Clinical Practice Guidelines

October 2014 Edition

Paramedic

Pre-Hospital Emergency Care Council

Pre-Hospital Emergency Care Council

CLINICAL PRACTICE GUIDELINES *- 2014 Edition*

Practitioner
Paramedic

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PHECC Clinical Practice Guidelines

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Pre-Hospital Emergency Care Council

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CLINICAL PRACTICE GUIDELINES

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	o
Degrees Centigrade	^oC
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

Pre-Hospital Emergency Care Council

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	$\therefore$
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

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

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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.

Feedback on the CPGs may be given through the centre for Pre-hospital Research www.ul.ie/cpr/forum

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 (≤) 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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PARAMEDIC CPGs

INDEX
PARAMEDIC CPGs

CLINICAL PRACTICE GUIDELINES for PARAMEDIC

(CODES EXPLANATION)

EMT — **Emergency Medical Technician** (Level 4) for which the CPG pertains

P — **Paramedic** (Level 5) for which the CPG pertains

AP — **Advanced Paramedic** (Level 6) for which the CPG pertains

MP — **Medical Practitioner** (Level 7) for which the CPG pertains

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

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

A decision process
The Practitioner must follow one route

Consider treatment options — Given the clinical presentation consider the treatment option specified

xyz — Finding following clinical assessment, leading to treatment modalities

Reassess — Reassess the patient following intervention

Request ALS — Contact Ambulance Control and request Advanced Life Support (AP or doctor)

Consider ALS — Consider requesting an ALS response, based on the clinical findings

4/5/6.4.1 Version 2, 07/11
4/5/6.x.y Version 2, mm/yy

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

EMT BTEC — 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

P — **Paramedic or lower clinical levels not permitted this route**

Transport to an appropriate medical facility and maintain treatment en-route

If no ALS available — Transport to an appropriate medical facility and maintain treatment en-route, if having contacted Ambulance Control there is no ALS available

Instructions — **An instruction box for information**

Special instructions — **Special instructions**
Which the Practitioner must follow

AP — **A skill or sequence that only pertains to Advanced Paramedic**

Special authorisation — **Special authorisation**
This authorises the Practitioner to perform an intervention under specified conditions

Consider Paramedic — Consider requesting a Paramedic response, based on the clinical findings

Consider Medical Oversight — Consider medical oversight

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

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

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

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

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

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.

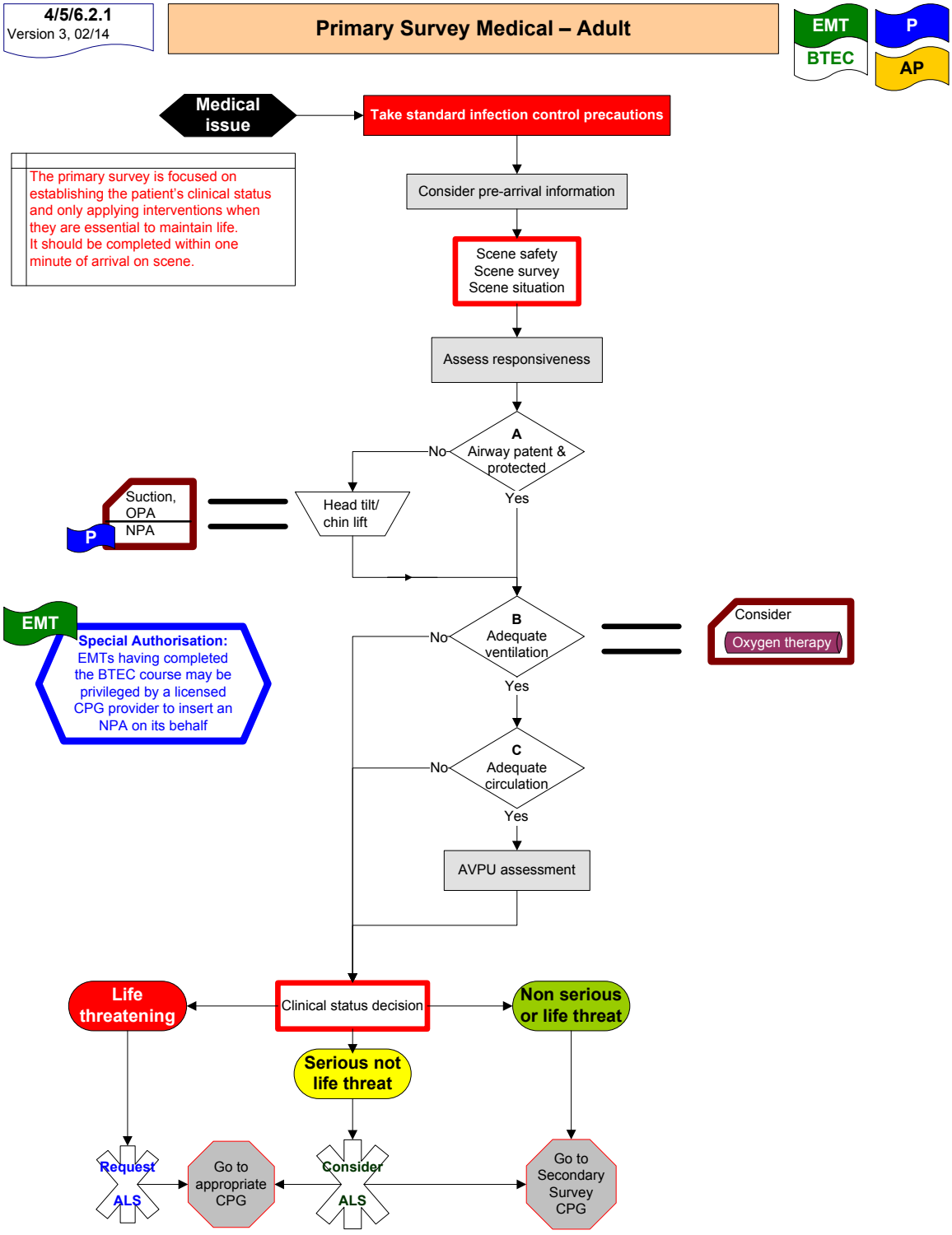
12 Maintain responsibility for patient care until handover to an appropriate practitioner.

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.

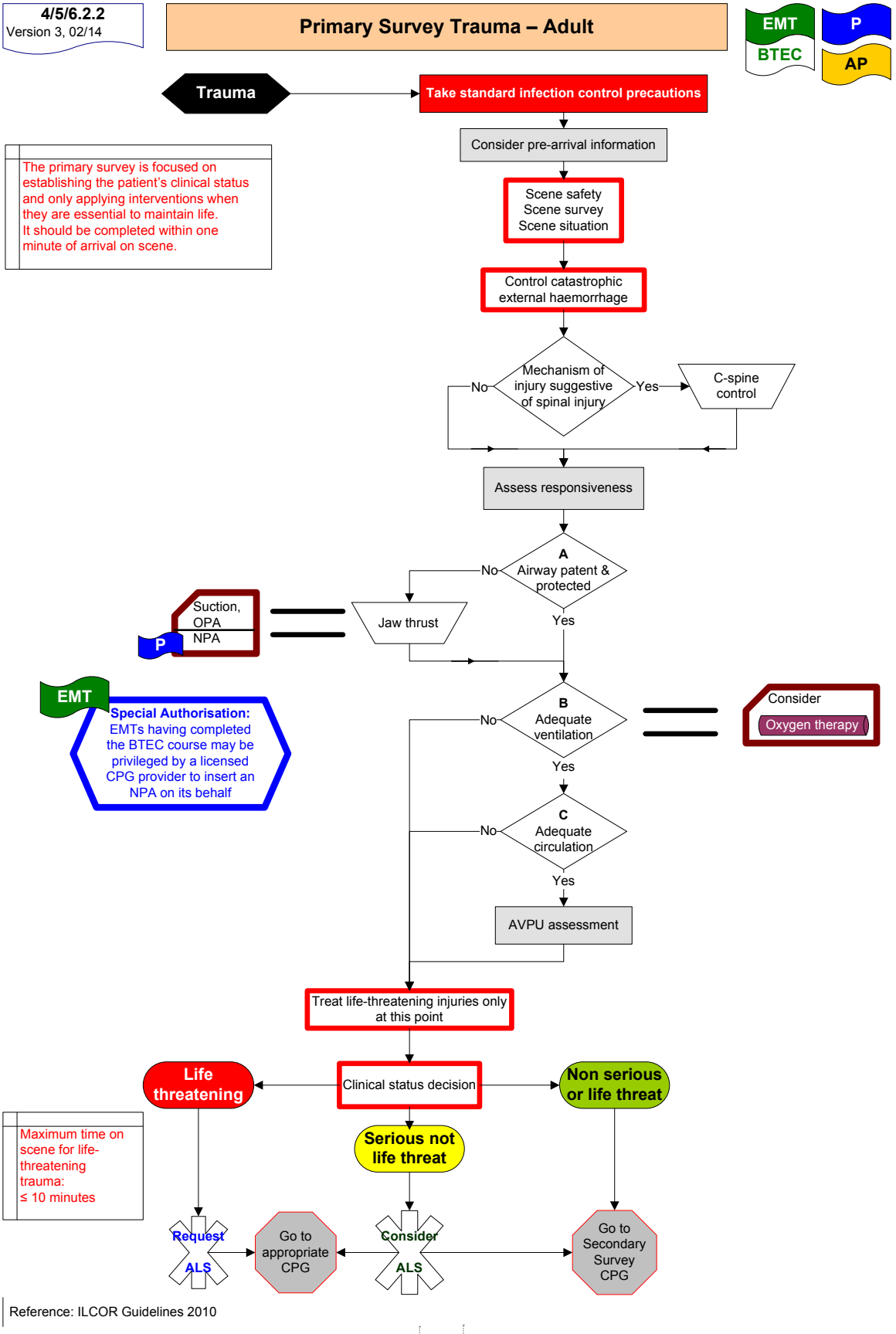
15 Identify the clinical leader on scene; this shall be the most qualified practitioner on scene. In the absence of a more qualified practitioner, the practitioner providing care during transport shall be designated the clinical leader as soon as practical.

SECTION 2
PATIENT ASSESSMENT



Reference: ILCOR Guidelines 2010

SECTION 2
PATIENT ASSESSMENT



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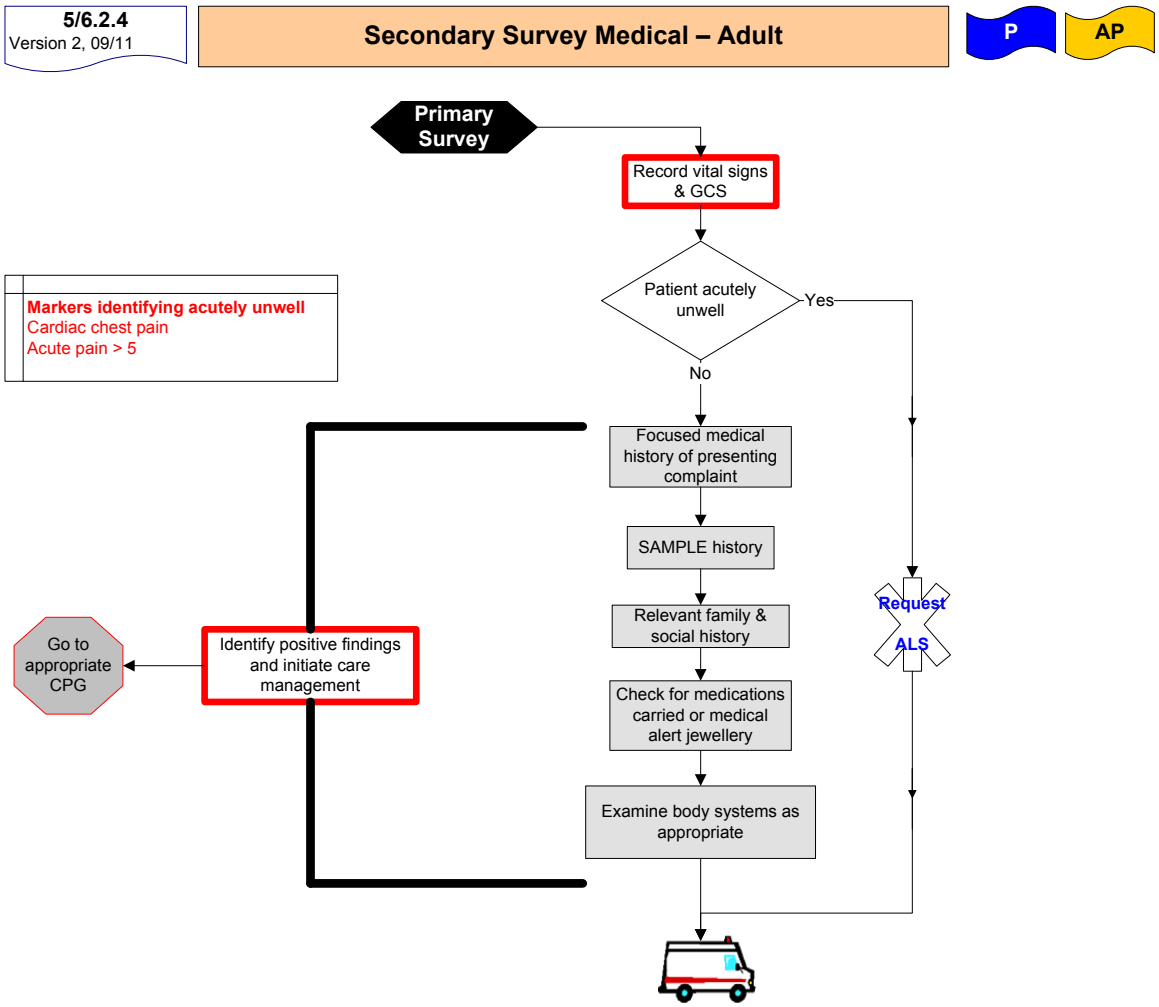


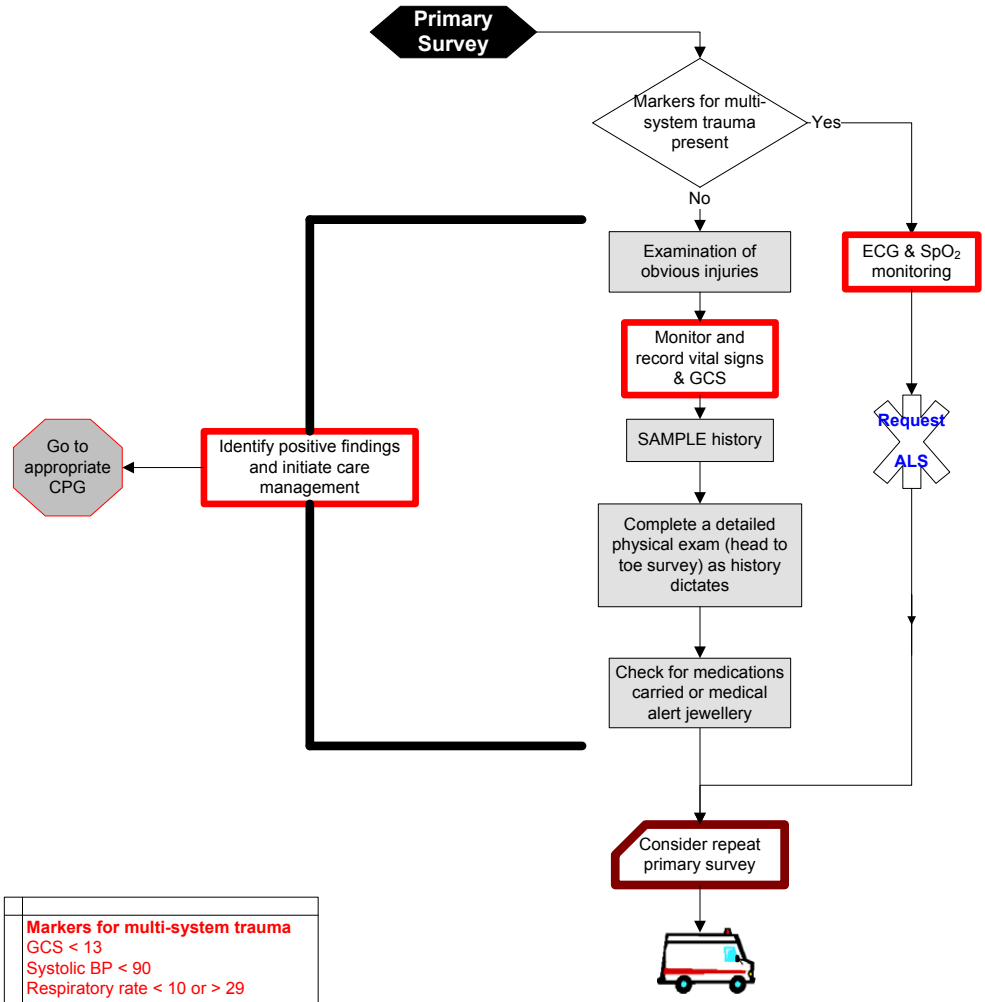
Reference: Sanders, M. 2001, Paramedic Textbook 2nd Edition, Mosby
Gleadle, J. 2003, History and Examination at a glance, Blackwell Science
Rees, JE, 2003, Early Warning Scores, World Anaesthesia Issue 17, Article 10

SECTION 2
PATIENT ASSESSMENT

5/6.2.5
Version 2, 01/13

Secondary Survey Trauma – Adult

P AP

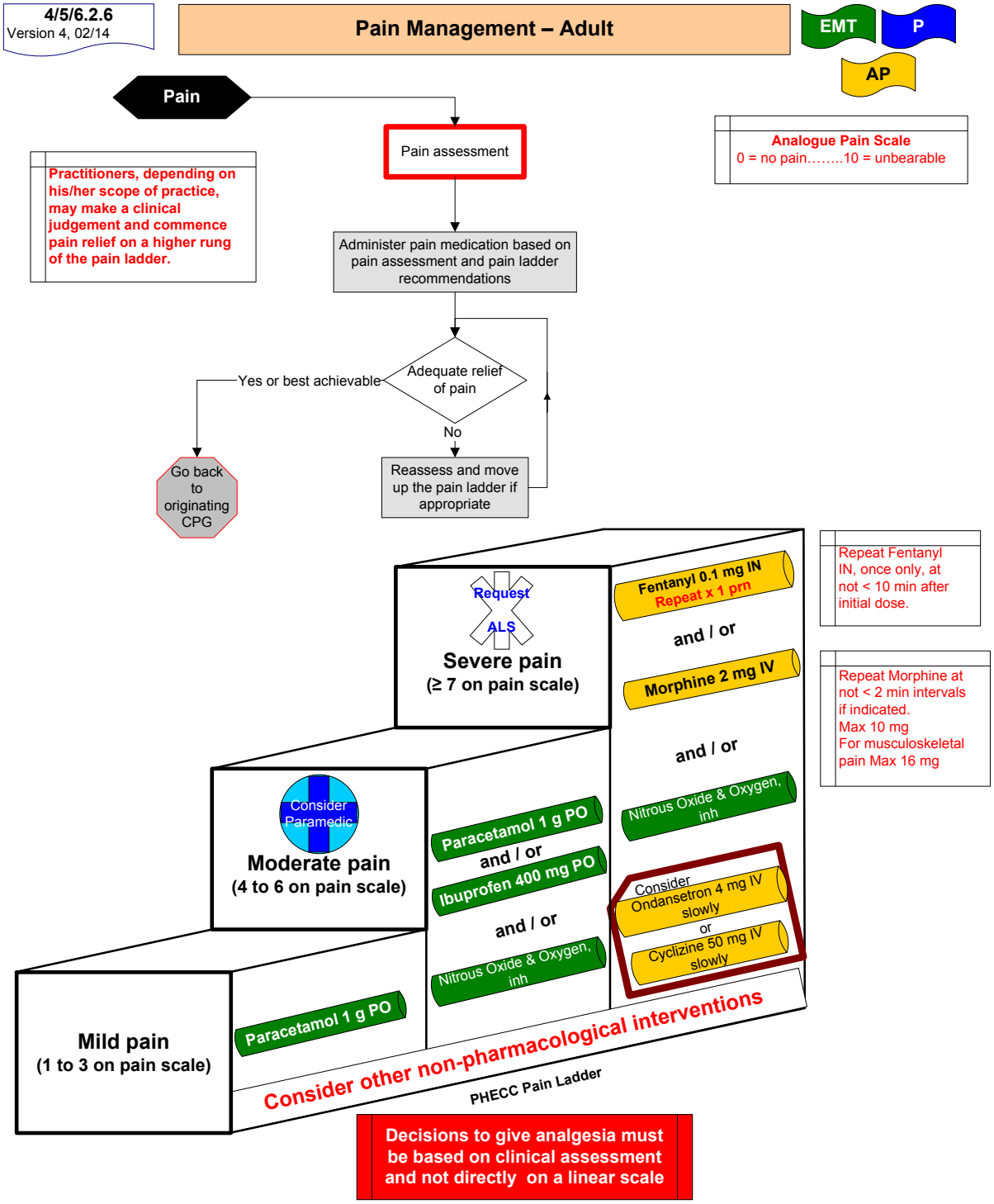


Markers for multi-system trauma
GCS < 13
Systolic BP < 90
Respiratory rate < 10 or > 29
Heart rate > 120
Revised Trauma Score < 12
Mechanism of Injury

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		

Reference: McSwain, N. et al, 2011, PHTLS Prehospital Trauma Life Support, 7th Edition, Mosby

