Practitioner
Advanced Paramedic
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>FOREWORD</strong></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>ACCEPTED ABBREVIATIONS</strong></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>ACKNOWLEDGEMENTS</strong></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td><strong>INTRODUCTION</strong></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td><strong>IMPLEMENTATION AND USE OF CLINICAL PRACTICE GUIDELINES</strong></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>INDEX</strong></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td><strong>KEY/CODES EXPLANATION</strong></td>
<td>14</td>
</tr>
<tr>
<td>SECTION 1</td>
<td><strong>CARE PRINCIPLES</strong></td>
<td>15</td>
</tr>
<tr>
<td>SECTION 2</td>
<td><strong>PATIENT ASSESSMENT</strong></td>
<td>16</td>
</tr>
<tr>
<td>SECTION 3</td>
<td><strong>RESPIRATORY EMERGENCIES</strong></td>
<td>21</td>
</tr>
<tr>
<td>SECTION 4</td>
<td><strong>MEDICAL EMERGENCIES</strong></td>
<td>26</td>
</tr>
<tr>
<td>SECTION 5</td>
<td><strong>OBSTETRIC EMERGENCIES</strong></td>
<td>54</td>
</tr>
<tr>
<td>SECTION 6</td>
<td><strong>TRAUMA</strong></td>
<td>60</td>
</tr>
<tr>
<td>SECTION 7</td>
<td><strong>PAEDIATRIC EMERGENCIES</strong></td>
<td>71</td>
</tr>
<tr>
<td>SECTION 8</td>
<td><strong>PRE-HOSPITAL EMERGENCY CARE OPERATIONS</strong></td>
<td>96</td>
</tr>
<tr>
<td>SECTION 9</td>
<td><strong>TREAT &amp; REFERRAL</strong></td>
<td>101</td>
</tr>
<tr>
<td>Appendix 1</td>
<td><strong>Medication Formulary</strong></td>
<td>104</td>
</tr>
<tr>
<td>Appendix 2</td>
<td><strong>Medications &amp; Skills Matrix</strong></td>
<td>160</td>
</tr>
<tr>
<td>Appendix 3</td>
<td><strong>Critical Incident Stress Management</strong></td>
<td>167</td>
</tr>
<tr>
<td>Appendix 4</td>
<td><strong>CPG Updates for Advanced Paramedics</strong></td>
<td>169</td>
</tr>
<tr>
<td>Appendix 5</td>
<td><strong>Pre-Hospital Defibrillation Position Paper</strong></td>
<td>177</td>
</tr>
</tbody>
</table>
The role of the Pre-Hospital Emergency Care Council (PHECC) is to protect the public by independently specifying, reviewing, maintaining and monitoring standards of excellence for the delivery of quality pre-hospital emergency care for people in Ireland. The contents of this clinical publication are fundamental to how we achieve this goal.

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

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

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

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

Advanced Paramedic ................................................................. AP
Advanced Life Support .............................................................. ALS
Airway, Breathing & Circulation ................................................ ABC
All Terrain Vehicle .................................................................. ATV
Altered Level of Consciousness ................................................ ALoC
Automated External Defibrillator .............................................. AED
Bag Valve Mask ....................................................................... BVM
Basic Life Support .................................................................... BLS
Blood Glucose ........................................................................... BG
Blood Pressure .......................................................................... BP
Basic Tactical Emergency Care .................................................. BTEC
Carbon Dioxide ......................................................................... 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
Milligram ................................................................................... mg
Millilitre ..................................................................................... mL
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millimole</td>
<td>mmol</td>
</tr>
<tr>
<td>Minute</td>
<td>min</td>
</tr>
<tr>
<td>MEWS</td>
<td>Modified Early Warning Score</td>
</tr>
<tr>
<td>MVC</td>
<td>Motor Vehicle Collision</td>
</tr>
<tr>
<td>MI</td>
<td>Myocardial Infarction</td>
</tr>
<tr>
<td>NPA</td>
<td>Nasopharyngeal airway</td>
</tr>
<tr>
<td>mEq</td>
<td>Milliequivalent</td>
</tr>
<tr>
<td>mmHg</td>
<td>Millimetres of mercury</td>
</tr>
<tr>
<td>NEB</td>
<td>Nebulised</td>
</tr>
<tr>
<td>pH</td>
<td>Negative decadic logarithm of the H+ ion concentration</td>
</tr>
<tr>
<td>PO</td>
<td>Orally (per os)</td>
</tr>
<tr>
<td>OPA</td>
<td>Oropharyngeal airway</td>
</tr>
<tr>
<td>O₂</td>
<td>Oxygen</td>
</tr>
<tr>
<td>P</td>
<td>Paramedic</td>
</tr>
<tr>
<td>PEF</td>
<td>Peak Expiratory Flow</td>
</tr>
<tr>
<td>PR</td>
<td>Per rectum</td>
</tr>
<tr>
<td>PCI</td>
<td>Percutaneous Coronary Intervention</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>PEA</td>
<td>Pulseless Electrical Activity</td>
</tr>
<tr>
<td>RR</td>
<td>Respiration rate</td>
</tr>
<tr>
<td>ROSC</td>
<td>Return of Spontaneous Circulation</td>
</tr>
<tr>
<td>RTS</td>
<td>Revised Trauma Score</td>
</tr>
<tr>
<td>SpO₂</td>
<td>Saturation of arterial oxygen</td>
</tr>
<tr>
<td>STEMI</td>
<td>ST Elevation Myocardial Infarction</td>
</tr>
<tr>
<td>SC</td>
<td>Subcutaneous</td>
</tr>
<tr>
<td>SL</td>
<td>Sublingual</td>
</tr>
<tr>
<td>SBP</td>
<td>Systolic Blood Pressure</td>
</tr>
<tr>
<td>prn</td>
<td>When necessary (pro re nata)</td>
</tr>
</tbody>
</table>
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 COMMITTEE**

Dr Mick Molloy, (Chair) Consultant in Emergency Medicine

Dr Niamh Collins, (Vice Chair) Consultant in Emergency Medicine, Connolly Hospital Blanchardstown

Prof Gerard Bury, Professor of General Practice, University College Dublin

Dr Seamus Clarke, General Practitioner, representing the Irish College of General Practitioners

Mr Collins, Emergency Medical Technician, Representing from the PHECC register

Prof Stephen Cusack, Consultant in Emergency Medicine, Cork University Hospital

A/Prof Conor Deasy, Consultant in Emergency Medicine, Cork University Hospital, Deputy Medical Director HSE National Ambulance Service

Mr Michael Dineen, Paramedic, Vice Chair of Council

Mr David Hennelly, Advanced Paramedic, Clinical Development Manager, National Ambulance Service

Mr Macartan Hughes, Advanced Paramedic, Head of Education & Competency Assurance, HSE National Ambulance Service

Mr David Irwin, Advanced Paramedic, representative from the Irish College of Paramedics

Mr Thomas Keane, Paramedic, Member of Council

Mr Shane Knox, Education Manager, National Ambulance Service College

Col Gerard Kerr, Director, the Defence Forces Medical Corps

Mr Declan Loneragan, Advanced Paramedic, Education & Competency Assurance Manager, HSE National Ambulance Service

Mr Seamus McAllister, Divisional Training Officer, Northern Ireland Ambulance Service

Dr David McManus, Medical Director, Northern Ireland Ambulance Service

Dr David Menzies, Consultant in Emergency Medicine, Clinical Lead, Emergency Medical Science, University College Dublin

Mr Shane Mooney, Advanced Paramedic, Chair of Quality and Safety Committee

Mr Joseph Mooney, Emergency Medical Technician, Representative from the PHECC register

Mr David O’Connor, Advanced Paramedic, representative from the PHECC register

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 Kenneth O’Dwyer, Advanced Paramedic, representative from the PHECC register

Mr Martin O’Reilly, Advanced Paramedic, District Officer Dublin Fire Brigade

Mr Rory Prevett, Paramedic, representative from the PHECC register

Dr Neil Reddy, Medical Director, Code Blue

Mr Derek Rooney, Paramedic, representative from the PHECC register

Ms Valerie Small, Advanced Nurse Practitioner, Chair of Education and Standards Committee.

Dr Sean Walsh, Consultant in Paediatric Emergency Medicine, Our Lady’s Hospital for Sick Children, Crumlin
EXTERNAL CONTRIBUTORS

Ms Diane Brady, CNM II, Delivery Suite, Castlebar Hospital.
Mr Ray Brady, Advanced Paramedic
Mr Joseph Browne, Advanced Paramedic
Dr Ronan Collins, Director of Stroke Services, Age Related Health Care, Adelaide & Meath Hospital, Tallaght.

Mr Denis Daly, Advanced Paramedic
Mr Jonathan Daly, Emergency Medical Technician
Dr Zelie Gaffney Daly, General Practitioner
Prof Kieran Daly, Consultant Cardiologist, University Hospital Galway

Mr Mark Dixon, Advanced Paramedic
Dr Colin Doherty, Neurology Consultant
Mr Michael Donnellan, Advanced Paramedic
Dr John Dowling, General Practitioner, Donegal

Mr Damien Gaumont, Advanced Paramedic
Dr Una Geary, Consultant in Emergency Medicine
Dr David Janes, General Practitioner
Mr Lawrence Kenna, Advanced Paramedic

Mr Paul Lambert, Advanced Paramedic
Dr George Little, Consultant in Emergency Medicine
Mr Christy Lynch, Advanced Paramedic
Dr Pat Manning, Respiratory Consultant

Dr Adrian Murphy, Specialist Register in Emergency Medicine
Dr Regina McQuillan, Palliative Care Consultant, St Francis Hospice, Raheney

Prof. Alf Nickolson, Consultant Paediatrician
Dr Susan O'Connell, Consultant Paediatrician
Mr Paul O'Driscoll, Advanced Paramedic
Ms Helen O'Shaughnessy, Advanced Paramedic
Mr Tom O'Shaughnessy, Advanced Paramedic
Dr Michael Power, Consultant Anaesthetist

Mr Colin Pugh, Paramedic
Mr Kevin Reddington, Advanced Paramedic

Ms Barbara Shinners, Emergency Medical Technician
Dr Dermott Smith, Consultant Endocrinologist
Dr Alan Watts, Register in Emergency Medicine
Prof Peter Weeddle, Adjunct Prof of Clinical Pharmacy, National University of Ireland, Cork.

Mr Brendan Whelan, Advanced Paramedic

SPECIAL THANKS

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

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

EXTERNAL CLINICAL PROOFREADING

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

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

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

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

Dr Mick Molloy, Chair, Medical Advisory Committee.
Clinical Practice Guidelines (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 Practitioners Register.
2. The practitioner is acting on behalf of a licensed CPG provider (paid or voluntary).
3. The practitioner is privileged by the licensed CPG provider on whose behalf he/she is acting to implement the specific CPG.
4. The practitioner has received training on – and is competent in – the skills and medications specified in the CPG being utilised.

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

Definitions

<table>
<thead>
<tr>
<th>Adult</th>
<th>A patient of 16 years or greater, unless specified on the CPG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child</td>
<td>A patient between 1 and less than or equal to (≤) 15 years old, unless specified on the CPG</td>
</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>
</tr>
</tbody>
</table>

CPGs and the pre-hospital emergency care team

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

In Ireland today, the provision of emergency care comes from a range of disciplines and includes responders (Cardiac First Responders, First Aid Responders and Emergency First Responders) and practitioners (Emergency Medical Technicians, Paramedics, Advanced Paramedics, Nurses and Doctors) from the statutory, private, auxiliary and voluntary services.
Clinical Practice Guidelines
ADVANCED PARAMEDIC

IMPLEMENTATION

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

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

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

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

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

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

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

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

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

First Aid Response

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

Defibrillation Policy

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

- Advanced Paramedics should use manual defibrillation for all age groups.
- Paramedics may consider use of manual defibrillation for all age groups.
- EMTs and responders shall use AED mode for all age groups.
INDEX
ADVANCED PARAMEDIC CPGs

SECTION 1 CARE PRINCIPLES .................................................. 15

SECTION 2 PATIENT ASSESSMENT ....................................... 16
Primary Survey Medical – Adult ........................................... 16
Primary Survey Trauma – Adult ........................................... 17
Secondary Survey Medical – Adult ....................................... 18
Secondary Survey Trauma – Adult ........................................ 19
Pain Management – Adult .................................................... 20

SECTION 3 RESPIRATORY EMERGENCIES ......................... 21
Advanced Airway Management – Adult .............................. 21
Inadequate Ventilations – Adult .......................................... 22
Exacerbation of COPD ....................................................... 23
Asthma – Adult .................................................................... 24
Acute Pulmonary Oedema – Adult ....................................... 25

SECTION 4 MEDICAL EMERGENCIES ................................. 26
Basic Life Support – Adult .................................................. 26
Foreign Body Airway Obstruction – Adult ......................... 27
VF or Pulseless VT – Adult ................................................. 28
Asystole – Adult .................................................................. 29
Asystole – Decision Tree .................................................... 30
Pulseless Electrical Activity – Adult .................................... 31
Post-Resuscitation Care – Adult ......................................... 32
End of Life – DNR ............................................................... 33
Recognition of Death – Resuscitation not Indicated ........... 34
Acute Coronary Syndrome .................................................. 35
Symptomatic Bradycardia – Adult ...................................... 36
Tachycardia – Adult ............................................................ 37
Adrenal Insufficiency – Adult .............................................. 38
Altered Level of Consciousness – Adult ............................. 39
Allergic Reaction/Anaphylaxis – Adult ............................... 40
Decompression Illness (DCI) .............................................. 41
Epistaxis .............................................................................. 42
Glycaemic Emergency – Adult .......................................... 43
Hypothermia ....................................................................... 44
Poisons – Adult ................................................................... 45
Seizure/Convulsion – Adult ................................................. 46
Sepsis – Adult ..................................................................... 47
Shock from Blood Loss (non-trauma) – Adult .................... 48
Significant Nausea & Vomiting .......................................... 49
Sickle Cell Crisis – Adult .................................................... 50
Stroke .................................................................................. 51
Mental Health Emergency .................................................. 52
Behavioural Emergency ...................................................... 53

SECTION 5 OBSTETRIC EMERGENCIES ............................. 54
Pre-Hospital Emergency Childbirth .................................. 54
Basic and Advanced Life Support – Neonate ..................... 55
Haemorrhage in Pregnancy Prior to Delivery .................... 56
Postpartum Haemorrhage .................................................... 57
Umbilical Cord Complications .......................................... 58
Breech Birth ....................................................................... 59
## INDEX

### ADVANCED PARAMEDIC CPGs

**SECTION 6  TRAUMA** ................................................................. 60
Burns – Adult ........................................................................ 60
Crush Injury .......................................................................... 61
External Haemorrhage – Adult ........................................ 62
Harness Induced Suspension Trauma .................................... 63
Head Injury – Adult ............................................................... 64
Heat Related Emergency ...................................................... 65
Limb Injury – Adult ............................................................... 66
Shock from Blood Loss (trauma)– Adult ............................... 67
Spinal Immobilisation – Adult ........................................... 68
Submersion Incident .............................................................. 69
Traumatic Cardiac Arrest – Adult ........................................ 70

**SECTION 7  PAEDIATRIC EMERGENCIES** .......................... 71
Primary Survey Medical – Paediatric .................................... 71
Primary Survey Trauma – Paediatric ..................................... 72
Secondary Survey – Paediatric ............................................. 73
Pain Management – Paediatric ............................................. 74
Advanced Airway Management – Paediatric ....................... 75
Inadequate Ventilations – Paediatric .................................... 76
Asthma – Paediatric ............................................................. 77
Stridor – Paediatric ............................................................... 78
Basic Life Support – Paediatric ............................................ 79
Foreign Body Airway Obstruction – Paediatric ..................... 80
VF or Pulseless VT – Paediatric ............................................ 81
Asystole/PEA – Paediatric .................................................... 82
Symptomatic Bradycardia – Paediatric ............................... 83
Post Resuscitation Care – Paediatric .................................... 84
Adrenal Insufficiency - Paediatric ....................................... 85
Allergic Reaction/Anaphylaxis – Paediatric ......................... 86
Glycaemic Emergency – Paediatric .................................... 87
Seizure/Convulsion – Paediatric ......................................... 88
Septic Shock – Paediatric .................................................... 89
Pyrexia – Paediatric ............................................................. 90
Sickle Cell Crisis – Paediatric .............................................. 91
External Haemorrhage – Paediatric .................................... 92
Shock from Blood Loss – Paediatric ................................... 93
Spinal Immobilisation – Paediatric .................................... 94
Burns – Paediatric ............................................................... 95

**SECTION 8  PRE-HOSPITAL EMERGENCY CARE OPERATIONS** 96
Major Emergency – First Practitioners on site ....................... 96
Major Emergency – Operational Control .............................. 97
Triage Sieve ........................................................................ 98
Triage Sort .......................................................................... 99
Conducted Electrical Weapon (Taser) .................................. 100

**SECTION 9  TREAT & REFERRAL** ......................................... 101
Clinical Care Pathway Decision – T & R .............................. 101
Hypoglycaemia – T & R ....................................................... 102
Isolated Seizure – T & R ....................................................... 103
CLINICAL PRACTICE GUIDELINES for ADVANCED PARAMEDIC

(CODES EXPLANATION)

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

- **Sequence step**: A sequence (skill) to be performed
- **Mandatory sequence step**: A mandatory sequence (skill) to be performed
- **Decision process**: A decision process
  - The Practitioner must follow one route
- **Consider treatment options**: Finding following clinical assessment, leading to treatment modalities
  - Reassess the patient following intervention

- **CPG numbering system**
  - 4/5/6.4.1: Version 2, 07/11
  - 4/5/6.x.y: Version 2, mm/yy

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

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

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

- **EMT who has completed Basic Tactical Emergency Care training and has been privileged to operate in adverse conditions**
- **A parallel process**: Which may be carried out in parallel with other sequence steps
- **A cyclical process in which a number of sequence steps are completed**
- **Paramedic or lower clinical levels not permitted this route**: Transport to an appropriate medical facility and maintain treatment en-route
- **Special authorisation**: This authorises the Practitioner to perform an intervention under specified conditions
- **An instruction box for information**: Special instructions
  - Which the Practitioner must follow
- **A skill or sequence that only pertains to Advanced Paramedic**: Consider medical oversight
SECTION 1

CARE PRINCIPLES

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

PHECC Care Principles

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

Primary Survey Medical – Adult

- Take standard infection control precautions
- Consider pre-arrival information
- Scene safety / Scene survey / Scene situation
- Assess responsiveness
  - Airway patent & protected: Yes / No
    - Head lift / chin lift
  - Oxygen therapy
- Clinical status decision: Life threatening / Non serious or life threat
  - Request ALS
  - Go to appropriate CPG
  - Consider ALS
  - Go to Secondary Survey CPG

Special Authorisation: EMTs having completed the BTEC course may be privileged by a licensed CPG provider to insert an NPA on its behalf.

Consider Oxygen therapy.
Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 2
PATIENT 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.

Primary Survey Trauma – Adult

1. Take standard infection control precautions
2. Consider pre-arrival information
3. Scene safety
4. Scene survey
5. Scene situation
6. Mechanism of injury suggestive of spinal injury
7. C-spine control
8. Assess responsiveness
   A. Airway patent & protected
      - Jaw thrust
         a. Suction, OPA, NPA
     B. Adequate ventilation
     C. Adequate circulation
        - AVPU assessment
         - Treat life-threatening injuries only at this point
         - Life threatening
            - Request ALS
            - Maximum time on scene for life-threatening trauma: ≤ 10 minutes
         - Clinical status decision
            - Non serious or life threat
            - Go to Secondary Survey CPG
            - Go to appropriate CPG
            - Serious not life threat
            - Consider ALS

Reference: ILCOR Guidelines 2010
SECTION 2
PATIENT ASSESSMENT

Markers identifying acutely unwell
Cardiac chest pain
Acute pain > 5

Go to appropriate CPG

Identify positive findings and initiate care management

Primary Survey

Record vital signs & GCS

Patient acutely unwell

Yes

Identify positive findings and initiate care management

No

Focused medical history of presenting complaint

SAMPLE history

Relevant family & social history

Check for medications carried or medical alert jewellery

Examine body systems as appropriate

Request ALS

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

Secondary Survey Trauma – Adult

Primary Survey

- Markers for multi-system trauma present
  - Yes
    - Examination of obvious injuries
    - Monitor and record vital signs & GCS
    - SAMPLE history
    - Complete a detailed physical exam (head to toe survey) as history dictates
    - Check for medications carried or medical alert jewellery
    - Consider repeat primary survey

- No
  - ECG & SpO2 monitoring
  - Request ALS

Identify positive findings and initiate care management

Go to appropriate CPG

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

Revised Trauma Score

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RTS = Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

Pain Management – Adult

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

- Pain assessment
  - Administer pain medication based on pain assessment and pain ladder recommendations

- Yes or best achievable
  - Adequate relief of pain
    - Go back to originating CPG
  - No
    - Reassess and move up the pain ladder if appropriate

- Severe pain (≥ 7 on pain scale)
  - Fentanyl 0.1 mg IN, repeat x 1 prn
  - Morphine 2 mg IV, and/or
  - Paracetamol 1 g PO, and/or
  - Ibuprofen 400 mg PO, and/or
  - Nitrous Oxide & Oxygen, inh.

- Moderate pain (4 to 6 on pain scale)
  - Paracetamol 1 g PO, and/or
  - Ibuprofen 400 mg PO, and/or
  - Nitrous Oxide & Oxygen, inh.

