Mild symptoms + simple bronchospasm

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

**EMT**

**Epinephrine (1:1000) 300 mcg**
- Auto injection

**Oxygen therapy**

**Salbutamol 2 puffs (0.2 mg) metered aerosol**

**ECG & SpO2 monitor**

**Request ALS**

**Consider subject to conditions above**

**Epinephrine administered pre arrival? (within 5 minutes)**

**Yes**
- Patient prescribed Epinephrine auto injection
  - Yes: Epinephrine (1:1000) 300 mcg Auto injection
  - No: Reassess

**No**
- Deteriorates
- Reassess
- ECG & SpO2 monitor

**Monitor reaction**

**Reassess**
Glycaemic Emergency – Adult

Abnormal blood glucose level

< 4 mmol/L

Yes

Blood Glucose ≤ 4 mmol/L

No

Allow 5 minutes to elapse following administration of medication

Blood Glucose ≤ 4 mmol/L

Yes

Glucose gel, 10-20 g buccal or Sweetened drink

No

Consider ALS

Repeated x 1 prn Glucose gel 10-20 g buccal

> 20 mmol/L

Consider ALS

11 to 20 mmol/L

A or V on AVPU

Glucagon 1 mg IM
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
      - Go to Glycaemic Emergency CPG
      - Reassess
    - Seizure status
  - Reassess

Post seizure

- Consider ALS
- Alert
- Recovery position
- Airway management
- Check blood glucose
  - Blood glucose < 4 mmol/L
    - Go to Glycaemic Emergency CPG
    - Reassess
  - Go to Glycaemic Emergency CPG

- Transport to ED if requested by Ambulance Control
- Reassess

Consider other causes of seizures:
- Meningitis
- Head injury
- Hypoglycaemia
- Eclampsia
- Fever
- Poisons
- Alcohol/drug withdrawal
SECTION 4 - MEDICAL EMERGENCIES

4.4.22

**Stroke**

<table>
<thead>
<tr>
<th>acute neurological symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete a FAST assessment</td>
</tr>
<tr>
<td>Maintain airway</td>
</tr>
<tr>
<td>Oxygen therapy</td>
</tr>
<tr>
<td>Check blood glucose</td>
</tr>
</tbody>
</table>

**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 positive FAST

**Go to Hypoglycaemia CPG**

Yes:
- BG < 4 or > 20 mmol/L

No:
- ECG & SPO2 monitoring

**Follow local protocol re notifying ED prior to arrival**

Reference: ILCOR Guidelines 2010
SECTION 4 - MEDICAL EMERGENCIES

Poisons – Adult

Poison source

Ingestion

Inhalation

Injection

Absorption

Yes

No

Corrosive

No

Site burns

Yes

Cool area

Poison type

Paraquat

Other

Alcohol

Do not give oxygen

Oxygen therapy

Consider decontamination prior to transportation

Consider oxygen therapy

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

Note:
Inadequate respirations CPG, authorises the administration of Naloxone IM for opiate overdose by Paramedics
**SECTION 4 - MEDICAL EMERGENCIES**

**Hypothermia**

**Query hypothermia**

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

- **Oxygen therapy**
  - Warmed O₂ if possible

- **Remove wet clothing by cutting**

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

- **ECG & SpO₂ monitoring**

**Mild (Responsive)**

- **Give hot sweet drinks**

**Moderate/severe (Unresponsive)**

- **Request ALS**

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

- **Hot packs to armpits & groin**

**Equipment list**

- Survival bag
- Space blanket
- Warm air rebreather

**Transport in head down position**

- Helicopter: head forward
- Boat: head aft

**Reference:**
- Pennington M, et al, 1994, Wilderness EMT, Wilderness EMS Institute
**SECTION 4 - MEDICAL EMERGENCIES**

**Epistaxis**

- **Medical**
  - Advise patient to sit forward
  - Apply digital pressure for 3 to 5 minutes
  - Advise patient to breath through mouth only and not to blow nose
  - Go to Shock CPG

- **Trauma**
  - Primary Survey
  - Primary Survey Medical

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

- **Haemorrhage controlled**
  - Yes
  - Consider ALS
  - No

- **EMT**
  - P
  - AP

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PHECC Clinical Practice Guidelines - Emergency Medical Technician
SECTION 4 - MEDICAL EMERGENCIES

Decompression Illness (DCI)

SCUBA diving within 48 hours

Consider diving buddy as possible patient also

Complete primary survey (Commence CPR if appropriate)

Treat in supine position

Oxygen therapy: 100% O2

SCUBA diving within 48 hours

EMT

AP

Decompression Illness (DCI)

Monitor ECG & SpO2

NaCl (0.9%) 500 mL IV/IO

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

SECTION 4 - MEDICAL EMERGENCIES

Consider Cervical Spine

Altered Level of Consciousness – Adult

V, P or U on AVPU scale

Maintain airway

Yes

Trauma

No

Recovery Position

Consider Cervical Spine

P or U on AVPU scale

Yes

Obtain SAMPLE history from patient, relative or bystander

ECG & SpO2 monitoring

Check temperature

Check pupillary size & response

Check for skin rash

Anaphylaxis

Go to CPG

Submersion incident

Go to CPG

Head Injury

Go to CPG

Hypothermia

Go to CPG

Poison

Go to CPG

Seizures

Go to CPG

Go to CPG

Inadequate respirations

Go to CPG

Shock from blood loss

Go to CPG

Post resuscitation care

Go to CPG

Symptomatic Bradycardia

Go to CPG

Glycaemic emergency

Go to CPG

Go to CPG

Go to CPG

Go to CPG

Go to CPG

Go to CPG

Go to CPG
**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**

- **Patient agrees to travel**
  - **Yes**
    - **Inform patient of potential consequences of treatment refusal**
    - **Offer to treat and or transport patient**
  - **No**
    - **Await arrival of doctor or Gardaí or receive implied consent**

- **Injury or illness potentially serious or likely to cause lasting disability**
  - **Yes**
    - **Inform patient of potential consequences of treatment refusal**
    - **Request control to inform Gardaí or Doctor**
    - **Is patient competent to make informed decision?**
      - **Yes**
        - **Advise alternative care options and to call ambulance again if there is a change of mind**
      - **No**
        - **Await arrival of doctor or Gardaí or receive implied consent**
    - **Document refusal of treatment and or transport to ED**
    - **Aid to Capacity Evaluation**
      1. Patient verbalizes/communicates understanding of clinical situation?
      2. Patient verbalizes/communicates appreciation of applicable risk?
      3. Patient verbalizes/communicates ability to make alternative plan of care?
      If no to any of the above consider Patient Incapacity

Reference: HSE Mental Health Services
Behavior 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.

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

Potential to harm self or others

Yes

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

No

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

Yes

Request control to inform Gardaí

No

Patient agrees to travel

Yes

Request as appropriate

- Gardaí
- Medical Practitioner
- Mental health team

No

Aid to Capacity Evaluation

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

If no to any of the above consider Patient Incapacity

Transport patient to an Approved Centre

Co-operate as appropriate with medical or nursing team

HSE Mental Health Services

Reference; Reference Guide to the Mental Health Act 2001, Mental Health Commission
4.4.31 End of Life – DNR

**End stage terminal illness**

- Patient becomes acutely unwell
  - **Respiratory distress**
    - No
    - Basic airway maintenance
    - Oxygen therapy
  - Yes
    - Recent & reliable written instruction from patient’s doctor stating that the patient is not for resuscitation
      - No
      - Agreement between caregivers present and Practitioners not to resuscitate
        - No
        - It is inappropriate to commence resuscitation
          - Inform Ambulance Control
            - Yes
            - Pulse present
              - Provide supportive care until handover to appropriate Practitioner
            - No
              - Keep next of kin informed, if present
                - Emotional support for relatives should be considered before leaving the scene
              - Complete all appropriate documentation
            - Follow local protocol for care of deceased
      - Yes
        - Go to Primary survey CPG
            - Appropriate Practitioner
              - Registered Medical Practitioner
              - Registered Nurse
              - Registered Advanced Paramedic
              - Registered Paramedic
              - Registered EMT

**The dying patient, along with his/her family, is viewed as a single unit of care**
SECTION 5 - OBSTETRIC EMERGENCIES

Pre-Hospital Emergency Childbirth

Query labour

Take SAMPLE history

Patient in labour

Yes

No

Birth imminent or travel time too long?

