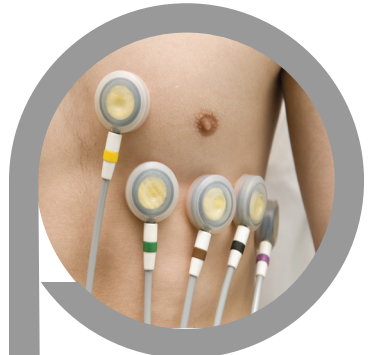


Clinical Practice Guidelines



October 2014 Edition

Advanced Paramedic

Clinical Practice Guidelines

ADVANCED PARAMEDIC



CLINICAL PRACTICE GUIDELINES - 2014 Edition

Practitioner

Advanced Paramedic

CLINICAL PRACTICE GUIDELINES - 2014 Edition

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CLINICAL PRACTICE GUIDELINES - 2014 Edition

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FOREWORD



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

Accepted abbreviations

| | |
|---|-------------------|
| Advanced Paramedic | AP |
| Advanced Life Support | ALS |
| Airway, Breathing & Circulation | ABC |
| All Terrain Vehicle | ATV |
| Altered Level of Consciousness | ALoC |
| Automated External Defibrillator | AED |
| Bag Valve Mask | BVM |
| Basic Life Support | BLS |
| Blood Glucose | BG |
| Blood Pressure | BP |
| Basic Tactical Emergency Care | BTEC |
| Carbon Dioxide | CO ₂ |
| Cardiopulmonary Resuscitation | CPR |
| Cervical Spine | C-spine |
| Chronic Obstructive Pulmonary Disease | COPD |
| Clinical Practice Guideline | CPG |
| Degree | ° |
| Degrees Centigrade | °C |
| Dextrose 10% in water | D ₁₀ W |
| Drop (gutta) | gtt |
| Electrocardiogram | ECG |
| Emergency Department | ED |
| Emergency Medical Technician | EMT |
| Endotracheal Tube | ETT |
| Foreign Body Airway Obstruction | FBAO |
| Fracture | # |
| General Practitioner | GP |
| Glasgow Coma Scale | GCS |
| Gram | g |
| Milligram | mg |
| Millilitre | mL |

ACCEPTED ABBREVIATIONS

(contd)

| | |
|--|------------------|
| Millimole | mmol |
| Minute | min |
| Modified Early Warning Score | MEWS |
| Motor Vehicle Collision | MVC |
| Myocardial Infarction | MI |
| Nasopharyngeal airway | NPA |
| Milliequivalent | mEq |
| Millimetres of mercury | mmHg |
| Nebulised | NEB |
| Negative decadic logarithm of the H ⁺ ion concentration | pH |
| Orally (per os) | PO |
| Oropharyngeal airway | OPA |
| Oxygen | O ₂ |
| Paramedic | P |
| Peak Expiratory Flow | PEF |
| Per rectum | PR |
| Percutaneous Coronary Intervention | PCI |
| Personal Protective Equipment | PPE |
| Pulseless Electrical Activity | PEA |
| Respiration rate | RR |
| Return of Spontaneous Circulation | ROSC |
| Revised Trauma Score | RTS |
| Saturation of arterial oxygen | SpO ₂ |
| ST Elevation Myocardial Infarction | STEMI |
| Subcutaneous | SC |
| Sublingual | SL |
| Systolic Blood Pressure | SBP |
| Therefore | ∴ |
| Total body surface area | TBSA |
| Ventricular Fibrillation..... | VF |
| Ventricular Tachycardia..... | VT |
| When necessary (pro re nata) | prn |

ACKNOWLEDGEMENTS

The process of developing CPGs has been long and detailed. The quality of the finished product is due to the painstaking work of many people, who through their expertise and review of the literature, ensured a world-class publication.

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HSE National Clinical Programme for 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

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INTRODUCTION

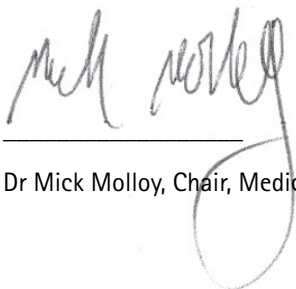


Clinical Practice Guidelines for pre-hospital care are under constant review as practices change, new therapies and medications are introduced, and as more pre-hospital clinical pathways are introduced such as Code STEMI and code stroke which are both leading to significant improved outcomes for patients. 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.

IMPLEMENTATION

Clinical Practice Guidelines (CPGs) and the practitioner

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

The CPGs herein may be implemented provided:

- 1 The practitioner is in good standing on the PHECC Practitioner's Register.
- 2 The practitioner is acting on behalf of a licensed CPG provider (paid or voluntary).
- 3 The practitioner is privileged by the licensed CPG provider on whose behalf he/she is acting to implement the specific CPG.
- 4 The practitioner has received training on – and is competent in – the skills and medications specified in the CPG being utilised.

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

Definitions

| | |
|--------------------|--|
| Adult | A patient of 16 years or greater, unless specified on the CPG |
| Child | A patient between 1 and less than or equal to (\leq) 15 years old, unless specified on the CPG |
| Infant | A patient between 4 weeks and less than 1 year old, unless specified on the CPG |
| Neonate | A patient less than 4 weeks old, unless specified on the CPG |
| Paediatric patient | Any child, infant or neonate |

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.

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.

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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



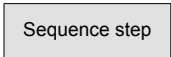
An **EMT** who has completed Basic Tactical Emergency Care training and has been privileged to operate in adverse conditions



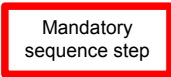
A parallel process
Which may be carried out in parallel with other sequence steps



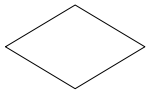
A cyclical process in which a number of sequence steps are completed



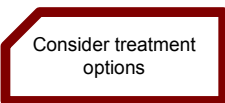
A sequence (skill) to be performed



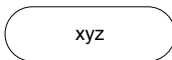
A mandatory sequence (skill) to be performed



A decision process
The Practitioner must follow one route



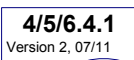
Given the clinical presentation consider the treatment option specified



Finding following clinical assessment, leading to treatment modalities

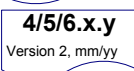


Reassess the patient following intervention



CPG numbering system

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



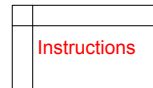
Paramedic or lower clinical levels not permitted this route



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



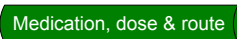
Special instructions
Which the Practitioner must follow



A skill or sequence that only pertains to Advanced Paramedic



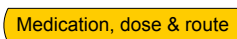
Consider medical oversight



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



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



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



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



A clinical condition that may precipitate entry into the specific CPG

SECTION 1 CARE PRINCIPLES

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

PHECC Care Principles

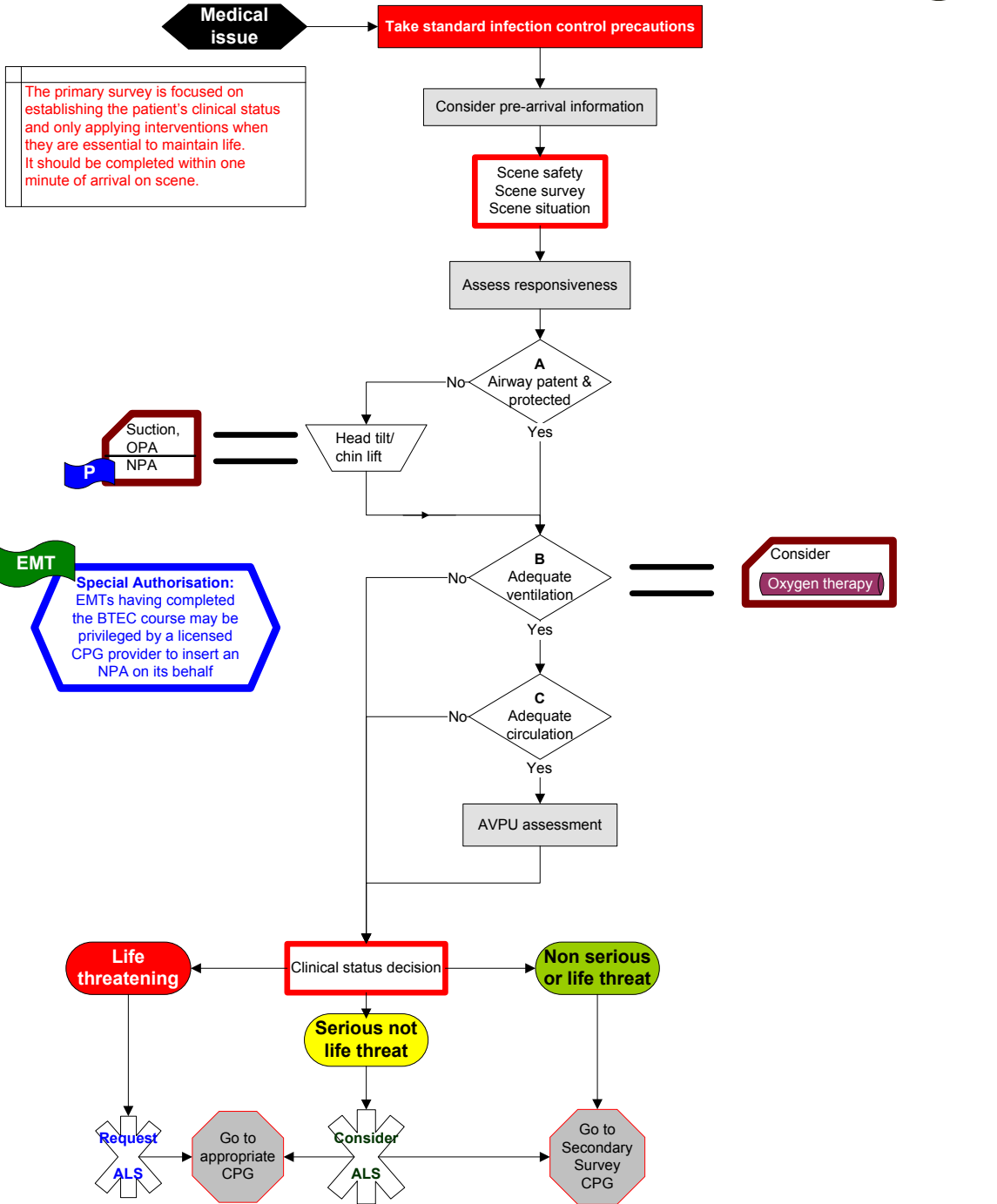
- 1 Ensure the safety of yourself, other emergency service personnel, your patients and the public.
- 2 Seek consent prior to initiating interventions and/or administering medications.
- 3 Identify and manage life-threatening conditions.
- 4 Ensure adequate ventilation and oxygenation.
- 5 Optimise tissue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

SECTION 2

PATIENT ASSESSMENT

4/5/6.2.1
Version 3, 02/14

Primary Survey Medical – Adult



Reference: ILCOR Guidelines 2010

SECTION 2

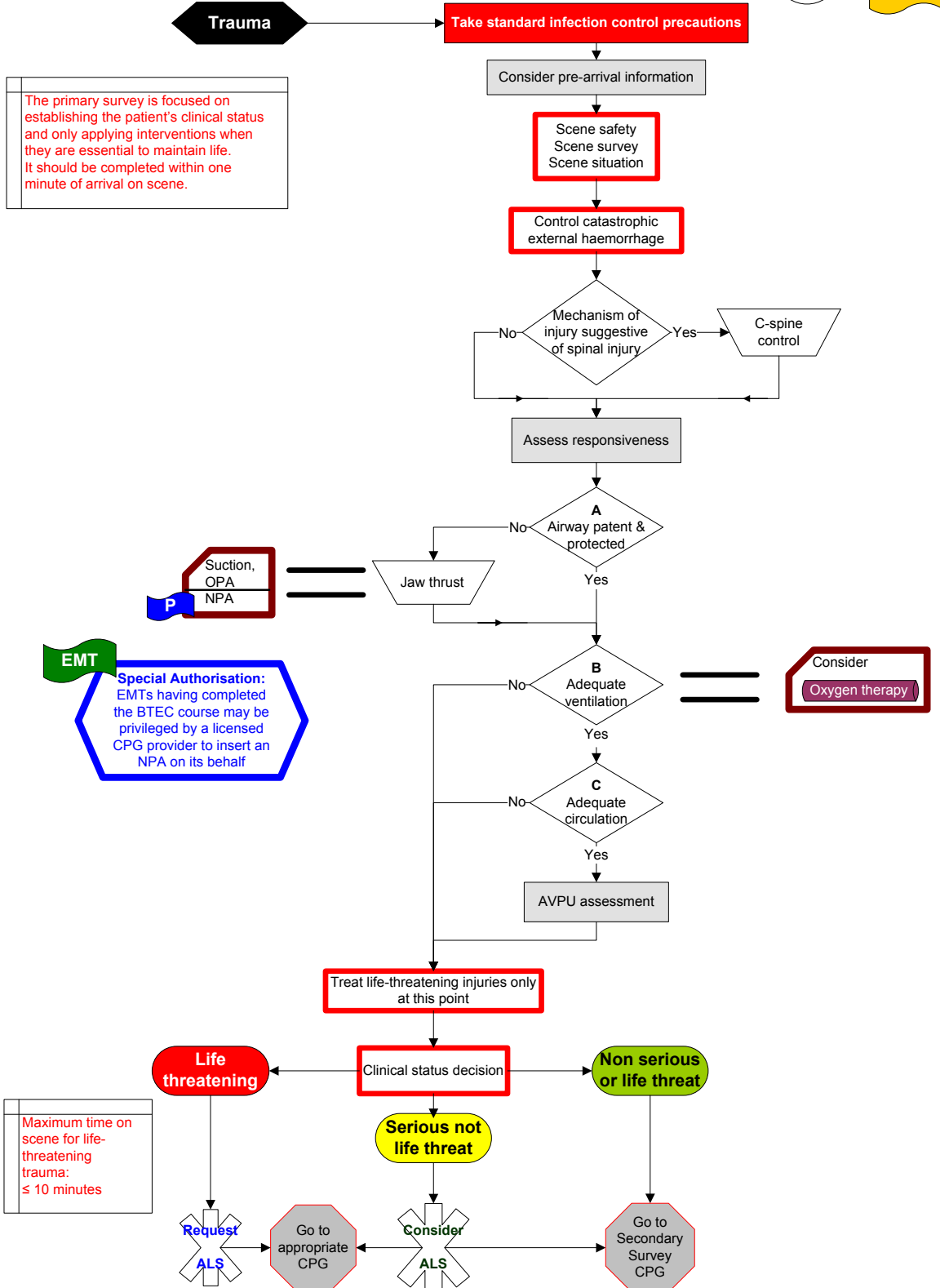
PATIENT ASSESSMENT

4/5/6.2.2
Version 3, 02/14

Primary Survey Trauma – Adult



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



Reference: ILCOR Guidelines 2010

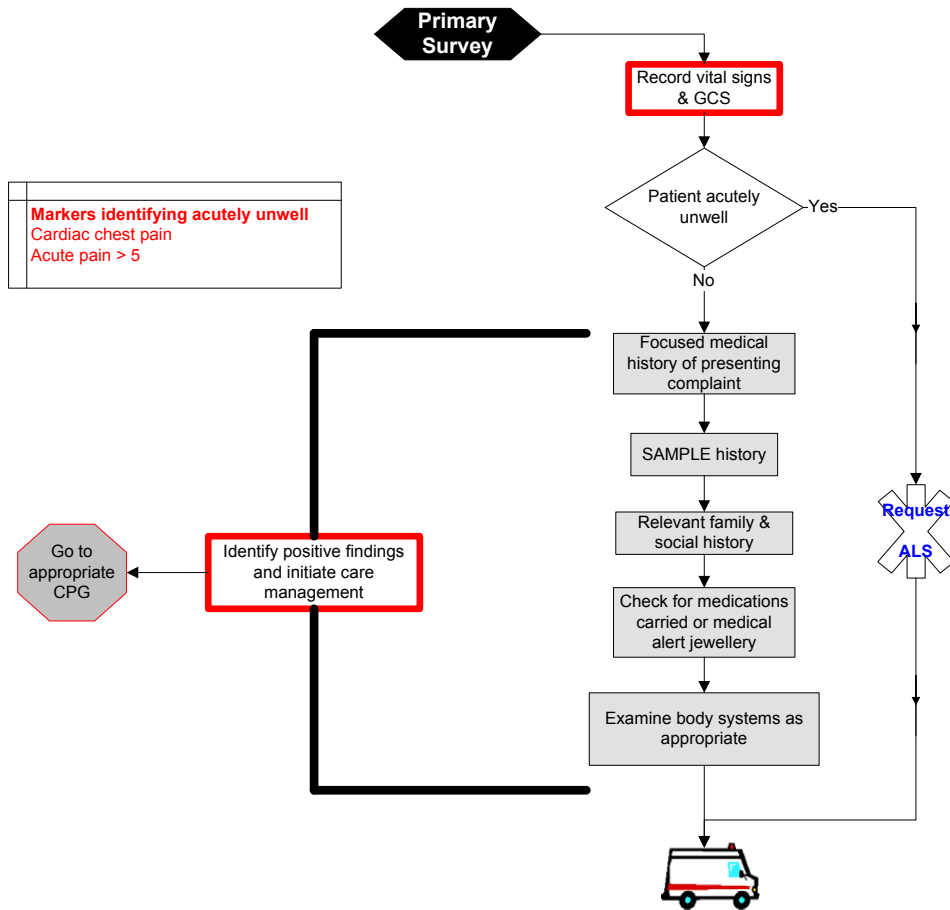
SECTION 2

PATIENT ASSESSMENT

5/6.2.4
Version 2, 09/11

Secondary Survey Medical – Adult

P **AP**



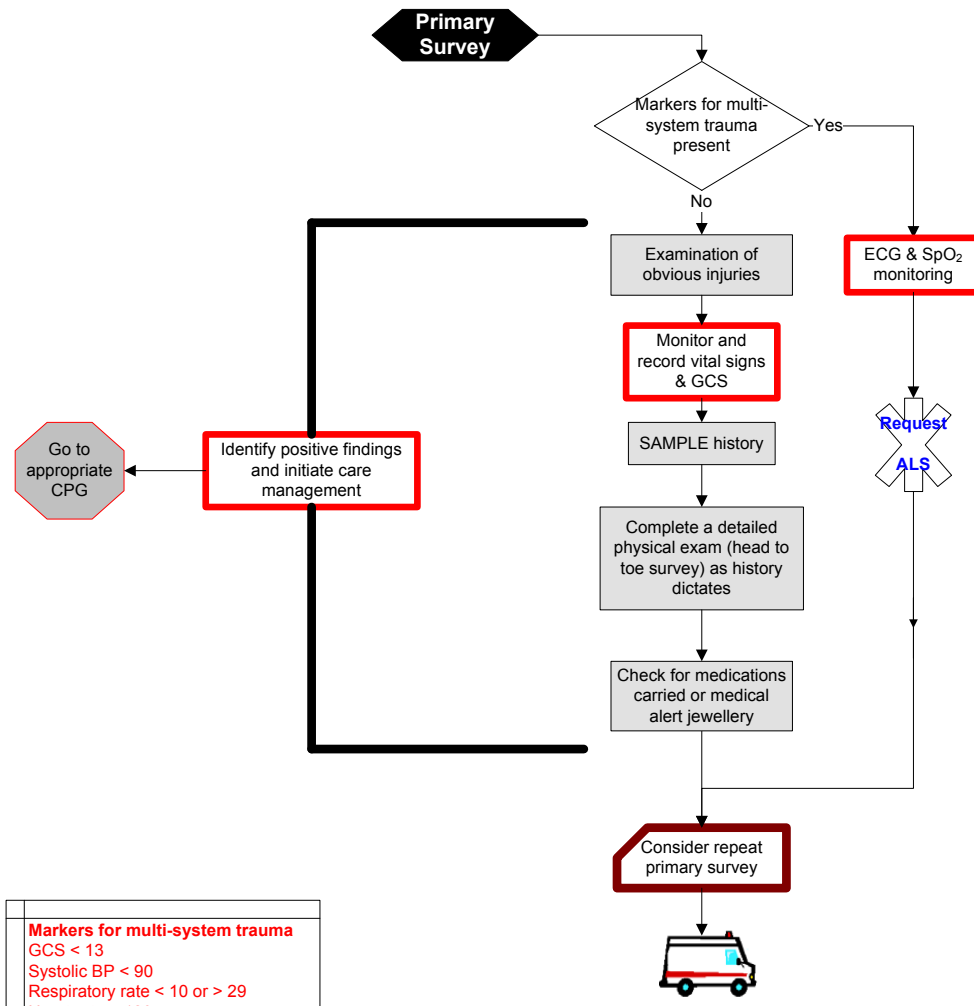
SECTION 2

PATIENT ASSESSMENT

5/6.2.5
Version 2, 01/13

Secondary Survey Trauma – Adult

P **AP**



| 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 | |

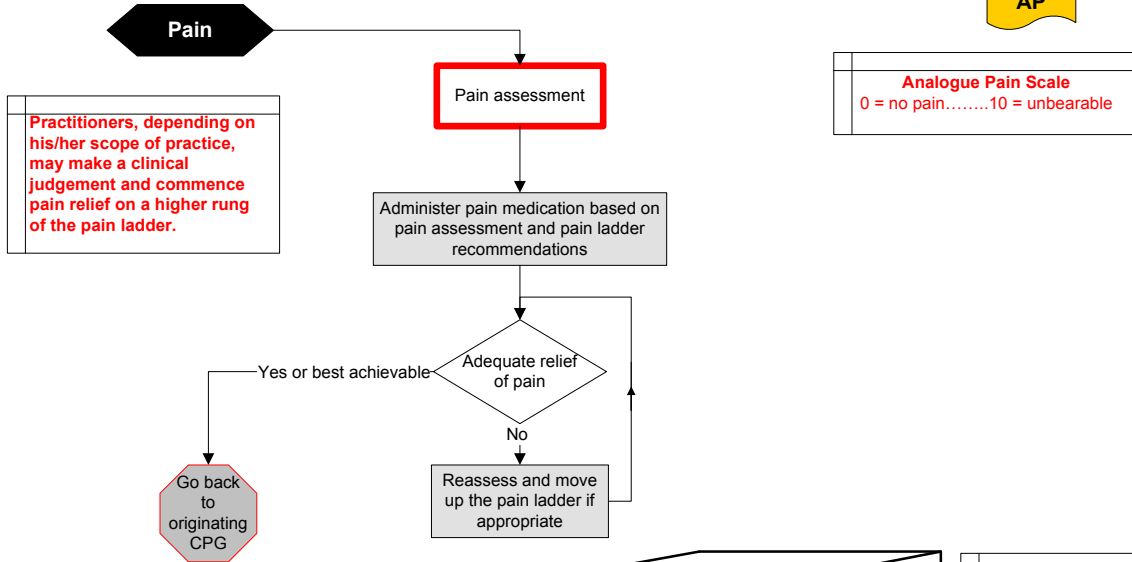
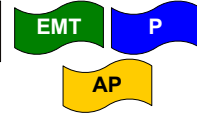
| Revised Trauma Score | | |
|----------------------|---------|---|
| Respiratory Rate | 10 – 29 | 4 |
| | > 29 | 3 |
| | 6 – 9 | 2 |
| | 1 – 5 | 1 |
| | 0 | 0 |
| Systolic BP | ≥ 90 | 4 |
| | 76 – 89 | 3 |
| | 50 – 75 | 2 |
| | 1 – 49 | 1 |
| | no BP | 0 |
| GCS | 13 – 15 | 4 |
| | 9 – 12 | 3 |
| | 6 – 8 | 2 |
| | 4 – 5 | 1 |
| | 3 | 0 |
| RTS = Total score | | |

SECTION 2

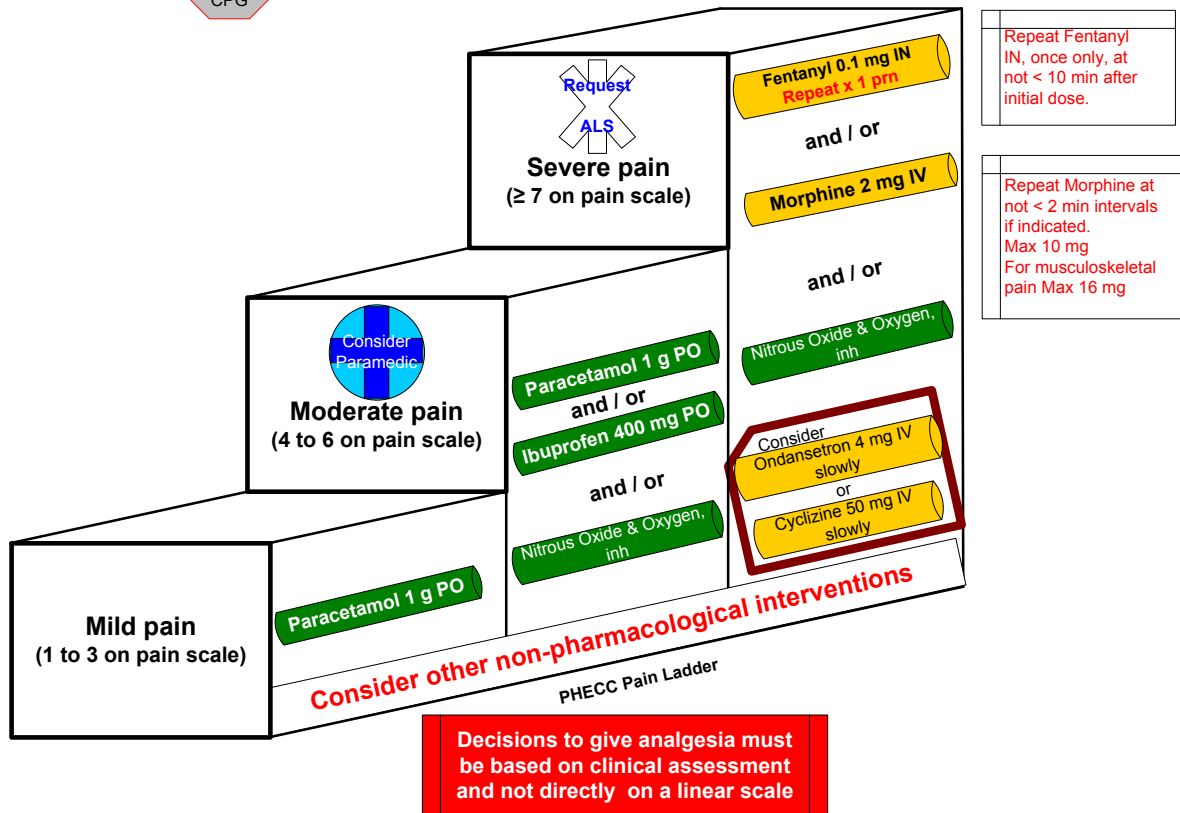
PATIENT ASSESSMENT

4/5/6.2.6
Version 4, 02/14

Pain Management – Adult



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

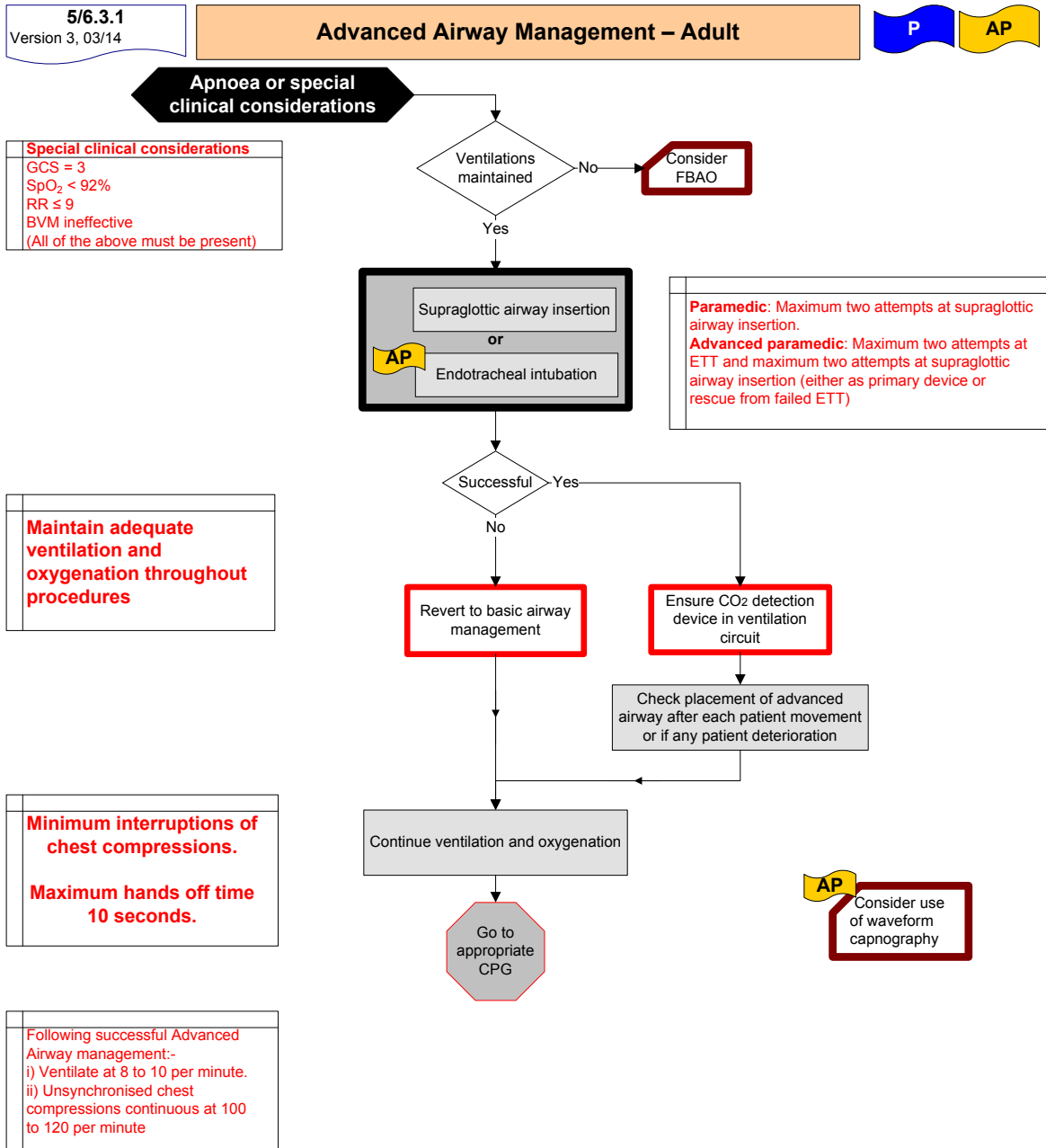


Special Authorisation:
APs are authorised to administer Morphine, up to 10 mg IM, if IV not accessible, the patient is cardiovascularly stable and no cardiac chest pain present

Reference: World Health Organization, Pain Ladder

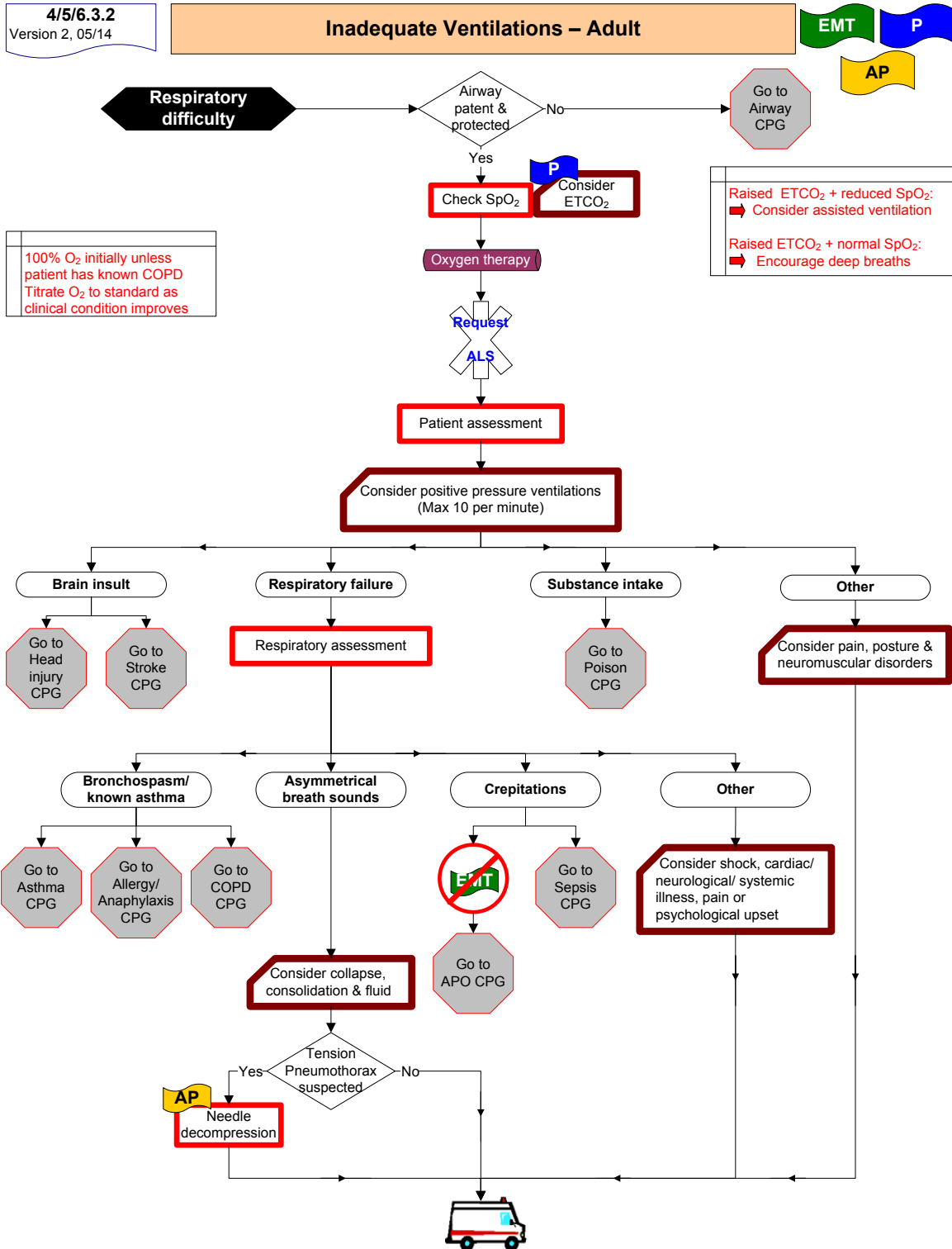
SECTION 3

RESPIRATORY EMERGENCIES



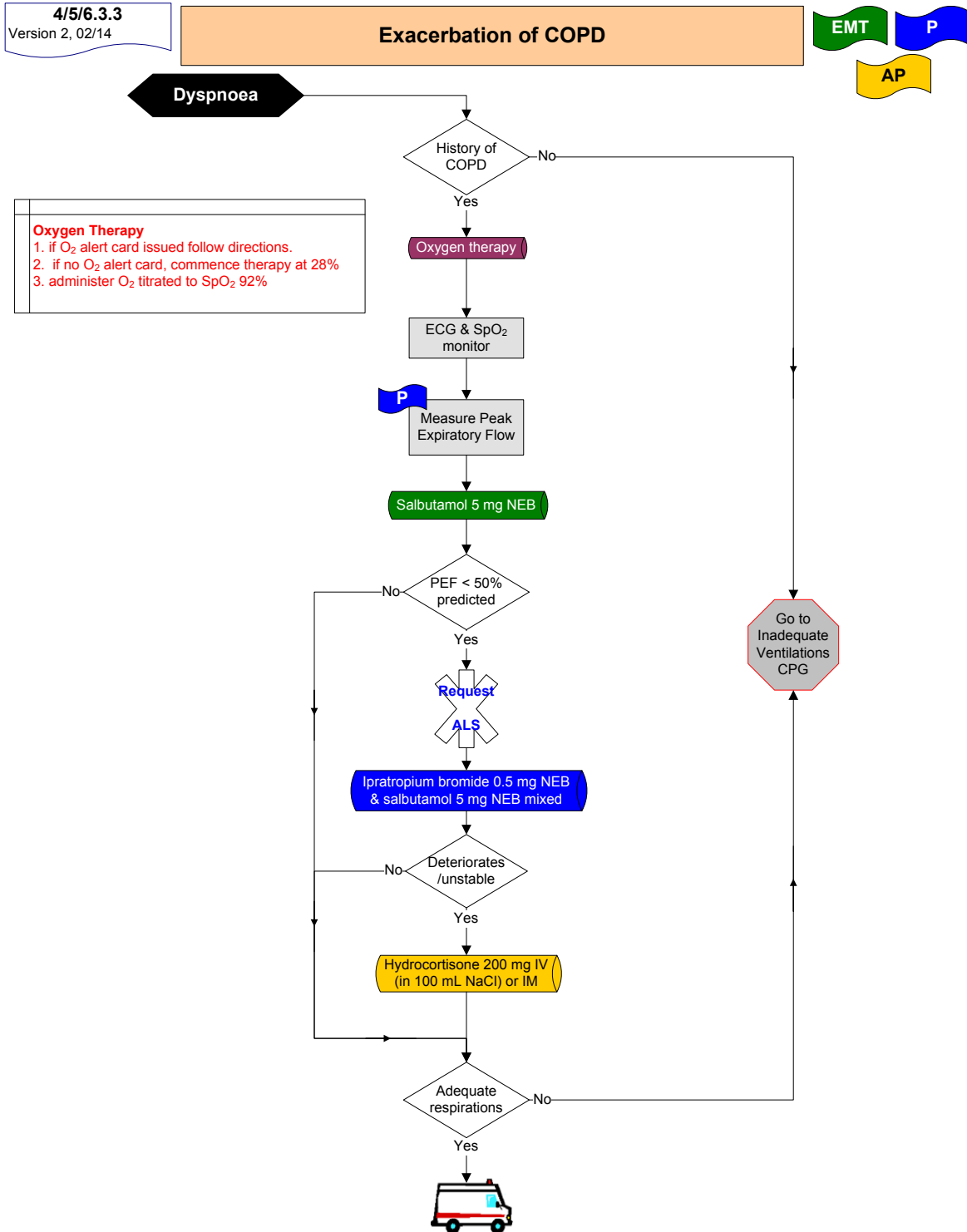
SECTION 3

RESPIRATORY EMERGENCIES



SECTION 3

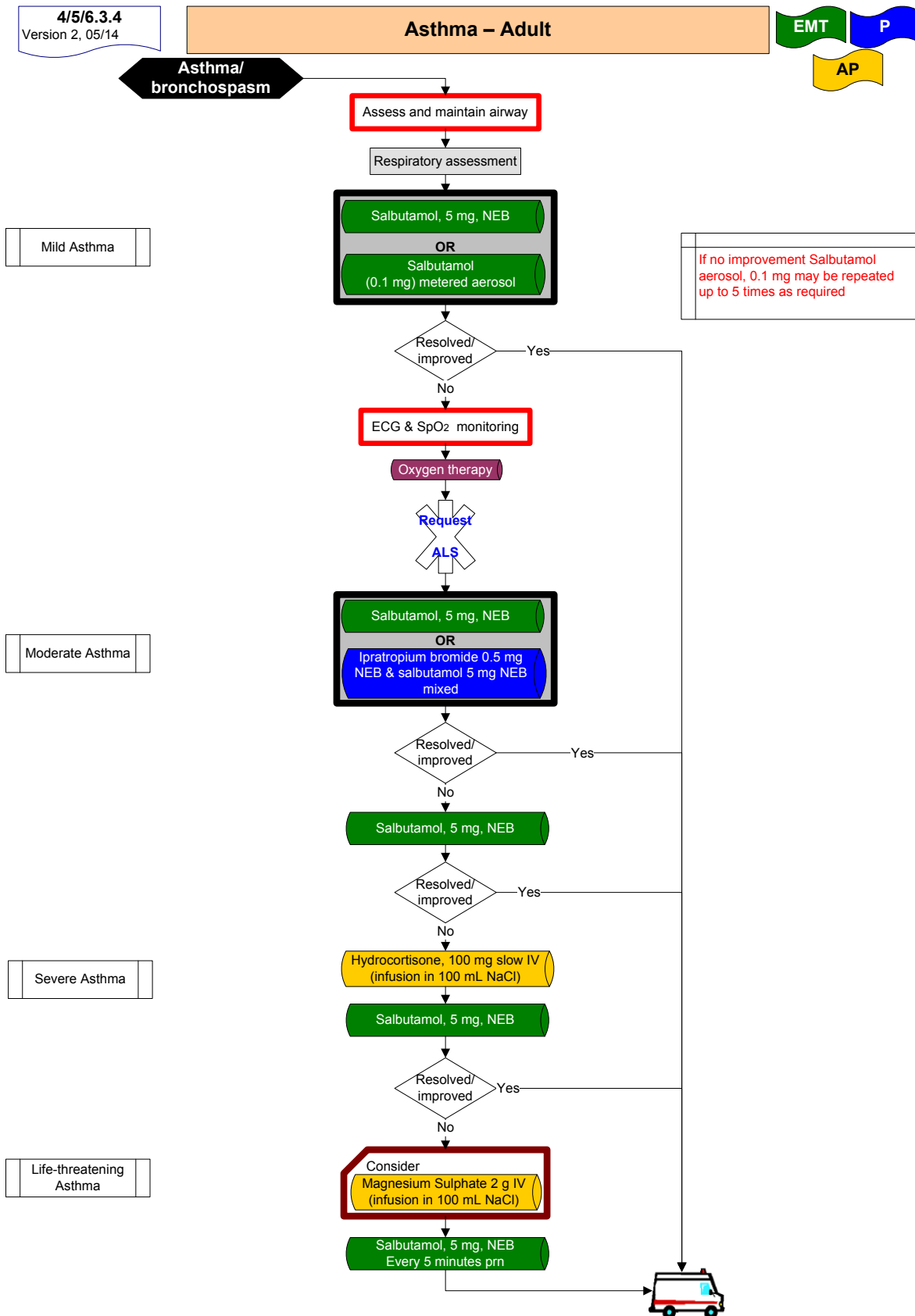
RESPIRATORY EMERGENCIES



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

SECTION 3

RESPIRATORY EMERGENCIES



Reference: HSE National Asthma Programme 2012, Emergency Asthma Guidelines, British Thoracic Society, 2008, British Guidelines on the Management of Asthma, a national clinical guideline

SECTION 3

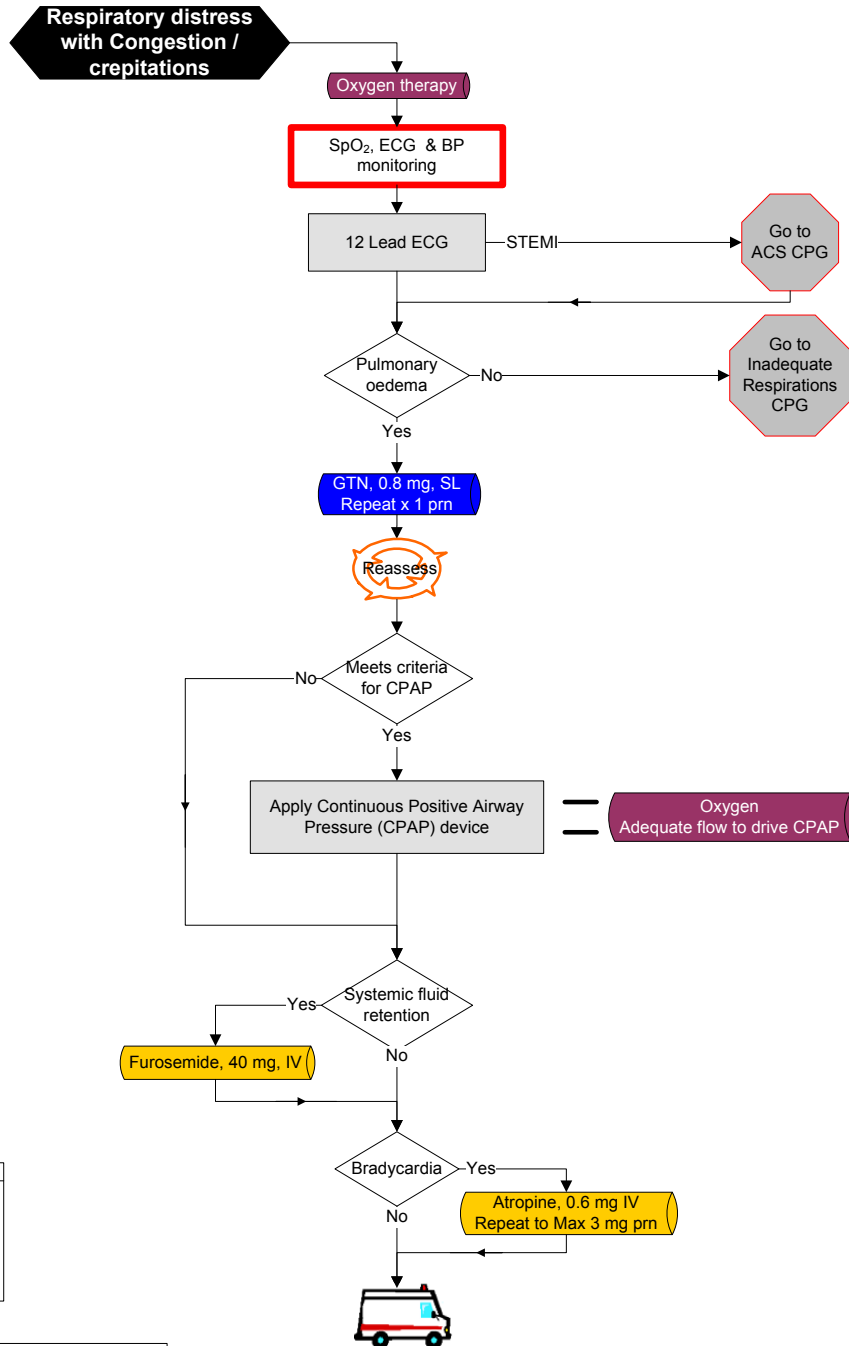
RESPIRATORY EMERGENCIES

5/6.3.5
Version 1, 12/13

Acute Pulmonary Oedema – Adult

P

AP



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

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

| |
|---|
| <p>CPAP Commence with 5 cm H₂O Titrate up to 10 cm H₂O as tolerated Monitor clinical response Titrate O₂ to maintain SpO₂ > 95%</p> |
|---|

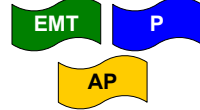
Reference: Williams, B et al 2013, When Pressure is Positive: A Literature Review of the Prehospital Use of Continuous Positive Airway Pressure. Prehosp Disaster med, 1-10.