- Mild pain (1 to 3 on pain scale)
  - Paracetamol 1 g PO

- Decision: Consider other non-pharmacological interventions

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

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

Clinical Practice Guidelines
ADVANCED PARAMEDIC

Special clinical considerations
- GCS = 3
- SpO₂ < 92%
- RR ≤ 9
- BVM ineffective
  (All of the above must be present)

Maintain adequate ventilation and oxygenation throughout procedures

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

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

Apnoea or special clinical considerations

Ensure CO₂ detection device in ventilation circuit
Consider FBAO
Revert to basic airway management

Ventilations maintained
Yes
Consider FBAO

Supraglottic airway insertion
or
Endotracheal intubation

Successful
Yes
Continue ventilation and oxygenation
Go to appropriate CPG

No
Revert to basic airway management
Ensure CO₂ detection device in ventilation circuit
Check placement of advanced airway after each patient movement or if any patient deterioration

Paramedic: Maximum two attempts at supraglottic airway insertion.
Advanced paramedic: Maximum two attempts at ETT and maximum two attempts at supraglottic airway insertion (either as primary device or rescue from failed ETT)

AP
Consider use of waveform capnography

Reference: ILCOR Guidelines 2010

5/6.3.1
Version 3, 03/14
Clinical Practice Guidelines

SECTION 3
RESPIRATORY EMERGENCIES

Inadequate Ventilations – Adult

Respiratory difficulty

Airway patent & protected
Yes

Check SpO2
Consider ETCO2

Oxygen therapy

No

Request ALS

Patient assessment

Consider positive pressure ventilations (Max 10 per minute)

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

Raised ETCO2 + reduced SpO2:
Consider assisted ventilation

Raised ETCO2 + normal SpO2:
Encourage deep breaths

Brain insult
Go to Head injury CPG

Respiratory failure
Go to Respiratory assessment

Substance intake
Go to Poison CPG

Other
Consider pain, posture & neuromuscular disorders

Go to Asthma CPG

Go to Allergy/Anaphylaxis CPG

Go to COPD CPG

Go to Sepsis CPG

Go to APO CPG

Consider collapse, consolidation & fluid

Tension Pneumothorax suspected
Yes
Needle decompression

No

Consider shock, cardiac/ neurological/ systemic illness, pain or psychological upset
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)
**Clinical Practice Guidelines**

**ADVANCED PARAMEDIC**

**SECTION 3**

**RESPIRATORY EMERGENCIES**

---

**Asthma – Adult**

- **Assess and maintain airway**
- **Respiratory assessment**
- **Salbutamol, 5 mg, NEB**
  - OR
  - **Salbutamol (0.1 mg) metered aerosol**
  - **Resolved/improved**
  - **Yes**
  - **No**
  - **ECG & SpO₂ monitoring**
  - **Oxygen therapy**
  - **Request ALS**
  - **Resolved/improved**
  - **Yes**
  - **No**
  - **Salbutamol, 5 mg, NEB**
  - **Ipratropium bromide 0.5 mg NEB & salbutamol 5 mg NEB mixed**
  - **Resolved/improved**
  - **Yes**
  - **No**
  - **Hydrocortisone, 100 mg slow IV (infusion in 100 mL NaCl)**
  - **Resolved/improved**
  - **Yes**
  - **No**
  - **Consider Magnesium Sulphate 2 g IV (infusion in 100 mL NaCl)**
  - **Salbutamol, 5 mg, NEB**
  - **Every 5 minutes prn**

---

**Mild Asthma**

- **Salbutamol, 5 mg, NEB**
  - **Resolved/improved**
  - **Yes**
  - **No**

**Moderate Asthma**

- **Salbutamol, 5 mg, NEB**
  - **Resolved/improved**
  - **Yes**
  - **No**

**Severe Asthma**

- **Hydrocortisone, 100 mg slow IV (infusion in 100 mL NaCl)**
  - **Resolved/improved**
  - **Yes**
  - **No**

**Life-threatening Asthma**

- **Consider Magnesium Sulphate 2 g IV (infusion in 100 mL NaCl)**
  - **Salbutamol, 5 mg, NEB**
  - **Every 5 minutes prn**

---

Clinical Practice Guidelines

ADVANCED PARAMEDIC

SECTION 3
RESPIRATORY EMERGENCIES

Acute Pulmonary Oedema – Adult

Respiratory distress with Congestion / crepitations

Oxygen therapy

SpO2, ECG & BP monitoring

12 Lead ECG

Pulmonary oedema

No

Yes

GTN, 0.8 mg, SL
Repeat x 1 prn

Reassess

Oxygen therapy

Go to

Go to

Inadequate

Respirations

CPG

CPG

SpO2, ECG & BP monitoring

STEMI

Go to ACS CPG

Oxygen therapy

Apply Continuous Positive Airway Pressure (CPAP) device

Furosemide, 40 mg, IV

No

Meets criteria for CPAP

Yes

Systemic fluid retention

No

Furosemide, 40 mg, IV

Yes

Bradyardia

No

Atropine, 0.6 mg IV
Repeat to Max 3 mg prn

Criteria for CPAP

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

Exclusion Criteria

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

CPAP

Commence with 5 cm H2O
Titrate up to 10 cm H2O as tolerated
Monitor clinical response
Titrate O2 to maintain SpO2 > 95%

SECTION 4  
MEDICAL EMERGENCIES

Basic Life Support – Adult

Cardiac Arrest

Request ALS

Attach defibrillation pads
Commence CPR while defibrillator is being prepared only if 2nd person available

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

Go to VF/ VT CPG

Go to PEA CPG

Non-Shockable: Asystole or PEA

Go to Post Resuscitation Care CPG

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

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

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

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.

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

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

Reference: ILCOR Guidelines 2010
Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 4
MEDICAL EMERGENCIES

Foreign Body Airway Obstruction – Adult

Are you choking?

Severe (ineffective cough)

Mild (effective cough)

FBAO Severity

Encourage cough

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

Adequate ventilations

Positive pressure ventilations maximum 10 per minute

Consider use of waveform capnography

Oxygen therapy

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 or Pulseless VT – Adult

Defibrillate

Rhythm check *

VF/VT

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

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

Mechanical CPR device is the optimum care during transport

EPAP

 Immediate IO access if IV not immediately accessible

Go to Post Resuscitation Care CPG

ROSC

Go to PEA CPG

Go to Asystole CPG

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

Consider transport to ED if no change after 20 minutes resuscitation

If no ALS available

NaCl IV/IO 500 mL (use as flush)

Initial Epinephrine between 2nd and 4th shock

Refactory VF/VT post Epinephrine

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

2nd dose (if required)

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

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

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

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

External cardio-pulmonary resuscitation

Clinical leader to monitor quality of CPR

Null

Consider use of waveform capnography

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

Reference: ILCOR Guidelines 2010
**Clinical Practice Guidelines**

**ADVANCED PARAMEDIC**

**SECTION 4**

**MEDICAL EMERGENCIES**

---

**Asystole – Adult**

- From BLS Adult CPG
- Immediate IO access if IV not immediately accessible
- Initiate mobilisation of 3 to 4 practitioners / responders on site to assist with cardiac arrest management

---

**Rhythm check**

- Asystole
- VF/VT
- PEA
- ROSC

---

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

---

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

---

**Consider use of waveform capnography**

---

**Consider fluid challenge**

---

**Reference:** ILCOR Guidelines 2010

---

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

---

5/6.4.4 Version 2, 03/11
Asystole - Decision Tree

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

Witnessed arrest & CPR prior to arrival of EMS
- Yes
- No

Resuscitation continuous for at least 20 minutes in asystole

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

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

Consider ceasing resuscitation efforts
- Yes
- No

Record two rhythm strips x 10 sec duration

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

Inform Ambulance Control

If present, inform next of kin

Complete PCR and flag for mandatory clinical audit

Follow local protocol for care of deceased

Continue BLS & or ALS

If no ALS available

From Asystole - Adult CPG

From Traumatic Cardiac Arrest CPG
**Pulseless Electrical Activity – Adult**

From BLS Adult CPG

<table>
<thead>
<tr>
<th>Immediate IO access if IV not immediately accessible</th>
</tr>
</thead>
</table>

Go to PEA

<table>
<thead>
<tr>
<th>Go to Asystole CPG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go to VF / Pulseless VT CPG</td>
</tr>
</tbody>
</table>

Rhythm check *

Yes

<table>
<thead>
<tr>
<th>VF/VT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROSC</td>
</tr>
<tr>
<td>Asystole</td>
</tr>
<tr>
<td>VF</td>
</tr>
</tbody>
</table>

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

Every 3 to 5 minutes prn

Clinical leader to monitor quality of CPR

With CPR ongoing maximum hands off time 10 seconds

Mechanical CPR device is the optimum care during transport

Consider transport to ED if no change after 20 minutes resuscitation

If no ALS available

Go to Post Resuscitation Care CPG

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

**Consider use of waveform capnography**

**Consider fluid challenge**

NaCl 20 mL/Kg IV/IO

Reference: ILCOR Guidelines 2010

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

Maintain Oxygen therapy

Request ALS

Adequate ventilation

Yes

Positive pressure ventilations Max. 10 per minute

No

12 lead ECG

Go to ACS CPG

Yes

Maintain patient at rest

ECG & SpO2 monitoring

Monitor blood pressure and GCS

Bradycardia

Symptomatic arrhythmia

Ventricular Tachycardia

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

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

No

Check blood glucose

Unresponsive

Yes

No

Commence cooling (Target 32° to 34° C)

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

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

Monitor vital signs

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

Titrate O₂ to 94% - 98%

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

Avoid hyperthermia

If persistent hypotensive consider NaCl (0.9%) IV/IO to maintain Sys BP > 90 mmHg

Consider Post-Resuscitation Care – Adult
**Clinical Practice Guidelines**

**ADVANCED PARAMEDIC**

**SECTION 4**

**MEDICAL EMERGENCIES**

---

**End of Life – DNR**

**End stage terminal illness**

- Patient becomes acutely unwell
  - Basic airway maintenance
  - Oxygen therapy
  - Planned ambulance transport
  - Recent & reliable evidence from a clinical source stating that the patient is not for resuscitation
  - Agreement between caregivers present and Practitioners not to resuscitate
  - It is inappropriate to commence resuscitation
    - Inform Ambulance Control
      - Pulse present
        - Provide supportive care until handover to appropriate Practitioner
      - No
        - Consult with Ambulance Control re; 'location to transport patient / deceased'
          - Complete all appropriate documentation
            - Keep next of kin informed, if present
              - Emotional support for relatives should be considered before leaving the scene
    - Agree with Ambulance Control re; 'location to transport patient / deceased'
      - A planned ambulance transport is a scheduled discharge to home or an interfacility patient transport
      - The dying patient, along with his/her family, is viewed as a single unit of care

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

---

5/6.4.8
Version 1, 06/10
Recognition of Death – Resuscitation not Indicated

- Apparent dead body

- Signs of Life
  - Yes → Go to Primary survey CPG
  - No → Definitive indicators of Death

- Definitive indicators of Death
  - Yes → It is inappropriate to commence resuscitation
  - No → Inform Ambulance Control

- Inform Ambulance Control

- Complete all appropriate documentation

- Inform next of kin, if present

- Follow local protocol for care of deceased

Emotional support for relatives should be considered before leaving the scene

Definitive indicators of death:
1. Decomposition
2. Obvious rigor mortis
3. Obvious pooling (hypostasis)
4. Incineration
5. Decapitation
6. Injuries totally incompatible with life
7. Unwitnessed traumatic cardiac arrest following blunt trauma (see CPG 5/6.6.11)
**Clinical Practice Guidelines**

**SECTION 4**

**MEDICAL EMERGENCIES**

---

**Acute Coronary Syndrome**

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

**Indication for Thrombolysis**

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

**Treatment Plan**

- **Oxygen therapy**: Maintain SpO2 between 94% to 98% (lower range if COPD)
- **Apply 3 lead ECG & SpO2 monitor**
- **Acquire & interpret 12 lead ECG**
- **GTN 0.4 mg SL**: Repeat prn to max of 1.2 mg SL
- **Transport to Primary PCI facility**
- **Followed by**
  - **Apply 3 lead ECG & SpO2 monitor**
  - **Aspirin 300 mg PO**
  - **Pain relief effective**
  - **Go to Pain Mgt. CPG**
- **Time critical commence transport to nearest appropriate hospital ASAP**

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

**References**

- HSE ACS Programme 2013, ILCOR Guidelines 2010, ECS Guidelines 2010

---

**Version 6, 02/14**

---

**Tenecteplase**

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

---

**Enoxaparin 30 mg IV (> 75 Yrs: Enoxaparin 0.75 mg/Kg SC)**

---

**Ticagrelor 180 mg PO**

---

**Clopidogrel, 300 mg PO (≥ 75 years, 75 mg PO)**

---

**Ticagrelor 180 mg PO**

---

**Time to PPCI Centre < 90 min of STEMI identification on 12 lead ECG**

---

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

---

**Abbreviations**

- AP: Acute Coronary Syndrome
- P: Prehospital TPA
- MP: Medical Practitioner

---

**Pre-hospital Thrombolysis available**

---

**Reference**

HSE ACS Programme 2013, ILCOR Guidelines 2010, ECS Guidelines 2010
Symptomatic Bradycardia – Adult

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

Oxygen therapy

Request ALS

ECG & SpO2 monitoring

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

12 lead ECG

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

4/5/6.4.11
Version 2, 02/14
Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 4
MEDICAL EMERGENCIES

Tachycardia – Adult

- ECG and SpO2 monitoring
- Oxygen therapy
- Request ALS

Acquire 12 lead ECG

- HR > 150/min?
  - Yes: Persistent tachyarrhythmia causing any of:
    - Hypotension
    - Acute altered mental status
    - Signs of shock
    - Ischaemic chest discomfort
    - Acute heart failure
  - No: Tachycardia

- Symptomatic?
  - Yes: Consider cardioversion
  - No: Consider if VF likely

- Unstable?
  - Yes: Amiodarone 150 mg IV infusion (in 100 mL D5W)
  - No: Consider cardioversion

- QRS Complex?
  - Narrow
    - Regular: Consider if VF likely
    - Irregular: Amiodarone 150 mg IV infusion (in 100 mL D5W)
  - Broad
    - Regular: Go to VF/VT CPG
    - Irregular: V Fib

- Valsalva / vagal Manoeuvre

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

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

Reference: ILCOR Guidelines 2010
SECTION 4
MEDICAL EMERGENCIES

**Adrenal Insufficiency – Adult**

- **Diagnosed with Addison’s disease or Adrenal insufficiency**
  - **Yes**
    - Check blood glucose
  - **No**

- **Recent illness or injury**
  - **Yes**
    - **No**
  - **No**
    - **Yes**
      - **Yes**
        - **Hydrocortisone 100 mg IV** (in 100 mL NaCl)
        - **Yes**
          - **Hydrocortisone 100 mg IM** if IV not available
      - **No**
        - **Check blood glucose**

- **SBP < 90 mmHg**
  - **Yes**
    - **Yes**
      - **Request ALS**
      - **Hydrocortisone 100 mg IV** (in 100 mL NaCl)
      - **Consider**
      - **NaCl (0.9%) 1 L IV infusion**
    - **No**
      - **Consider**
      - **Hydrocortisone 100 mg IM** if IV not available

---

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

V, P or U on AVPU scale

- Maintain airway
- Consider recovery position
- Consider Cervical Spine

Obtain SAMPLE history from patient, relative or bystander

- ECG & SpO2 monitoring
- Calculate GCS

Check temperature
Check pupillary size & response
Check for skin rash

Check for medications carried or medical alert jewellery

Check blood glucose

Differential Diagnosis

- Anaphylaxis
- Symptomatic Bradycardia
- Glycaemic emergency
- Hypothermia
- Poison
- Seizures
- Stroke

- Shock from blood loss
- Submersion incident
- Head injury
- Inadequate respirations
- Post resuscitation care
- Septic shock
- Taser gun

Go to CPG
SECTION 4
MEDICAL EMERGENCIES

**Allergic Reaction/Anaphylaxis – Adult**

- **Mild**
  - Urticaria and or angioedema

- **Moderate**
  - Mild symptoms + simple bronchospasm

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

- **Severe/anaphylaxis**
  - Epinephrine (1:1 000) 0.5 mg (500 mcg) IM
    - Repeat at 5 minute intervals if no improvement
  - Intubation
  - Hydrocortisone 200 mg IV (in 100 mL NaCl) or IM

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

Decompression Illness (DCI)

SCUBA diving within 48 hours

Consider diving buddy as possible patient also.

Entonox absolutely contraindicated

Complete primary survey (Commence CPR if appropriate)

Treat in supine position

Oxygen therapy: 100% O₂

Request ALS

Conscious

Yes

No

Maintain Airway, Breathing & Circulation

Pain relief required

No

Yes

Go to Pain Mgt. CPG

Go to Nausea & Vomiting CPG

Monitor ECG & SpO₂

NaCl (0.9%) 500 mL IV/IO

Notify control of query DCI & alert ED

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

Transport dive computer and diving equipment with patient, if possible

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

Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 4
MEDICAL EMERGENCIES

4/5/6.4.17 Version 2, 01/13

Epistaxis

Primary Survey Medical

Medical

Advise patient to sit forward

Apply digital pressure for 15 minutes

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

Trauma

Primary Survey Trauma

Trauma

Haemorrhage controlled

No

Consider ALS

Consider insertion of a proprietary nasal pack

Yes

Hypovolaemic

No

Go to Shock CPG

**Glycaemic Emergency – Adult**

**Abnormal blood glucose level**

- **< 4 mmol/L**
  - **Dextrose 10% 250 mL IV/IO infusion**
  - **Glucagon 1 mg IM**
  - **Glucose gel 10-20 g buccal**
  - **Sweetened drink**
  - **Allow 5 minutes to elapse following administration of medication**
  - **Blood Glucose < 4 mmol/L**
    - **Yes**
      - **Consider ALS**
      - **Repeat if indicated**
      - **Dextrose 10%, 250 mL IV/IO infusion**
      - **Glucose gel 10-20 g buccal**
      - **Reassess**
  - **No**
    - **Reassess**

- **11 to 20 mmol/L**
  - **Dextrose 10%, 250 mL IV/IO infusion**
  - **Glucose gel 10-20 g buccal**
  - **Consider ALS**
  - **Repeat if indicated**
  - **NaCl (0.9%) 1 L IV/IO infusion**
  - **Reassess**

- **> 20 mmol/L**
  - **Consider ALS**
  - **Repeat if indicated**
  - **NaCl (0.9%) 1 L IV/IO infusion**
  - **Reassess**

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

**Query hypothermia**

- Immersion: Yes
  - Remove patient horizontally from liquid (Provided it is safe to do so)

- No
  - Remove patient horizontally from liquid (Provided it is safe to do so)
  - Complete primary survey (Commence CPR if appropriate)
  - Remove wet clothing by cutting
  - Place patient in dry blankets/sleeping bag with outer layer of insulation
  - ECG & SpO₂ monitoring
  - Check and record core temperature

- Mild
  - 34 – 35.9°C
  - Give hot sweet drinks

- Moderate
  - 30 – 33.9°C

- Severe
  - < 30°C

If Cardiac Arrest

- Follow CPGs but; no active re-warming
- Double medication interval until temperature > 34°C
- No active re-warming beyond 32°C

If Bradycardiac

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

**Equipment list**
- Low reading thermometer
- Survival bag
- Space blanket
- Hot pack

**Reference**
- Pennington M., et al., 1994, Wilderness EMT, Wilderness EMS Institute
Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 4
MEDICAL EMERGENCIES

Poisons – Adult

Poison source

Caution with oral intake

Ingested corrosive

Sips of water or milk

Poison type

Sympathomimetics

Anticholinergics

Cholinergics

Opiates

Alcohol

Asphyxiants

Psychostimulant (symptomatic)

Patient psychologically deranged

Tricyclic OD with wide QRS arrhythmia or seizure

Sodium Bicarbonate (8.4%), 1 mEq/Kg IV Max 50 mEq - 50 mL

Atropine, 1 mg IV Repeat at 5 min intervals prn

Consider Oxygen therapy

BG < 4 or > 20 mmol/L

Seizure

BG

< 4 or > 20 mmol/L

No

Seizure

Yes

Yes

Yes

No

No

Yes

Behavioural issue

No

Go to Behavioural Emergency CPG

Go to Inadequate Respirations CPG

Go to Inadequate Ventilations CPG

Naloxone 0.4 mg IV/IO/IM/SC or 0.8 mg IN Repeat pm to max cumulative dose of 2 mg

Contraindicated

Consider Medical Oversight

Reference:
Seizure/Convulsion – Adult

Seizure / convulsion

Protect from harm

Oxygen therapy

Seizing currently

Seizure status

Post seizure

Consider ALS

Request ALS

Reassess

Or

Diazepam, 10 mg PR
Repeat by one prn

Or

Midazolam 5 mg IM
Repeat by one prn

Or

Midazolam 10 mg buccal
Repeat by one prn

Or

Midazolam 5 mg IN
Repeat by one prn

Or

Midazolam 5 mg IM
Repeat by one prn

Or

Diazepam, 10 mg PR
Repeat by one prn

Check blood glucose

Blood glucose < 4 or > 20 mmol/L

No

Go to Glycaemic Emergency CPG

Yes

Consider other causes of seizures

Meningitis

Head injury

Hypoglycaemia

Eclampsia

Fever

Poisons

Alcohol/drug withdrawal

Maximum two doses of anticonvulsant medication by Practitioner regardless of route

If pre-Eclampsia/Edema consider

Magnesium Sulphate, 4 g IV (infusion in 100 mL NaCl)

SECTION 4
MEDICAL EMERGENCIES

Sepsis – Adult

Patient unwell

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

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

Has the patient two or more signs (SIRS)

Yes

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

No

Yes

ECG & SpO2 monitoring
Oxygen therapy
Request ALS

Benzylpenicillin, 1,200 mg slow IV or IM

Yes

Signs of poor perfusion

If Sys BP < 100 mmHg consider aliquots

NaCl 0.9%, 250 mL, IV/IO

No

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

Pre alert ED if severe sepsis

If meningitis suspected
Ensure appropriate PPE is worn;
Mask and goggles

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

Pre alert ED if severe sepsis

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

Shock from Blood Loss (non-trauma) – Adult

Clinical signs of shock

Oxygen therapy

Request ALS

NaCl (0.9%), 500 mL IV/IO

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

SpO2 and ECG monitoring

Continue fluid therapy until handover at ED

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

**MEDICAL EMERGENCIES**

---

**6.4.26**

Version 1, 05/09

---

**Significant Nausea & Vomiting – Adult**

- **Nausea & Vomiting**
  - Post Narcotic administration for pain relief
    - Yes → Go to Pain management – Adult CPG
    - No → Consider Oxygen therapy

- Consider
  - Ondansetron 4 mg IV slowly
  - Or
  - Cyclizine 50 mg IV slowly

- ECG & SpO2 monitor
**Clinical Practice Guidelines**

**ADVANCED PARAMEDIC**

**SECTION 4**

**MEDICAL EMERGENCIES**

---

**Sickle Cell Crisis - Adult**

- **Sickle Cell crisis**
  - Oxygen therapy
    - Pain management required
      - Yes
        - Go to Pain CPG
      - No
        - Elevated temperature
          - Yes
            - Request ALS
          - No
            - Encourage oral fluids
              - Dehydration & unable to take oral fluids
                - Yes
                  - Consider patient’s care plan
                - No
                  - **Special Authorisation:**
                    - Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation
  - 100% O₂

---

**Reference:**
SECTION 4
MEDICAL EMERGENCIES

Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 4
MEDICAL EMERGENCIES

Stroke

Acute neurological symptoms

Obtain GCS

Positive FAST assessment

Maintain airway

Oxygen therapy

Check blood glucose

ECG & SpO2 monitoring

Onset < 4.5 hours

Specialised Stroke Unit available

Transport patient to hospital with Specialised Stroke Unit (under local protocol)

Follow local protocol re notifying ED prior to arrival

Go to Glycaemic Emergency CPG

Oxygen therapy

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

FGAS

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

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

**Behaviour abnormal with previous psychiatric history**

- **Exclude medical causes of abnormal behaviour prior to implementing this CPG**

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

- **Potentially to harm self or others ensure minimum two people accompany patient in saloon of ambulance at all times**

- **Request control to inform Gardaí**

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

**Potential to harm self or others**

- **No**

- **Yes**

**Reassure patient**

- **Explain what is happening at all times**

- **Avoid confrontation**

**Attempt verbal de-escalation**

- **Yes**

- **No**

**Patient agrees to travel**

- **Yes**

**Combative with hallucinations or Paranoia & risk to self or others**

- **Yes**

**Request as appropriate**

- Gardaí
- Medical Practitioner
- Mental health team

**Midazolam 2.5 mg IV or 5 mg IM**

**Lorazepam 2 mg PO**

**Oxygen therapy**

**For acute psychostimulant toxicity, urgent transport is indicated if the patient has a temp of ≥38°C has an altered level of consciousness has severe headache is hypertensive has respiratory difficulties has had a seizure has chest pain is extremely agitated**

**Does not respond to verbal de-escalation strategies**

**Go to Poisons CPG**

**Be aware of respiratory depression following sedation**

**Acute Psychostimulant toxicity**

- **Yes**

- **No**


**HSE Mental Health Services**
SECTION 4
MEDICAL EMERGENCIES

Behavioural Emergency

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 salon of ambulance at all times.