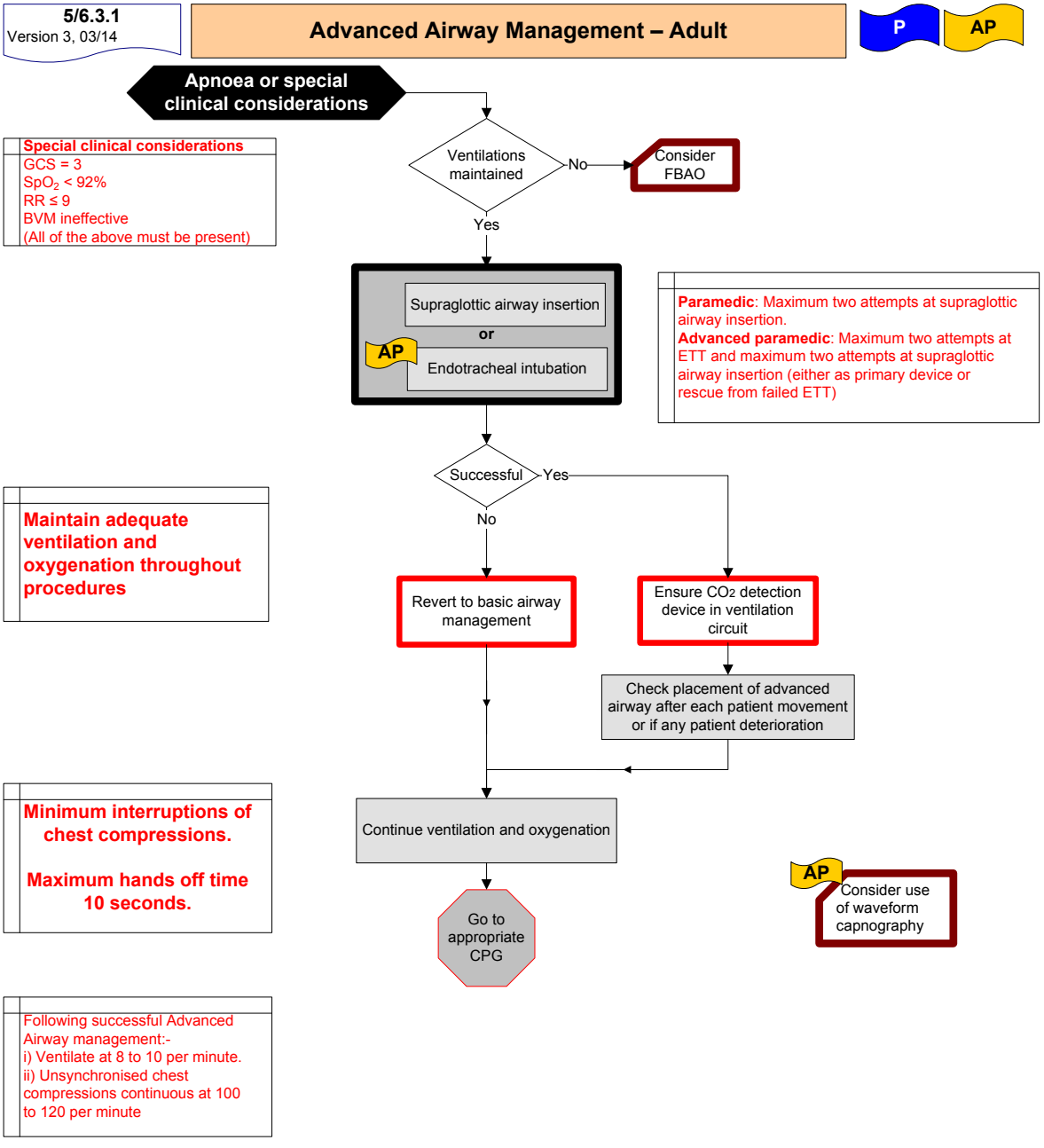
SECTION 2
PATIENT ASSESSMENT



AP **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



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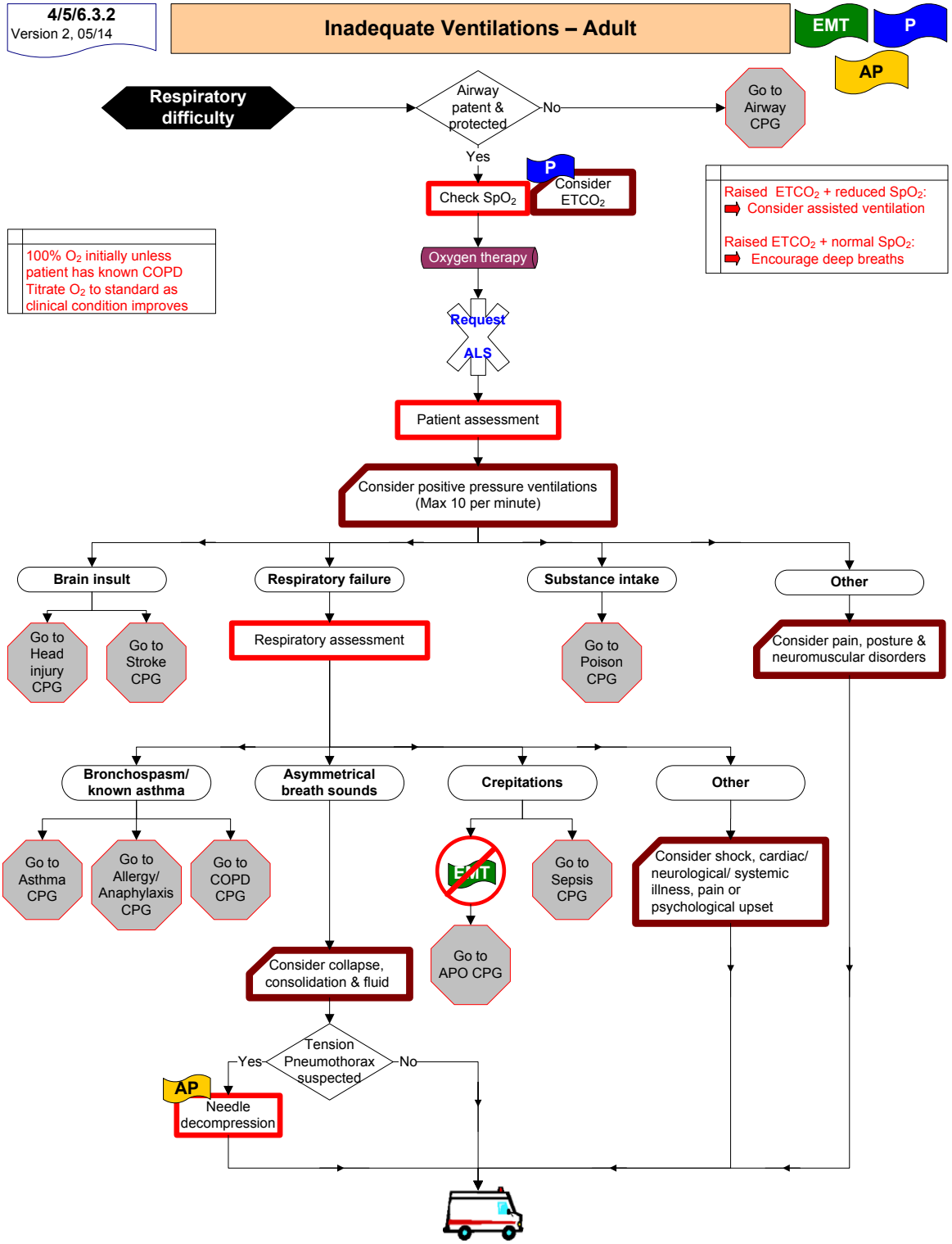

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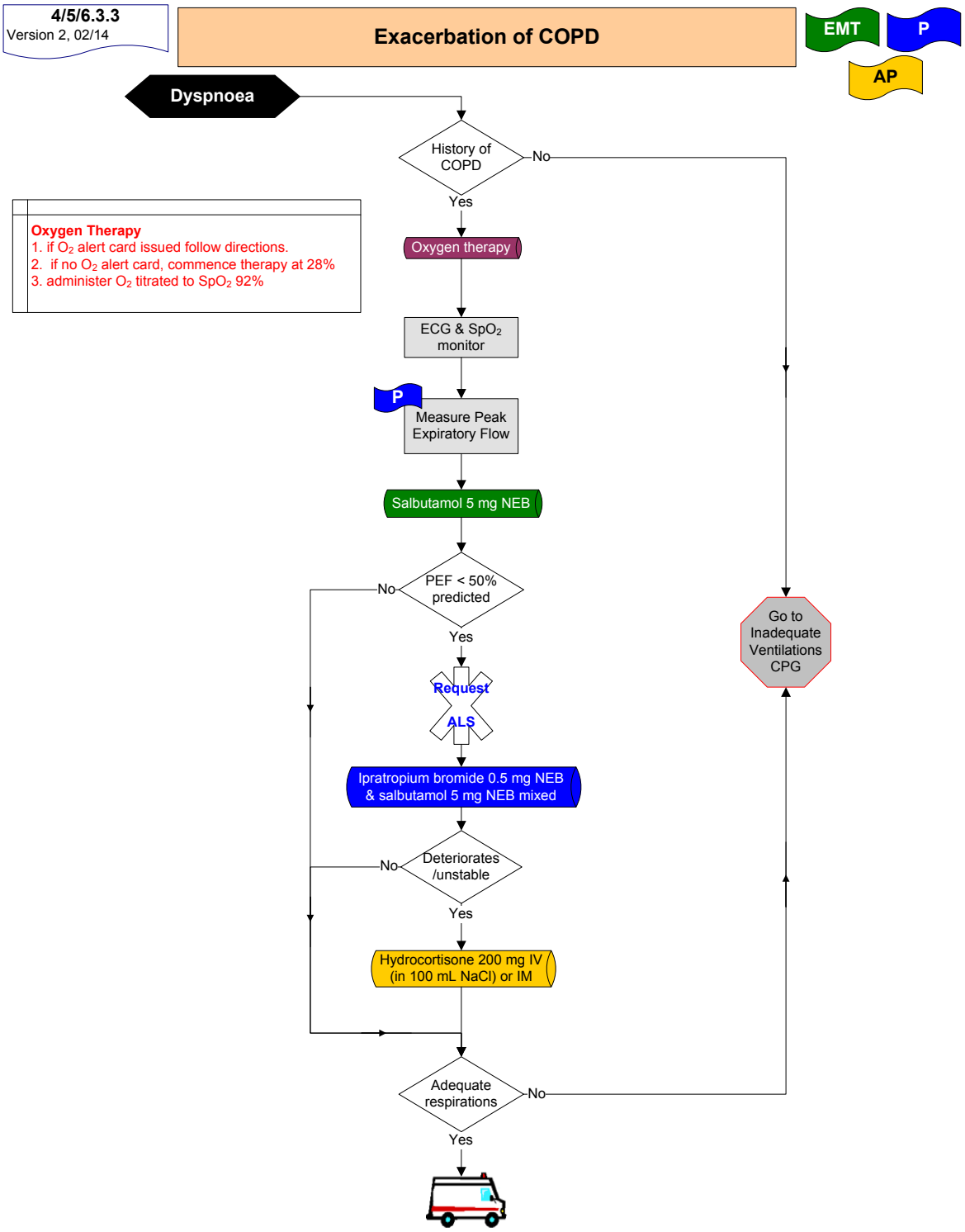
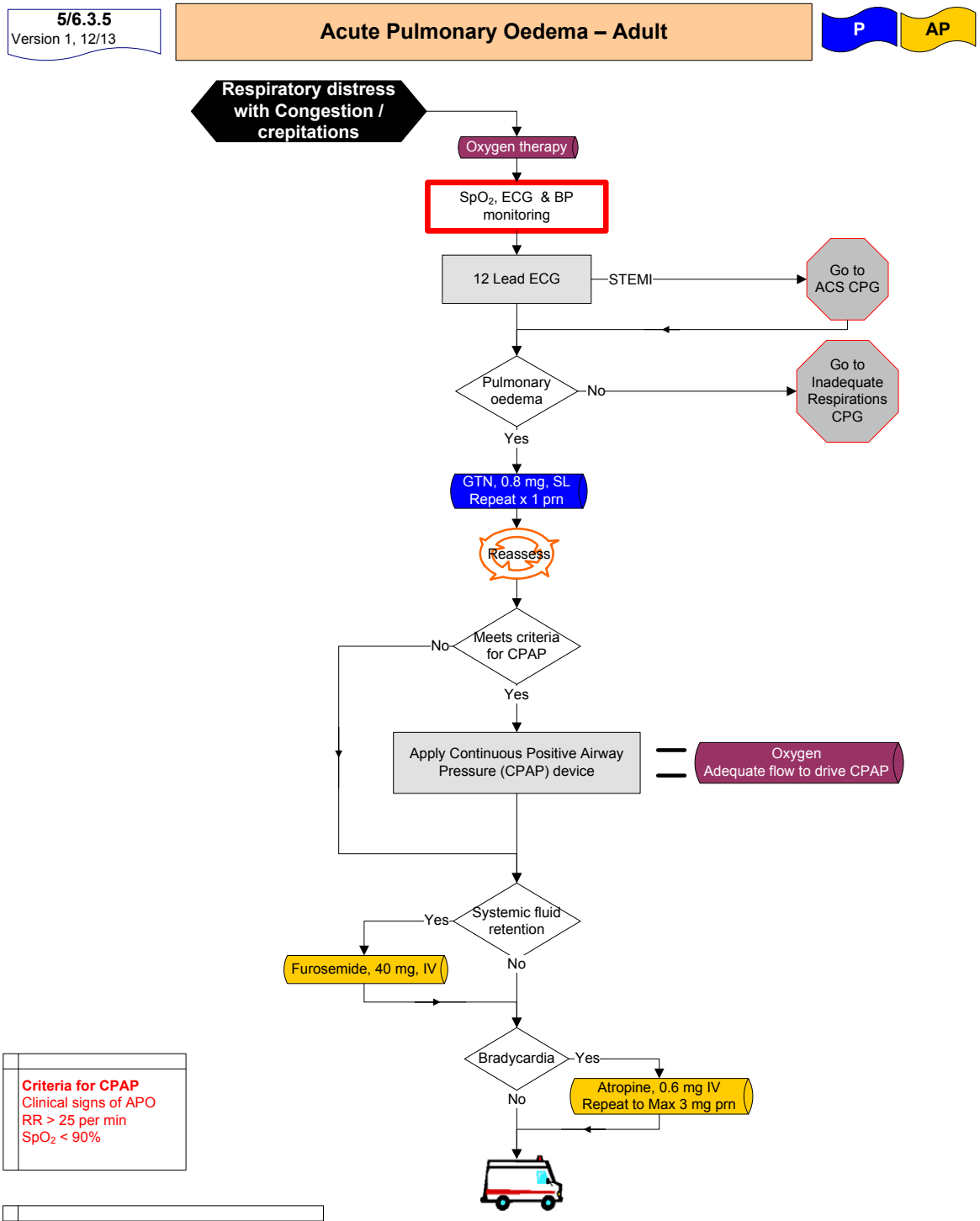


An exacerbation of COPD is defined as;
An event in the natural course of the disease characterised by a change in the patient's baseline dyspnoea, cough and/or sputum beyond day-to-day variability sufficient to warrant a change in management. (European Respiratory Society)

SECTION 3
RESPIRATORY EMERGENCIES

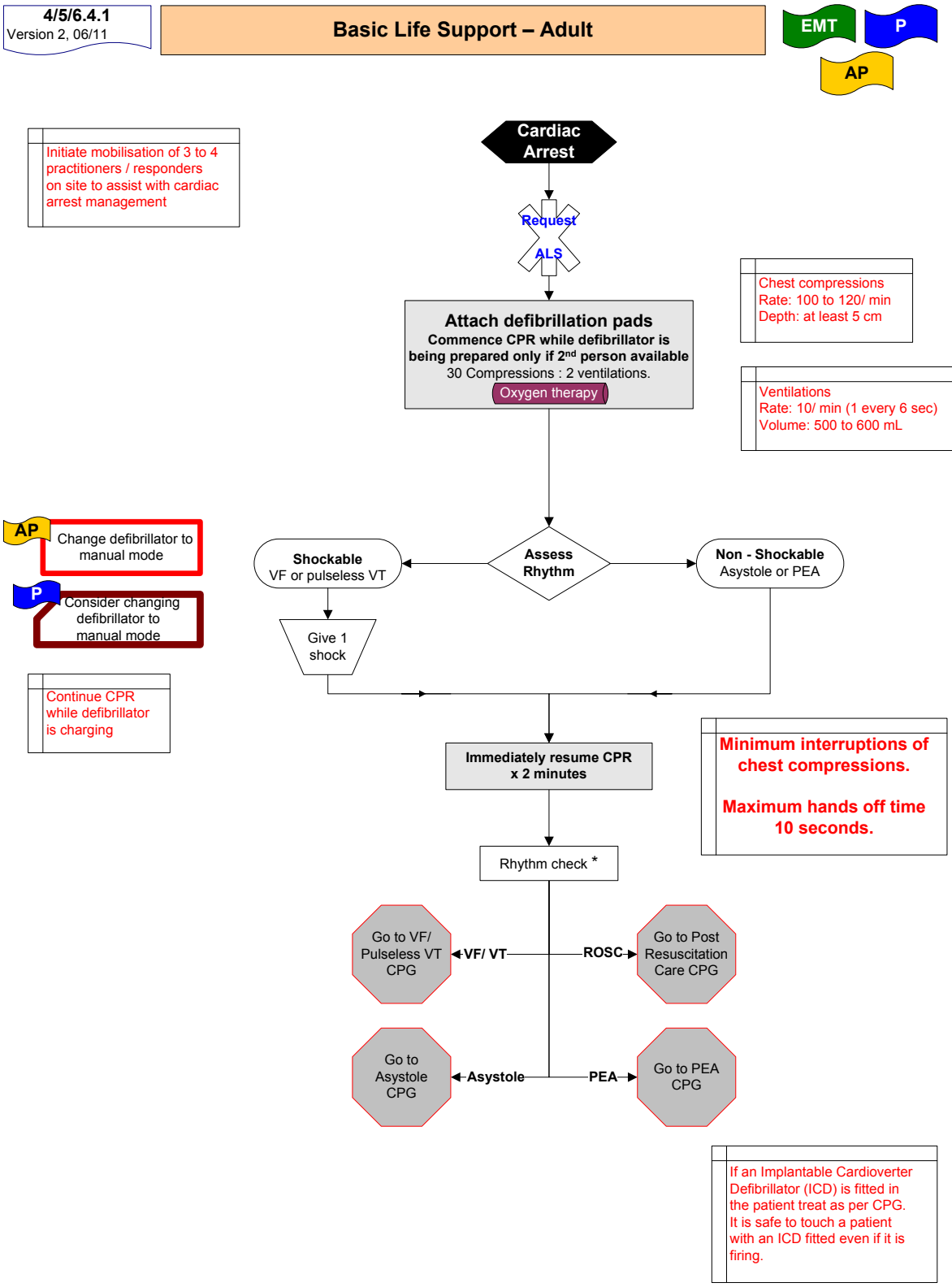
Reference: HSE National Asthma Programme 2012, Emergency Asthma Guidelines, British Thoracic Society, 2008, British Guidelines on the Management of Asthma, a national clinical guideline

SECTION 3
RESPIRATORY EMERGENCIES



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



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

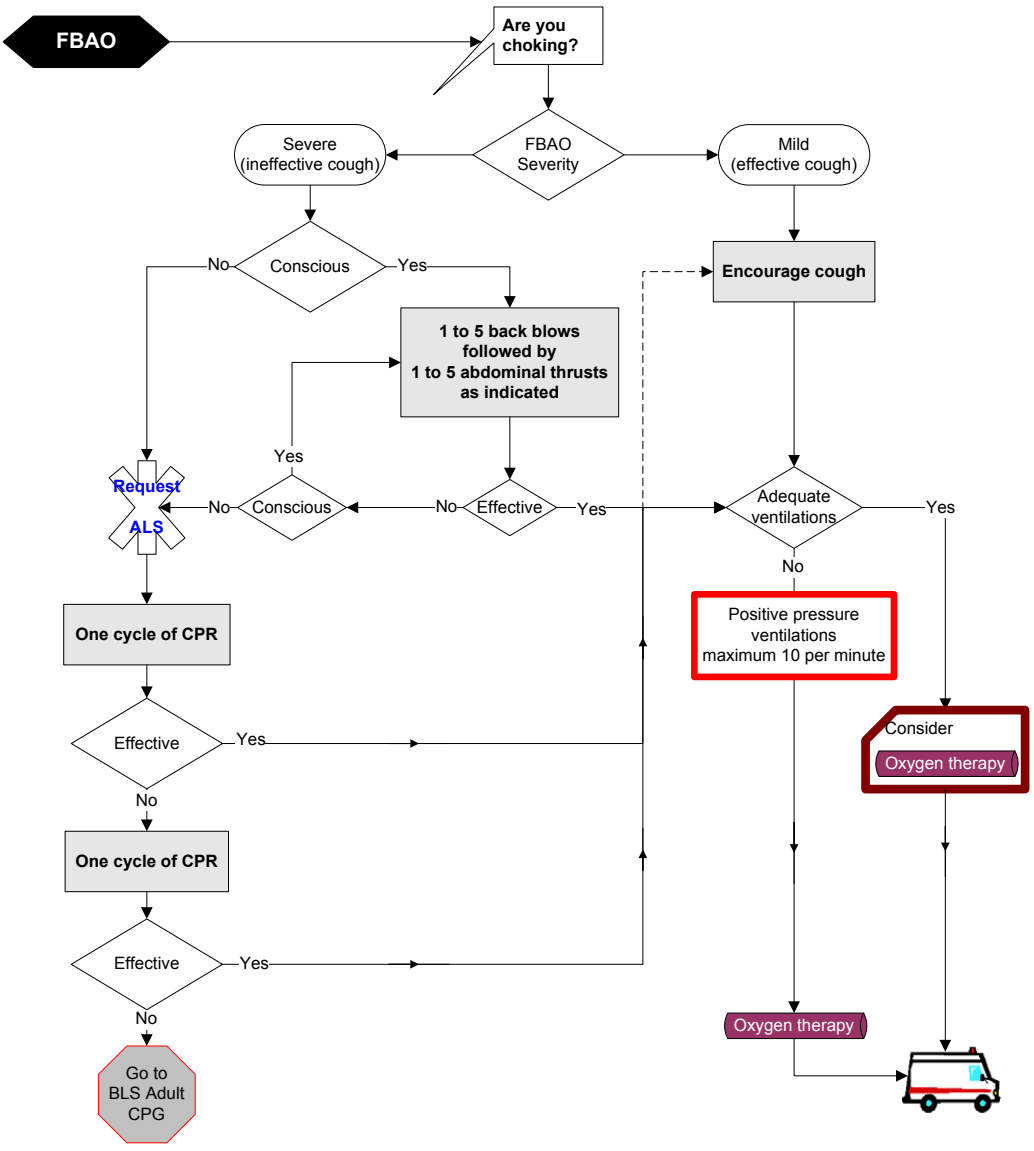
Reference: ILCOR Guidelines 2010

SECTION 4
MEDICAL EMERGENCIES

4/5.4.2
Version 1, 05/08

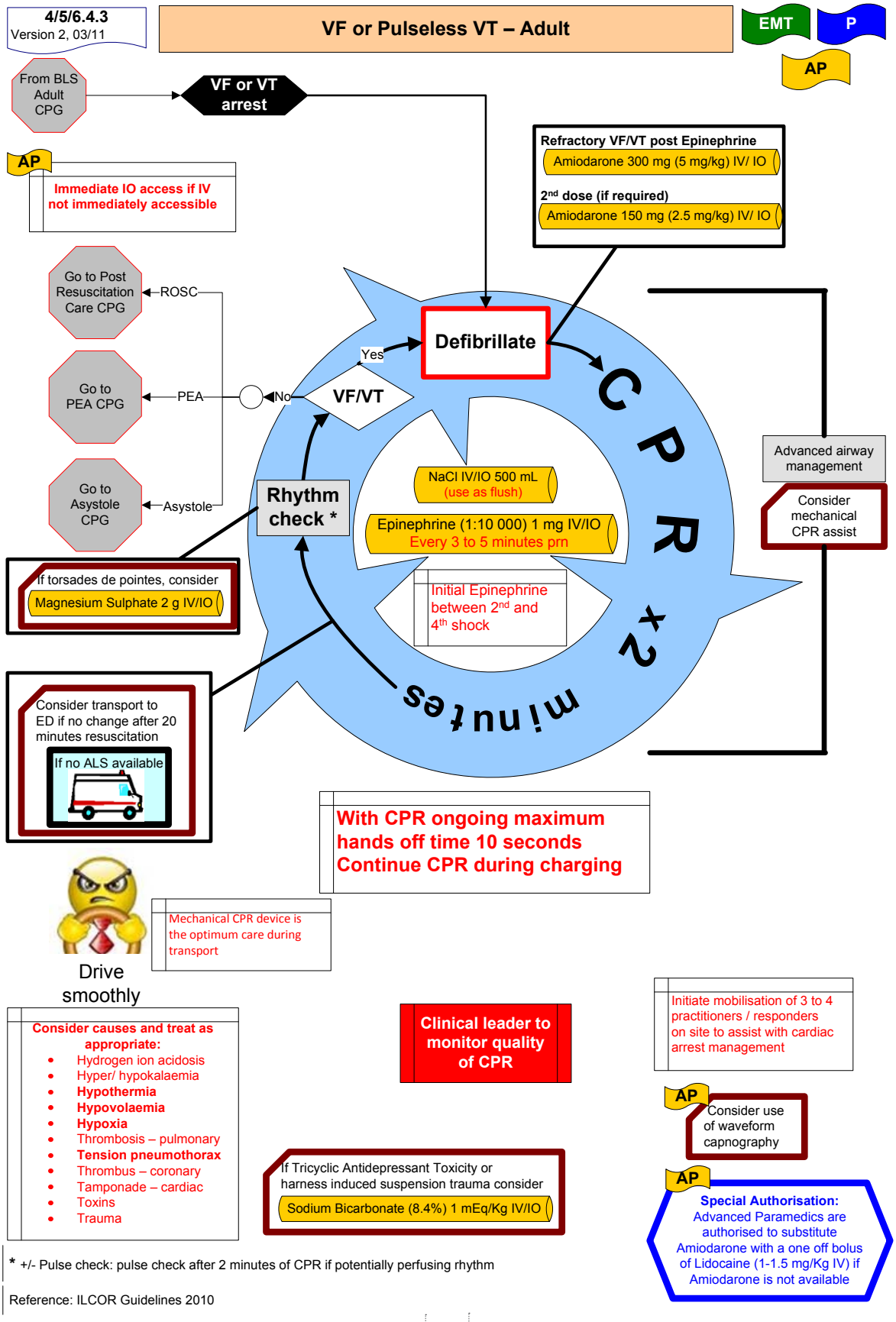
Foreign Body Airway Obstruction – Adult

EMT P



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

SECTION 4
MEDICAL EMERGENCIES



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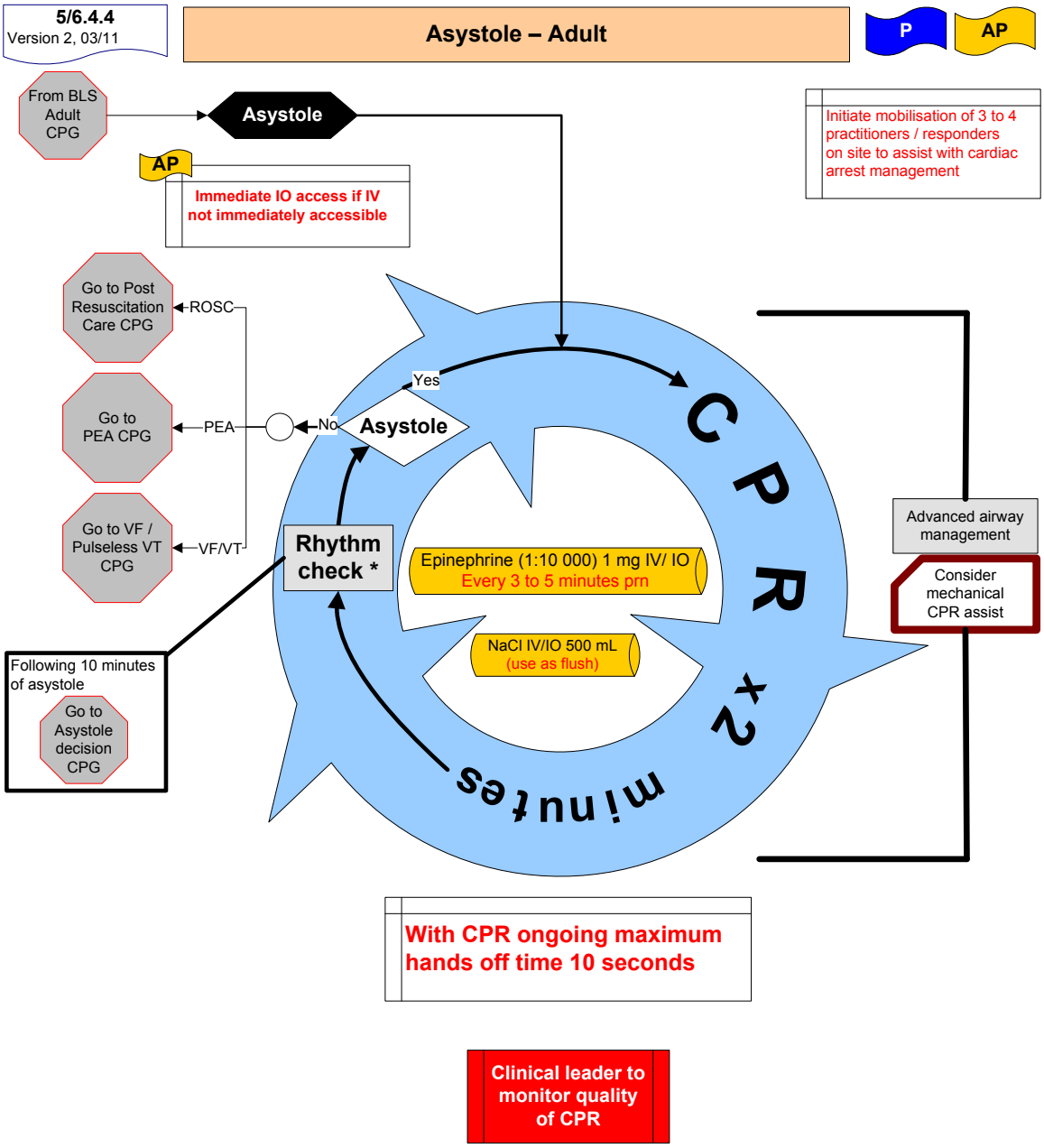