Yes

Request ALS

Take SAMPLE history

Patient in labour

No

Yes

Birth imminent or travel time too long?

Yes

Request ALS

No

Take SAMPLE history

Patient in labour

Yes

No

Birth imminent or travel time too long?

Yes

Request ALS

No

Take SAMPLE history

Patient in labour

Yes

No

Birth imminent or travel time too long?

Yes

Request ALS

No

Consider Entonox

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

Position mother

Monitor vital signs and BP

Support baby throughout delivery

Dry baby and check ABCs

Baby stable?

Yes

No

Wrap baby to maintain temperature

Mother stable?

Yes

No

If placenta delivered, retain for inspection

Reassess

Birth Complications

Yes

No

Go to Neonate Resuscitation CPG

Go to Primary Survey CPG

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

Pre-Hospital Emergency Childbirth

EMT

PHECC Clinical Practice Guidelines - Emergency Medical Technician 53
SECTION 5 - OBSTETRIC EMERGENCIES

Basic Life Support – Neonate (< 4 weeks)

From Childbirth CPG

Birth

< 4 weeks old

Term gestation
Amniotic fluid clear
Breathing or crying
Good muscle tone

No

Request ALS

Yes

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

Breathing, HR > 100

Not breathing or HR < 100

Assess respiration, heart rate & colour

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)

HR < 60

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

Contact Ambulance Control for direction on transport

Wrap baby well and give to mother

Observe baby

Pre-Hospital Emergency Care Council

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

Wrap baby well and give to mother

Observe baby

4.5.2
05/08
SECTION 6 - TRAUMA

External Haemorrhage – Adult

Open wound

Yes

Active bleeding

No

Posture Elevation Examination Pressure

Apply sterile dressing

Consider Oxygen therapy

Haemorrhage controlled

Yes

Apply additional dressing(s)

Haemorrhage controlled

No

Depress proximal pressure point

Haemorrhage controlled

Yes

No

Apply tourniquet

Significant blood loss

Yes

Go to Shock CPG

No

No
SHOCK FROM BLOOD LOSS – ADULT

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

**Control external haemorrhage**

**Oxygen therapy**

**ALS**

**SpO2 & ECG monitor**
SECTION 6 - TRAUMA

Spinal Immobilisation – Adult

If in doubt, treat as spinal injury

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

Remove helmet (if worn)

Life Threatening

Apply cervical collar

Yes

Patient in sitting position

Rapid extrication with long board and cervical collar

Prepare extrication device for use

Follow direction of Paramedic, Advanced Paramedic or doctor

Load onto vacuum mattress/long board

Consider Vacuum mattress

Consider Extrication

Do not forcibly restrain a patient that is combatitive

Dangerous mechanism include;

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

Equipment list

Long board
Vacuum mattress
Orthopaedic stretcher
Rigid cervical collar

PHECC Clinical Practice Guidelines - Emergency Medical Technician

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Burns – Adult

Cease contact with heat source

Isolated superficial injury (excluding FHFFP)

Yes

No

Inhalation and/or facial injury

Yes

No

Airway management

Respiratory distress

Yes

No

Go to Inadequate Respirations CPG

Consider humidified Oxygen therapy

Commence local cooling of burn area

Remove burned clothing & jewellery (unless stuck)

Dressing/covering of burn area

Pain > 2/10

Yes

No

Go to Pain CPG

Pain ≤ 2/10

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

Monitor body temperature

Equipment list

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

Caution with the elderly, circumferential & electrical burns

SECTION 6 - TRAUMA

Limb Fractures – Adult

Consider need for pain relief

Expose and examine limb

Dress open fractures

Provide manual stabilisation for fractured limb

Check CSMs distal to fracture site

Apply appropriate splinting device

Recheck CSMs

Go to Pain CPG

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

Limb fracture

Dress open fractures

Consider Paramedic

Go to Pain CPG

Limb fracture

Expose and examine limb

Consider need for pain relief

EMT

PHECC Clinical Practice Guidelines - Emergency Medical Technician

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**Head Injury – Adult**

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

**Maintain Airway**
- Oxygen therapy

**Control external haemorrhage**
- P or U on AVPU
- Yes
- No
- Request ALS
- Consider Paramedic

**Maintain in-line immobilisation**
- Apply cervical collar
- Secure to long board
- SpO2 & ECG monitoring

**Check blood glucose**
- Seizures
  - Yes
  - No
  - Go to Seizures CPG
- Consider Vacuum mattress

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

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)

Oxygen therapy

SpO2 & ECG monitoring

Indications of respiratory distress

Yes

No

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

If bronchospasm consider Salbutamol

≥ 5 years 5 mg NEB

≤ 5 years 2.5 mg NEB

Check blood glucose

Transport to ED for investigation of secondary drowning insult

Reference:
SECTION 7 - PAEDIATRIC EMERGENCIES

Primary Survey Medical – Paediatric (≤ 13 Years)

1. Take standard infection control precautions
2. Consider pre-arrival information
3. Scene safety
4. Scene survey
5. Scene situation

Paediatric Assessment Triangle

A. Airway patent & protected
   - Head tilt/ chin lift
   - Yes
   - No

B. Adequate ventilation
   - Yes
   - No

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

Life threatening
Clinical status decision
Non serious or life threat
Go to Secondary Survey CPG
Serious not life threat

S7

Normal rates

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse</th>
<th>Respirations</th>
</tr>
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<tbody>
<tr>
<td>Infant</td>
<td>100 – 160</td>
<td>30 – 60</td>
</tr>
<tr>
<td>Toddler</td>
<td>90 – 150</td>
<td>24 – 40</td>
</tr>
<tr>
<td>Pre school</td>
<td>80 – 140</td>
<td>22 – 34</td>
</tr>
<tr>
<td>School age</td>
<td>70 – 120</td>
<td>18 – 30</td>
</tr>
</tbody>
</table>

Ref: Pediatric Education for Prehospital Professionals


PHECC Clinical Practice Guidelines - Emergency Medical Technician
SECTION 7 - PAEDIATRIC EMERGENCIES

Primary Survey Trauma – Paediatric (≤ 13 years)

Take standard infection control precautions

Consider pre-arrival information

Scene safety
Scene survey
Scene situation

Paediatric Assessment Triangle

Control catastrophic external haemorrhage

Mechanism of injury suggestive of spinal injury

Yes

C-spine control

No

Suction, CSPA

Jaw thrust (Head lift/ chin lift)

A

Airway patent & protected

Yes

B

Adequate ventilation

Yes

C

Pulse ≤ 60 & signs of poor perfusion

No

AVPU assessment

Expose & check obvious injuries

Treat life threatening injuries only

Life threatening

Clinical status decision

Non serious or life threat

Go to secondary Survey CPG

Serious not life threat

Go to appropriate CPG

Go to secondary Survey CPG

Inadequate Respirations – Paediatric (≤ 13 years)

- Assess and maintain airway
- Do not distress
- Permit child to adopt position of comfort
- Consider FBAO
- Oxygen therapy
- Unresponsive patient with a falling respiratory rate

- Positive pressure ventilations
  - 12 to 20 per minute

- Audible wheeze
- No

- ALS

- Salbutamol, 2 puffs, (0.2 mg) metered aerosol

- ECG & SpO2 monitoring

Stridor – Paediatric (≤ 13 years)