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

Indications of medical cause of illness

Yes → Go to appropriate CPG

No → Patient agrees to travel

Reassure patient
Explain what is happening at all times
Avoid confrontation

Attempt verbal de-escalation

Injury or illness potentially serious or likely to cause lasting disability

Yes → Inform patient of potential consequences of treatment refusal

No → Patient agrees to travel

Offer to treat and or transport patient

Treatment only

Yes

No → Request control to inform Gardaí and or Doctor

Is patient competent to make informed decision?

Yes → Document refusal of treatment and or transport to ED

No → Advise alternative care options and to call ambulance again if there is a change of mind

Await arrival of doctor or Gardaí or receive implied consent

Reference: HSE Mental Health Services

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

Take SAMPLE history

- Patient in labour
  - No
  - Birth imminent or travel time too long
    - No
    - Birth imminent or travel time too long
  - Yes

Position mother and prepare equipment for birth

Monitor vital signs and BP

- Cord complication
  - No
  - Cord complication
  - Yes

Support baby throughout delivery

- Gestation < 28 weeks
  - No
  - Gestation < 28 weeks
    - No
    - Dry baby and check ABCs
    - Yes
    - Cover newborn in polythene wrap/bag up to neck without drying first
  - Yes
    - Go to Umbilical Cord Complications CPG

Go to BLS & ALS Neonate CPG

- Baby stable
  - No
    - Clamp & cut cord
    - Wrap baby and present to mother
    - Yes
    - Go to Primary Survey CPG

Go to Breech Birth CPG

- Breech birth
  - No
  - Breech birth
    - No
    - Go to Umbilical Cord Complications CPG

- Cord complication
  - No
  - Infants
    - No
    - Infants
    - Yes
    - Nitrous Oxide & Oxygen

- Infant born alive
  - No
    - Infant born alive
    - Yes
    - If placenta delivers, bring to hospital with mother

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

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

Reference: ILCOR Guidelines 2010
Clinical Practice Guidelines

ADVANCED PARAMEDIC

SECTION 5

OBSTETRIC EMERGENCIES

From Childbirth CPG

Birth

< 4 Weeks old

Gestation < 28 weeks
Yes

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

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

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

Dry baby Provide warmth

Assess respirations, heart rate & colour

Breathing, HR > 100 & Pink

Assess Heart Rate

Breathing, HR > 100 but Cyanotic

Give Supplementary O₂

Persistent Cyanosis

Yes

Request ALS

Assess Respirations, Heart rate & Colour

Breathing, HR > 100

Provide positive pressure ventilation for 30 sec

HR < 60

CPR (ratio 3:1) for 30 sec

HR 60 to 100

Assess Heart Rate

Breathing well, HR > 100

CPR (ratio 3:1) for 30 sec

HR < 60

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

Every 3 to 5 minutes prn

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

Naloxone, 0.01 mg/kg IM

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

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

Reference: ILCOR Guidelines 2010
Haemorrhage in Pregnancy Prior to Delivery

1. Query pregnant < 24 weeks Early pregnancy haemorrhage
2. Pregnancy ≥ 24 weeks Antepartum haemorrhage

Left lateral tilt
- Do not examine abdomen or vagina
- Apply absorbent pad to perineum area

Oxygen therapy

Patient is haemodynamically unstable
- Yes
- Request ALS
- Go to Shock CPG
- Reassess

Patient is haemodynamically stable
- No

Postpartum Haemorrhage

2nd stage of labour complete

- Apply absorbent pad to perineum area
- Oxygen therapy
- Syntometrine, 1 mL IM (if not already administered)
- Mother is haemodynamically unstable

- External massage of the uterus
- Elevate lower limbs
- Consider inserting a urinary catheter
- Go to Shock CPG

Estimate blood loss

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

Umbilical Cord Complications

Cord complication

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

Oxygen therapy

Cord around baby’s neck

Attempt to slip the cord over the baby’s head

Yes

Successful

Clamp cord in two places and cut between both clamps

Ease the cord from around the neck

Go to Childbirth CPG

No

Prolapsed cord

Mother to adopt knee chest position

Hold presenting part off the cord using fingers

Maintain cord temperature and moisture

Consider inserting an indwelling catheter into the bladder and run 500 mL of NaCl into the bladder and clamp catheter

In labour

No

Yes

Consider

Nifedipine, 20 mg, PO

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

Reference:
- Duley, LMM, 2002, Clinical Guideline No 1(B), Tocolytic Drugs for women in preterm labour, Royal College of Obstetricians and gynaecologists
**Clinical Practice Guidelines**
**ADVANCED PARAMEDIC**

**SECTION 5**
**OBSTETRIC EMERGENCIES**

**Breech Birth**

- **Breech birth presentation**
- **Request ALS**
- **Oxygen therapy**
- **Mother to adapt the lithotomy position**
- **Support the baby as it emerges – avoid manipulation of the baby’s body**

**Success**
- **Yes**
- **Grasp both baby’s ankles in other hand**
- **Rotate baby’s legs in an arc in an upward direction as contractions occur**
- **Successful delivery after 5 contractions**
  - **Yes**
  - **Place hand in the vagina with palm towards baby’s face**
  - **Form a V with fingers on each side of baby’s nose and gently push baby’s head away from vaginal wall**
  - **Yes**
  - **Go to Childbirth CPG**
  - **Consider Nitrous Oxide & Oxygen**

**Failure**
- **No**
- **Nape of neck anteriorly visible at vulva**
  - **Yes**
  - **Place one hand, palm up, onto baby’s face**
  - **Grasp both baby’s ankles in other hand**
  - **Rotate baby’s legs in an arc in an upward direction as contractions occur**
  - **Successful delivery after 5 contractions**
    - **Yes**
    - **Place hand in the vagina with palm towards baby’s face**
    - **Form a V with fingers on each side of baby’s nose and gently push baby’s head away from vaginal wall**
    - **Yes**
    - **Go to Childbirth CPG**
    - **Consider Nitrous Oxide & Oxygen**
  - **No**
  - **Request Ambulance Control to contact GP / midwife/ medical team as required by local policy to come to scene or meet en route**

**Version 1, 05/08**
SECTION 6
TRAUMA

Burns – Adult

Cease contact with heat source

Inhalation and/or facial injury

Airway management

Respiratory distress

Go to Inadequate Ventilations CPG

Consider humidified Oxygen therapy

Isolated superficial injury (excluding FHFFP)

Commence local cooling of burn area

Dressing/covering of burn area

Remove burned clothing & jewellery (unless stuck)

Go to Pain Mgt. CPG

Pain > 2/10

Yes

No

Go to Pain Mgt. CPG

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

SECTION 6
TRAUMA

**Crush Injury**

- **Patient trapped**
- **Request ALS**
- **Maintain AcBC**
  - **Airway**
  - **Cervical spine**
  - **Breathing**
  - **Circulation**

- **Oxygen therapy**
- **Consider pain relief**
- **NaCl (0.9%) 20 mL/Kg IV/IO**
- **ECG & SPO2 monitoring**
- **Prepare all required patient carrying devices and have on standby following extrication**
- **If possible commence IV fluids prior to release**
- **Apply standard trauma care during and post extrication**
- **Go to appropriate CPG**

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

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

Open wound

Active bleeding

Yes

Catastrophic haemorrhage

Yes

Posture Elevation Examination Pressure

Apply tourniquet if limb injury

consider applying a dressing impregnated with haemostatic agent

Yes

No

Posture Elevation Examination Pressure

Apply sterile dressing

Consider Oxygen therapy

Haemorrhage controlled

Yes

Apply additional dressing(s)

No

Haemorrhage controlled

Yes

Depress proximal pressure point

Haemorrhage controlled

No

Apply tourniquet

Significant blood loss

Yes

Go to Shock CPG

No

Equipment list

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

Reference:
ILCOR Guidelines 2010.
SECTION 6
TRAUMA

Harness Induced Suspension Trauma

This CPG does not authorise rescue by untrained personnel

Fall arrested by harness/rope

Patient still suspended

Yes

Advise patient to move legs to encourage venous return

No

Elevate lower limbs if possible during rescue

Personal safety of the Practitioner is paramount

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

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

Caution

Place patient in a horizontal position as soon as practically possible

Monitor BP, SpO2 and ECG

Oxygen therapy to maintain SpO2 > 94%

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

Go to appropriate CPG

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

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

Head trauma

Maintain Airway (Consider Advanced airway)

Oxygen therapy

Control external haemorrhage

Maintain in-line immobilisation

Consider spinal injury

SpO₂ & ECG monitoring

GCS ≤ 12

Yes

Request ALS

GCS ≤ 8

Yes

Minimise increases in Intra Cranial Pressure

- Pain Management
- Control nausea & vomiting
- 10° upward head tilt
- Check collar tension

Avoid hypotension

Check blood glucose

Patient seizing

Consider Vacuum mattress

No

Yes

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

Equipment list

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

Reference:
Heat Related Emergency – Adult

Collapse from heat related condition

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

Yes

Alert

No

Give cool fluids to drink

Maintain airway

Mild Hyperthermia (heat stress)

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

Moderate Hyperthermia (Heat exhaustion)

Moderate Hyperthermia (Heat exhaustion)

Severe Hyperthermia (Heat stroke) > 40°C

Check blood glucose

Cool patient

SpO₂ & ECG monitor

Consider

ALS

Consider

NaCl (0.9%) 1 L IV

Elevate oedematous limbs

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

Reference:
ILCOR Guidelines 2010,
European Resuscitation Guidelines 2010.
RFDS, 2011, Primary Clinical Care Manual
SECTION 6
TRAUMA

Clinical Practice Guidelines
ADVANCED PARAMEDIC

Limb Injury – Adult

- Establish need for pain relief
- Check CSMs distal to injury site
- Provide manual stabilisation for injured limb
- Check CSMs distal to injury site
- Injury type

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

Soft tissue injury
- Isolated lateral dislocation of patella

Dislocation
- Mid shaft of femur
- Neck of femur

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

Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 6
TRAUMA

5/6.6.8
Version 3, 12/13

Shock from Blood Loss (trauma) – Adult

Control external haemorrhage

Oxygen therapy

Patient trapped

No

Yes

NaCl (0.9%), 500 mL IV/IO

Head injury

Yes

No

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

Maintain normo-temperature

Continue fluid therapy until handover at ED

With polytrauma consider application of a pelvic splint

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

SECTION 6
TRAUMA

Spinal Immobilisation – Adult

Trauma Initial indications for spinal immobilisation

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

Remove helmet (if worn)

Neck or back pain or midline spinal tenderness

Yes

Dangerous mechanism of injury or significant distracting injury

Yes

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

Yes

Life Threatening

Apply cervical collar

Rapid extrication with long board and cervical collar

Consider Vacuum mattress

No

No

No

Yes

Immobilisation may not be indicated

Go to appropriate CPG

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

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

Use clinical judgement
If in doubt, immobilise

Do not forcibly restrain a patient that is combative

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

Clinical Practice Guidelines

SECTION 6
TRAUMA

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)

Adequate ventilations

Go to Inadequate Ventilations CPG

SpO2 & ECG monitoring

Indications of respiratory distress

Yes

Monitor Pulse, Respiration & BP

If bronchospasm consider
Salbutamol
≥ 5 years 5 mg NEB
< 5 years 2.5 mg NEB

Check blood glucose

Go to Hypothermia CPG

Spinal injury indicators
- History of:
  - diving
  - trauma
  - water slide use
  - alcohol intoxication

Higher pressure may be required for ventilation because of poor compliance resulting from pulmonary oedema

Transport to ED for investigation of secondary drowning insult

Reference:
SECTION 6
TRAUMA

Traumatic Cardiac Arrest – Adult

EMS Unwitnessed Traumatic Arrest

- No
  - Go to appropriate CPG
  - Apnoeic, Pulseless and Asystolic
    - Yes
    - Blunt trauma
      - Yes
      - <18 years Hypothermia Drowning Lightning strike Electrical injury
        - No to all
        - Low energy incident
          - Yes
          - Go to Recognition of Death CPG
          - No
          - Go to Asystole Decision Tree CPG

- Yes
  - EMS Witnessed Traumatic Arrest

EMS Witnessed Traumatic Arrest

- Patient responds to BLS or ALS provision within 15 min
  - Yes
  - Rapid transport towards ALS
  - Consider ceasing resuscitation
  - Request ALS


5/6.6.11
Version 1, 05/08
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 Medical – Paediatric (≤ 15 Years)**

**Medical issue**

- Take standard infection control precautions

**Consider pre-arrival information**

- Scene safety
- Scene situation

**Paediatric Assessment Triangle**

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

- **B** Adequate ventilation
  - Yes
  - No
  
  **Oxygen therapy**

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

**Give 5 Ventilations**

**Life threatening**

**Clinical status decision**

- **Non serious or life threat**
  - Go to Secondary Survey CPG

- **Serious not life threat**
  - Request ALS
  - Go to appropriate CPG

**Serious**

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

**Normal ranges**

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse</th>
<th>Respiration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant</td>
<td>100 – 160</td>
<td>30 – 60</td>
</tr>
<tr>
<td>Toddler</td>
<td>90 – 150</td>
<td>24 – 40</td>
</tr>
<tr>
<td>Pre school</td>
<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>

Reference:

- ILCOR Guidelines 2010, American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals
- Department of Children and Youth Affairs, 2011, Children First
- National Guidance for the Protection and the Welfare of Children
The primary survey is focused on establishing the patient’s clinical status and only applying interventions when they are essential to maintain life. It should be completed within one minute of arrival on scene.

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

1. **Consider pre-arrival information**
   - Scene safety
   - Scene survey
   - Scene situation

2. **Control catastrophic external haemorrhage**

3. **Mechanism of injury suggestive of spinal injury**
   - Yes
   - No

4. **C-spine control**

5. **Paediatric Assessment Triangle**
   - Appearance
   - Work of breathing
   - Circulation to skin

6. **Give 5 Ventilations**
   - Airway patent & protected
   - Adequate ventilation

7. **A**
   - Yes
   - No

8. **Jaw thrust (Head tilt/ chin lift)**

9. **B**
   - Yes
   - No

10. **Adequate ventilation**
    - Yes
    - No

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

12. **AVPU assessment**

13. **Expose & check obvious injuries**

14. **Treat life threatening injuries only**

15. **Life threatening**
    - Clinical status decision

16. **Non serious or life threat**

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

Secondary Survey – Paediatric (≤ 15 years)

Primary Survey

- Make appropriate contact with patient and or guardian if possible
- Identify presenting complaint and exact chronology from the time the patient was last well
  - Check for normal patterns of
    - feeding
    - toilet
    - sleeping
    - interaction with guardian
- Identify patient’s weight
- Head to toe examination
  - Observing for
    - pyrexia
    - rash
    - pain
    - tenderness
    - bruising
    - wounds
    - fractures
    - medical alert jewellery
- Recheck vital signs
- Check for current medications

If child protection concerns are present

Go to appropriate CPG

Identify positive findings and initiate care management

Use age appropriate language for patient

Children and adolescents should always be examined with a chaperone (usually a parent) where possible

Estimated weight

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

Reference:
Miall, Lawrence et al, 2003, Paediatrics at a Glance, Blackwell Publishing
Department of Children and Youth Affairs, 2011, Children First: National Guidance for the Protection and Welfare of Children
Luscombe, M et al 2010, BMJ, Weight estimation in paediatrics: a comparison of the APLS formula and the formula ‘Weight+3(age)+7’
**SECTION 7**

**PAEDIATRIC EMERGENCIES**

---

### Pain Management – Paediatric (≤ 15 years)

**Pain**

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

**Pain assessment**

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

**Adequate relief of pain**

- Yes or best achievable

**Go back to originating CPG**

- No

**Reassess and move up the pain ladder if appropriate**

---

**Pain assessment recommendation**

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

**Analogue Pain Scale**

- 0 = no pain
- 10 = unbearable

---

### Severe pain (≥ 7 on pain scale)

- **Fentanyl 0.0015 mg/Kg** IN (1.5 mcg/Kg)
- Repeat every 3 min

- **Morphine 0.3 mg/Kg** PO
- Max 10 mg

- Consider

**Nitrous Oxide & Oxygen, inh**

---

### Moderate pain (4 to 6 on pain scale)

- **Paracetamol 20 mg/Kg** PO
- **Ibuprofen 10 mg/Kg** PO

- Consider

**Nitrous Oxide & Oxygen, inh**

---

### Mild pain (1 to 3 on pain scale)

- **Paracetamol 20 mg/Kg** PO

---

**Consider other non-pharmacological interventions**

**PHECC Paediatric Pain Ladder**

---

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

---

Reference: World Health Organization, Pain Ladder
**SECTION 7**

**PAEDIATRIC EMERGENCIES**

---

**Advanced Airway Management – Paediatric (≤ 15 years)**

- Prolonged CPR
  - Ventilations maintained
    - No: Consider FBAO
    - Yes: Continue ventilation and oxygenation
      - Check placement of advanced airway after each patient movement or if any patient deterioration

- Minimum age for advanced airway ≥ 2 years old

- Maintain adequate ventilation and oxygenation throughout procedures

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

- Successful
  - Yes: Endotracheal intubation or Supraglottic airway insertion
  - No: Revert to basic airway management

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

- Consider use of waveform capnography

---

Reference: ILCOR Guidelines 2010, Paediatric basic and advanced life support
If suspected narcotic OD Consider:
- Naloxone, 0.01 mg/Kg IM/SC
- Naloxone, 0.02 mg/Kg IN

If raised ETCO2 + reduced SpO2:
- Consider assisted ventilation

If raised ETCO2 + normal SpO2:
- Encourage deep breaths

Consider collapse, consolidation & fluid

Tension Pneumothorax suspected
- Needle decompression

Inadequate Ventilations – Paediatric (≤ 15 years)

Respiratory difficulty
- Airway patent & protected
  - Yes
  - No

Check SpO2

Consider ETCO2

Oxygen therapy
- Request ALS

Patient assessment

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

Brain insult
- Go to Head injury CPG

Respiratory failure
- Go to Respiratory assessment

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

Other
- Consider pain, posture & neuromuscular disorders

Bronchospasm/known asthma
- Go to Asthma CPG

Asymmetrical breath sounds
- Go to Anaphylaxis CPG

Crepitations
- Go to Sepsis CPG

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

Patient assessment

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

Raised ETCO2 + reduced SpO2:
- Consider assisted ventilation

Raised ETCO2 + normal SpO2:
- Encourage deep breaths

Consider pain, posture & neuromuscular disorders

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

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

Tension Pneumothorax suspected
- Needle decompression

Inadequate Ventilations – Paediatric (≤ 15 years)

Respiratory difficulty
- Airway patent & protected
  - Yes
  - No

Check SpO2

Consider ETCO2

Oxygen therapy
- Request ALS

Patient assessment

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

Brain insult
- Go to Head injury CPG

Respiratory failure
- Go to Respiratory assessment

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

Other
- Consider pain, posture & neuromuscular disorders

Bronchospasm/known asthma
- Go to Asthma CPG

Asymmetrical breath sounds
- Go to Anaphylaxis CPG

Crepitations
- Go to Sepsis CPG

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

Patient assessment

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

Raised ETCO2 + reduced SpO2:
- Consider assisted ventilation

Raised ETCO2 + normal SpO2:
- Encourage deep breaths

Consider pain, posture & neuromuscular disorders

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

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

Tension Pneumothorax suspected
- Needle decompression

Inadequate Ventilations – Paediatric (≤ 15 years)

Respiratory difficulty
- Airway patent & protected
  - Yes
  - No

Check SpO2

Consider ETCO2

Oxygen therapy
- Request ALS

Patient assessment

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

Brain insult
- Go to Head injury CPG

Respiratory failure
- Go to Respiratory assessment

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

Other
- Consider pain, posture & neuromuscular disorders

Bronchospasm/known asthma
- Go to Asthma CPG

Asymmetrical breath sounds
- Go to Anaphylaxis CPG

Crepitations
- Go to Sepsis CPG

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

Patient assessment

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

Raised ETCO2 + reduced SpO2:
- Consider assisted ventilation

Raised ETCO2 + normal SpO2:
- Encourage deep breaths

Consider pain, posture & neuromuscular disorders

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

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

Tension Pneumothorax suspected
- Needle decompression
Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 7
PAEDIATRIC EMERGENCIES

Asthma – Paediatric (≤ 15 years)

Assess and maintain airway
Respiratory assessment
< 5 years Salbutamol 2.5 mg NEB
≥ 5 years Salbutamol 5 mg, NEB

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

Resolved/improved
Yes

ECG & SpO2 monitoring
Oxygen therapy
Request ALS

No

Moderate Asthma

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

Resolved/improved
Yes

Salbutamol, age-specific dose, NEB

No

Severe Asthma

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

Resolved/improved
Yes

Hydrocortisone (in 100 mL NaCl)

No

Life-threatening Asthma

Salbutamol, age-specific dose, NEB
Every 5 minutes pm

Assess & maintain airway

Humidified O₂ – as high a concentration as tolerated

Do not distress
Transport in position of comfort

ECG & SpO₂ monitoring

Stridor – Paediatric (≤ 15 years)

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
Basic Life Support – Paediatric (≤ 15 Years)

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

Give 5 rescue ventilations
Oxygen therapy

Request ALS

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

Yes
< 8 years
No

Apply paediatric system AED pads

Apply adult defibrillation pads

Shockable VF or pulseless VT
Give 1 shock

Non-Shockable Asystole or PEA

Immediately resume CPR x 2 minutes

Rhythm check *

Go to VF / Pulseless VT CPG

Go to VF / Pulseless VT CPG

Go to Post Resuscitation Care CPG

Asystole / PEA

Asystole / PEA

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

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

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

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

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

Change defibrillator to manual mode

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
FBAO

Are you choking?