SECTION 4

MEDICAL EMERGENCIES

4/5/6.4.1
Version 2, 06/11

Basic Life Support – Adult



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

Cardiac Arrest

Request
ALS

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

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

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

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

Shockable
VF or pulseless VT

Non - Shockable
Asystole or PEA

Assess Rhythm

Give 1 shock

Continue CPR while defibrillator is charging

Immediately resume CPR x 2 minutes

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

Rhythm check *

Go to VF/
Pulseless VT
CPG

Go to Post
Resuscitation
Care CPG

Go to Asystole
CPG

Go to PEA
CPG

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

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

Reference: ILCOR Guidelines 2010

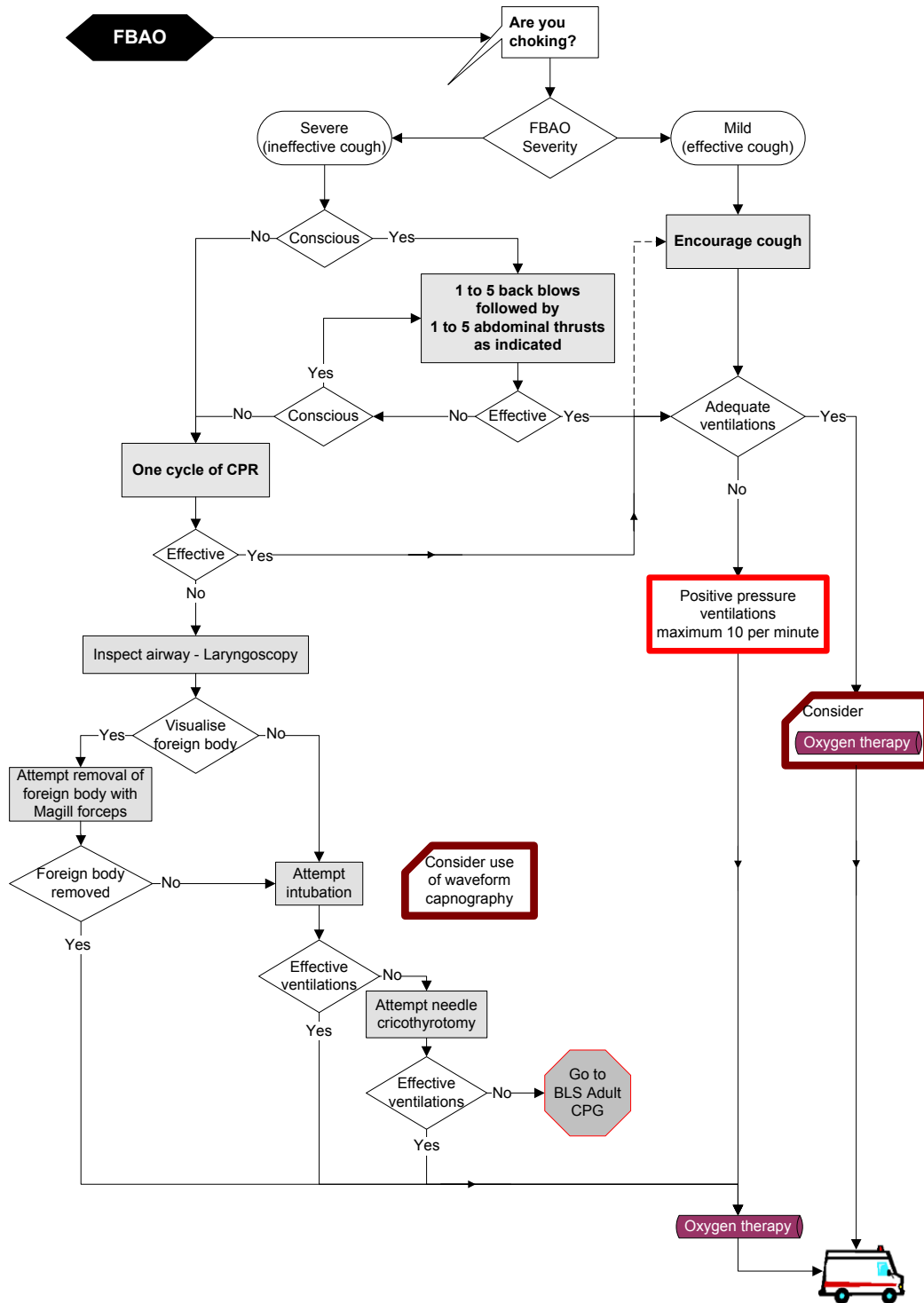
SECTION 4

MEDICAL EMERGENCIES

6.4.2
Version 2, 01/13

Foreign Body Airway Obstruction – Adult

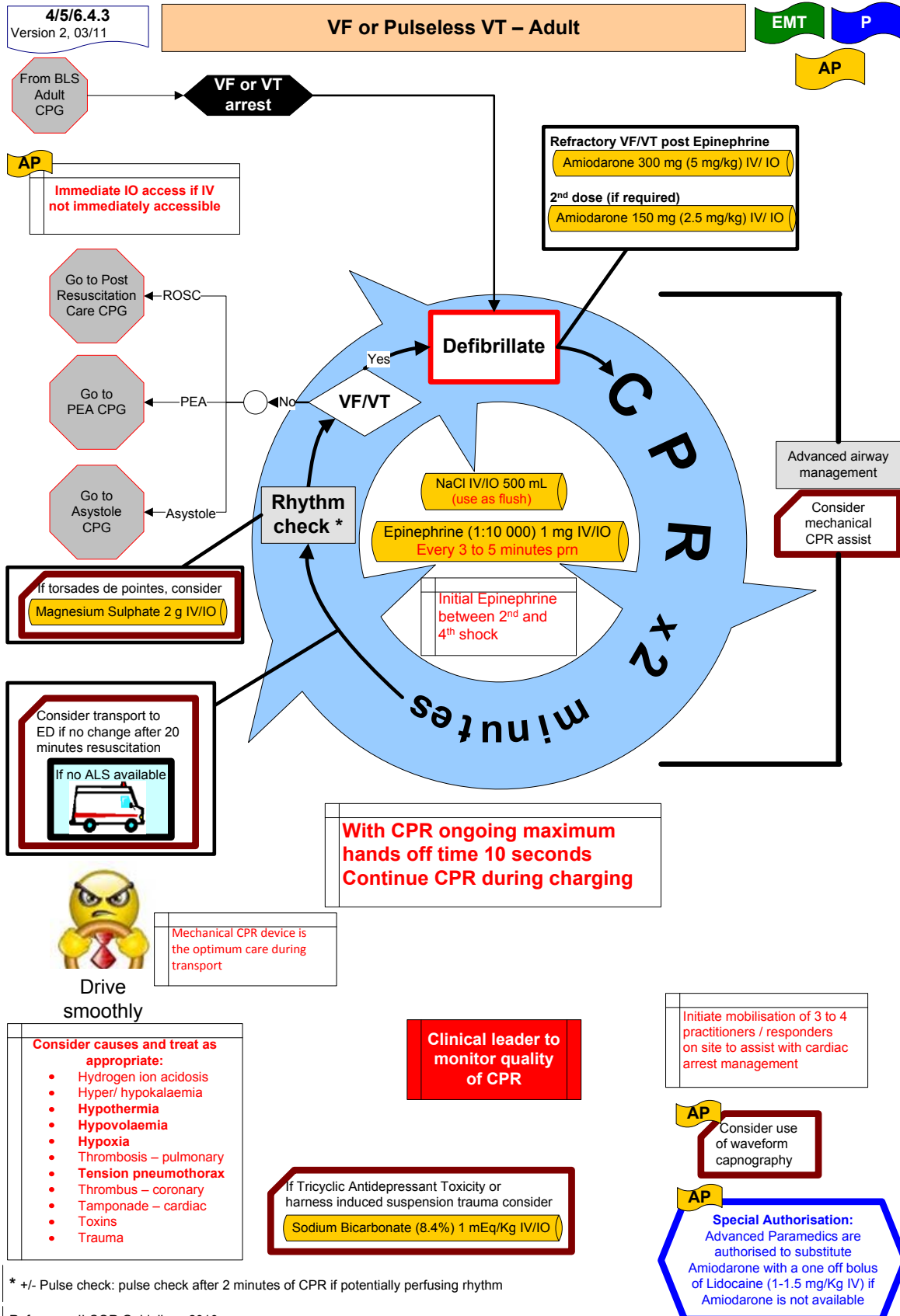
AP



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

SECTION 4

MEDICAL EMERGENCIES



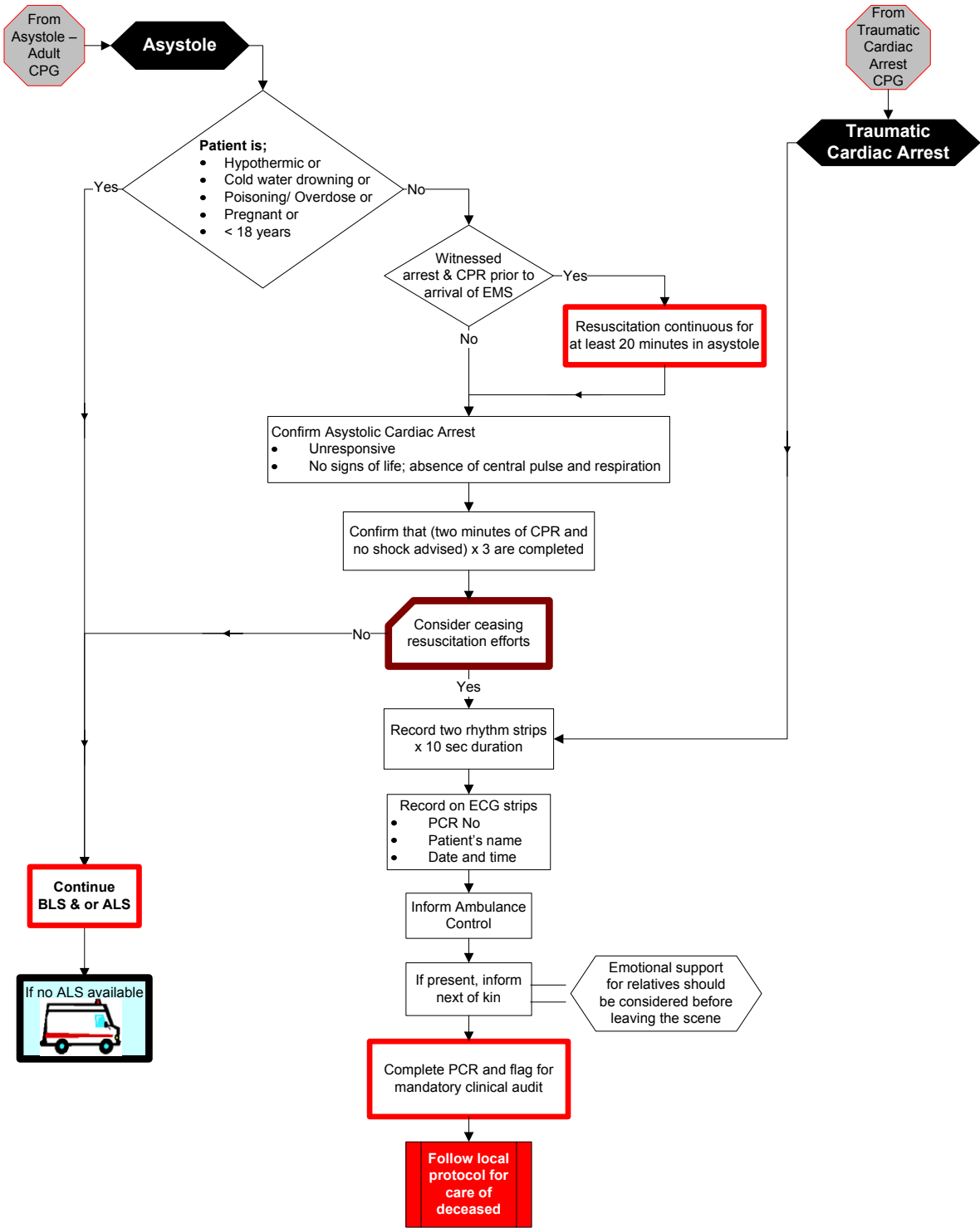
SECTION 4

MEDICAL EMERGENCIES

5/6.4.5
Version 1, 05/08

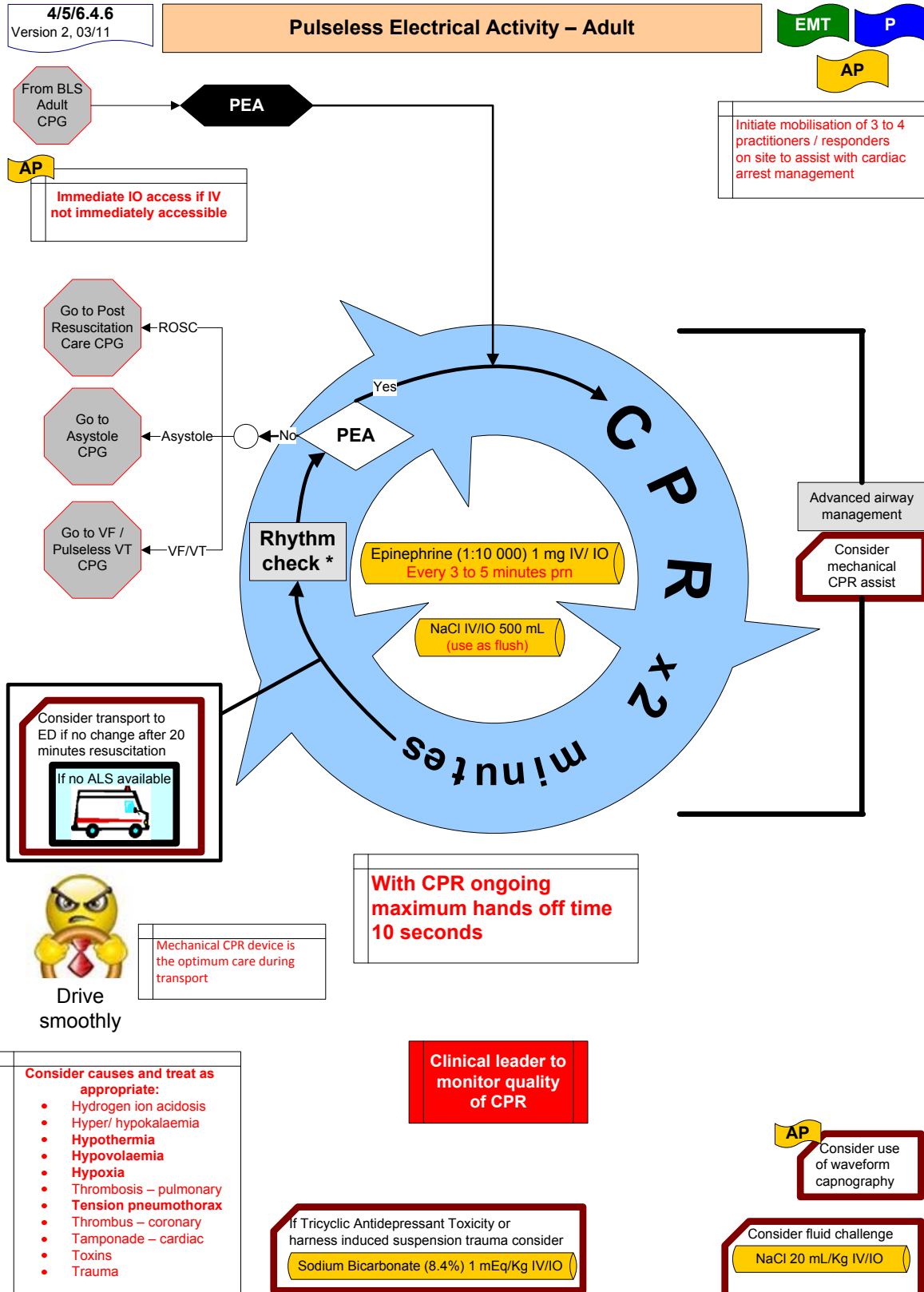
Asystole - Decision Tree

P **AP**



SECTION 4

MEDICAL EMERGENCIES



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

Reference: ILCOR Guidelines 2010

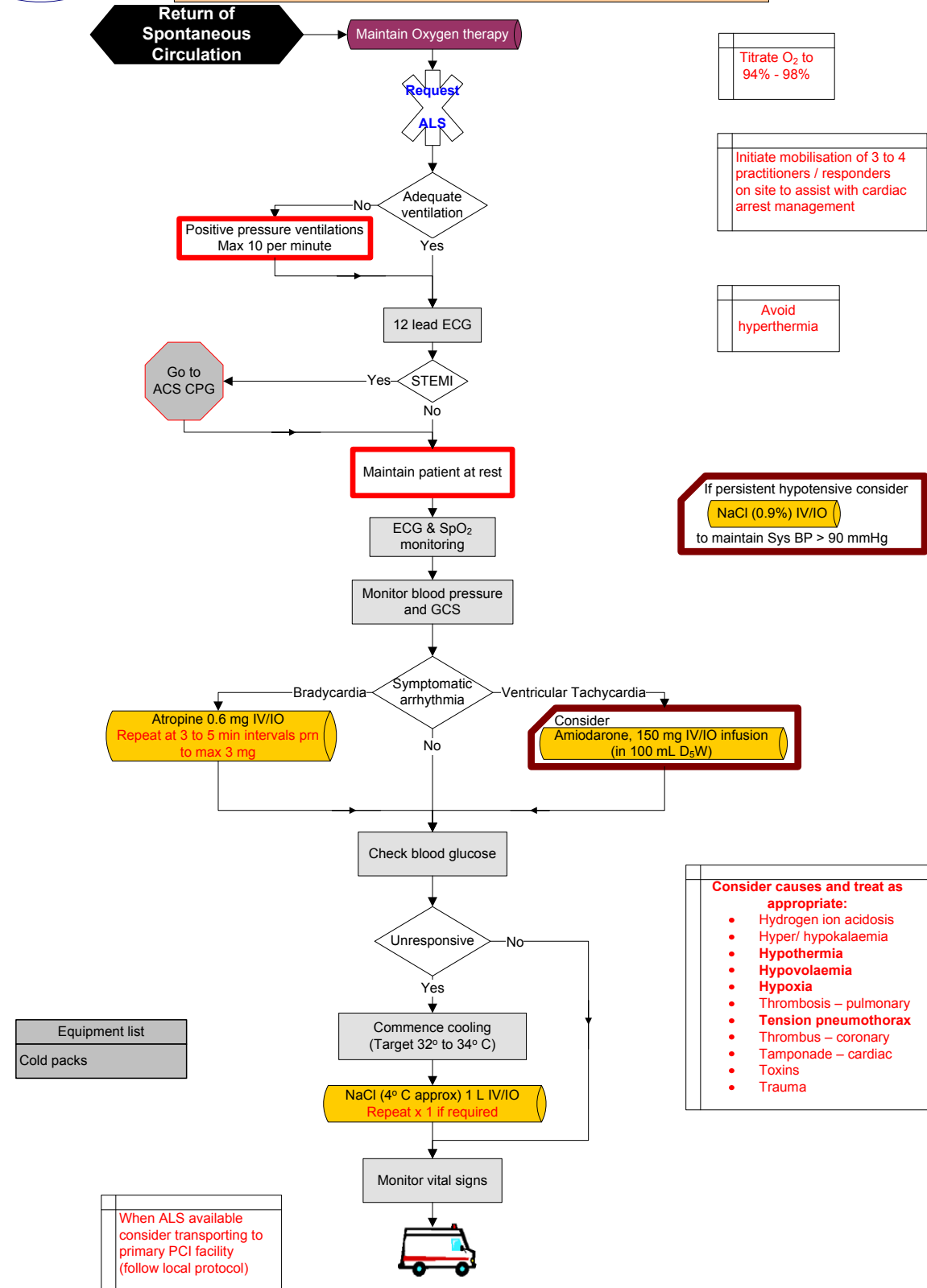
SECTION 4

MEDICAL EMERGENCIES

5/6.4.7
Version 3, 11/13

Post-Resuscitation Care – Adult

P AP



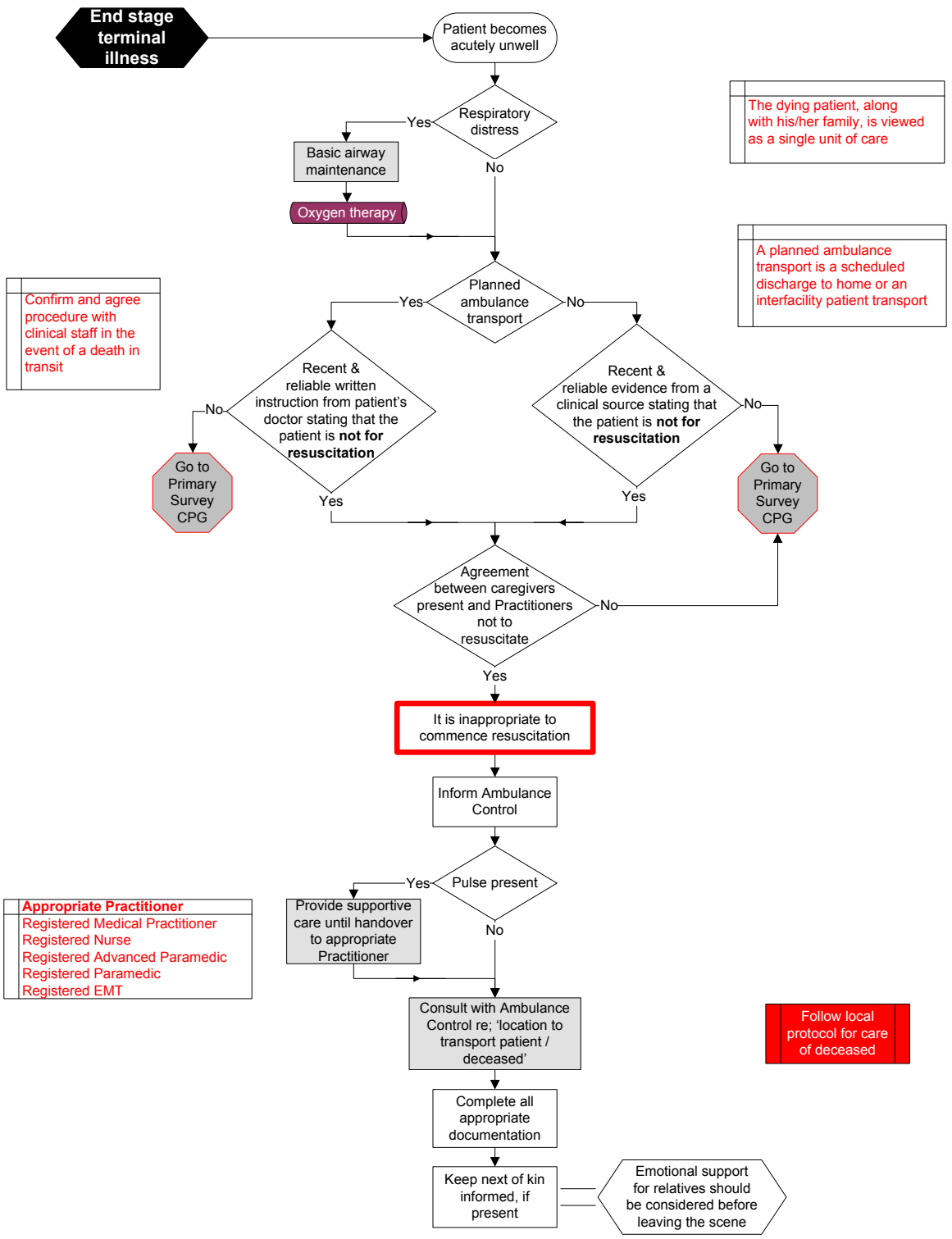
SECTION 4

MEDICAL EMERGENCIES

5/6.4.8
Version 1, 06/10

End of Life – DNR

P **AP**



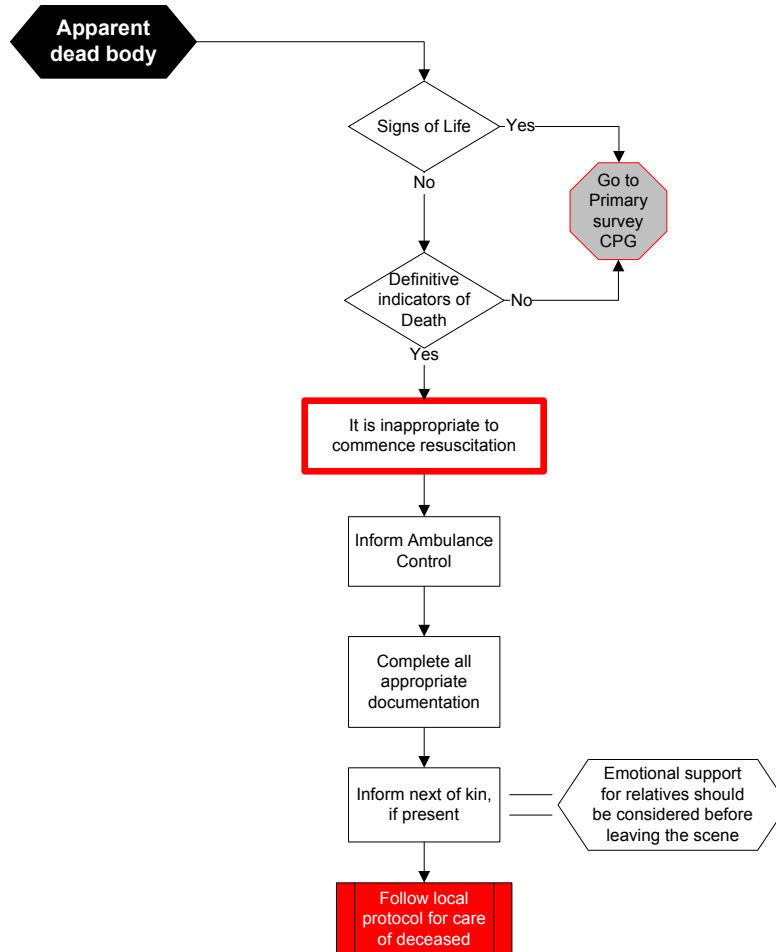
SECTION 4

MEDICAL EMERGENCIES

5/6.4.9
Version 2, 06/11

Recognition of Death – Resuscitation not Indicated

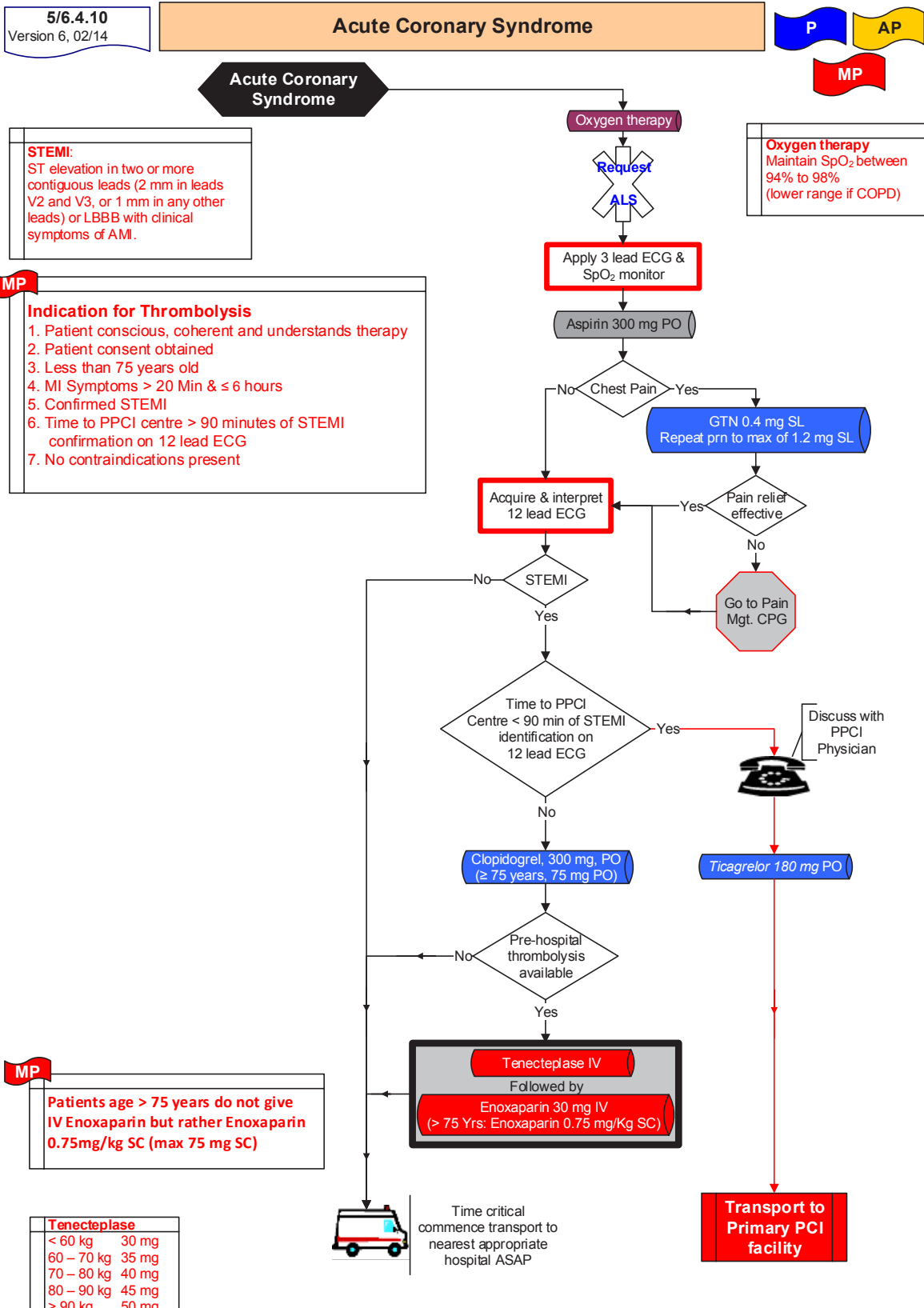
P **AP**



| 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) |

SECTION 4

MEDICAL EMERGENCIES



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

Tenecteplase

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

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

Reference: HSE ACS Programme 2013, ILCOR Guidelines 2010, ECS Guidelines 2010

SECTION 4

MEDICAL EMERGENCIES

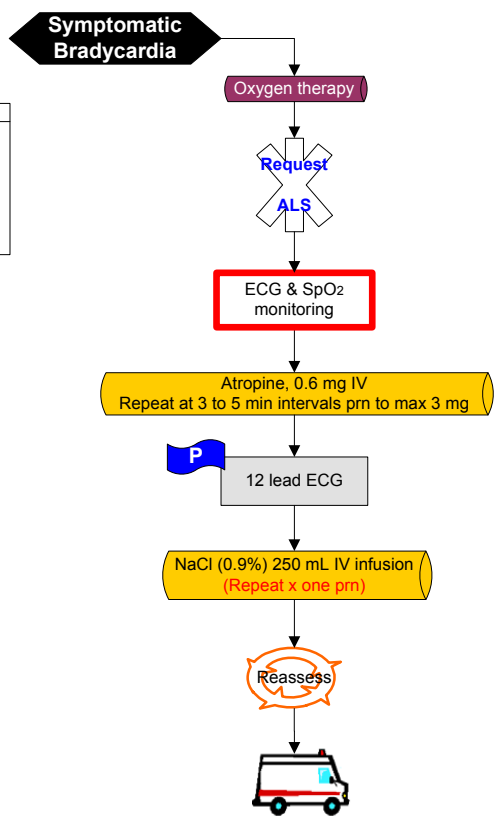
4/5/6.4.11
Version 2, 02/14

Symptomatic Bradycardia – Adult

EMT P
AP

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

Titrate Atropine to
effect (HR > 60)



SECTION 4

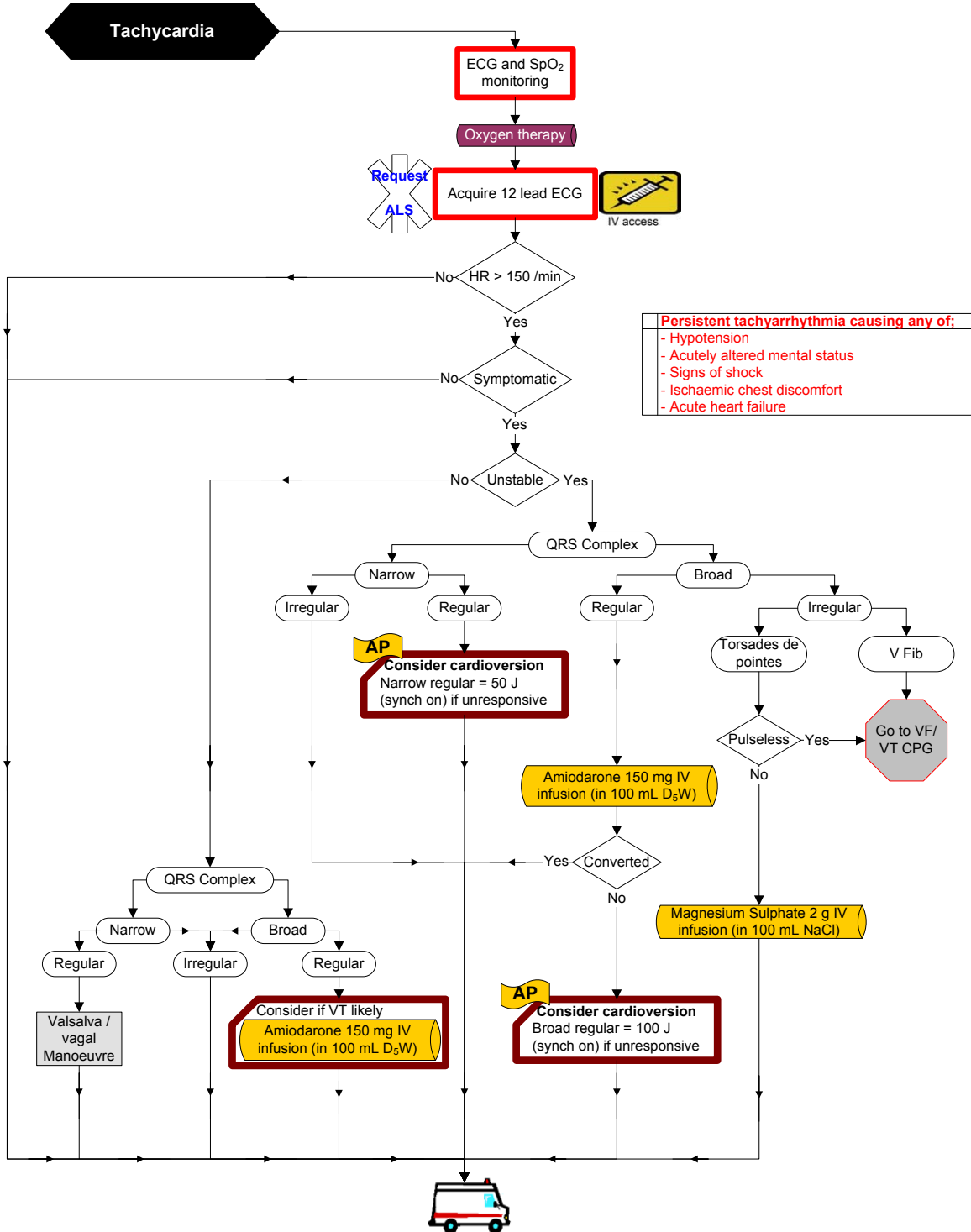
MEDICAL EMERGENCIES

5/6.4.12
Version 1, 02/14

Tachycardia – Adult

P

AP



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

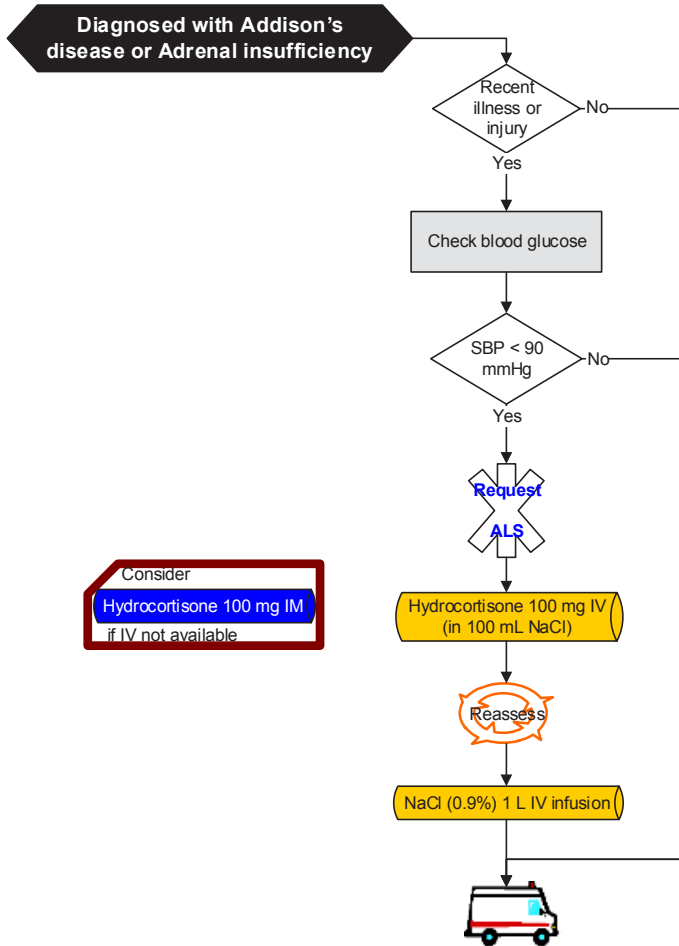
SECTION 4

MEDICAL EMERGENCIES

5/6.4.13
Version 1, 12/13

Adrenal Insufficiency – Adult

P AP



Consider
Hydrocortisone 100 mg IM
if IV not available

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

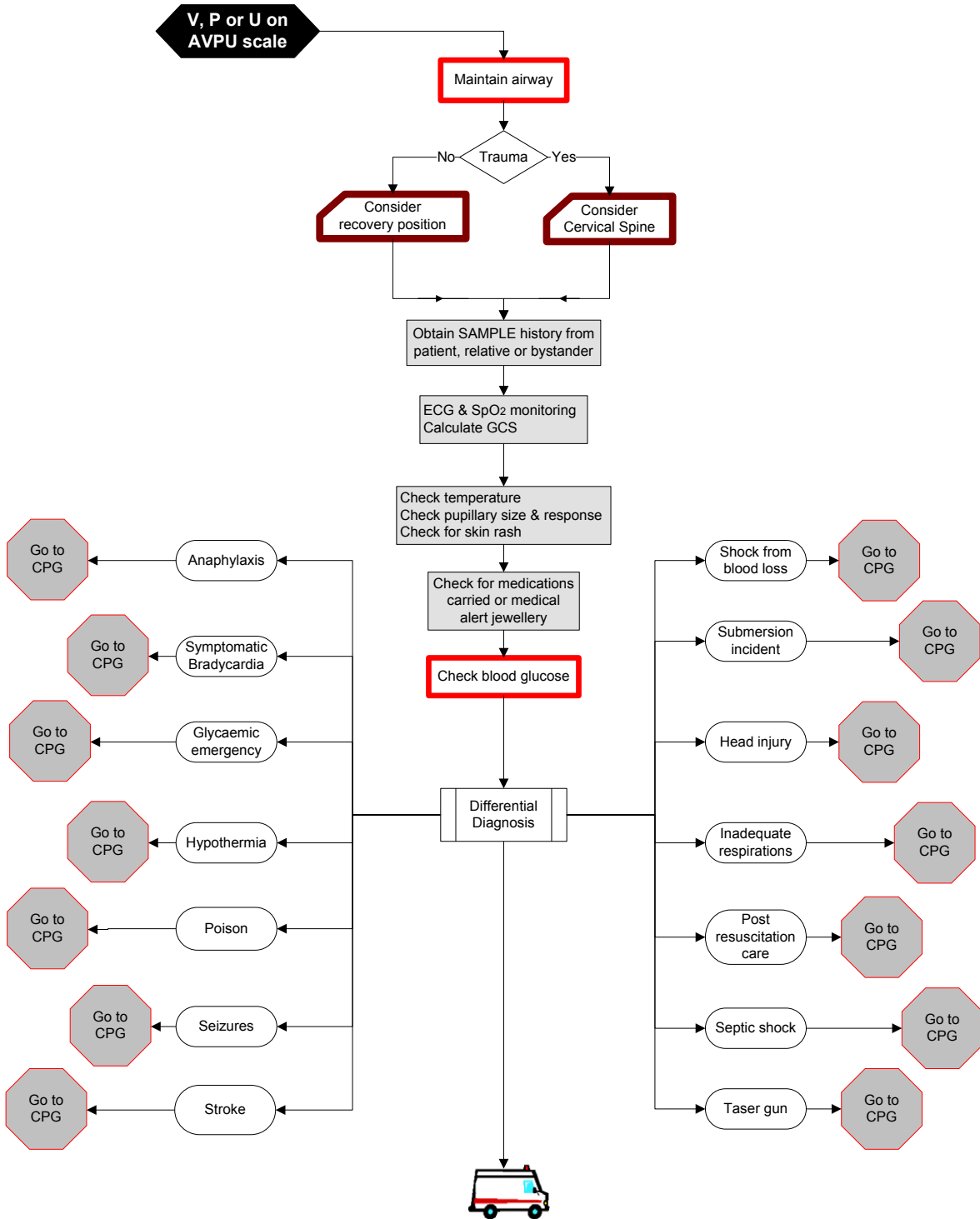
SECTION 4

MEDICAL EMERGENCIES

5/6.4.14
Version 1, 05/08

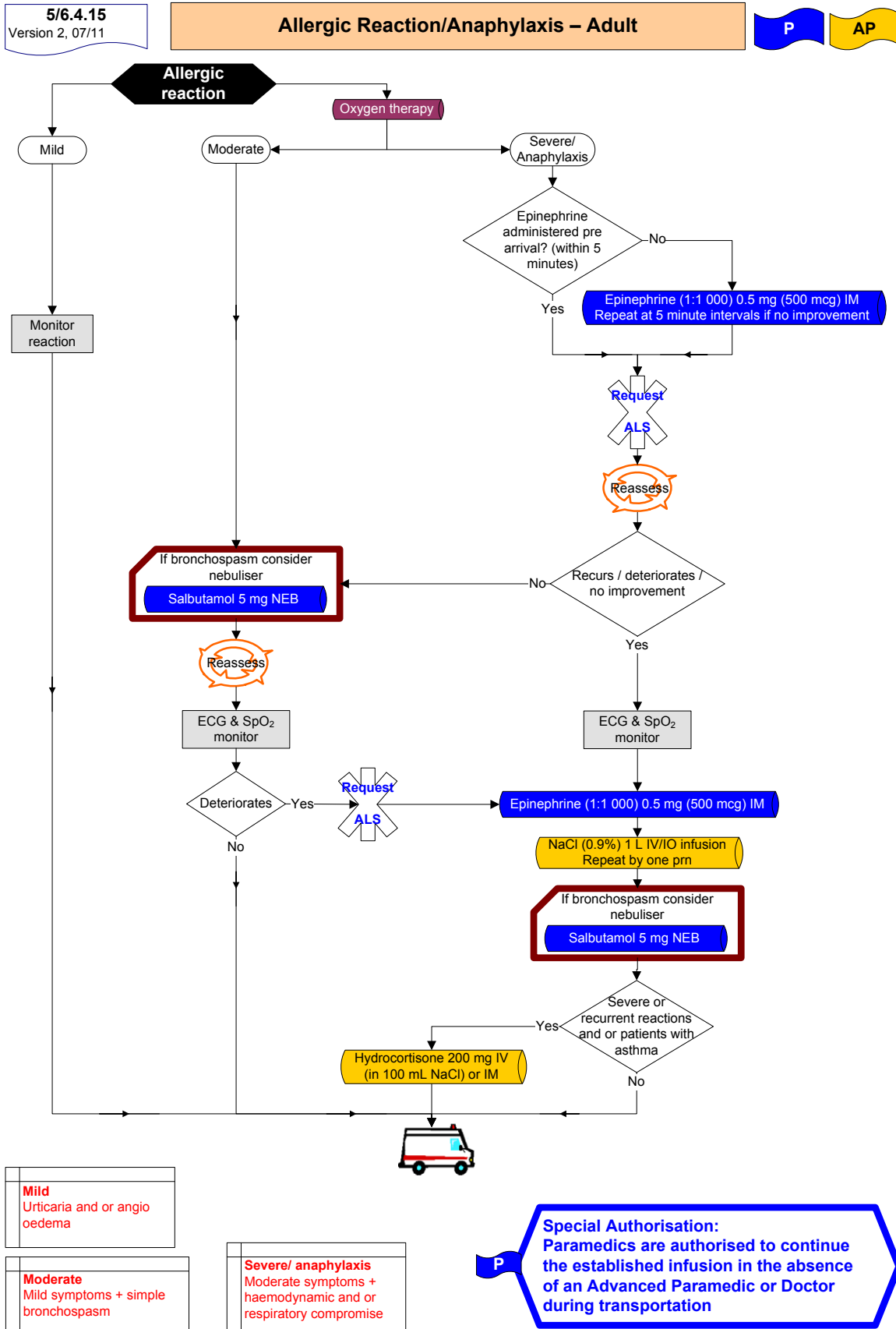
Altered Level of Consciousness – Adult

P **AP**



SECTION 4

MEDICAL EMERGENCIES

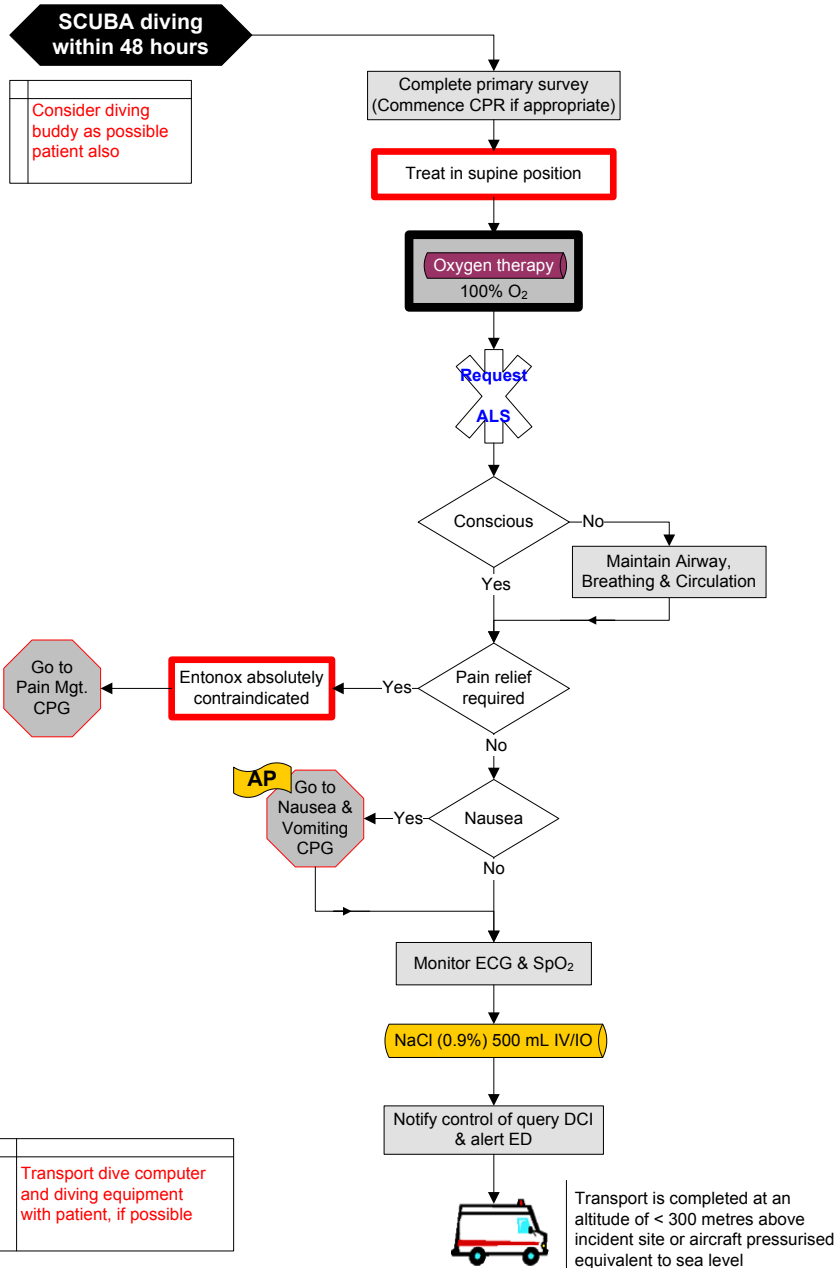
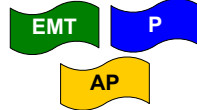