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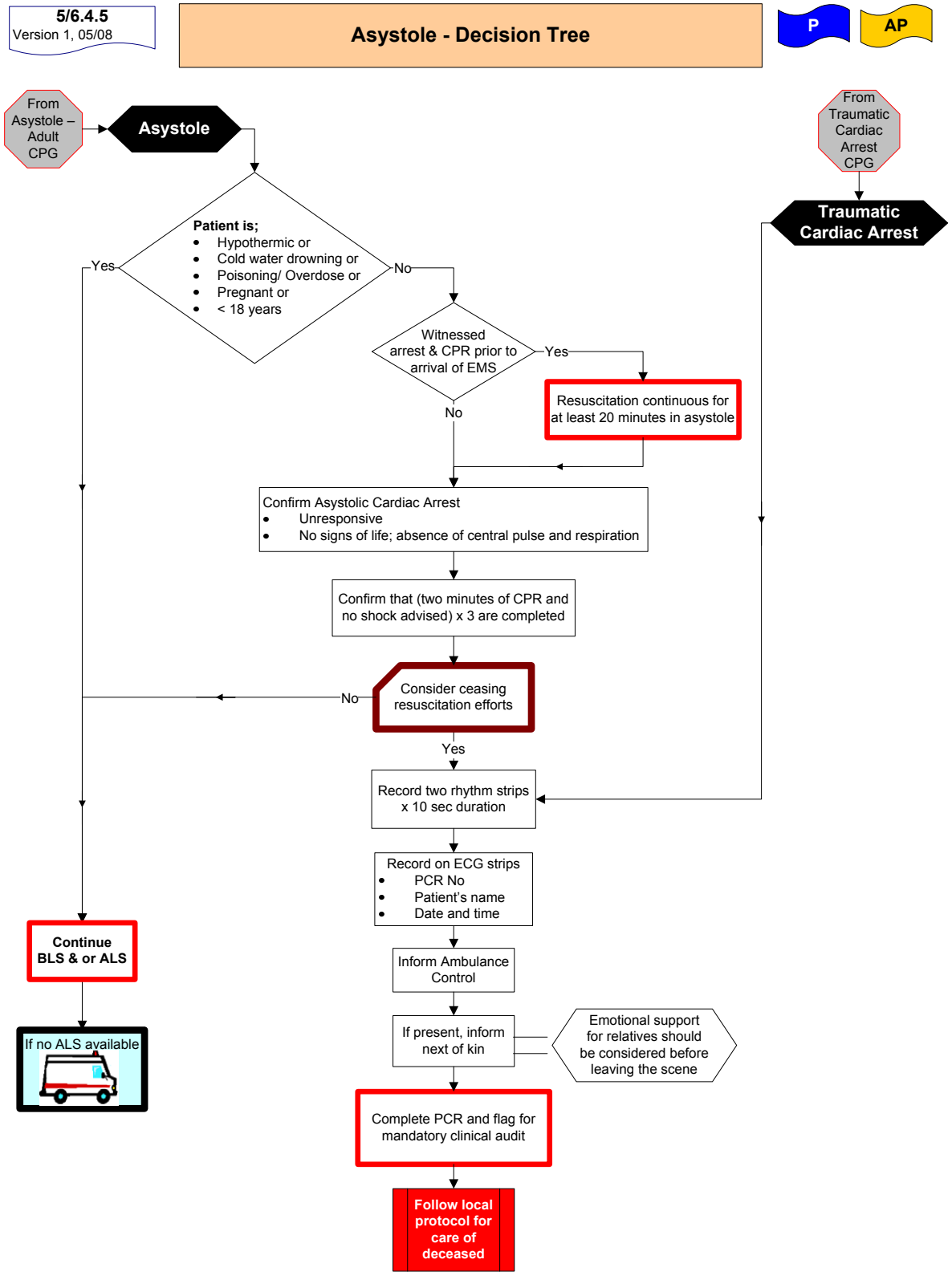

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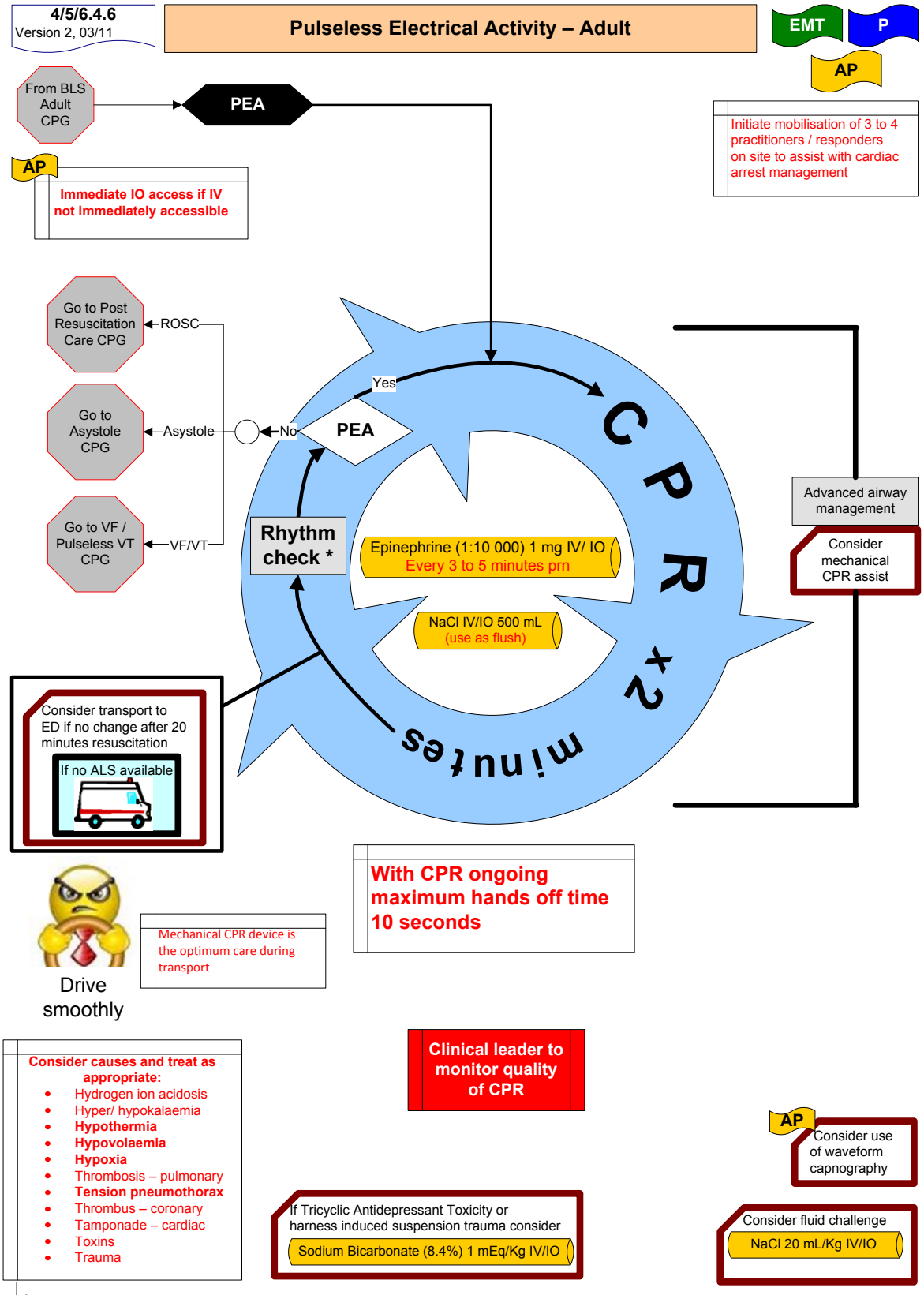

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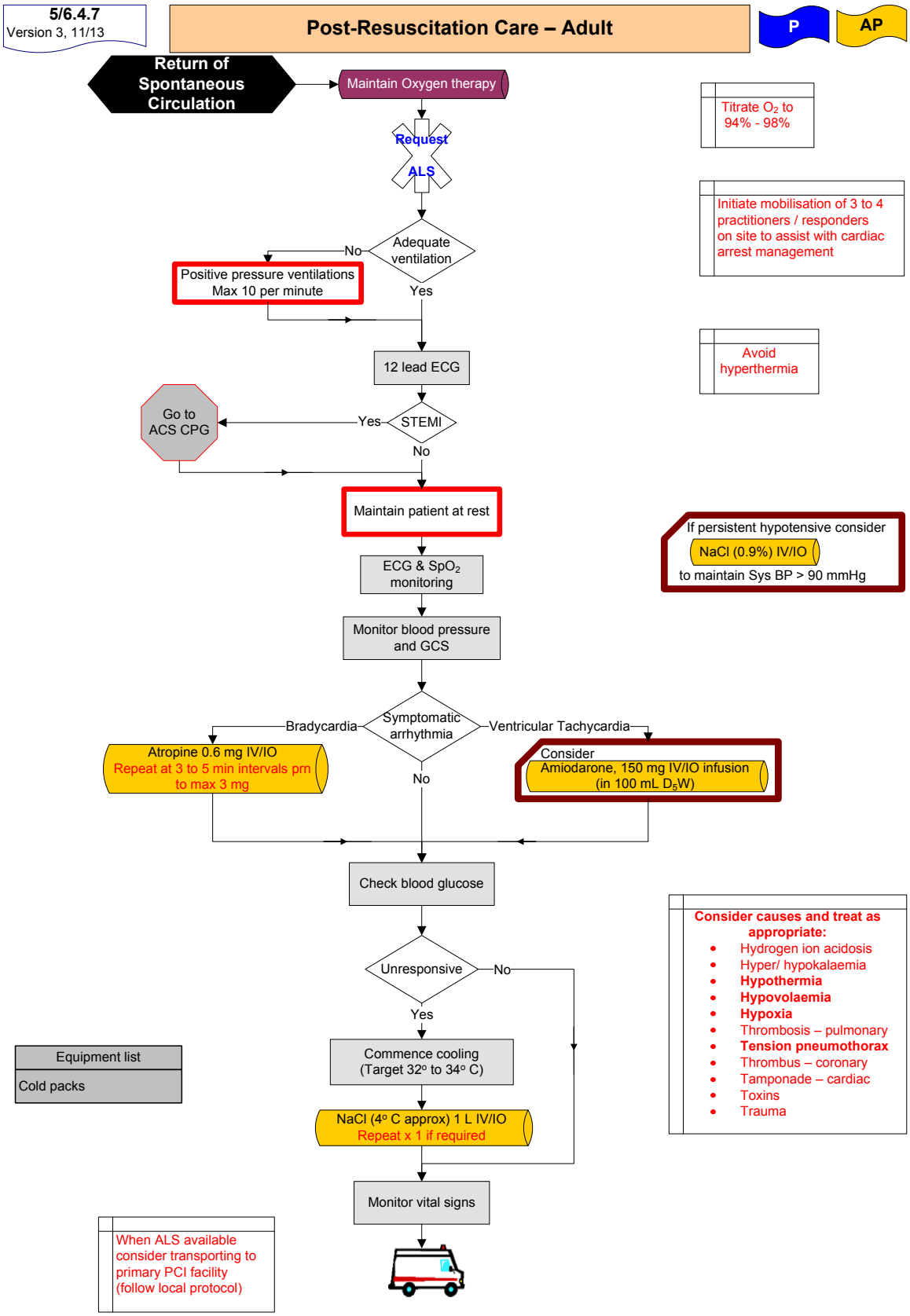
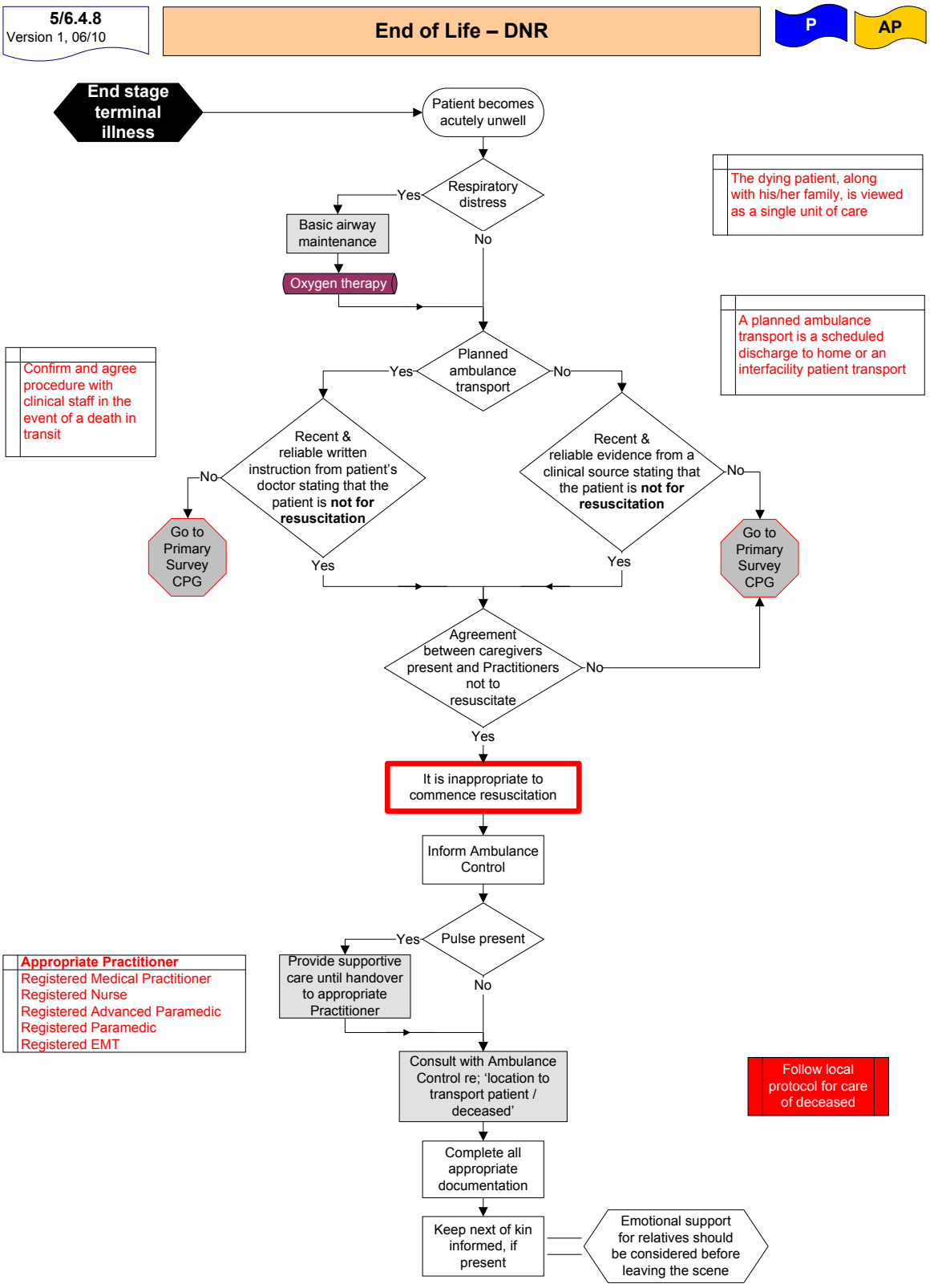


Reference: ILCOR Guidelines 2010

SECTION 4
MEDICAL EMERGENCIES

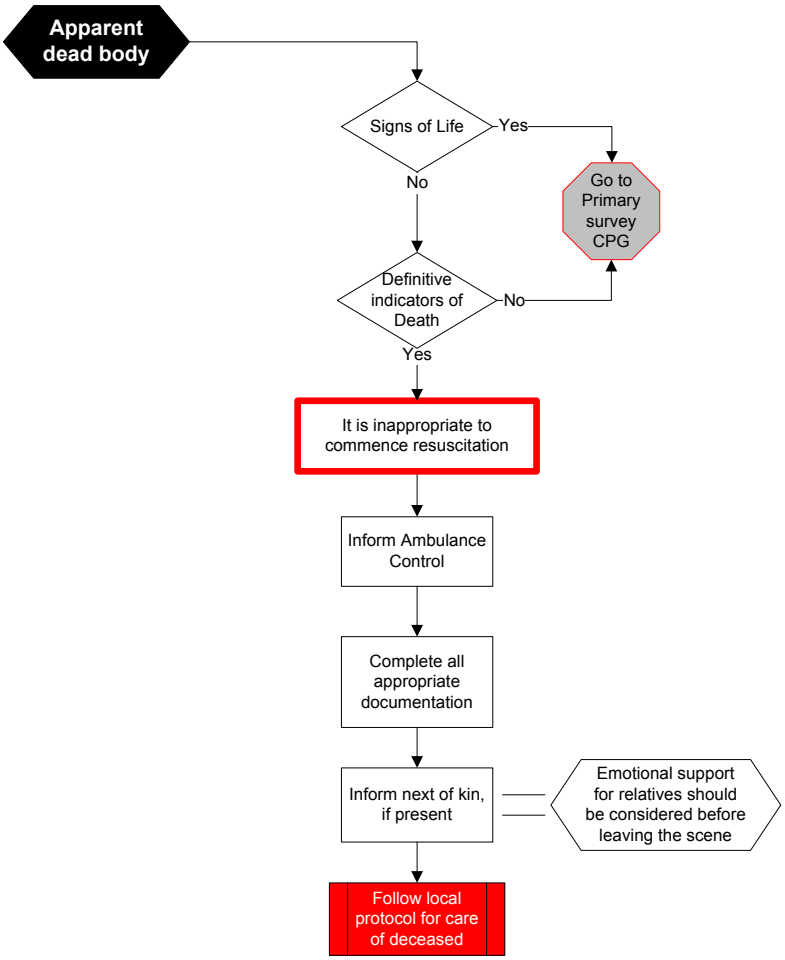


SECTION 4
MEDICAL EMERGENCIES

5/6.4.9
Version 2, 06/11

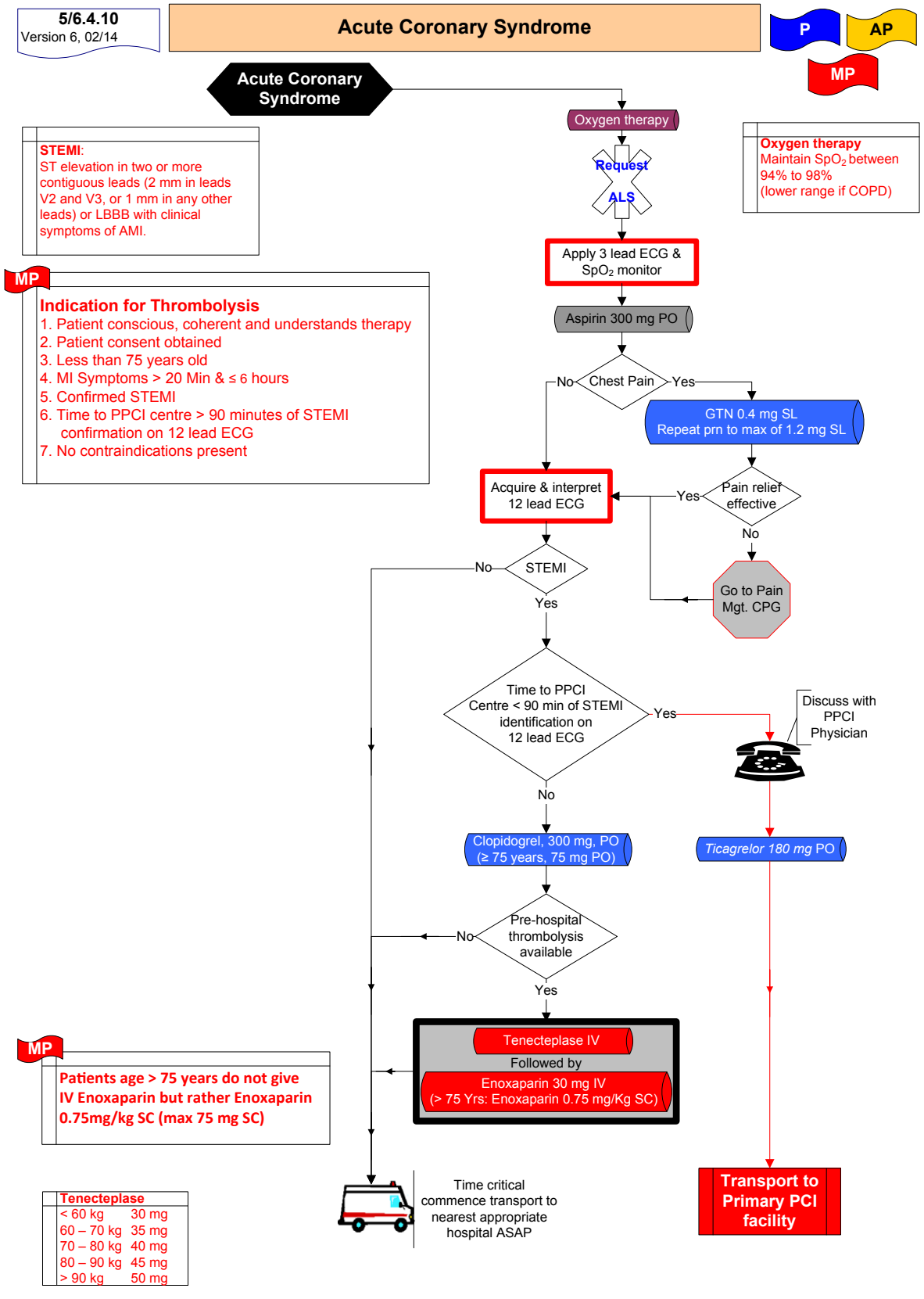
Recognition of Death – Resuscitation not Indicated