Assess & maintain airway

Humidified O₂ – as high a concentration as tolerated

Do not distress

Transport in position of comfort

ECG & SpO₂ monitoring

Consider FBAO

Croup or epiglottitis suspected

Yes

Do not insert anything into the mouth

No

Do not distress

Transport in position of comfort

Humidified O₂ – as high a concentration as tolerated

Oxygen therapy

ECG & SpO₂ monitoring
SECTION 7 - PAEDIATRIC EMERGENCIES

Allergic Reaction/Anaphylaxis – Paediatric (≤ 13 years)

**Mild**
- Urticaria and/or angioedema

**Moderate**
- Mild symptoms + simple bronchospasm

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

### Allergic Reaction/Anaphylaxis - Paediatric (≤ 13 years)

- **Mild**
  - Monitor reaction
  - Salbutamol 2 puffs (0.2 mg) metered aerosol
  - Oxygen therapy

- **Moderate**
  - Salbutamol 2 puffs (0.2 mg) metered aerosol
  - Monitor reaction
  - ECG & SpO2 monitor

- **Severe**
  - Epinephrine administered pre-arrival? (within 5 minutes)
  - Patient prescribed Epinephrine auto injection

- **Yes**
  - ECG & SpO2 monitor
  - Request ALS

- **No**
  - Epinephrine (1:1000)
  - 6 mts to < 10 yrs use junior auto injector
  - ≥ 10 yrs use auto injector

- **Consider subject to conditions above**

**Reassess**

**version 2, 03/11**
**Glycaemic Emergency – Paediatric (≤ 13 years)**

**Abnormal blood glucose level**

- **Blood Glucose**
  - < 4 mmol/L
  - > 10 mmol/L

- **Patient alert**
  - Yes
  - No

- **Consider**
  - Glucose gel, 5-10 g buccal
  - Sweetened drink

- **Glucagon**
  - > 8 years: 1 mg IM
  - ≤ 8 years: 0.5 mg IM

- **EMT**
  - Abnormal blood glucose level
  - A or V on AVPU

- **Reassess**
  - Yes
  - No

- **Patient alert**
  - Yes
  - No

- **Release**
  - ALS

**SECTION 7 - PAEDIATRIC EMERGENCIES**
Seizure/Convulsion – Paediatric (≤ 13 years)

Seizure / convulsion

- Protect from harm
- Oxygen therapy

Seizure status

- Seizing currently
- Seizure status

Post seizure

- Request ALS
- Support head
- Check blood glucose

Blood glucose ≤ 4 mmol/L

- Yes
- Go to Glycaemic Emergency CPG
- Still seizing

- No
- Reassess

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

EMT

Blood glucose < 4 mmol/L

- Yes
- Go to Glycaemic Emergency CPG

Recovery position

Alert

- Yes
- Consider ALS
- Paracetamol, 20 mg/kg, PO

Consider other causes of seizures

Transport to ED if requested by Ambulance Control

If pyrexial – cool child

- Yes
- Go to Glycaemic Emergency CPG

Blood glucose < 4 mmol/L

- Yes
- Paracetamol, 20 mg/kg, PO

- No
- Reassess

Still seizing

- Yes
- Transport to ED if requested by Ambulance Control

- No
- Reassess

Meningitis
- Head injury
- Hypoglycaemia
- Eclampsia
- Fever
- Poisons
- Alcohol / drug withdrawal

4.7.10 Version 2, 07/11
SECTION 7 - PAEDIATRIC EMERGENCIES

External Haemorrhage – Paediatric (≤ 13 years)

Open wound
  Yes
  Active bleeding
    No
    Posture Elevation Examination Pressure
    Yes
    Apply sterile dressing
    Yes
    Oxygen therapy
    Haemorrhage controlled
      No
      Apply additional dressing(s)
        Yes
        Haemorrhage controlled
          No
          Depress proximal pressure point
            Yes
            Haemorrhage controlled
              No
              Apply tourniquet
                Yes
                Go to Shock CPG
                  No
                  Significant blood loss
                    Yes
                    Go to Shock CPG
                      No
                      Go to Shock CPG
Shock from Blood Loss – Paediatric (≤ 13 years)

- Oxygen therapy
- Control external haemorrhage
- SpO2 & ECG monitor

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

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Pre-Hospital Emergency Care Council

SECTION 7 - PAEDIATRIC EMERGENCIES

PHECC Clinical Practice Guidelines - Emergency Medical Technician
SECTION 7 - PAEDIATRIC EMERGENCIES

Pain Management - Paediatric (≤ 13 years)

Pain assessment

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

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

Wong – Baker Faces for 3 years and older

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

Severe pain (≥ 6 on pain scale)

- Paracetamol 20 mg/Kg PO
- Morphine 0.05 mg/Kg IV
- Max 10 mg

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

Nitrous Oxide & Oxygen, inh

Ibuprofen 10 mg/Kg PO

The general principle in pain management is to start at the bottom rung of the pain ladder, and then to climb the ladder if pain is still present.

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

Reference: World Health Organization, Pain Ladder

Administer pain medication based on pain assessment and pain ladder recommendations.

Reassess and move up the pain ladder if appropriate.

Minor pain (2 to 3 on pain scale)

Moderate pain (3 to 5 on pain scale)

Mild pain (≤ 2 on pain scale)

Consider other non-pharmacological interventions.


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**Spinal Immobilisation – Paediatric (≤ 13 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**

- **Remove helmet (if worn)**

**Life Threatening**

- Yes
  - Do not forcibly restrain a paediatric patient that is combative

- No
  - Apply cervical collar

**Patient in sitting position**

- Yes
  - Immobilise in the child seat

- No
  - Prepare extrication device for use

  - Follow direction of Paramedic, Advanced Paramedic or doctor

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

**Consider Vacuum mattress**

**Patient in undamaged child seat**

- Yes
  - Prepare extrication device for use
  - Follow direction of Paramedic, Advanced Paramedic or doctor
  - Load onto vacuum mattress/ long board/ paediatric board
  - Consider Vacuum mattress

- No
  - Return head to neutral position unless on movement there is increase in Pain, Resistance or Neurological symptoms
  - If in doubt, treat as spinal injury

**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
- Assist load to head

**References:**

- Slack, S. & Clancy, M, 2004, Clearing the cervical spine of paediatric trauma patients, EMJ 21, 189-193
SECTION 7 - PAEDIATRIC EMERGENCIES

Burns – Paediatric (≤ 13 years)

Burn or Scald

Cease contact with heat source

Inhalation and/or facial injury

Yes

Airway management

No

Respiratory distress

Yes

Go to Inadequate Respiration CPG

No

Consider humidified Oxygen therapy

Brush off powder & irrigate chemical burns

Follow local expert direction

Commence local cooling of burn area

Consider local cooling of burn area

Remove burned clothing & jewellery (unless stuck)

Dressing/covering of burn area

Go to Pain CPG

Yes

Pain > 2/10

No

Isolated superficial injury (excluding PhPP)

Yes

No

TBBSA burn > 5%

Yes

No

Request ALS

ECG & SpO2 monitoring

> 10% TBSA and time from injury to ED > 1 hour

Yes

No

NaCl (0.9%), IV/IO

> 10 years = 500 mL

5 ≤ 10 years = 250 mL

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

Monitor body temperature

Remove burned clothing & jewellery (unless stuck)

Equipment list

Acceptable dressings: Burns gel (caution for > 10% TBSA) Cling film sterile dressing Clean sheet

Caution with the very young, circumferential & electrical burns

F: face

H: hands

P: feet

P: flexion points

P: perineum


Pre-Hospital Emergency Care Council

PHECC Clinical Practice Guidelines - Emergency Medical Technician

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Post-Resuscitation Care – Paediatric