SECTION 4

MEDICAL EMERGENCIES

4/5/6.4.16
Version 2, 07/11

Decompression Illness (DCI)



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

SECTION 4

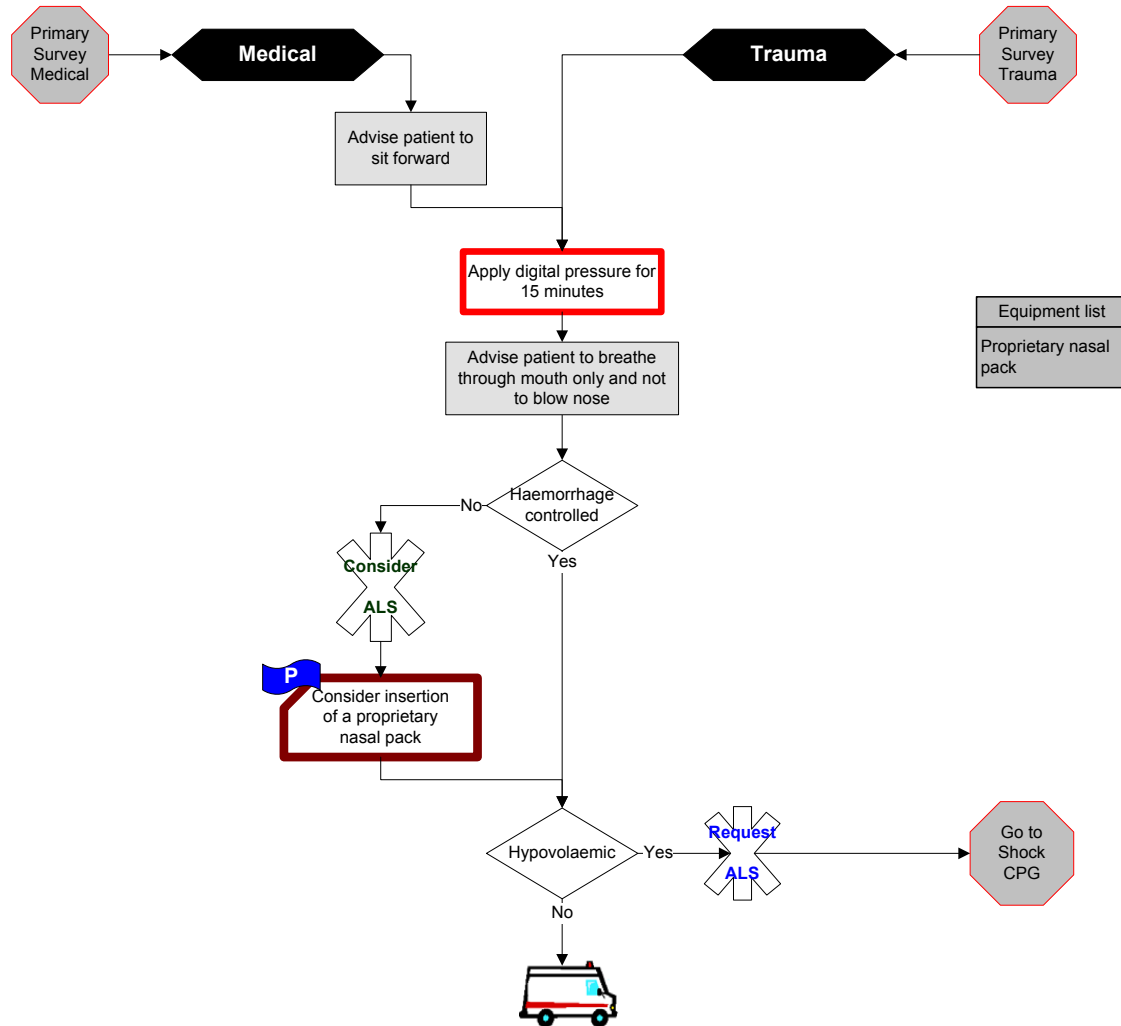
MEDICAL EMERGENCIES

4/5/6.4.17
Version 2, 01/13

Epistaxis

EMT P

AP



Equipment list
Proprietary nasal pack

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

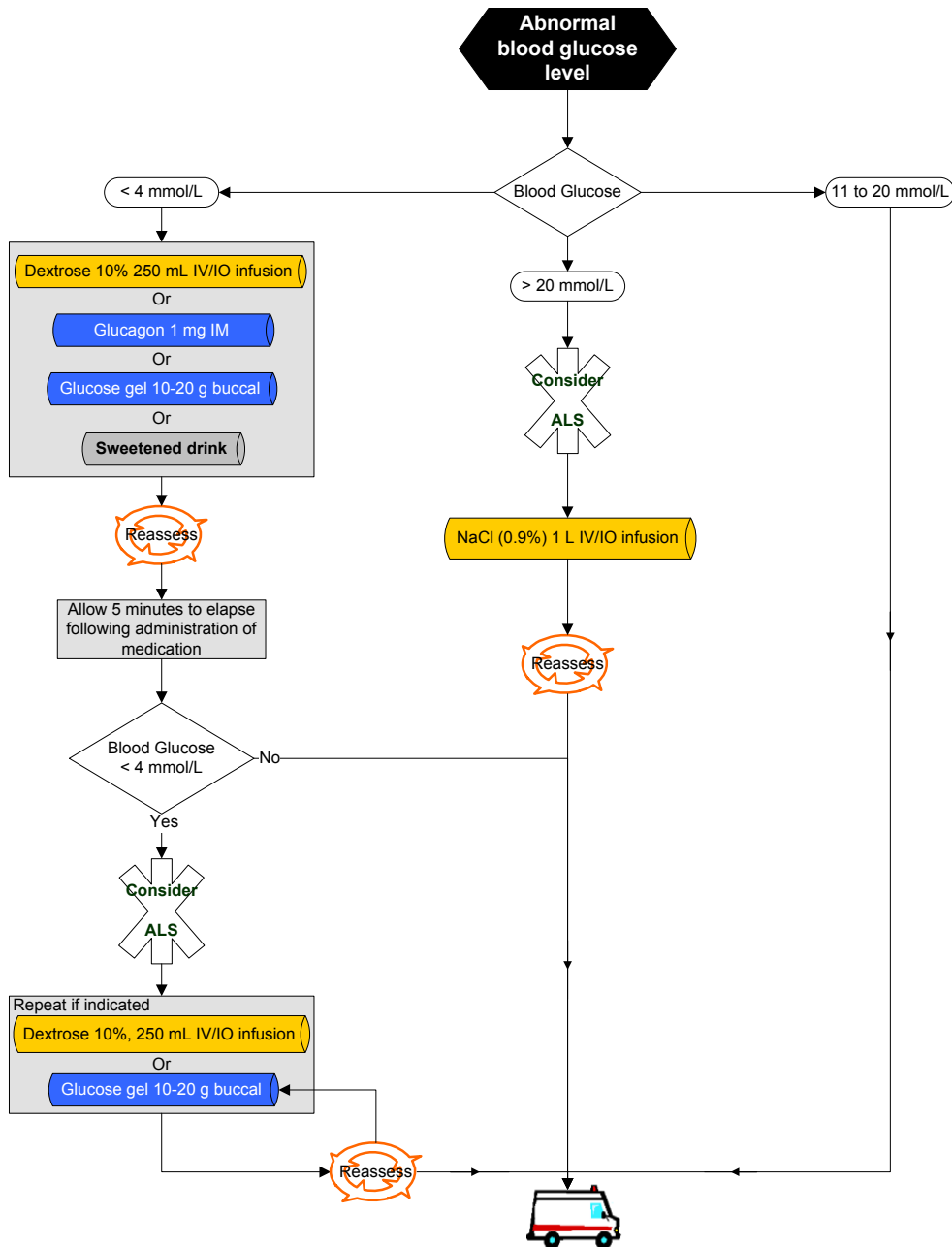
SECTION 4

MEDICAL EMERGENCIES

5/6.4.19
Version 1, 05/08

Glycaemic Emergency – Adult

P AP



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

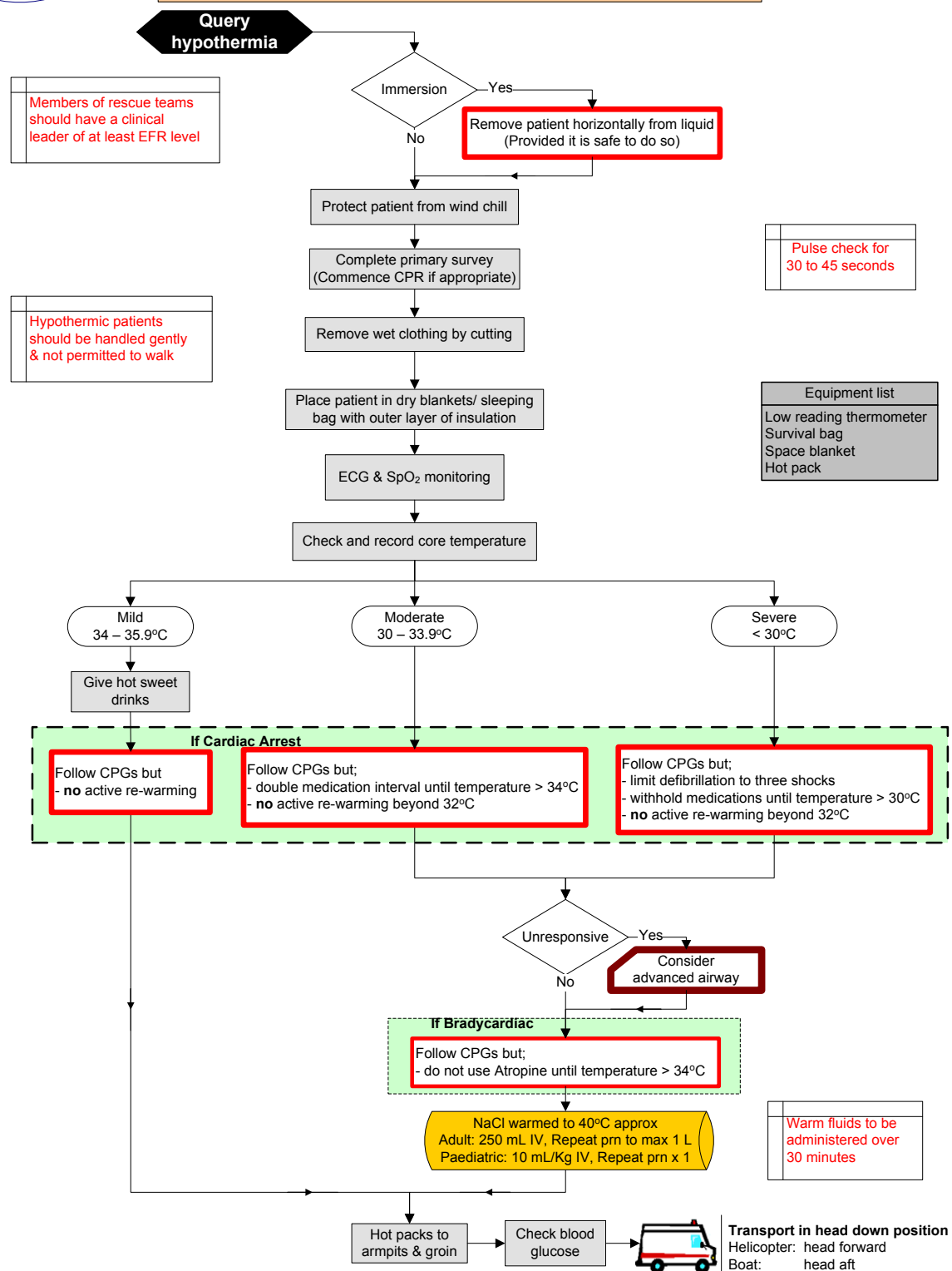
SECTION 4

MEDICAL EMERGENCIES

5/6.4.21
Version 2, 06/13

Hypothermia

P **AP**



Reference: Golden, F & Tipton M, 2002, Essentials of Sea Survival, Human Kinetics
 AHA, 2005, Part 10.4: Hypothermia, Circulation 2005;112;136-138
 Soar, J et al, 2005, European Resuscitation Council Guidelines for Resuscitation 2005, Section 7. Cardiac arrest in special circumstances, Resuscitation (2005) 6751, S135-S170
 Pennington M, et al, 1994, Wilderness EMT, Wilderness EMS Institute

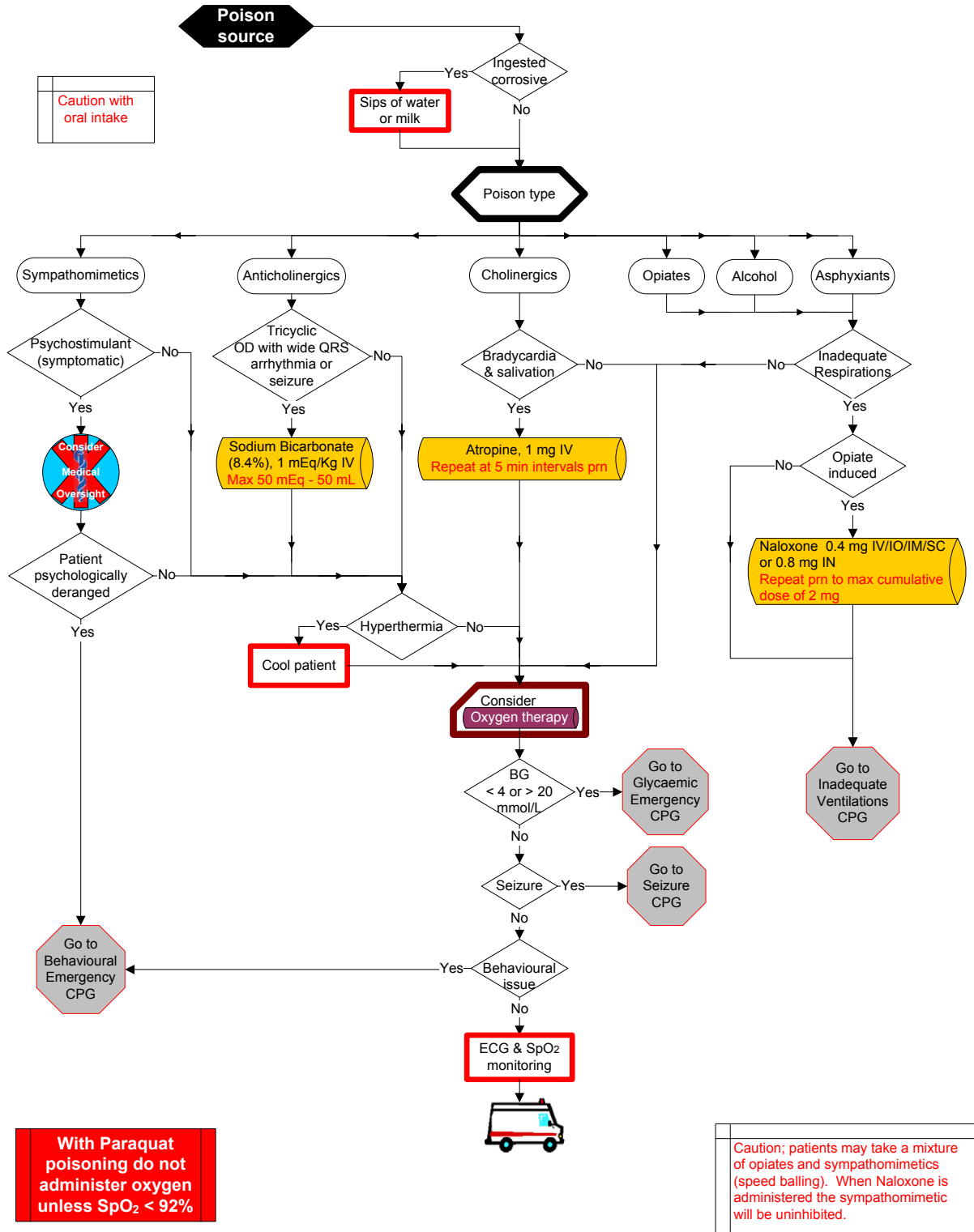
SECTION 4

MEDICAL EMERGENCIES

6.4.22
Version 2, 02/14

Poisons – Adult

AP



Reference:

Boyer, R. Guidelines in Emergency Medicine Network (GEMNet): guideline for the management of tricyclic antidepressant overdose, Emerg Med J 2011;28: 347e368.

Boyer, E. 2012, Management of Opioid Analgesic Overdose, N Engl J Med 2012;367:146-55.DOI: 10.1056/NEJMr1202561

National Drugs Strategy, 2006, Management of Patients with Psychostimulant Toxicity, Guidelines for ambulance service, Commonwealth of Australia.

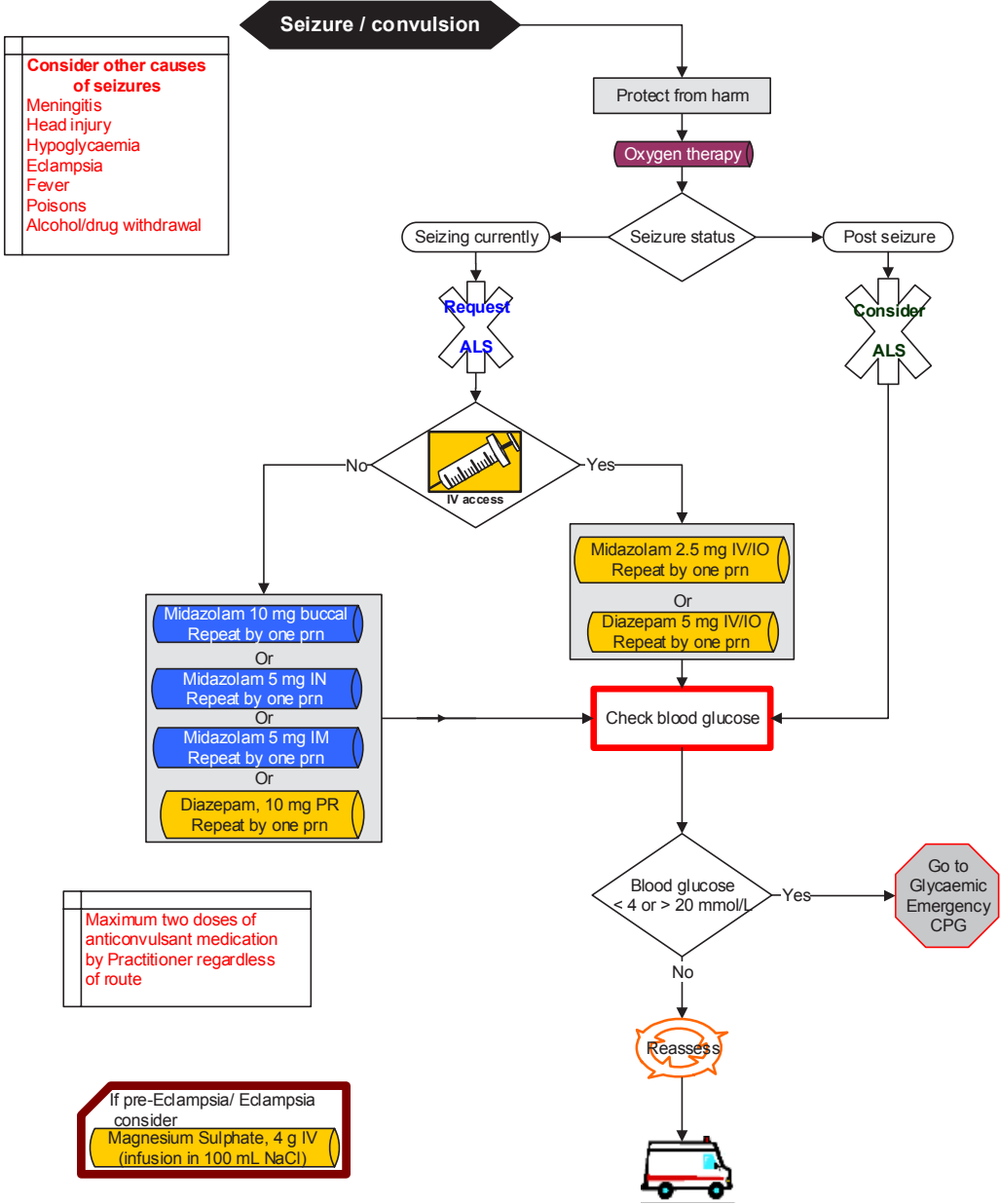
SECTION 4

MEDICAL EMERGENCIES

5/6.4.23
Version 3, 02/14

Seizure/Convulsion – Adult

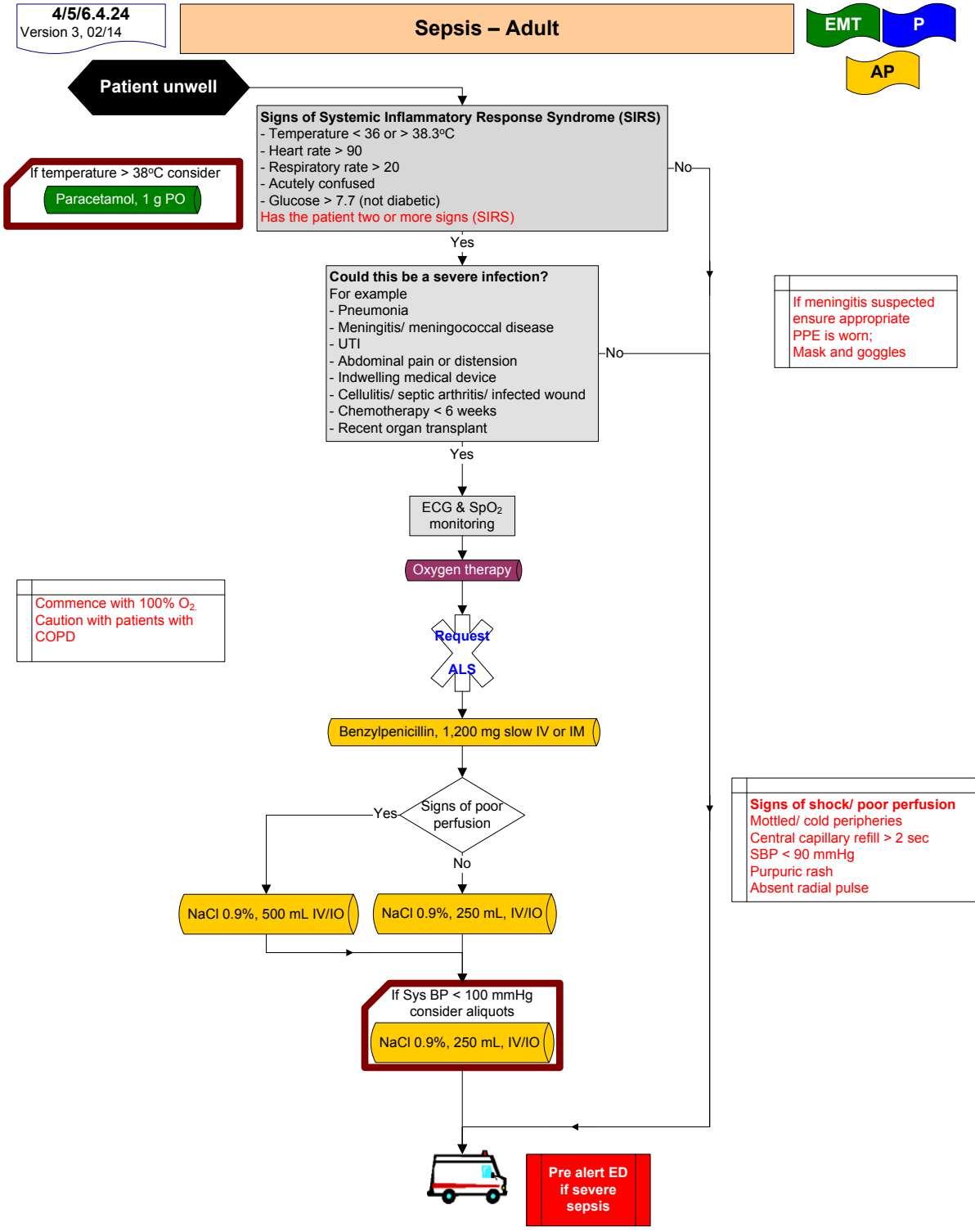
P AP



Reference: Tukur, J. and Z. Muhammad (2010). "Management of eclampsia at AKTH: before and after magnesium sulphate." Niger.J.Med 19(1): 104-107

SECTION 4

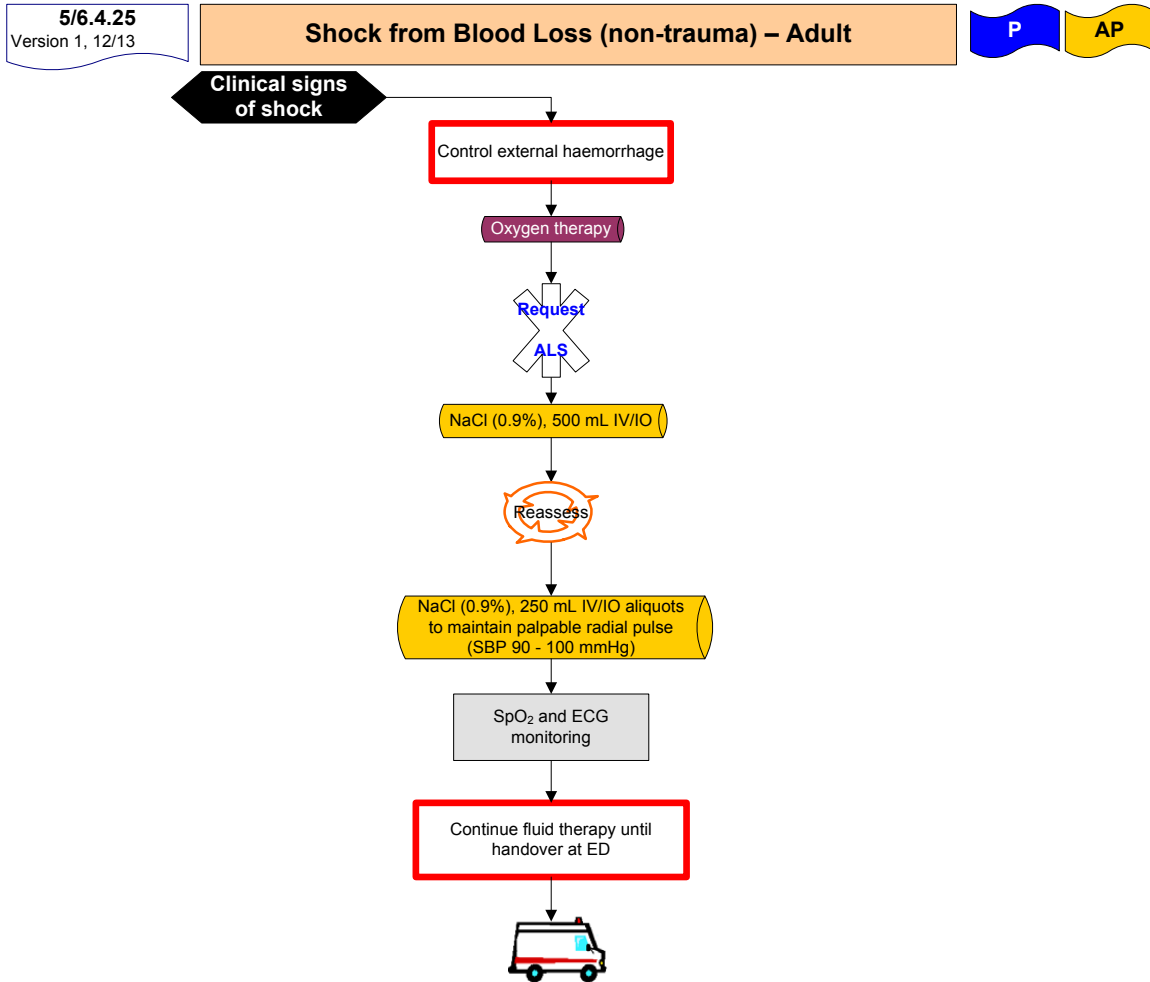
MEDICAL EMERGENCIES



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



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

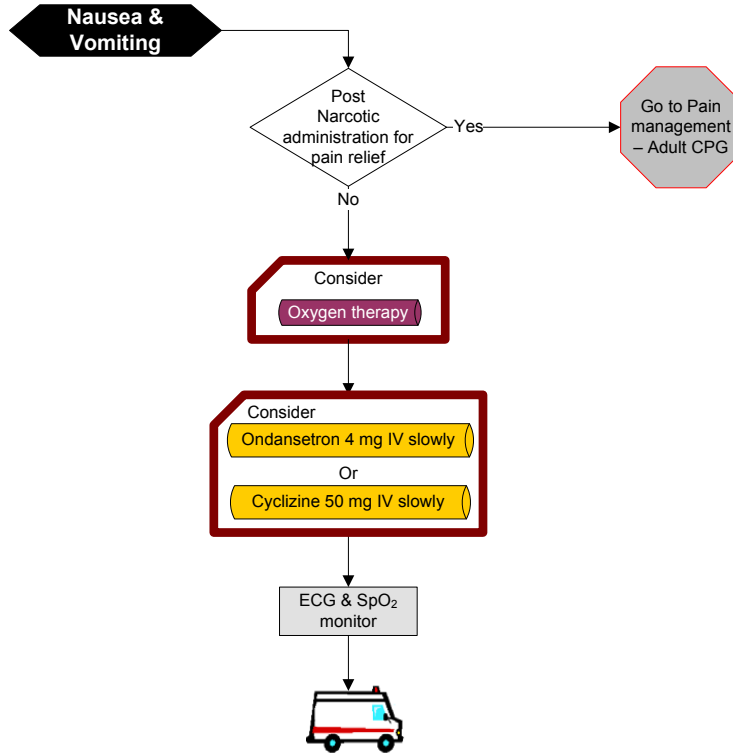
SECTION 4

MEDICAL EMERGENCIES

6.4.26
Version 1, 05/09

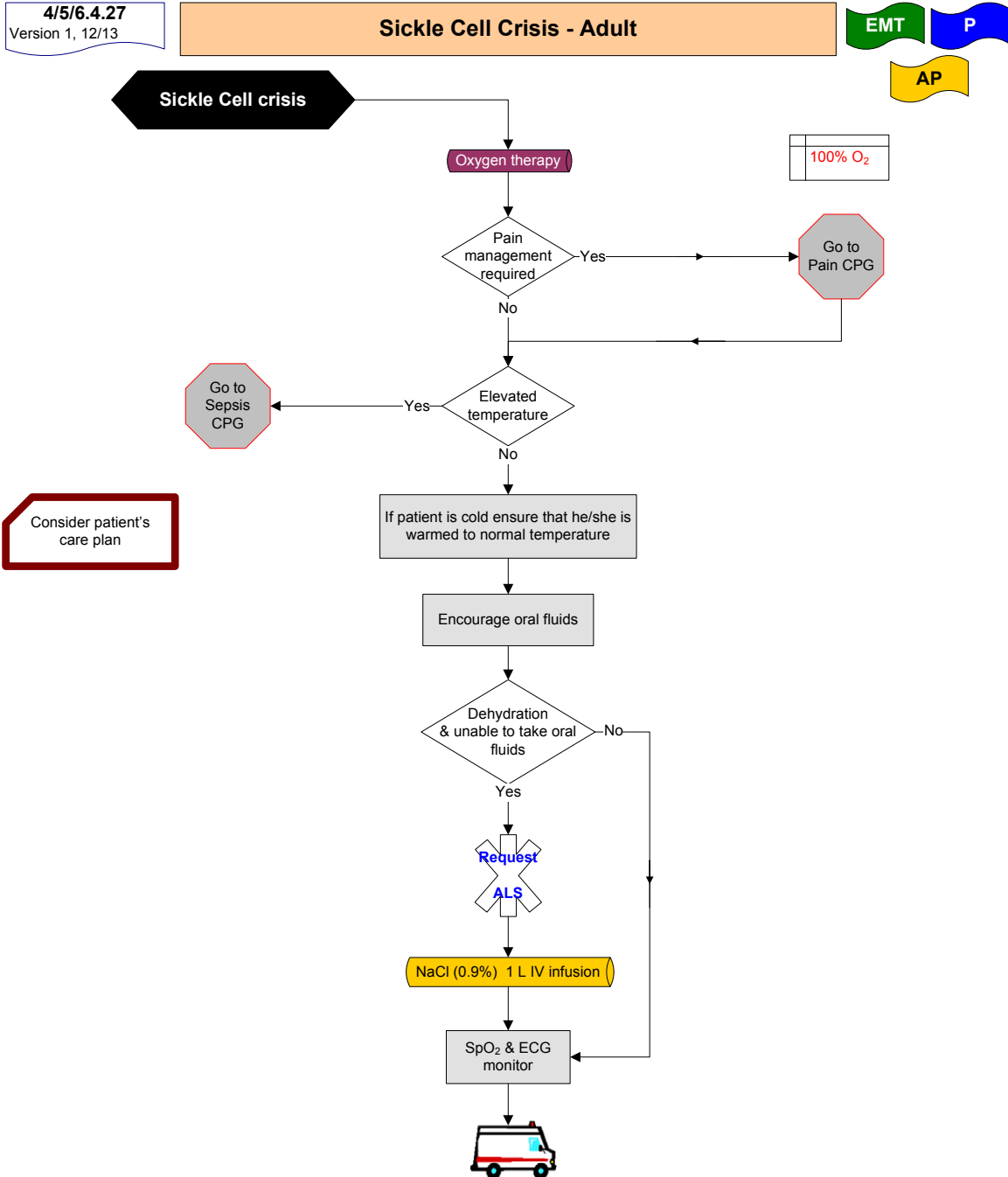
Significant Nausea & Vomiting – Adult

AP



SECTION 4

MEDICAL EMERGENCIES



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

Reference: Rees, D, 2003, GUIDELINES FOR THE MANAGEMENT OF THE ACUTE PAINFUL CRISIS IN SICKLE CELL DISEASE; British Journal of Haematology, 2003, 120, 744-752

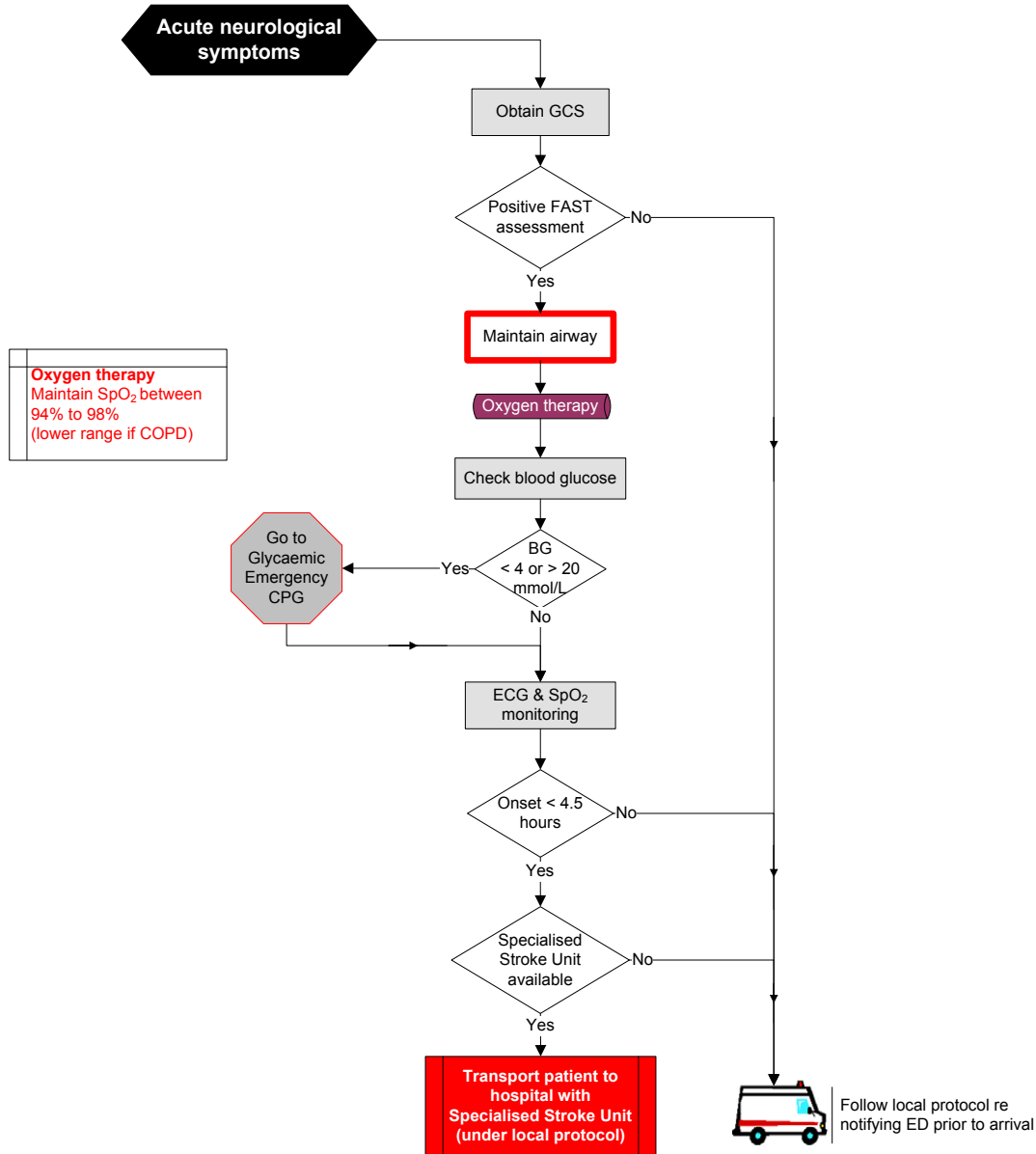
SECTION 4

MEDICAL EMERGENCIES

5/6.4.28
Version 2, 07/11

Stroke

P **AP**



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

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 2004; 35:1355-1359
Jeffrey L Saver, et al, Prehospital neuroprotective therapy for acute stroke: results of the field administration of stroke therapy-Magnesium (FAST-MAG) pilot trial, Stroke 2004; 35: 106-108
Werner Hacke MD, et al, 2008, Thrombolysis with Alteplase 3 to 4.5 Hours after Acute Ischemic Stroke, N Engl J Med 2008; 359:1317-29

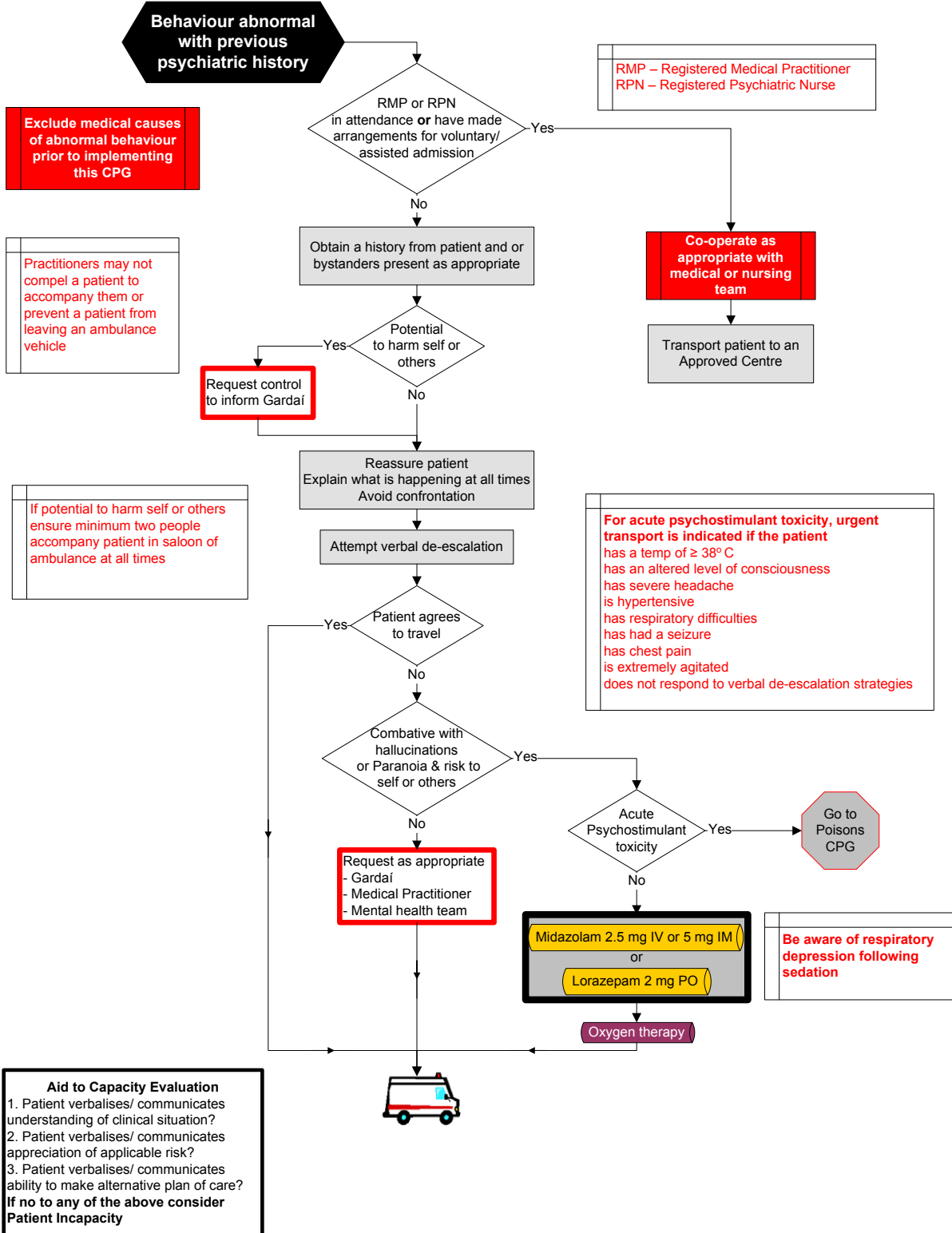
SECTION 4

MEDICAL EMERGENCIES

6.4.29
Version 1, 05/08

Mental Health Emergency

AP



References: Clinical Practice Manual, Queensland Ambulance Service 2001
 Management for patients with psychostimulant toxicity, Guidelines for Ambulance Services, 2006, National Drugs Strategy, Commonwealth of Australia.
 Reference Guide to the Mental Health Act 2001, Mental Health Commission
 HSE Mental Health Services