P AP



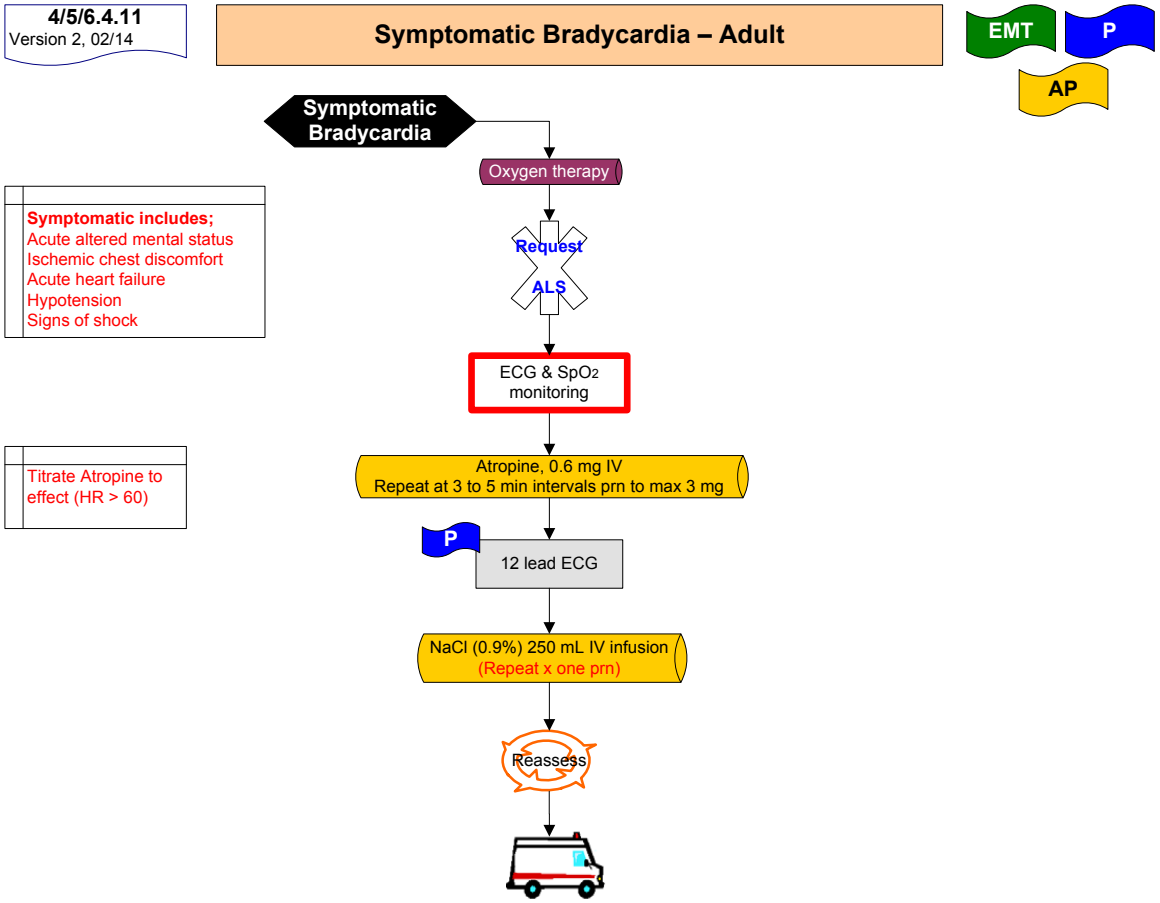
	Definitive indicators of death:
	1. Decomposition
	2. Obvious rigor mortis
	3. Obvious pooling (hypostasis)
	4. Incineration
	5. Decapitation
	6. Injuries totally incompatible with life
	7. Unwitnessed traumatic cardiac arrest following blunt trauma (see CPG 5/6.6.11)

SECTION 4
MEDICAL EMERGENCIES



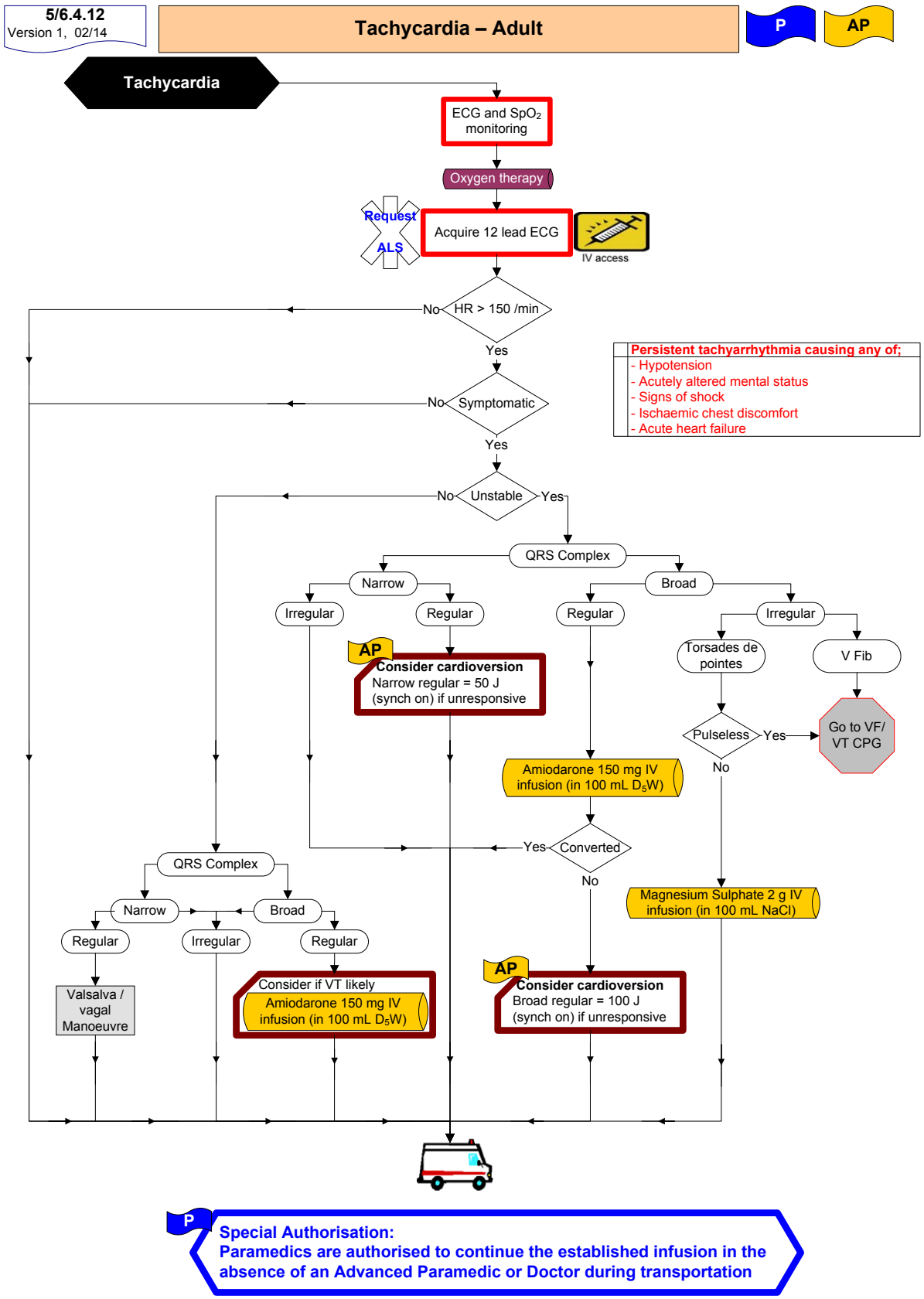
Reference: HSE ACS Programme 2013, ILCOR Guidelines 2010, ECS Guidelines 2010

SECTION 4
MEDICAL EMERGENCIES



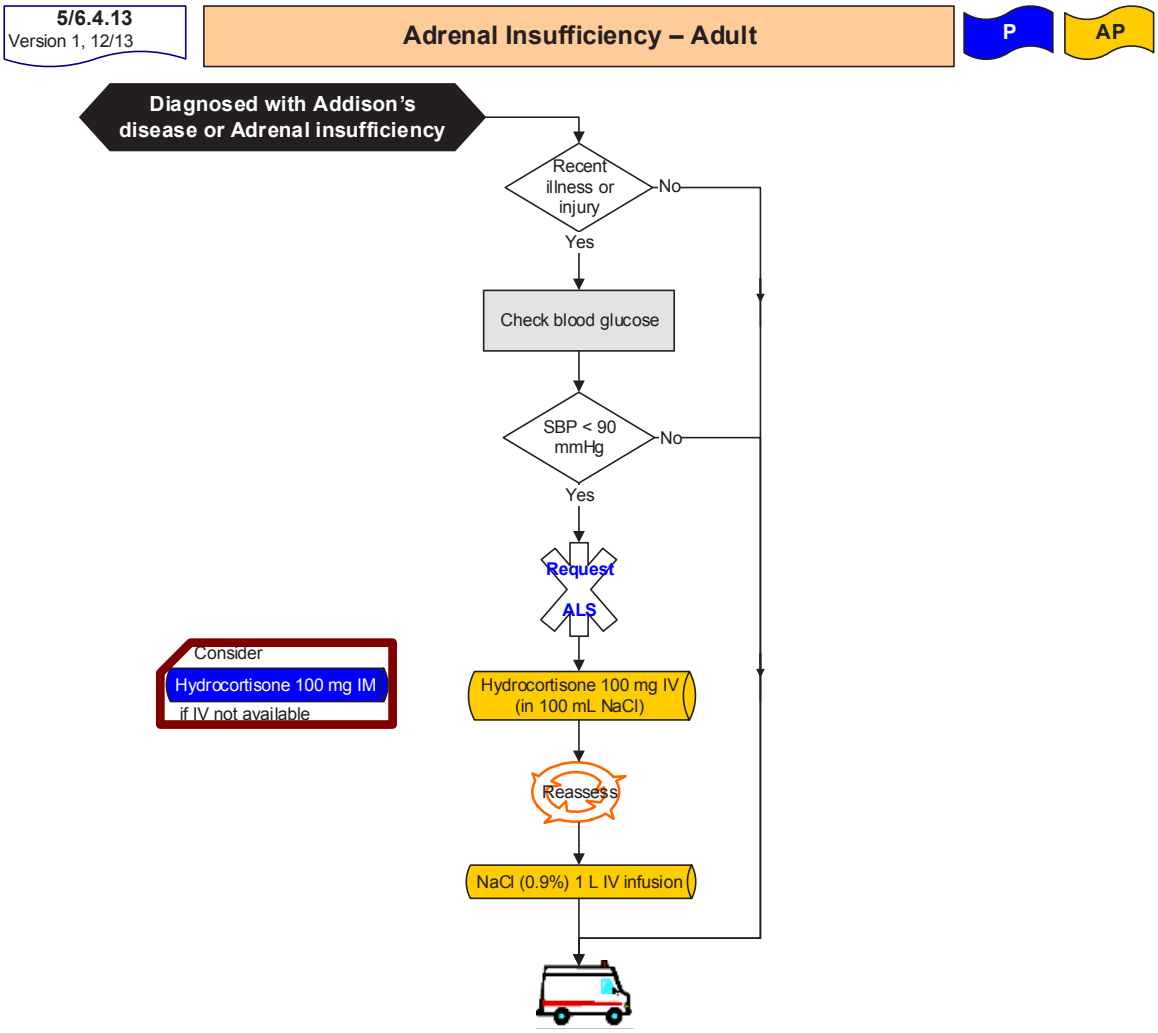
Reference: ILCOR guidelines 2010

SECTION 4
MEDICAL EMERGENCIES



Reference: ILCOR Guidelines 2010

SECTION 4
MEDICAL EMERGENCIES



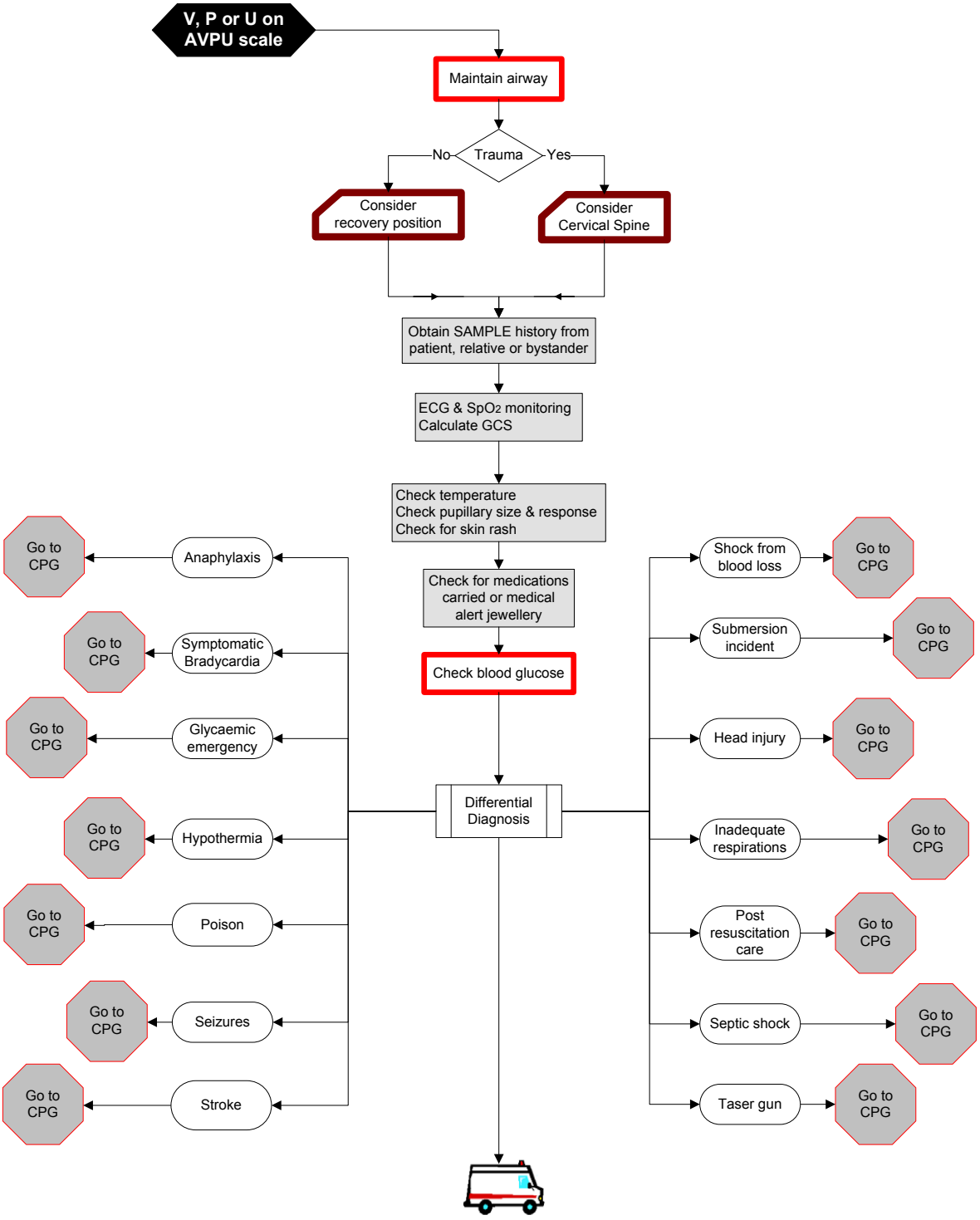
P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

SECTION 4
MEDICAL EMERGENCIES

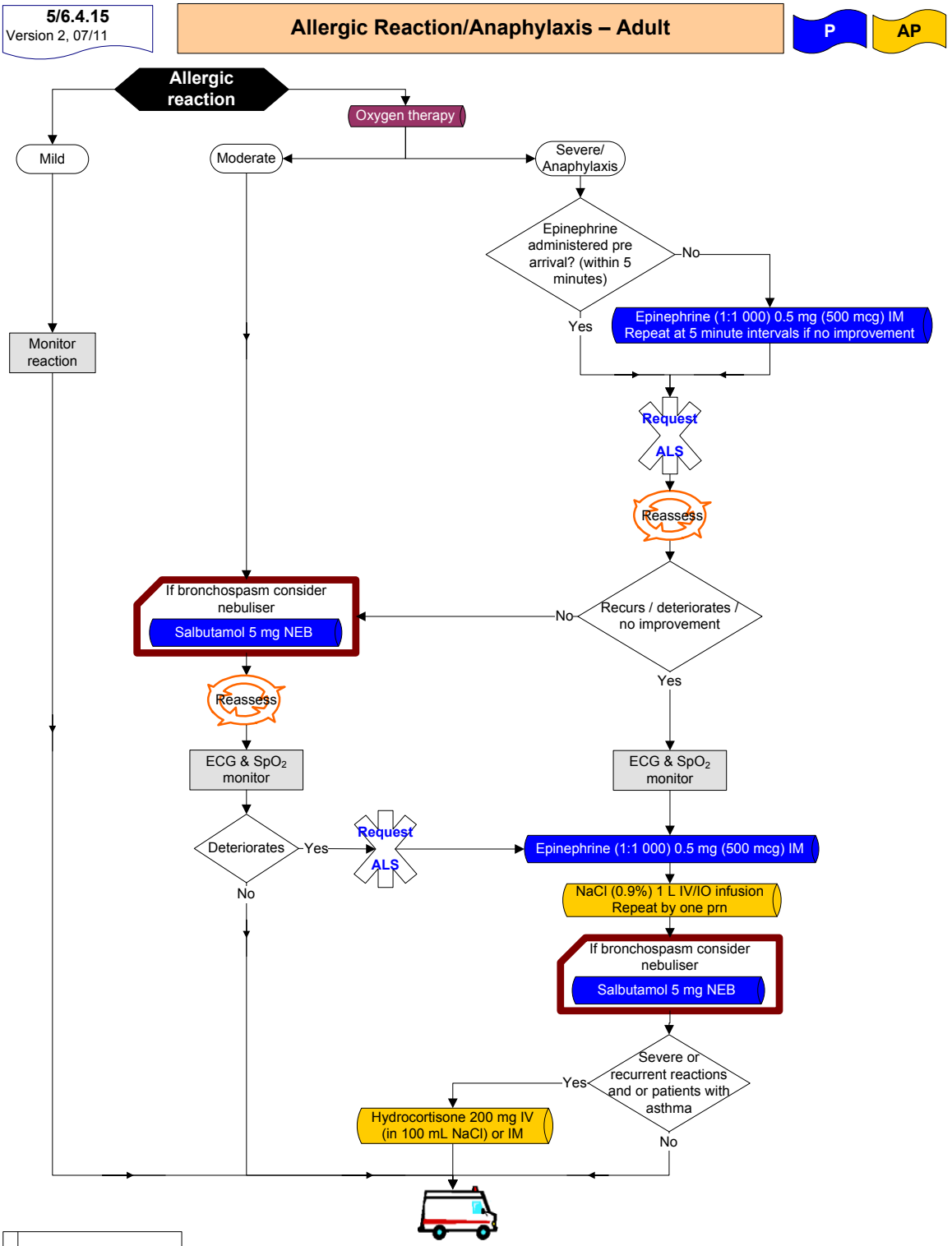
5/6.4.14
Version 1, 05/08

Altered Level of Consciousness – Adult

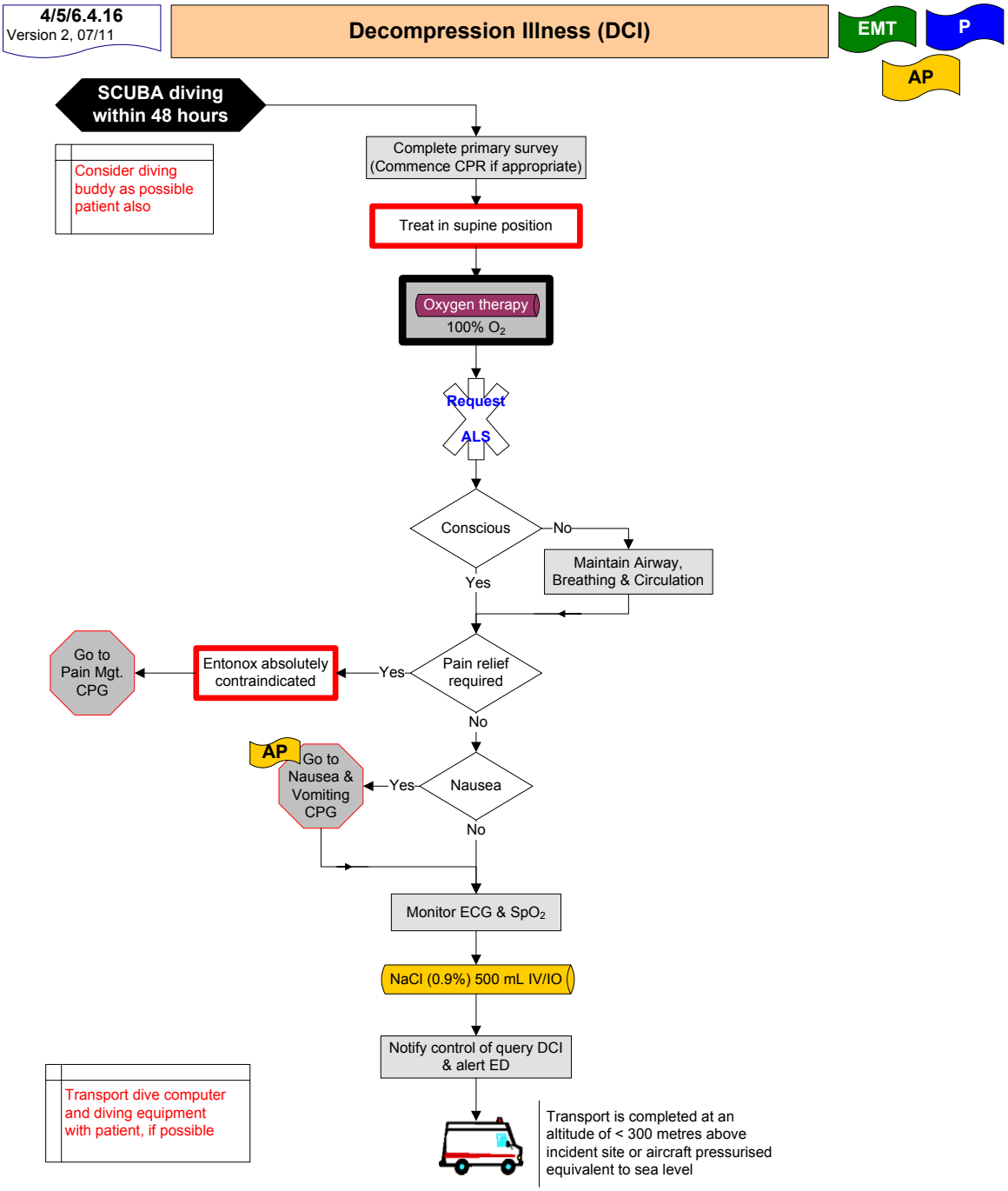
P AP



SECTION 4
MEDICAL EMERGENCIES



SECTION 4
MEDICAL EMERGENCIES



P **Special Authorisation:**
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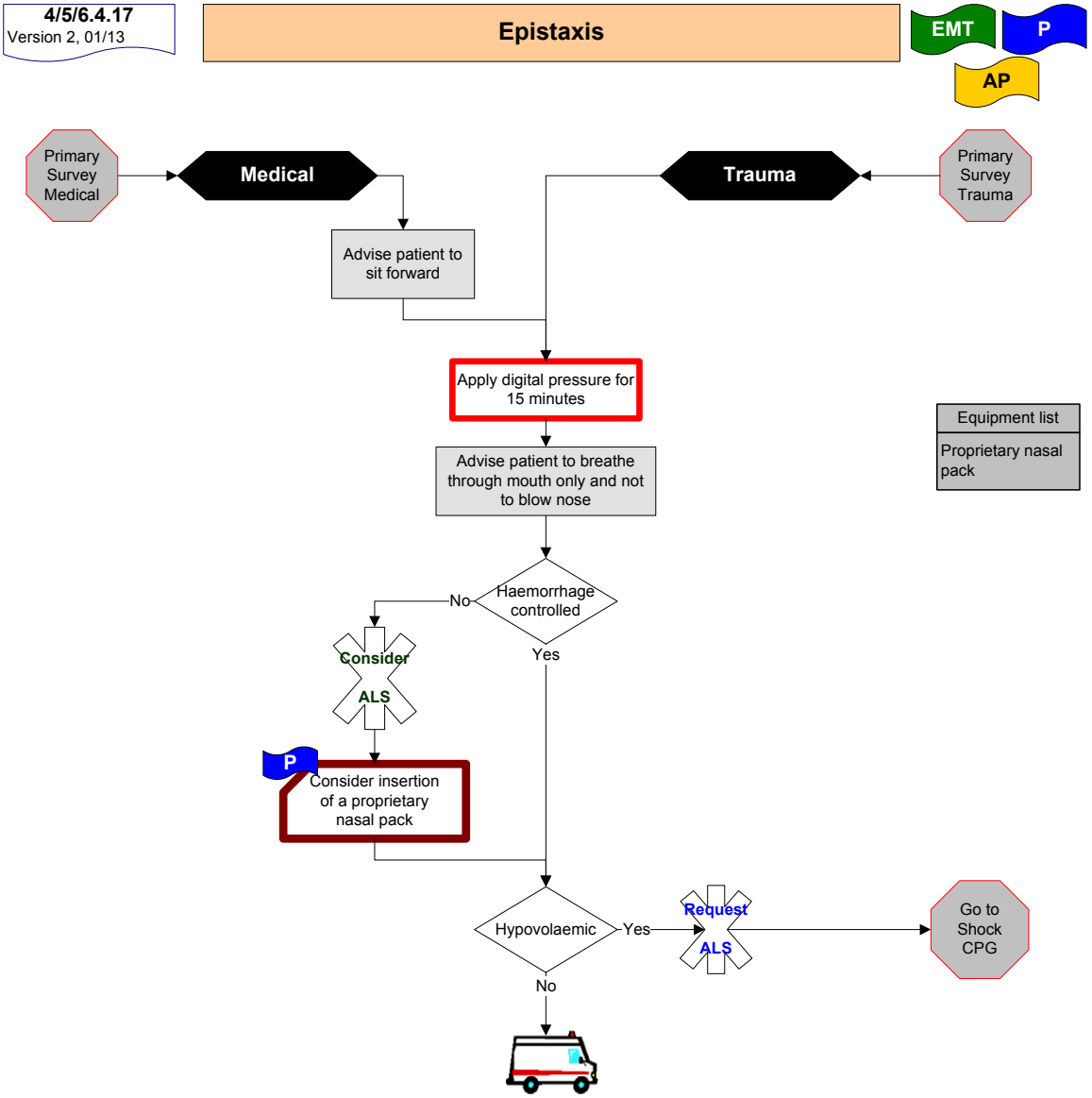
Reference: The Primary Clinical Care Manual 3rd Edition, 2003, Queensland Health and the Royal Flying Doctor Service (Queensland Section)