Severe (ineffective cough) → FBAO Severity → Mild (effective cough)

Encourage cough

1 to 5 back blows followed by 1 to 5 thrusts (child – abdominal thrusts) (infant – chest thrusts) as indicated

Adequate ventilations

Conscious

Yes

No

Effective

Yes

No

Effective

Yes

No

One cycle of CPR

Effective

Yes

No

Inspect airway - Laryngoscopy

Foreign body removed

Yes

No

Visualise foreign body

No

Attempt removal of foreign body with Magill forceps

Consider use of waveform capnography

Oxygen therapy

Attempt intubation

Positive pressure ventilations (12 to 20/ min)

Yes

No

Effective ventilations

Yes

No

Attempt needle cricothyrotomy

Go to BLS Paediatric CPG

Effective ventilations

Oxygen therapy

After each cycle of CPR open mouth and look for object if visible attempt once to remove it
VF or Pulseless VT – Paediatric (≤ 15 years)

From BLS Paediatric CPG

Immediate IO access if IV not immediately accessible

Go to Post Resuscitation Care CPG

Go to Asystole / PEA CPG

VF or VT arrest

VF/VT

Rhythm check *

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

Check blood glucose

Following successful Advanced Airway management:

i) Ventilate at 12 to 20 per minute.
ii) Un synchronised chest compressions continuous at 100 to 120 per minute

Defibrillate (4 joules/Kg)

VF/VT

Yes

No

VF/VT

Refractory VF/VT post Epinephrine

Amiodarone, 5 mg/kg, IV/IO

Initiate Epinephrine between 2nd and 4th shock.

Initial Epinephrine between 2nd and 4th shock.

VF/VT

CPR

2 minutes

VF/VT

Clinical leader to monitor quality of CPR

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

 VF or Pulseless VT – Paediatric (≤ 15 years)

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

Reference: ILCOR Guidelines 2010

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

Immediate IO access if IV not immediately accessible

Ref: 4/5/6.7.22 Version 3, 12/13 BLS Paediatric CPG

AP

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

Drive smoothly

Consider use of waveform capnography

Transport to ED if no change after 10 minutes resuscitation

Immediate IO access if IV not immediately accessible

If no ALS available

Consider use of waveform capnography

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

AP

Check blood glucose
Asystole/PEA – Paediatric (≤ 15 years)

**Check blood glucose**

**Advanced airway management**

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

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

**Check blood glucose**

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

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

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

**Clinical leader to monitor quality of CPR**

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

**Reference:** ILCOR Guidelines 2010

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

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

**AP**

**Consider use of waveform capnography**
Symptomatic Bradycardia – Paediatric (≤ 15 years)

- Consider positive pressure ventilations (12 to 20/min)
- ECG & SpO2 monitoring
- Continue CPR

- Symptomatic Bradycardia
  - Yes: Hypoxia
  - No: Request ALS

- Unresponsive Signs of Inadequate perfusion & HR < 60
  - Yes: CPR
  - No: ECG & SpO2 monitoring

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

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

- Persistent bradycardia
  - Yes: Continue CPR
  - No: Reassess

- Unresponsive
  - Yes: Oxygen therapy
  - No: Request ALS

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

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

- Immediate IO access if IV not immediately accessible

- Check blood glucose

 SECTION 7
PAEDIATRIC EMERGENCIES

Post-Resuscitation Care – Paediatric (≤ 15 years)

Return of Spontaneous Circulation

- Maintain Oxygen therapy
  - Request ALS
  - Unresponsive No
    - Positive pressure ventilations Max 12 to 20 per minute
  - Yes
  - No Adequate ventilation
    - Yes
    - Commence active cooling
  - No

- Maintain patient at rest
- ECG & SpO2 monitoring
- Monitor blood pressure and GCS
- Check blood glucose
- Monitor vital signs

- Transport quietly and smoothly

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

Reference: ILCOR Guidelines 2010

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

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

Titrate O2 to 96% - 98%

If persistent poor perfusion consider
[NaCl (0.9%) 20 mL/Kg IV/IO]
**Clinical Practice Guidelines**

**ADVANCED PARAMEDIC**

**SECTION 7**

**PAEDIATRIC EMERGENCIES**

![Flowchart](image)

**Adrenal Insufficiency – Paediatric (≤ 15 years)**

Diagnosed with Addison’s disease or Adrenal insufficiency

- **Recent illness or injury**
  - **Yes**: Check blood glucose
  - **No**: Continue

- **Poor perfusion**
  - **Yes**: Request ALS
  - **No**: Reassess

- **Consider**
  - Hydrocortisone IM
    - 6 months ≤ 5 years: 50 mg
    - > 5 years: 100 mg
  - If IV not available

**Hydrocortisone IV** (in 100 mL NaCl)

- **6 months ≤ 5 years**: 50 mg
- **> 5 years**: 100 mg

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

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

**Clinical Practice Guidelines**

**ADVANCED PARAMEDIC**

**SECTION 7**

**PAEDIATRIC EMERGENCIES**

---

**Allergic Reaction/Anaphylaxis – Paediatric (≤ 15 years)**

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

- **Epinephrine (1:1 000) IM**
  - < 6 months: 0.06 mg (60 mcg) IM
  - 6 months to 5 years: 0.125 mg (125 mcg) IM
  - 6 to 8 years: 0.25 mg (250 mcg) IM
  - > 8 years: 0.5 mg (500 mcg) IM

- **Repeat Epinephrine at 5 minute intervals if no improvement**

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

- **If bronchospasm consider nebuliser**
  - **Salbutamol NEB**
    - < 5 yrs: 2.5 mg
    - ≥ 5 yrs: 5 mg

- **If bronchospasm consider nebuliser**
  - **Salbutamol aerosol 0.1 mg.**
  - If no improvement; Salbutamol may be repeated; for < 5 year olds up to 3 times, for ≥ 5 year olds up to 5 times, prn

- **ECG & SpO2 monitor**

- **Deteriorates**
  - **Yes**
  - **No**

- **If bronchospasm consider nebuliser**
  - **Salbutamol NEB**
    - See age-related doses above

- **Severe or recurrent reactions and or patients with asthma**
  - **Yes**
  - **No**

- **Hydrocortisone (infusion in 100 mL NaCl)**
  - < 1 yr: 25 mg IV or IM
  - 1-5 yrs: 50 mg IV or IM
  - > 5 yrs: 100 mg IV or IM

---

**Special Authorisation:**

Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation.
Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 7
PAEDIATRIC EMERGENCIES

Glycaemic Emergency – Paediatric (≤ 15 years)

Abnormal blood glucose level

< 4 mmol/L

Blood Glucose

11 to 20 mmol/L

> 20 mmol/L

Dextrose 10% 5 mL/Kg IV/IO bolus

Repeat x 1 prn

Consider

Glucose gel
≤ 8 years 5-10 g Buccal
> 8 years 10-20 g Buccal

Glucagon
≤ 8 years 0.5 mg IM
> 8 years 1 mg IM

Consider

Reassess

ALS

Reassess

ALS

Dehydration

Yes

Dehydration

No

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

Request

ALS

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

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

Seizure / convulsion

Protect from harm

Oxygen therapy

Seizing currently → Seizure status → Post seizure

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

Yes

No

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

Or

Midazolam 0.2 mg/Kg IN
Repeat by one prn

Or

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

Consider other causes

Yes

No

Midazolam 0.1 mg/Kg IV/IO
Repeat by one prn

Or

Diazepam 0.1 mg/Kg IV/IO
Repeat by one prn

Yes

Go to Pyrexia CPG

No

Check blood glucose

Reassess

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

Pyrexia

Consider

ALS

Request

ALS
Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 7
PAEDIATRIC EMERGENCIES

Septic Shock – Paediatric (≤ 15 years)

Clinical signs of shock

Oxygen therapy

Request ALS

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

Meningococcal disease suspected

Yes

No

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

ECG & SpO2 monitoring

Ensure appropriate PPE worn; Mask and goggles

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

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

Benzylpenicillin IV/IO over 3 to 5 minutes or IM
< 1 year 300 mg
1 – 8 years 600 mg
> 8 years 1 200 mg (1.2 g)
Pyrexia – Paediatric (≤ 15 years)

Child with elevated temperature

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

Alert

No

Give cool fluids to drink

Recovery position (maintain airway)

Check blood glucose

Cool patient

2 ≥ 38°C

temperature with signs of distress or pain

Paracetamol, 20 mg/Kg PO

Or

Paracetamol

× 1 mth < 1 year: 90 mg PR

1 to 3 years: 180 mg PR

4 to 8 years: 360 mg PR

Consider ALS

SpO2 & ECG monitor

Go to Septic Shock CPG

Query severe Sepsis

No

EMT

P

AP

EMT

P

AP

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

- **Sickle Cell crisis**
  - Oxygen therapy
  - Pain management required
    - Yes: Go to Pain CPG
    - No: Elevated temperature
      - Yes: If patient is cold ensure that he/she is warmed to normal temperature
      - No: Encourage oral fluids
        - Dehydration & unable to take oral fluids
          - Yes: Request ALS
          - No: 
            - NaCl (0.9%) 10 mL/Kg IV
            - SpO₂ & ECG monitor

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

External Haemorrhage – Paediatric (≤ 15 years)

Open wound

Active bleeding

Yes

Catastrophic haemorrhage

Yes

Posture

Elevation

Examination

Pressure

Posture Elevation Examination Pressure

Apply sterile dressing

Consider applying a dressing impregnated with haemostatic agent

Yes

No

Depress proximal pressure point

P

Yes

No

Apply tourniquet

P

Yes

No

Significant blood loss

Yes

Go to Shock CPs

No

Apply additional dressing(s)

Haemorrhage controlled

Yes

No

Depress proximal pressure point

Haemorrhage controlled

Yes

No

Consider applying a dressing impregnated with haemostatic agent

Equipment list

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

Reference:
ILCOR Guidelines 2010,
Reassess

Control external haemorrhage

Oxygen therapy

Request ALS

Patient trapped

No

Yes

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

Control external haemorrhage

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

Reference:
American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals, Jones and Bartlett.
Spinal Immobilisation – Paediatric (≤ 15 years)

**Trauma Initial indications for spinal immobilisation**

- Return head to neutral position unless on movement there is Increase in Pain, Resistance or Neurological symptoms
- Use clinical judgement. If in doubt, immobilise.

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

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

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

**Use clinical judgement**

If in doubt, immobilise.

---

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

1. Cease contact with heat source
2. Airway management
   - Respiratory distress?
     Yes: Go to Inadequate Ventilations
     No: Commence local cooling of burn area
3. Consider humidified Oxygen therapy
4. Remove burned clothing & jewellery (unless stuck)
5. Dressing/ covering of burn area
6. Go to Pain Mgt.
   - Pain > 2/10
     Yes: Request ALS
     No: Monitor body temperature

Isolated superficial injury (excluding PHFP)

- TBSA burn > 5%
  Yes: 
  No: 

- TBSA burn > 5% and/or time from injury to ED > 1 hour
  Yes: 
  No: 

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

Clinical Practice Guidelines
ADVANCED PARAMEDIC

SECTION 8
PRE-HOSPITAL EMERGENCY CARE OPERATIONS

Major Emergency (Major Incident) – First Practitioners on site

EMT P

Take standard infection control precautions

Consider pre-arrival information

PPE (high visibility jacket and helmet) must be worn

Practitioner 1

Practitioner 2

(Ideally MIMMS trained)

Possible Emergency

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

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

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

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

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

**Major Emergency (Major Incident) – Operational Control**

**Irish (Major Emergency) terminology in black**

**UK (Major Incident) terminology in blue**

- Danger Area
- Traffic Cordon
- Inner Cordon
- Outer Cordon
- Body Holding Area
- Casualty Clearing Station
- Ambulance Loading Point
- Site Control Point
- HSE Holding Area
- Garda Holding Area
- LA Holding Area

- 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

**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)

- **Inner Cordon, Operational Area (Bronze Area):**
  - Forward Ambulance Incident Officer (Forward Ambulance Incident Officer)
  - Forward Medical Incident Officer (Forward Medical Incident Officer)
  - Fire Service Incident Commander (Forward Fire Incident Officer)
  - Garda Cordon Control Officer (Forward Police Incident Officer)

**Other management functions for:**

- Major Emergency site:
  - Casualty Clearing Officer
  - Triage Officer
  - Ambulance Parking Point Officer
  - Ambulance Loading Point Officer
  - Communications Officer
  - Safety Officer

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

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

**ADVANCED PARAMEDIC**

**SECTION 8**

**PRE-HOSPITAL EMERGENCY CARE OPERATIONS**

Triage Sieve

**Multiple casualty incident**

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

**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.
## Triage Sort

### Cardiopulmonary function

<table>
<thead>
<tr>
<th>Measured value</th>
<th>Score</th>
<th>Insert score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respiratory Rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 – 29 / min</td>
<td>4</td>
<td>A</td>
</tr>
<tr>
<td>&gt; 29 / min</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>6 – 9 / min</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1 – 5 / min</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Systolic Blood Pressure</strong></td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>≥ 90 mm Hg</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>76 – 89 mm Hg</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>50 – 75 mm Hg</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1 – 49 mm Hg</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>No BP</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Glasgow Coma Scale</strong></td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>4 – 5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

### Triage Revised Trauma Score

\[ A + B + C \]

### Priority Levels

- **Priority 1 (Immediate)**: RED
- **Priority 2 (Urgent)**: YELLOW
- **Priority 3 (Delayed)**: GREEN
- **Dead**: DEAD

---

The principles and terminology of Major Incident Medical Management and Support (MIMMS) has been used with the kind permission of the Advanced Life Support Group, UK.
SECTION 8
PRE-HOSPITAL EMERGENCY CARE OPERATIONS

**Conducted Electrical Weapon (Taser)**

Prior to touching the patient ensure that the Garda has disconnected the wires from the hand held unit.

- **Complete primary survey**
- **Cut wire connection proximal to barbs**
- **Monitor ECG & SpO2 for minimum 15 minutes**

**Behavioural emergency**
- **Yes**
- **Go to appropriate CPG**
- **No**

- **Monitor GCS, temperature & vital signs**
- **Monitor for signs of Excited Delirium**
- **Consider Oxygen therapy**
- **Ensure Garda accompanies patient at all times**

**Consider Oxygen therapy**

- **Remove barbs**
  - **Clean and dress wounds**

**Patient care takes precedent over removal of barb**

- **Barbs should not be removed if they are embedded in the face, eye, neck, or groin**

Reference:
- United States Government Accountability Office, 2005, The use of Taser by selected law enforcement agencies
- Manitoba Health Emergency Medical Services, 2007 Taser Dart Removal Protocol

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

ADvanced Paramedic

SECTION 9
TREAT & REFERRAL

Clinical Care Pathway Decision – Treat & Referral

Non serious or non life threat

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

Patient responds to intervention(s)

No

Yes

Conduct complete patient assessment
Focused history
Systematic physical examination

All generic inclusion criteria present

Yes

No

Practitioner satisfied with non ED care

Yes

No

CPG for treat & referral available for condition

Yes

No

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

Yes

No

Explain clinical pathway options to patient and carer

Patient & carer accepts non ED care

Yes

No

Go to appropriate T&R CPG

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

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

HSE Acute Medicine Programme, 2011, Guiding Framework and Policy for the National Early Warning Score System to Recognise and Respond to Clinical Deterioration
Hypoglycaemia – Treat & Referral

Previously diagnosed with diabetes

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

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

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

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

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

Reference:
- Ambulance Service of NSW, 2008, CARE Clinical Pathways

1. Complete after care Instructions and give a copy to the patient or carer
2. Complete the PCR and mark for Clinical Audit
Isolated seizure – Treat & Referral

Specific seizure exclusion

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

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

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

Known epileptic

Yes

Exclusions present

No

Case

CP 2

CP 3

CP 4

Transport

Immediate

48 hours

Self care

CP 2

Immediate

CP 4

Self care

Reference: HSE Epilepsy Programme 2012
Ambulance Service of NSW, 2008, CARE Clinical Pathways
Machem, CC et al, 2001, Short-term outcome of seizure patients who refuse transport after out-of-hospital evaluation, Academy of Emergency Medicine, Mar;8(3):231-6
APPENDIX 1

MEDICATION FORMULARY

The Medication Formulary is published by the Pre-Hospital Emergency Care Council (PHECC) to enable pre-hospital emergency care practitioners to be competent in the use of medications permitted under the Medicinal Products 7th Schedule (SI 300 of 2014). This is a summary document only and practitioners are advised to consult with official publications to obtain detailed information about the medications used.

The Medication Formulary is recommended by the Medical Advisory Committee (MAC) prior to publication by Council.

The medications herein may be administered provided:

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

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

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

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

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

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

The route of administration should be appropriate to the patient’s clinical presentation.

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

**Paediatric weight estimations acceptable to PHECC are:**

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

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

This version contains 40 medications.
Amendments to the 2012 Edition

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

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

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

The paediatric weight estimation formulae have been modified.

New Medications introduced:
- Dextrose 5%
- Fentanyl
- Ticagrelor
- Tranexamic Acid

Medications withdrawn for Advanced Paramedic use but continued for pre-hospital medical practitioner use:
- Enoxaparin Sodium Solution
- Tenecteplase Powder for injection

### Amiodarone

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indications</td>
<td>Symptomatic Tachycardia (&gt; 150)</td>
<td></td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Symptomatic Tachycardia: 150 mg IV (infusion in 100 mL D2W)</td>
<td></td>
</tr>
<tr>
<td>Additional information</td>
<td>(for infusion use 100 mL D2W)</td>
<td>For cardiac arrest do not dilute, administer directly followed by a flush</td>
</tr>
</tbody>
</table>
### Atropine

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indications</td>
<td>Cholinergic poison with bradycardia and salivation</td>
<td>Paediatric (CPG not published) Organophosphate poison.</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Post-cardiac transplantation.</td>
<td></td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Symptomatic Bradycardia: 0.6 mg (600 mcg) IV</td>
<td>Symptomatic Bradycardia – 0.5 mg (500 mcg) IV</td>
</tr>
<tr>
<td>Additional info</td>
<td></td>
<td>Organophosphate poison</td>
</tr>
</tbody>
</table>

### Benzylpenicillin

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indications</td>
<td>Severe sepsis – Adult</td>
<td>Suspected or confirmed meningococcal sepsis – Paediatric</td>
</tr>
</tbody>
</table>

### Clopidogrel

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

### Enoxaparin Sodium Solution

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Level</td>
<td>MP</td>
<td>AP</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adult Dosage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(&gt; 75 years: 0.75 mg/Kg SC)</td>
<td></td>
</tr>
</tbody>
</table>
### APPENDIX 1

#### MEDICATION FORMULARY

<table>
<thead>
<tr>
<th></th>
<th>Headings</th>
<th>Add</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epinephrine (1:1,000)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Auto-injector</td>
<td>EpiPen® Jr</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Furosemide</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Slow IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hartmann’s Solution</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>See NaCl</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Epinephrine (1:1,000)**
  - **Usual Dosages**
    - Auto-injector
    - EpiPen® Jr

- **Furosemide**
  - **Usual Dosages**
    - Slow IV

- **Hartmann’s Solution**
  - **Usual Dosages**
    - See NaCl

- Adult: Anaphylaxis; 1000 mL IV/IO infusion, repeat x one
  - Decompression illness; 500 mL IV/IO infusion.
  - Shock; 500 mL IV/IO infusion. Repeat in aliquots of 250 mL prn to maintain systolic BP of; 100 mmHg (hypovolaemia or septic).
  - 90 – 100 mmHg (head injury GCS > 8)
  - 120 mmHg (head injury GCS ≤ 8 mmHg)

- Paediatric: Anaphylaxis; 20 mL/Kg IV/IO infusion, repeat x one
  - Haemorrhagic shock; 10 mL/Kg IV/IO, repeat prn if signs of inadequate perfusion.
## APPENDIX 1
### MEDICATION FORMULARY

<table>
<thead>
<tr>
<th>Hydrocortisone</th>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indications</strong></td>
<td>Adrenal insufficiency</td>
<td></td>
<td>Patients with asthma following an anaphylactic reaction</td>
</tr>
<tr>
<td></td>
<td>Asthma refractory to Salbutamol and Ipratropium Bromide</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>Adult: Anaphylactic reaction and Exacerbation of COPD (AP); 200 mg IV (infusion in 100 mL NaCl) or IM</td>
<td></td>
<td>Adult: 200 mg IM or slow IV (over 1 to 10 minutes)</td>
</tr>
<tr>
<td></td>
<td>Asthma (AP) and Adrenal insufficiency (P &amp; AP); 100 mg IV (infusion in 100 mL NaCl) or IM</td>
<td></td>
<td>Paediatric: &lt; 1 year 25 mg IM or slow IV (over 1 to 10 minutes)</td>
</tr>
<tr>
<td></td>
<td>Paediatric: Anaphylactic reaction and Asthma (AP); &lt; 1 year: 25 mg IV (infusion in 100 mL NaCl) or IM</td>
<td></td>
<td>1 to 5 years: 50 mg IM or slow IV (over 1 to 10 minutes)</td>
</tr>
<tr>
<td></td>
<td>1 to 5 years: 50 mg IV (infusion in 100 mL NaCl) or IM</td>
<td></td>
<td>6 to 12 years: 100 mg IM or slow IV (over 1 to 10 minutes)</td>
</tr>
<tr>
<td></td>
<td>&gt; 5 years: 100 mg IV (infusion in 100 mL NaCl) or IM</td>
<td></td>
<td>&gt;12 years: 130 mg IM or slow IV (over 1 to 10 minutes)</td>
</tr>
<tr>
<td><strong>Pharmacology/action</strong></td>
<td></td>
<td></td>
<td>The half life is 90 minutes.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>IV is the preferred route for adrenal crisis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# APPENDIX 1
## MEDICATION FORMULARY