SECTION 4

MEDICAL EMERGENCIES

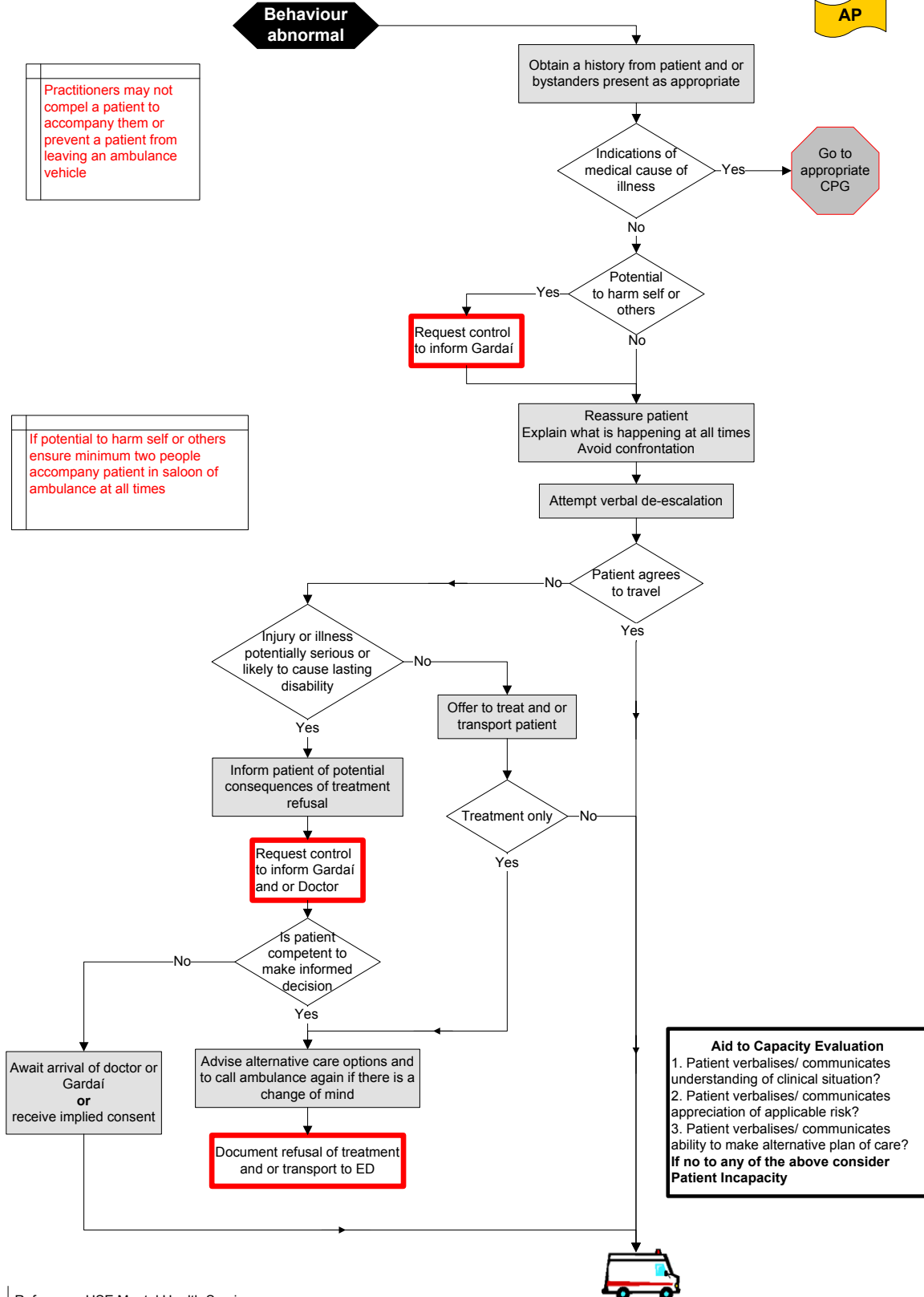
4/5/6.4.30
Version 1, 05/08

Behavioural Emergency

EMT P
AP

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

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



Reference: HSE Mental Health Services

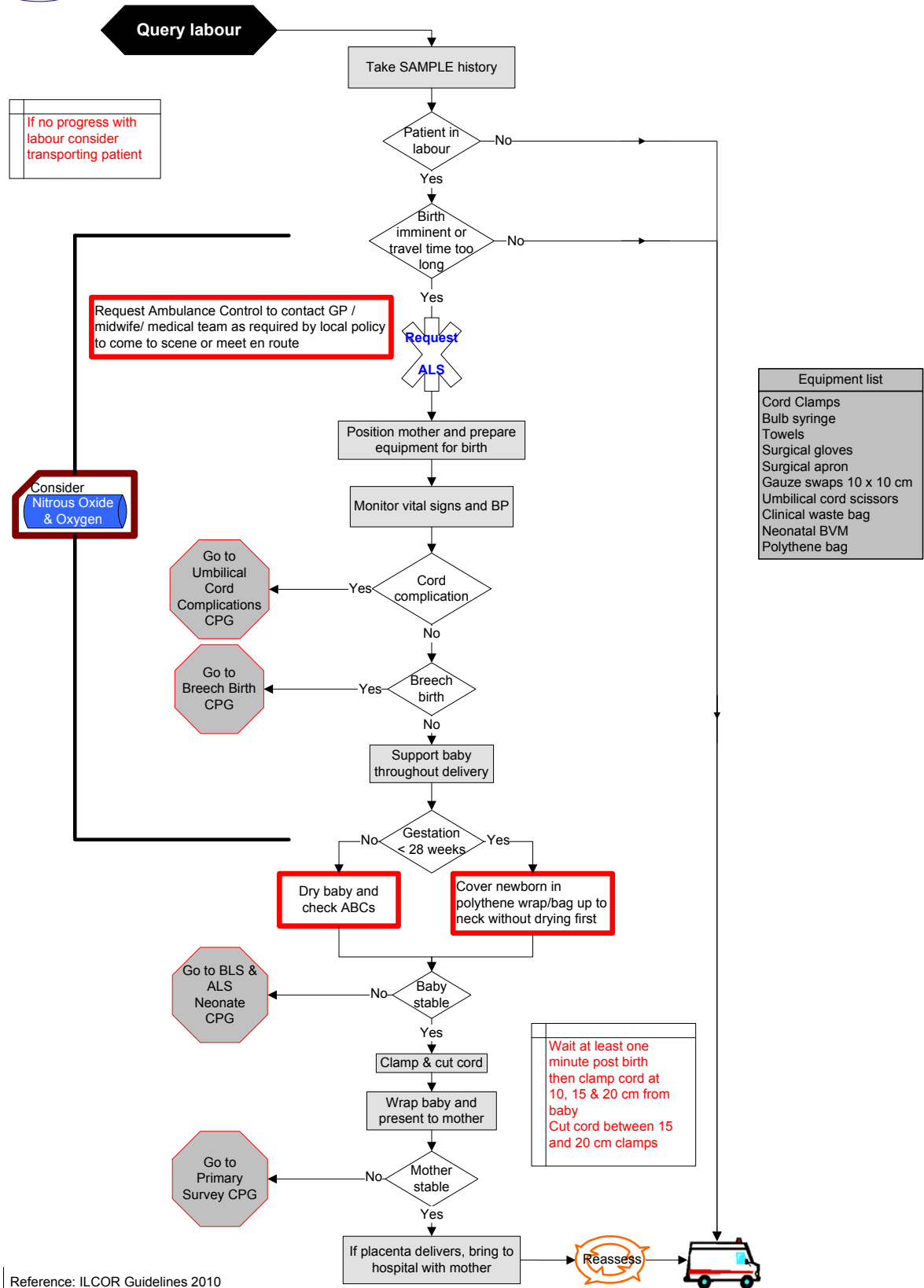
SECTION 5

OBSTETRIC EMERGENCIES

5/6.5.1
Version 2, 03/11

Pre-Hospital Emergency Childbirth

P **AP**



Reference: ILCOR Guidelines 2010

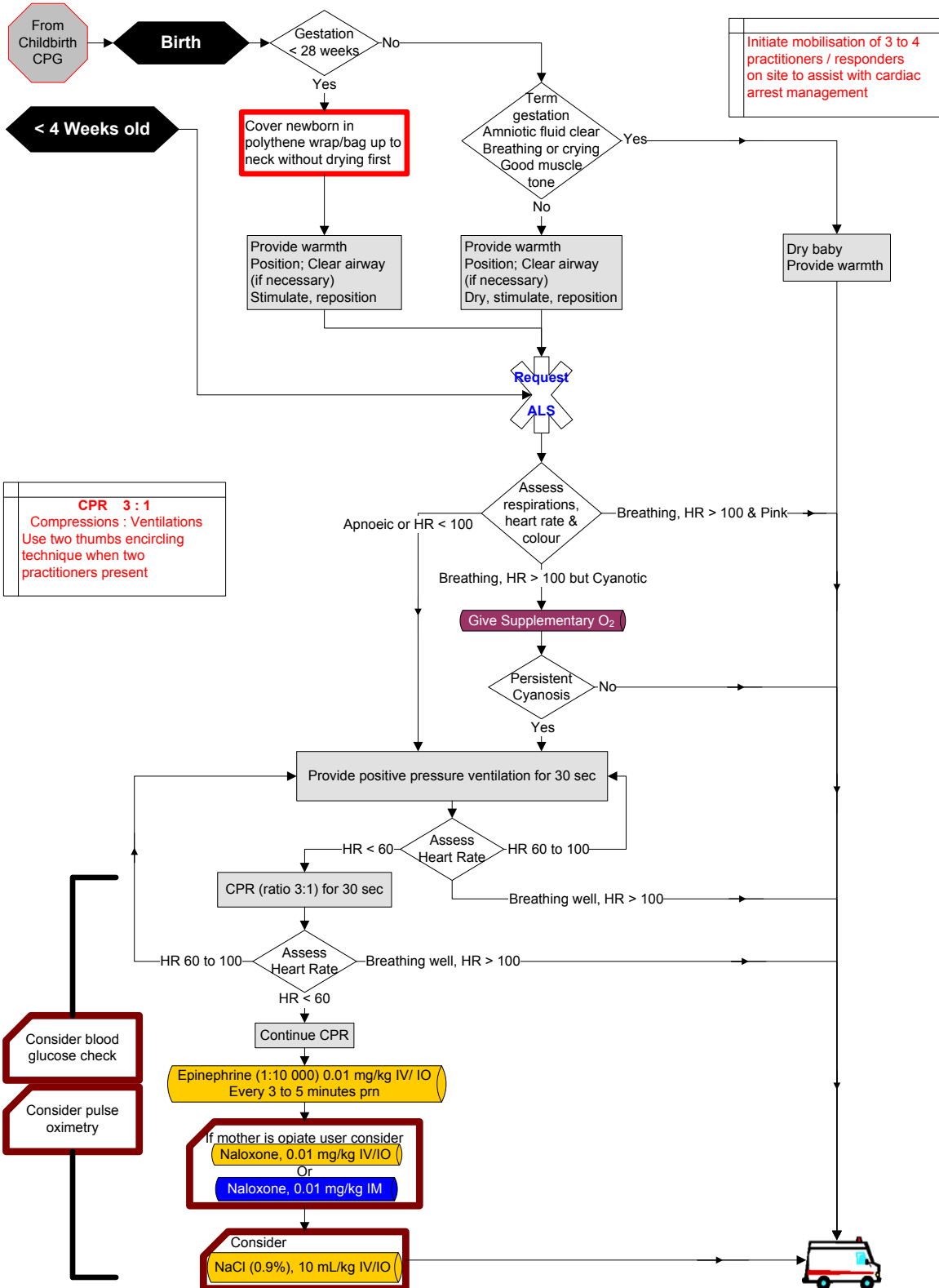
SECTION 5

OBSTETRIC EMERGENCIES

5/6.5.2
Version 2, 03/11

Basic & Advanced Life Support – Neonate (< 4 weeks)

P **AP**



Reference: ILCOR Guidelines 2010

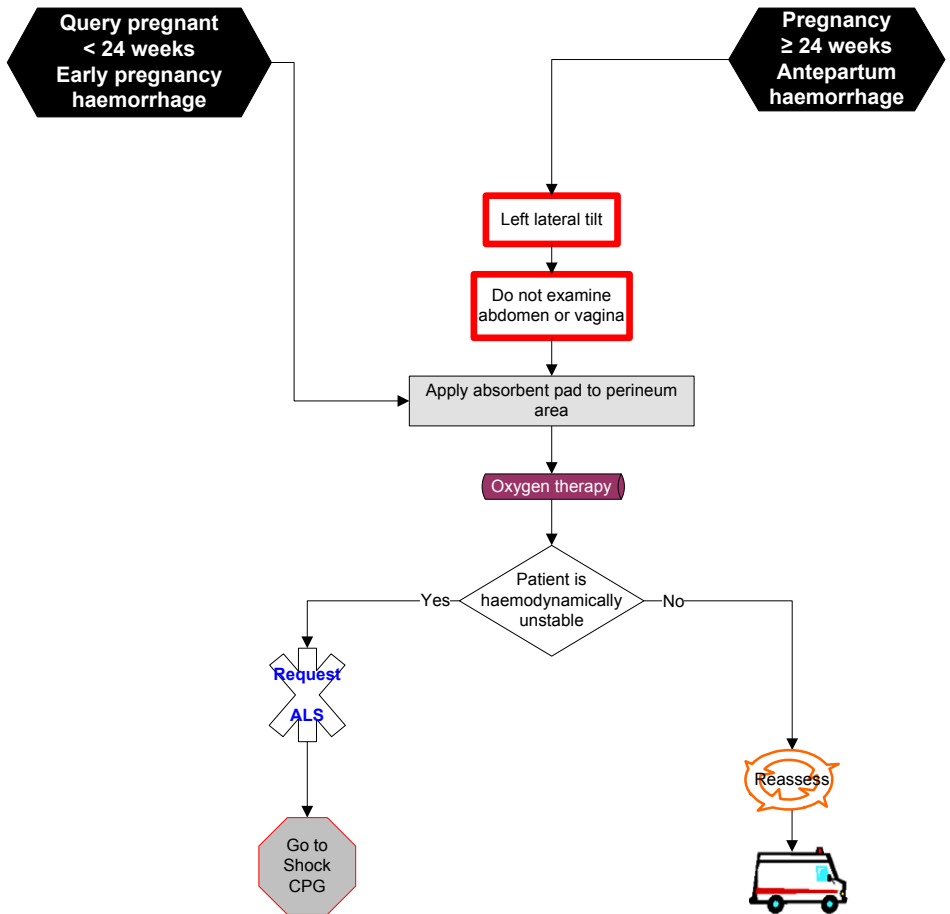
SECTION 5

OBSTETRIC EMERGENCIES

5/6.5.3
Version 1, 05/08

Haemorrhage in Pregnancy Prior to Delivery

P **AP**



Reference: Sweet, BR, 2000, Mayes' Midwifery, 12th Edition, Bailliere Tindall

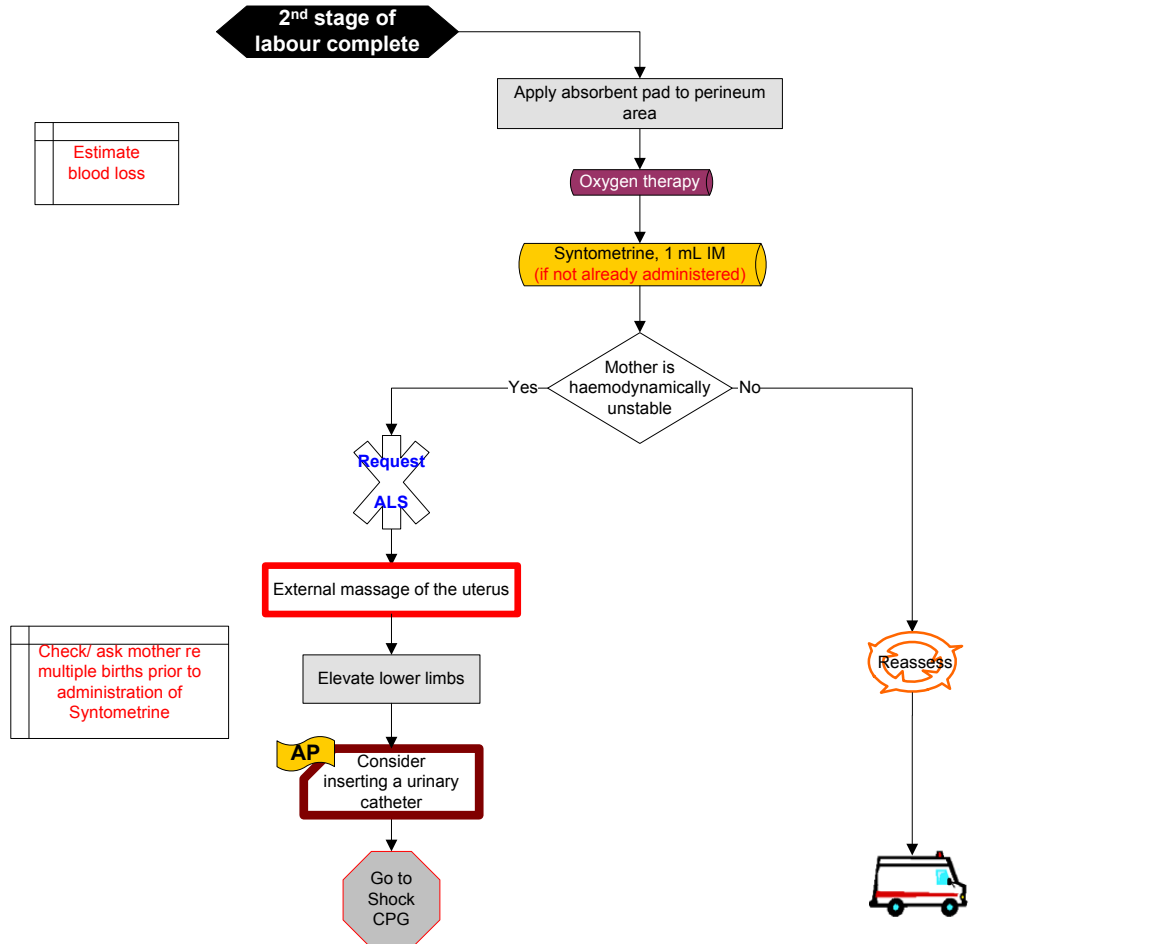
SECTION 5

OBSTETRIC EMERGENCIES

5/6.5.4
05/08

Postpartum Haemorrhage

P AP



Reference: Sweet, BR, 2000, Mayes' Midwifery, 12th Edition, Bailliere Tindall

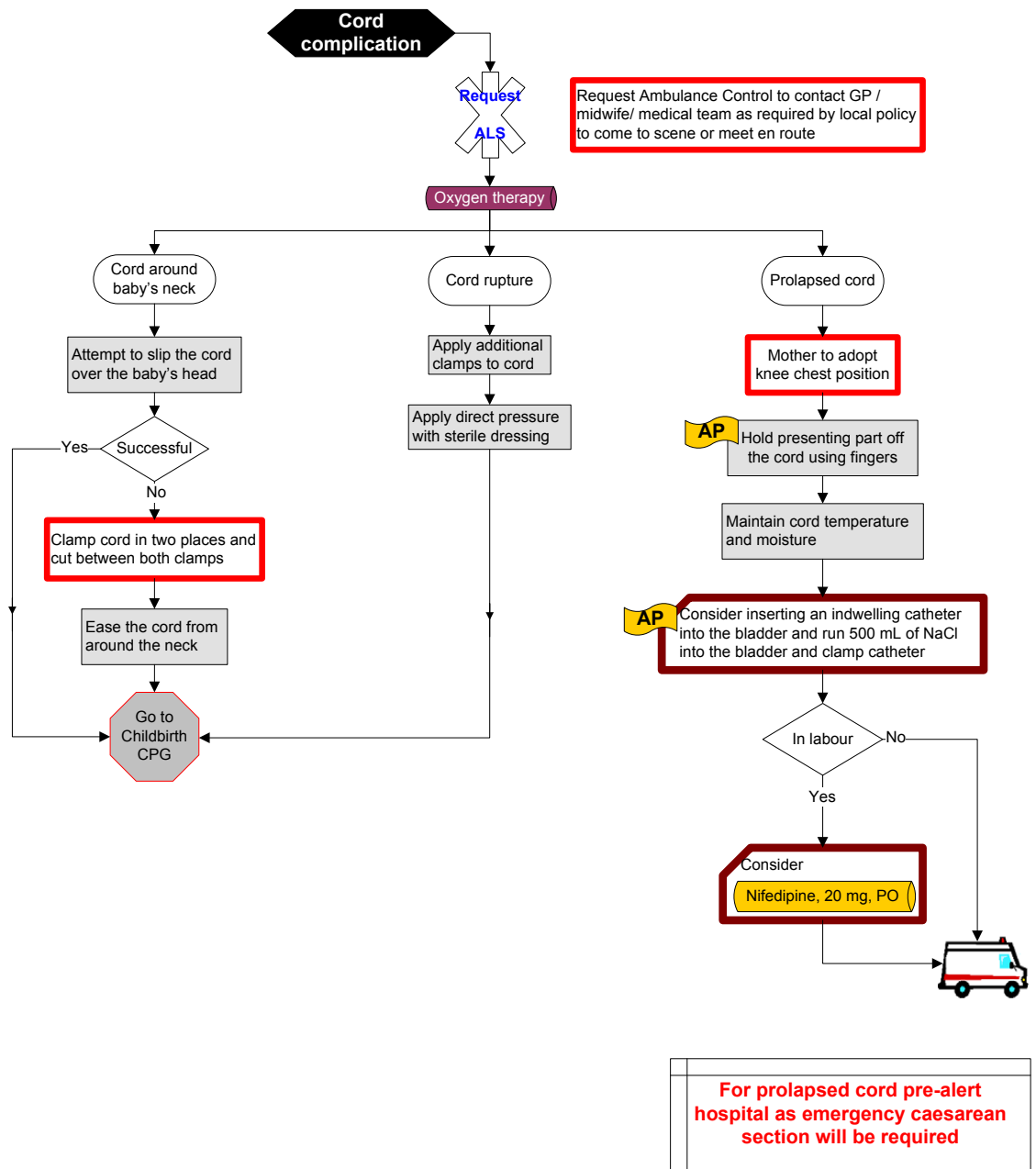
SECTION 5

OBSTETRIC EMERGENCIES

5/6.5.5
Version 1, 05/08

Umbilical Cord Complications

P **AP**



Reference: Sweet, BR, 2000, Mayes' Midwifery, 12th Edition, Bailliere Tindall
 Katz Z et al, 1988, Management of labor with umbilical cord prolaps: A 5 year study. Obstet. Gynecol. 72(2): 278-281
 Duley, LMM, 2002, Clinical Guideline No 1(B), Tocolytic Drugs for women in preterm labour, Royal College of Obstetricians and gynaecologists

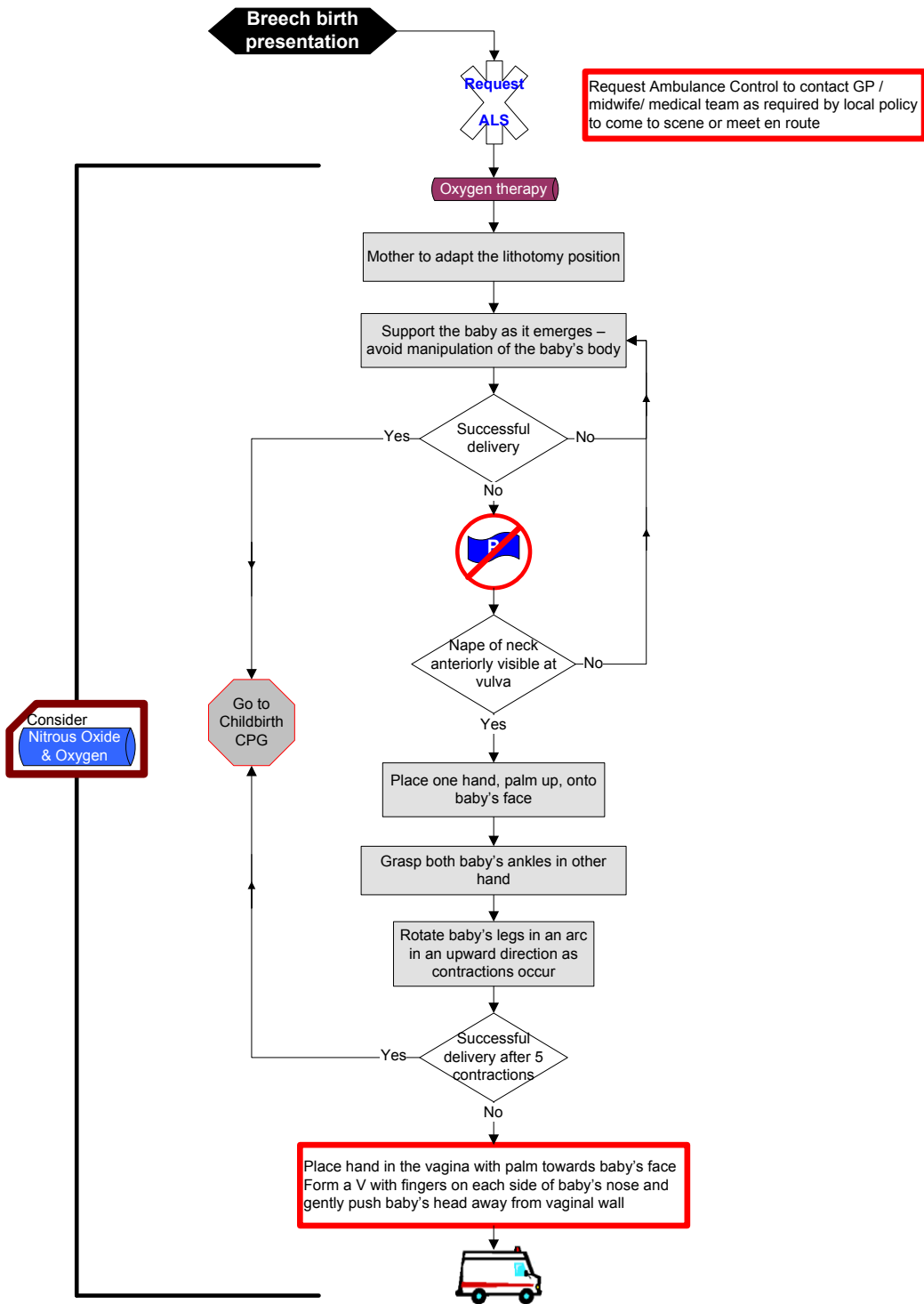
SECTION 5

OBSTETRIC EMERGENCIES

5/6.5.6
Version 1, 05/08

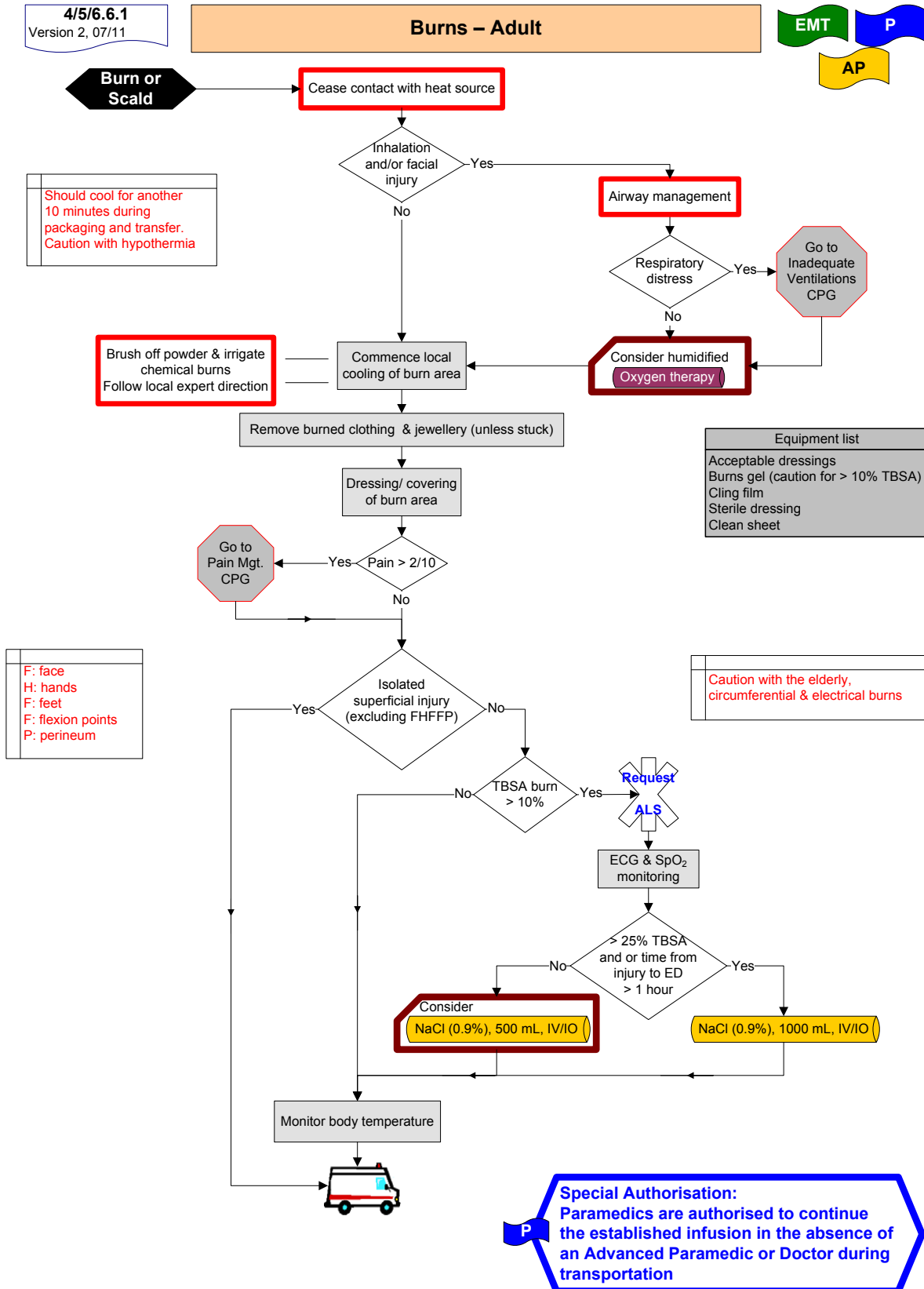
Breech Birth

P AP



SECTION 6

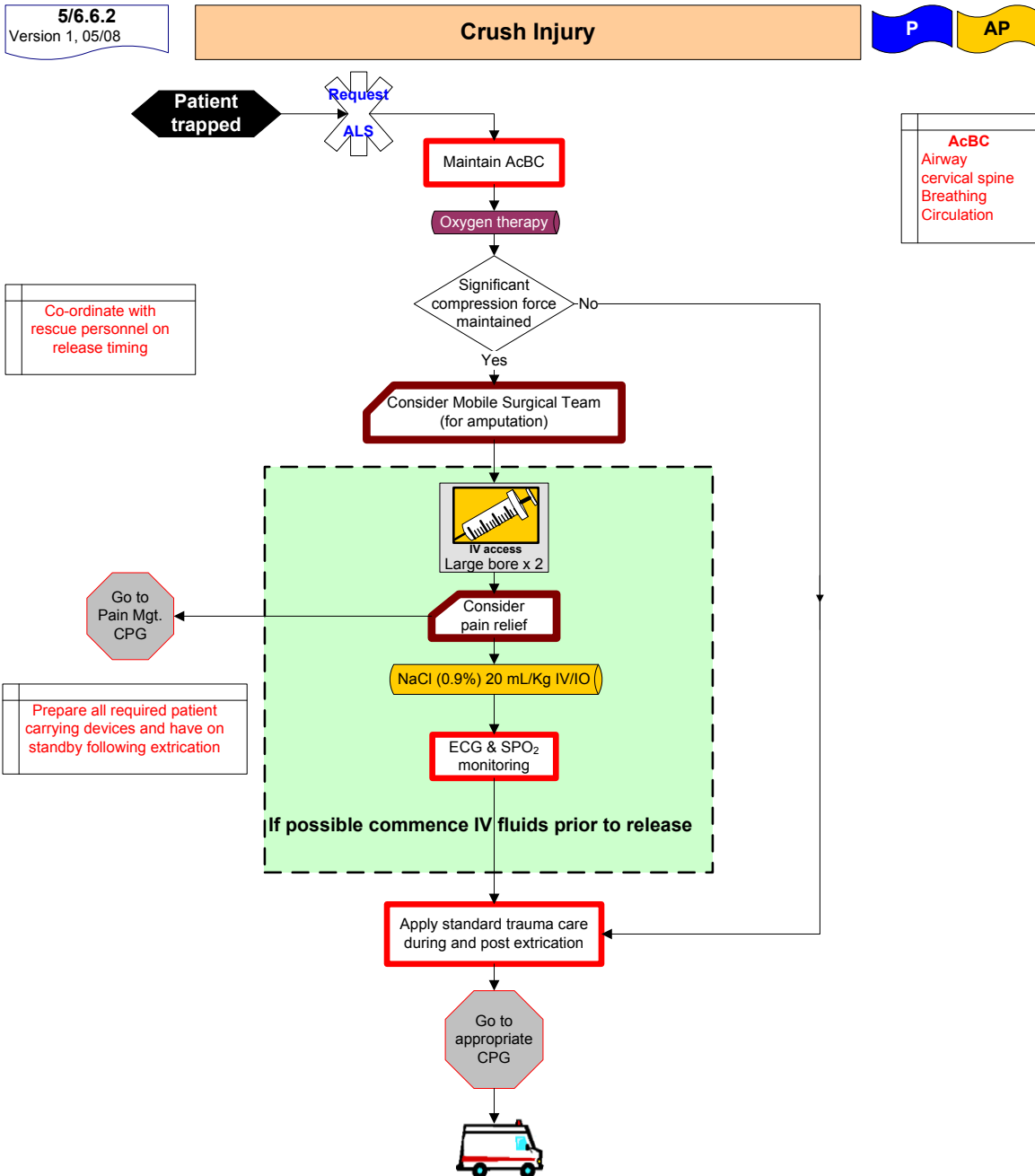
TRAUMA



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

SECTION 6

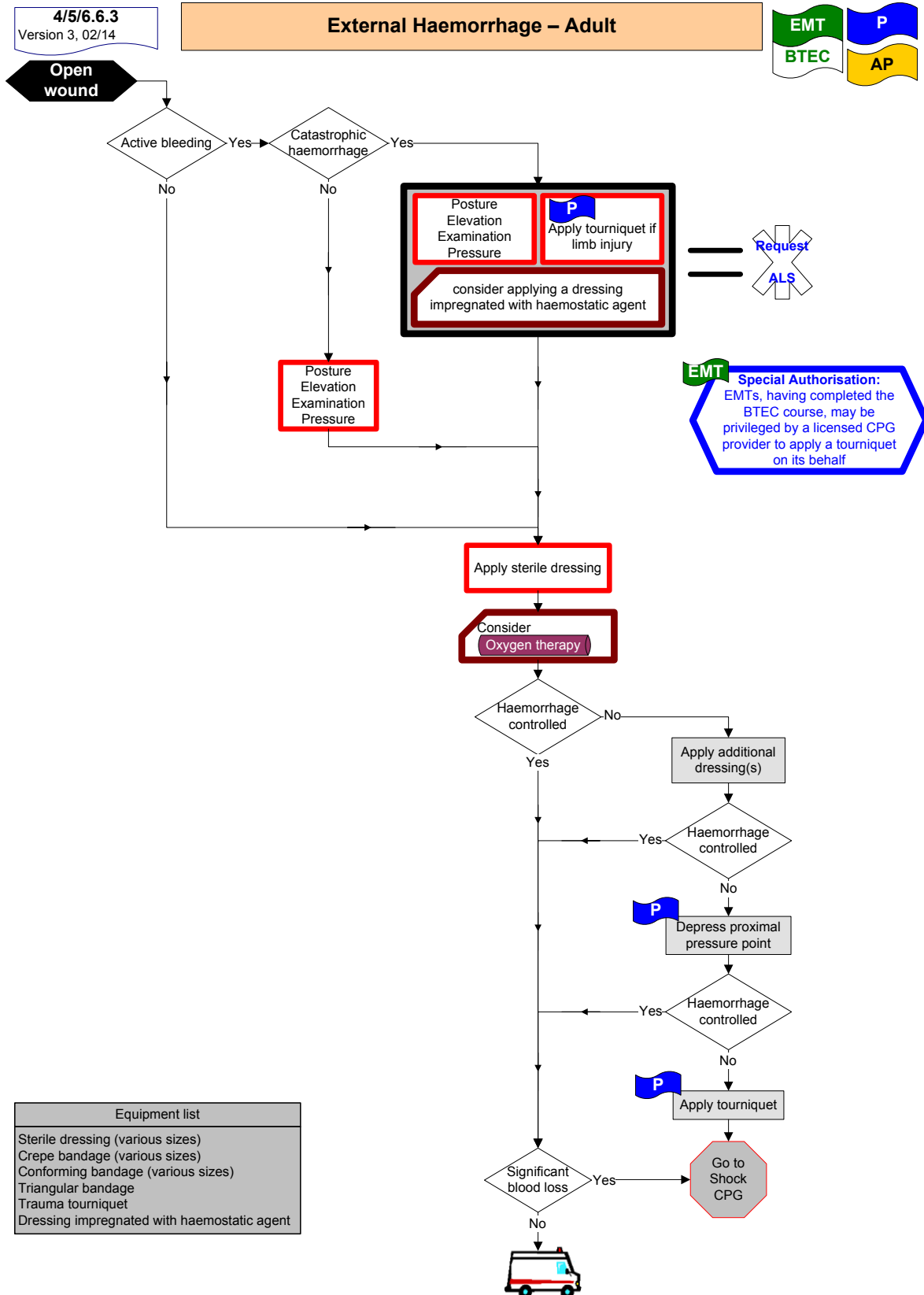
TRAUMA



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

SECTION 6

TRAUMA



Reference:

ILCOR Guidelines 2010,
Granville-Chapman J, et al. Pre-hospital haemostatic dressings: A systematic review. Injury (2010), doi: 10.1016/j.injury.2010.09.037

SECTION 6

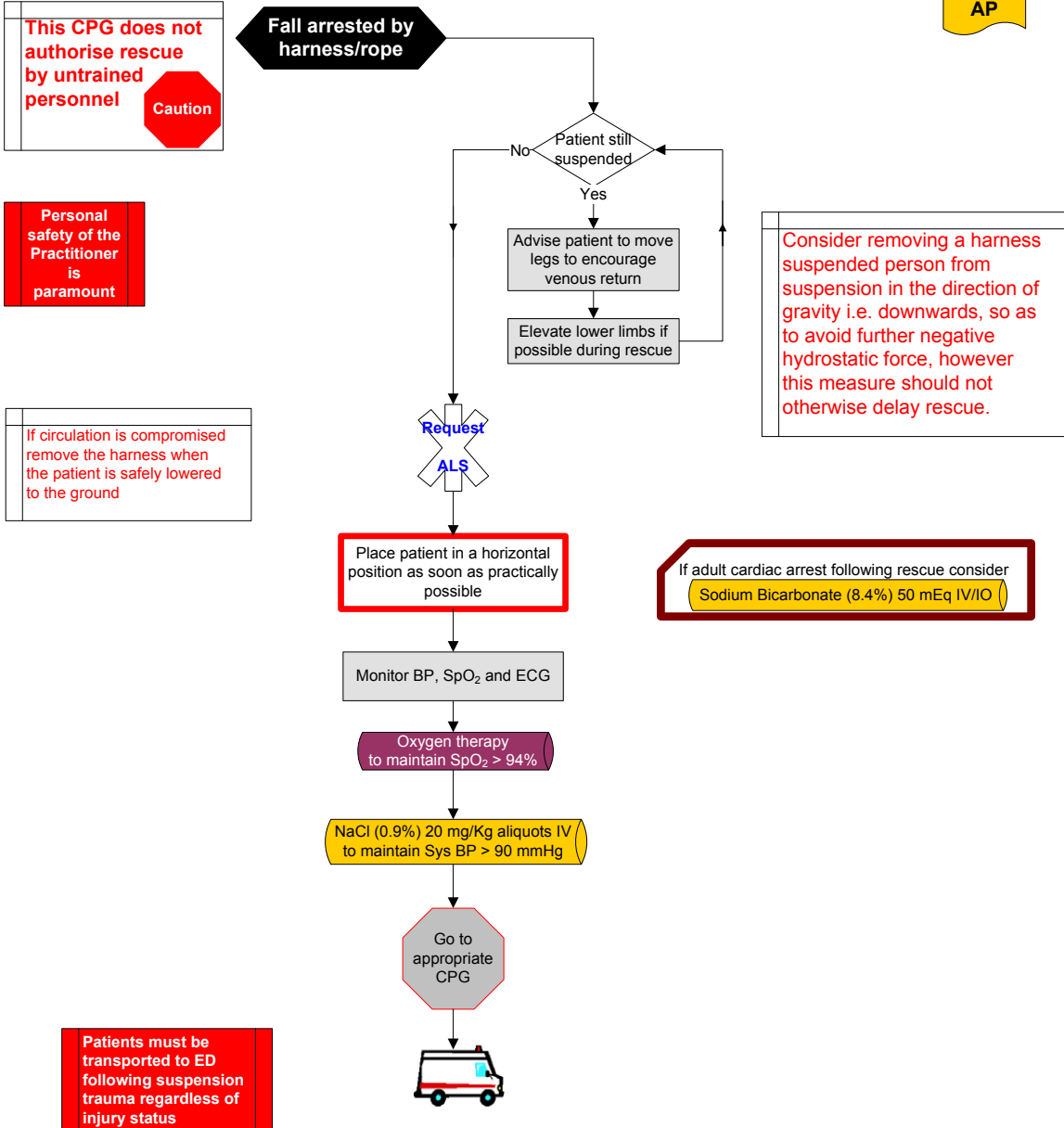
TRAUMA

4/5/6.6.4
Version 2, 05/14

Harness Induced Suspension Trauma

EMT P

AP

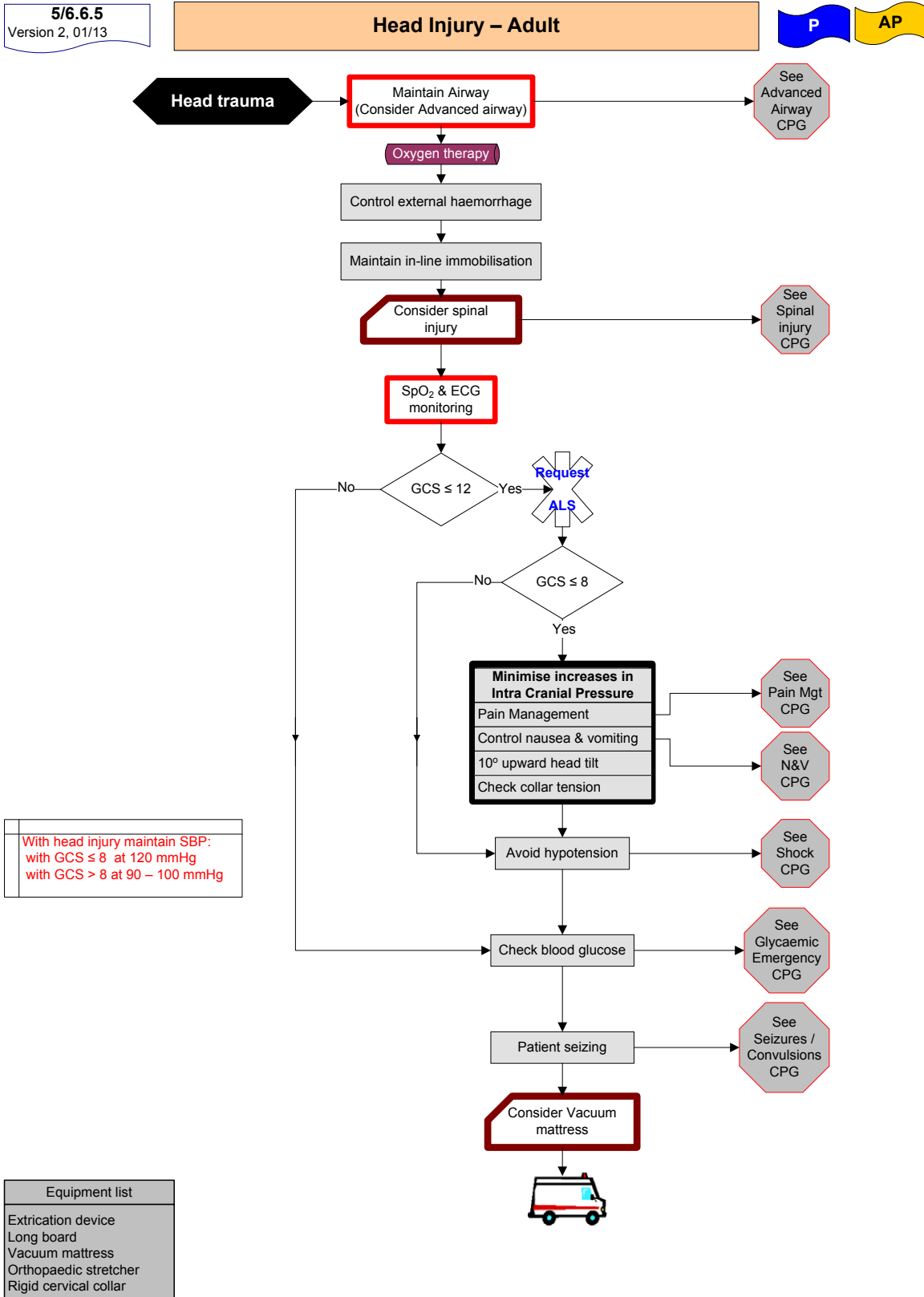


Special Authorisation:
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

Reference:
Adish A et al, 2009, Evidence-based review of the current guidance on first aid measures for suspension trauma, Health and Safety Executive (UK) Research report RR708
Australian Resuscitation Council, 2009, Guideline 9.1.5 Harness Suspension Trauma first aid management.
Thomassen O et al, Does the horizontal position increase risk of rescue death following suspension trauma?, *Emerg Med J* 2009;26:896-898 doi:10.1136/emj.2008.064931

SECTION 6

TRAUMA



Reference: Mc Swain, N, 2011, PHTLS Prehospital Trauma Life Support 7th Edition, Mosby

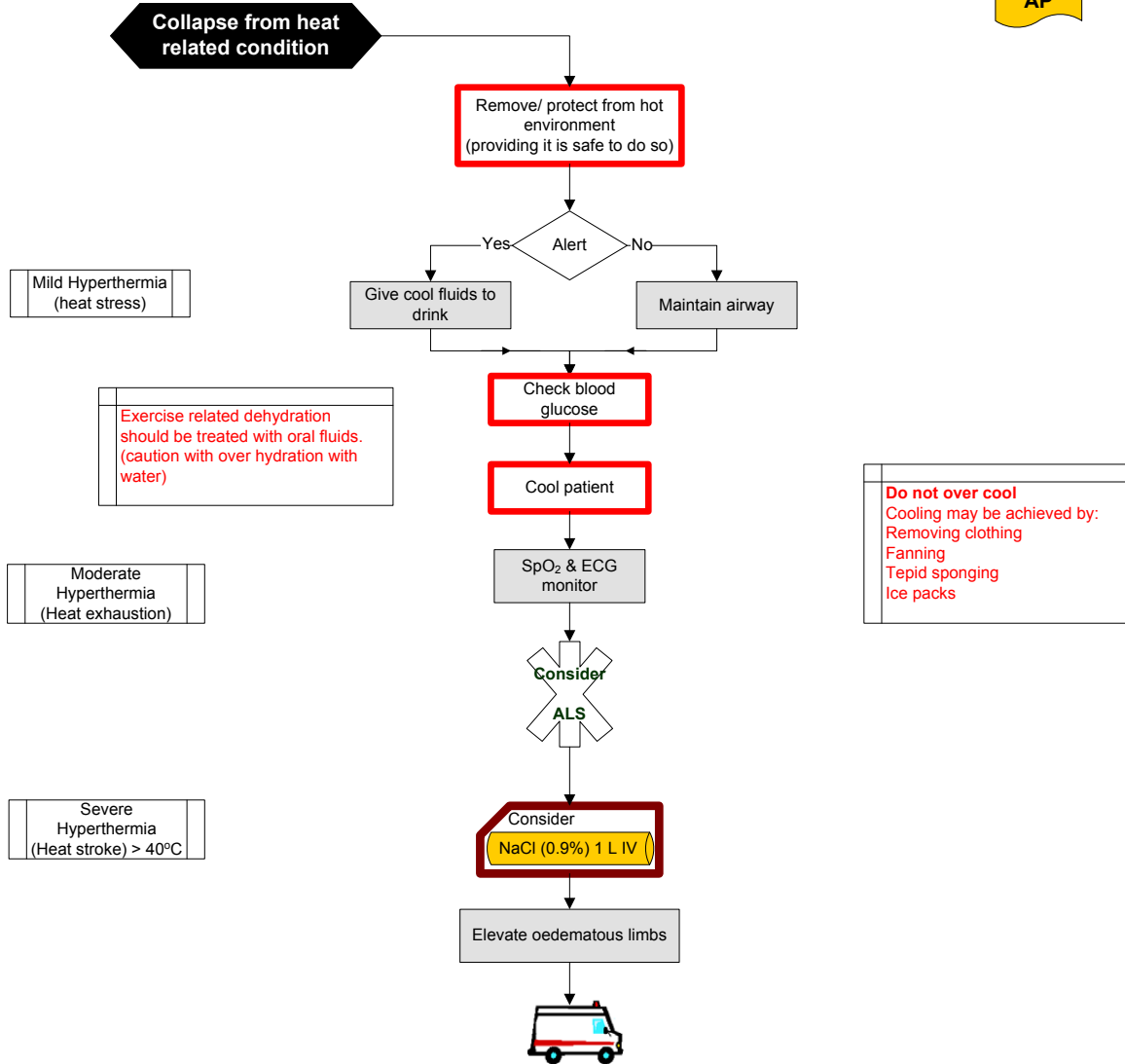
SECTION 6

TRAUMA

4/5/6.6.6
Version 1, 12/13

Heat Related Emergency – Adult

EMT P
AP



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

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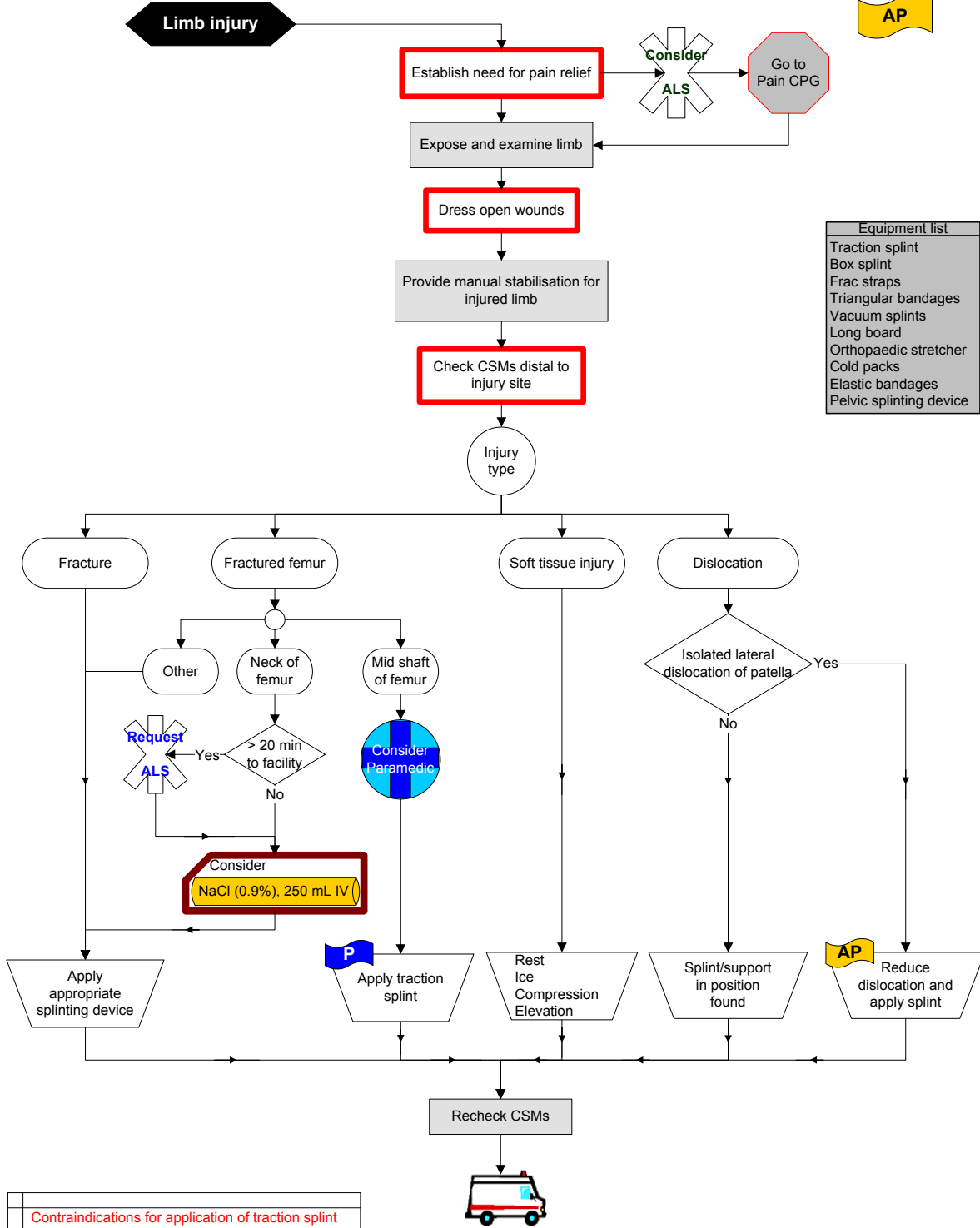
TRAUMA