Return of Spontaneous Circulation

- Maintain at rest
- Return of Spontaneous Circulation
- Conscious
  - Yes
  - No
- Adequate ventilation
  - Yes
  - No
- Positive pressure ventilations
  - Max 12 to 20 per minute

Consider active cooling if unresponsive

- Maintain patient at rest
- ECG & SpO2 monitoring
- Monitor vital signs
- Check blood glucose
- Maintain care until handover to appropriate Practitioner
- Transport smoothly

Reference: ILCOR Guidelines 2010
Major Emergency (Major Incident) – First Practitioners on site

Take standard infection control precautions

Consider pre-arrival information

PPE (high visibility jacket and helmet) must be worn

Practitioner 1

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

Practitioner 2 (Ideally MIMMS trained)

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

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

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

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

The principles and terminology of Major Incident Medical management and Support (MIMMS) has been used with the kind permission of the Advanced Life Support Group, UK
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 Outer Cordon (Silver area) is controlled by 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)

Management structure for; Major Emergency site
- Casualty Clearing Officer
- Triage Officer
- Ambulance Parking Point Officer
- Ambulance Loading Point Officer
- Communications Officer
- Safety Officer


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

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.
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 SI 512 of 2008 schedule 7. This is a summary document only and Practitioners are advised to consult with official publications to obtain detailed information about the medications used.

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

The medications herein may be administered provided:

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

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

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

All medication doses for patients (≤ 13 years) shall be calculated on a weight basis unless an age related dose is specified for that medication.

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

Paediatric weight calculations acceptable to PHECC are;

- \((\text{age} \times 3) + 7 \text{ Kg}\)
- Length based resuscitation tape (Broselow® or approved equivalent)

Reviewed on behalf of PHECC by Prof Peter Weedle, Adjunct Professor of Clinical Pharmacy, School of Pharmacy, University College Cork.

This version contains 9 medications for EMT level.

Please visit www.phecc.ie for the latest edition/version.
**AMENDMENTS TO THE 3RD EDITION VERSION 2 INCLUDE:**

### ASPIRIN

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<thead>
<tr>
<th>Heading</th>
<th>Add</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional information</td>
<td>If the patient has swallowed an aspirin (enteric coated) preparation without chewing it, the patient should be regarded as not having taken any aspirin; administer 300 mg PO.</td>
<td></td>
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### OXYGEN

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<thead>
<tr>
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<tbody>
<tr>
<td>Indications</td>
<td>SpO₂ &lt; 94% adults &amp; SpO₂ &lt; 96% paediatrics</td>
<td>SpO₂ &lt; 97%</td>
</tr>
<tr>
<td>Usual dosages</td>
<td><strong>Adult:</strong> Life threats identified during primary survey; 100% until a reliable SpO₂ measurement obtained then titrate O₂ to achieve SpO₂ of 94% - 98%. All other acute medical and trauma titrate O₂ to achieve SpO₂ 94% - 98%. &lt;br&gt;<strong>Paediatric:</strong> Life threats identified during primary survey; 100% until a reliable SpO₂ measurement obtained then titrate O₂ to achieve SpO₂ of 96% - 98%. All other acute medical and trauma titrate O₂ to achieve SpO₂ of 96% - 98%.</td>
<td></td>
</tr>
<tr>
<td>Additional information</td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

**APPENDIX 1 - MEDICATION FORMULARY**

Pre-Hospital Emergency Care Council

PHECC Clinical Practice Guidelines - Emergency Medical Technician
### Paracetamol

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<th>Add</th>
<th>Delete</th>
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</thead>
<tbody>
<tr>
<td>Indications</td>
<td>Minor or moderate pain (2 – 6 on pain scale) for adult and paediatric patients</td>
<td>moderate pain (2 – 6 on pain scale)</td>
</tr>
<tr>
<td>Contra indications</td>
<td>Chronic liver disease</td>
<td>Paracetamol given in previous 4 hours</td>
</tr>
<tr>
<td>Additional information</td>
<td>If Paracetamol administered in previous 4 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 20 mg/Kg</td>
<td></td>
</tr>
</tbody>
</table>

### Salbutamol

<table>
<thead>
<tr>
<th>Heading</th>
<th>Add</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional information</td>
<td>If an oxygen driven nebulizer is used to administer Salbutamol for a patient with acute exacerbation of COPD it should be limited to 6 minutes maximum</td>
<td></td>
</tr>
</tbody>
</table>
Index of medication formulary (Adult ≥ 14 and Paediatric ≤ 13 unless otherwise stated)

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**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>DRUG NAME</th>
<th>ASPIRIN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Platelet aggregator 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 soluble tablet.</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Orally (PO) – dispersed in water – if soluble or to be chewed, if not soluble. (CPG: 5/6.4.16, 4.4.16, 1/2/3.4.16).</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Cardiac chest pain or suspected Myocardial Infarction.</td>
</tr>
<tr>
<td><strong>Contra-Indications</strong></td>
<td>Active symptomatic gastrointestinal (GI) ulcer. Bleeding disorder (e.g. haemophilia). Known severe adverse reaction. Patients &lt;16 years old.</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> 300 mg tablet. <strong>Paediatric:</strong> Not indicated.</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Antithrombotic. Inhibits the formation of thromboxane A₂, which stimulates platelet aggregation and artery constriction. This reduces clot/thrombus formation in an MI.</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Epigastric pain and discomfort. Bronchospasm. Gastrointestinal haemorrhage.</td>
</tr>
<tr>
<td><strong>Long-term side effects</strong></td>
<td>Generally mild and infrequent but high incidence of gastrointestinal irritation with slight asymptomatic blood loss, increased bleeding time, bronchospasm and skin reaction in hypersensitive patients.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Aspirin 300 mg is indicated for cardiac chest pain regardless if patient has taken anti coagulants or is already on aspirin. One 300 mg tablet in 24 hours. If the patient has swallowed an aspirin (enteric coated) preparation without chewing it, the patient should be regarded as not having taken any aspirin; administer 300 mg PO.</td>
</tr>
</tbody>
</table>
**APPENDIX 1 - MEDICATION FORMULARY**

**CLINICAL LEVEL:**  
[EMT] [P] [AP]

<table>
<thead>
<tr>
<th>DRUG NAME</th>
<th>EPINEPHRINE (1:1 000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Sympathetic agonist.</td>
</tr>
<tr>
<td>Descriptions</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: 5/6.4.18, 5/6.7.8, 4.4.18, 4.7.8).</td>
</tr>
<tr>
<td>Indications</td>
<td>Severe anaphylaxis.</td>
</tr>
<tr>
<td>Contra-Indications</td>
<td>None known.</td>
</tr>
<tr>
<td>Usual Dosages: Adult:</td>
<td>0.5 mg (500 mcg) IM (0.5 mL of 1: 1 000). EMT use auto injector (0.3 mg). Repeat every 5 minutes if indicated.</td>
</tr>
<tr>
<td>Paediatric:</td>
<td>0.05 mg (50 mcg) IM (0.05 mL of 1:1 000)</td>
</tr>
<tr>
<td>6 months to 5 years:</td>
<td>0.125 mg (125 mcg) IM (0.13 mL of 1:1 000)</td>
</tr>
<tr>
<td>6 to 8 years:</td>
<td>0.25 mg (250 mcg) IM (0.25 mL of 1:1 000)</td>
</tr>
<tr>
<td>&gt;8 years:</td>
<td>0.5 mg (500 mcg) IM (0.5 mL of 1:1 000)</td>
</tr>
<tr>
<td>EMT: for 6 months &lt;10 years use EpiPen® Jr (0.15 mg). for ≥ 10 years use auto injector (0.3 mg). Repeat every 5 minutes if indicated.</td>
<td></td>
</tr>
<tr>
<td>Additional information</td>
<td>N.B. Double check the concentration on pack before use.</td>
</tr>
</tbody>
</table>
### CLINICAL LEVEL:

<table>
<thead>
<tr>
<th>DRUG NAME</th>
<th>GLUCAGON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Hormone and antihypoglycaemic.</td>
</tr>
<tr>
<td>Descriptions</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>Presentation</td>
<td>1 mg vial powder and solution for reconstitution (1 mL).</td>
</tr>
<tr>
<td>Administration</td>
<td>Intramuscular (IM). (CPG: 5/6.4.19, 5/6.7.9, 4.4.19, 4.7.9).</td>
</tr>
<tr>
<td>Indications</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>Contra-Indications</td>
<td>Known severe adverse reaction. Phaeochromocytoma.</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td><strong>Adult:</strong> 1 mg IM. <strong>Paediatric:</strong> ≤ 8 years 0.5 mg (500 mcg) IM. &gt;8 years 1 mg IM.</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Glycogenolysis. Increases plasma glucose by mobilising glycogen stored in the liver.</td>
</tr>
<tr>
<td>Side effects</td>
<td>Rare, may cause hypotension, dizziness, headache, nausea and vomiting.</td>
</tr>
<tr>
<td>Additional information</td>
<td>May be ineffective in patients with low stored glycogen e.g. prior use in previous 24 hours, alcoholic patients with liver disease. Protect from light.</td>
</tr>
<tr>
<td>DRUG NAME</td>
<td>GLUCOSE GEL</td>
</tr>
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<td>-----------</td>
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</tr>
<tr>
<td><strong>Class</strong></td>
<td>Antihypoglycaemic.</td>
</tr>
<tr>
<td><strong>Descriptions</strong></td>
<td>Synthetic glucose paste.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Glucose gel in a tube or sachet.</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Buccal administration: Administer gel to the inside of the patient’s cheek and gently massage the outside of the cheek. (CPG: 5/6.4.19, 5/6.7.9, 4.4.19, 4.7.9, 2/3.4.19).</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Hypoglycaemia. Blood Glucose &lt; 4 mmol/L. EFR: Known diabetic with confusion or altered levels of consciousness.</td>
</tr>
<tr>
<td><strong>Contra-Indications</strong></td>
<td>Known severe adverse reaction.</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> 10 – 20 g buccal. Repeat prn. <strong>Paediatric:</strong> ≤ 8 years; 5 – 10 g buccal, &gt;8 years; 10 – 20 g buccal. Repeat prn.</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Increases blood glucose levels.</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>May cause vomiting in patients under the age of five if administered too quickly.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Glucose gel will maintain glucose levels once raised but should be used secondary to Dextrose or Glucagon to reverse hypoglycaemia. Proceed with caution: - patients with airway compromise. - altered level of consciousness.</td>
</tr>
</tbody>
</table>
### Glyceryl Trinitrate (GTN)

**Class:** Nitrate.

**Descriptions:** Special preparation of Glyceryl trinitrate in an aerosol form that delivers precisely 0.4 mg of Glyceryl trinitrate per spray.

**Presentation:** Aerosol spray: metered dose 0.4 mg (400 mcg).

**Administration:** Sublingual (SL): Hold the pump spray vertically with the valve head uppermost. Place as close to the mouth as possible and spray under the tongue. The mouth should be closed after each dose. (CPG: 5/6.3.2, 5/6.4.16, 4.4.16, 1/2/3.4.16).

**Indications:**
- Angina.
- Suspected Myocardial Infarction (MI).
- EFR: may assist with administration.
- Advanced Paramedic and Paramedic: Pulmonary oedema.

**Contraindications:**
- SBP < 90 mmHg.
- Viagra or other phosphodiesterase type 5 inhibitors (Sildenafil, Tadalafil and Vardenafil) used within previous 24 hr.
- Known severe adverse reaction.

**Usual Dosages:**

- **Adult:** Angina or MI; 0.4 mg (400 mcg) Sublingual. Repeat at 3-5 min intervals, Max: 1.2 mg. EFR: 0.4 mg sublingual max. Pulmonary oedema; 0.8 mg (800 mcg) sublingual. Repeat x 1. **Paediatric:** Not indicated.

**Pharmacology/Action:**
- Vasodilator.
- Releases nitric oxide which acts as a vasodilator. Dilates coronary arteries particularly if in spasm increasing blood flow to myocardium. Dilates systemic veins reducing venous return to the heart (pre load) and thus reduces the heart workload. Reduces BP.

**Side effects:** Headache, Transient Hypotension, Flushing, Dizziness.

**Additional information:** If the pump is new or it has not been used for a week or more the first spray should be released into the air.
**CLINICAL LEVEL:**

**DRUG NAME**: NITROUS OXIDE 50% AND OXYGEN 50% (ENTONOX®)

<table>
<thead>
<tr>
<th>Class</th>
<th>Analgesic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptions</td>
<td>Potent analgesic gas contains a mixture of both nitrous oxide and oxygen.</td>
</tr>
<tr>
<td>Presentation</td>
<td>Cylinder, coloured blue with white and blue triangles on cylinder shoulders. Medical gas: 50% Nitrous Oxide &amp; 50% Oxygen.</td>
</tr>
<tr>
<td>Administration</td>
<td>Self administered. Inhalation by demand valve with face-mask or mouthpiece. (CPG: 4/5/6.2.6, 4/5/6.7.14, 5/6.5.1, 5/6.56, 4.5.1).</td>
</tr>
<tr>
<td>Indications</td>
<td>Pain relief.</td>
</tr>
<tr>
<td>Contra-Indications</td>
<td>Altered level of consciousness.</td>
</tr>
<tr>
<td></td>
<td>Chest Injury/pneumothorax.</td>
</tr>
<tr>
<td></td>
<td>Shock.</td>
</tr>
<tr>
<td></td>
<td>Recent scuba dive.</td>
</tr>
<tr>
<td></td>
<td>Decompression sickness.</td>
</tr>
<tr>
<td></td>
<td>Intestinal obstruction.</td>
</tr>
<tr>
<td></td>
<td>Inhalation Injury.</td>
</tr>
<tr>
<td></td>
<td>Carbon monoxide (CO) poisoning.</td>
</tr>
<tr>
<td></td>
<td>Known severe adverse reaction.</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adult: Self-administered until pain relieved.</td>
</tr>
<tr>
<td></td>
<td>Paediatric: Self-administered until pain relieved.</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Analgesic agent gas:</td>
</tr>
<tr>
<td></td>
<td>- CNS depressant.</td>
</tr>
<tr>
<td></td>
<td>- pain relief.</td>
</tr>
<tr>
<td>Side effects</td>
<td>Disinhibition.</td>
</tr>
<tr>
<td></td>
<td>Decreased level of consciousness.</td>
</tr>
<tr>
<td></td>
<td>Light headedness.</td>
</tr>
<tr>
<td>Additional information</td>
<td>Do not use if patient unable to understand instructions.</td>
</tr>
<tr>
<td></td>
<td>In cold temperatures warm cylinder and invert to ensure mix of gases.</td>
</tr>
<tr>
<td></td>
<td>Advanced Paramedics may use discretion with minor chest injuries.</td>
</tr>
<tr>
<td></td>
<td>Brand name: Entonox®.</td>
</tr>
<tr>
<td></td>
<td>Has an addictive property.</td>
</tr>
</tbody>
</table>