SECTION 4
MEDICAL EMERGENCIES



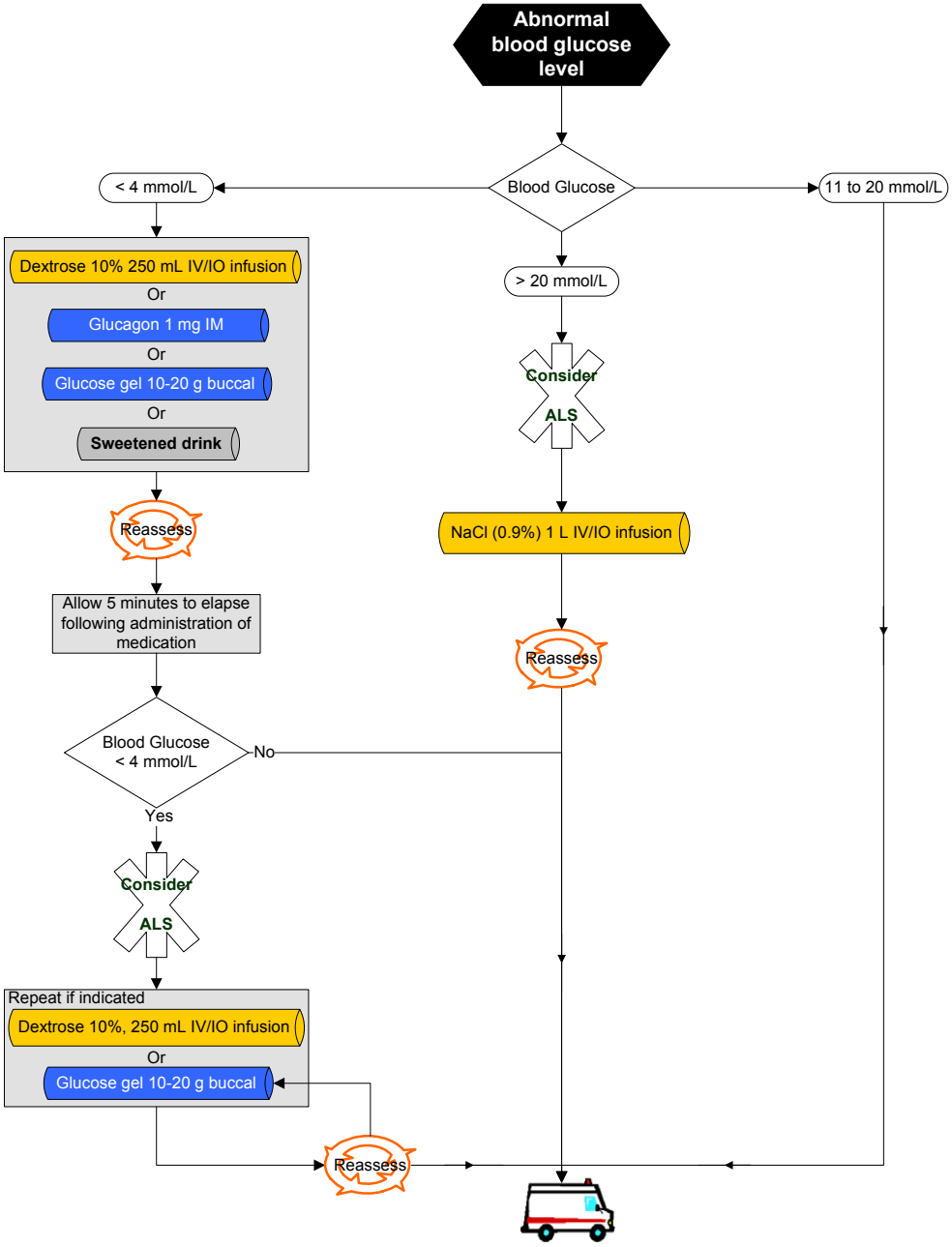
Reference: Management of Acute Epistaxis 2011, Ola Bamimore, MD; Chief Editor: Steven C Dronen, MD, http://emedicine.medscape.com/article/764719-overview#showall

SECTION 4
MEDICAL EMERGENCIES

5/6.4.19
Version 1, 05/08

Glycaemic Emergency – Adult

P AP



P **Special Authorisation:**
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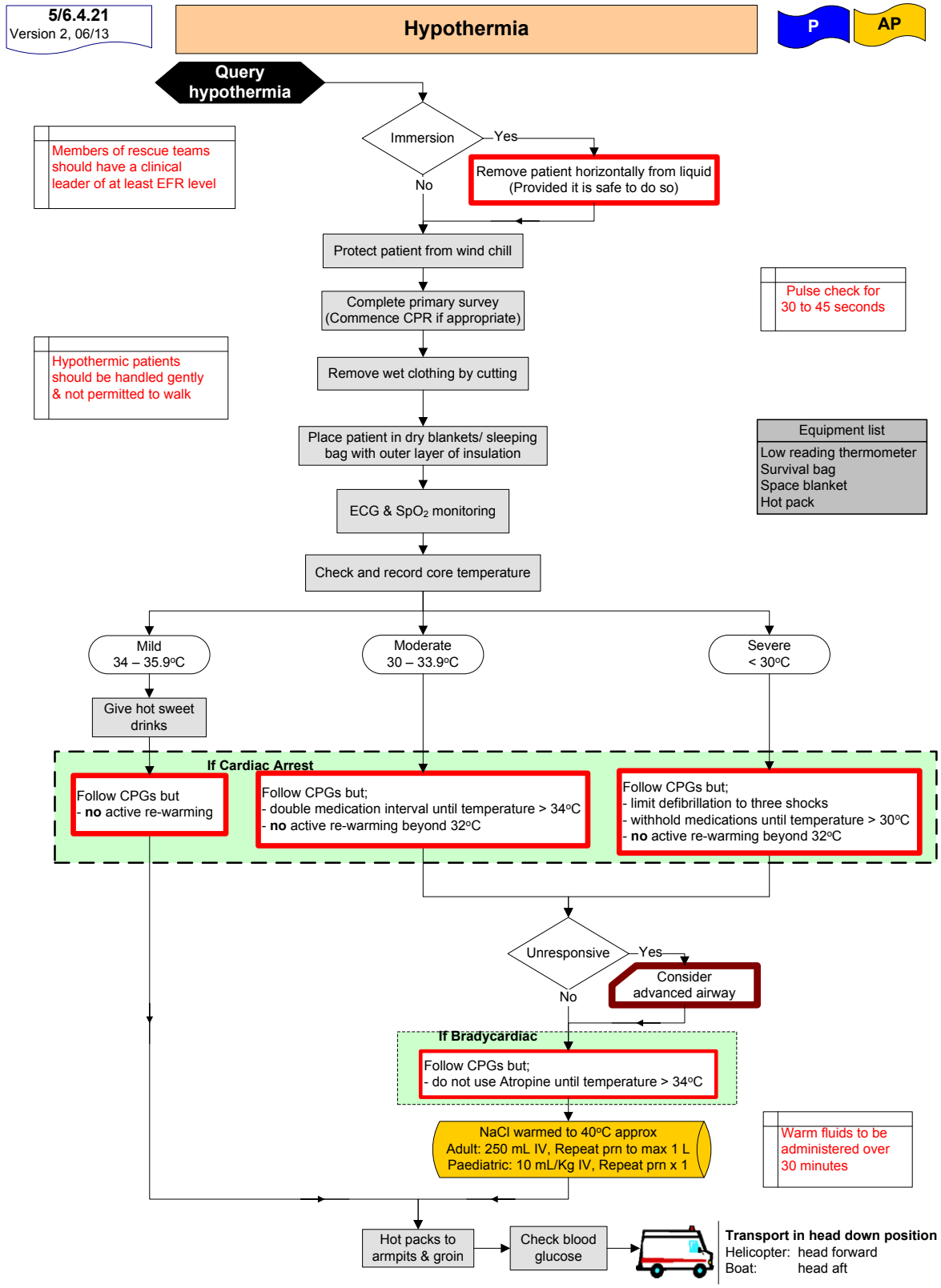
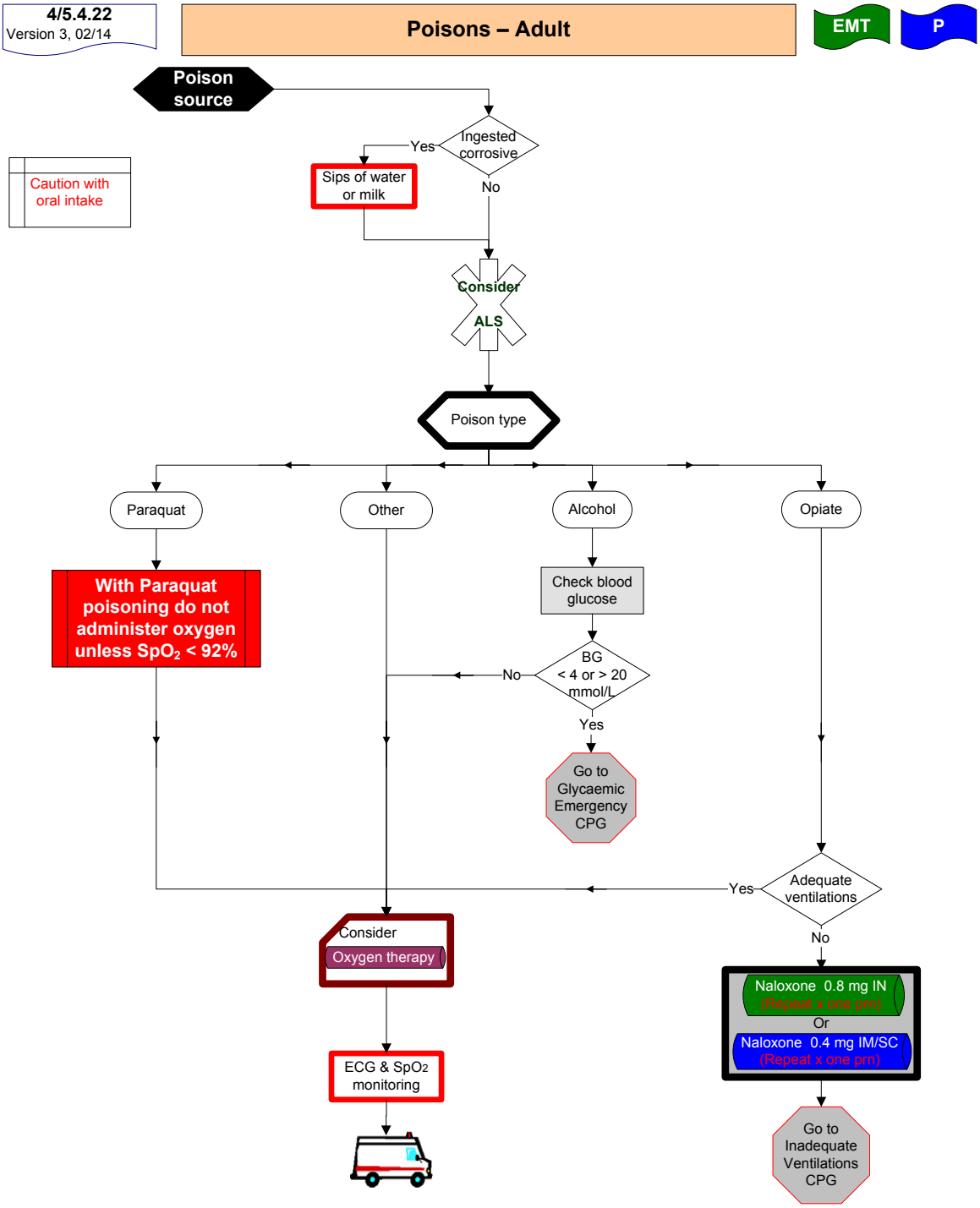
SECTION 4
MEDICAL EMERGENCIES



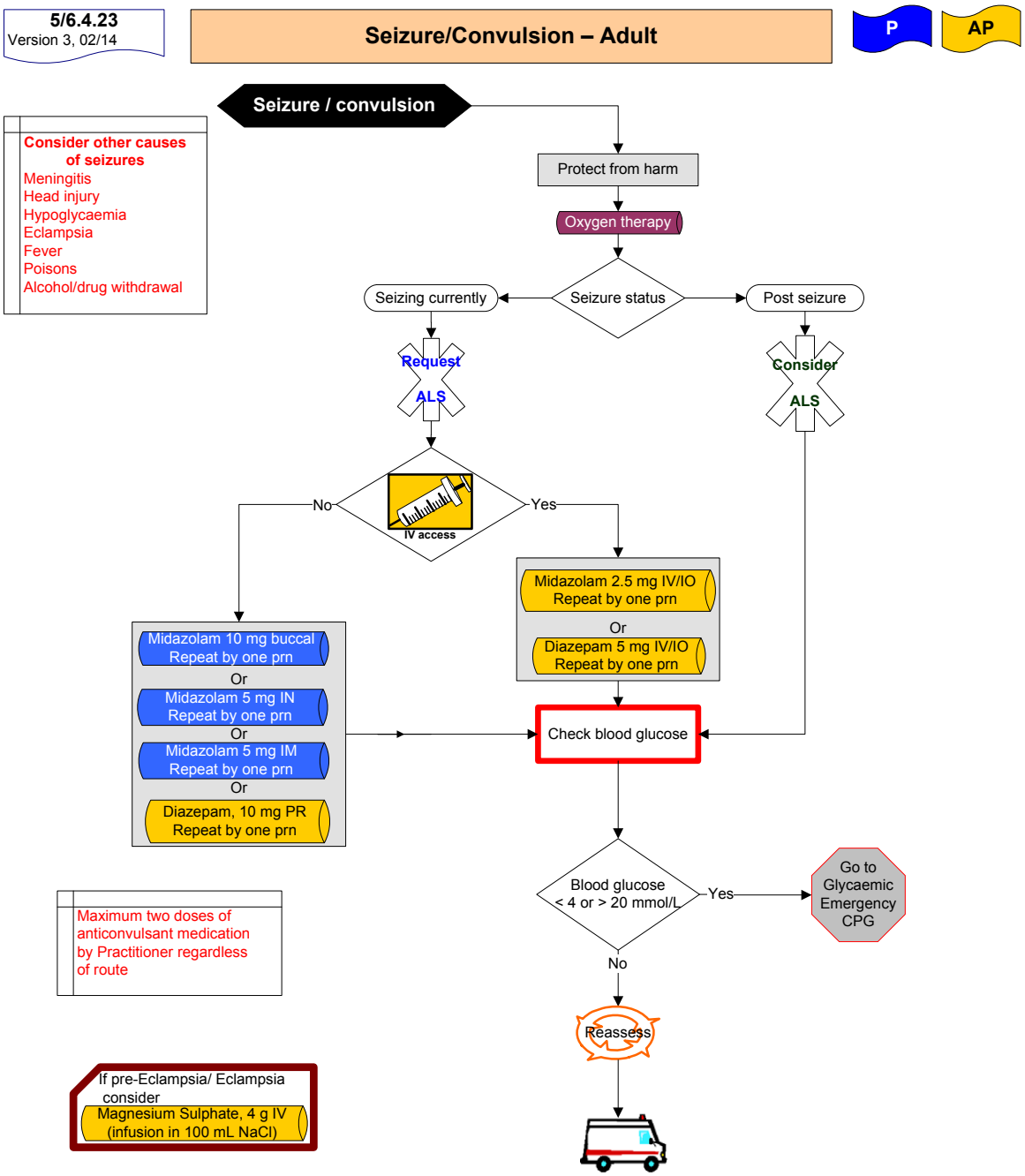
Reference: Golden, F & Tipton M, 2002, Essentials of Sea Survival, Human Kinetics
AHA, 2005, Part 10.4: Hypothermia, Circulation 2005:112;136-138
Soar, J et al, 2005, European Resuscitation Council Guidelines for Resuscitation 2005, Section 7. Cardiac arrest in special circumstances, Resuscitation (2005)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

SECTION 4
MEDICAL EMERGENCIES



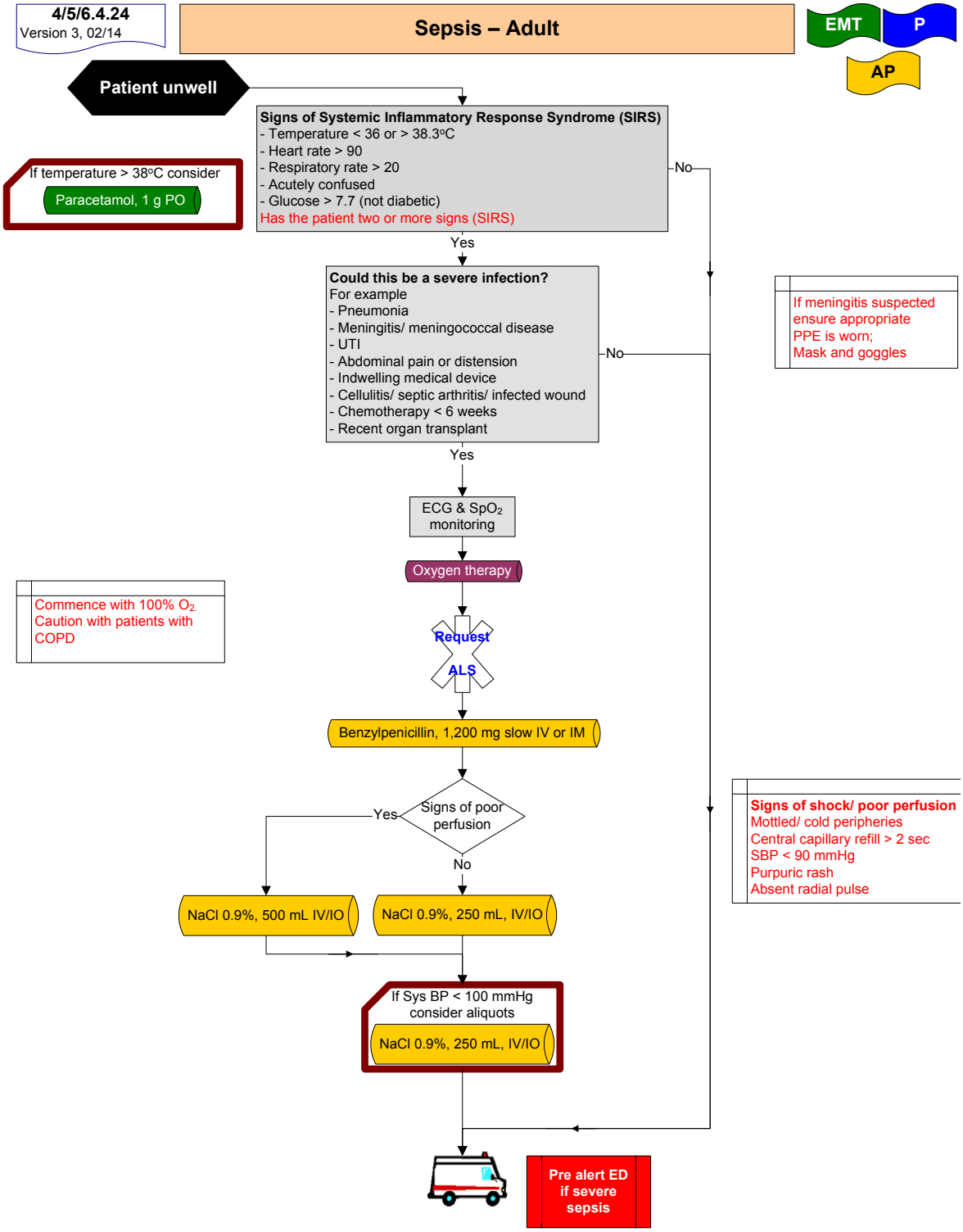
Reference:
ILCOR Guidelines 2010
Boyer, E, 2012, Management of Opioid Analgesic Overdose, N Engl J Med 2012;367:146-55.DOI: 10.1056/NEJMra1202561

SECTION 4
MEDICAL EMERGENCIES



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



P **Special Authorisation:**
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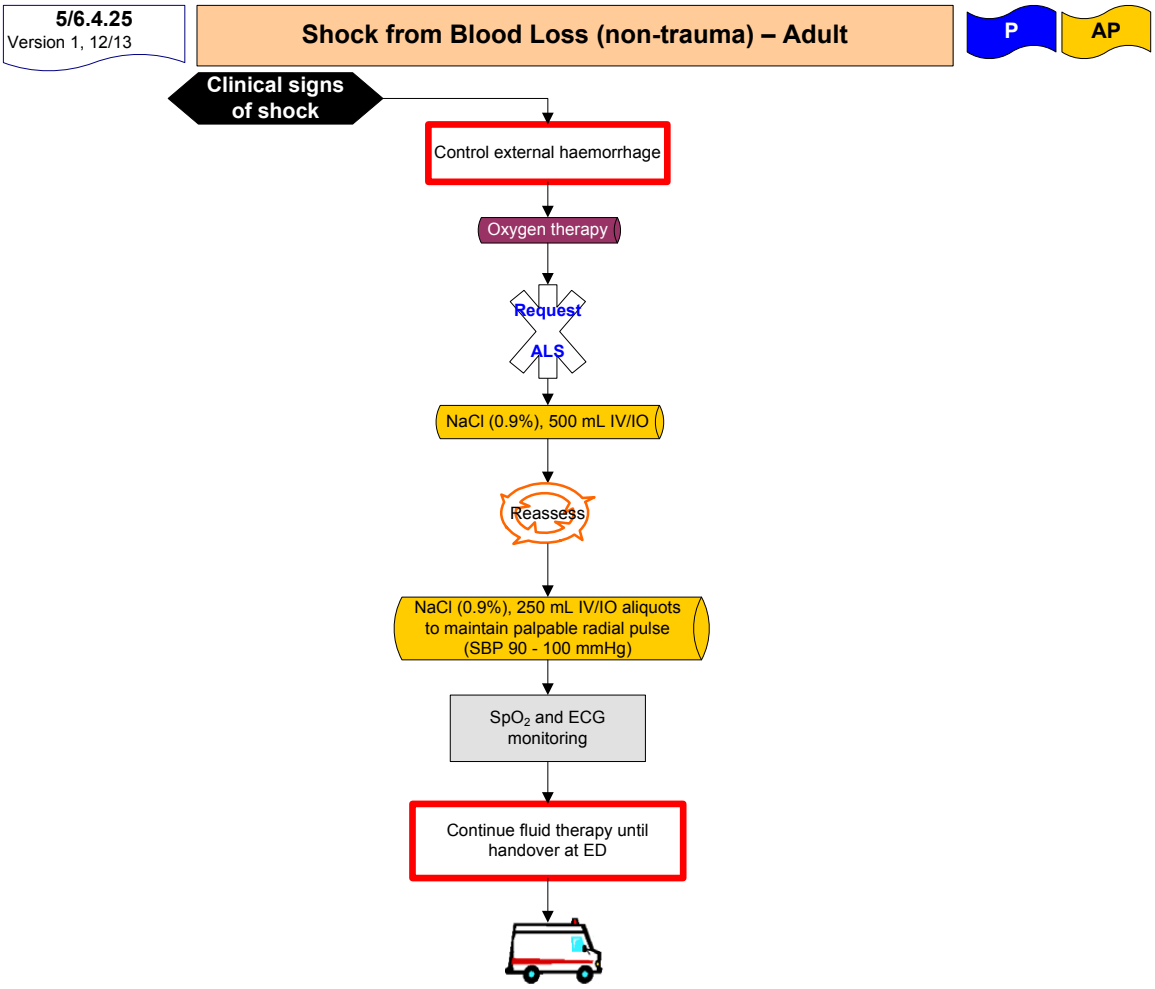
SECTION 4
MEDICAL EMERGENCIES