4/5/6.6.7
Version 4, 02/14

Limb Injury – Adult

EMT P

AP



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

| |
|--|
| <p>Contraindications for application of traction splint</p> <ol style="list-style-type: none"> 1 # pelvis 2 # knee 3 Partial amputation 4 Injuries to lower third of lower leg 5 Hip injury that prohibits normal alignment |
|--|

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

Reference: An algorithm guiding the evaluation and treatment of acute primary patellar dislocations, Mehta VM et al. Sports Med Arthrosc. 2007 Jun;15(2):78-81

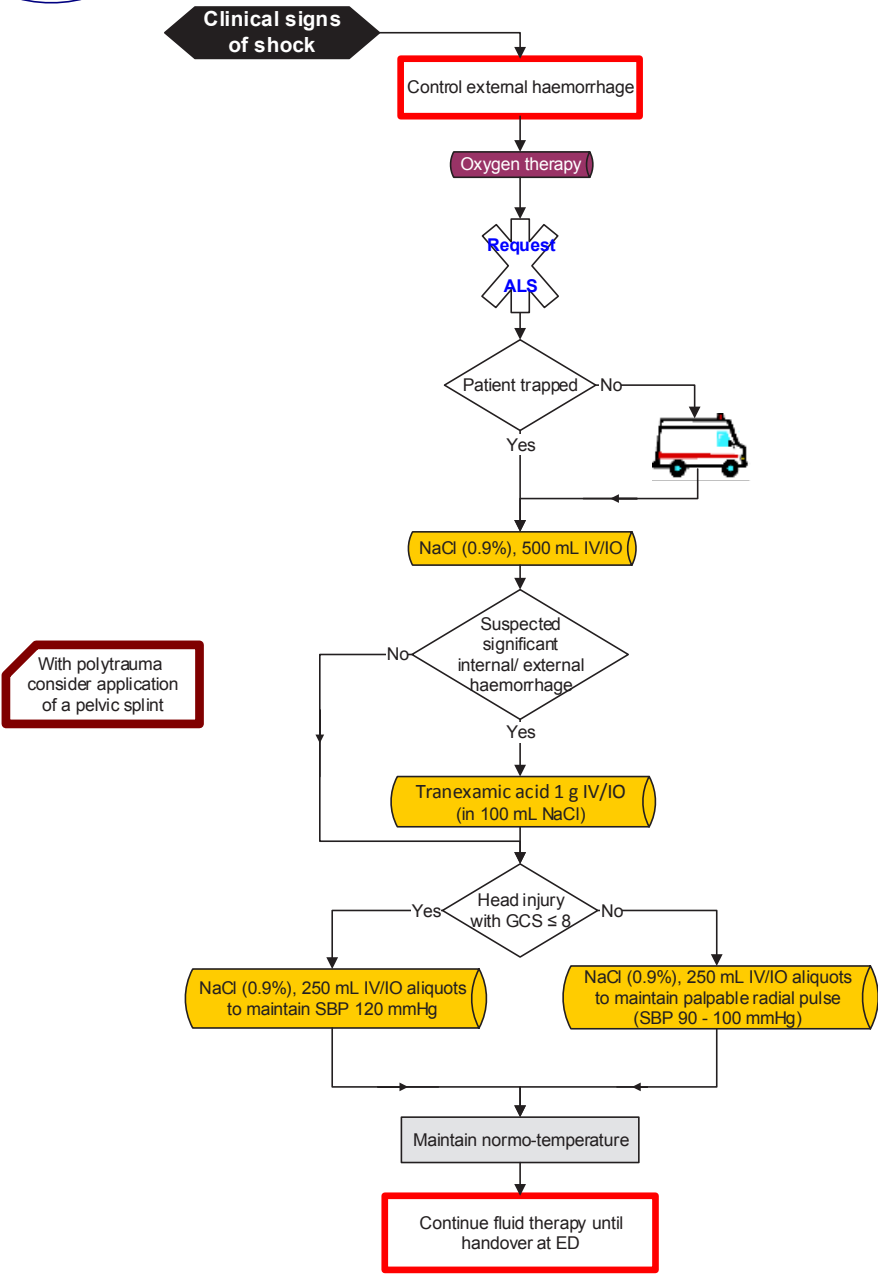
SECTION 6

TRAUMA

5/6.6.8
Version 3, 12/13

Shock from Blood Loss (trauma) – Adult

P AP



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

Reference: Gruen, R. L. and M. C. Reade (2012). "Administer tranexamic acid early to injured patients at risk of substantial bleeding." *BMJ* 345: e7133

SECTION 6

TRAUMA

5/6.6.9
Version 2, 07/11

Spinal Immobilisation – Adult

P AP

Trauma Initial indications for spinal immobilisation

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

Do not forcibly restrain a patient that is combative

Use clinical judgement
If in doubt, immobilise

Remove helmet (if worn)

Neck or back pain or midline spinal tenderness

Yes

No

Dangerous mechanism of injury or significant distracting injury

Yes

No

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

Yes

No

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

Life Threatening

Yes

No

Apply cervical collar

Patient in sitting position

Yes

No

Use extrication device

Load onto vacuum mattress or long board

Rapid extrication with long board and cervical collar

Immobilisation may not be indicated

Go to appropriate CPG

Consider Vacuum mattress



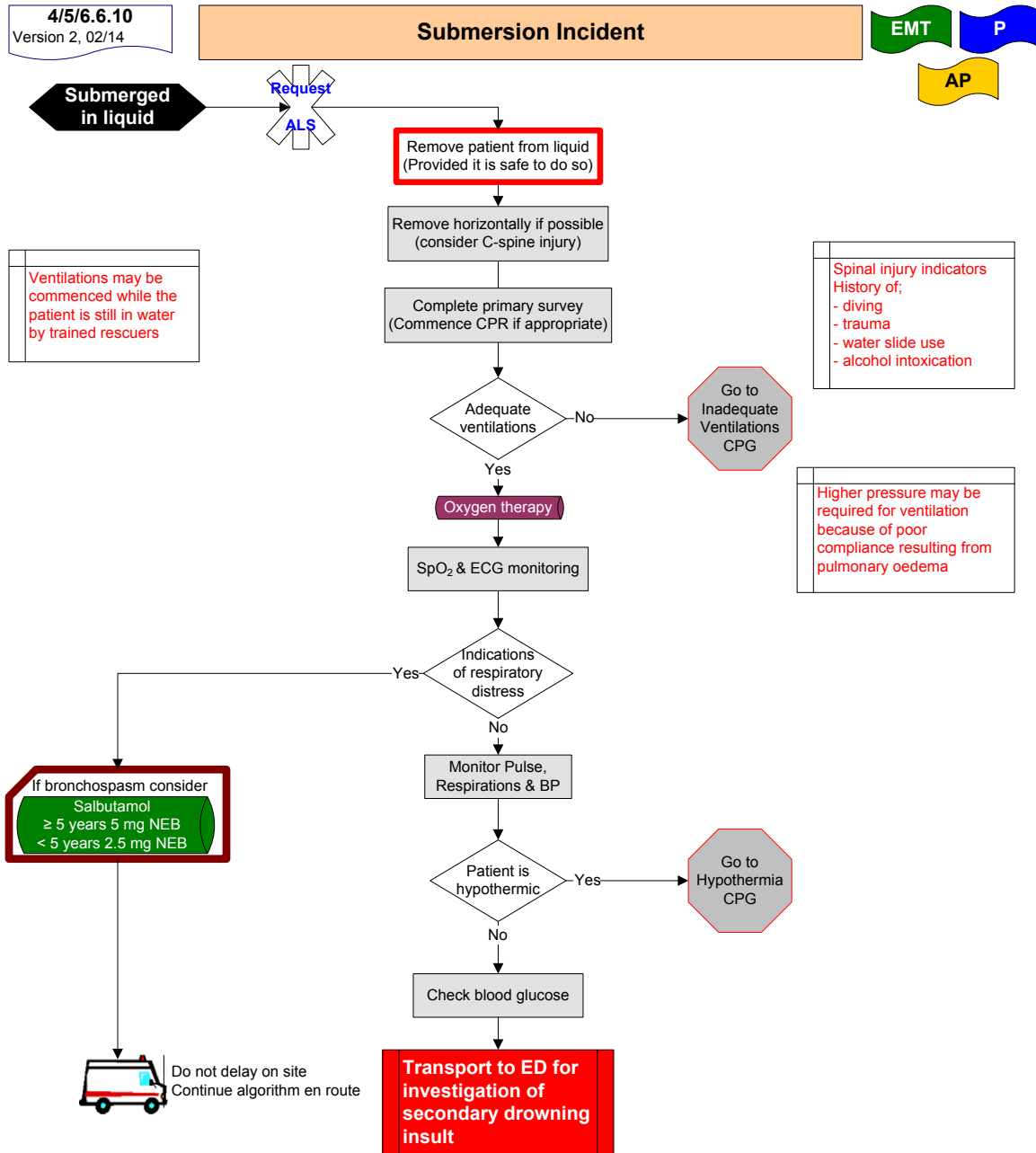
Low risk factors
Simple rear end MVC (excluding push into oncoming traffic or hit by bus or truck)

Equipment list

Extrication device
Long board
Vacuum mattress
Orthopaedic stretcher
Rigid cervical collar

SECTION 6

TRAUMA



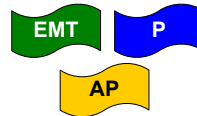
Reference: Golden, F & Tipton M, 2002, Essentials of Sea Survival, Human Kinetics
 Verie, M, 2007, Near Drowning, E medicine, www.emedicine.com/ped/topic20570.htm
 Shepherd, S, 2005, Submersion Injury, Near Drowning, E Medicine, www.emedicine.com/emerg/topic744.htm
 AHA, 2005, Part 10.3: Drowning, Circulation 2005:112;133-135
 Soar, J et al, 2005, European Resuscitation Council Guidelines for Resuscitation 2005, Section 7. Cardiac arrest in special circumstances, Resuscitation (2005) 6751, S135-S170

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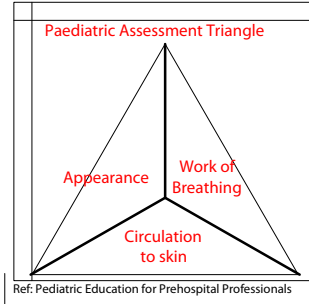
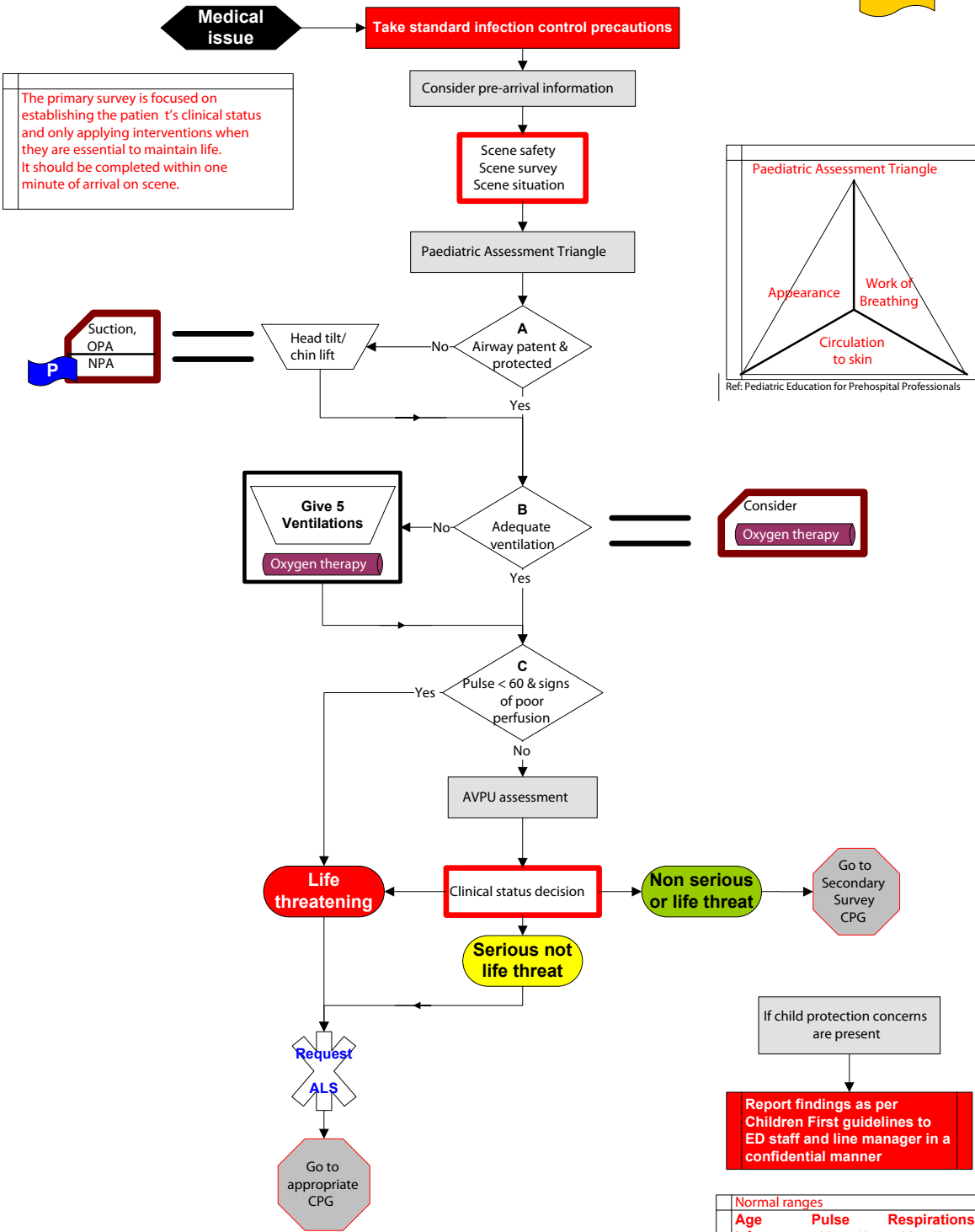
PAEDIATRIC EMERGENCIES

4/5/6.7.1
Version 4, 12/13

Primary Survey Medical – Paediatric (≤ 15 Years)



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

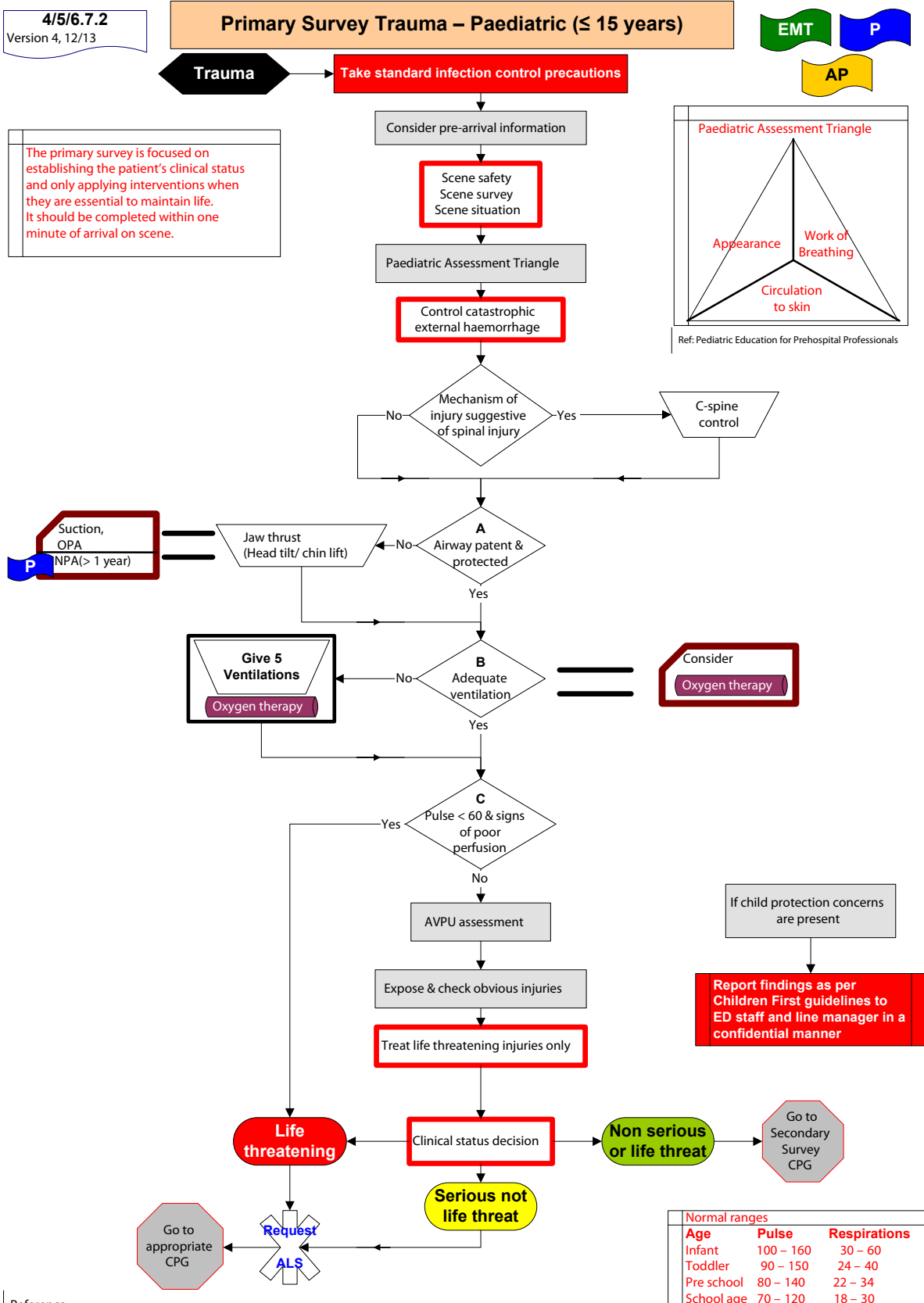


| Normal ranges | | |
|---------------|-----------|--------------|
| Age | Pulse | Respirations |
| Infant | 100 – 160 | 30 – 60 |
| Toddler | 90 – 150 | 24 – 40 |
| Pre school | 80 – 140 | 22 – 34 |
| School age | 70 – 120 | 18 – 30 |

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

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PAEDIATRIC EMERGENCIES



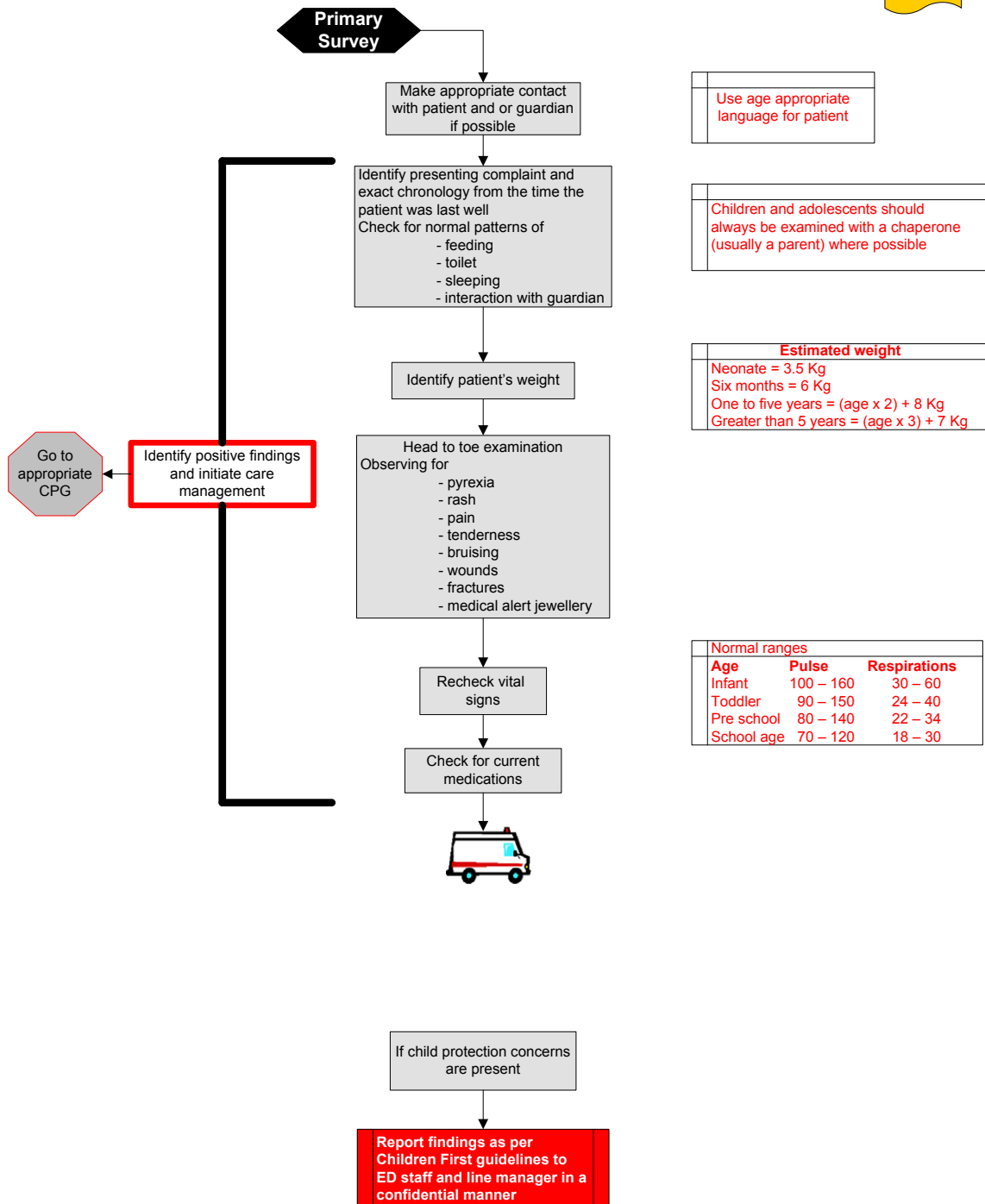
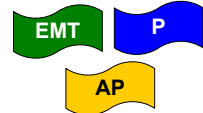
Reference: ILCOR Guidelines 2010, American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals; Department of Children and Youth Affairs, 2011, Children First; National Guidance for the Protection and Welfare of Children

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PAEDIATRIC EMERGENCIES

4/5/6.7.4
Version 3, 12/13

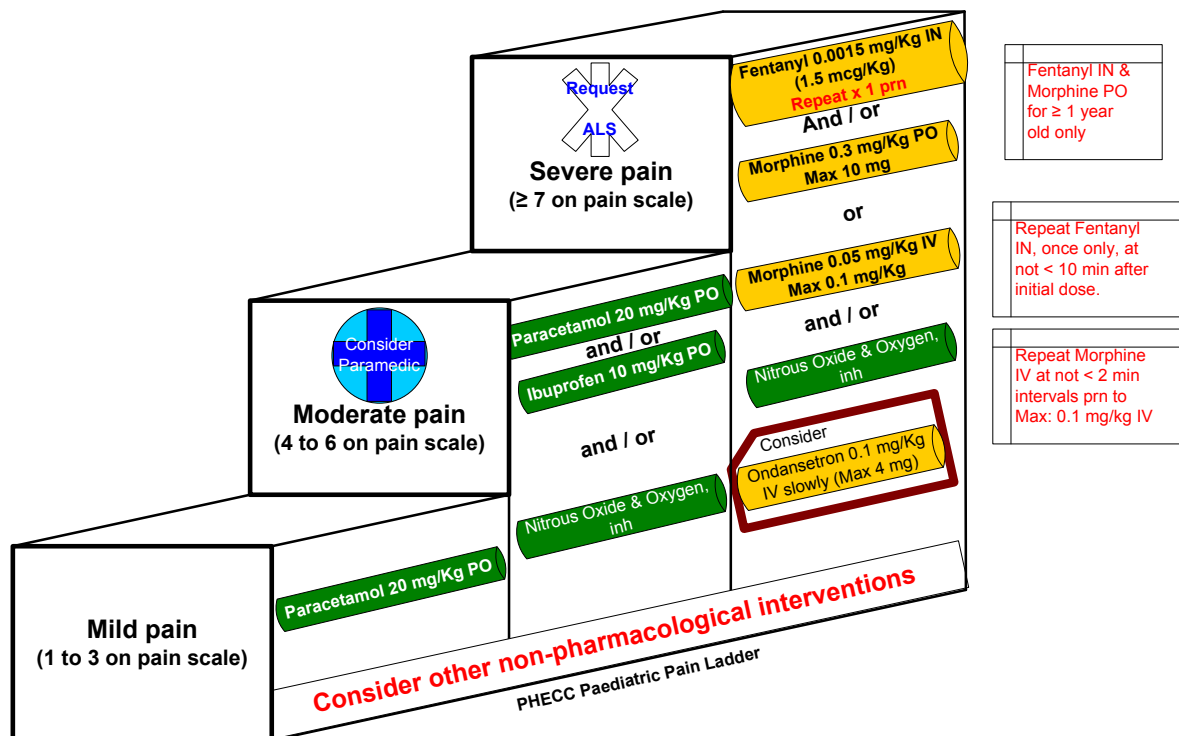
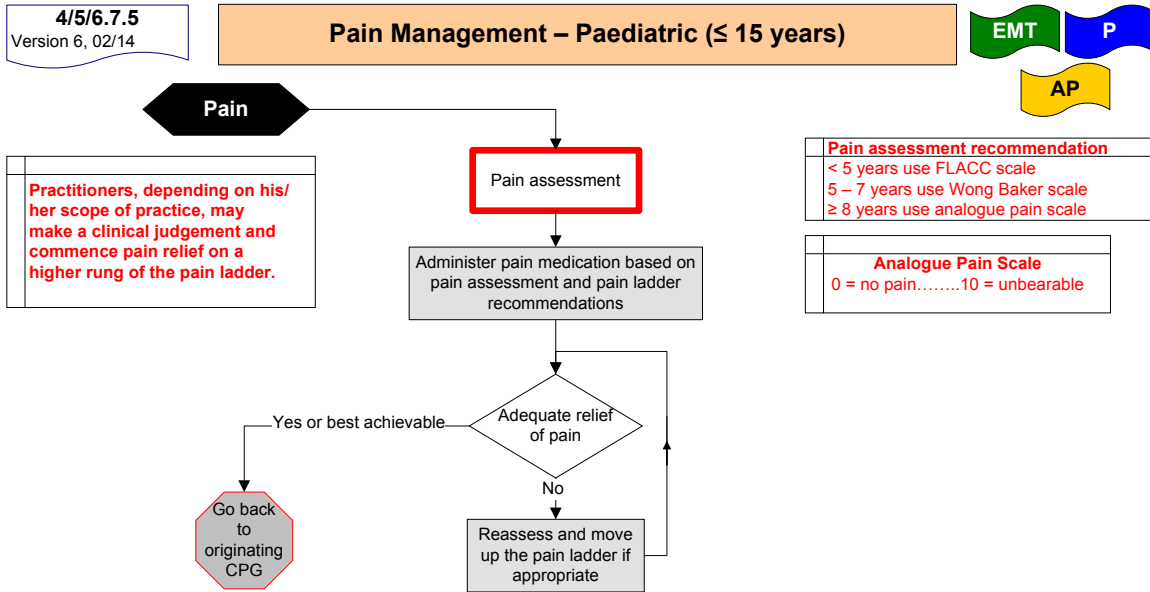
Secondary Survey – Paediatric (≤ 15 years)



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'

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PAEDIATRIC EMERGENCIES



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

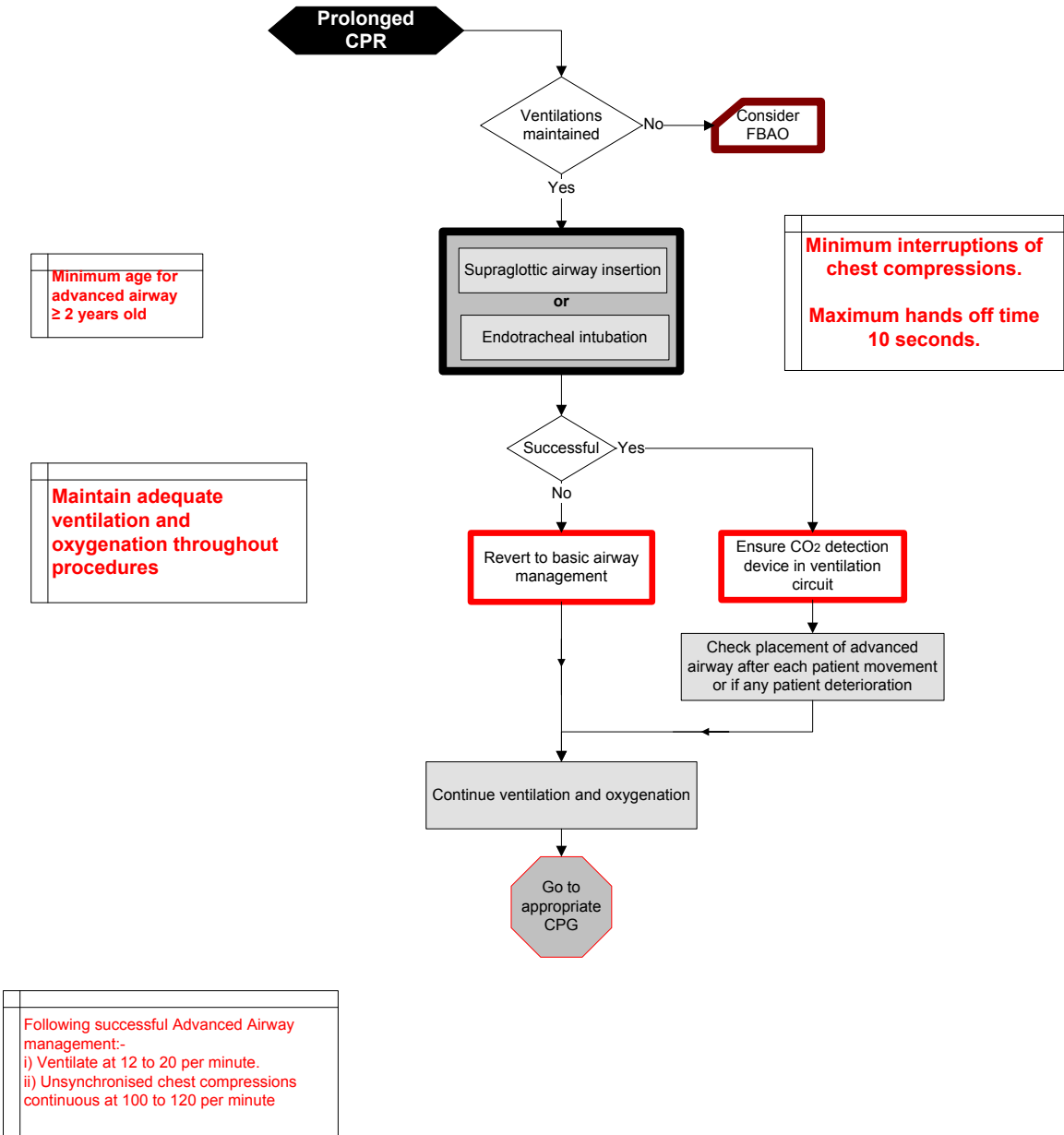
SECTION 7

PAEDIATRIC EMERGENCIES

6.7.10
Version 2, 03/14

Advanced Airway Management – Paediatric (≤ 15 years)

AP

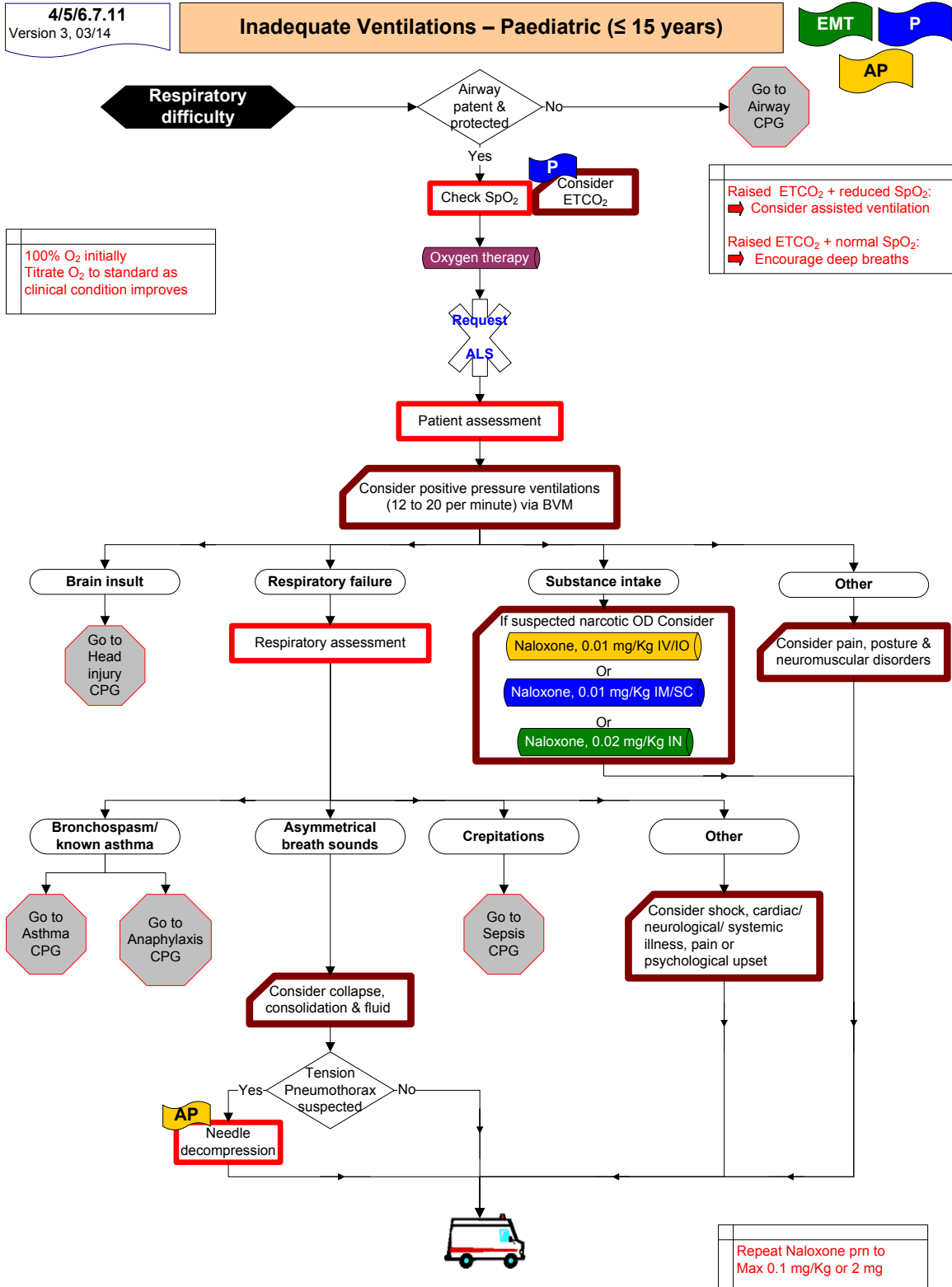


AP
Consider use of waveform capnography

Reference: ILCOR Guidelines 2010, Paediatric basic and advanced life support

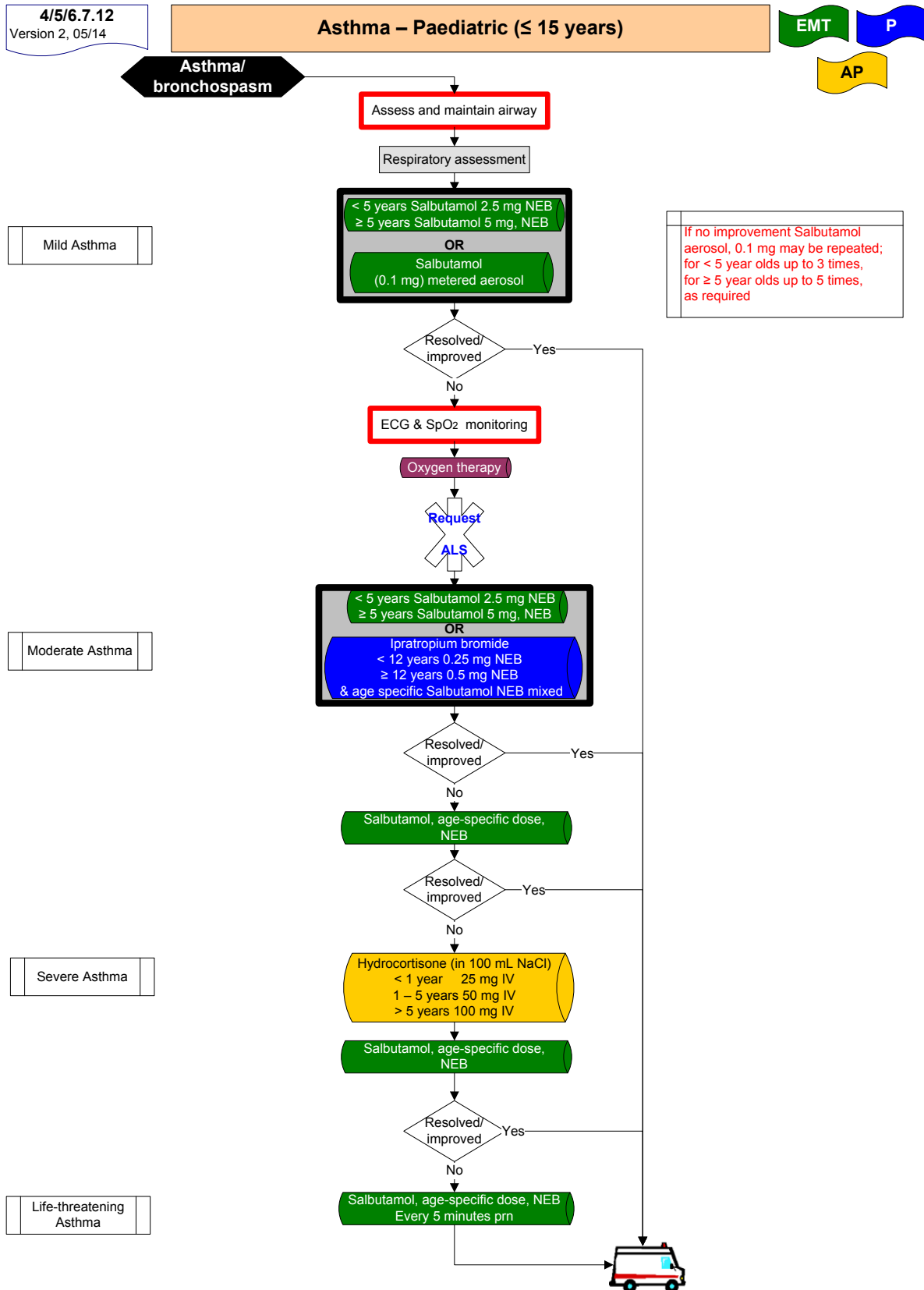
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PAEDIATRIC EMERGENCIES



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PAEDIATRIC EMERGENCIES



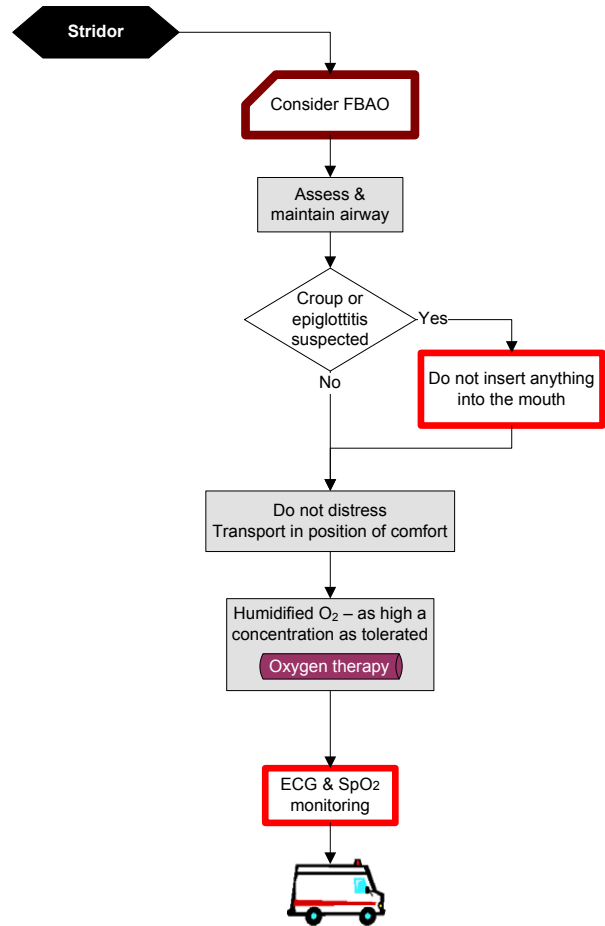
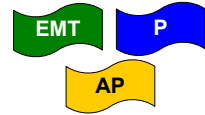
Reference: HSE National Asthma Programme 2012, Emergency Asthma Guidelines, British Thoracic Society, 2008, British Guidelines on the Management of Asthma, a national clinical guideline

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PAEDIATRIC EMERGENCIES

4/5/6.7.13
Version 2, 12/13

Stridor – Paediatric (≤ 15 years)

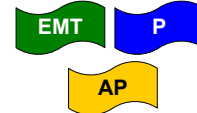


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PAEDIATRIC EMERGENCIES

4/5/6.7.20
Version 2, 12/13

Basic Life Support – Paediatric (≤ 15 Years)



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

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

Give 5 rescue ventilations
Oxygen therapy

Request
ALS

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

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

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

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

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

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

Yes < 8 years No

Apply paediatric system AED pads

Apply adult defibrillation pads

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

Shockable VF or pulseless VT
Assess Rhythm
Non - Shockable Asystole or PEA

Continue CPR while defibrillator is charging

Give 1 shock

Immediately resume CPR x 2 minutes

Rhythm check *

Go to VF / Pulseless VT CPG

Go to Post Resuscitation Care CPG

Asystole / PEA

Go to Asystole / PEA CPG

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

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

Reference: ILCOR Guidelines 2010

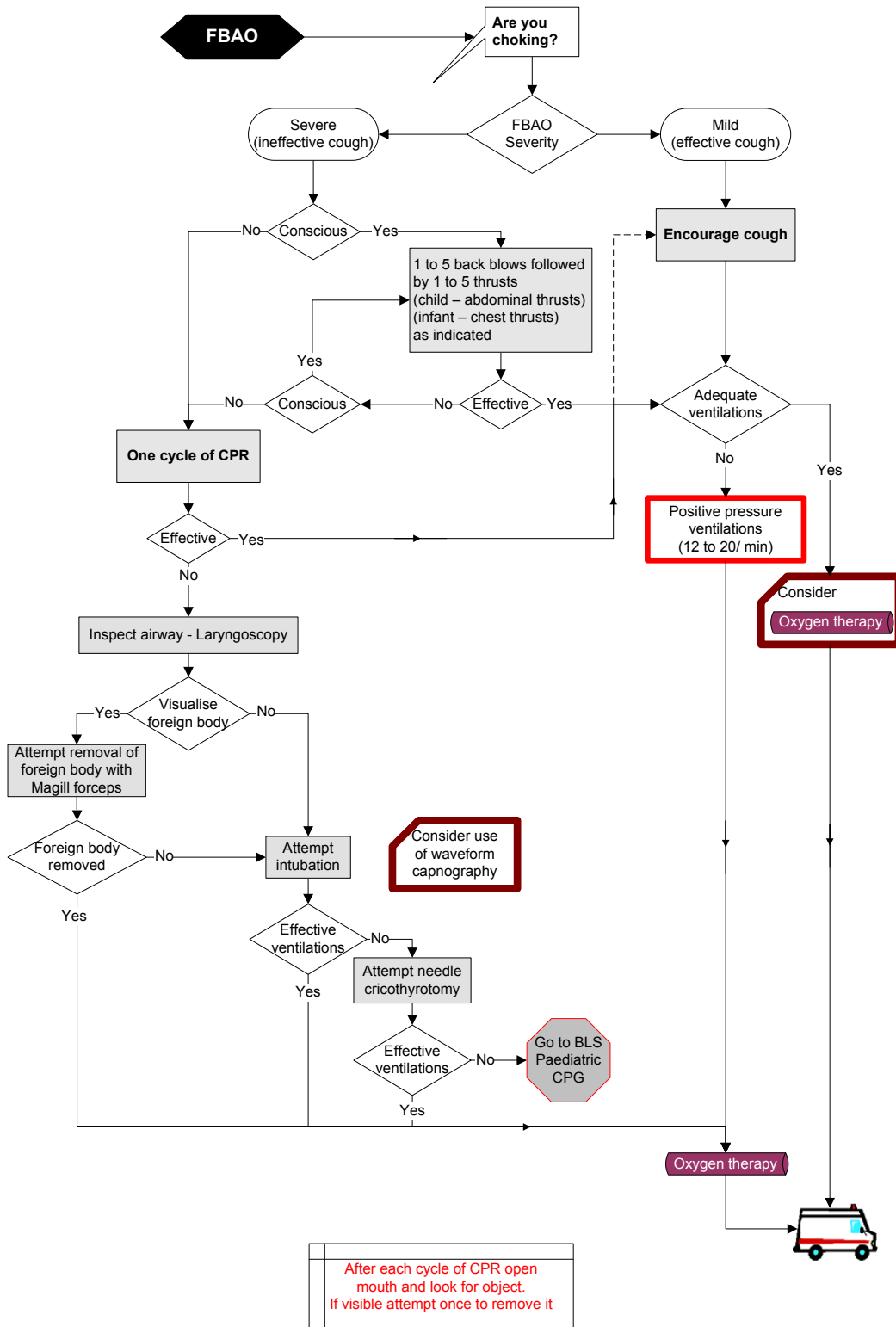
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PAEDIATRIC EMERGENCIES