*PHECC Clinical Practice Guidelines - Emergency Medical Technician*
# 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>Descriptions</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>
</tbody>
</table>
| Administration | Inhalation via:  
- high concentration reservoir (non-rebreather) mask  
- simple face mask  
- venturi mask  
- tracheostomy mask  
- nasal cannulae  
- Bag Valve Mask  
(CPG: Oxygen is used extensively throughout the CPGs) |
| Indications | Absent/inadequate ventilation following an acute medical or traumatic event.  
SpO₂ < 94% adults and < 96% paediatrics.  
SpO₂ < 92% for patients with acute exacerbation of COPD. |
| Contra-Indications | Paraquat poisoning & Bleomycin lung injury. |
| Usual Dosages | **Adult:**  
Cardiac and respiratory arrest: 100%.  
Life threats identified during primary survey: 100% until a reliable SpO₂ measurement obtained then titrate O₂ to achieve SpO₂ of 94% - 98%.  
For patients with acute exacerbation of COPD, administer O₂ titrate to achieve SpO₂ 92% or as specified on COPD Oxygen Alert Card.  
All other acute medical and trauma titrate O₂ to achieve SpO₂ of 94% -98%.  
**Paediatric:**  
Cardiac and respiratory arrest: 100%.  
Life threats identified during primary survey: 100% until a reliable SpO₂ measurement obtained then titrate O₂ to achieve SpO₂ of 96% - 98%.  
All other acute medical and trauma titrate O₂ to achieve SpO₂ of 96% - 98%. |
| Pharmacology/Action | Oxygenation of tissue/organs. |
| Side effects | Prolonged use of O₂ with chronic COPD patients may lead to reduction in ventilation stimulus. |
| Additional information | A written record must be made of what oxygen therapy is given to every patient. Documentation recording oximetry measurements should state whether the patient is breathing air or a specified dose of supplemental oxygen. Consider humidifier if oxygen therapy for paediatric patients is >30 minute duration. Avoid naked flames, powerful oxidising agent. |
### CLINICAL LEVEL:

#### PARACETAMOL

**Class**
Analgesic and antipyretic.

**Descriptions**
Paracetamol is used to reduce pain and body temperature.

**Presentation**
- Rectal suppository 180 mg and 60 mg.
- Suspension 120 mg in 5 mL.
- 500 mg tablet.

**Administration**
- Per Rectum (PR).
- Orally (PO).
  (CPG: 4/5/6.2.6, 5/6.7.10, 4/5/6.7.14, 4.7.10).

**Indications**
- Pyrexia following seizure for paediatric patients. 
  **Advanced Paramedics** may administer Paracetamol, in the absence of a seizure for the current episode, provided the paediatric patient is pyrexial and has a previous history of febrile convulsions.
- Minor or moderate pain (2 - 6 on pain scale) for adult and paediatric patients.

**Contra-Indications**
- Known severe adverse reaction.
- Chronic liver disease

**Usual Dosages**
- **Adult:** 1 g PO.
- **Paediatric:**
  - PR
    - < 1 year - 60 mg PR.
    - 1-3 years - 180 mg PR.
    - 4-8 years - 360 mg PR.
  - PO
    - 20 mg/kg PO.

**Pharmacology/Action**
- Analgesic – central prostaglandin inhibitor.
- Antipyretic – prevents the hypothalamus from synthesising prostaglandin E, inhibiting the body temperature from rising further.

**Side effects**
**Long term side effects**
- None
- Long term use at high dosage or over dosage can cause liver damage and less frequently renal damage.

**Additional information**
- Note: Paracetamol is contained in Paracetamol Suspension and other over the counter drugs.
- Consult with parent/guardian in relation to medication prior to arrival on scene. For PR use be aware of modesty of patient, should be administered in presence of a 2nd person.
- If Paracetamol administered in previous 4 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 20 mg/kg.
## CLINICAL LEVEL:

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

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

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

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR – C</th>
<th>CFR – A</th>
<th>OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEDICATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Aspirin PO</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Oxygen</td>
<td>✔</td>
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<tr>
<td>Glucose Gel Buccal</td>
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<tr>
<td>GTN SL</td>
<td>✔</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
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</tr>
<tr>
<td>Salbutamol Aerosol</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Epinephrine (1:1,000) auto injector</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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</tr>
<tr>
<td>Glucagon IM</td>
<td>✔</td>
<td>✔</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Nitrous oxide &amp; Oxygen (Entonox®)</td>
<td></td>
<td>✔</td>
<td>✔</td>
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<td>✔</td>
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<tr>
<td>Paracetamol PO</td>
<td>✔</td>
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<tr>
<td>Morphine IM</td>
<td>URMPIO</td>
<td>URMPIO</td>
<td></td>
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</tr>
<tr>
<td>Epinephrine (1:1,000) IM</td>
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<td>✔</td>
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<td>CLINICAL LEVEL</td>
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<td>CFR – A</td>
<td>OFA</td>
<td>EFR</td>
<td>EMT</td>
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</tr>
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# APPENDIX 2 - MEDICATION & SKILLS MATRIX

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CRITICAL INCIDENT STRESS AWARENESS

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

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

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

Examples of psychological symptoms:
- Feeling overwhelmed
- Loss of motivation
- Dreading going to work
- Becoming withdrawn
- Racing thoughts
- Confusion
- Not looking after yourself properly
- Difficulty making decisions
- Poor concentration
- Poor memory
- Anger
- Anxiety
- Depression
POST-TRAUMATIC STRESS REACTIONS

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

**Anger** at the injustice and senselessness of it all.

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

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

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

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

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

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

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

**Experiencing signs of excessive stress**
If the range of physical, emotional and behavioural signs and symptoms already mentioned do not reduce over time (for example, after two weeks), it is important that you get support and help.
WHERE TO FIND HELP?

• Your own CPG approved organisation will have a support network or system. We recommend that you contact them for help and advice.

• Speak to your GP.

• See a private counsellor who has specialised in traumatic stress. (You can get names and contact numbers for these counsellors from your local co-ordinator or from the www.cism.ie).

• For a self-help guide, please go to the website: www.cism.ie

• The National Ambulance Service CISM committee has recently published a booklet called ‘Critical Incident Stress Management for Emergency Personnel’ and you can buy it by emailing info@cismnetworkireland.ie.

We would like to thank the National Ambulance Service CISM Committee for their help in preparing this section.
i) A policy decision has been made in relation to Oxygen Therapy, which is a generic term used on the CPGs to describe the administration of oxygen. Oxygen is a medication that is recommended on the majority of CPGs and should always be considered. Research has demonstrated that 100% oxygen delivered to all patients may be harmful therefore oxygen should be titrated to the desired effect. For all life threatening conditions the initial response should be the administration of 100% O₂. For other conditions and patients who have been stabilised oxygen should be titrated to an SpO₂ of between 94% & 98% for adults and 96% & 98% for paediatric patients. For patients with acute exacerbation of COPD, administer O₂ titrated to SpO₂ 92% or as specified on the COPD Oxygen Alert Card.

ii) A policy decision has been made in relation to pre-hospital IV fluids as best practice is to have only one fluid type available to avoid confusion. Replace Hartmann’s solution with Sodium Chloride 0.9% (NaCl) on all CPGs. Hartmann’s solution to still be considered a suitable option if NaCl not available.

<table>
<thead>
<tr>
<th>CPGS</th>
<th>THE PRINCIPAL DIFFERENCES ARE</th>
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<tbody>
<tr>
<td>CPG 4/5/6.4.9 Symptomatic Bradycardia – Paediatric</td>
<td>• NaCl (0.9%) has replaced Hartmann’s solution.</td>
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<tr>
<td>CPG 4/5/6.4.26 Decompression Illness (DCI)</td>
<td>• NaCl (0.9%) has replaced Hartmann’s solution.</td>
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</table>
| CPG 4/5/6.6.4 Burns – Adult | • NaCl (0.9%) has replaced Hartmann’s solution.  
• The layout has been modified to simplify the CPG.  
• The restriction on burns gel has been reduced to a caution if > 10% TBSA is burnt.  
• ‘Minimum 15 minutes cooling of area is recommended’ has been replaced with ‘should cool for another 10 minutes during packaging and transfer’ |
iii) Operational practice has identified the need to update the following CPGs.