### Ibuprofen

<table>
<thead>
<tr>
<th>Clinical Level</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EMT</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>400 mg tablet</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>It is an anti-inflammatory analgesic</td>
<td>It is used to reduce mild to moderate pain</td>
</tr>
</tbody>
</table>

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

### Ipratropium Bromide

<table>
<thead>
<tr>
<th>Clinical Level</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Administration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CPG: 4/5/6.3.3, 4/5/6.3.4, 4/5/6.7.18</td>
<td>CPG: 5/6.3.2, 5/6.7.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usual Dosages</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paediatric</strong></td>
<td></td>
</tr>
<tr>
<td>&lt; 12 years: 0.25 mg NEB</td>
<td></td>
</tr>
<tr>
<td>≥ 12 years: 0.5 mg NEB</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Paediatric</td>
<td>0.25 mg NEB</td>
</tr>
</tbody>
</table>

### Lidocaine

<table>
<thead>
<tr>
<th>Indications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>...for VF/VT arrests</td>
<td></td>
</tr>
</tbody>
</table>
### Magnesium Sulphate

<table>
<thead>
<tr>
<th>Heading</th>
<th>Add</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indications</td>
<td>Seizure associated with eclampsia</td>
<td></td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adults:</td>
<td>Adults:</td>
</tr>
<tr>
<td></td>
<td>Torsades de pointes: 2 g IV/IO (infusion in 100 mL NaCl)</td>
<td>Torsades de pointes: 2 g IV/IO infusion over 15 minutes</td>
</tr>
<tr>
<td></td>
<td>Persistent bronchospasm: 2 g IV/IO (infusion in 100 mL NaCl)</td>
<td>Persistent bronchospasm: 1.5 g IV/IO infusion over 20 minutes</td>
</tr>
<tr>
<td></td>
<td>Seizure: 4 g IV (infusion in 100 mL NaCl)</td>
<td>Dilute in 100 mL NaCl for infusion</td>
</tr>
</tbody>
</table>

### Midazolam Solution

<table>
<thead>
<tr>
<th>Heading</th>
<th>Add</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>2.5 mg in 0.5 mL pre-filled syringe</td>
<td>Psyco stimulant overdose</td>
</tr>
<tr>
<td></td>
<td>5 mg in 1 mL pre-filled syringe</td>
<td>Hallucinations or paranoia</td>
</tr>
<tr>
<td></td>
<td>7.5 mg in 1.5 mL pre-filled syringe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 mg in 2 mL pre-filled syringe</td>
<td></td>
</tr>
<tr>
<td>Indications</td>
<td>Compatible with hallucinations or paranoia and risk to self or others.</td>
<td></td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Seizure:</td>
<td>Paediatric:</td>
</tr>
<tr>
<td></td>
<td>&lt; 1 year: 2.5 mg buccal</td>
<td>Seizure: 0.5 mg/Kg buccal</td>
</tr>
<tr>
<td></td>
<td>1 year to &lt; 5 years: 5 mg buccal</td>
<td>Psychostimulant overdose: 2.5 mg IV or 5 mg IM (Repeat x 2 pm).</td>
</tr>
<tr>
<td></td>
<td>5 years to &lt; 10 years: 7.5 mg buccal</td>
<td>Hallucinations or paranoia: 5 mg IV/IM</td>
</tr>
<tr>
<td></td>
<td>≥ 10 years: 10 mg buccal</td>
<td></td>
</tr>
<tr>
<td>Additional information</td>
<td>No more than two doses by practitioners. Practitioners should take into account the dose administered by caregivers prior to arrival of practitioner</td>
<td>The maximum dose of Midazolam includes that administered by caregiver prior to arrival of Practitioner</td>
</tr>
</tbody>
</table>
## APPENDIX 1
### MEDICATION FORMULARY

### Morphine Sulphate

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraindications</td>
<td>Acute intoxication</td>
<td>Brain injury</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute alcoholism</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Migraine</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adult: Severe pain (≥ 7 on pain scale)</td>
<td>Adult: Severe pain (≥ 5 on pain scale)</td>
</tr>
<tr>
<td></td>
<td>Paediatric: Severe pain (≥ 7 on pain scale)</td>
<td>Paediatric: Severe pain (≥ 6 on Wong Baker scale)</td>
</tr>
<tr>
<td>Additional information</td>
<td>Caution with reduced GCS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not recommended for headache</td>
<td></td>
</tr>
</tbody>
</table>

### Naloxone

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

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

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

### Oxygen

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

### Paracetamol

<table>
<thead>
<tr>
<th>Heading</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Presentation</strong></td>
<td>250 mg in 5 mL</td>
<td></td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Pyrexia</td>
<td>Pyrexia following seizure for paediatric patients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advanced Paramedics may administer Paracetamol, in the absence of a seizure for the current episode, provided the paediatric patient is pyrexial and has a previous history of febrile convulsions</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>&lt; 1 month old</td>
<td></td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>&gt; 1 month &lt; 1 year - 90 mg PR</td>
<td>&lt; 1 year - 60 mg PR</td>
</tr>
</tbody>
</table>

### Salbutamol

<table>
<thead>
<tr>
<th>Heading</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administration</strong></td>
<td></td>
<td>Advanced Paramedics may repeat Salbutamol x 3</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adult:</strong></td>
<td></td>
<td>Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
<tr>
<td><strong>Paediatric:</strong></td>
<td></td>
<td>Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
<tr>
<td></td>
<td>Adult:</td>
<td>Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td>Paediatric:</td>
<td>Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
<tr>
<td><strong>Adult:</strong></td>
<td></td>
<td>Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
<tr>
<td><strong>Paediatric:</strong></td>
<td></td>
<td>Repeat at 5 min prn (APs x 3 and Ps x 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(EMTs &amp; EFRs: 0.1 mg metered aerosol spray x 2)</td>
</tr>
</tbody>
</table>
## Sodium Bicarbonate

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indications</td>
<td>Cardiac arrest following harness induced suspension trauma</td>
<td></td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Max 50 mEq (50 mL 8.4%)</td>
<td></td>
</tr>
</tbody>
</table>

## Sodium Chloride 0.9%

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

<table>
<thead>
<tr>
<th>HEADING</th>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical level</td>
<td>![MP]</td>
<td>![AP]</td>
</tr>
<tr>
<td>Indications</td>
<td></td>
<td>Less than 75 years old (medical practitioner discretion if &gt; 75 years)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MI Symptoms &gt; 20 Min &amp; ≤ 6 hours</td>
</tr>
<tr>
<td>Indications</td>
<td>Patient not suitable for PPCI from a time or clinical perspective</td>
<td>Time to PPCI centre &gt; 90 minutes of STEMI confirmation on 12 lead ECG</td>
</tr>
</tbody>
</table>

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

**LIST OF MEDICATIONS**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amiodarone</td>
<td>116</td>
</tr>
<tr>
<td>Aspirin</td>
<td>117</td>
</tr>
<tr>
<td>Atropine</td>
<td>118</td>
</tr>
<tr>
<td>Benzylpenicillin</td>
<td>119</td>
</tr>
<tr>
<td>Clopidogrel</td>
<td>120</td>
</tr>
<tr>
<td>Cyclizine</td>
<td>121</td>
</tr>
<tr>
<td>Dextrose 10% Solution</td>
<td>122</td>
</tr>
<tr>
<td>Dextrose 5% Solution</td>
<td>123</td>
</tr>
<tr>
<td>Diazepam Injection</td>
<td>124</td>
</tr>
<tr>
<td>Diazepam Rectal Solution</td>
<td>125</td>
</tr>
<tr>
<td>Enoxaparin Sodium Solution</td>
<td>126</td>
</tr>
<tr>
<td>Epinephrine (1:10,000)</td>
<td>127</td>
</tr>
<tr>
<td>Epinephrine (1:1,000)</td>
<td>128</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>129</td>
</tr>
<tr>
<td>Furosemide Injection</td>
<td>130</td>
</tr>
<tr>
<td>Glucagon</td>
<td>131</td>
</tr>
<tr>
<td>Glucose gel</td>
<td>132</td>
</tr>
<tr>
<td>Glyceryl Trinitrate (GTN)</td>
<td>133</td>
</tr>
<tr>
<td>Hartmann's Solution</td>
<td>134</td>
</tr>
<tr>
<td>Hydrocortisone</td>
<td>135</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>136</td>
</tr>
<tr>
<td>Ipratropium Bromide</td>
<td>137</td>
</tr>
<tr>
<td>Lidocaine</td>
<td>138</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>139</td>
</tr>
<tr>
<td>Magnesium Sulphate injection</td>
<td>140</td>
</tr>
<tr>
<td>Midazolam Solution</td>
<td>141</td>
</tr>
<tr>
<td>Morphine Sulphate</td>
<td>143</td>
</tr>
<tr>
<td>Naloxone</td>
<td>145</td>
</tr>
<tr>
<td>Nifedipine</td>
<td>146</td>
</tr>
<tr>
<td>Nitrous Oxide 50% and Oxygen 50% (Entonox®)</td>
<td>147</td>
</tr>
<tr>
<td>Ondansetron</td>
<td>148</td>
</tr>
<tr>
<td>Oxygen</td>
<td>149</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>150</td>
</tr>
<tr>
<td>Salbutamol</td>
<td>151</td>
</tr>
<tr>
<td>Sodium Bicarbonate injection BP</td>
<td>152</td>
</tr>
<tr>
<td>Sodium Chloride 0.9% (NaCl)</td>
<td>153</td>
</tr>
<tr>
<td>Syntometrine</td>
<td>155</td>
</tr>
<tr>
<td>Tenecteplase Powder for injection</td>
<td>156</td>
</tr>
<tr>
<td>Ticagrelor</td>
<td>158</td>
</tr>
<tr>
<td>Tranexamic Acid</td>
<td>159</td>
</tr>
</tbody>
</table>
### Medication Formulary

#### Clinical Practice Guidelines

**APPENDIX 1**

**MEDICATION FORMULARY**

**CLINICAL LEVEL:** AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Amiodarone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Antiarrhythmic agent</td>
</tr>
<tr>
<td><strong>Descriptions</strong></td>
<td>Class III antiarrhythmic agent used to treat ventricular arrhythmias</td>
</tr>
</tbody>
</table>
| **Presentation** | 150 mg in 3 mL solution  
Pre-filled syringes 10 mL (30 mg/mL) |
| **Administration** | Intravenous (IV)  
Intraosseous (IO)  
(CPG: 4/5/6.4.3, 5/6.4.7, 5/6.4.12, 4/5/6.7.22) |
| **Indications** | Ventricular Fibrillation (VF) and Pulseless Ventricular Tachycardia (VT)  
Symptomatic Tachycardia (> 150) |
| **Contraindications** | Known severe adverse reaction  
Known hypersensitivity to Iodine |

| Usual Dosages | **Adult:** (CPG)  
VF/VT: 5 mg/Kg IV/IO. (Loading dose for cardiac arrest; 300 mg and one supplemental dose 150 mg)  
Symptomatic tachycardia: 150 mg IV (over 10 minutes)  
**Paediatric:** (CPG)  
VF/VT: 5 mg/Kg IV/IO |

| Pharmacology/Action | Antiarrhythmic  
Prolongs the action potential  
Prolongs the refractory period  
Prolongs atrioventricular conduction  
Prolongs QT interval |

| Side effects | Inflammation of peripheral veins  
Bradyarrhythmia  
AV conducting abnormalities |

| Additional information | If diluted mix with Dextrose 5% (for infusion use 100 mL D_{5}W)  
May be flushed with NaCl  
For cardiac arrest do not dilute, administer directly followed by a flush. |
# Aspirin

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

### MEDICATION FORMULARY

**CLINICAL LEVEL:** AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Atropine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Anticholinergic (parasympatholytic)</td>
</tr>
<tr>
<td><strong>Descriptions</strong></td>
<td>Parasympatholytic (Anticholinergic) that is derived from parts of the Atropa belladonna plant</td>
</tr>
</tbody>
</table>
| **Presentation** | Pre-filled disposable syringe 1 mg/10 mL  
Ampoule 0.6 mg in 1 mL |
| **Administration** | Intravenous (IV)  
Intraosseous (IO)  
(CPG: 5/6.3.5, 5/6.4.7, 4/5/6.4.11, 6.4.22) |
| **Indications** | **Adult:**  
Symptomatic bradycardia  
Cholinergic poison with bradycardia and salivation |
| **Contraindications** | Known severe adverse reaction  
Post-cardiac transplantation |
| **Usual Dosages** | **Adult:**  
Cholinergic poison with bradycardia and salivation: 1 mg IV,  
Repeat at 3-5 min intervals to ensure minimal salivary secretions  
Symptomatic Bradycardia: 0.6 mg (600 mcg) IV,  
Repeat at 3-5 min intervals to Max 3 mg  
**Paediatric:** Not indicated |
| **Pharmacology/Action** | Anticholinergic agent  
Blocks acetylcholine receptors  
- enhances SA node automaticity  
- enhance AV node conduction  
- increases heart rate |
| **Side effects** | Tachycardia  
Dry mouth  
Dilated pupils |
<p>| <strong>Additional information</strong> | Accidental exposure to the eye causes blurred vision |</p>
<table>
<thead>
<tr>
<th>Medication</th>
<th>Benzylpenicillin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Antibiotic, Antibacterial</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Benzylpenicillin is an antibiotic agent</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>600 mg powder in vial for reconstitution</td>
</tr>
</tbody>
</table>
| **Administration** | Intravenous (IV) or Intraosseous (IO)  
May give by intramuscular (IM) injection if no IV access  
**IV/IO:** Reconstitute each 600 mg vial with 4 mL of water for injection and give by slow IV injection (i.e. over 3-5 min)  
**IM:** Reconstitute each 600 mg vial with 2 mL of water for injection (CPG: 4/5/6.4.24, 5/6.7.34) |
| **Indications** | Severe sepsis - Adult  
Suspected or confirmed meningococcal sepsis - Paediatric |
| **Contraindications** | Known severe adverse reaction |
| **Usual Dosages** | **Adult:** 1,200 mg IV, IO or IM  
**Paediatric:**  
> 8 yrs: 1,200 mg IV, IO or IM  
1-8 yrs: 600 mg IV, IO or IM  
< 1 yr: 300 mg IV, IO or IM |
| **Pharmacology/Action** | Antibacterial  
Gram positive cocci antibiotic |
| **Side effects** | Gastro intestinal disturbances  
Hypersensitivity reactions |
| **Additional information** | Also called Penicillin G |
# APPENDIX 1
## MEDICATION FORMULARY

**CLINICAL LEVEL:**  

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

APPENDIX 1
MEDIATION FORMULARY

CLINICAL LEVEL: AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Cyclizine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Antiemetic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Used in management of nausea &amp; vomiting</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Ampoule 50 mg in 1 mL</td>
</tr>
</tbody>
</table>
| **Administration** | Intravenous (IV)  
Intraosseous (IO)  
(CPG: 4/5/6.2.6, 6.4.26) |
| **Indications** | Management, prevention and treatment of nausea & vomiting. |
| **Contraindications** | Known severe adverse reaction |
| **Usual Dosages** | Adult: 50 mg slow IV/IO  
**Paediatric:** Not indicated |
| **Pharmacology/Action** | Anti-emetic |
| **Side effects** | Tachycardia  
Dry Mouth  
Sedation |
| **Additional information** | IM route should only be utilised where IV or IO access is not available |
## Medication Formulary

### Dextrose 10% Solution

<table>
<thead>
<tr>
<th>Class</th>
<th>Carbohydrate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Dextrose is used to describe the six-carbon sugar d-glucose, which is the principal form of carbohydrate used by the body. D10W is a hypertonic solution.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Soft pack for infusion 250 mL and 500 mL</td>
</tr>
</tbody>
</table>
| **Administration**  | Intravenous (IV) infusion/bolus  
Intraosseous (IO)  
**Paramedic**: maintain infusion once commenced  
(CPG: 5/6.4.19, 5/6.7.32) |
| **Indications**     | Hypoglycaemic emergency  
Blood glucose level < 4 mmol/L |
| **Contraindications** | Known severe adverse reaction |
| **Usual Dosages**   |  
**Adult**: 250 mL IV/IO infusion  
Repeat x 1 prn  
**Paediatric**: 5 mL/Kg IV/IO  
Repeat X 1 prn |
| **Pharmacology/Action** | Hypertonic glucose solution  
Dextrose is a readily utilisable energy source |
| **Side effects**    | Necrosis of tissue around IV access |
| **Additional information** | Also called Glucose  
Cannula patency will reduce the effect of tissue necrosis |
# Dextrose 5% Solution

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dextrose 5% Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Carbohydrate</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Dextrose is used to describe the six-carbon sugar d-glucose, which is the principal form of carbohydrate used by the body. D5W is a hypertonic solution and is used as an infusion medium for Amiodarone.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Soft pack for infusion 100 mL and 500 mL</td>
</tr>
</tbody>
</table>
| **Administration** | Intravenous (IV) infusion  
Intraosseous (IO) infusion  
**Paramedic:** maintain infusion once commenced  
(CPG: May be used for medication dilution on CPGs) |
| **Indications** | Use as a diluant for Amiodarone infusion |
| **Contraindications** | Known severe adverse reaction |
| **Usual Dosages** | **Adult:** Dilute appropriate dose of Amiodarone in 100 mL or 500 mL  
**Paediatric:** Not indicated |
| **Pharmacology/Action** | Dextrose 5% (D5W) is used as an infusion medium for the administration of Amiodarone |
| **Side effects** | Necrosis of tissue around IV access |
| **Additional information** | Paramedics are authorised to continue the established infusion in the absence of an advanced paramedic or doctor during transportation. |
# Medication Formulary

**Clinical Level:** AP

## Diazepam Injection

<table>
<thead>
<tr>
<th>Class</th>
<th>Benzodiazepine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>It is a benzodiazepine that is used to terminate seizures</td>
</tr>
<tr>
<td>Presentation</td>
<td>Ampoule 10 mg in 2 mL</td>
</tr>
</tbody>
</table>
| Administration | Intravenous (IV)  
               | Intraosseous (IO)  
               | (CPG: 5/6.4.23, 5/6.7.33) |
| Indications | Seizure |
| Contraindications | Known severe adverse reaction  
                   | Respiratory depression  
                   | Shock  
                   | Depressed vital signs or alcohol-related altered level of consciousness |

**Usual Dosages**

- **Adult:** 5 mg IV/IO  
  Repeat prn to Max 10 mg
- **Paediatric:** 0.1 mg/Kg IV/IO  
  Repeat prn to Max 0.4 mg/Kg or 10 mg, whichever is least

**Pharmacology/Action**

- Benzodiazepine sedative  
  Inhibits the firing of hyperexcitable neurones through enhancement of the action of the inhibitory transmitter, GABA.  
  This results in CNS depressant, anticonvulsant, sedative and skeletal muscle relaxant effects.

**Side effects**

- Hypotension  
- Respiratory depression  
- Drowsiness and lightheadedness (the next day)

**Long-term side effects**

- Confusion and ataxia (especially in the elderly), amnesia, dependence, paradoxical increase in aggression and muscle weakness.