6.7.21
Version 2, 12/13

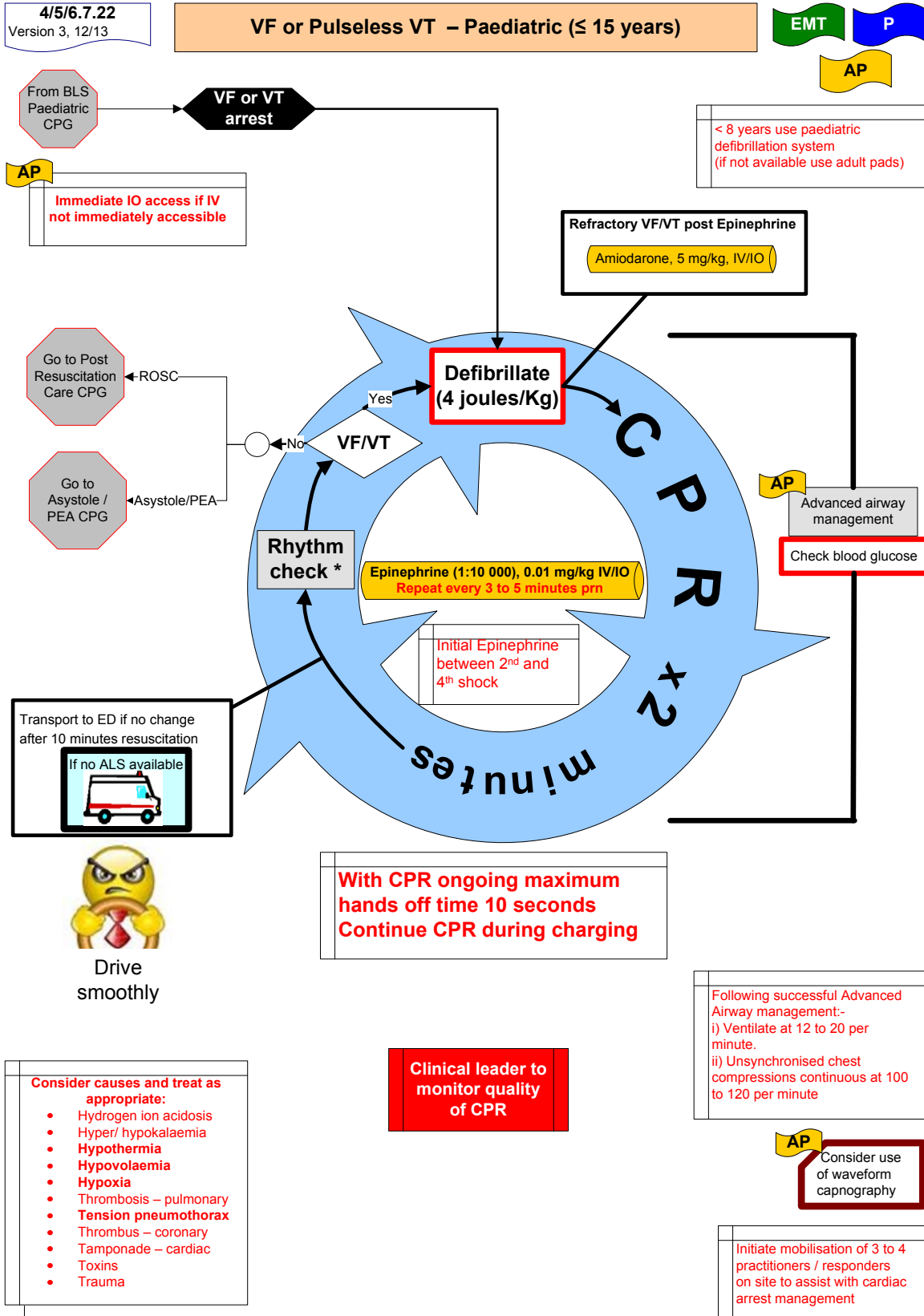
Foreign Body Airway Obstruction – Paediatric (≤ 15 years)

AP



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PAEDIATRIC EMERGENCIES

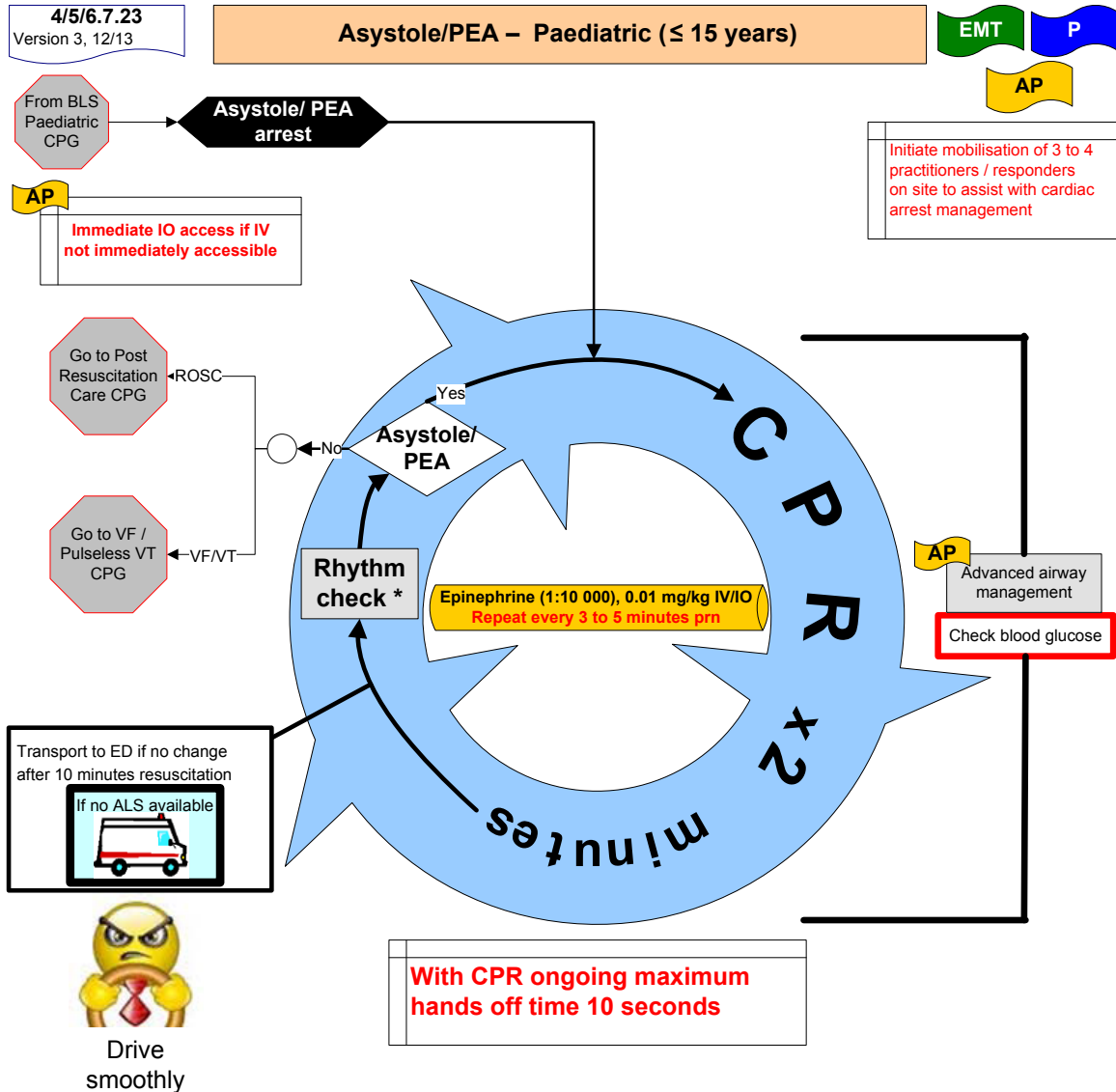


* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Reference: ILCOR Guidelines 2010

SECTION 7

PAEDIATRIC EMERGENCIES



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

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

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

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

Reference: ILCOR Guidelines 2010

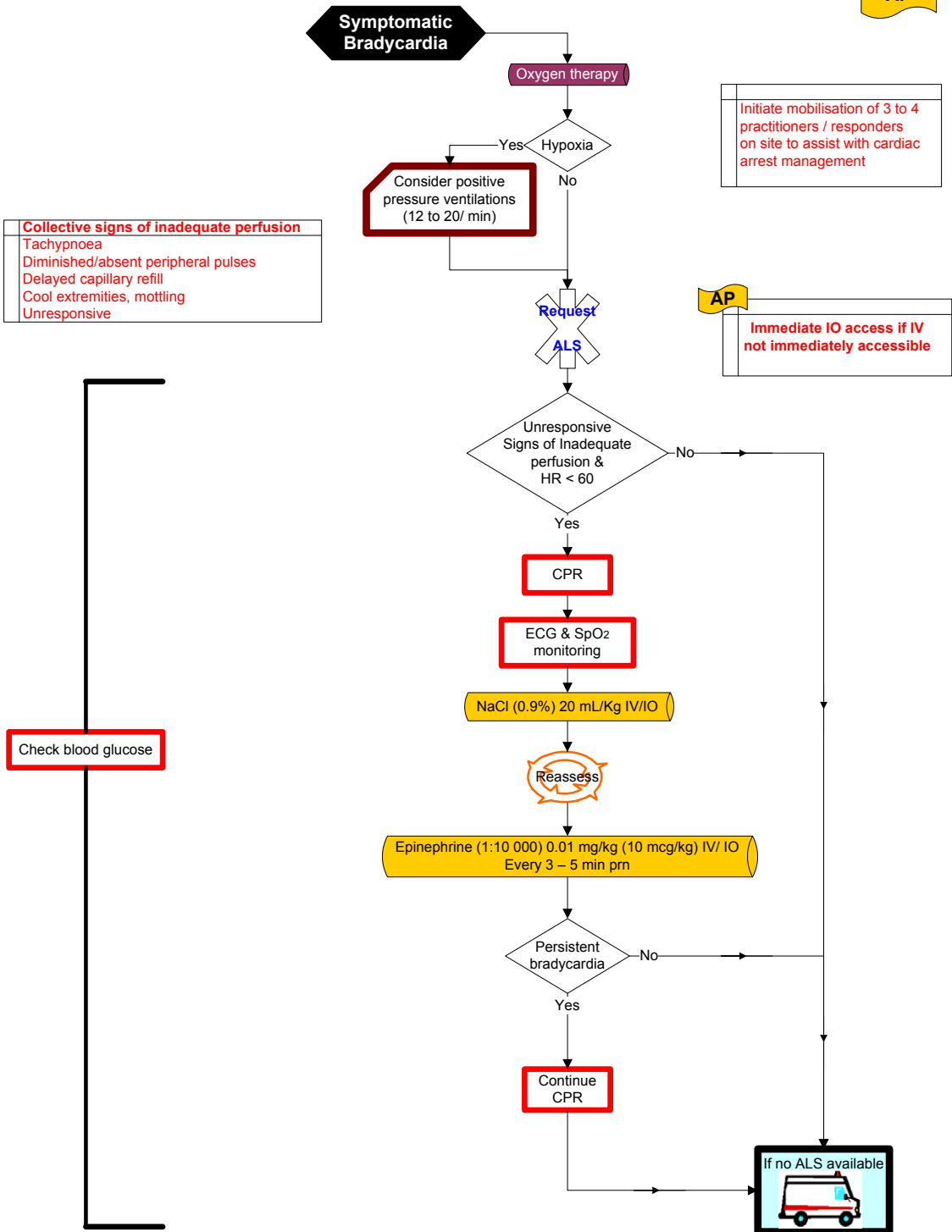
SECTION 7

PAEDIATRIC EMERGENCIES

4/5/6.7.24
Version 3, 10/13

Symptomatic Bradycardia – Paediatric (≤ 15 years)

EMT P
AP



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

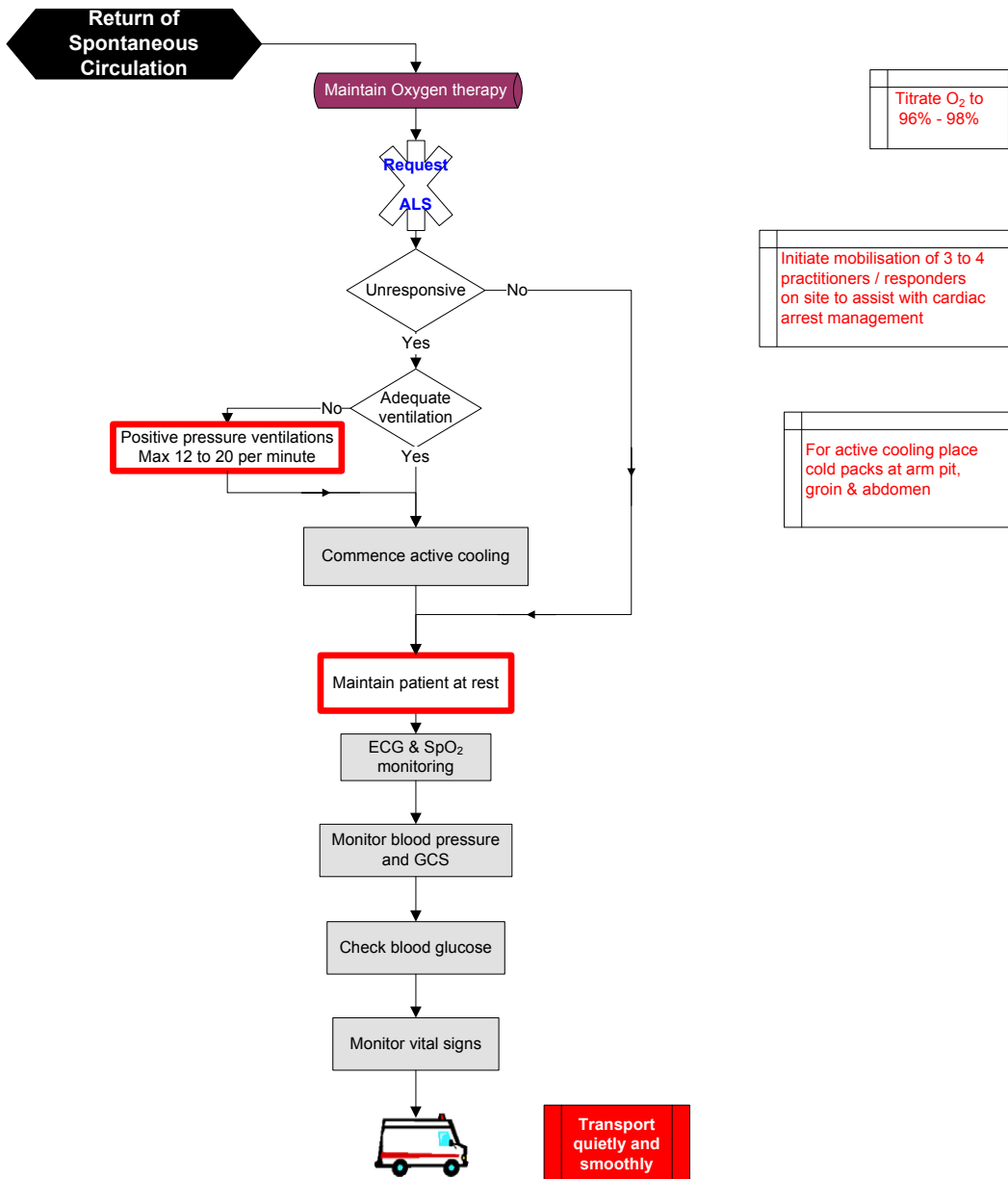
SECTION 7

PAEDIATRIC EMERGENCIES

5/6.7.25
Version 2, 12/13

Post-Resuscitation Care – Paediatric (≤ 15 years)

P AP



Titrate O₂ to 96% - 98%

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

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

Positive pressure ventilations
Max 12 to 20 per minute

Maintain patient at rest

Transport quietly and smoothly

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

If persistent poor perfusion consider
NaCl (0.9%) 20 mL/Kg IV/IO

Equipment list
Cold packs

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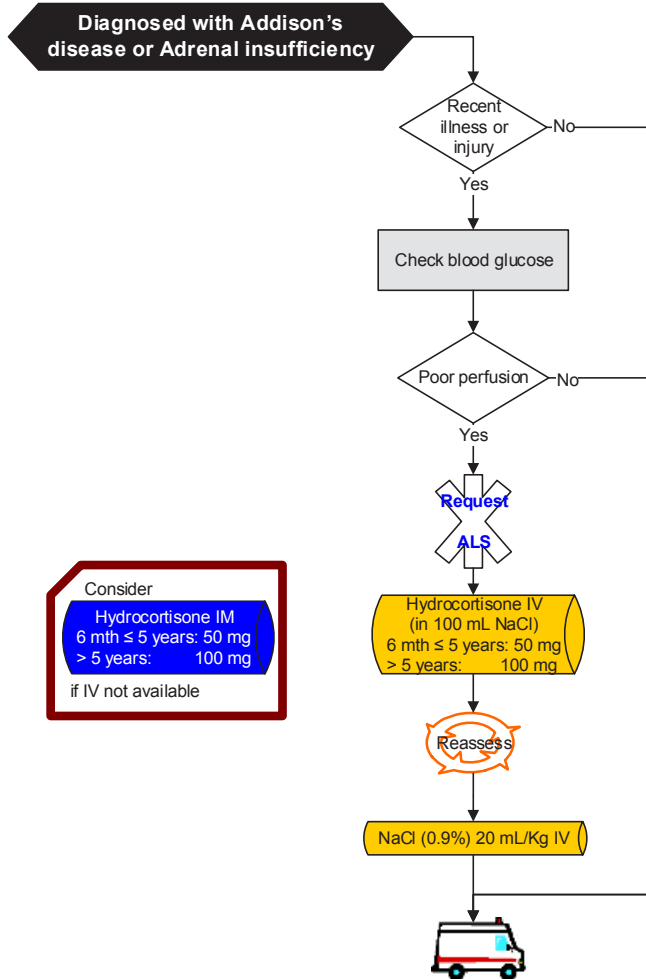
PAEDIATRIC EMERGENCIES

5/6.7.30
Version 1, 12/13

Adrenal Insufficiency – Paediatric (≤ 15 years)

P

AP



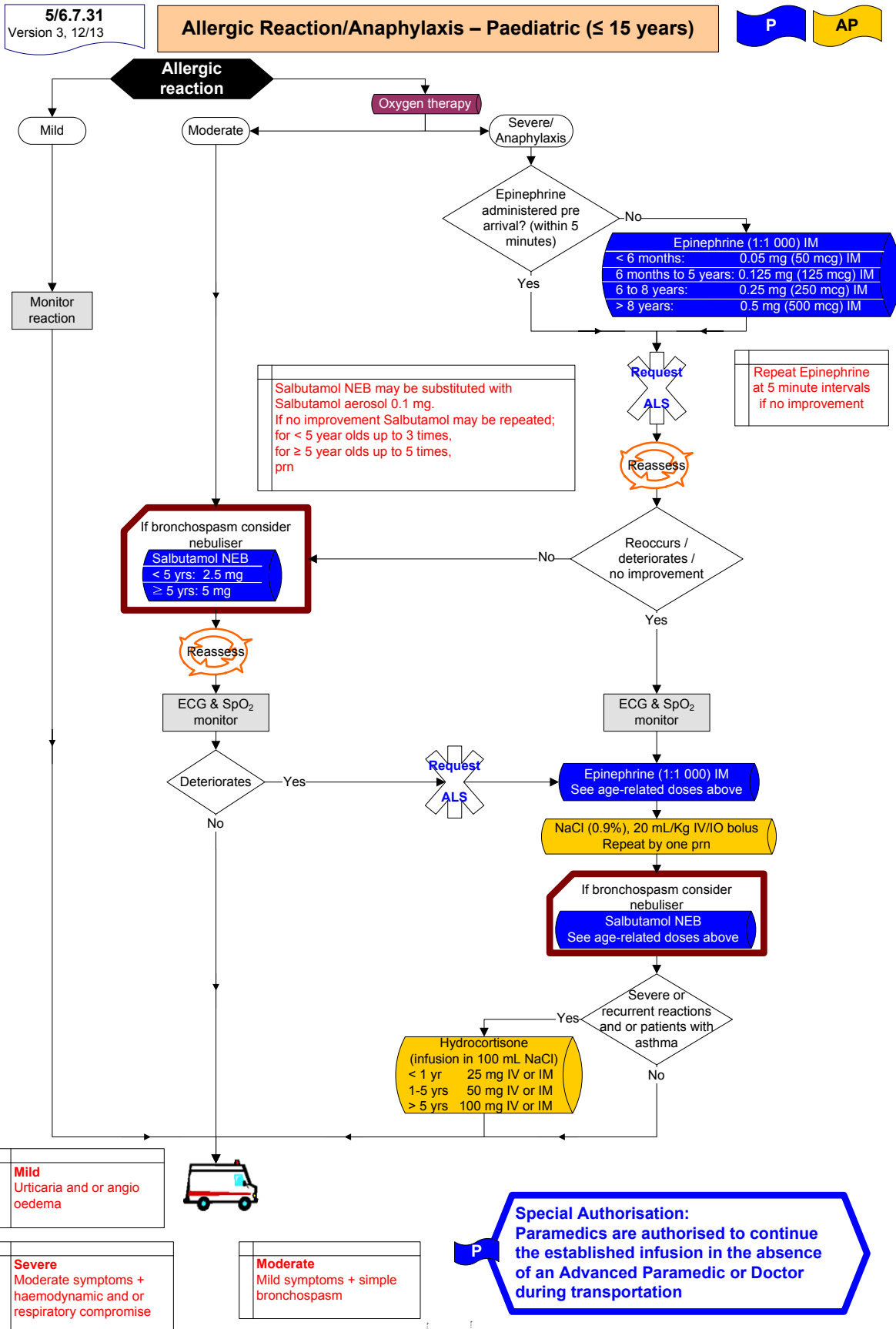
P

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

Reference: Antal, Z. and P. Zhou (2009). "Addison disease." *Pediatr Rev* 30(12): 491-493

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PAEDIATRIC EMERGENCIES



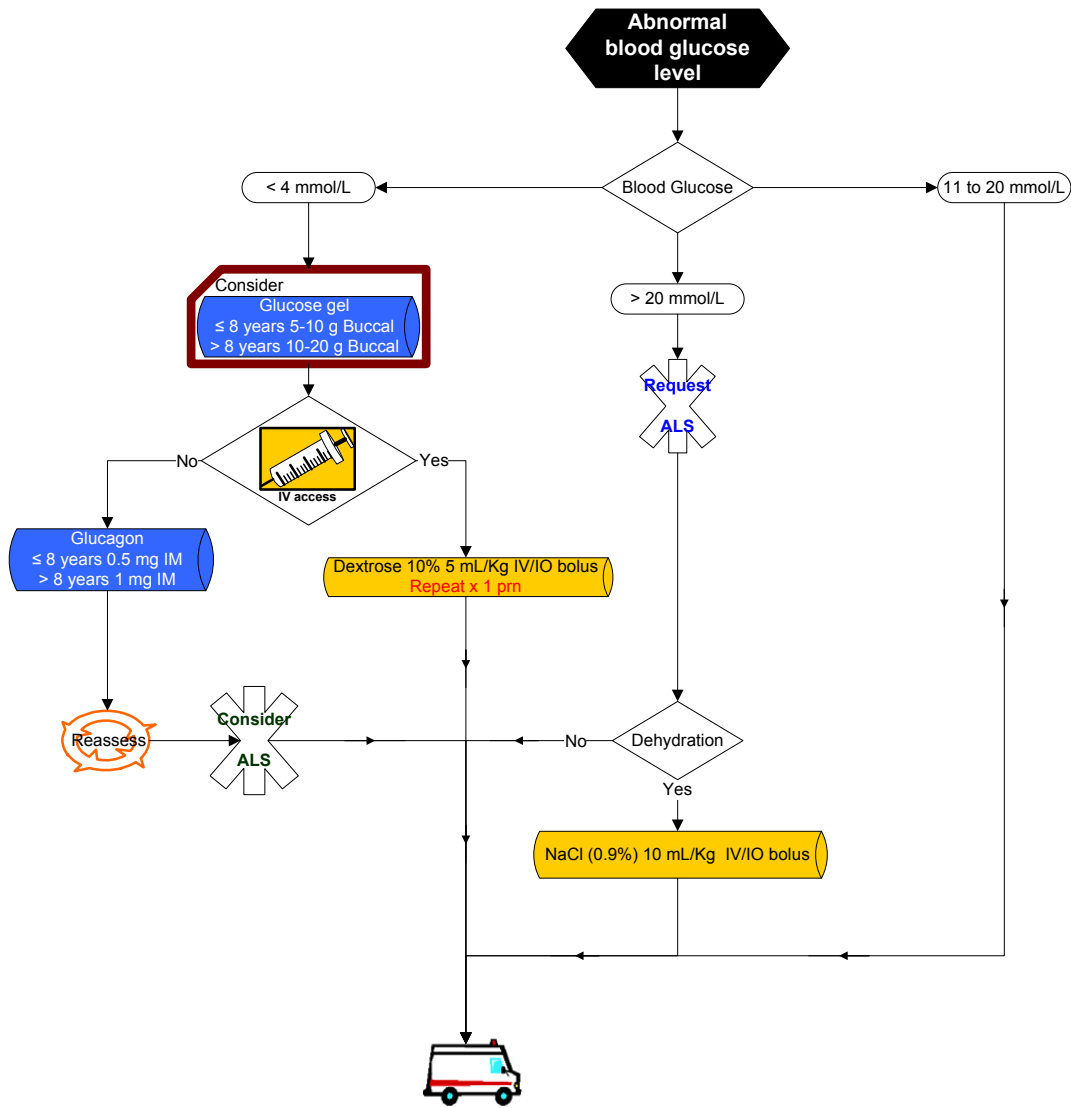
SECTION 7

PAEDIATRIC EMERGENCIES

5/6.7.32
Version 3, 12/13

Glycaemic Emergency – Paediatric (≤ 15 years)

P **AP**



Special Authorisation:
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PAEDIATRIC EMERGENCIES

5/6.7.33
Version 3, 02/14

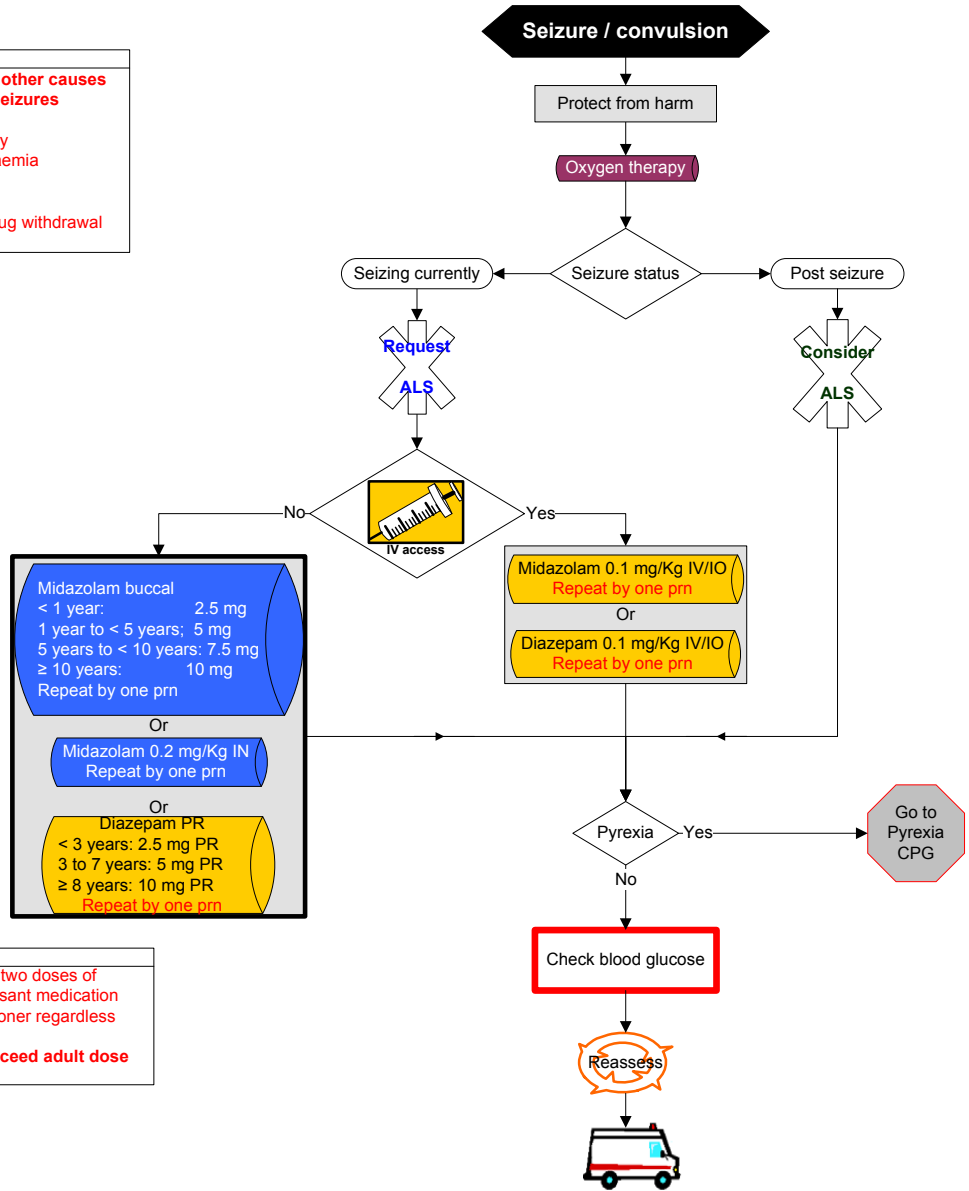
Seizure/Convulsion – Paediatric (≤ 15 years)

P **AP**

Consider other causes of seizures

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

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



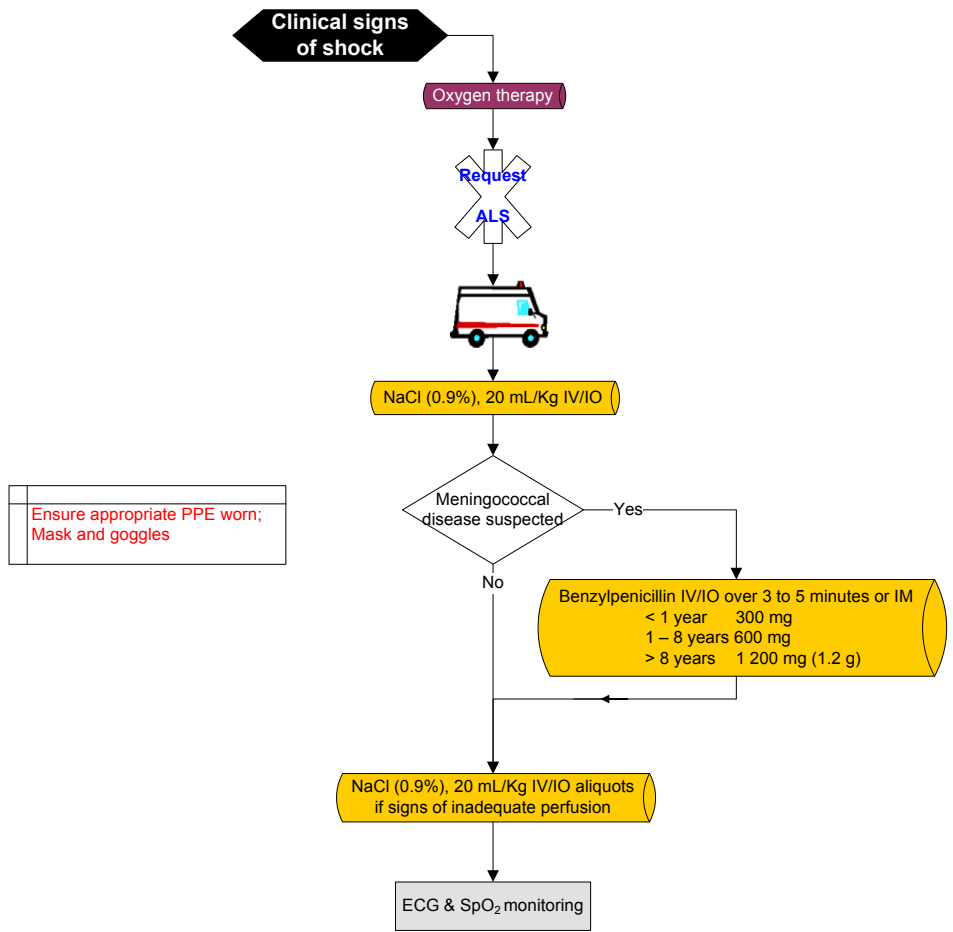
SECTION 7

PAEDIATRIC EMERGENCIES

5/6.7.34
Version 3, 12/13

Septic Shock – Paediatric (≤ 15 years)

P **AP**



Ensure appropriate PPE worn; Mask and goggles

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

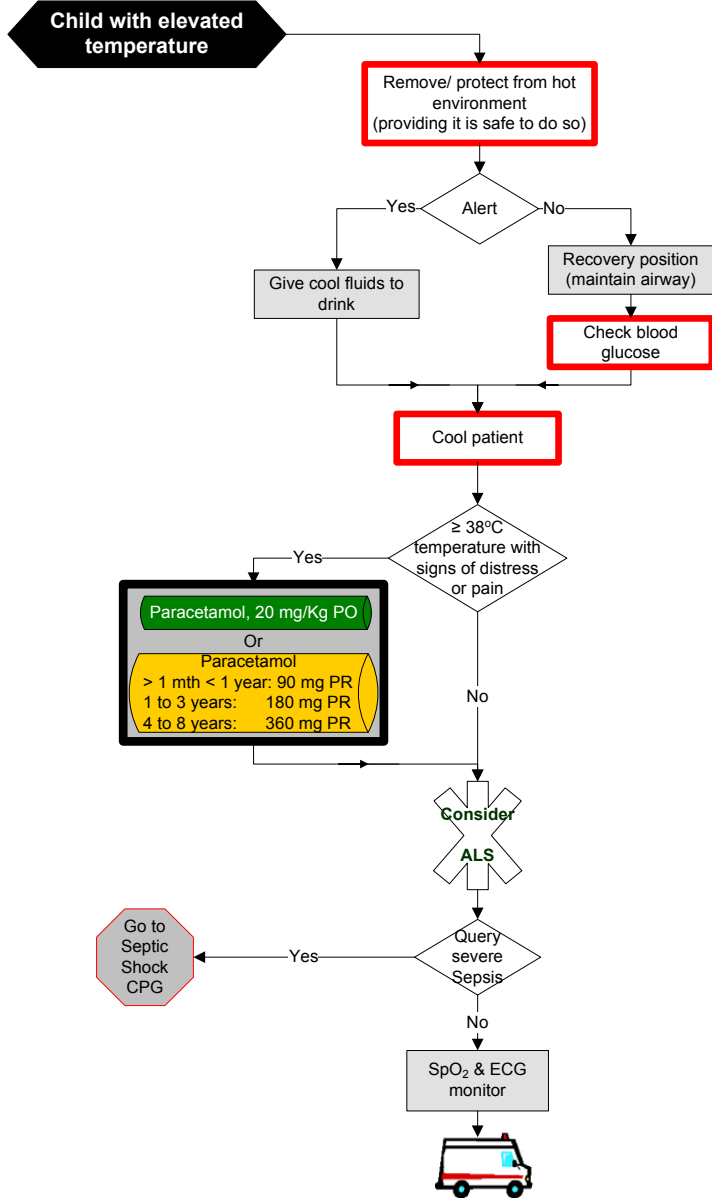
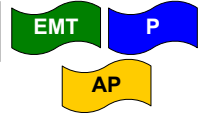
Special Authorisation:
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SECTION 7

PAEDIATRIC EMERGENCIES

4/5/6.7.35
Version 1, 12/13

Pyrexia – Paediatric (≤ 15 years)



Reference: ILCOR Guidelines 2010
RFDS, 2011, Primary Clinical Care Manual

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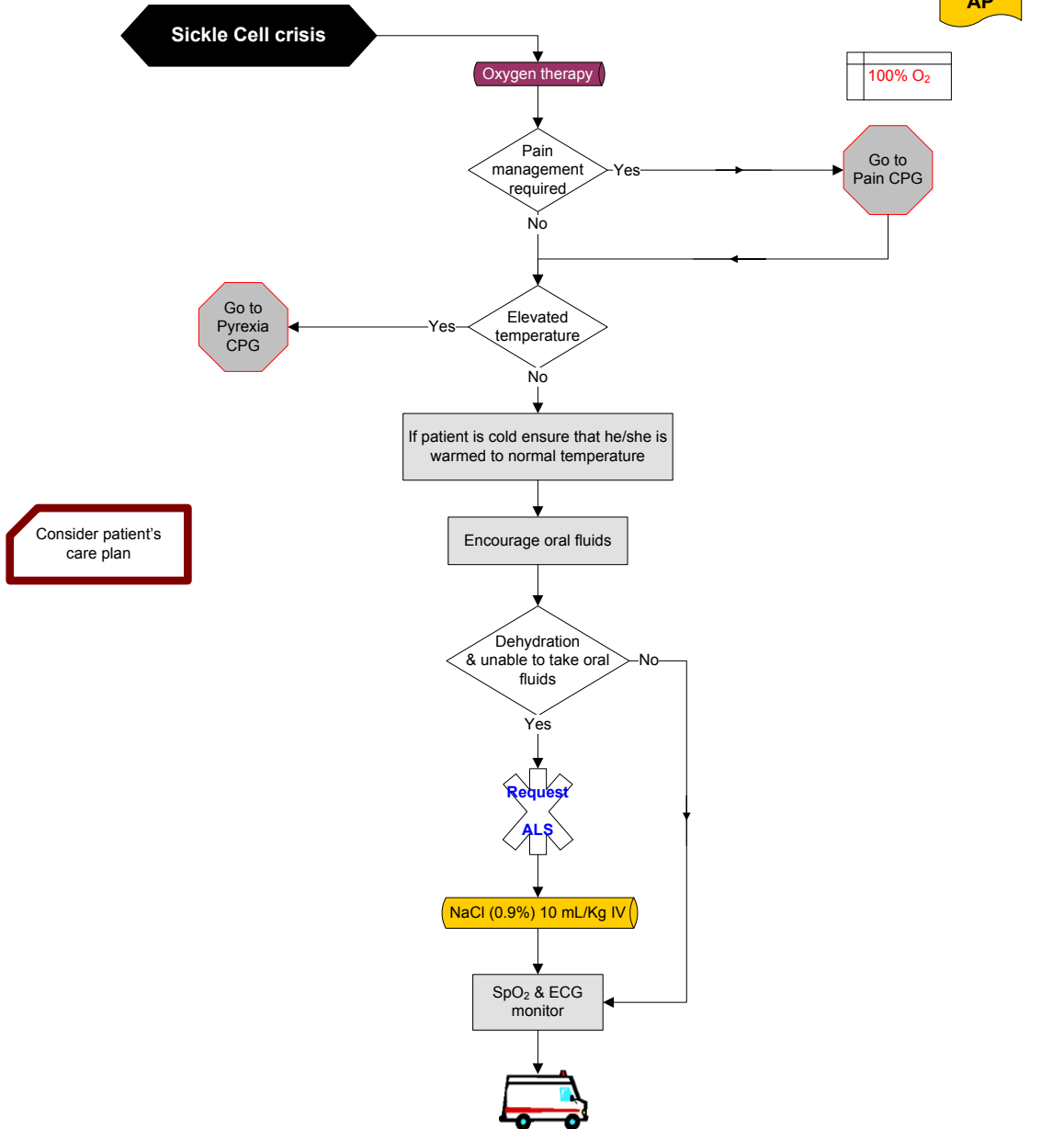
PAEDIATRIC EMERGENCIES

4/5/6.7.36
Version 1, 12/13

Sickle Cell Crisis – Paediatric (≤ 15 years)

EMT P

AP

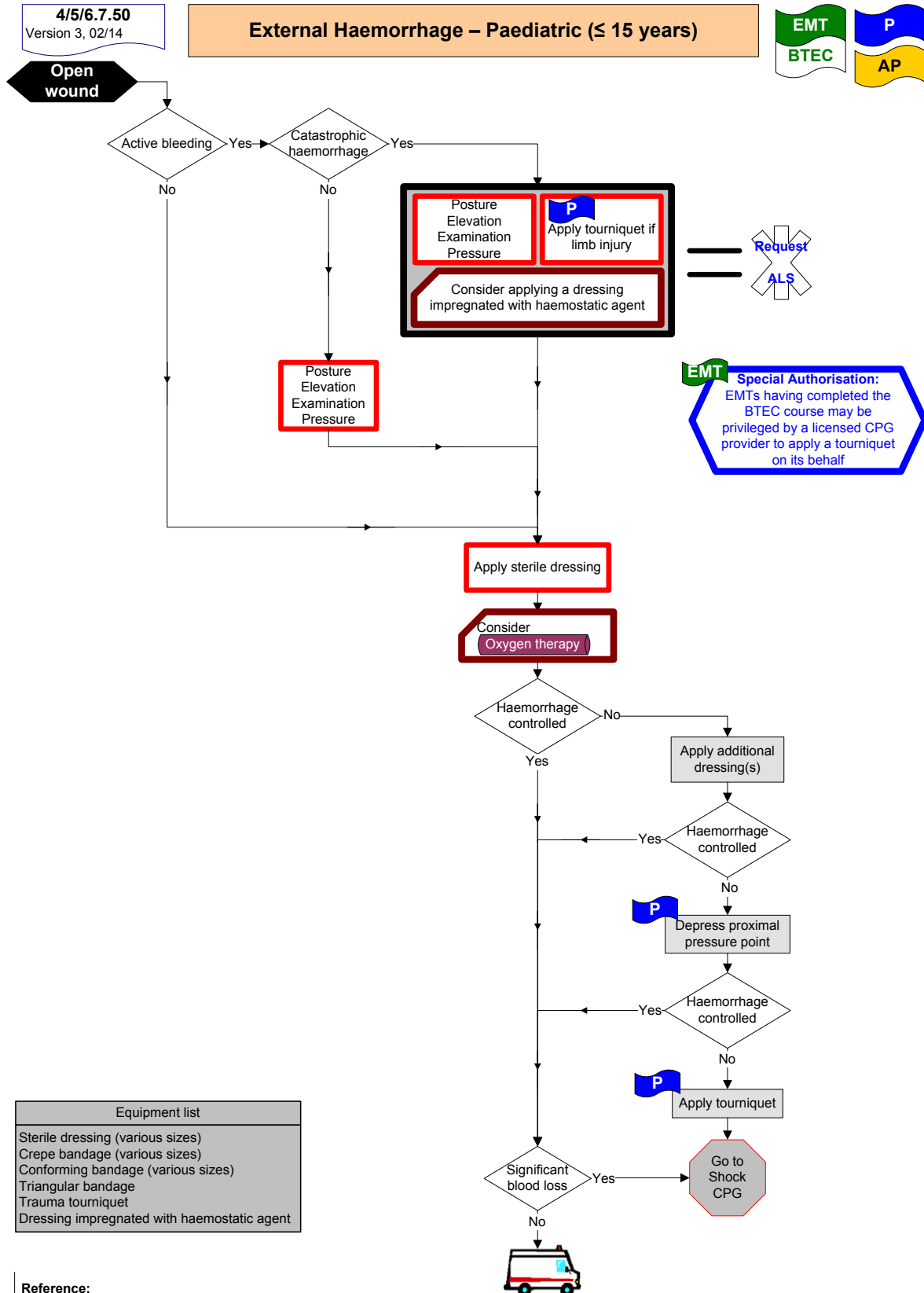


Special Authorisation:
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

Reference: Rees, D, 2003, GUIDELINES FOR THE MANAGEMENT OF THE ACUTE PAINFUL CRISIS IN SICKLE CELL DISEASE; British Journal of Haematology, 2003, 120, 744–752

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PAEDIATRIC EMERGENCIES



Reference:
ILCOR Guidelines 2010,
Granville-Chapman J, et al. Pre-hospital haemostatic dressings: A systematic review. Injury (2010), doi: 10.1016/j.injury.2010.09.037

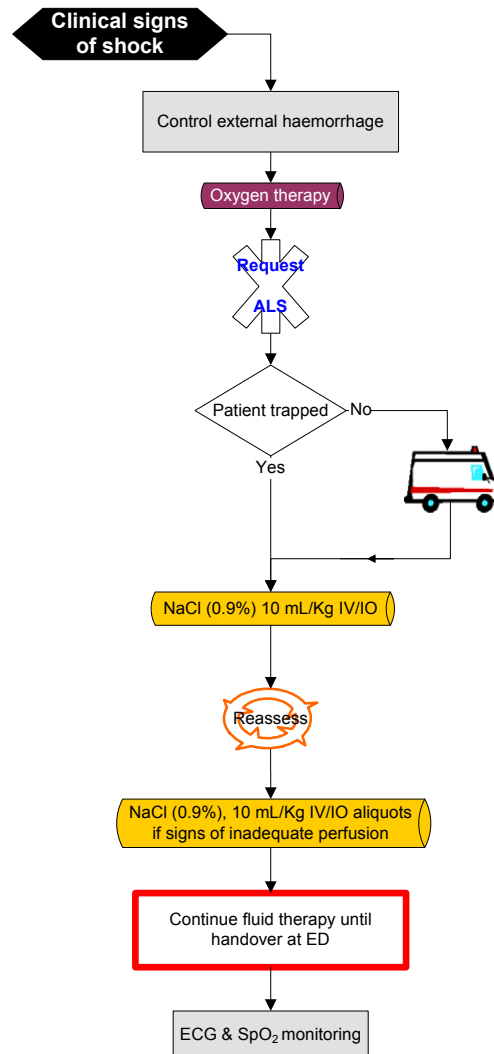
SECTION 7

PAEDIATRIC EMERGENCIES

5/6.7.51
Version 3, 12/13

Shock from Blood Loss – Paediatric (≤ 15 years)