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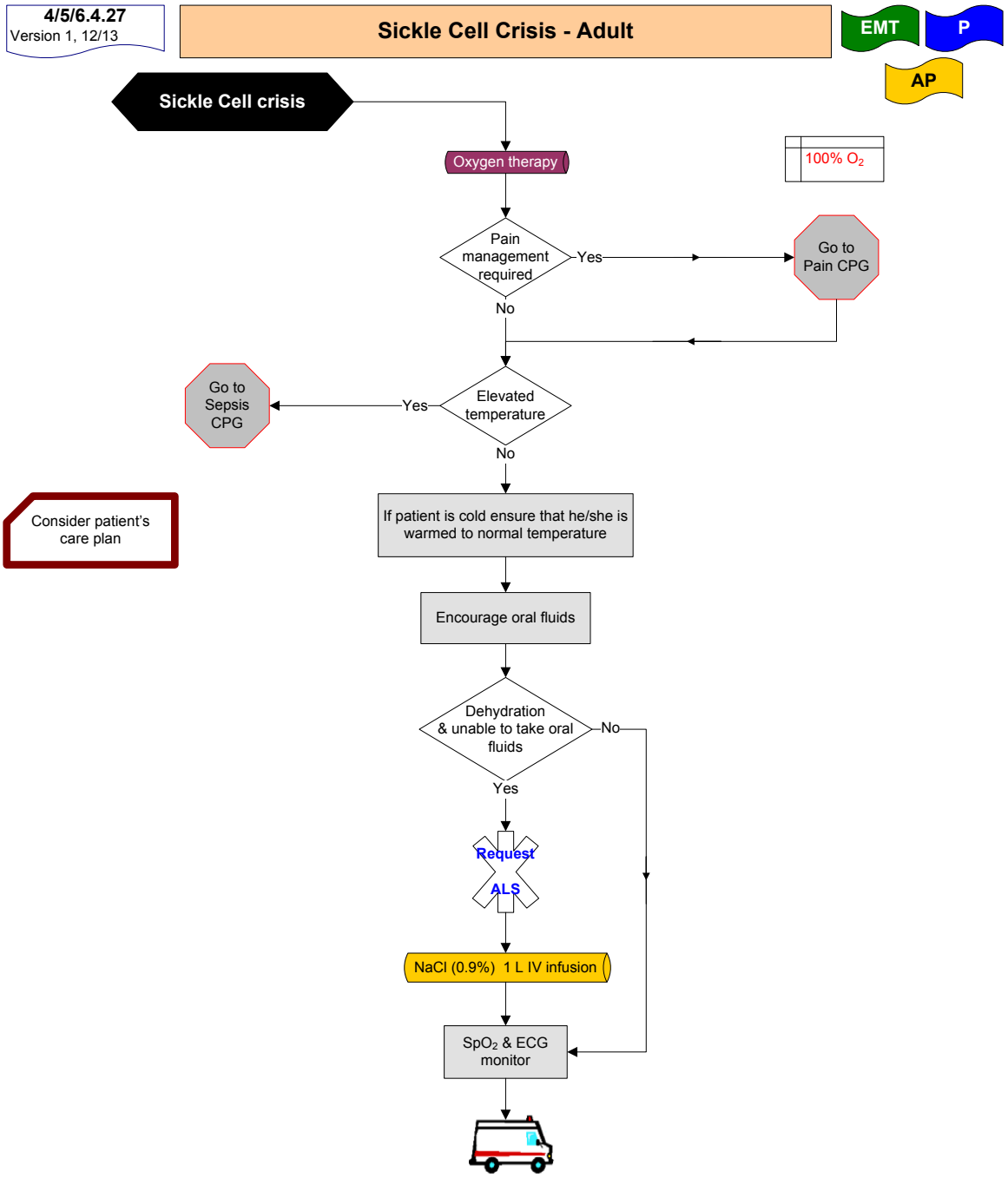
SECTION 4
MEDICAL EMERGENCIES



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

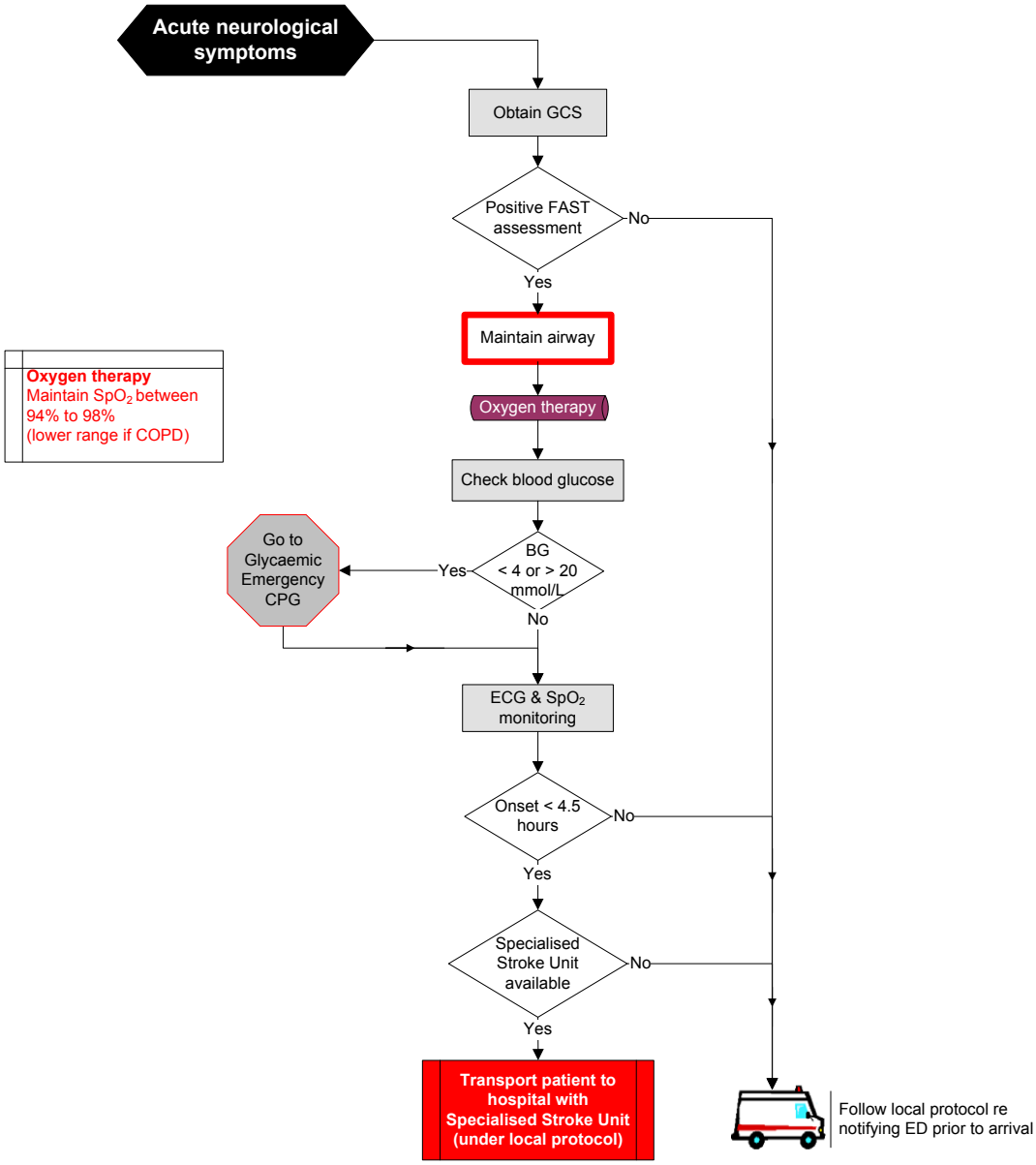
Reference: Rees, D, 2003, GUIDELINES FOR THE MANAGEMENT OF THE ACUTE PAINFUL CRISIS IN SICKLE CELL DISEASE; British Journal of Haematology, 2003, 120, 744–752

SECTION 4
MEDICAL EMERGENCIES

5/6.4.28
Version 2, 07/11

Stroke

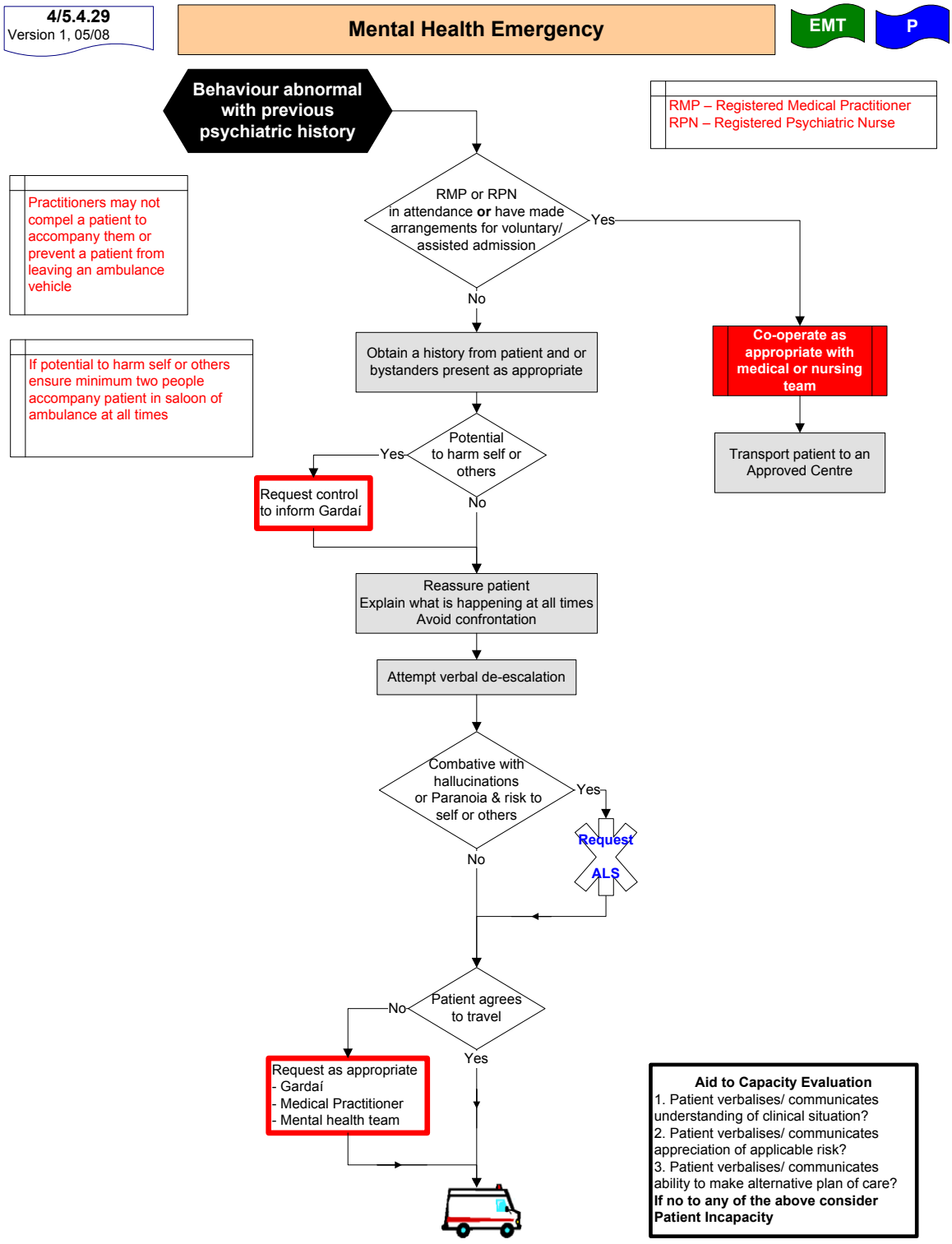
P AP



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

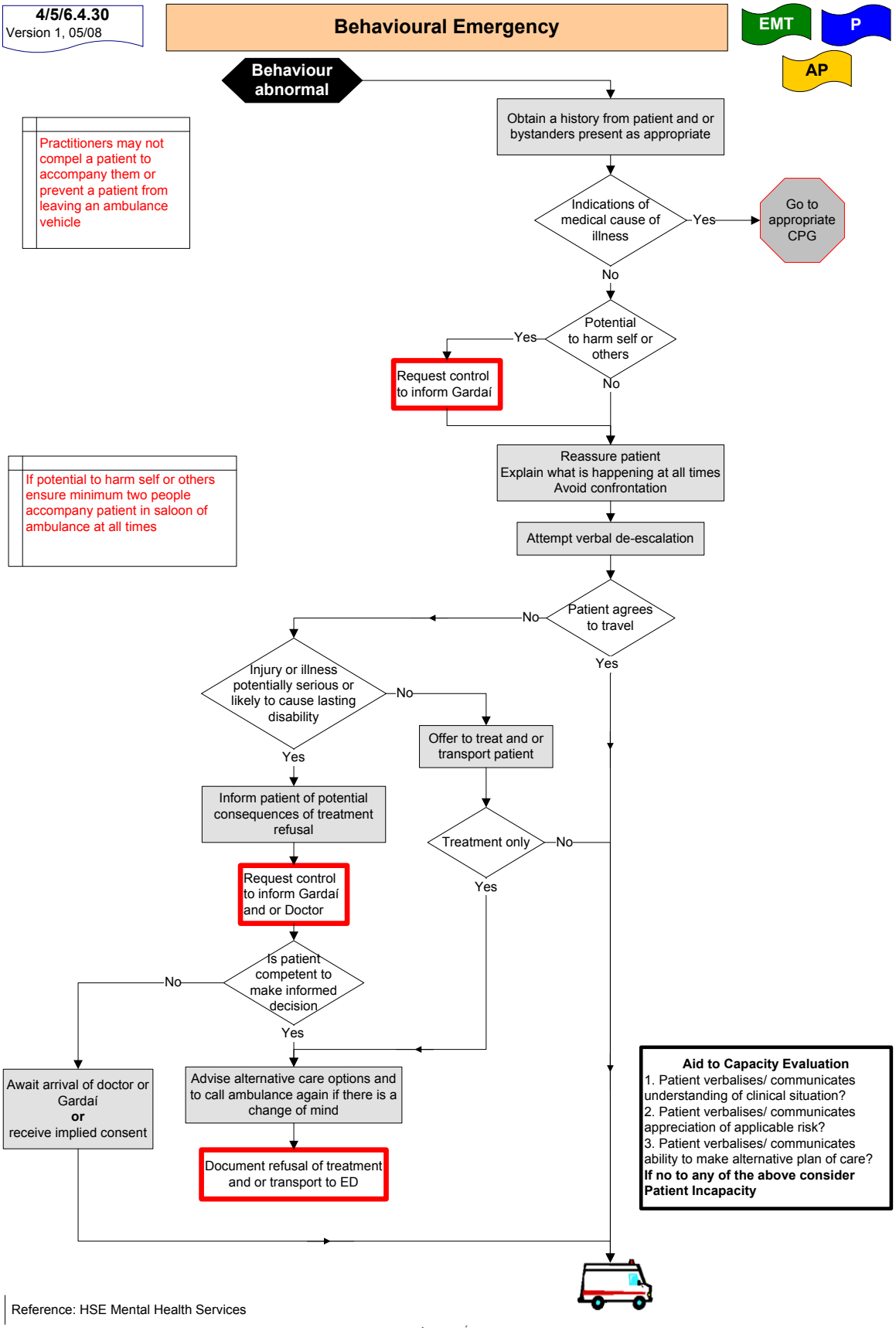
Reference
ILCOR Guidelines 2010
Prof R Boyle, 2006, Mending hearts and brains, Clinical case for change: Report by Prof R Boyle, National Director for Heart Disease and Stroke, NHS
AHA, 2005, Part 9 Adult Stroke, Circulation 2005; 112; 111-120
A. Mohd Nor, et al, Agreement between ambulance paramedic-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



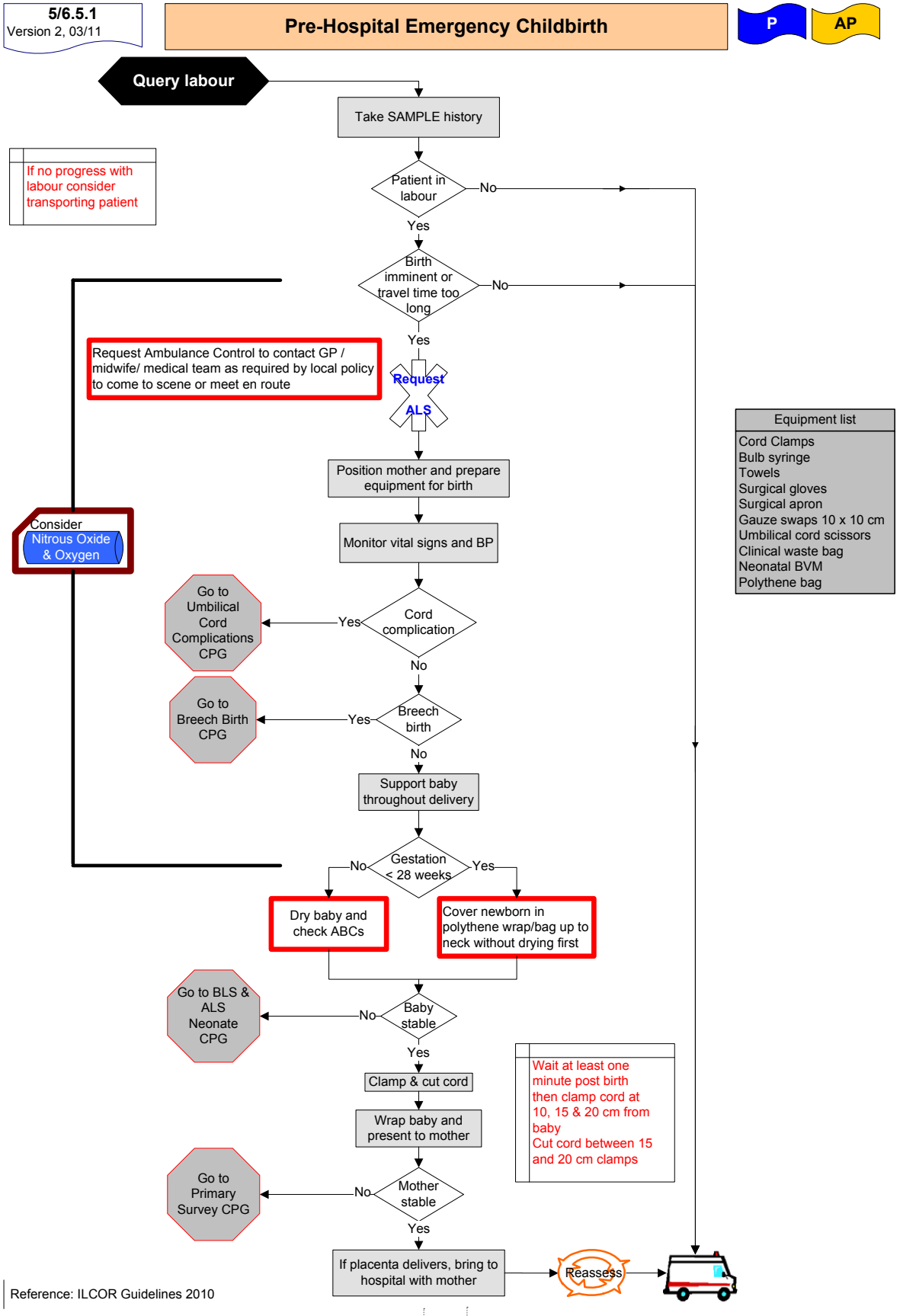
Reference; Reference Guide to the Mental Health Act 2001, Mental Health Commission
HSE Mental Health Services