**Additional information**

- Diazepam IV should be titrated to effect  
- The maximum dose of Diazepam includes that administered by carer prior to arrival of Practitioner
### APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL: AP**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Diazepam Rectal Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Benzodiazepine</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>It is a benzodiazepine that is used to terminate seizures</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Rectal tube</td>
</tr>
<tr>
<td></td>
<td>Available as:</td>
</tr>
<tr>
<td></td>
<td>2.5 mg/1.25 mL (2 mg/mL)</td>
</tr>
<tr>
<td></td>
<td>5 mg/ 2.5 mL (2 mg/mL)</td>
</tr>
<tr>
<td></td>
<td>10 mg/ 2.5 mL (4 mg/mL)</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Per Rectum (PR)</td>
</tr>
<tr>
<td></td>
<td>(CPG: 5/6.4.23, 5/6.7.33)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Seizure</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Known severe adverse reaction</td>
</tr>
<tr>
<td></td>
<td>Respiratory depression</td>
</tr>
<tr>
<td></td>
<td>Shock</td>
</tr>
<tr>
<td></td>
<td>Depressed vital signs or alcohol-related altered level of consciousness</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>Adult: 10 mg PR</td>
</tr>
<tr>
<td></td>
<td>Repeat X 1 pm</td>
</tr>
<tr>
<td></td>
<td>Max 20 mg PR</td>
</tr>
<tr>
<td></td>
<td>Paediatric: &lt; 3 years: 2.5 mg PR</td>
</tr>
<tr>
<td></td>
<td>3 to 7 years: 5 mg PR</td>
</tr>
<tr>
<td></td>
<td>≥ 8 years: 10 mg PR</td>
</tr>
<tr>
<td></td>
<td>Repeat all x 1 after 5 mins if seizure persists or reoccurs</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Benzodiazepine sedative</td>
</tr>
<tr>
<td></td>
<td>Inhibits the firing of hyperexcitable neurones through enhancement of the action of the inhibitory transmitter, GABA.</td>
</tr>
<tr>
<td></td>
<td>This results in CNS depressant, anticonvulsant, sedative and skeletal muscle relaxant effects.</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Hypotension</td>
</tr>
<tr>
<td></td>
<td>Respiratory depression</td>
</tr>
<tr>
<td></td>
<td>Drowsiness and lightheadedness (the next day)</td>
</tr>
<tr>
<td><strong>Long-term side effects</strong></td>
<td>Confusion and ataxia (especially in the elderly), amnesia, dependence, paradoxical increase in aggression and muscle weakness.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Be aware of modesty of patient. Should be administered in the presence of a 2nd person.</td>
</tr>
<tr>
<td></td>
<td>Egg and soya proteins are used in the manufacture of diazepam rectal solution; allergies to these proteins may be encountered.</td>
</tr>
<tr>
<td></td>
<td>The maximum dose of Diazepam includes that administered by carer prior to arrival of Practitioner.</td>
</tr>
</tbody>
</table>
**Clinical Practice Guidelines**

**APPENDIX 1**

**MEDICATION FORMULARY**

**CLINICAL LEVEL: MP**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Enoxaparin Sodium Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Anticoagulant</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Enoxaparin is a Low Molecular Weight Heparin used in conjunction with a thrombolytic agent for the treatment of STEMI</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Pre-filled Syringes (100 mg/mL)</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV) (CPG: 5/6.4.10)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Acute ST-segment Elevation Myocardial Infarction (STEMI) immediately following the administration of a thrombolytic agent.</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Active major bleeding disorders and conditions with a high risk of uncontrolled haemorrhage, including recent haemorrhagic stroke or subdural haematoma; in jaundice; active gastric or duodenal ulceration; hiatal ulceration; threatened abortion, or retinopathy. Hypersensitivity to Enoxaparin or other Low Molecular Weight Heparins. Known severe adverse reaction</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>Adult: 30 mg IV bolus (&gt; 75 years: 0.75 mg/Kg SC)</td>
</tr>
<tr>
<td></td>
<td>Paediatric: Not indicated</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>It binds to the natural inhibitor of coagulation, antithrombin III and makes certain clotting factors inactive. This results in an increase in the clotting time.</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Pain, haematoma and mild local irritation may follow the subcutaneous injection.</td>
</tr>
</tbody>
</table>
| **Additional information**| Do not store above 25°C  
Do not refrigerate or freeze  
Medical Practitioners: Due to the significant increased risk of intra-cerebral bleed for patients aged >75 years do not administer IV Enoxaparin. Enoxaparin 0.75 mg/Kg SC (Max 75 mg SC) is the recommended dose and route. |
### APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL:** AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Epinephrine (1:10,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Sympathetic agonist</td>
</tr>
<tr>
<td><strong>Description</strong></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><strong>Presentation</strong></td>
<td>Pre-filled syringe 1 mg/10 mL (1:10,000) as 0.1 mg/mL</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV) Intraosseous (IO) (CPG: 4/5/6.4.3, 5/6.4.4, 4/5/6.4.6, 5/6.5.2, 4/5/6.7.22, 4/5/6.7.23, 4/5/6.7.24)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Cardiac arrest Paediatric bradycardia unresponsive to other measures</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Known severe adverse reaction</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>Adult: Cardiac arrest: 1 mg (1:10,000) IV/IO Repeat every 3-5 mins Paediatric: Cardiac arrest: 0.01 mg/Kg (10 mcg/Kg) (0.1 mL/Kg of 1:10,000) IV/IO Repeat every 3-5 mins Bradycardia: 0.01 mg/Kg (10 mcg/Kg) (0.1 mL/Kg of 1:10,000) IV/IO Repeat every 3-5 mins</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Alpha and beta adrenergic stimulant Increases heart rate – Chronotropic effect Increases myocardial contractions – Inotropic effect Increases BP Increases electrical activity in the myocardium Increases cerebral &amp; coronary blood flow Dilation of bronchioles</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>In non-cardiac arrest patients: - Palpitations - Tachyarrhythmias - Hypertension</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>N.B. Double check concentrations on pack before use</td>
</tr>
</tbody>
</table>
## Epinephrine (1:1,000)

<table>
<thead>
<tr>
<th>Class</th>
<th>Sympathetic agonist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Naturally occurring catecholamine. It is a potent alpha and beta adrenergic stimulant; however, its effect on beta receptors is more profound.</td>
</tr>
<tr>
<td>Presentation</td>
<td>Pre-filled syringe, ampoule or Auto injector (for EMT use) 1 mg/1 mL (1:1,000)</td>
</tr>
</tbody>
</table>
| Administration | Intramuscular (IM)  
(CPG: 5/6.4.15, 4.4.15, 2/3.4.16, 5/6.7.31, 4.7.31, 2/3.7.31) |
| Indications | Severe anaphylaxis |
| Contraindications | None known |

### Usual Dosages

**Adult:**
- 0.5 mg (500 mcg) IM (0.5 mL of 1:1,000)
- EMT 0.3 mg (Auto injector)
  - Repeat every 5 minutes if indicated

**Paediatric:**
- < 6 months: 0.05 mg (50 mcg) IM (0.05 mL of 1:1,000)
- 6 months to 5 years: 0.125 mg (125 mcg) IM (0.13 mL of 1:1,000)
- 6 to 8 years: 0.25 mg (250 mcg) IM (0.25 mL of 1:1,000)
- > 8 years: 0.5 mg (500 mcg) IM (0.5 mL of 1:1,000)
- EMT: 6 months < 10 years: 0.15 mg (Auto injector)
- ≥ 10 years: 0.3 mg (Auto injector)
  - Repeat every 5 minutes if indicated

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

### Side effects
- Palpitations
- Tachyarrhythmias
- Hypertension
- Angina-like symptoms

### Additional information
- N.B. Double check the concentration on pack before use
### Medication Formulary

#### APPENDIX 1

**MEDICATION FORMULARY**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Fentanyl</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Narcotic analgesic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Synthetic narcotic analgesic with a rapid onset and short duration of action. It has a half-life of 6.5 minutes when IN route is used.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Ampoule 100 micrograms in 2 mL (0.1 mg in 2 mL)</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intranasal (IN) (CPG: 4/5/6.2.6, 4/5/6.7.5)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Acute severe pain in patients greater than and equal to 1 year old (≥ 1 year)</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Known fentanyl hypersensitivity ALoC Bilateral occluded nasal passage Nasal trauma Epistaxis Hypovolaemia</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> 0.1 mg IN Repeat by one after 10 minutes if severe pain persists <strong>Paediatric:</strong> 0.0015 mg/Kg (1.5 mcg/Kg) IN Repeat by one after 10 minutes if severe pain persists</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Fentanyl provides some of the effects typical of other opioids through its agonism of the opioid receptors. Its strong potency in relation to that of morphine is largely due to its high lipophilicity. Because of this, it can more easily penetrate the CNS. Fentanyl binds to μ-opioid G-protein-coupled receptors, which inhibit pain neurotransmitter release by decreasing intracellular Ca²⁺ levels.</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Sedation Nausea</td>
</tr>
<tr>
<td><strong>Long-term side effects</strong></td>
<td>Vomiting Respiratory depression</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Caution if patient has transdermal Fentanyl patch Include an additional 0.1 mL, to allow for dead space in the mucosal atomisation device (MAD), in the calculated volume required. Administer 50% volume in each nostril if more than 1 mL</td>
</tr>
</tbody>
</table>
## APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL:** AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Furosemide Injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Diuretic</td>
</tr>
<tr>
<td>Description</td>
<td>A loop diuretic</td>
</tr>
<tr>
<td>Presentation</td>
<td>Ampoule 10 mg per mL</td>
</tr>
<tr>
<td></td>
<td>2 mL, 5 mL and 25 mL per ampoule</td>
</tr>
<tr>
<td>Administration</td>
<td>Intravenous (IV)</td>
</tr>
<tr>
<td></td>
<td>(CPG: 5/6.3.5)</td>
</tr>
<tr>
<td>Indications</td>
<td>Pulmonary oedema</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Pregnancy, hypokalaemia</td>
</tr>
<tr>
<td></td>
<td>Known severe adverse reaction</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adult: 40 mg slow IV</td>
</tr>
<tr>
<td></td>
<td>Paediatric: Not indicated</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Acts on the ascending loop of Henle by inhibiting the reabsorption of chloride and sodium ions into the interstitial fluid. This results in a relative hypertonic state. Water is therefore retained in the loop and eliminated via the bladder. It also causes venodilation which reduces venous return to the heart.</td>
</tr>
<tr>
<td>Side effects</td>
<td>Headache, dizziness, hypotension, arrhythmias, transient deafness, diarrhoea, nausea &amp; vomiting.</td>
</tr>
<tr>
<td>Long-term side effects</td>
<td>Hyperuricaemia, gout, hypokalaemia and hyperglycaemia.</td>
</tr>
<tr>
<td>Additional information</td>
<td>Furosemide should be protected from light</td>
</tr>
</tbody>
</table>
### Medication Formulary: Glucagon

<table>
<thead>
<tr>
<th>Class</th>
<th>Hormone and Antihypoglycaemic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Glucagon is a protein secreted by the alpha cells of the Islets of Langerhans in the pancreas. It is used to increase the blood glucose level in cases of hypoglycaemia in which an IV cannot be immediately placed.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>1 mg vial powder and solution for reconstitution (1 mL)</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intramuscular (IM) (CPG: 5/6.4.19, 4.4.19, 5/6.7.32, 4.7.32)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Hypoglycaemia in patients unable to take oral glucose or unable to gain IV access, with a blood glucose level &lt; 4 mmol/L</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Known severe adverse reaction Phaeochromocytoma</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> 1 mg IM</td>
</tr>
<tr>
<td></td>
<td><strong>Paediatric:</strong> ≤ 8 years 0.5 mg (500 mcg) IM &gt; 8 years 1 mg IM</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Glycogenolysis Increases plasma glucose by mobilising glycogen stored in the liver</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Rare, may cause hypotension, dizziness, headache, nausea &amp; vomiting.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>May be ineffective in patients with low stored glycogen e.g. prior use in previous 24 hours, alcoholic patients with liver disease.</td>
</tr>
<tr>
<td></td>
<td>Store in refrigerator Protect from light</td>
</tr>
</tbody>
</table>
## APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Glucose gel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Antihypoglycaemic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Synthetic glucose paste</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Glucose gel in a tube or sachet</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Buccal administration: Administer gel to the inside of the patient’s cheek and gently massage the outside of the cheek (CPG: 5/6.4.19, 4.4.19, 2/3.4.19, 5/6.7.32, 4.7.32)</td>
</tr>
</tbody>
</table>
| **Indications** | Hypoglycaemia  
Blood glucose < 4 mmol/L  
EFR – Known diabetic with confusion or altered levels of consciousness |
| **Contraindications** | Known severe adverse reaction |
| **Usual Dosages** | **Adult:** 10 – 20 g buccal  
Repeat prn  
**Paediatric:** ≤ 8 years; 5 – 10 g buccal  
> 8 years: 10 – 20 g buccal  
Repeat prn |
| **Pharmacology/Action** | Increases blood glucose levels |
| **Side effects** | May cause vomiting in patients under the age of five if administered too quickly |
| **Additional information** | Glucose gel will maintain glucose levels once raised but should be used secondary to Dextrose to reverse hypoglycaemia  
**Proceed with caution:**  
Patients with airway compromise  
Altered level of consciousness |
### APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL: EFR EMT P AP**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Glyceryl Trinitrate (GTN)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Nitrate</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Special preparation of Glyceryl trinitrate in an aerosol form that delivers precisely 0.4 mg of Glyceryl trinitrate per spray</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Aerosol spray: metered dose 0.4 mg (400 mcg)</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Sublingual (SL): Hold the pump spray vertically with the valve head uppermost Place as close to the mouth as possible and spray under the tongue The mouth should be closed after each dose (CPG: 5/6.3.5, 4.4.10, 5/6.4.10)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Angina Suspected Myocardial Infarction (MI) EFRs may assist with administration Advanced Paramedic and Paramedic - Pulmonary oedema</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>SBP &lt; 90 mmHg Viagra or other phosphodiesterase type 5 inhibitors (Sildenafil, Tadalafil and Vardenafil) used within previous 24 hours Known severe adverse reaction</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> Angina or MI: 0.4 mg (400 mcg) Sublingual Repeat at 3-5 min intervals, Max: 1.2 mg EFRs 0.4 mg sublingual max Pulmonary oedema; 0.8 mg (800 mcg) sublingual Repeat x 1</td>
</tr>
<tr>
<td></td>
<td><strong>Paediatric:</strong> Not indicated</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Vasodilator Releases nitric oxide which acts as a vasodilator. Dilates coronary arteries particularly if in spasm increasing blood flow to myocardium. Dilates systemic veins reducing venous return to the heart (pre load) and thus reduces the heart’s workload. Reduces BP</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Headache Transient Hypotension Flushing Dizziness</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>If the pump is new or has not been used for a week or more, the first spray should be released into the air.</td>
</tr>
</tbody>
</table>
**Hartmann’s Solution**

<table>
<thead>
<tr>
<th>Class</th>
<th>Isotonic crystalloid solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Hartmann’s solution is an isotonic crystalloid solution containing Sodium chloride 0.6%, Sodium lactate 0.25%, Potassium chloride 0.04%, Calcium chloride 0.027%</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Soft pack for infusion 500 mL &amp; 1000 mL</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV) infusion</td>
</tr>
<tr>
<td></td>
<td>Intraosseous (IO) infusion</td>
</tr>
<tr>
<td></td>
<td><strong>Paramedic:</strong> maintain infusion once commenced</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>When NaCl is unavailable it may be substituted with Hartmann’s Solution IV/IO, except for crush injuries, burns, renal failure and hyperglycaemia.</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Known severe adverse reaction</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>Adult: See NaCl</td>
</tr>
<tr>
<td></td>
<td>Paediatric: See NaCl</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Increases extracellular volume</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>If administered in large amounts may cause oedema</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Observe caution with patients with history of heart failure</td>
</tr>
<tr>
<td></td>
<td>Also called: Sodium Lactate Intravenous Solution or Compound Ringer Lactate Solution for Injection</td>
</tr>
<tr>
<td></td>
<td>Warm fluids prior to administration if possible</td>
</tr>
</tbody>
</table>
### APPENDIX 1

**MEDICATION FORMULARY**

**CLINICAL LEVEL:** P ▶ AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Hydrocortisone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Corticosteroid and anti-inflammatory</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Hydrocortisone is a potent corticosteroid with anti-inflammatory properties</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Powder and solvent for solution for injection or infusion. Vial containing off-white powder and vial containing water for injections. Prepare the solution aseptically by adding not more than 2 mL of Sterile Water for Injections to the contents of one 100 mg vial, shake and withdraw for use.</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV) infusion Intramuscular (IM) The preferred route for initial emergency use is intravenous (CPG: 4/5/6.3.3, 4/5/6.3.4, 5/6.4.13, 5/6.4.15, 4/5/6.7.12, 5/6.7.30, 5/6.7.31)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Severe or recurrent anaphylactic reactions Asthma refractory to Salbutamol and Ipratropium Bromide Exacerbation of COPD (Advanced Paramedic) Adrenal insufficiency (Paramedic)</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>No major contraindications in acute management of anaphylaxis</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> Anaphylactic reaction and Exacerbation of COPD (AP): 200 mg IV (infusion in 100 mL NaCl) or IM Asthma (AP) and Adrenal insufficiency (P &amp; AP): 100 mg IV (infusion in 100 mL NaCl) or IM <strong>Paediatric:</strong> Anaphylactic reaction and Asthma (AP): &lt; 1 year 25 mg IV (infusion in 100 mL NaCl) or IM 1 to 5 years 50 mg IV (infusion in 100 mL NaCl) or IM &gt; 5 years 100 mg IV (infusion in 100 mL NaCl) or IM Adrenal insufficiency (P &amp; AP): 6 mths to ≤ 5 years: 50 mg IV (infusion in 100 mL NaCl) or IM &gt; 5 years: 100 mg IV (infusion in 100 mL NaCl) or IM</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Potent anti-inflammatory properties and inhibits many substances that cause inflammation</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>CCF, hypertension, abdominal distension, vertigo, headache, nausea, malaise and hiccups.</td>
</tr>
<tr>
<td><strong>Long-term side effects</strong></td>
<td>Adrenal cortical atrophy develops during prolonged therapy and may persist for months after stopping treatment</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Intramuscular injection should avoid the deltoid area because of the possibility of tissue atrophy Dosage should not be less than 25 mg IV is the preferred route for adrenal crisis</td>
</tr>
</tbody>
</table>
APPENDIX 1
MEDICATION FORMULARY

<table>
<thead>
<tr>
<th>Medication</th>
<th>Ibuprofen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>It is an anti-inflammatory analgesic</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Suspension 100 mg in 5 mL, 200 mg tablet, 400 mg tablet</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Orally (PO) (CPG: 4/5/6.2.6, 4/5/6.7.5)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Mild to moderate pain</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Not suitable for children under 3 months, Patient with history of asthma exacerbated by aspirin, Pregnancy, Peptic ulcer disease, Known severe adverse reaction</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>Adult: 400 mg PO, Paediatric: 10 mg/Kg PO</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Suppresses prostaglandins, which cause pain via the inhibition of cyclooxygenase (COX). Prostaglandins are released by cell damage and inflammation.</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Skin rashes, gastrointestinal intolerance and bleeding</td>
</tr>
<tr>
<td><strong>Long-term side effects</strong></td>
<td>Occasionally gastrointestinal bleeding and ulceration occurs. May also cause acute renal failure, interstitial nephritis and NSAID-associated nephropathy.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>If ibuprofen administered in previous 6 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 10 mg/Kg. Caution with significant burns or poor perfusion due to risk of kidney failure. Caution if concurrent NSAIDs use</td>
</tr>
</tbody>
</table>
## APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL:**

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

### CLINICAL LEVEL: AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Lidocaine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Antiarrhythmic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Ventricular antiarrhythmic agent</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Lidocaine Injection Mini jet 1% w/v 100 mg per 10 mL</td>
</tr>
</tbody>
</table>
| **Administration** | Intravenous (IV)  
Intraosseous (IO)  
(CPG: 4/5/6.4.3) |
| **Indications** | When Amiodarone is unavailable it may be substituted with Lidocaine for VF/VT arrests |
| **Contraindications** | No contraindications for cardiac arrest |
| **Usual Dosages** | Adult: 1 – 1.5 mg/Kg IV  
Max: 3 mg/Kg  
**Paediatric:** Not indicated |
| **Pharmacology/Action** | Reduces automaticity by decreasing the rate of diastolic depolarisation.  
Stabilises the neuronal membrane and prevents the initiation and transmission of nerve impulses, action is rapid and blockade may last up to 2 hours. |
| **Side effects** | Drowsiness, dizziness, twitching, paraesthesia, convulsions.  
Bradycardia  
Respiratory depression |
| **Additional information** | Lidocaine may not be administered if Amiodarone has been administered |
# Appenidix 1
## Medication Formulary

<table>
<thead>
<tr>
<th>Medication</th>
<th>Lorazepam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Benzodiazepine</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>It is an anxiolytic used as a sedative</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>1 mg tablet</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Orally (PO) (CPG: 6.4.29)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Combative with hallucinations or paranoia &amp; risk to self or others</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>History of sensitivity to benzodiazepines, Severe hepatic or pulmonary insufficiency, Suspected significant alcohol and/or sedatives ingested, Known severe adverse reaction</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adults:</strong> 2 mg PO, <strong>Paediatric:</strong> Not indicated</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Acts on CNS receptors to potentiate the inhibitory action of GABA</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Drowsiness, confusion, headache, dizziness, blurred vision &amp; nausea/vomiting. On rare occasions – hypotension, hypertension.</td>
</tr>
</tbody>
</table>
## APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL:** AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Magnesium Sulphate injection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Electrolyte and Tocolytic agent</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>It is a salt that is an essential element in numerous biochemical reactions that occur within the body</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Ampoule 5 g in 10 mL</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV) Intraosseous (IO) (CPG: 4/5/6.3.4, 4/5/6.4.3, 5/6.4.12, 5/6.4.23)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Torsades de pointes Persistent bronchospasm Seizure associated with eclampsia</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>None in cardiac arrest Known severe adverse reaction</td>
</tr>
</tbody>
</table>
| **Usual Dosages**        | **Adults:**  
|                          | Torsades de pointes: 2 g IV/IO (infusion in 100 mL NaCl)  
|                          | Persistent bronchospasm: 2 g IV (infusion in 100 mL NaCl)  
|                          | Seizure: 4 g IV (infusion in 100 mL NaCl)  
|                          | **Paediatric:**  Not indicated |
| **Pharmacology/Action**  | It acts as a physiological calcium channel blocker and blocks neuromuscular transmission |
| **Side effects**         | Decreased deep tendon reflexes, respiratory depression, bradycardia and hypothermia. |
### Medication Formulary

#### Midazolam Solution

<table>
<thead>
<tr>
<th>Class</th>
<th>Benzodiazepine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>It is a potent sedative agent. Clinical experience has shown Midazolam to be 3 to 4 times more potent per mg than Diazepam.</td>
</tr>
</tbody>
</table>
| Presentation | Ampoule 10 mg in 2 mL or ampoule 10 mg in 5 mL  
Buccal liquid 50 mg in 5 mL  
Pre-filled syringe 2.5 mg in 0.5 mL  
Pre-filled syringe 5 mg in 1 mL  
Pre-filled syringe 7.5 mg in 1.5 mL  
Pre-filled syringe 10 mg in 2 mL  
Pre-filled syringe 10 mg in 1 mL |
| Administration | Intravenous (IV)  
Intraosseous (IO)  
Intramuscular (IM)  
Buccal  
Intranasal (IN) (50% in each nostril)  
(GBP: 5/6.4.23, 6.4.29, 5/6.7.33) |
| Indications | Seizures  
Combative with hallucinations or paranoia and risk to self or others |
| Contraindications | Shock  
Depressed vital signs or alcohol-related altered level of consciousness  
Respiratory depression  
Known severe adverse reaction |
| Usual Dosages | Adults:  
Seizure:  
2.5 mg IV or 5 mg IM or 10 mg buccal or 5 mg intranasal (Repeat x 1 prn)  
Paramedic: IM, buccal or IN only  
Paediatric:  
Seizure:  
< 1 year: 2.5 mg buccal  
1 year to < 5 years: 5 mg buccal  
5 years to < 10 years: 7.5 mg buccal  
≥ 10 years: 10 mg buccal  
or  
0.2 mg/Kg intranasal or 0.1 mg/Kg IV/IO  
(Repeat x 1 prn)  
Paramedic: buccal or IN only |
<p>| Pharmacology/Action | It affects the activity of a chemical that transmits impulses across nerve synapses called Gamma-AminoButyric Acid (GABA). GABA is an inhibitory neurotransmitter. Midazolam works by increasing the effects of GABA at these receptors. |</p>
<table>
<thead>
<tr>
<th>Medication</th>
<th>Midazolam Solution (contd)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Side effects</strong></td>
<td>Respiratory depression, headache, hypotension &amp; drowsiness.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Midazolam IV should be titrated to effect</td>
</tr>
<tr>
<td></td>
<td>Ensure oxygen and resuscitation equipment are available prior to administration</td>
</tr>
<tr>
<td></td>
<td>No more than two doses by practitioners</td>
</tr>
<tr>
<td></td>
<td>Practitioners should take into account the dose administered by carers prior to arrival of practitioner</td>
</tr>
</tbody>
</table>
# Clinical Practice Guidelines