P AP



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

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

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

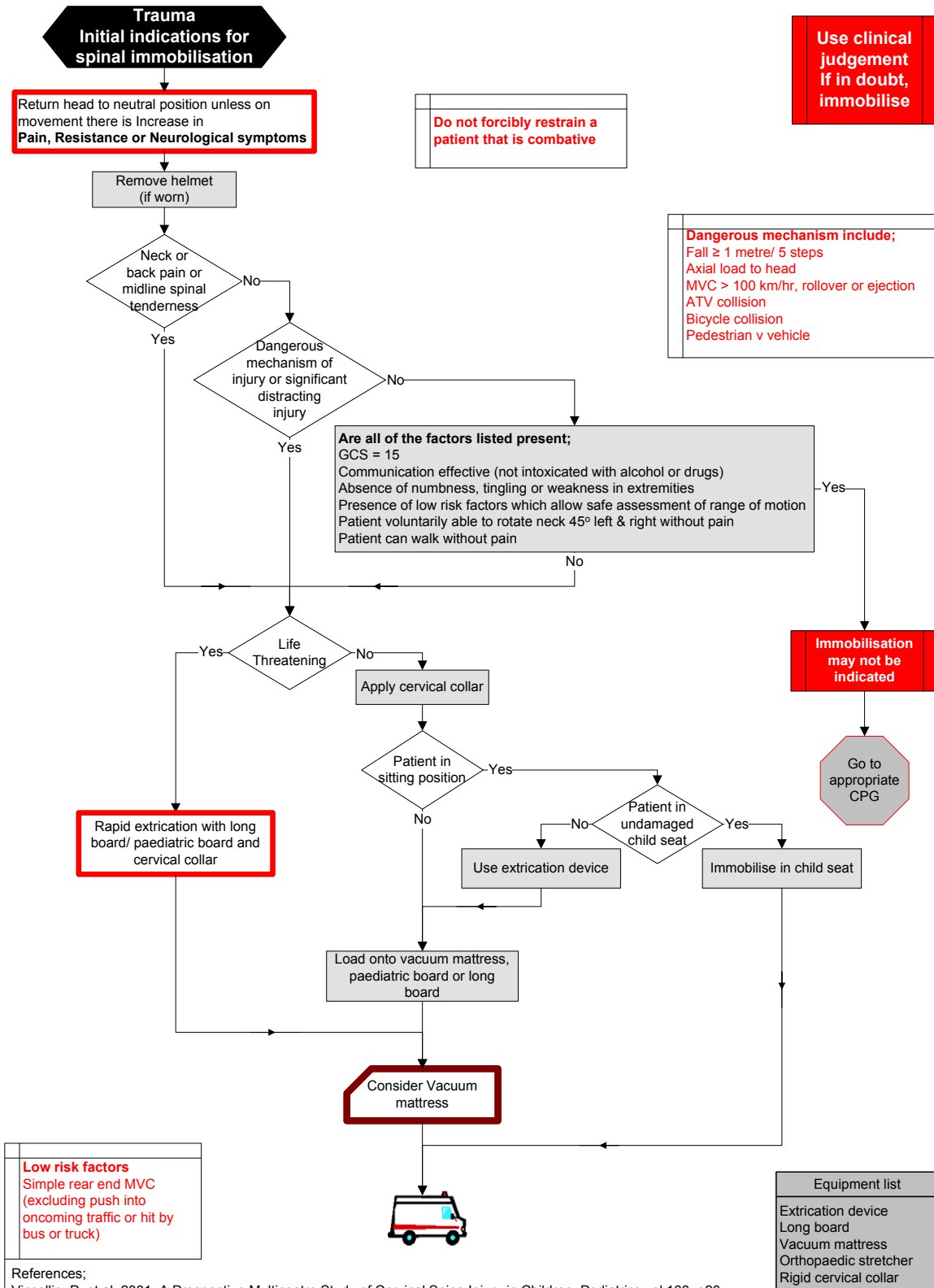
SECTION 7

PAEDIATRIC EMERGENCIES

5/6.7.52
Version 3, 12/13

Spinal Immobilisation – Paediatric (≤ 15 years)

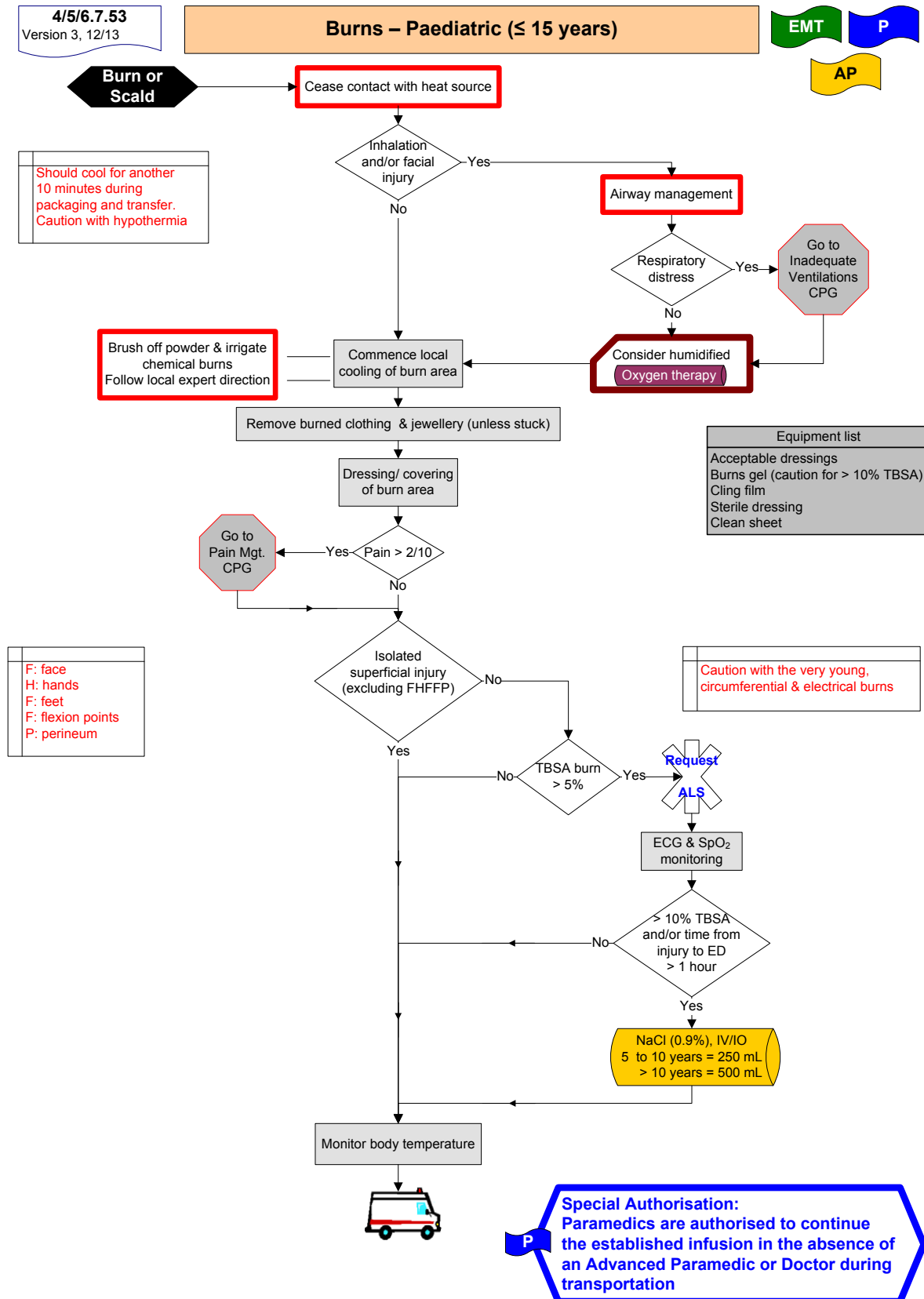
P AP



References:
Viccellio, P, et al, 2001, A Prospective Multicentre Study of Cervical Spine Injury in Children, Pediatrics vol 108, e20
Slack, S. & Clancy, M, 2004, Clearing the cervical spine of paediatric trauma patients, EMJ 21; 189-193

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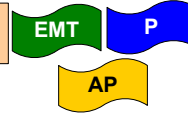
Reference: Allison, K et al, 2004, Consensus on the prehospital approach to burns patient management, Emerg Med J 2004; 21:112-114
Sanders, M, 2001, Paramedic Textbook 2nd Edition, Mosby

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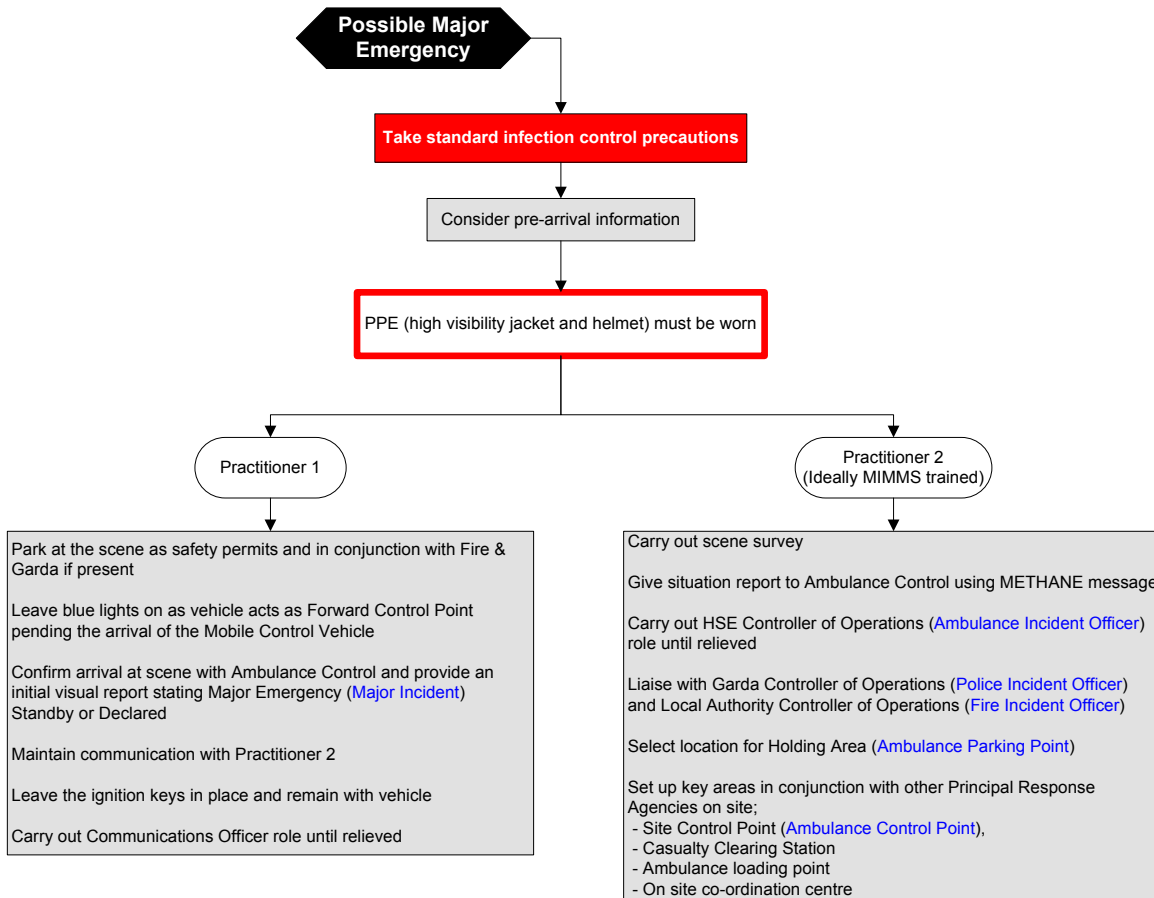
PRE-HOSPITAL EMERGENCY CARE OPERATIONS

4/5/6.8.1
Version 2, 01/13

Major Emergency (Major Incident) – First Practitioners on site



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



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

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

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

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

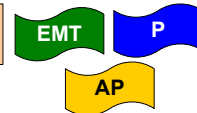
Reference: A Framework for Major Emergency Management, 2006, Inter-Departmental Committee on Major Emergencies (Replaced by National Steering Group on Major Emergency Management)

SECTION 8

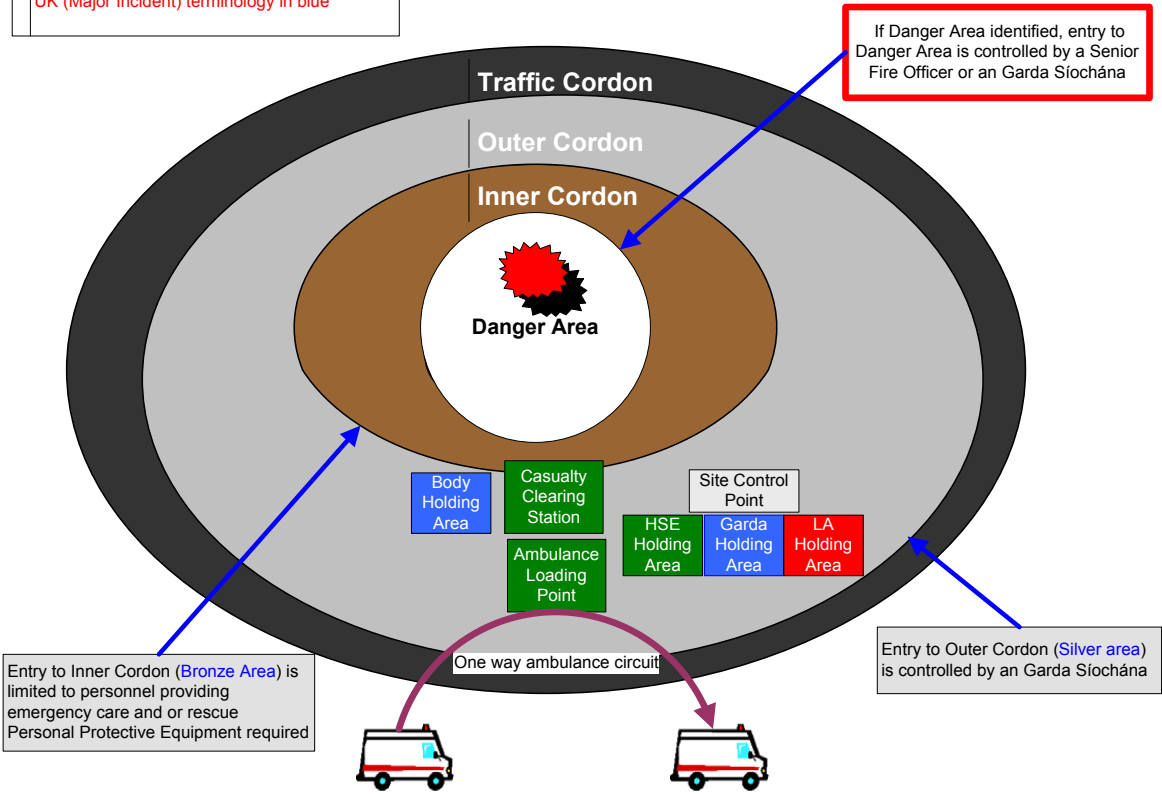
PRE-HOSPITAL EMERGENCY CARE OPERATIONS

4/5/6.8.2
Version 2, 01/13

Major Emergency (Major Incident) – Operational Control



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



Management structure for;
Outer Cordon, Tactical Area (Silver Area)
On-Site Co-ordinator
HSE Controller of Operations (Ambulance Incident Officer)
Site Medical Officer (Medical Incident Officer)
Local Authority Controller of Operations (Fire Incident Officer)
Garda Controller of Operations (Police Incident Officer)

Management structure for;
Inner Cordon, Operational Area (Bronze Area)
Forward Ambulance Incident Officer (Forward Ambulance Incident Officer)
Forward Medical Incident Officer (Forward Medical Incident Officer)
Fire Service Incident Commander (Forward Fire Incident Officer)
Garda Cordon Control Officer (Forward Police Incident Officer)

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

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)

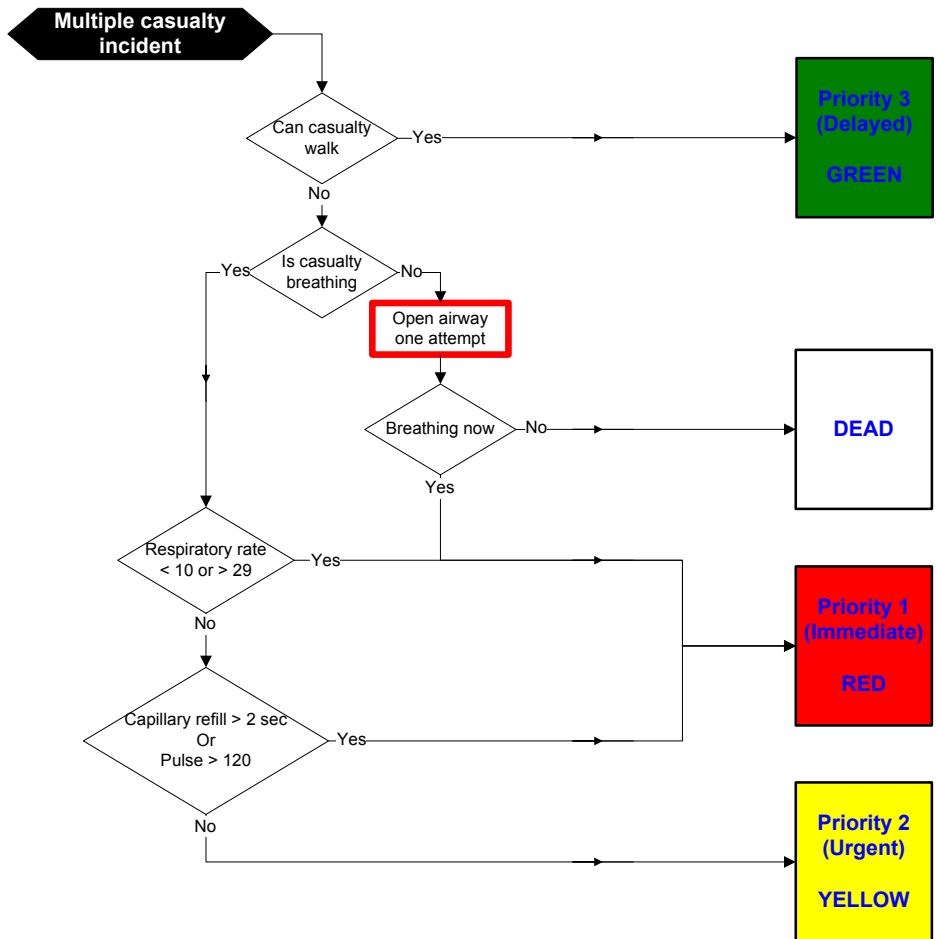
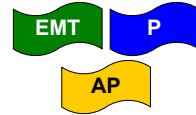
The principles and terminology of Major Incident Medical Management and Support (MIMMS) has been used with the kind permission of the Advanced Life Support Group, UK

SECTION 8

PRE-HOSPITAL EMERGENCY CARE OPERATIONS

4/5/6.8.3
Version 1, 05/08

Triage Sieve



Triage is a dynamic process

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

SECTION 8

PRE-HOSPITAL EMERGENCY CARE OPERATIONS

5/6.8.4
Version 1, 05/08

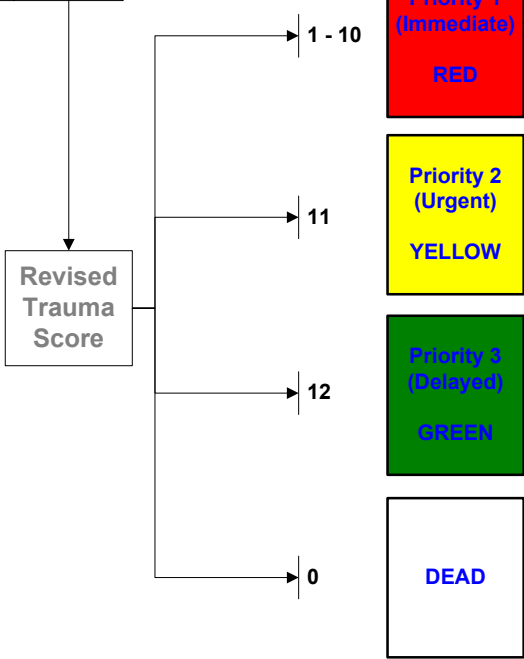
Triage Sort

P **AP**

Multiple casualty incident

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

Triage is a dynamic process



| | | |
|---------------------------|-------------------------|---|
| Eye Opening | Spontaneous | 4 |
| | To Voice | 3 |
| | To Pain | 2 |
| | None | 1 |
| Verbal Response | Oriented | 5 |
| | Confused | 4 |
| | Inappropriate words | 3 |
| | Incomprehensible sounds | 2 |
| | None | 1 |
| Motor Response | Obeys commands | 6 |
| | Localises pain | 5 |
| | Withdraw (pain) | 4 |
| | Flexion (pain) | 3 |
| | Extension (pain) | 2 |
| | None | 1 |
| Glasgow Coma Scale | | |

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

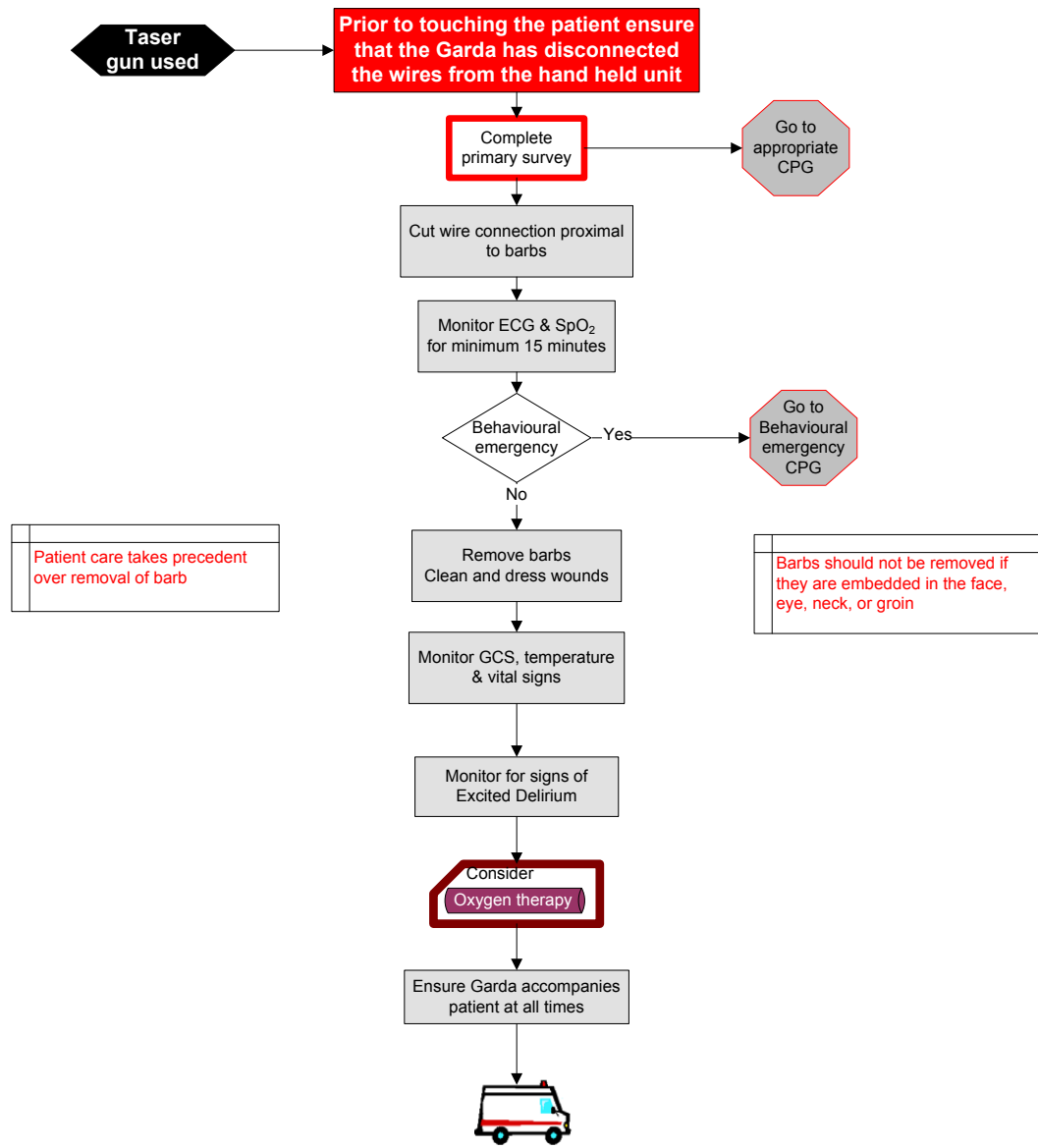
SECTION 8

PRE-HOSPITAL EMERGENCY CARE OPERATIONS

5/6.8.5
Version 1, 05/08

Conducted Electrical Weapon (Taser)

P **AP**

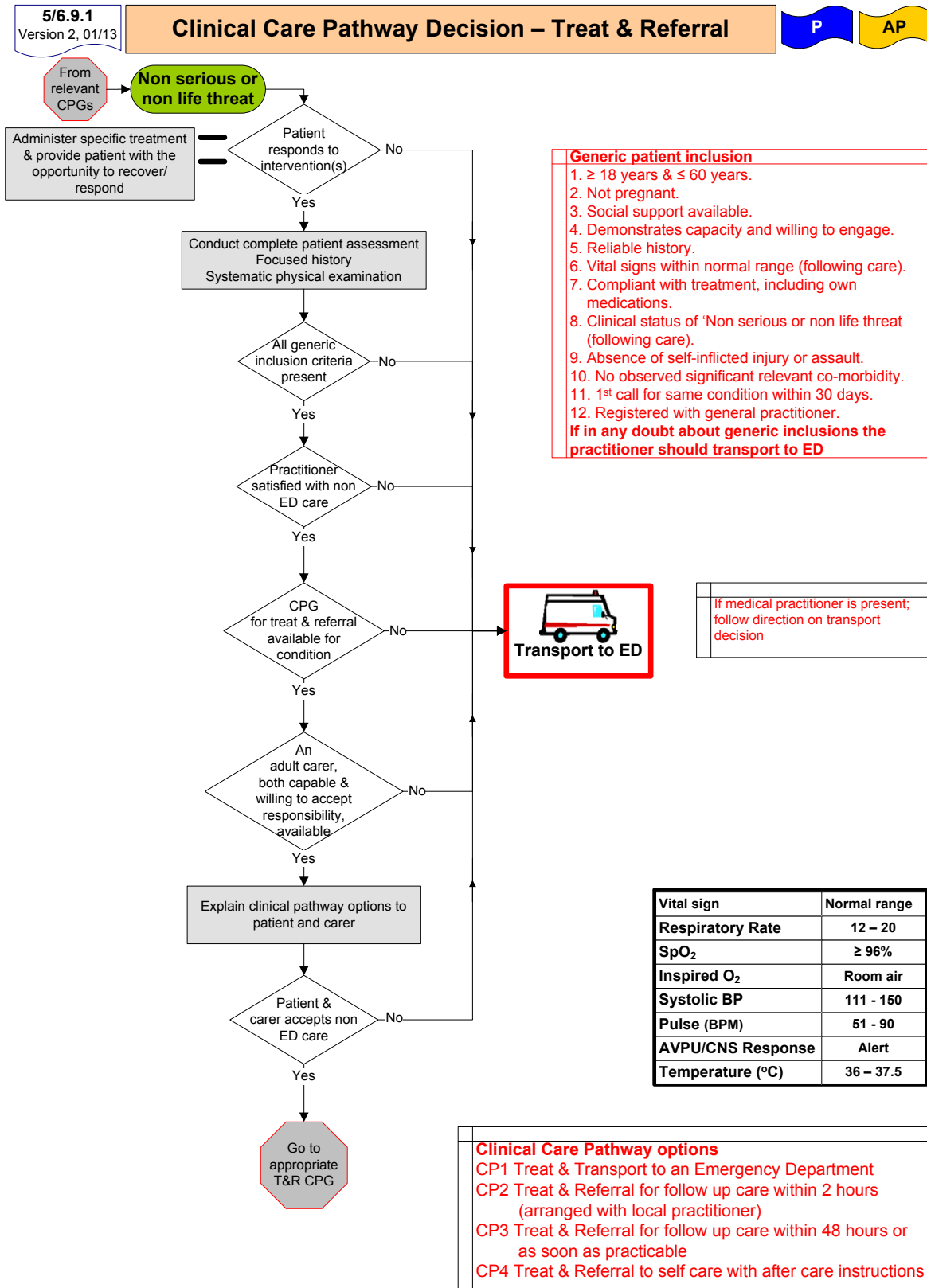


Note:
This CPG was developed in conjunction with the Chief Medical Officer, An Garda Síochána

Reference:
DSAC Sub-committee on the Medical Implications of Less-lethal Weapons 2004, Second statement on the medical implications of the use of the M26 Advanced Taser.
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

SECTION 9

TREAT & REFERRAL



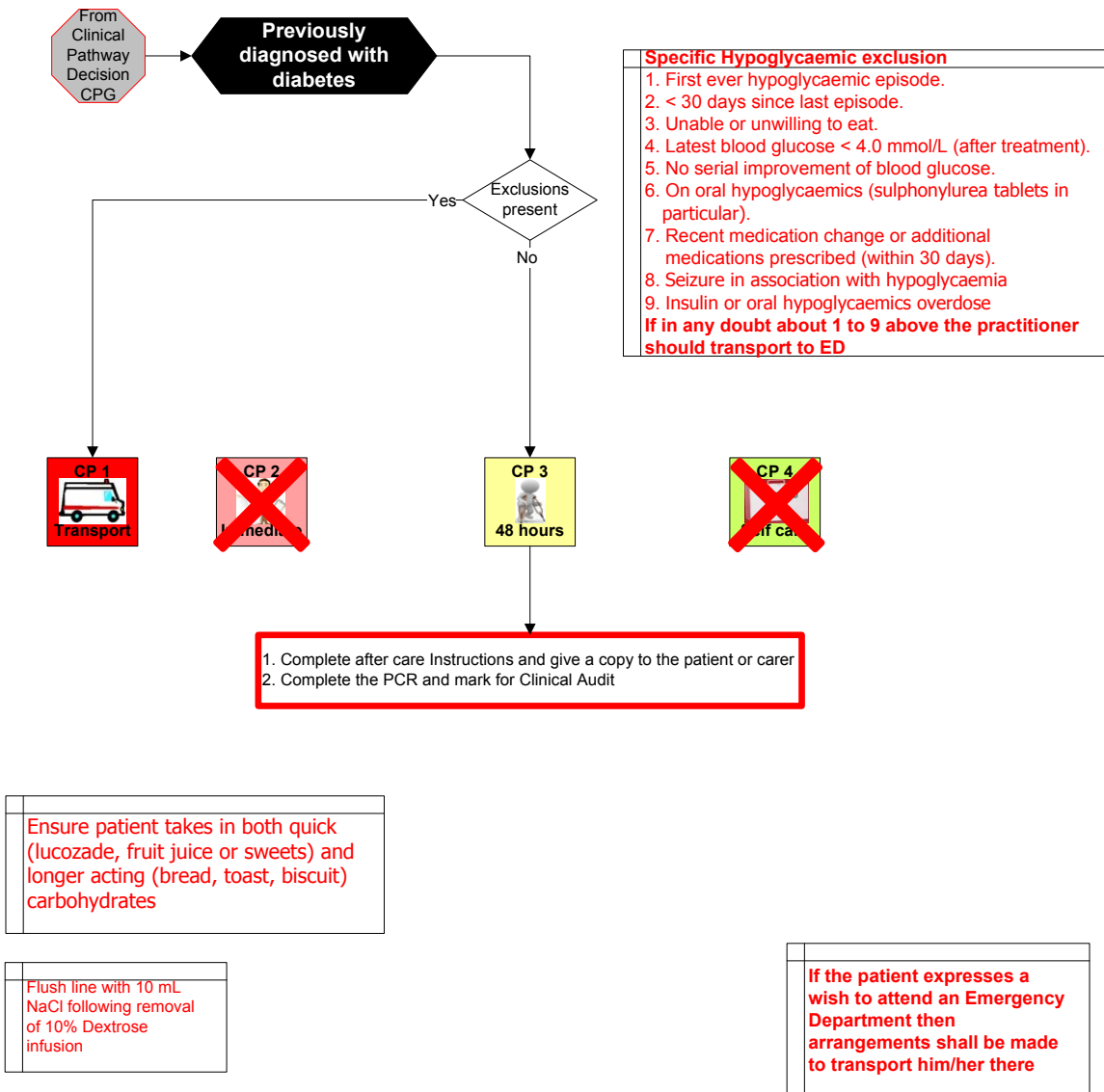
Reference: Ambulance Service of NSW, 2008, CARE Clinical Pathways
HSE Acute Medicine Programme, 2011, Guiding Framework and Policy for the National Early Warning Score System to Recognise and Respond to Clinical Deterioration

SECTION 9

TREAT & REFERRAL

5/6.9.2
Version 2, 01/13

Hypoglycaemia – Treat & Referral



Reference: HSE Diabetes Programme, 2012.
Ambulance Service of NSW, 2008, CARE Clinical Pathways
O'Donnell C, 2007, Hypoglycaemia Treat and Discharge Protocol (unpublished)
Carter A, et al 2002, Transport Refusal by Hypoglycaemic Patients after On-scene Intravenous Dextrose, academic Emergency medicine, Vol. 9, No. 8:p855-857

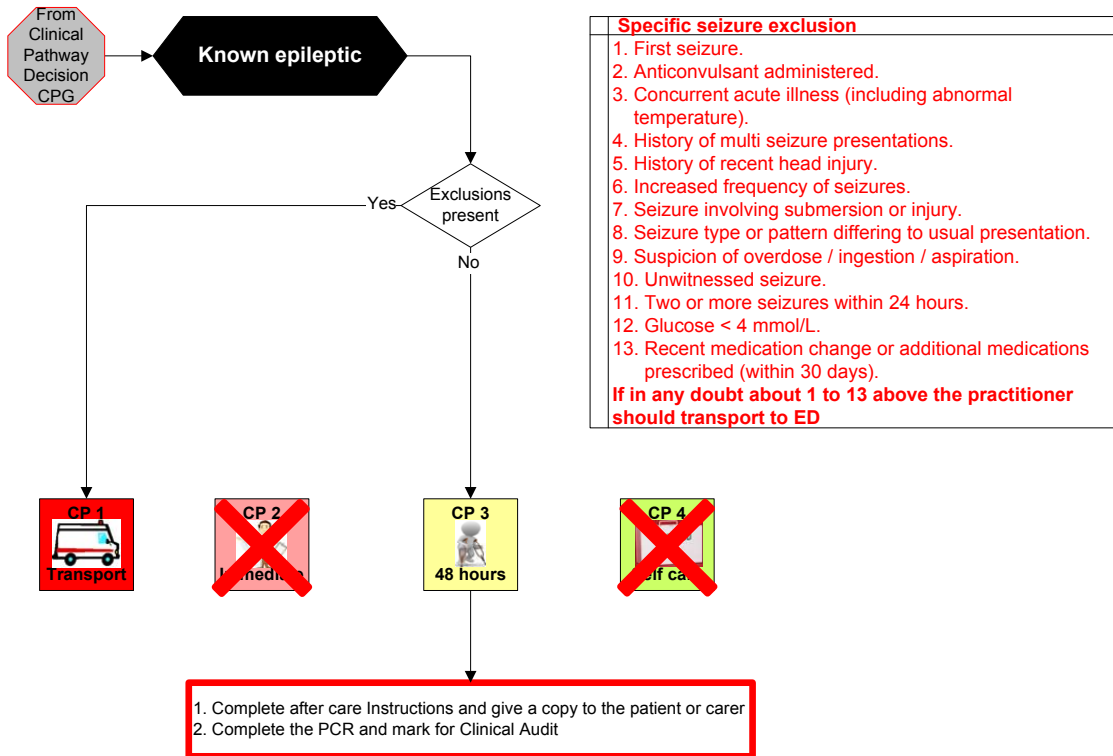
SECTION 9

TREAT & REFERRAL

5/6.9.3
Version 2, 01/13

Isolated seizure – Treat & Referral

P **AP**



| 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. |
| 9. Suspicion of overdose / ingestion / aspiration. |
| 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 |

| |
|--|
| <p>Isolated seizure: Lasting < 5 minutes Similar to previous events</p> |
|--|

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

Reference: HSE Epilepsy Programme 2012
Ambulance Service of NSW, 2008, CARE Clinical Pathways
NICHOLL, J. S. 1999. Prehospital management of the seizure patient. *Emerg Med Serv*, 28, 71-5.
Simonson, H and Pelberg, A. 1993, Unnecessary Emergency Transport and Care of Grand Mal Seizures, *American Journal of Medical Quality*, Vol 8, No 2, p53-55.
Mechem, 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 \leq 15 years shall be calculated on a weight basis unless an age related dose is specified for that medication.

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

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

Paediatric weight estimations acceptable to PHECC are:

| | |
|----------------------|------------------|
| 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 |

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.

APPENDIX 1

MEDICATION FORMULARY

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 | | |
|------------------------|---|--------|
| HEADING | ADD | DELETE |
| Indications | Symptomatic Tachycardia (> 150) | |
| Usual Dosages | Symptomatic Tachycardia: 150 mg IV (infusion in 100 mL D ₅ W) | |
| Additional information | (for infusion use 100 mL D ₅ W) For cardiac arrest do not dilute, administer directly followed by a flush | |



APPENDIX 1

MEDICATION FORMULARY

| Atropine | | |
|------------------------|--|---|
| HEADING | ADD | DELETE |
| Indications | Cholinergic poison with bradycardia and salivation | Paediatric (CPG not published) Organophosphate poison. |
| Contraindications | Post-cardiac transplantation. | |
| Usual Dosages | Symptomatic Bradycardia: 0.6 mg (600 mcg) IV | Symptomatic Bradycardia – 0.5 mg (500 mcg) IV |
| Additional information | | Organophosphate poison |

| Benzylpenicillin | | |
|------------------|---|--------|
| HEADING | ADD | DELETE |
| Indications | Severe sepsis - Adult Suspected or confirmed meningococcal sepsis - Paediatric | |

| Clopidogrel | | |
|------------------------|--|---|
| HEADING | ADD | DELETE |
| Indications | ST Elevation Myocardial Infarction (STEMI) if the patient is not suitable for PPCI | Identification of ST Elevation Myocardial Infarction (STEMI) |
| Usual Dosages | 300 mg PO ≥ 75 years | 600 mg PO > 75 years |
| Additional information | | Paramedics are authorised to administer Clopidogrel PO following identification of STEMI and medical practitioner instruction |

| Enoxaparin Sodium Solution | | |
|----------------------------|---|---|
| HEADING | ADD | DELETE |
| Clinical Level |  |  |
| Usual Dosages | Adult Dosage (> 75 years: 0.75 mg/Kg SC) | |

APPENDIX 1 MEDICATION FORMULARY

Epinephrine (1:1,000)

| HEADING | ADD | DELETE |
|---------------|---------------|------------|
| Usual Dosages | Auto-injector | EpiPen® Jr |

Furosemide

| HEADING | ADD | DELETE |
|---------------|---------|--------|
| Usual Dosages | Slow IV | |

Hartmann's Solution

| HEADING | ADD | DELETE |
|---------------|----------|---|
| Usual Dosages | See NaCl | <p>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)</p> <p>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.</p> |


APPENDIX 1


MEDICATION FORMULARY

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

APPENDIX 1

MEDICATION FORMULARY

| Ibuprofen | | |
|------------------------|--|--|
| HEADING | ADD | DELETE |
| Clinical Level |  | |
| Presentation | 400 mg tablet | |
| Description | It is an anti-inflammatory analgesic | It is used to reduce mild to moderate pain |
| Additional information | Caution with significant burns or poor perfusion due to risk of kidney failure Caution if concurrent NSAIDs use | |

| Ipratropium Bromide | | |
|---------------------|---|---------------------------|
| HEADING | ADD | DELETE |
| Clinical Level |  | |
| Administration | CPG: 4/5/6.3.3, 4/5/6.3.4, 4/5/6.7.18 | CPG: 5/6.3.2, 5/6.7.5 |
| Usual Dosages | Paediatric < 12 years: 0.25 mg NEB ≥ 12 years: 0.5 mg NEB | Paediatric 0.25 mg NEB |
| | | |

| Lidocaine | | |
|-------------|----------------------|--------|
| HEADING | ADD | DELETE |
| Indications | ...for VF/VT arrests | |

APPENDIX 1

MEDICATION FORMULARY


| Magnesium Sulphate | | |
|--------------------|--|--|
| HEADING | ADD | DELETE |
| Indications | Seizure associated with eclampsia | |
| Usual Dosages | Adults: Torsades de pointes: 2 g IV/IO (infusion in 100 mL NaCl) Persistent bronchospasm: 2 g IV/IO (infusion in 100 mL NaCl) Seizure: 4 g IV (infusion in 100 mL NaCl) | Adults: Torsades de pointes: 2 g IV/IO infusion over 15 minutes Persistent bronchospasm: 1.5 g IV/IO infusion over 20 minutes Dilute in 100 mL NaCl for infusion |

| Midazolam Solution | | |
|------------------------|--|---|
| HEADING | ADD | DELETE |
| Administration | 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 | |
| Indications | Compatitive with hallucinations or paranoia and risk to self or others. | Psychostimulant overdose Hallucinations or paranoia |
| Usual Dosages | Seizure & Combative Patient: < 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 | Paediatric: Seizure: 0.5 mg/Kg buccal Psychostimulant overdose: 2.5 mg IV or 5 mg IM (Repeat x 2 prn). Hallucinations or paranoia: 5 mg IV/IM |
| Additional information | No more than two doses by practitioners. Practitioners should take into account the dose administered by caregivers prior to arrival of practitioner | The maximum dose of Midazolam includes that administered by caregiver prior to arrival of Practitioner |

APPENDIX 1

MEDICATION FORMULARY

| Morphine Sulphate | | |
|------------------------|---|---|
| HEADING | ADD | DELETE |
| Contraindications | Acute intoxication | Brain injury Acute alcoholism Migraine |
| Usual Dosages | Adult: Severe pain (≥ 7 on pain scale) Paediatric: Severe pain (≥ 7 on pain scale) | Adult: Severe pain (≥ 5 on pain scale) Paediatric: Severe pain (≥ 6 on Wong Baker scale) |
| Additional information | Caution with reduced GCS Not recommended for headache | |

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

| Nitrous Oxide 50% and Oxygen 50% (Entonox®) | | |
|---|---|--------|
| HEADING | ADD | DELETE |
| Additional information | Caution when using Entonox for greater than one hour for Sickle Cell Crisis | |

APPENDIX 1

MEDICATION FORMULARY

| Oxygen | | |
|------------------------|--|--------------------|
| HEADING | ADD | DELETE |
| Contraindications | | Paraquat poisoning |
| Indications | Sickle Cell Disease - 100% | |
| Additional Information | Caution with paraquat poisoning, administer oxygen if SpO ₂ < 92% | |

| Paracetamol | | |
|-------------------|-------------------------------|---|
| HEADING | ADD | DELETE |
| Presentation | 250 mg in 5 mL | |
| Indications | Pyrexia | Pyrexia following seizure for paediatric patients Advanced Paramedics may administer Paracetamol, in the absence of a seizure for the current episode, provided the paediatric patient is pyrexial and has a previous history of febrile convulsions |
| Contraindications | < 1 month old | |
| Usual Dosages | > 1 month < 1 year - 90 mg PR | < 1 year - 60 mg PR |

| Salbutamol | | |
|----------------|--|--|
| HEADING | ADD | DELETE |
| Administration | | Advanced Paramedics may repeat Salbutamol x 3 |
| Usual Dosages | <p>Adult: .. (or 0.1 mg metered aerosol spray x 5) Repeat at 5 min prn (EFRs: 0.1 mg metered aerosol spray x 2)</p> <p>Paediatric: < 5 yrs...(or 0.1 mg metered aerosol spray x 3) ≥ 5 yrs...(or 0.1 mg metered aerosol spray x 5) Repeat at 5 min prn (EFRs: 0.1 mg metered aerosol spray x 2)</p> | <p>Adult: Repeat at 5 min prn (APs x 3 and Ps x 1) (EMTs & EFRs: 0.1 mg metered aerosol spray x 2)</p> <p>Paediatric: Repeat at 5 min prn (APs x 3 and Ps x 1) (EMTs & EFRs: 0.1 mg metered aerosol spray x 2)</p> |

APPENDIX 1

MEDICATION FORMULARY

Sodium Bicarbonate



| HEADING | ADD | DELETE |
|---------------|--|--------|
| Indications | Cardiac arrest following harness induced suspension trauma | |
| Usual Dosages | Max 50 mEq (50 mL 8.4%) | |

Sodium Chloride 0.9%

| HEADING | ADD | DELETE |
|----------------------|--|---|
| Usual Dosages | <p>Adult: Suspension Trauma, PEA or Asystole: 20 mL/Kg IV/IO infusion Adrenal insufficiency: 1,000 mL IV/IO infusion Heat Related Emergency: 1,000 mL IV/IO infusion Hypothermia, Sepsis, # neck of femur and Bradycardia: ...Repeat to max 1 L. Post-resuscitation care: 1,000 mL IV/IO infusion Shock from blood loss; ... to maintain systolic BP of 90 – 100 mmHg Sickle Cell Crisis: 1,000 mL IV/IO infusion # neck of femur, sepsis, symptomatic bradycardia: 250 mL IV infusion sepsis with poor perfusion: 500 mL IV/IO infusion</p> <p>Paediatric: Glycaemic emergency: 10 mL/Kg IV/IO infusion Hypothermia: 10 mL/Kg IV/IO infusion ... Repeat prn x 1 Adrenal insufficiency, Septic shock, Symptomatic Bradycardia, Asystole/PEA: 20 mL/Kg IV/IO infusion Burns: > 1 hour</p> | <p>Adult: Post-resuscitation care: 500 mL IV/IO infusion</p> <p>Shock; 500 mL IV/IO infusion. Repeat in aliquots of 250 mL prn to maintain systolic BP of; 100 mmHg (hypovolaemia or septic).</p> <p>90 – 100 mmHg (head injury GCS > 8)</p> <p>Paediatric: Glycaemic emergency: 20 mL/Kg IV/IO infusion</p> <p>Hypothermia: 20 mL/Kg IV/IO infusion</p> <p>Shock: 20 mL/Kg IV/IO infusion</p> |

APPENDIX 1

MEDICATION FORMULARY

| Tenecteplase Powder for Injection | | |
|-----------------------------------|---|---|
| HEADING | ADD | DELETE |
| Clinical level |  |  |
| Indications | | <p>Less than 75 years old (medical practitioner discretion if > 75 years)</p> <p>MI Symptoms > 20 Min & ≤ 6 hours</p> |
| Indications | Patient not suitable for PPCI from a time or clinical perspective | Time to PPCI centre > 90 minutes of STEMI confirmation on 12 lead ECG |

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

APPENDIX 1

MEDICATION FORMULARY

LIST OF MEDICATIONS

| | |
|---|-----|
| Amiodarone | 116 |
| Aspirin | 117 |
| Atropine | 118 |
| Benzyloxyphenacillin | 119 |
| Clopidogrel | 120 |
| Cyclizine | 121 |
| Dextrose 10% Solution | 122 |
| Dextrose 5% Solution | 123 |
| Diazepam Injection | 124 |
| Diazepam Rectal Solution | 125 |
| Enoxaparin Sodium Solution | 126 |
| Epinephrine (1:10,000) | 127 |
| Epinephrine (1:1,000) | 128 |
| Fentanyl | 129 |
| Furosemide Injection | 130 |
| Glucagon | 131 |
| Glucose gel | 132 |
| Glyceryl Trinitrate (GTN) | 133 |
| Hartmann's Solution | 134 |
| Hydrocortisone | 135 |
| Ibuprofen | 137 |
| Ipratropium Bromide | 138 |
| Lidocaine | 139 |
| Lorazepam | 140 |
| Magnesium Sulphate injection | 141 |
| Midazolam Solution | 143 |
| Morphine Sulphate | 145 |
| Naloxone | 146 |
| Nifedipine | 147 |
| Nitrous Oxide 50% and Oxygen 50% (Entonox®) | 148 |
| Ondansetron | 149 |
| Oxygen | 150 |
| Paracetamol | 151 |
| Salbutamol | 152 |
| Sodium Bicarbonate injection BP | 153 |
| Sodium Chloride 0.9% (NaCl) | 155 |
| Syntometrine | 156 |
| Tenecteplase Powder for injection | 158 |
| Ticagrelor | 159 |
| Tranexamic Acid | 160 |