<table>
<thead>
<tr>
<th>CPGS</th>
<th>THE PRINCIPAL DIFFERENCES ARE</th>
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</table>
| CPG 4/5/6.7.16 Burns – Paediatric | • NaCl (0.9%) has replaced Hartmann’s solution.  
• The layout has been modified to simplify the CPG.  
• The restriction on burns gel has been reduced to a caution if > 10% TBSA is burnt.  
• ‘Minimum 15 minutes cooling of area is recommended’ has been replaced with ‘should cool for another 10 minutes during packaging and transfer’ |
| CPG 4.2.4 Secondary Survey Medical – Adult | • The Modified Early Warning Score (MEWS) has been removed from the CPG |
| CPG 4/5/6.2.6 Pain Management – Adult | • This CPG has been redesigned to reflect pain management as a stepped approach and not as a linear approach.  
• The PHECC Pain Ladder has been developed to reflect the World Health Organisation (WHO) approach to pain. The PHECC Pain Ladder has three steps; minor pain, moderate pain and severe pain. |
<p>| CPG 4.3.2 Inadequate Respiration – Adult | • ‘Prescribed Salbutamol previously’ is no longer a criterion for the administration of Salbutamol for EMTs. |
| CPG 4.4.16 Cardiac Chest Pain – Acute Coronary Syndrome | • For ACS patients’ oxygen therapy should be titrated to between 94% and 98%. |</p>
<table>
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<tr>
<th>CPGS</th>
<th>THE PRINCIPAL DIFFERENCES ARE</th>
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| CPG 4.4.18 Allergic Reaction/Anaphylaxis – Adult                    | • The route into the CPG has been changed from ‘Anaphylaxis’ to ‘Allergic reaction’  
• ‘Prescribed Salbutamol previously’ is no longer a criterion for the administration of Salbutamol for EMTs.                                                                                           |
| CPG 4.4.20 Seizure/Convulsion – Adult                               | • ‘Alcohol/drug withdrawal’ has been added as possible causes of seizure.                                                                                                                                                        |
| CPG 4.4.22 Stroke                                                   | • Maintain Oxygen therapy between an SpO₂ of 94% and 98%, unless COPD, maintain it at the lower range.                                                                                                                          |
| CPG 4.7.5 Inadequate Respiration – Paediatric                      | • ‘Prescribed Salbutamol previously’ is no longer a criterion for the administration of Salbutamol for EMTs.                                                                                                                        |
| CPG 4.7.8 Allergic Reaction/Anaphylaxis – Paediatric               | • The route into the CPG has been changed from ‘Anaphylaxis’ to ‘Allergic reaction’  
• ‘Prescribed Salbutamol previously’ is no longer a criterion for the administration of Salbutamol for EMTs.                                                                                           |
| CPG 4.7.10 Seizure/Convulsion – Paediatric                          | • ‘Alcohol/drug withdrawal’ has been added as possible causes of seizure.                                                                                                                                                        |
| CPG 4/5/6.7.14 Pain Management – Paediatric                        | • This CPG has been redesigned to reflect pain management as a stepped approach and not as a linear approach.  
• The PHECC Pain Ladder has been developed to reflect the World Health Organisation (WHO) approach to pain.  The PHECC Pain Ladder has three steps; minor pain, moderate pain and severe pain. |
Following the publication of ILCOR guidelines 2010, PHECC has updated several CPGs to reflect best international practice. The following describe the changes of the affected CPGs.

<table>
<thead>
<tr>
<th>CPGS</th>
<th>THE PRINCIPAL DIFFERENCES ARE</th>
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| CPG 4/5/6.2.1 Primary Survey Medical – Adult | • If, following the check for breathing, the patient is not breathing the two initial ventilations are no longer recommended.  
• The practitioner is directed to make a clinical status decision as soon as he/she identifies a ‘life threat’.  
• Following the primary survey the practitioner may go directly to an ‘appropriate CPG’ or the ‘Secondary Survey CPG’ depending on the clinical findings.  
• Suction, OPA & NPA are in parallel with airway therefore the practitioner uses clinical judgement in relation to their use.  
• Oxygen therapy is in parallel with ventilation therefore the practitioner uses clinical judgement in relation to its administration. |
| CPG 4/5/6.2.2 Primary Survey Trauma – Adult | • Control of catastrophic external haemorrhage is the first intervention during the primary survey trauma.  
• If, following the check for breathing, the patient is not breathing the two initial ventilations are no longer recommended.  
• The practitioner is directed to make a clinical status decision as soon as he/she identifies a life threat.  
• Following the primary survey the practitioner may go directly to an ‘appropriate CPG’ or the ‘Secondary Survey CPG’ depending on the clinical findings.  
• Suction, OPA & NPA are in parallel with airway therefore the practitioner uses clinical judgement in relation to their use.  
• Oxygen therapy is in parallel with ventilation therefore the practitioner uses clinical judgement in relation to its administration. |
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<tr>
<th>CPGS</th>
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</table>
| CPG 4/5/6.4.1 Basic Life Support – Adult | • Differentiating between witnessed and unwitnessed cardiac arrest is no longer recommended. The practitioner should attach the defibrillation pads as soon as a cardiac arrest is identified, decide if defibrillation is required and treat as appropriate. If a second practitioner/responder is present CPR should be ongoing during this process.  
• The compression rate has been increased to between 100 and 120 per minute. The depth has been increased to 'at least 5 cm'.  
• The ventilation volume should be targeted at between 500 and 600 mL, at a rate of one every six seconds.  
• The practitioner/responder is directed to continue CPR while the defibrillator is charging.  
• A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing the patient/rhythm should not exceed 10 seconds.  
• For information; if an implantable cardioverter defibrillator (ICD) is fitted in the patient, treat the patient as per CPG. It is safe to touch a patient with an ICD fitted even if it is firing. |
| CPG 4/5/6.4.2 Basic Life Support – Child | • Basic Life Support – Child CPG has been incorporated into a new CPG, Basic Life Support – Paediatric (see below for details).                                                                                                                                                      |
| CPG 5/4.4.3 Basic Life Support – Infant  | • Basic Life Support – Infant CPG has been incorporated into a new CPG, Basic Life Support – Paediatric (see below for details).                                                                                                                                                      |
### CPGS

#### CPG 4/5/6.4.7 VF or Pulseless VT – Adult

- This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR and defibrillation. All other interventions are regarded as secondary to this process.
- A minimum interruption of chest compressions is the aim; maximum ‘hands off time’ while assessing or carrying out an intervention should not exceed 10 seconds.
- CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation.
- The indication for transport to ED is now expressed as a time frame, ‘20 minutes of resuscitation’ and not a specific number of shocks delivered.
- While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient.
- Practitioners are advised that mechanical CPR devices are the optimum care during transport for a cardiac arrest patient.
- Advanced airway management has been authorised for EMTs.