SECTION 4
MEDICAL EMERGENCIES



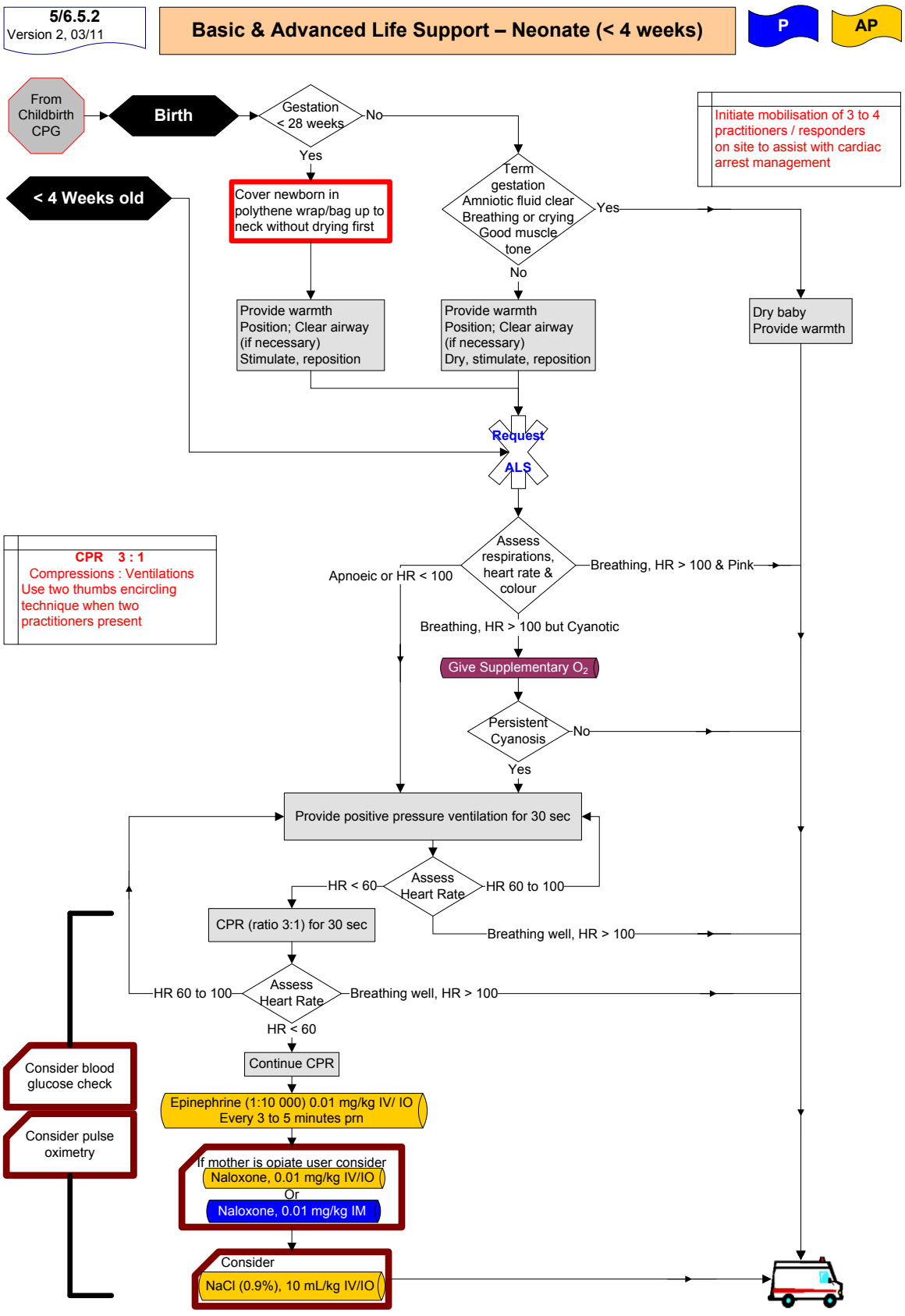
Reference: HSE Mental Health Services

SECTION 5
OBSTETRIC EMERGENCIES



Reference: ILCOR Guidelines 2010

SECTION 5
OBSTETRIC EMERGENCIES



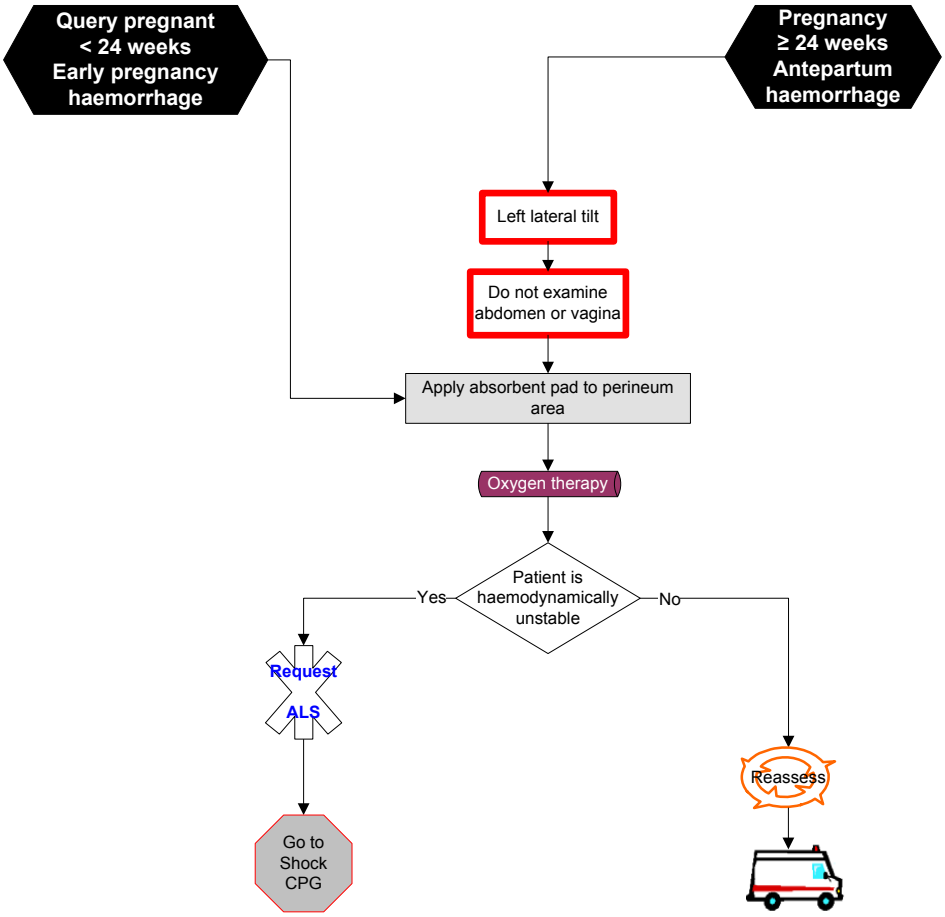
Reference: ILCOR Guidelines 2010

SECTION 5
OBSTETRIC EMERGENCIES

5/6.5.3
Version 1, 05/08

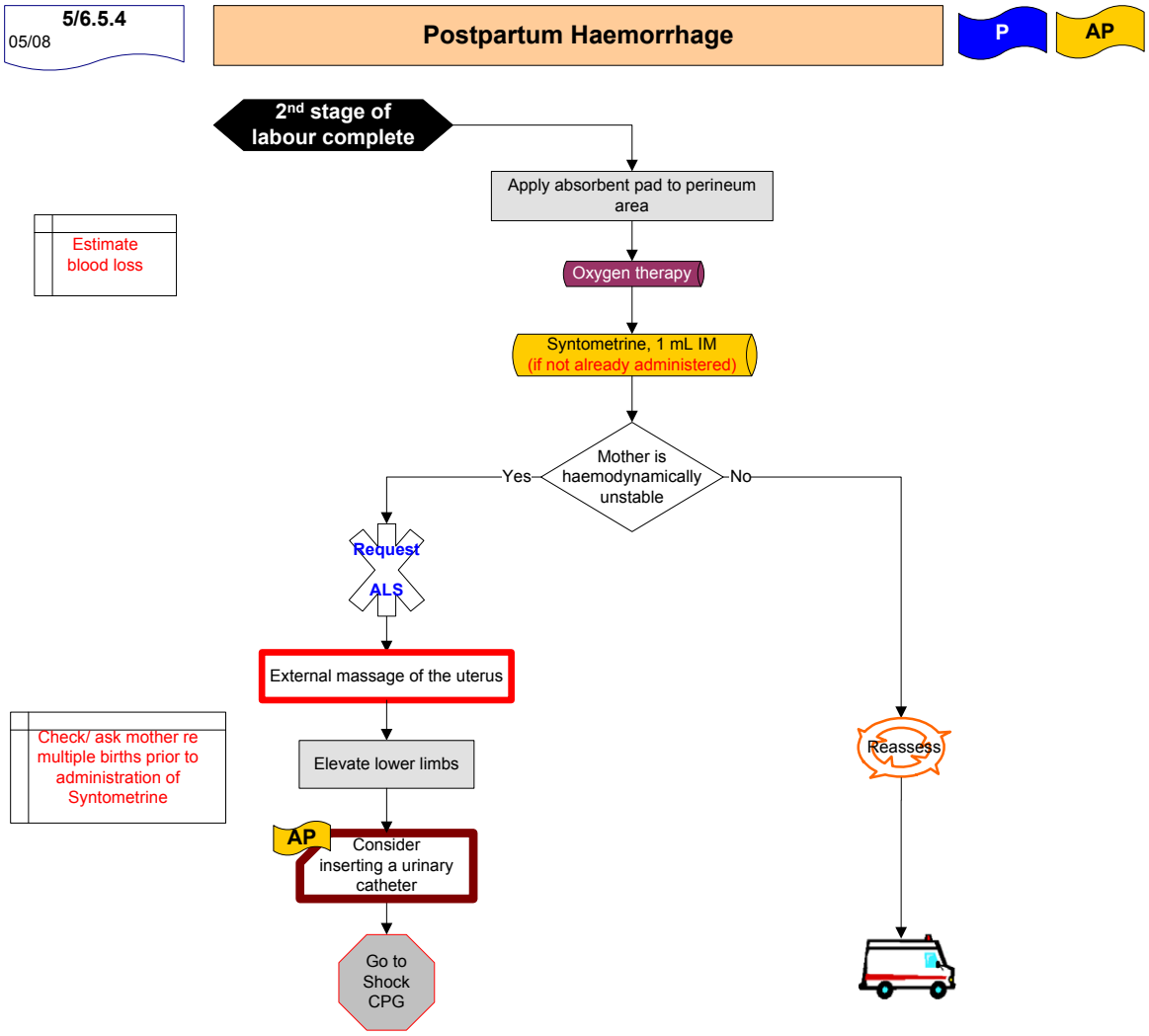
Haemorrhage in Pregnancy Prior to Delivery

P AP



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

SECTION 5
OBSTETRIC EMERGENCIES



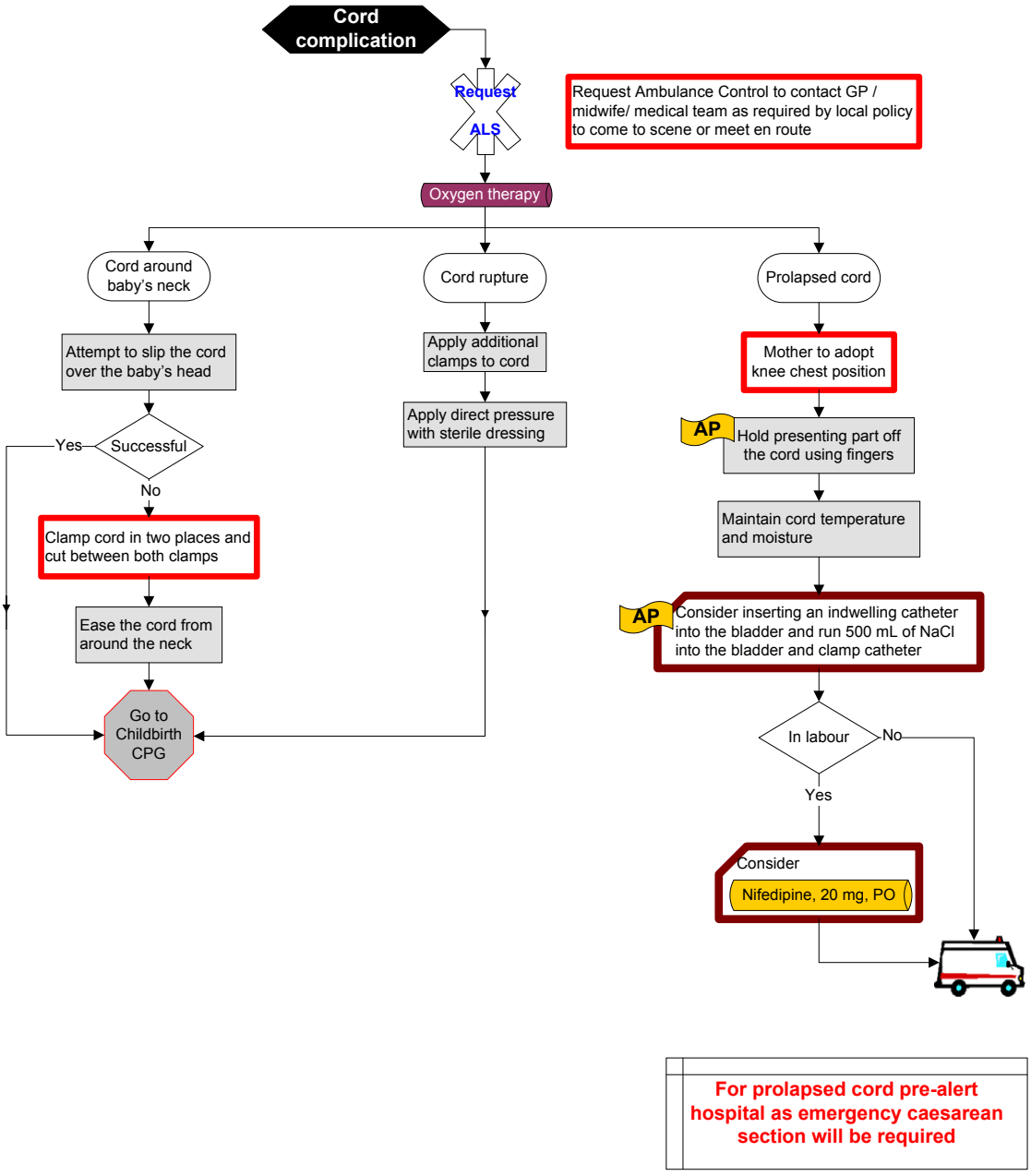
Reference: Sweet, BR, 2000, Mayes' Midwifery, 12th Edition, Bailleire Tindall

SECTION 5
OBSTETRIC EMERGENCIES

5/6.5.5
Version 1, 05/08

Umbilical Cord Complications

P AP



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

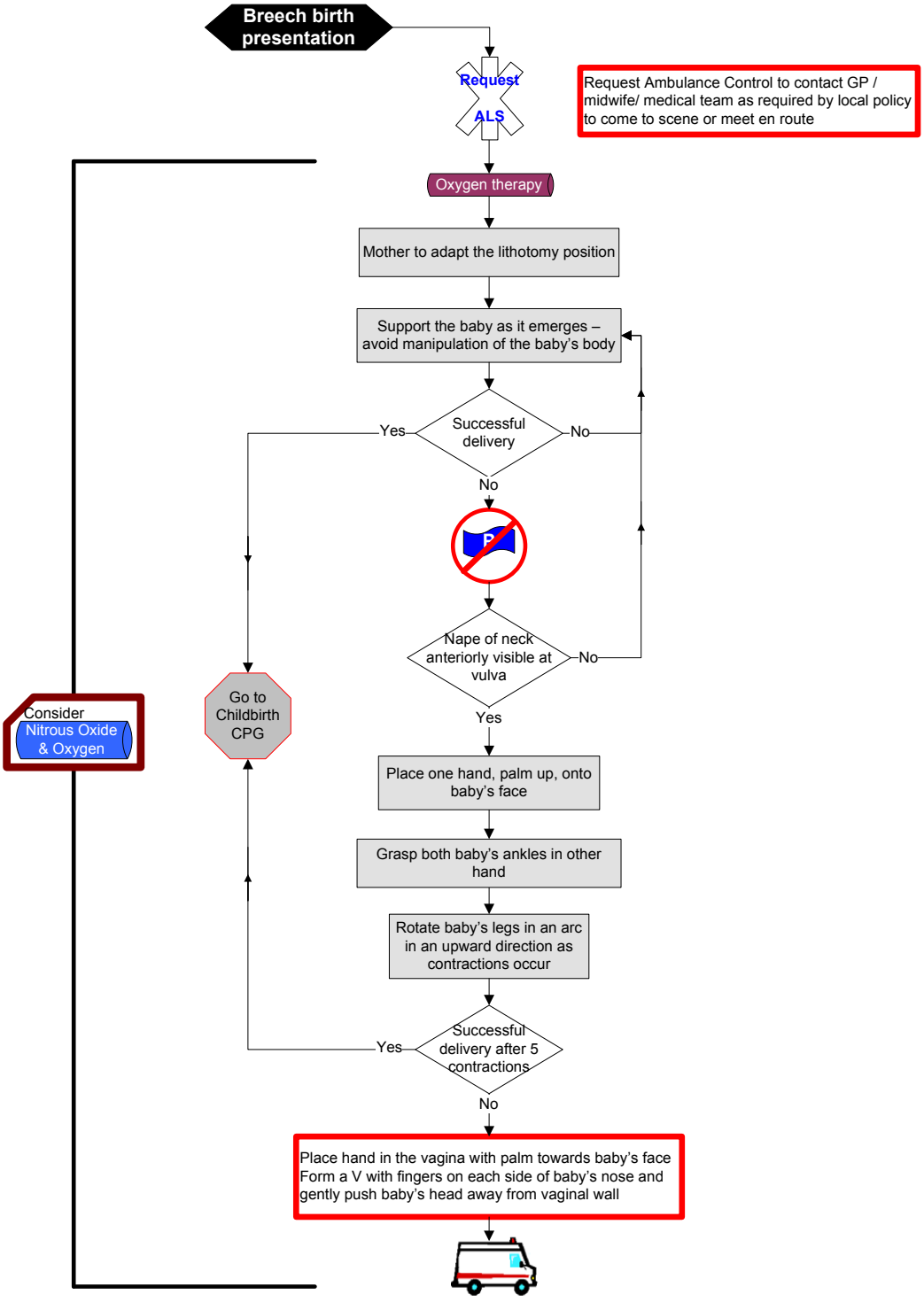
Reference: Sweet, BR, 2000, Mayes' Midwifery, 12th Edition, Bailleire Tindall
Katz Z et al, 1988, Management of labor with umbilical cord prolaps: A 5 year study. Obstet. Gynecol. 72(2): 278-281
Duley, LMM, 2002, Clinical Guideline No 1(B), Tocolytic Drugs for women in preterm labour, Royal College of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