## APPENDIX 1

### MEDICATION FORMULARY

**CLINICAL LEVEL:** AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Morphine Sulphate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Narcotic analgesic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>CNS depressant and a potent analgesic with haemodynamic properties that make it extremely useful in emergency medicine</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Ampoule 10 mg in 1 mL (dilute in 9 mL of NaCl) Suspension 10 mg in 5 mL</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV) Intraosseous (IO) Orally (PO) Intramuscular (IM) (CPG: 4/5/6.2.6, 4/5/6.7.5)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td><strong>Adult:</strong> Severe pain (≥ 7 on pain scale) <strong>Paediatric:</strong> Severe pain (≥ 7 on pain scale)</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>PO &lt; 1 year old Known severe adverse reaction Labour pains Acute respiratory depression Acute intoxication Systolic BP &lt; 90 mmHg</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> 2 mg IV/IO Repeat at not &lt; 2 minute intervals if indicated to Max 10 mg For musculoskeletal pain Max 16 mg Up to 10 mg IM (if no cardiac chest pain and no IV access) <strong>Paediatric:</strong> 0.3 mg/Kg (300 mcg/Kg) PO (Max 10 mg) 0.05 mg/Kg (50 mcg/Kg) IV/IO Repeat at not &lt; 2 min prn to Max of 0.1 mg/Kg IV/IO</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Opiate Analgesic Acts on Central Nervous System to reduce pain &amp; anxiety Vasodilatation resulting in reduced pre-load to myocardium</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Respiratory depression Drowsiness Nausea &amp; vomiting Constipation</td>
</tr>
<tr>
<td><strong>Long-term side effects</strong></td>
<td>Long-term use may lead to dependence</td>
</tr>
</tbody>
</table>
### Medication Formulary

<table>
<thead>
<tr>
<th>Medication</th>
<th>Morphine Sulphate (contd)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Additional information</strong></td>
<td>Use with extreme caution particularly with elderly/young</td>
</tr>
<tr>
<td></td>
<td>Caution with acute respiratory distress</td>
</tr>
<tr>
<td></td>
<td>Caution with reduced GCS</td>
</tr>
<tr>
<td></td>
<td>Not recommended for headache</td>
</tr>
<tr>
<td></td>
<td>N.B. Controlled under Misuse of Drugs Act (1977, 1984)</td>
</tr>
</tbody>
</table>
## APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL:**

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

**CLINICAL LEVEL:** AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Nifedipine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Tocolytic agent and calcium channel blocker</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Dihydropyridine calcium channel blocker</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>20 mg tablet</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Orally (PO) (CPG: 5/6.5.5)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Prolapsed cord</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Hypotension</td>
</tr>
<tr>
<td></td>
<td>Known severe adverse reaction</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>Adults: 20 mg PO</td>
</tr>
<tr>
<td></td>
<td><strong>Paediatric:</strong> Not indicated</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Inhibits muscle contraction by interfering with the movement of calcium ions through the slow channels of active cell membrane</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Hypotension</td>
</tr>
<tr>
<td></td>
<td>Headache</td>
</tr>
<tr>
<td></td>
<td>Bradycardia</td>
</tr>
<tr>
<td></td>
<td>Nausea &amp; vomiting</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>Close monitoring of maternal pulse &amp; BP is required and continuous foetal monitoring should be carried out if possible</td>
</tr>
</tbody>
</table>
**APPENDIX 1**

**MEDICATION FORMULARY**

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

<table>
<thead>
<tr>
<th>Class</th>
<th>Antiemetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Used in management of nausea &amp; vomiting. Potent, highly selective 5 HT3 receptor-antagonist</td>
</tr>
<tr>
<td>Presentation</td>
<td>Ampoule 2 mL (4 mg in 2 mL)</td>
</tr>
<tr>
<td>Administration</td>
<td>Intravenous (IV)</td>
</tr>
<tr>
<td></td>
<td>(CPG: 4/5/6.2.6, 4/5/6.7.5)</td>
</tr>
<tr>
<td>Indications</td>
<td>Management, prevention and treatment of nausea &amp; vomiting.</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Known severe adverse reaction</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adult: 4 mg slow IV</td>
</tr>
<tr>
<td></td>
<td>Paediatric: 0.1 mg/Kg IV slowly to a Max of 4 mg</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Precise mode of action in the control of nausea &amp; vomiting is not known</td>
</tr>
<tr>
<td>Side effects</td>
<td>Headache</td>
</tr>
<tr>
<td></td>
<td>Sensation of warmth</td>
</tr>
<tr>
<td></td>
<td>Flushing</td>
</tr>
<tr>
<td></td>
<td>Hiccups</td>
</tr>
</tbody>
</table>
## APPENDIX 1
### MEDICATION FORMULARY

**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Gas</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Odourless, tasteless, colourless gas necessary for life.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>D, E or F cylinders, coloured black with white shoulders CD cylinder; white cylinder Medical gas</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Inhalation via: High concentration reservoir (non-rebreather) mask Simple face mask Venturi mask Tracheostomy mask Nasal cannulae Bag Valve Mask (CPG: Oxygen is used extensively throughout the CPGs)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Absent/inadequate ventilation following an acute medical or traumatic event SpO₂ &lt; 94% adults and &lt; 96% paediatrics SpO₂ &lt; 92% for patients with acute exacerbation of COPD</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Bleomycin lung injury</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td><strong>Adult:</strong> Cardiac and respiratory arrest or Sickle Cell Crisis; 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 94% -98% <strong>Paediatric:</strong> Cardiac and respiratory arrest or Sickle Cell Crisis; 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%</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Oxygenation of tissue/organisms</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Prolonged use of O₂ with chronic COPD patients may lead to reduction in ventilation stimulus</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>A written record must be made of what oxygen therapy is given to every patient. Documentation recording oximetry measurements should state whether the patient is breathing air or a specified dose of supplemental oxygen. Consider humidifier if oxygen therapy for paediatric patients is &gt; 30 minute duration. Caution with paraquat poisoning, administer oxygen if SpO₂ &lt; 92%. Avoid naked flames, powerful oxidising agent.</td>
</tr>
</tbody>
</table>
# Medication Formulary

## Clinical Practice Guidelines

### Appendix 1

#### Medication Formulary

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

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

**APPENDIX 1**

**MEDICATION FORMULARY**

**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Salbutamol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Sympathetic agonist</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Sympathomimetic that is selective for beta-2 adrenergic receptors</td>
</tr>
</tbody>
</table>
| **Presentation** | Nebule 2.5 mg in 2.5 mL  
Nebule 5 mg in 2.5 mL  
Aerosol inhaler: metered dose 0.1 mg (100 mcg) |
| **Administration** | Nebuliser (NEB)  
Inhalation via aerosol inhaler  
(CPG: 4/5/6.3.3, 4/5/6.3.4, 3.3.4, 5/6.4.15, 4.4.15, 2/3.4.16, 4/5/6.6.10, 4/5/6.7.12, 3.7.12, 5/6.7.31, 4.7.31, 2/3.7.31) |
| **Indications** | Bronchospasm  
Exacerbation of COPD  
Respiratory distress following submersion incident |
| **Contraindications** | Known severe adverse reaction |
| **Usual Dosages** | Adult:  
5 mg NEB (or 0.1 mg metered aerosol spray x 5)  
Repeat at 5 min prn  
EFRs: 0.1 mg metered aerosol spray x 2 |
| *Paediatric:* | < 5 yrs - 2.5 mg NEB (or 0.1 mg metered aerosol spray x 3)  
> 5 yrs - 5 mg NEB (or 0.1 mg metered aerosol spray x 5)  
Repeat at 5 min prn  
EFRs: 0.1 mg metered aerosol spray x 2 |
| **Pharmacology/Action** | Beta-2 agonist  
Bronchodilation  
Relaxation of smooth muscle |
| **Side effects** | Tachycardia  
Tremors  
Tachyarrhythmias  
High doses may cause hypokalaemia |
| **Additional information** | It is more efficient to use a volumizer in conjunction with an aerosol inhaler when administering Salbutamol.  
If an oxygen driven nebuliser is used to administer Salbutamol for a patient with acute exacerbation of COPD it should be limited to 6 minutes maximum. |
Clinical Practice Guidelines
ADVANCED PARAMEDIC

APPENDIX 1
MEDICATION FORMULARY

<table>
<thead>
<tr>
<th>Medication</th>
<th>Sodium Bicarbonate injection BP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Alkalinising agent</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>A salt that is an alkalinizing agent and electrolyte supplement</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Glass vial 8.4% in 100 mL</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV), Intraosseous (IO) (CPG: 4/5/6.4.3, 5/6.4.4, 4/5/6.4.6, 6.4.22, 4/5/6.6.4)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Wide complex QRS arrhythmias and/or seizures following Tricyclic antidepressant (TCA) overdose Cardiac arrest following Tricyclic overdose Cardiac arrest following harness induced suspension trauma</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Known severe adverse reaction</td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>Adult: 1 mEq/Kg (1mL/Kg 8.4% solution). Max 50 mEq (50 mL 8.4%) Paediatric: Not indicated</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>TCA excretion from the body is enhanced by making the urine more alkaline (raising the pH)</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Nil when used for emergencies</td>
</tr>
</tbody>
</table>
### APPENDIX 1
#### MEDICATION FORMULARY

**CLINICAL LEVEL:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Sodium Chloride 0.9% (NaCl)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Isotonic crystalloid solution</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Solution of sodium and chloride, also known as normal saline (NaCl)</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Soft pack for infusion 100 mL, 500 mL &amp; 1,000 mL Ampoules 10 mL</td>
</tr>
</tbody>
</table>
| **Administration** | Intravenous (IV) infusion, Intravenous (IV) flush, Intraosseous (IO)  
**Paramedic:** maintain infusion once commenced  
(CPG: Sodium Chloride 0.9% is used extensively throughout the CPGs) |
| **Indications** | IV/IO fluid for pre-hospital emergency care |
| **Contraindications** | Known severe adverse reaction |
| **Usual Dosages** | **ADULT**  
Keep vein open (KVO) or medication flush for cardiac arrest prn  
**Crush injury, Suspension Trauma, PEA or Asystole:**  
20 mL/Kg IV/IO infusion  
**Hypothermia:** 250 mL IV/IO infusion (warmed to 40°C approx) Repeat to max 1 L  
**# neck of femur, sepsis:**  
250 mL IV infusion  
**Decompression illness, sepsis with poor perfusion:**  
500 mL IV/IO infusion  
**Shock from blood loss:**  
500 mL IV/IO infusion. Repeat in aliquots of 250 mL prn to maintain systolic BP  
of;  
90 - 100 mmHg  
120 mmHg (head injury GCS ≤ 8)  
**Burns:**  
> 25% TBSA and/or 1 hour from time of injury to ED, 1000 mL IV/IO infusion  
> 10% TBSA consider 500 mL IV/IO infusion  
**Adrenal insufficiency, Glycaemic emergency, Heat-related Emergency, Sickle Cell Crisis:**  
1,000 mL IV/IO infusion  
**Anaphylaxis, post partum haemorrhage:**  
1,000 mL IV/IO infusion, repeat x one prn  
**Post-resuscitation care:**  
1,000 mL IV/IO infusion (at 4°C approx). If persistent hypotension maintain Sys BP > 90 mmHg |
<table>
<thead>
<tr>
<th>Medication</th>
<th>Sodium Chloride 0.9% (NaCl) (contd)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Usual Dosages</strong></td>
<td>PAEDIATRIC</td>
</tr>
<tr>
<td></td>
<td>Keep vein open (KVO) or medication flush for cardiac arrest prn</td>
</tr>
<tr>
<td></td>
<td><strong>Glycaemic emergency, Neonatal resuscitation, Sickle Cell Crisis:</strong> 10 mL/Kg IV/IO infusion</td>
</tr>
<tr>
<td></td>
<td><strong>Hypothermia:</strong> 10 mL/Kg IV/IO infusion (warmed to 40°C approx). Repeat prn x 1</td>
</tr>
<tr>
<td></td>
<td><strong>Haemorrhagic shock:</strong> 10 mL/Kg IV/IO, repeat prn if signs of inadequate perfusion</td>
</tr>
<tr>
<td></td>
<td><strong>Anaphylaxis:</strong> 20 mL/Kg IV/IO infusion, repeat x one prn</td>
</tr>
<tr>
<td></td>
<td><strong>Adrenal insufficiency, Crush injury, Septic shock, Suspension Trauma, Symptomatic Bradycardia, Asystotol/PEA:</strong> 20 mL/Kg IV/IO infusion</td>
</tr>
<tr>
<td></td>
<td><strong>Post-resuscitation care:</strong> 20 mL/Kg IV/IO infusion if persistent poor perfusion</td>
</tr>
<tr>
<td></td>
<td><strong>Burns:</strong> &gt; 10% TBSA and/or &gt; 1 hour from time of injury to ED: 5 – 10 years: 250 mL IV/IO &gt; 10 years: 500 mL IV/IO</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Isotonic crystalloid solution</td>
</tr>
<tr>
<td></td>
<td>Fluid replacement</td>
</tr>
<tr>
<td><strong>Side effects</strong></td>
<td>Excessive volume replacement may lead to heart failure</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>NaCl is the IV/IO fluid of choice for pre-hospital emergency care</td>
</tr>
<tr>
<td></td>
<td>For KVO use 500 mL pack only</td>
</tr>
</tbody>
</table>
# APPENDIX 1
## MEDICATION FORMULARY

**CLINICAL LEVEL:** AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Syntometrine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Synthetic hormone</td>
</tr>
<tr>
<td>Description</td>
<td>Ergometrine maleate 0.5 mg and synthetic oxytocin 5 units per mL</td>
</tr>
<tr>
<td>Presentation</td>
<td>Ampoule 1 mL</td>
</tr>
<tr>
<td>Administration</td>
<td>Intramuscular (IM) (CPG: 5/6.5.4)</td>
</tr>
<tr>
<td>Indications</td>
<td>Control of post-partum haemorrhage</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Severe kidney, liver or cardiac dysfunction. Sepsis Known severe adverse reaction</td>
</tr>
<tr>
<td>Usual Dosages</td>
<td>Adult: 1 mL IM Paediatric: Not indicated</td>
</tr>
<tr>
<td>Pharmacology/Action</td>
<td>Causes rhythmic contraction of uterine smooth muscle, thereby constricting uterine blood vessels.</td>
</tr>
<tr>
<td>Side effects</td>
<td>Nausea &amp; vomiting Abdominal pain Headache Dizziness Cardiac arrhythmias</td>
</tr>
<tr>
<td>Additional information</td>
<td>Ensure that a second foetus is not in the uterus prior to administration</td>
</tr>
</tbody>
</table>
### Medication Formulary

#### Medication

<table>
<thead>
<tr>
<th>Class</th>
<th>Thrombolytic agent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>A recombinant fibrin-specific plasminogen activator</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Powder and solvent for solution</td>
</tr>
<tr>
<td>1 vial contains 10,000 units (50 mg) tenecteplase</td>
<td></td>
</tr>
<tr>
<td>1 pre-filled syringe contains 10 mL water for injections</td>
<td></td>
</tr>
<tr>
<td>The reconstituted solution contains 1,000 units (5 mg) tenecteplase per mL</td>
<td></td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV)</td>
</tr>
<tr>
<td>(CPG: 5/6.4.10)</td>
<td></td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Patient conscious, coherent and understands therapy</td>
</tr>
<tr>
<td>Patient consent obtained</td>
<td></td>
</tr>
<tr>
<td>Confirmed STEMI</td>
<td></td>
</tr>
<tr>
<td>Patient not suitable for PPCI from a time or clinical perspective</td>
<td></td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Haemorrhagic stroke or stroke of unknown origin at any time</td>
</tr>
<tr>
<td>Ischaemic stroke in previous 6 months</td>
<td></td>
</tr>
<tr>
<td>Central nervous system damage or neoplasms</td>
<td></td>
</tr>
<tr>
<td>Recent major trauma/ surgery/ head injury (within 3 weeks)</td>
<td></td>
</tr>
<tr>
<td>Gastro-intestinal bleeding within the last month</td>
<td></td>
</tr>
<tr>
<td>Active peptic ulcer</td>
<td></td>
</tr>
<tr>
<td>Known bleeding disorder</td>
<td></td>
</tr>
<tr>
<td>Oral anticoagulant therapy</td>
<td></td>
</tr>
<tr>
<td>Aortic dissection</td>
<td></td>
</tr>
<tr>
<td>Transient ischaemic attack in preceding 6 months</td>
<td></td>
</tr>
<tr>
<td>Pregnancy and within one week post-partum</td>
<td></td>
</tr>
<tr>
<td>Non-compressible punctures</td>
<td></td>
</tr>
<tr>
<td>Traumatic resuscitation</td>
<td></td>
</tr>
<tr>
<td>Refractory hypertension (Sys BP &gt; 180 mmHg)</td>
<td></td>
</tr>
<tr>
<td>Advanced liver disease</td>
<td></td>
</tr>
<tr>
<td>Infective endocarditis</td>
<td></td>
</tr>
<tr>
<td><strong>Usual Dosages</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Adult:</strong></td>
<td></td>
</tr>
<tr>
<td>Kg</td>
<td>Units</td>
</tr>
<tr>
<td>&lt; 60</td>
<td>6,000</td>
</tr>
<tr>
<td>≥ 60 &lt; 70</td>
<td>7,000</td>
</tr>
<tr>
<td>≥ 70 &lt; 80</td>
<td>8,000</td>
</tr>
<tr>
<td>≥ 80 &lt; 90</td>
<td>9,000</td>
</tr>
<tr>
<td>≥ 90</td>
<td>10,000</td>
</tr>
<tr>
<td><strong>Paediatric:</strong></td>
<td>Not indicated</td>
</tr>
<tr>
<td><strong>Pharmacology/Action</strong></td>
<td>Tenecteplase is a recombinant fibrin-specific plasminogen activator that is derived from native t-PA by modifications at three sites of the protein structure. It binds to the fibrin</td>
</tr>
</tbody>
</table>
### Medication: Tenecteplase Powder for injection (Contd)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Tenecteplase Powder for injection (Contd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>component of the thrombus (blood clot) and selectively converts thrombus-bound plasminogen to plasmin, which degrades the fibrin matrix of the thrombus.</td>
</tr>
</tbody>
</table>
| Side effects | Haemorrhage predominantly superficial at the injection site  
|              | Ecchymoses are observed commonly but usually do not require any specific action  
|              | Stroke (including intracranial bleeding) and other serious bleeding episodes |
| Additional information | Enoxaparin should be used as antithrombotic adjunctive therapy |
### Medication Formulary

**CLINICAL LEVEL:** P  AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Ticagrelor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Platelet aggregation inhibitor</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>An inhibitor of platelet function</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>90 mg tablets</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Orally (PO) (CPG: 5/6.4.10)</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Identification of ST Elevation Myocardial Infarction (STEMI) if transporting to PPCI centre</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Hypersensitivity to the active substance (Ticagrelor) or to any of the excipients Active pathological bleeding History of intracranial haemorrhage Moderate to severe hepatic impairment</td>
</tr>
</tbody>
</table>
| **Usual Dosages** | **Adult:** Loading dose 180 mg PO  
**Paediatric:** Not indicated |
| **Pharmacology/Action** | Ticagrelor is a selective adenosine diphosphate (ADP) receptor antagonist acting on the P2Y12 ADP-receptor that can prevent ADP-mediated platelet activation and aggregation. Ticagrelor is orally active, and reversibly interacts with the platelet P2Y12 ADP-receptor. Ticagrelor does not interact with the ADP binding site itself, but interacts with platelet P2Y12 ADP-receptor to prevent signal transduction. |
| **Side effects** | Common: Dyspnoea, epistaxis, gastrointestinal haemorrhage, subcutaneous or dermal bleeding, bruising and procedural site haemorrhage.  
Other undesirable effects include intracranial bleeding, elevations of serum creatinine and uric acid levels. Consult SmPC for a full list of undesirable effects. |
| **Additional information** | **Special authorisation:** Advanced paramedics and paramedics are authorised to administer Ticagrelor 180 mg PO following identification of STEMI and medical practitioner instruction.  
If a patient has been loaded with an anti-platelet medication (other than aspirin), prior to the arrival of the practitioner, the patient should not have Ticagrelor administered. |
### APPENDIX 1
MEDICATION FORMULARY

**CLINICAL LEVEL:** AP

<table>
<thead>
<tr>
<th>Medication</th>
<th>Tranexamic Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>Anti-fibrinolytic</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>An anti-fibrinolytic which reduces the breakdown of blood clots</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Ampoule 500 mg in 5 mL</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Intravenous (IV) (CPG: 5/6.6.8).</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Suspected significant internal or external haemorrhage associated with trauma</td>
</tr>
<tr>
<td><strong>Contraindications</strong></td>
<td>Hypersensitivity to the active substance or to any of the excipients, Acute venous or arterial thrombosis, History of convulsions, Severe hepatic impairment</td>
</tr>
</tbody>
</table>
| **Usual Dosages** | **Adult:** 1 g IV/IO (infusion in 100 mL NaCl)  
**Paediatric:** Not indicated |
| **Pharmacology/Action** | Tranexamic acid exerts an anti-haemorrhagic activity by inhibiting the activation of plasminogen to plasmin, by binding to specific sites of both plasminogen and plasmin, a molecule responsible for the degradation of fibrin, a protein that forms the framework of blood clots. |
| **Side effects** | Common: Diarrhoea, vomiting, nausea.  
Other undesirable effects include visual disturbance, impaired coloured vision, dizziness and headache. |
| **Additional information** | Caution with head injury |
### APPENDIX 2
MEDICATIONS & SKILLS MATRIX

NEW FOR 2014

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burns care</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Soft tissue injury</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SpO2 monitoring</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move and secure a patient to a paediatric board</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ibuprofen PO</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salbutamol Nebule</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subcutaneous injection</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naloxone IN</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain assessment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemostatic agent</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Tidal CO2 monitoring</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone IM</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ipratropium Bromide Nebule</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPAP / BiPAP</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naloxone SC</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal pack</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ticagrelor</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treat and referral</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tranexamic Acid</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CARE MANAGEMENT INCLUDING THE ADMINISTRATION OF MEDICATIONS AS PER LEVEL OF TRAINING AND DIVISION ON THE PHECC REGISTER AND RESPONDER LEVELS.

Pre-Hospital responders and practitioners shall only provide care management including medication administration for which they have received specific training. Practitioners must be privileged by a licensed CPG provider to administer specific medications and perform specific clinical interventions.