#### CPG 4/5/6.4.8 VF or Pulseless VT – Paediatric

- Basic Life Support – Infant CPG has been incorporated into this CPG in relation to VF/VT management.
- EMTs are now authorised to defibrillate infants.
- This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR and defibrillation. All other interventions are regarded as secondary to this process.
- A minimum interruption of chest compressions is the aim; maximum ‘hands off time’ while assessing or carrying out an intervention should not exceed 10 seconds.
- CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation.
- The indication for transport to ED is now expressed as a time frame, ‘10 minutes of resuscitation’ and not a specific number of shocks delivered.
- While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient.
### CPG Updates for Emergency Medical Technician

**APPENDIX 4 - CPG UPDATES FOR EMERGENCY MEDICAL TECHNICIAN**

<table>
<thead>
<tr>
<th>CPGS</th>
<th>THE PRINCIPAL DIFFERENCES ARE</th>
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</table>
| CPG 4.4.10 Asystole – Adult | • This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR. All other interventions are regarded as secondary to this process.  
• A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing or carrying out an intervention should not exceed 10 seconds.  
• CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation.  
• The indication for transport to ED is now expressed as a time frame, ‘20 minutes of resuscitation’ and not a specific number of shocks attempted.  
• While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient.  
• Practitioners are advised that mechanical CPR devices are the optimum care during transport for a cardiac arrest patient.  
• Advanced airway management has been authorised for EMTs |
| CPG 4/5/6.4.11 Pulseless Electrical Activity – Adult | • This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR. All other interventions are regarded as secondary to this process.  
• A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing or carrying out an intervention should not exceed 10 seconds.  
• CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation.  
• The indication for transport to ED is now expressed as a time frame, ‘20 minutes of resuscitation’ and not a specific number of shocks attempted.  
• While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient.  
• Practitioners are advised that mechanical CPR devices are the optimum care during transport for a cardiac arrest patient.  
• Advanced airway management has been authorised for EMTs |
### CPG UPDATES FOR EMERGENCY MEDICAL TECHNICIAN

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<tbody>
<tr>
<td>CPG 4/5/6.4.12 Asystole / PEA – Paediatric</td>
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</table>
- Basic Life Support – Infant CPG has been incorporated into this CPG in relation to Asystole/PEA management.  
- This CPG has been redesigned to ensure the practitioner will focus on the essential elements of resuscitation i.e. CPR. All other interventions are regarded as secondary to this process.  
- A minimum interruption of chest compressions is the aim; maximum ‘hands off time’ while assessing or carrying out an intervention should not exceed 10 seconds.  
- CPR has been identified as the single most important element to reduce neurological deficit. The clinical leader therefore is directed to monitor the quality of CPR during the resuscitation.  
- The indication for transport to ED is now expressed as a time frame, ‘10 minutes of resuscitation’ and not a specific number of shocks attempted.  
- While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient. |
| CPG 4.4.14 Post Resuscitation Care – Adult |  
- For ROSC patients’ oxygen therapy should be titrated to between 94% and 98%.  
- EMTs are authorised to actively cool patients following ROSC.  
- While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient.  
- Follow local protocol for transport to appropriate facility. |
### APPENDIX 4 - CPG UPDATES FOR EMERGENCY MEDICAL TECHNICIAN

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<tr>
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| CPG 4/5/6.7.1 Primary Survey Medical – Paediatric | - The findings as a result of the paediatric assessment triangle (PAT) may no longer permit the practitioner to bypass the ABCED approach to primary survey.  
- Suction, OPA & NPA are in parallel with airway therefore the practitioner uses clinical judgement in relation to their use.  
- If, following the check for breathing, the patient is not breathing the practitioner is directed to give five initial ventilations.  
- Oxygen therapy is in parallel with ventilation therefore the practitioner uses clinical judgement in relation to its administration.  
- There is no longer a differentiation between an infant and child in relation to circulation checks. If the pulse is < 60 and signs of poor perfusion are present it is regarded as life threatening and CPR should be commenced.  
- The practitioner is directed to make a clinical status decision as soon as he/she identifies a life threat. |
| CPG 4/5/6.7.2 Primary Survey Trauma – Paediatric | - The findings as a result of the paediatric assessment triangle (PAT) may no longer permit the practitioner to bypass the ABCED approach to primary survey.  
- Control of catastrophic external haemorrhage is the first intervention during the primary survey trauma.  
- Suction, OPA & NPA are in parallel with airway therefore the practitioner uses clinical judgement in relation to their use.  
- If, following the check for breathing, the patient is not breathing the practitioner is directed to give five initial ventilations.  
- Oxygen therapy is in parallel with ventilation therefore the practitioner uses clinical judgement in relation to its administration.  
- There is no longer a differentiation between an infant and child in relation to circulation checks. If the pulse is < 60 and signs of poor perfusion are present it is regarded as life threatening and CPR should be commenced.  
- The practitioner is directed to make a clinical status decision as soon as he/she identifies a life threat. |
NEW CPGS INTRODUCED INTO THIS VERSION INCLUDE

<table>
<thead>
<tr>
<th>NEW CPGS</th>
<th>THE NEW SKILLS AND MEDICATIONS INCORPORATED INTO THE CPG ARE;</th>
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</table>
| CPG 4.3.1 Advanced Airway Management – Adult | • EMTs have been authorised to insert a non inflatable supraglottic airway for patients in cardiac arrest.  
• A maximum of two attempts are permitted at the insertion of the supraglottic airway 
• The key consideration when inserting an advanced airway is to ensure that CPR is ongoing. A maximum of 10 seconds 'hands off time' is permitted. 
• Once the advanced airway is successfully inserted the patient should be ventilated at 8 to 10 ventilations per minute, one every six seconds. Unsynchronised chest compressions should be performed continuously at 100 to 120 per minute.  |
| CPG 4/5/6.4.4 Basic Life Support – Paediatric | • Basic Life Support – Child and Basic Life Support – Infant CPGs have been incorporated into this new CPG. 
• The indication for CPR for all paediatric patients is: cardiac arrest or pulse < 60 with signs of poor perfusion. 
• Resuscitation is commenced with 5 rescue breaths. 
• CPR is continued until the defibrillation pads are applied. 
• The compression rate has been increased to between 100 and 120 per minute. The depth is specified as being '1/3 depth of chest'. 
• EMTs are authorised to defibrillate infants. 
• The practitioner is directed to continue CPR while the defibrillator is charging. 
• A minimum interruption of chest compressions is the aim; maximum 'hands off time' while assessing the patient/ rhythm should not exceed 10 seconds. |
### APPENDIX 4 - CPG UPDATES FOR EMERGENCY MEDICAL TECHNICIAN

#### NEW CPGS

<table>
<thead>
<tr>
<th>CPG 4.4.31</th>
<th>End of Life – DNR</th>
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<tr>
<td><strong>THE NEW SKILLS AND MEDICATIONS INCORPORATED INTO THE CPG ARE;</strong></td>
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<tr>
<td>• This is a new CPG designed for patients who are at end stage of a terminal illness.</td>
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<td>• For a patient involved in a planned ambulance transport the EMT should receive recent &amp; reliable written instructions from the patient’s doctor stating that the patient is not for resuscitation.</td>
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<td>• Agreement must be sought between the caregivers present and the EMT not to resuscitate.</td>
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<td>• If the criteria above are met it is <strong>inappropriate to commence resuscitation.</strong></td>
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<tr>
<td>• If the patient has a cardiac output the EMT should provide supportive care such as basic airway management and oxygen therapy until handover to an appropriate practitioner. Ventilations and or chest compressions should not be commenced.</td>
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<tr>
<td>• Consult with ambulance control re transport decision. Follow local protocol for care of deceased.</td>
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<tr>
<th>CPG 4.7.17</th>
<th>Post Resuscitation Care – Paediatric</th>
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<tbody>
<tr>
<td><strong>THE NEW SKILLS AND MEDICATIONS INCORPORATED INTO THE CPG ARE;</strong></td>
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<tr>
<td>• For paediatric ROSC patients’ oxygen therapy should be titrated to between 96% and 98%.</td>
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<tr>
<td>• If the patient is unresponsive following ROSC and airway &amp; ventilation functions are being maintained the practitioner is directed to commence active cooling.</td>
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<tr>
<td>• While transporting to the ED the practitioner driver is directed to drive smoothly to enable care be provided effectively to the patient.</td>
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<tr>
<td>• Practitioners are reminded to check blood glucose on all ROSC patients.</td>
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PRE-HOSPITAL DEFIBRILLATION POSITION PAPER

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

Cardiac arrest management process

ILCOR guidelines 2010 identified that without ongoing CPR, survival with good neurological function from SCA is highly unlikely. Defibrillators in AED mode can take up to 30 seconds between analysing and charging during which time no CPR is typically being performed. The position below is outlined to ensure maximum resuscitation efficiency and safety.
APPENDIX 5 - PRE-HOSPITAL DEFIBRILLATION

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.