APPENDIX 1 MEDICATION FORMULARY

CLINICAL LEVEL: 

| Medication | Amiodarone |
|-------------------------------|--|
| Class | Antiarrhythmic agent |
| Descriptions | Class III antiarrhythmic agent used to treat ventricular arrhythmias |
| 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 (in 100 mL D ₅ W) 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 Bradycardia 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 adult cardiac arrest do not dilute, administer directly followed by a flush. For ease of use in paediatric calculations when using 150 mg in 3 mL, add 2 mL D ₅ W, making the concentration 150 mg in 5 mL |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:

CFR

EFR

EMT

P

AP

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

APPENDIX 1 MEDICATION FORMULARY

CLINICAL LEVEL: 

| Medication | Atropine |
|-------------------------------|--|
| Class | Anticholinergic (parasympatholytic) |
| Descriptions | Parasympatholytic (Anticholinergic) that is derived from parts of the Atropa belladonna plant |
| 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 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 |
| Additional information | Accidental exposure to the eye causes blurred vision |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL: 

| Medication | Benzylpenicillin |
|-------------------------------|--|
| Class | Antibiotic, Antibacterial |
| Description | Benzylpenicillin is an antibiotic agent |
| Presentation | 600 mg powder in vial for reconstitution |
| 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:



| Medication | Clopidogrel |
|-------------------------------|---|
| Class | Platelet aggregation inhibitor |
| Description | An inhibitor of platelet function |
| 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. |

APPENDIX 1

MEDICATION FORMULARY

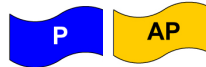
CLINICAL LEVEL: **AP**

| Medication | Cyclizine |
|----------------------------|---|
| Class | Antiemetic |
| Description | Used in management of nausea & vomiting |
| Presentation | Ampoule 50 mg in 1 mL |
| 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 Paediatric: Not indicated |
| Pharmacology/Action | Anti-emetic |
| Side effects | Tachycardia Dry Mouth Sedation |
| | |

APPENDIX 1

MEDICATION FORMULARY

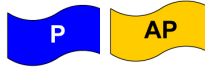
CLINICAL LEVEL:



| Medication | Dextrose 10% Solution |
|-------------------------------|--|
| Class | Carbohydrate |
| Description | Dextrose is used to describe the six-carbon sugar d-glucose, which is the principal form of carbohydrate used by the body. D ₁₀ W is a hypertonic solution. |
| Presentation | Soft pack for infusion 250 mL and 500 mL |
| 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 |

APPENDIX 1 MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Dextrose 5% Solution |
|-------------------------------|--|
| Class | Carbohydrate |
| Description | Dextrose is used to describe the six-carbon sugar d-glucose, which is the principal form of carbohydrate used by the body. D ₅ W is a hypertonic solution and is used as an infusion medium for Amiodarone. |
| Presentation | Soft pack for infusion 100 mL and 500 mL |
| 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 dilutant 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% (D ₅ W) 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. |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:

AP

| Medication | Diazepam Injection |
|-------------------------------|--|
| Class | Benzodiazepine |
| Description | It is a benzodiazepine that is used to terminate seizures |
| Presentation | Ampoule 10 mg in 2 mL |
| 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 Adult: Repeat x 1 prn Paediatric: 0.1 mg/Kg IV/IO Paediatric: Repeat X 1 prn |
| 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**

| Medication | Diazepam Rectal Solution |
|-------------------------------|---|
| Class | Benzodiazepine |
| Description | It is a benzodiazepine that is used to terminate seizures |
| Presentation | Rectal tube Available as: 2.5 mg/1.25 mL (2 mg/mL) 5 mg/ 2.5 mL (2 mg/mL) 10 mg/ 2.5 mL (4 mg/mL) |
| Administration | Per Rectum (PR) (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: 10 mg PR Repeat x 1 prn Max 20 mg PR Paediatric: < 3 years: 2.5 mg PR 3 to 7 years: 5 mg PR ≥ 8 years: 10 mg PR Repeat all x 1 after 5 mins if seizure persists or reoccurs |
| 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 | Be aware of modesty of patient. Should be administered in the presence of a 2 nd person. Egg and soya proteins are used in the manufacture of diazepam rectal solution; allergies to these proteins may be encountered. The maximum dose of Diazepam includes that administered by carer prior to arrival of Practitioner. |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Enoxaparin Sodium Solution |
|-------------------------------|--|
| Class | Anticoagulant |
| Description | Enoxaparin is a Low Molecular Weight Heparin used in conjunction with a thrombolytic agent for the treatment of STEMI |
| Presentation | Pre-filled Syringes (100 mg/mL) |
| Administration | Intravenous (IV) (CPG: 5/6.4.10) |
| Indications | Acute ST-segment Elevation Myocardial Infarction (STEMI) immediately following the administration of a thrombolytic agent. |
| Contraindications | 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 |
| Usual Dosages | Adult: 30 mg IV bolus (> 75 years: 0.75 mg/Kg SC) Paediatric: Not indicated |
| Pharmacology/Action | 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. |
| Side effects | Pain, haematoma and mild local irritation may follow the subcutaneous injection. |
| 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**

| Medication | Epinephrine (1:10,000) |
|-------------------------------|--|
| Class | Sympathetic agonist |
| Description | Naturally occurring catecholamine. It is a potent alpha and beta adrenergic stimulant; however, its effect on beta receptors is more profound. |
| Presentation | Pre-filled syringe 1 mg/10 mL (1:10,000) as 0.1 mg/mL |
| Administration | 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) |
| Indications | Cardiac arrest Paediatric bradycardia unresponsive to other measures |
| Contraindications | Known severe adverse reaction |
| Usual Dosages | <p>Adult: Cardiac arrest: 1 mg (1:10,000) IV/IO Repeat every 3–5 mins</p> <p>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</p> |
| Pharmacology/Action | <p>Alpha and beta adrenergic stimulant</p> <p>Increases heart rate – Chronotropic effect Increases myocardial contractions – Inotropic effect Increases BP Increases electrical activity in the myocardium Increases cerebral & coronary blood flow Dilation of bronchioles</p> |
| Side effects | In non-cardiac arrest patients: <ul style="list-style-type: none"> - Palpitations - Tachyarrhythmias - Hypertension |
| Additional information | N.B. Double check concentrations on pack before use |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:

EFR

EMT

P

AP

| Medication | Epinephrine (1:1,000) | | | | | | | | | | | | |
|-------------------------------|---|-------------|--|----------------------|--|---------------|---|------------|---|----------------------|-------------------------|-------------|------------------------|
| Class | Sympathetic agonist | | | | | | | | | | | | |
| Description | Naturally occurring catecholamine. It is a potent alpha and beta adrenergic stimulant; however, its effect on beta receptors is more profound. | | | | | | | | | | | | |
| Presentation | Pre-filled syringe, ampoule or Auto injector (for EMT use) 1 mg/1 mL (1:1,000) | | | | | | | | | | | | |
| Administration | Intramuscular (IM) (CPG: 5/6.4.15, 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 | <p>Adult: 0.5 mg (500 mcg) IM (0.5 mL of 1: 1,000) EMT & (EFR assist patient) 0.3 mg (Auto injector) Repeat every 5 minutes prn</p> <p>Paediatric:</p> <table border="0"> <tr> <td>< 6 months:</td> <td>0.05 mg (50 mcg) IM (0.05 mL of 1:1 000)</td> </tr> <tr> <td>6 months to 5 years:</td> <td>0.125 mg (125 mcg) IM (0.13 mL of 1:1 000)</td> </tr> <tr> <td>6 to 8 years:</td> <td>0.25 mg (250 mcg) IM (0.25 mL of 1:1 000)</td> </tr> <tr> <td>> 8 years:</td> <td>0.5 mg (500 mcg) IM (0.5 mL of 1:1 000)</td> </tr> </table> <p>EMT & (EFR assist patient):</p> <table border="0"> <tr> <td>6 months < 10 years;</td> <td>0.15 mg (Auto injector)</td> </tr> <tr> <td>≥ 10 years;</td> <td>0.3 mg (Auto injector)</td> </tr> </table> Repeat every 5 minutes prn | < 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) | 6 months < 10 years; | 0.15 mg (Auto injector) | ≥ 10 years; | 0.3 mg (Auto injector) |
| < 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) | | | | | | | | | | | | |
| 6 months < 10 years; | 0.15 mg (Auto injector) | | | | | | | | | | | | |
| ≥ 10 years; | 0.3 mg (Auto injector) | | | | | | | | | | | | |
| Pharmacology/Action | <p>Alpha and beta adrenergic stimulant</p> 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 | | | | | | | | | | | | |

APPENDIX 1 MEDICATION FORMULARY

CLINICAL LEVEL: 

| Medication | Fentanyl |
|-------------------------------|--|
| Class | Narcotic analgesic |
| Description | 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. |
| Presentation | Ampoule 100 micrograms in 2 mL. (0.1 mg in 2 mL) |
| Administration | Intranasal (IN) (CPG: 4/5/6.2.6, 4/5/6.7.5) |
| Indications | Acute severe pain in patients greater than and equal to 1 year old (≥ 1 year) |
| Contraindications | Known fentanyl hypersensitivity ALoC Bilateral occluded nasal passage Nasal trauma Epistaxis Hypovolaemia |
| Usual Dosages | Adult: 0.1 mg IN Repeat by one after 10 minutes if severe pain persists Paediatric: 0.0015 mg/Kg (1.5 mcg/Kg) IN Repeat by one after 10 minutes if severe pain persists |
| Pharmacology/Action | 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 Ca^{2+} levels. |
| Side effects | Sedation Nausea |
| Long-term side effects | Vomiting Respiratory depression |
| Additional information | 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 |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:  **AP**

| Medication | Furosemide Injection |
|-------------------------------|---|
| Class | Diuretic |
| Description | A loop diuretic |
| Presentation | Ampoule 10 mg per mL 2 mL, 5 mL and 25 mL per ampoule |
| Administration | Intravenous (IV) (CPG: 5/6.3.5) |
| Indications | Pulmonary oedema |
| Contraindications | Pregnancy, hypokalaemia Known severe adverse reaction |
| Usual Dosages | Adult: 40 mg slow IV Paediatric: Not indicated |
| Pharmacology/Action | 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. |
| Side effects | Headache, dizziness, hypotension, arrhythmias, transient deafness, diarrhoea, nausea & vomiting. |
| Long-term side effects | Hyperuricaemia, gout, hypokalaemia and hyperglycaemia. |
| Additional information | Furosemide should be protected from light |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



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

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Glucose gel |
|-------------------------------|---|
| Class | Antihypoglycaemic |
| Description | Synthetic glucose paste |
| Presentation | Glucose gel in a tube or sachet |
| Administration | Buccal administration: Administer gel to the inside of the patient's cheek and gently massage the outside of the cheek (CPG: 5/6.4.19, 4.4.19, 2/3.4.19, 5/6.7.32, 4.7.32) |
| 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:    

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

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Hartmann's Solution |
|-------------------------------|--|
| Class | Isotonic crystalloid solution |
| Description | 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% |
| Presentation | Soft pack for infusion 500 mL & 1000 mL |
| Administration | Intravenous (IV) infusion Intraosseous (IO) infusion Paramedic: maintain infusion once commenced |
| Indications | When NaCl is unavailable it may be substituted with Hartmann's Solution IV/IO, except for crush injuries, burns, renal failure and hyperglycaemia. |
| Contraindications | Known severe adverse reaction |
| Usual Dosages | Adult: See NaCl Paediatric: See NaCl |
| Pharmacology/Action | Increases extracellular volume |
| Side effects | If administered in large amounts may cause oedema |
| Additional information | Observe caution with patients with history of heart failure Also called: Sodium Lactate Intravenous Solution or Compound Ringer Lactate Solution for Injection Warm fluids prior to administration if possible |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Hydrocortisone |
|----------------------------|--|
| Class | Corticosteroid and anti-inflammatory |
| Description | Hydrocortisone is a potent corticosteroid with anti-inflammatory properties |
| Presentation | 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. |
| Administration | 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) |
| Indications | Severe or recurrent anaphylactic reactions Asthma refractory to Salbutamol and Ipratropium Bromide Exacerbation of COPD (Advanced Paramedic) Adrenal insufficiency (Paramedic) |
| Contraindications | No major contraindications in acute management of anaphylaxis |
| Usual Dosages | <p>Adult:</p> <p>Anaphylactic reaction and Exacerbation of COPD (AP): 200 mg IV (infusion in 100 mL NaCl) or IM</p> <p>Asthma (AP): 100 mg IV (infusion in 100 mL NaCl)</p> <p>Adrenal insufficiency (P & AP): 100 mg IV (infusion in 100 mL NaCl) or IM</p> <p>Paediatric:</p> <p>Anaphylactic reaction (AP): < 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 > 5 years 100 mg IV (infusion in 100 mL NaCl) or IM</p> <p>Asthma (AP): < 1 year 25 mg IV (infusion in 100 mL NaCl) 1 to 5 years 50 mg IV (infusion in 100 mL NaCl) > 5 years 100 mg IV (infusion in 100 mL NaCl)</p> <p>Adrenal insufficiency (P & AP): 6 mths to ≤ 5 years: 50 mg IV (AP) (infusion in 100 mL NaCl) or IM (P) > 5 years : 100 mg IV (AP) (infusion in 100 mL NaCl) or IM (P)</p> |
| Pharmacology/Action | Potent anti-inflammatory properties and inhibits many substances that cause inflammation |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Hydrocortisone (<i>contd.</i>) |
|-------------------------------|---|
| Side effects | CCF, hypertension, abdominal distension, vertigo, headache, nausea, malaise and hiccups. |
| Long-term side effect | Adrenal cortical atrophy develops during prolonged therapy and may persist for months after stopping treatment |
| Additional information | <p>Intramuscular injection should avoid the deltoid area because of the possibility of tissue atrophy</p> <p>Dosage should not be less than 25 mg</p> <p>IV is the preferred route for adrenal crisis</p> |
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APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



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

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Ipratropium Bromide |
|----------------------------|---|
| Class | Anticholinergic |
| Description | It is a parasympatholytic bronchodilator that is chemically related to Atropine |
| Presentation | Nebuliser Solution 0.25 mg (250 micrograms) in 1 mL |
| Administration | 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) |
| Indications | Acute moderate asthma or exacerbation of COPD not responding to initial Salbutamol dose |
| Contraindications | Known severe adverse reaction |
| Usual Dosages | Adult: 0.5 mg NEB Paediatric: < 12 years: 0.25 mg NEB ≥ 12 years: 0.5 mg NEB |
| Pharmacology/Action | It blocks muscarinic receptors associated with parasympathetic stimulation of the bronchial air passageways. This results in bronchial dilation and reduced bronchial secretions. |
| Side effects | Transient dry mouth, blurred vision, tachycardia and headache. |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:  **AP**

| Medication | Lidocaine |
|-------------------------------|---|
| Class | Antiarrhythmic |
| Description | Ventricular antiarrhythmic agent |
| Presentation | Lidocaine Injection Mini jet 1% w/v 100 mg per 10 mL |
| 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 / IO 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 |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:

AP

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

APPENDIX 1 MEDICATION FORMULARY

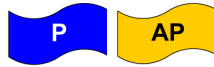
CLINICAL LEVEL: **AP**

| Medication | Magnesium Sulphate injection | | | | | | | | |
|---|--|-------------------------------|-----------|----------------------|----------------------------------|--------------------------|----------------------------------|---|----------------------------------|
| Class | Electrolyte and Tocolytic agent | | | | | | | | |
| Description | It is a salt that is an essential element in numerous biochemical reactions that occur within the body | | | | | | | | |
| Presentation | Ampoule 5 g in 10 mL | | | | | | | | |
| Administration | Intravenous (IV) Intraosseous (IO) (CPG: 4/5/6.3.4, 4/5/6.4.3, 5/6.4.12, 5/6.4.23) | | | | | | | | |
| Indications | Torsades de pointes Persistent bronchospasm Seizure associated with eclampsia | | | | | | | | |
| Contraindications | None in cardiac arrest Known severe adverse reaction | | | | | | | | |
| Usual Dosages | <p>Adults:</p> <table border="0"> <tr> <td>Pulseless torsades de points:</td> <td>2 g IV/IO</td> </tr> <tr> <td>Torsades de pointes:</td> <td>2 g IV (infusion in 100 mL NaCl)</td> </tr> <tr> <td>Persistent bronchospasm:</td> <td>2 g IV (infusion in 100 mL NaCl)</td> </tr> <tr> <td>Seizure: associated with pre-eclampsia:</td> <td>4 g IV (infusion in 100 mL NaCl)</td> </tr> </table> <p>Paediatric: Not indicated</p> | Pulseless torsades de points: | 2 g IV/IO | Torsades de pointes: | 2 g IV (infusion in 100 mL NaCl) | Persistent bronchospasm: | 2 g IV (infusion in 100 mL NaCl) | Seizure: associated with pre-eclampsia: | 4 g IV (infusion in 100 mL NaCl) |
| Pulseless torsades de points: | 2 g IV/IO | | | | | | | | |
| Torsades de pointes: | 2 g IV (infusion in 100 mL NaCl) | | | | | | | | |
| Persistent bronchospasm: | 2 g IV (infusion in 100 mL NaCl) | | | | | | | | |
| Seizure: associated with pre-eclampsia: | 4 g IV (infusion in 100 mL NaCl) | | | | | | | | |
| 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. | | | | | | | | |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Midazolam Solution |
|----------------------------|---|
| Class | Benzodiazepine |
| Description | It is a potent sedative agent. Clinical experience has shown Midazolam to be 3 to 4 times more potent per mg as Diazepam. |
| 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). (CPG: 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 | <p>Adults: Seizure or combative patient. 2.5 mg IV/IO (AP) or 5 mg IM or 10mg buccal or 5 mg intranasal (P & AP) (Repeat x 1 prn) Paramedic: IM, buccal or IN only.</p> <p>Paediatric: Seizure: < 1year: 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 |

APPENDIX 1

MEDICATION FORMULARY

| Medication | Midazolam Solution (<i>contd</i>) |
|-------------------------------|---|
| | by increasing the effects of GABA at these receptors. |
| Side effects | Respiratory depression, headache, hypotension & drowsiness |
| Additional information | <p>Midazolam IV should be titrated to effect.</p> <p>Ensure oxygen and resuscitation equipment are available prior to administration.</p> <p>No more than two doses by practitioners.</p> <p>Practitioners should take into account the dose administered by carers prior to arrival of practitioner.</p> <p>Contraindications, other than KSAR, refer to non-seizing patients.</p> |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL: **AP**

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

APPENDIX 1

MEDICATION FORMULARY

| Medication | Morphine Sulphate (<i>contd</i>) |
|-------------------------------|--|
| Additional information | <p>Use with extreme caution particularly with elderly/young</p> <p>Caution with acute respiratory distress</p> <p>Caution with reduced GCS</p> <p>Not recommended for headache</p> <p>N.B. Controlled under Misuse of Drugs Act (1977, 1984)</p> |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:   

| Medication | Naloxone |
|-------------------------------|---|
| Class | Narcotic antagonist |
| Description | Effective in management and reversal of overdoses caused by narcotics or synthetic narcotic agents |
| Presentation | Ampoules 0.4 mg in 1 mL (400 mcg /1 mL) or pre-loaded syringe |
| 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 | <p>Adult: 0.4 mg (400 mcg) IV/IO (AP) 0.4 mg (400 mcg) IM or SC (P) 0.8 mg (800 mcg) IN (EMT) Repeat after 3 min prn to a Max 2 mg</p> <p>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</p> |
| 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 | <p>Use with caution in pregnancy</p> <p>Administer with caution to patients who have taken large dose of narcotics or are physically dependent</p> <p>Rapid reversal will precipitate acute withdrawal syndrome</p> <p>Prepare to deal with aggressive patients</p> |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:

AP

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

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:   

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

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL: **AP**

| Medication | Ondansetron |
|----------------------------|---|
| Class | Antiemetic |
| Description | Used in management of nausea & vomiting Potent, highly selective 5 HT ₃ receptor-antagonist |
| Presentation | Ampoule 2 mL (4 mg in 2 mL) |
| Administration | Intravenous (IV) (CPG: 6.4.26, 4/5/6.2.6, 4/5/6.7.5) |
| Indications | Management, prevention and treatment of nausea & vomiting. |
| Contraindications | Known severe adverse reaction |
| Usual Dosages | Adult: 4 mg slow IV Paediatric: 0.1 mg/Kg IV slowly to a Max of 4 mg |
| Pharmacology/Action | Precise mode of action in the control of nausea & vomiting is not known |
| Side effects | Headache Sensation of warmth Flushing Hiccups |
| | |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Oxygen |
|-------------------------------|--|
| Class | Gas |
| Description | Odourless, tasteless, colourless gas necessary for life. |
| Presentation | D, E or F cylinders, coloured black with white shoulders CD cylinder; white cylinder Medical gas |
| Administration | Inhalation via: High concentration reservoir (non-rebreather) mask Simple face mask Venturi mask Tracheostomy mask Nasal cannulae Bag Valve Mask (CPG: Oxygen is used extensively throughout the CPGs) |
| Indications | Absent/inadequate ventilation following an acute medical or traumatic event SpO ₂ < 94% adults and < 96% paediatrics SpO ₂ < 92% for patients with acute exacerbation of COPD |
| Contraindications | Bleomycin lung injury |
| Usual Dosages | <p>Adult: 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%</p> <p>Paediatric: 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%</p> |
| Pharmacology/Action | Oxygenation of tissue/organs |
| Side effects | Prolonged use of O ₂ with chronic COPD patients may lead to reduction in ventilation stimulus |
| Additional information | A written record must be made of what oxygen therapy is given to every patient. Documentation recording oximetry measurements should state whether the patient is breathing air or a specified dose of supplemental oxygen. Consider humidifier if oxygen therapy for paediatric patients is > 30 minute duration. Caution with paraquat poisoning, administer oxygen if SpO ₂ < 92%. Avoid naked flames, powerful oxidising agent. |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



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

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



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

APPENDIX 1

MEDICATION FORMULARY

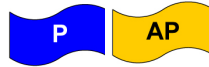
CLINICAL LEVEL: **AP**

| Medication | Sodium Bicarbonate injection BP |
|----------------------------|---|
| Class | Alkalinising agent |
| Description | A salt that is an alkalinizing agent and electrolyte supplement |
| Presentation | Glass vial 8.4% in 100 mL |
| Administration | 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) |
| Indications | Wide complex QRS arrhythmias and/or seizures following Tricyclic antidepressant (TCA) overdose Cardiac arrest following Tricyclic overdose Cardiac arrest following harness induced suspension trauma |
| Contraindications | Known severe adverse reaction |
| Usual Dosages | Adult: 1 mEq/Kg (1mL/Kg 8.4% solution). Max 50 mEq (50 mL 8.4%) Paediatric: Not indicated |
| Pharmacology/Action | TCA excretion from the body is enhanced by making the urine more alkaline (raising the pH) |
| Side effects | Nil when used for emergencies |
| | |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Sodium Chloride 0.9% (NaCl) |
|-------------------|--|
| Class | Isotonic crystalloid solution |
| Description | Solution of sodium and chloride, also known as normal saline (NaCl) |
| Presentation | Soft pack for infusion 100 mL, 500 mL & 1,000 mL Ampoules 10 mL |
| 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 | <p>ADULT Keep vein open (KVO) or medication flush for cardiac arrest prn</p> <p>Crush injury, Suspension Trauma, PEA or Asystole: 20 mL/Kg IV/IO infusion</p> <p>Hypothermia: 250 mL IV/IO infusion (warmed to 40°C approx) Repeat to max 1 L</p> <p># neck of femur, sepsis, symptomatic bradycardia: 250 mL IV infusion</p> <p>Decompression illness, sepsis with poor perfusion: 500 mL IV/IO infusion</p> <p>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)</p> <p>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</p> <p>Adrenal insufficiency, Glycaemic emergency, Heat-related Emergency, Sickle Cell Crisis; 1,000 mL IV/IO infusion</p> <p>Anaphylaxis; 1,000 mL IV/IO infusion, repeat x one prn</p> <p>Post-resuscitation care: 1,000 mL IV/IO infusion (at 4°C approx). If persistent hypotension maintain Sys BP > 90 mmHg</p> |

APPENDIX 1

MEDICATION FORMULARY

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

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:

AP

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

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:

MP

| Medication | Tenecteplase Powder for injection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--|---------------|-----------|--------------|-----------|-----------|--|------|-------|----|---|--|-----------|-------|----|---|--|-----------|-------|----|---|--|-----------|-------|----|---|--|------|--------|----|----|
| Class | Thrombolytic agent | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description | A recombinant fibrin-specific plasminogen activator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Presentation | Powder and solvent for solution 1 vial contains 10,000 units (50 mg) tenecteplase 1 pre-filled syringe contains 10 mL water for injections The reconstituted solution contains 1,000 units (5 mg) tenecteplase per mL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Administration | Intravenous (IV) (CPG: 5/6.4.10) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Indications | Patient conscious, coherent and understands therapy Patient consent obtained Confirmed STEMI Patient not suitable for PPCI from a time or clinical perspective | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contraindications | Haemorrhagic stroke or stroke of unknown origin at any time Ischaemic stroke in previous 6 months Central nervous system damage or neoplasms Recent major trauma/ surgery/ head injury (within 3 weeks) Gastro-intestinal bleeding within the last month Active peptic ulcer Known bleeding disorder Oral anticoagulant therapy Aortic dissection Transient ischaemic attack in preceding 6 months Pregnancy and within one week post-partum Non-compressible punctures Traumatic resuscitation Refractory hypertension (Sys BP > 180 mmHg) Advanced liver disease Infective endocarditis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Usual Dosages | <table border="0"> <thead> <tr> <th>Adult:</th> <th>Kg</th> <th>Units</th> <th>mg</th> <th>mL</th> </tr> </thead> <tbody> <tr> <td></td> <td>< 60</td> <td>6,000</td> <td>30</td> <td>6</td> </tr> <tr> <td></td> <td>≥ 60 < 70</td> <td>7,000</td> <td>35</td> <td>7</td> </tr> <tr> <td></td> <td>≥ 70 < 80</td> <td>8,000</td> <td>40</td> <td>8</td> </tr> <tr> <td></td> <td>≥ 80 < 90</td> <td>9,000</td> <td>45</td> <td>9</td> </tr> <tr> <td></td> <td>≥ 90</td> <td>10,000</td> <td>50</td> <td>10</td> </tr> </tbody> </table> <p>Paediatric: Not indicated</p> | Adult: | Kg | Units | mg | mL | | < 60 | 6,000 | 30 | 6 | | ≥ 60 < 70 | 7,000 | 35 | 7 | | ≥ 70 < 80 | 8,000 | 40 | 8 | | ≥ 80 < 90 | 9,000 | 45 | 9 | | ≥ 90 | 10,000 | 50 | 10 |
| Adult: | Kg | Units | mg | mL | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | < 60 | 6,000 | 30 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ≥ 60 < 70 | 7,000 | 35 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ≥ 70 < 80 | 8,000 | 40 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ≥ 80 < 90 | 9,000 | 45 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ≥ 90 | 10,000 | 50 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pharmacology/Action | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

APPENDIX 1

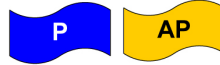
MEDICATION FORMULARY

| Medication | Tenecteplase Powder for injection <i>(Contd)</i> |
|-------------------------------|--|
| | component of the thrombus (blood clot) and selectively converts thrombus-bound plasminogen to plasmin, which degrades the fibrin matrix of the thrombus. |
| 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 |

APPENDIX 1

MEDICATION FORMULARY

CLINICAL LEVEL:



| Medication | Ticagrelor |
|-------------------------------|---|
| Class | Platelet aggregation inhibitor |
| Description | An inhibitor of platelet function |
| Presentation | 90 mg tablets |
| Administration | Orally (PO) (CPG: 5/6.4.10) |
| Indications | Identification of ST Elevation Myocardial Infarction (STEMI) if transporting to PPCI centre |
| Contraindications | Hypersensitivity to the active substance (Ticagrelor) or to any of the excipients Active pathological bleeding History of intracranial haemorrhage Moderate to severe hepatic impairment |
| 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: 

| Medication | Tranexamic Acid |
|-------------------------------|---|
| Class | Anti-fibrinolytic |
| Description | An anti-fibrinolytic which reduces the breakdown of blood clots |
| Presentation | Ampoule 500 mg in 5 mL |
| Administration | Intravenous (IV) (CPG: 5/6.6.8). |
| Indications | Suspected significant internal or external haemorrhage associated with trauma |
| Contraindications | Hypersensitivity to the active substance or to any of the excipients Acute venous or arterial thrombosis History of convulsions Severe hepatic impairment |
| 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

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|---|-------|-------|---------|-----|-----|---|----|
| Burns care | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Soft tissue injury | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| SpO ₂ monitoring | | | | ✓ | | | |
| Move and secure a patient to a paediatric board | | | | | ✓ | | |
| Ibuprofen PO | | | | | ✓ | | |
| Salbutamol Nebule | | | | | ✓ | | |
| Subcutaneous injection | | | | | ✓ | ✓ | |
| Naloxone IN | | | | | ✓ | ✓ | ✓ |
| Pain assessment | | | | | ✓ | ✓ | ✓ |
| Haemostatic agent | | | | | ✓ | ✓ | ✓ |
| End Tidal CO ₂ monitoring | | | | | | ✓ | |
| Hydrocortisone IM | | | | | | ✓ | |
| Ipratropium Bromide Nebule | | | | | | ✓ | |
| CPAP / BiPAP | | | | | | ✓ | ✓ |
| Naloxone SC | | | | | | ✓ | ✓ |
| Nasal pack | | | | | | ✓ | ✓ |
| Ticagrelor | | | | | | ✓ | ✓ |
| Treat and referral | | | | | | ✓ | ✓ |
| Tranexamic Acid | | | | | | | ✓ |

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

MEDICATIONS

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|-------------------------------------|-------|-------|---------|-----|--------|--------|-----|
| Aspirin PO | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Oxygen | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Glucose Gel Buccal | | | | ✓ | ✓ | ✓ | ✓ |
| GTN SL | | | | ✓SA | ✓ | ✓ | ✓ |
| Salbutamol Aerosol | | | | ✓SA | ✓ | ✓ | ✓ |
| Epinephrine (1:1,000) auto injector | | | | ✓SA | ✓ | ✓ | ✓ |
| Glucagon IM | | | | | ✓ | ✓ | ✓ |
| Nitrous oxide & Oxygen (Entonox®) | | | | | ✓ | ✓ | ✓ |
| Naloxone IN | | | | | ✓ | ✓ | ✓ |
| Paracetamol PO | | | | | ✓ | ✓ | ✓ |
| Ibuprofen PO | | | | | ✓ | ✓ | ✓ |
| Salbutamol nebule | | | | | ✓ | ✓ | ✓ |
| Morphine IM | | | | | URMPIO | URMPIO | ✓SA |
| Clopidogrel PO | | | | | | ✓ | ✓ |
| Epinephrine (1: 1,000) IM | | | | | | ✓ | ✓ |
| Hydrocortisone IM | | | | | | ✓ | ✓ |
| Ipratropium Bromide Nebule | | | | | | ✓ | ✓ |
| Midazolam IM/Buccal/IN | | | | | | ✓ | ✓ |
| Naloxone IM/SC | | | | | | ✓ | ✓ |
| Ticagrelor | | | | | | ✓ | ✓ |
| Dextrose 10% IV | | | | | | ✓SA | ✓ |
| Hartmann's Solution IV/IO | | | | | | ✓SA | ✓ |
| Sodium Chloride 0.9% IV/IO | | | | | | ✓SA | ✓ |
| Amiodarone IV/IO | | | | | | | ✓ |
| Atropine IV/IO | | | | | | | ✓ |
| Benzylpenicillin IM/IV/IO | | | | | | | ✓ |
| Cyclizine IV | | | | | | | ✓ |
| Diazepam IV/PR | | | | | | | ✓ |
| Epinephrine (1:10,000) IV/IO | | | | | | | ✓ |
| Fentanyl IN | | | | | | | ✓ |
| Furosemide IV/IM | | | | | | | ✓ |
| Hydrocortisone IV | | | | | | | ✓ |
| Lorazepam PO | | | | | | | ✓ |
| Magnesium Sulphate IV | | | | | | | ✓ |
| Midazolam IV | | | | | | | ✓ |

APPENDIX 2

MEDICATIONS & SKILLS MATRIX

MEDICATIONS (contd)

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|--------------------------|-------|-------|---------|-----|-----|---|------|
| Morphine IV/PO | | | | | | | ✓ |
| Naloxone IV/IO | | | | | | | ✓ |
| Nifedipine PO | | | | | | | ✓ |
| Ondansetron IV | | | | | | | ✓ |
| Paracetamol PR | | | | | | | ✓ |
| Sodium Bicarbonate IV/IO | | | | | | | ✓ |
| Syntometrine IM | | | | | | | ✓ |
| Tranexamic Acid | | | | | | | ✓ |
| Enoxaparin IV/SC | | | | | | | ✓ SA |
| Lidocaine IV | | | | | | | ✓ SA |
| Tenecteplase IV | | | | | | | ✓ SA |

AIRWAY & BREATHING MANAGEMENT

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|--------------------------------------|-------|-------|---------|------|------|---|----|
| FBAO management | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Head tilt chin lift | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Pocket mask | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Recovery position | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Non rebreather mask | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| OPA | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Suctioning | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Venturi mask | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| SpO ₂ monitoring | | ✓ SA | | ✓ | ✓ | ✓ | ✓ |
| Jaw Thrust | | | | ✓ | ✓ | ✓ | ✓ |
| Nasal cannula | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| BVM | | ✓ | | ✓ SA | ✓ | ✓ | ✓ |
| NPA | | | | BTEC | BTEC | ✓ | ✓ |
| Supraglottic airway adult (uncuffed) | | ✓ | | | ✓ | ✓ | ✓ |
| Oxygen humidification | | | | | ✓ | ✓ | ✓ |
| Supraglottic airway adult (cuffed) | | | | | ✓ SA | ✓ | ✓ |
| CPAP / BiPAP | | | | | | ✓ | ✓ |
| Non-invasive ventilation device | | | | | | ✓ | ✓ |
| Peak Expiratory Flow | | | | | | ✓ | ✓ |

APPENDIX 2

MEDICATIONS & SKILLS MATRIX

AIRWAY & BREATHING MANAGEMENT *(contd)*

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|--------------------------------------|-------|-------|---------|-----|-----|------|----|
| End Tidal CO ₂ monitoring | | | | | | ✓ | ✓ |
| Supraglottic airway paediatric | | | | | | ✓ SA | ✓ |
| Endotracheal intubation | | | | | | | ✓ |
| Laryngoscopy and Magill forceps | | | | | | | ✓ |
| Needle cricothyrotomy | | | | | | | ✓ |
| Needle thoracocentesis | | | | | | | ✓ |

CARDIAC

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|---|-------|-------|---------|-----|-----|---|----|
| AED adult & paediatric | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| CPR adult, child & infant | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Recognise death and resuscitation not indicated | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Targeted temperature management | | ✓ SA | | | ✓ | ✓ | ✓ |
| CPR newly born | | | | | ✓ | ✓ | ✓ |
| ECG monitoring (lead II) | | | | | ✓ | ✓ | ✓ |
| Mechanical assist CPR device | | | | | ✓ | ✓ | ✓ |
| 12 lead ECG | | | | | | ✓ | ✓ |
| Cease resuscitation - adult | | | | | | ✓ | ✓ |
| Manual defibrillation | | | | | | ✓ | ✓ |

HAEMORRHAGE CONTROL

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|-------------------|-------|-------|---------|------|------|---|----|
| Direct pressure | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Nose bleed | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Haemostatic agent | | | | | ✓ | ✓ | ✓ |
| Tourniquet use | | | | BTEC | BTEC | ✓ | ✓ |
| Nasal pack | | | | | | ✓ | ✓ |
| Pressure points | | | | | | ✓ | ✓ |

APPENDIX 2

MEDICATIONS & SKILLS MATRIX

MEDICATION ADMINISTRATION

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|---------------------------------|-------|-------|---------|-----|-----|-----|----|
| Oral | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Buccal route | | | | ✓ | ✓ | ✓ | ✓ |
| Per aerosol (inhaler) + spacer | | | | ✓SA | ✓ | ✓ | ✓ |
| Sublingual | | | | ✓SA | ✓ | ✓ | ✓ |
| Intramuscular injection | | | | | ✓ | ✓ | ✓ |
| Intranasal | | | | | ✓ | ✓ | ✓ |
| Per nebuliser | | | | | ✓ | ✓ | ✓ |
| Subcutaneous injection | | | | | ✓ | ✓ | ✓ |
| IV & IO Infusion maintenance | | | | | | ✓SA | ✓ |
| Infusion calculations | | | | | | | ✓ |
| Intraosseous injection/infusion | | | | | | | ✓ |
| Intravenous injection/infusion | | | | | | | ✓ |
| Per rectum | | | | | | | ✓ |

TRAUMA

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|--|-------|-------|---------|-----|-----|---|----|
| Burns care | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cervical spine manual stabilisation | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Application of a sling | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Soft tissue injury | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cervical collar application | | | | ✓ | ✓ | ✓ | ✓ |
| Helmet stabilisation/removal | | | | ✓ | ✓ | ✓ | ✓ |
| Splinting device application to upper limb | | | | ✓ | ✓ | ✓ | ✓ |
| Move and secure patient to a long board | | | | ✓SA | ✓ | ✓ | ✓ |
| Rapid Extraction | | | | ✓SA | ✓ | ✓ | ✓ |
| Log roll | | | | APO | ✓ | ✓ | ✓ |
| Move patient with a carrying sheet | | | | APO | ✓ | ✓ | ✓ |
| Move patient with an orthopaedic stretcher | | | | APO | ✓ | ✓ | ✓ |
| Splinting device application to lower limb | | | | APO | ✓ | ✓ | ✓ |
| Secure and move a patient with an extrication device | | | | APO | APO | ✓ | ✓ |

APPENDIX 2

MEDICATIONS & SKILLS MATRIX

TRAUMA (contd)

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

OTHER

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

PATIENT ASSESSMENT

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|------------------------|-------|-------|---------|-----|-----|---|----|
| Assess responsiveness | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Check breathing | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| FAST assessment | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Capillary refill | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| AVPU | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Breathing & pulse rate | | | ✓ | ✓ | ✓ | ✓ | ✓ |

APPENDIX 2

MEDICATIONS & SKILLS MATRIX

PATIENT ASSESSMENT (contd)

| CLINICAL LEVEL | CFR-C | CFR-A | FAR/OFA | EFR | EMT | P | AP |
|----------------------------------|-------|-------|---------|-----|-----|---|----|
| Primary survey | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| SAMPLE history | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Secondary survey | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| CSM assessment | | | | ✓ | ✓ | ✓ | ✓ |
| Rule of Nines | | | | ✓ | ✓ | ✓ | ✓ |
| Assess pupils | | | | ✓ | ✓ | ✓ | ✓ |
| Blood pressure | | | | ✓SA | ✓ | ✓ | ✓ |
| Capacity evaluation | | | | | ✓ | ✓ | ✓ |
| Do Not Attempt Resuscitation | | | | | ✓ | ✓ | ✓ |
| Paediatric Assessment Triangle | | | | | ✓ | ✓ | ✓ |
| Pain assessment | | | | | ✓ | ✓ | ✓ |
| Patient Clinical Status | | | | | ✓ | ✓ | ✓ |
| Pre-hospital Early Warning Score | | | | | ✓ | ✓ | ✓ |
| Pulse check (cardiac arrest) | | ✓SA | | | ✓ | ✓ | ✓ |
| Temperature °C | | | | | ✓ | ✓ | ✓ |
| Triage sieve | | | | | ✓ | ✓ | ✓ |
| Chest auscultation | | | | | ✓ | ✓ | ✓ |
| GCS | | | | | ✓ | ✓ | ✓ |
| Treat and referral | | | | | ✓ | ✓ | ✓ |
| Triage sort | | | | | ✓ | ✓ | ✓ |

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.

APPENDIX 3

CRITICAL INCIDENT STRESS MANAGEMENT

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

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

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

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

EXPERIENCING SIGNS OF EXCESSIVE STRESS

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

Where to find help?

Your own CPG approved organisation will have a CISM support network or system.

We recommend that you contact them for help and advice. (i.e. your peer support worker/coordinator/staff support officer).

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

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.

| CPGs | The principal differences are | Theory | Skills |
|---|---|------------------------------|------------------------------|
| CPG 4/5/6.2.1 Primary Survey Medical – Adult | EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to insert an NPA following appropriate training. | ✓ | x |
| CPG 4/5/6.2.2 Primary Survey Trauma – Adult | EMTs, who have completed the BTEC course, may be privileged by a licensed CPG provider to insert an NPA following appropriate training. | ✓ | x |
| CPG 5/6.2.5 Secondary Survey Trauma – Adult | ECG & SpO ₂ monitoring inserted on multi-system trauma arm. Add 'consider repeat primary survey'. | ✓ ✓ | x x |
| 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 x x 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 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 x |

APPENDIX 4

CPG UPDATES FOR ADVANCED PARAMEDICS

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

APPENDIX 4

CPG UPDATES FOR ADVANCED PARAMEDICS

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

APPENDIX 4

CPG UPDATES FOR ADVANCED PARAMEDICS

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

APPENDIX 4

CPG UPDATES FOR ADVANCED PARAMEDICS

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

APPENDIX 4

CPG UPDATES FOR ADVANCED PARAMEDICS

| CPGs | The principal differences are | Theory | Skills |
|--|--|---------------------|---------------------|
| 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 ✓ 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 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

| New CPGs | The new skills and medications incorporated in the CPG are: | Theory | Skills |
|--|--|--------|--------|
| CPG 4/5/6.3.4 Asthma – Adult | This CPG outlines the care for a patient with an acute asthma episode. | ✓ | x |
| CPG 5/6.3.5 Acute Pulmonary Oedema | This CPG outlines the care for a patient with an acute pulmonary oedema episode. | ✓ | ✓ |
| CPG 5/6.4.12 Tachycardia – Adult | This CPG outlines the care for a patient with a tachycardia episode. | ✓ | ✓ |
| CPG 5/6.4.13 Adrenal Insufficiency – Adult | This CPG outlines the care for a patient with an adrenal crisis. | ✓ | x |
| CPG 5/6.4.25 Shock from Blood Loss (non-trauma) – Adult | This CPG outlines the care for a patient with non traumatic blood loss. | ✓ | x |
| CPG 4/5/6.4.27 Sickle Cell Crisis – Adult | This CPG outlines the care for a patient with a sickle cell crisis. | ✓ | x |
| CPG 4/5/6.6.4 Harness Induced Suspension Trauma | This CPG outlines, in particular, the correct posture for patients following harness induced suspension trauma. | ✓ | x |
| CPG 4/5/6.6.6 Heat-Related Emergency – Adult | This CPG outlines the care for a patient with a heat-related emergency. | ✓ | x |
| CPG 4/5/6.7.12 Asthma – Paediatric | This CPG outlines the care for a paediatric patient with an acute asthma episode. | ✓ | x |
| CPG 5/6.7.30 Adrenal Insufficiency – Paediatric | This CPG outlines the care for a paediatric patient with an adrenal crisis. | ✓ | x |
| CPG 4/5/6.7.35 Pyrexia – Paediatric | This CPG outlines the care for a paediatric patient with a pyrexia episode. | ✓ | x |
| CPG 4/5/6.7.36 Sickle Cell Crisis – Paediatric | This CPG outlines the care for a paediatric patient with a sickle cell crisis. | ✓ | x |
| CPG 5/6.9.1 Clinical Care Pathway Decision – Treat & Referral | This CPG outlines the inclusion process to select patients for a clinical care pathway other than ED care. | ✓ | x |
| CPG 5/6.9.2 Hypoglycaemia – Treat & Referral | This CPG outlines the exclusion process to select patients following a hypoglycaemic event for a clinical care pathway other than ED care. | ✓ | x |

APPENDIX 4

CPG UPDATES FOR ADVANCED PARAMEDICS

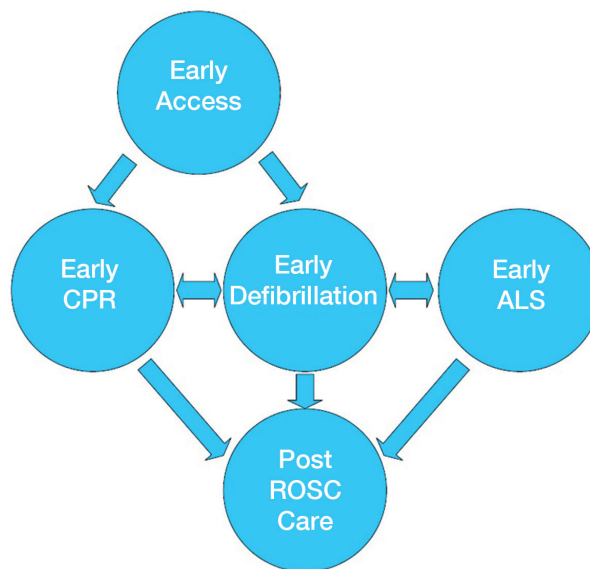
| New CPGs | The new skills and medications incorporated in the CPG are: | Theory | Skills |
|--|--|--------|--------|
| CPG 5/6.9.3 Isolated Seizure – Treat & Referral | This CPG outlines the exclusion process to select patients following an isolated seizure for a clinical care pathway other than ED care. | ✓ | x |

APPENDIX 5

PRE-HOSPITAL DEFIBRILLATION POSITION PAPER

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

Cardiac arrest management process



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

Position

1. Defibrillation mode

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

2. Hands off time (time when chest compressions are stopped)

- 2.1 Minimise hands off time, absolute maximum 10 seconds.
- 2.2 Rhythm and/or pulse checks in manual mode should take no more than 5 to 10 seconds and CPR should be recommenced immediately.
- 2.3 When defibrillators are charging CPR should be ongoing and only stopped for the time it takes to press the defibrillation button and recommenced immediately without reference to rhythm or pulse checks.
- 2.4 It is necessary to stop CPR to enable some AEDs to analyse the rhythm. Unfortunately this time frame is not standard with all AEDs. As soon as the analysing phase is completed and the charging phase has begun CPR should be recommenced.

APPENDIX 5

PRE-HOSPITAL DEFIBRILLATION POSITION PAPER

3 Energy

- 3.1 Biphasic defibrillation is the method of choice.
- 3.2 Biphasic truncated exponential (BTE) waveform energy commencing at 150 to 200 joules shall be used.
- 3.3 If unsuccessful the energy on second and subsequent shocks shall be as per manufacturer of defibrillator instructions.
- 3.4 Monophasic defibrillators currently in use, although not as effective as biphasic defibrillators, may continue to be used until they reach the end of their lifespan.

4 Safety

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

5 Defibrillation pad placement

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

6 Paediatric defibrillation

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

7 Implantable Cardioverter Defibrillator (ICD)

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

8 Cardioversion

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

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