### KEY

- ✓ = 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
- BTEC = Authorised subject to Basic Tactical Emergency Care rules
### APPENDIX 2

#### MEDICATIONS & SKILLS MATRIX

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin PO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Oxygen</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Glucose Gel Buccal</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>GTN SL</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</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>
<td>✓</td>
</tr>
<tr>
<td>Glucagon IM</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Nitrous oxide &amp; Oxygen (Entonox©)</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Naloxone IN</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Paracetamol PO</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ibuprofen PO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Salbutamol nebul</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Morphine IM</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Clopidogrel PO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Epinephrine (1:1,000) IM</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hydrocortisone IM</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ipratropium Bromide Nebule</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Midazolam IM/Buccal/IN</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Naloxone IM/SC</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ticagrelor</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dextrose 10% IV</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hartmann's Solution IV/IO</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sodium Chloride 0.9% IV/IO</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Amiodarone IV/IO</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Atropine IV/IO</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Benzylopenicillin IM/IV/IO</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cyclizine IV</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Diazepam IV/PR</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Epinephrine (1:10,000) IV/IO</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Fentanyl IN</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Furosemide IV/IM</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hydrocortison IV</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Lorazepam PO</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Magnesium Sulphate IV</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Midazolam IV</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### MEDICATIONS & SKILLS MATRIX

#### MEDICATIONS (contd)

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine IV/PO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naloxone IV/IO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nifedipine PO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ondansetron IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paracetamol PR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium Bicarbonate IV/IO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syntometrine IM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tranexamic Acid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enoxaparin IV/SC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lidocaine IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenecteplase IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### AIRWAY & BREATHING MANAGEMENT

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBAO management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Head tilt chin lift</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pocket mask</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Recovery position</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Non rebreather mask</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPA</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suctioning</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venturi mask</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SpO₂ monitoring</td>
<td>✓ SA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jaw Thrust</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVM</td>
<td>✓</td>
<td>✓ SA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPA</td>
<td></td>
<td></td>
<td>BTEC</td>
<td>BTEC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal cannula</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supraglottic airway adult (uncuffed)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxygen humidification</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supraglottic airway adult (cuffed)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPAP / BiPAP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-invasive ventilation device</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak Expiratory Flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## APPENDIX 2
### MEDICATIONS & SKILLS MATRIX

#### AIRWAY & BREATHING MANAGEMENT (cont'd)

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>End Tidal CO₂ monitoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Supraglottic airway paediatric</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td>SA</td>
</tr>
<tr>
<td>Endotracheal intubation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Laryngoscopy and Magill forceps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Needle cricothyrotomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Needle thoracocentesis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

#### CARDIAC

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>AED adult &amp; paediatric</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>CPR adult, child &amp; infant</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Recognise death and resuscitation not indicated</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Targeted temperature management</td>
<td>✔ SA</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>CPR newly born</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>ECG monitoring (lead II)</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Mechanical assist CPR device</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>12 lead ECG</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Cease resuscitation - adult</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Manual defibrillation</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

#### HAEMORRHAGE CONTROL

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct pressure</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Nose bleed</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Haemostatic agent</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Tourniquet use</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Nasal pack</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Pressure points</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>
### APPENDIX 2

**MEDICATIONS & SKILLS MATRIX**

#### MEDICATION ADMINISTRATION

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Buccal route</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Per aerosol (inhaler) + spacer</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sublingual</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Intramuscular injection</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Intranasal</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Per nebuliser</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Subcutaneous injection</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IV &amp; IO Infusion maintenance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Infusion calculations</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Intraosseous injection/infusion</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Intravenous injection/infusion</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Per rectum</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

#### TRAUMA

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burns care</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cervical spine manual stabilisation</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Application of a sling</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Soft tissue injury</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cervical collar application</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Helmet stabilisation/removal</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Splinting device application to upper limb</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Move and secure patient to a long board</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Rapid Extraction</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Log roll</td>
<td>APO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Move patient with a carrying sheet</td>
<td>APO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Move patient with an orthopaedic stretcher</td>
<td>APO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Splinting device application to lower limb</td>
<td>APO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Secure and move a patient with an extrication device</td>
<td>APO</td>
<td>APO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
## MEDICATIONS & SKILLS MATRIX

### TRAUMA (contd)

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pelvic Splinting device</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BTEC</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Move and secure patient into a vacuum mattress</td>
<td></td>
<td></td>
<td></td>
<td>BTEC</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Active re-warming</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Move and secure a patient to a paediatric board</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Traction splint application</td>
<td></td>
<td></td>
<td></td>
<td>APO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Spinal Injury Decision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Taser gun barb removal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduction dislocated patella</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### OTHER

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist in the normal delivery of a baby</td>
<td></td>
<td></td>
<td></td>
<td>APO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>De-escalation and breakaway skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Glucometry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Broselow tape</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Delivery Complications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>External massage of uterus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Intraosseous cannulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Intravenous cannulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Urinary catheterisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### PATIENT ASSESSMENT

<table>
<thead>
<tr>
<th>CLINICAL LEVEL</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess responsiveness</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Check breathing</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>FAST assessment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Capillary refill</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>AVPU</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Breathing &amp; pulse rate</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## Appendix 2
### Medications & Skills Matrix

**Patient Assessment (contd)**

<table>
<thead>
<tr>
<th>Clinical Level</th>
<th>CFR-C</th>
<th>CFR-A</th>
<th>FAR/OFA</th>
<th>EFR</th>
<th>EMT</th>
<th>P</th>
<th>AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary survey</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>SAMPLE history</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Secondary survey</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>CSM assessment</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Rule of Nines</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Assess pupils</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Capacity evaluation</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Do Not Attempt Resuscitation</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Paediatric Assessment Triangle</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Pain assessment</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Patient Clinical Status</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Pre-hospital Early Warning Score</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Pulse check (cardiac arrest)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Temperature °C</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Triage sieve</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Chest auscultation</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>GCS</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Treat and referral</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Triage sort</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
APPENDIX 3
CRITICAL INCIDENT STRESS MANAGEMENT

Your Psychological Well-Being

As a Practitioner it is extremely important for your psychological well-being that you do not expect to save every critically ill or injured patient that you treat. For a patient who is not in hospital, whether they survive a cardiac arrest or multiple trauma depends on a number of factors including any other medical condition the patient has. Your aim should be to perform your interventions well and to administer the appropriate medications within your scope of practice. However sometimes you may encounter a situation which is highly stressful for you, giving rise to Critical Incident Stress (CIS). A critical incident is an incident or event which may overwhelm or threaten to overwhelm our normal coping responses. As a result of this we can experience CIS.

SYMPTOMS OF CIS INCLUDE SOME OR ALL OF THE FOLLOWING:

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

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

Post-Traumatic Stress Reactions

Normally the symptoms of Critical Incident Stress subside within a few weeks or less. Sometimes however, they may persist and develop into a post-traumatic stress reaction and you may also experience emotional reactions.

Anger at the injustice and senselessness of it all.

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

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

Fear of ‘breaking down’ or ‘losing control’, not having done all you could have done, being blamed for something or a similar event happening to you or your loved ones.
Avoiding the scene of the trauma or anything that reminds you of it.

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

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

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

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

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

- For a self-help guide, please go to www.cismnetworkireland.ie
- The NAS CISM/ CISM Network published a booklet called ‘Critical Incident Stress Management for Emergency Personnel.’ It can be purchased by emailing info@cismnetworkireland.ie
- The NAS CISM committee in partnership with PHECC developed an eLearning CISM Stress Awareness Training (SAT) module. It can be accessed by all PHECC registered practitioners using their PHECC eLearning username and password.
- In due course PHECC will launch a CISM SAT module for non-PHECC registered personnel.
- See a health professional who specialises in traumatic stress.
APPENDIX 4
CPG UPDATES FOR ADVANCED PARAMEDICS

CPG updates 2014

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

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

CPGs that have content changes are outlined below.

Updated CPGs from the 2012 version.

<table>
<thead>
<tr>
<th>CPGs</th>
<th>The principal differences are</th>
<th>Theory</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPG 4/5/6.2.1 Primary Survey Medical – Adult</td>
<td>EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to insert an NPA following appropriate training.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.2.2 Primary Survey Trauma – Adult</td>
<td>EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to insert an NPA following appropriate training.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 5/6.2.5 Secondary Survey Trauma – Adult</td>
<td>ECG &amp; SpO2 monitoring inserted on multi-system trauma arm. Add ‘consider repeat primary survey’.</td>
<td>✓</td>
<td>x</td>
</tr>
</tbody>
</table>
| CPG 4/5/6.2.6 Pain Management – Adult | Delete ‘Minor pain (2 to 3 on pain scale)’ replace with ‘Mild pain (1 to 3 on pain scale)’
Change Moderate pain to ‘4 to 6 on the pain scale’
Change Severe pain to ‘≥ 7 on the pain scale’
Add Fentanyl IN for advanced paramedic practice
Add Ibuprofen PO for EMT practice | ✓      | x      |
| CPG 5/6.3.1 Advanced Airway Management – Adult | The age range from 8 years has been replaced by standard adult range.
It is now explicit that following two unsuccessful attempts at intubation an AP may attempt insertion of a supraglottic airway. | ✓      | x      |
| CPG 4/5/6.3.2 Inadequate Ventilations – Adult | This CPG replaces Inadequate Respirations – Adult (5/6.3.2 and 4.3.2) incorporating all three practitioner levels in one CPG.
This CPG outlines generic care for all patients with inadequate ventilation and then offers pathways for specific clinical issues. | ✓      | x      |
## CPG UPDATES FOR ADVANCED PARAMEDICS

<table>
<thead>
<tr>
<th>CPGs</th>
<th>The principal differences are</th>
<th>Theory</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPG 4/5/6.3.3 Exacerbation of COPD</td>
<td>This CPG incorporates all three practitioner levels in one CPG replacing 4.3.3 at EMT level. Peak expiratory flow measurement is now within the scope of practice for paramedics. Salbutamol Neb is now within the scope of practice for EMTs. Ipratropium Bromide Neb is now within the scope of practice for paramedics.</td>
<td>✔</td>
<td>x</td>
</tr>
<tr>
<td>CPG 6.4.2 Foreign Body Airway Obstruction – Adult</td>
<td>Consider waveform capnography has been added following attempted intubation.</td>
<td>✔</td>
<td>✓</td>
</tr>
<tr>
<td>CPG 5/6.4.10 Acute Coronary Syndrome</td>
<td>Thrombolysis has been removed from the scope of practice for advanced paramedics. Ticagrelor is now within the scope of practice for paramedics and advanced paramedics. The dose for Clopidogrel has been reduced from 600 mg to 300 mg. The indication for Clopidogrel has been changed; it is now indicated for patients with confirmed STEMI who are not transported to a PPCI centre.</td>
<td>✔</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.4.11 Symptomatic Bradycardia – Adult</td>
<td>The dose of Atropine has been increased from 0.5 mg to 0.6 mg. Add ‘NaCl infusion 250 mL (repeat by one)’ Insert information box; ‘Titrate Atropine to effect (HR &gt; 60)’</td>
<td>✔</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.4.17 Epistaxis</td>
<td>Digital pressure has been increased to 15 minutes. The insertion of a proprietary nasal pack is now within the scope of practice for paramedics and advanced paramedics.</td>
<td>✔</td>
<td>✓</td>
</tr>
<tr>
<td>CPG 5/6.4.21 Hypothermia</td>
<td>Paramedic has been included in this CPG. Warmed O₂ has been removed. Mild hypothermia is now defined as 34 – 35.9°C. Moderate hypothermia is now defined as 30 – 33.9°C. Paediatric dose for NaCl has been reduced from 20 mL/Kg to 10 mL/Kg.</td>
<td>✔</td>
<td>x</td>
</tr>
</tbody>
</table>
APPENDIX 4

CPG UPDATES FOR ADVANCED PARAMEDICS

<table>
<thead>
<tr>
<th>CPGs</th>
<th>The principal differences are</th>
<th>Theory</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPG 6.4.22 Poisons – Adult</td>
<td>The methods of introduction of a poison have been removed.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>The poison types have been updated to incorporate toxidromes.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Midazolam has been removed for psychostimulant poisoning, APs are advised to consider medical oversight.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>For tricyclic poisons a Max of 50 mL of Sodium Bicarbonate 0.8% has been set.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Cooling the patient, if hypothermic, has been added.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Naloxone has been added to this CPG for opiate induced poison.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Naloxone IN is now within the scope of practice for advanced paramedics.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Reference to the National Poison Information Centre has been removed.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>The absolute contraindication for O₂ has been removed following paraquat poisoning.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 5/6.4.23 Seizure/Convulsion – Adult</td>
<td>Magnesium sulphate may be considered by advanced paramedics to manage a pre-eclampsia patient who is seizing.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.4.24 Sepsis – Adult</td>
<td>This CPG replaces Septic Shock – Adult.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>It authorises the administration of Paracetamol for pyrexic patients.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>It authorises the administration, by advanced paramedics, of Benzylpenicillin for severe sepsis.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Advanced paramedics may consider additional aliquots of NaCl to maintain systolic BP &gt; 100 mmHg.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.6.1 Burns – Adult</td>
<td>Add ‘Caution with hypothermia’</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CPG 4/5/6.6.3 External Haemorrhage – Adult</td>
<td>This CPG has been updated to reflect the importance of managing catastrophic haemorrhage immediately.</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Dressings impregnated with haemostatic agents are now within the scope of practice for EMTs, paramedics and advanced paramedics.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to apply a tourniquet.</td>
<td>✓</td>
<td>x</td>
</tr>
</tbody>
</table>
## Clinical Practice Guidelines

### APPENDIX 4

**CPG UPDATES FOR ADVANCED PARAMEDICS**

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

<table>
<thead>
<tr>
<th>CPGs</th>
<th>The principal differences are</th>
<th>Theory</th>
<th>Skills</th>
</tr>
</thead>
</table>
| **CPG 4/5/6.7.5**  
Pain Management – Paediatric | Pain assessment recommendations;  
< 5 years use FLACC scale  
5 – 7 years use Wong Baker scale  
≥ 8 years use analogue pain scale  
Delete ‘Minor pain (2 to 3 on pain scale)’ replace with ‘Mild pain (1 to 3 on pain scale)’  
Change Moderate pain to ‘4 to 6 on the pain scale’  
Change Severe pain to ‘≥ 7 on the pain scale’  
Fentanyl IN is now within the scope of practice for advanced paramedics.  
Ibuprofen PO is now within the scope of practice for EMTs. | ✓ | ✓ |
| **CPG 6.7.10**  
Advanced Airway Management – Paediatric | The minimum age for paediatric advanced airway is ≥ 2 years old.  
The advanced paramedic may select either an ETT or supraglottic airway to manage the airway.  
Unsynchronised chest compression should be performed when an advanced airway is secured.  
Ventilate at a rate of 12 to 20 per minute, depending on the age.  
Consider waveform capography has been added. | ✓ | x |
| **CPG 4/5/6.7.11**  
Inadequate Ventilations – Paediatric | This CPG replaces Inadequate Respirations – Paediatric (5/6.7.5 and 4.7.5) incorporating all three practitioner levels in one CPG.  
This CPG outlines generic care for all patients with inadequate ventilation and then offers pathways for specific clinical issues.  
Naloxone IN is now within the scope of practice for EMTs, paramedics and advanced paramedics. | ✓ | x |
| **CPG 6.7.21**  
Foreign Body Airway Obstruction – Paediatric | ‘Consider waveform capnography’ has been added following attempted intubation. | ✓ | ✓ |
| **CPG 4/5/6.7.24**  
Symptomatic Bradycardia – Paediatric | ‘The routine ventilations’ has been changed to ‘ventilations if hypoxic’.  
Unresponsive has been added as a criteria for CPR  
Consider advanced airway management if prolonged CPR has been removed. | ✓ | x |
### CPG UPDATES FOR ADVANCED PARAMEDICS

<table>
<thead>
<tr>
<th>CPGs</th>
<th>The principal differences are</th>
<th>Theory</th>
<th>Skills</th>
</tr>
</thead>
</table>
| **CPG 5/6.7.32**  
Glycaemic Emergency – Paediatric | The dose of NaCl has been reduced from 20 mL/Kg to 10 mL/Kg. | ✓ | x |
| **CPG 5/6.7.33**  
Seizure/ Convulsion – Paediatric | The dose of Midazolam buccal has been changed from weight based to age based. | ✓ | x |
| **CPG 4/5/6.7.50**  
External Haemorrhage – Paediatric | This CPG has been updated to reflect the importance of managing catastrophic haemorrhage immediately.  
Dressings impregnated with haemostatic agents are now within the scope of practice for EMTs, paramedics and advanced paramedics.  
EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to apply a tourniquet. | ✓ | x |
| **CPG 4/5/6.7.53**  
Burns – Paediatric | Add ‘Caution with hypothermia’ | ✓ | x |
| **4/5/6.8.1**  
Major Emergency – First Practitioners on site | Add ‘ambulance loading point’  
Add ‘On site co-ordination centre’ | ✓ | x |
| **4/5/6.8.2**  
Major Emergency – Operational Control | Add information box ‘Controller of Operations may be other than ambulance or fire officers, depending on nature of emergency’ | ✓ | x |
APPENDIX 4  
CPG UPDATES FOR ADVANCED PARAMEDICS

New CPGs

<table>
<thead>
<tr>
<th>New CPGs</th>
<th>The new skills and medications incorporated in the CPG are:</th>
<th>Theory</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPG 4/5/6.3.4 Asthma – Adult</td>
<td>This CPG outlines the care for a patient with an acute asthma episode.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 5/6.3.5 Acute Pulmonary Oedema</td>
<td>This CPG outlines the care for a patient with an acute pulmonary oedema episode.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CPG 5/6.4.12 Tachycardia – Adult</td>
<td>This CPG outlines the care for a patient with a tachycardia episode.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CPG 5/6.4.13 Adrenal Insufficiency – Adult</td>
<td>This CPG outlines the care for a patient with an adrenal crisis.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 5/6.4.25 Shock from Blood Loss (non-trauma) – Adult</td>
<td>This CPG outlines the care for a patient with non traumatic blood loss.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 4/5/6.4.27 Sickle Cell Crisis – Adult</td>
<td>This CPG outlines the care for a patient with a sickle cell crisis.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 4/5/6.4.4 Harness Induced Suspension Trauma</td>
<td>This CPG outlines, in particular, the correct posture for patients following harness induced suspension trauma.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 4/5/6.6.6 Heat-Related Emergency – Adult</td>
<td>This CPG outlines the care for a patient with a heat-related emergency.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 4/5/6.7.12 Asthma – Paediatric</td>
<td>This CPG outlines the care for a paediatric patient with an acute asthma episode.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 5/6.7.30 Adrenal Insufficiency – Paediatric</td>
<td>This CPG outlines the care for a paediatric patient with an adrenal crisis.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 4/5/6.7.35 Pyrexia – Paediatric</td>
<td>This CPG outlines the care for a paediatric patient with a pyrexia episode.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 4/5/6.7.36 Sickle Cell Crisis – Paediatric</td>
<td>This CPG outlines the care for a paediatric patient with a sickle cell crisis.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 5/6.9.1 Clinical Care Pathway Decision – Treat &amp; Referral</td>
<td>This CPG outlines the inclusion process to select patients for a clinical care pathway other than ED care.</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>CPG 5/6.9.2 Hypoglycaemia – Treat &amp; Referral</td>
<td>This CPG outlines the exclusion process to select patients following a hypoglycaemic event for a clinical care pathway other than ED care.</td>
<td>✓</td>
<td>✗</td>
</tr>
</tbody>
</table>
### New CPGs

<table>
<thead>
<tr>
<th>New CPGs</th>
<th>The new skills and medications incorporated in the CPG are:</th>
<th>Theory</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPG 5/6.9.3 Isolated Seizure – Treat &amp; Referral</td>
<td>This CPG outlines the exclusion process to select patients following an isolated seizure for a clinical care pathway other than ED care.</td>
<td>✔</td>
<td>x</td>
</tr>
</tbody>
</table>
Defibrillation is a lifesaving intervention for victims of sudden cardiac arrest (SCA). Defibrillation in isolation is unlikely to reverse SCA unless it is integrated into the chain of survival. The chain of survival should not be regarded as a linear process with each link as a separate entity but once commenced with ‘early access’ the other links, other than ‘post return of spontaneous circulation (ROSC) care’, should be operated in parallel subject to the number of people and clinical skills available.

Cardiac arrest management process

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

**Position**

1. **Defibrillation mode**
   1.1 Advanced paramedics, and health care professionals whose scope of practice permits, should use defibrillators in manual mode for all age groups.
   1.2 Paramedics may consider using defibrillators in manual mode for all age groups.
   1.3 EMTs and responders shall use defibrillators in AED mode for all age groups.

2. **Hands off time (time when chest compressions are stopped)**
   2.1 Minimise hands off time, absolute maximum 10 seconds.
   2.2 Rhythm and/or pulse checks in manual mode should take no more than 5 to 10 seconds and CPR should be recommenced immediately.
   2.3 When defibrillators are charging CPR should be ongoing and only stopped for the time it takes to press the defibrillation button and recommenced immediately without reference to rhythm or pulse checks.
   2.4 It is necessary to stop CPR to enable some AEDs to analyse the rhythm. Unfortunately this time frame is not standard with all AEDs. As soon as the analysing phase is completed and the charging phase has begun CPR should be recommenced.
3 Energy
3.1 Biphasic defibrillation is the method of choice.
3.2 Biphasic truncated exponential (BTE) waveform energy commencing at 150 to 200 joules shall be used.
3.3 If unsuccessful the energy on second and subsequent shocks shall be as per manufacturer of defibrillator instructions.
3.4 Monophasic defibrillators currently in use, although not as effective as biphasic defibrillators, may continue to be used until they reach the end of their lifespan.

4 Safety
4.1 For the short number of seconds while a patient is being defibrillated no person should be in contact with the patient.
4.2 The person pressing the defibrillation button is responsible for defibrillation safety.
4.3 Defibrillation pads should be used as opposed to defibrillation paddles for pre-hospital defibrillation.

5 Defibrillation pad placement
5.1 The right defibrillation pad should be placed mid clavicular directly under the right clavicle.
5.2 The left defibrillation pad should be placed mid-axillary with the top border directly under the left nipple.
5.3 If a pacemaker or Implantable Cardioverter Defibrillator (ICD) is fitted, defibrillator pads should be placed at least 8 cm away from these devices. This may result in anterior and posterior pad placement which is acceptable.

6 Paediatric defibrillation
6.1 Paediatric defibrillation refers to patients less than 8 years of age.
6.2 Manual defibrillator energy shall commence and continue with 4 joules/Kg.
6.3 AEDs should use paediatric energy attenuator systems.
6.4 If a paediatric energy attenuator system is not available an adult AED may be used.
6.5 It is extremely unlikely to ever have to defibrillate a child less than 1 year old. Nevertheless, if this were to occur the approach would be the same as for a child over the age of 1. The only likely difference being, the need to place the defibrillation pads anterior and posterior, because of the infant’s small size.

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

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