SECTION 5
OBSTETRIC EMERGENCIES

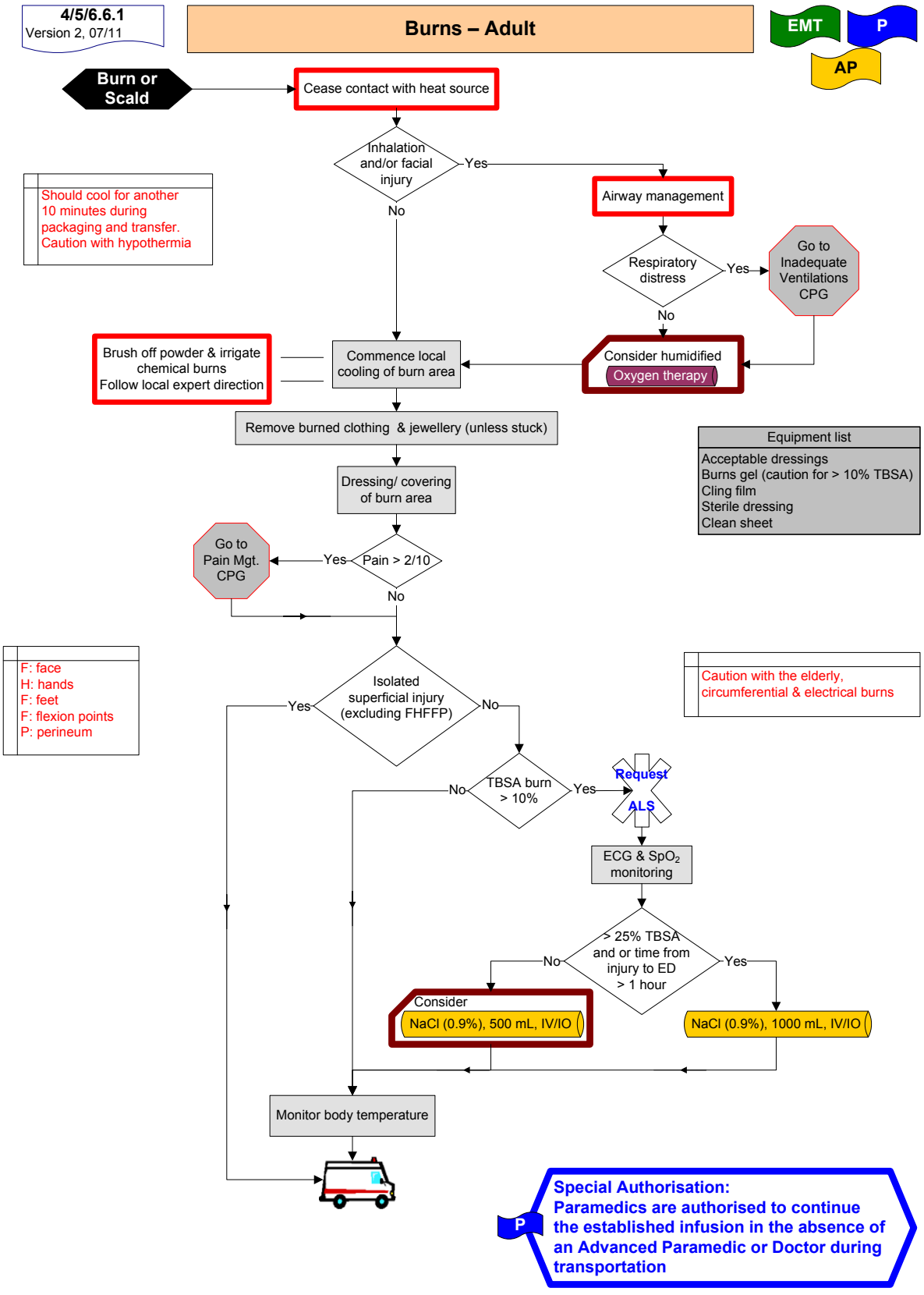
5/6.5.6
Version 1, 05/08

Breech Birth

P AP

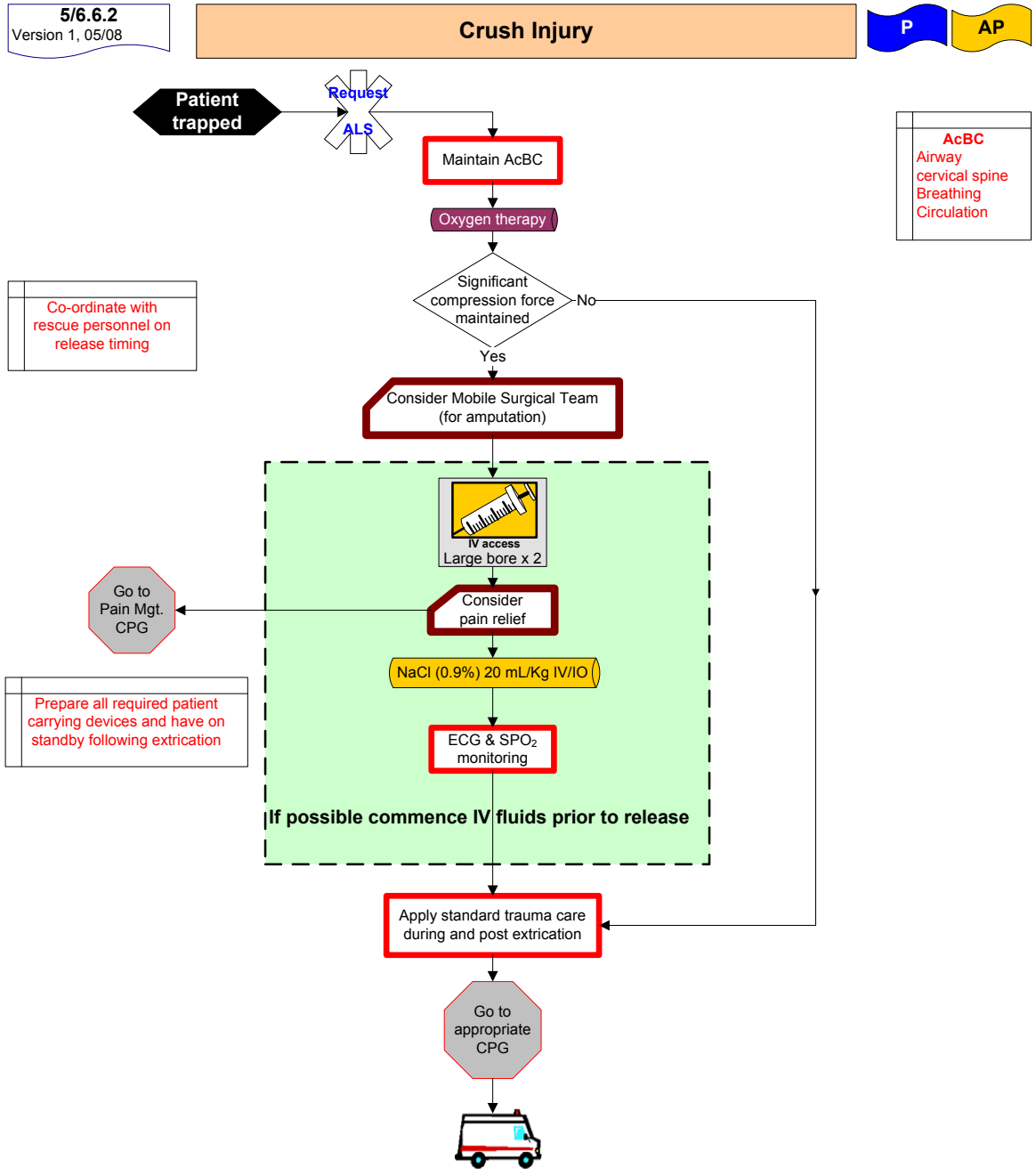


SECTION 6
TRAUMA



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

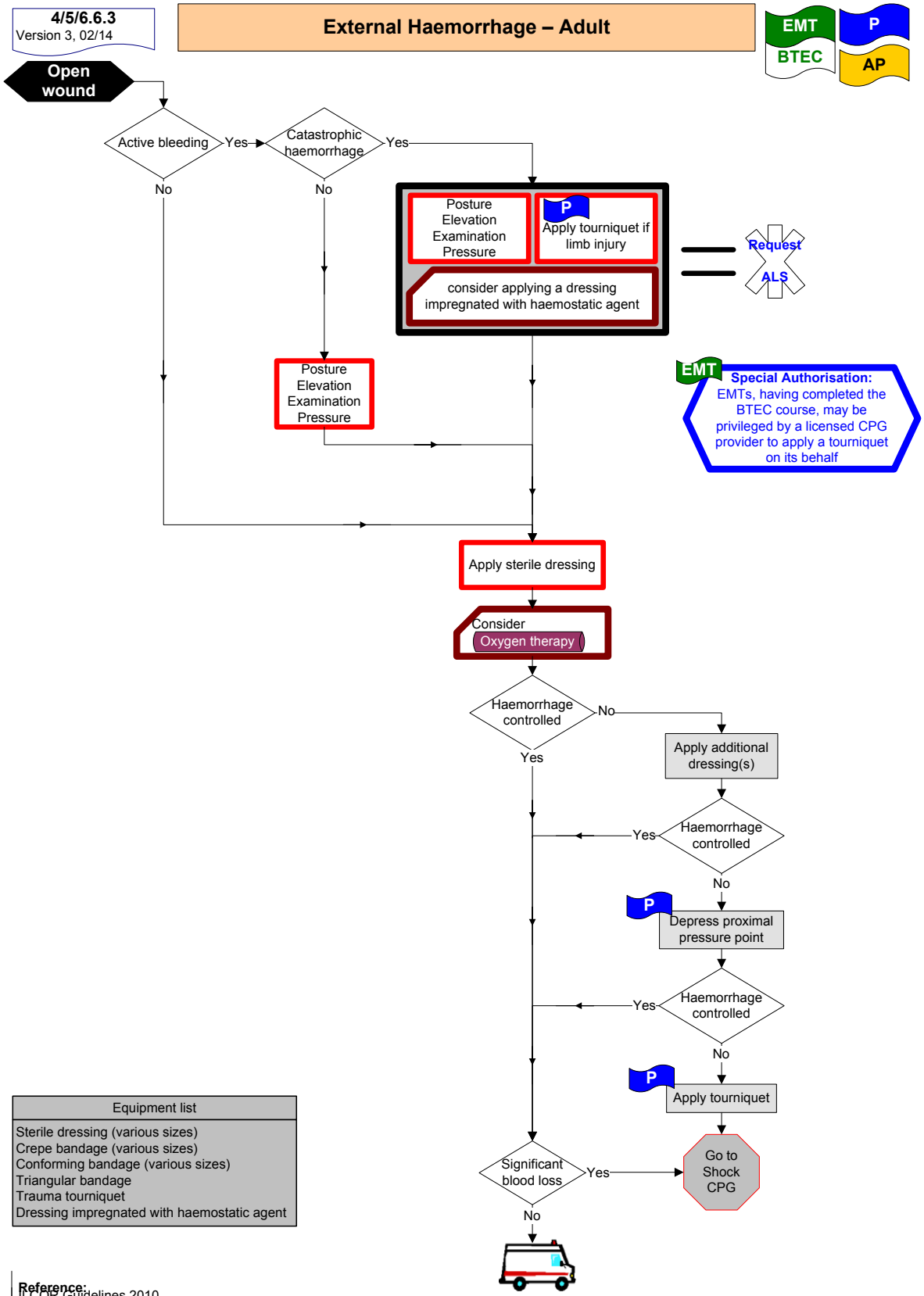
SECTION 6
TRAUMA



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

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

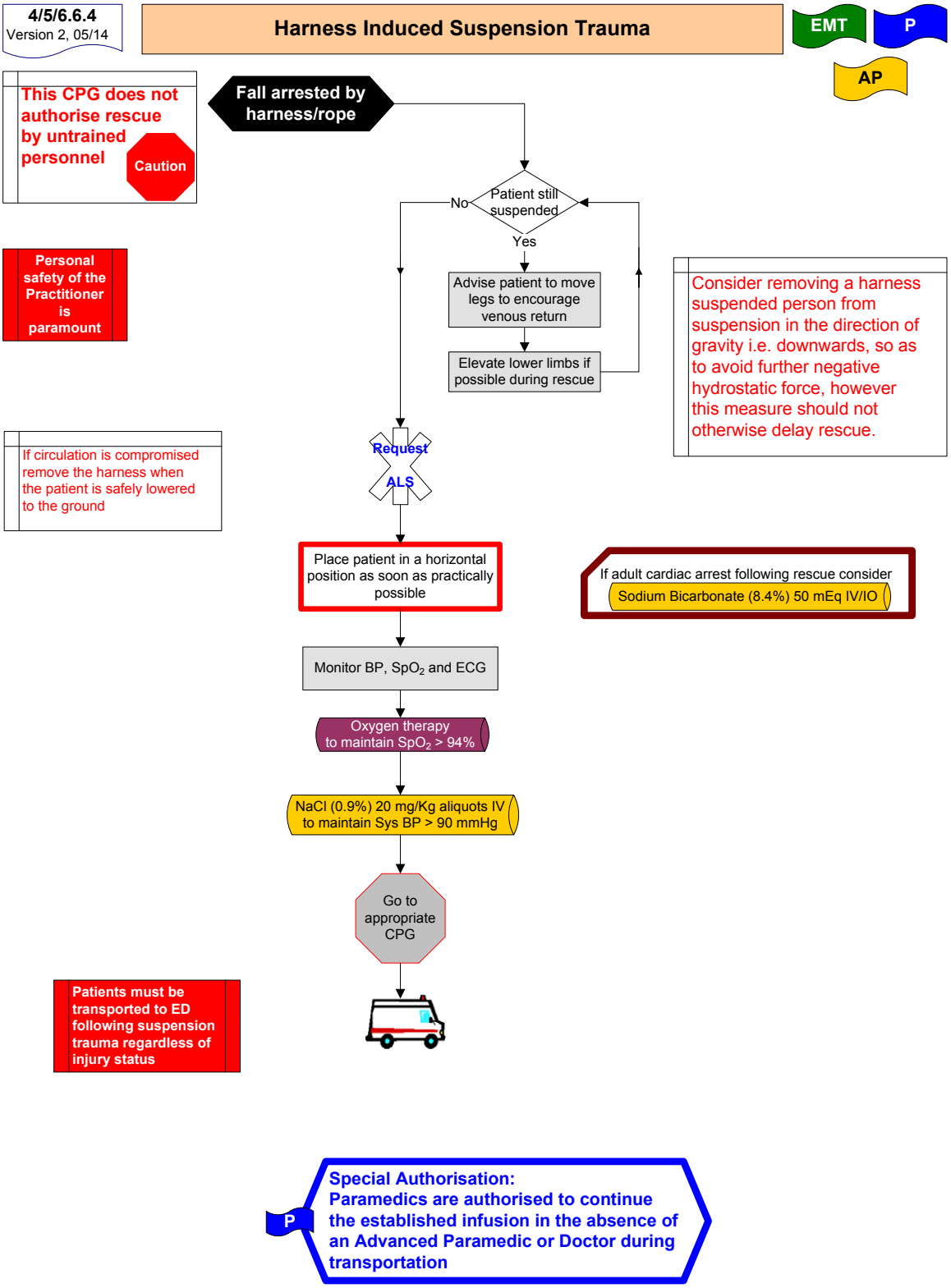
SECTION 6
TRAUMA



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

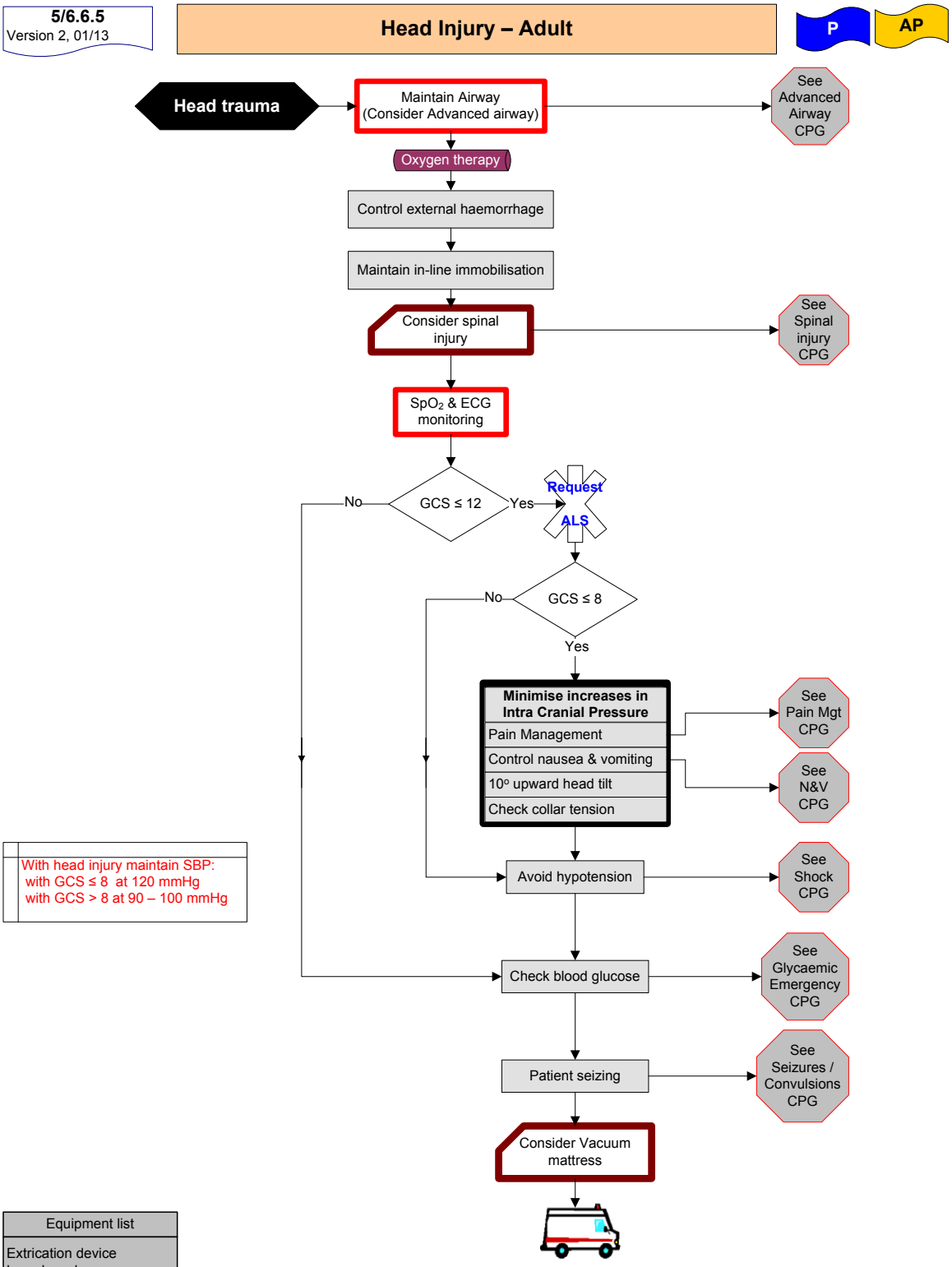
Reference:
ILCOR Guidelines 2010,
Granville-Chapman J, et al. Pre-hospital haemostatic dressings: A systematic review. Injury (2010), doi: 10.1016/j. injury. 2010.09.037

SECTION 6
TRAUMA



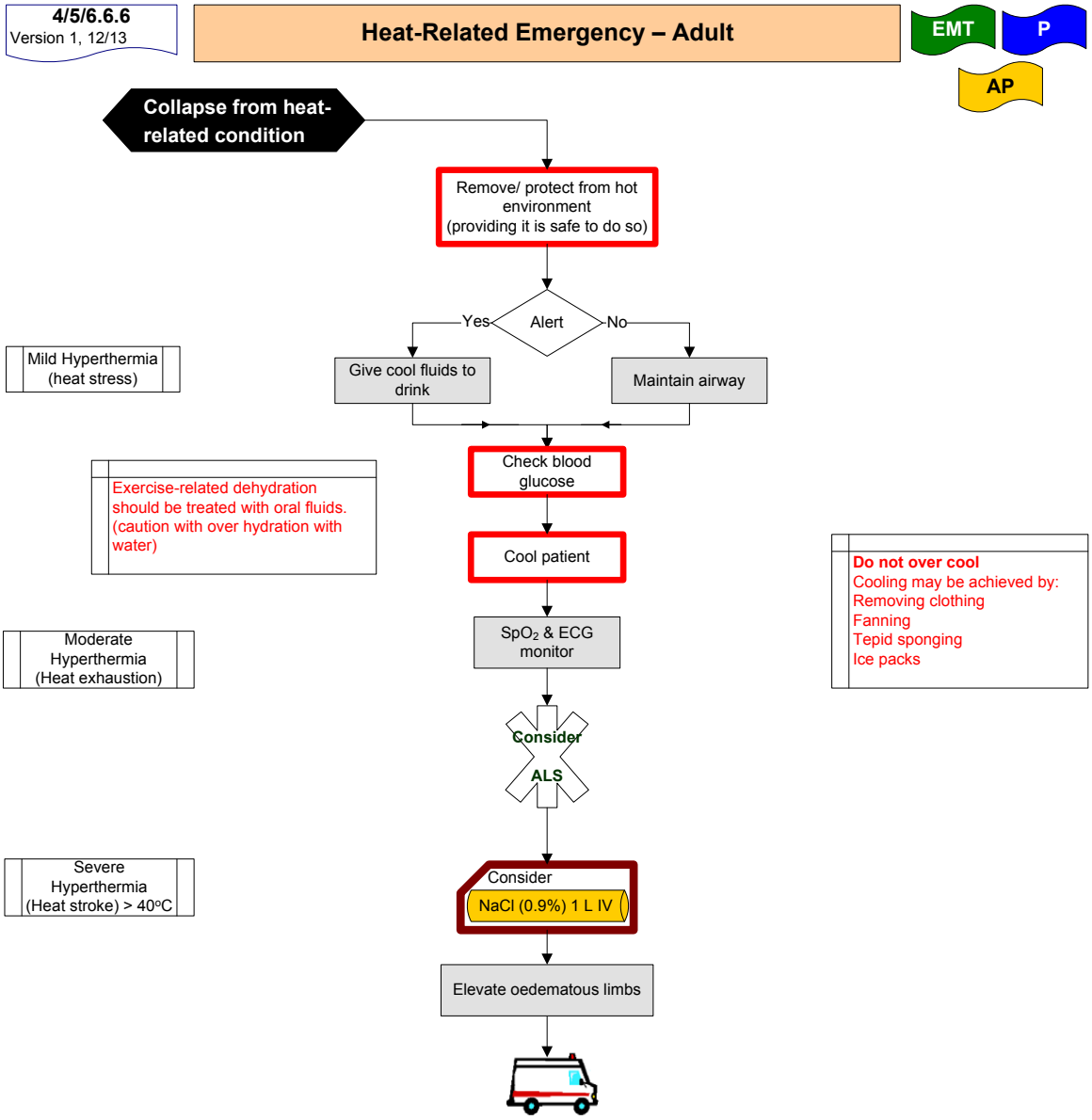
Reference:
Adish A et al, 2009, Evidence-based review of the current guidance on first aid measures for suspension trauma, Health and Safety Executive (UK) Research report RR708
Australian Resuscitation Council, 2009, Guideline 9.1.5 Harness Suspension Trauma first aid management.
Thomassen O et al,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



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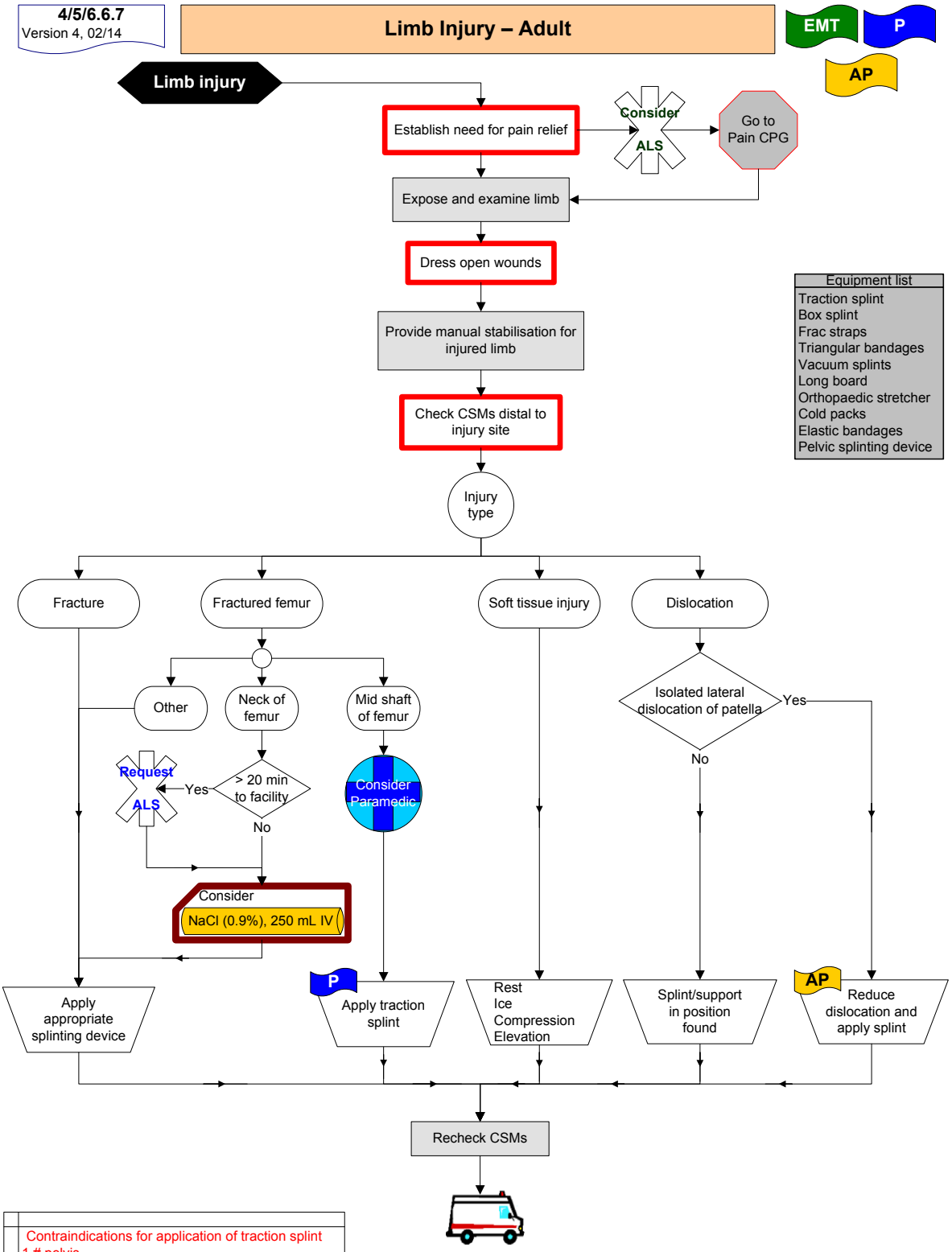
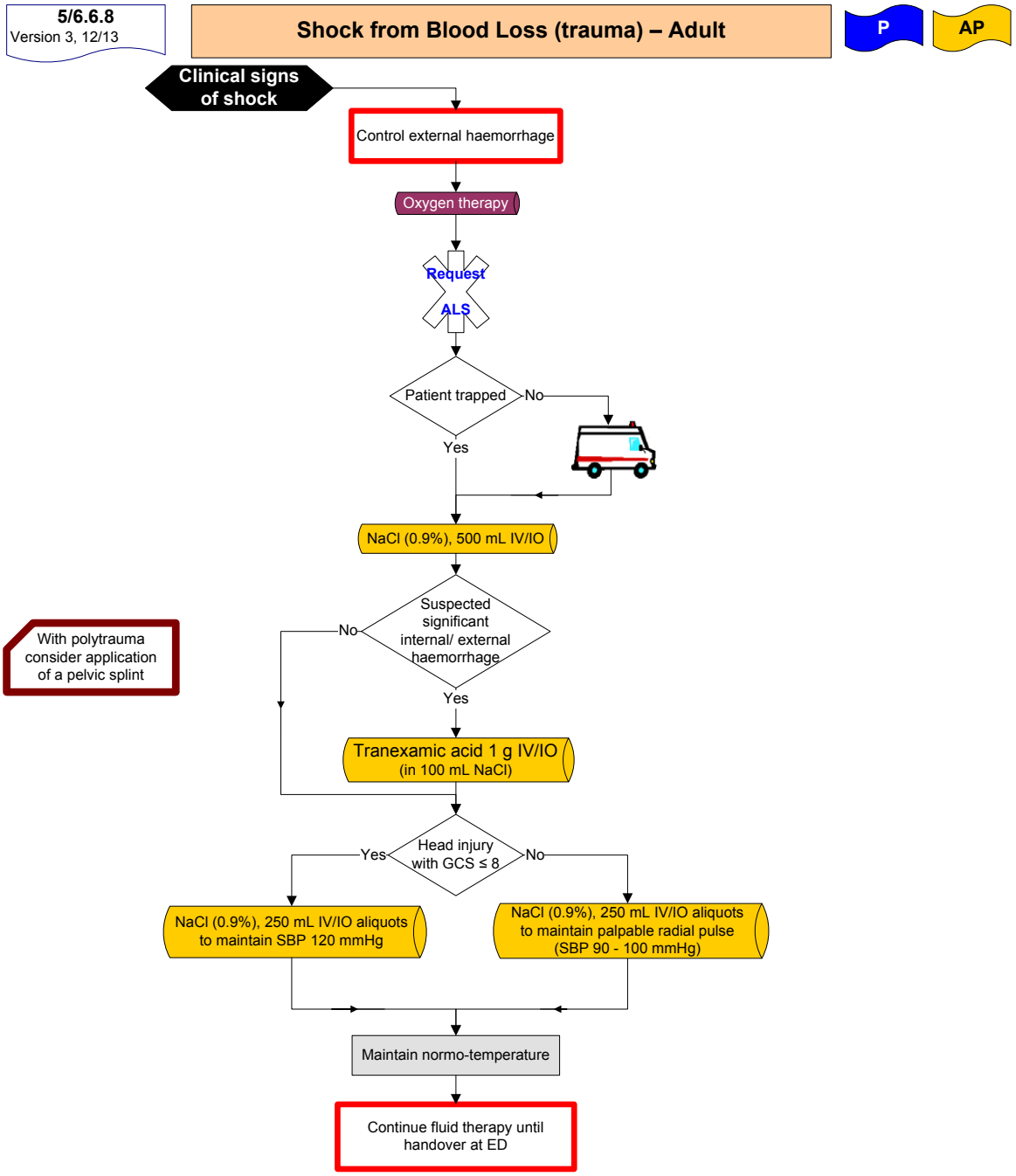
Reference: ILCOR Guidelines 2010,
European Resuscitation Guidelines 2010.
RFDS, 2011, Primary Clinical Care Manual

SECTION 6
TRAUMA



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



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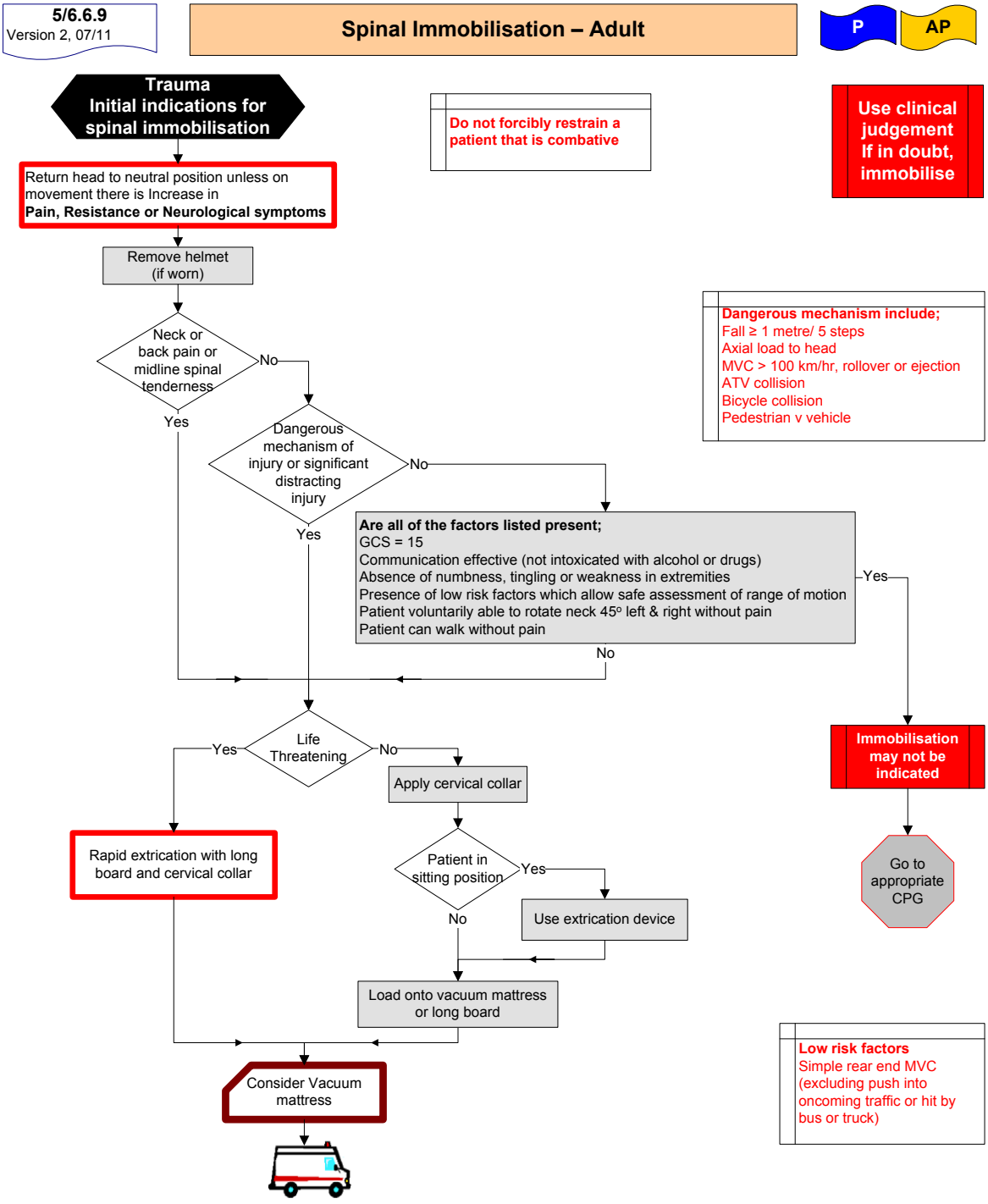
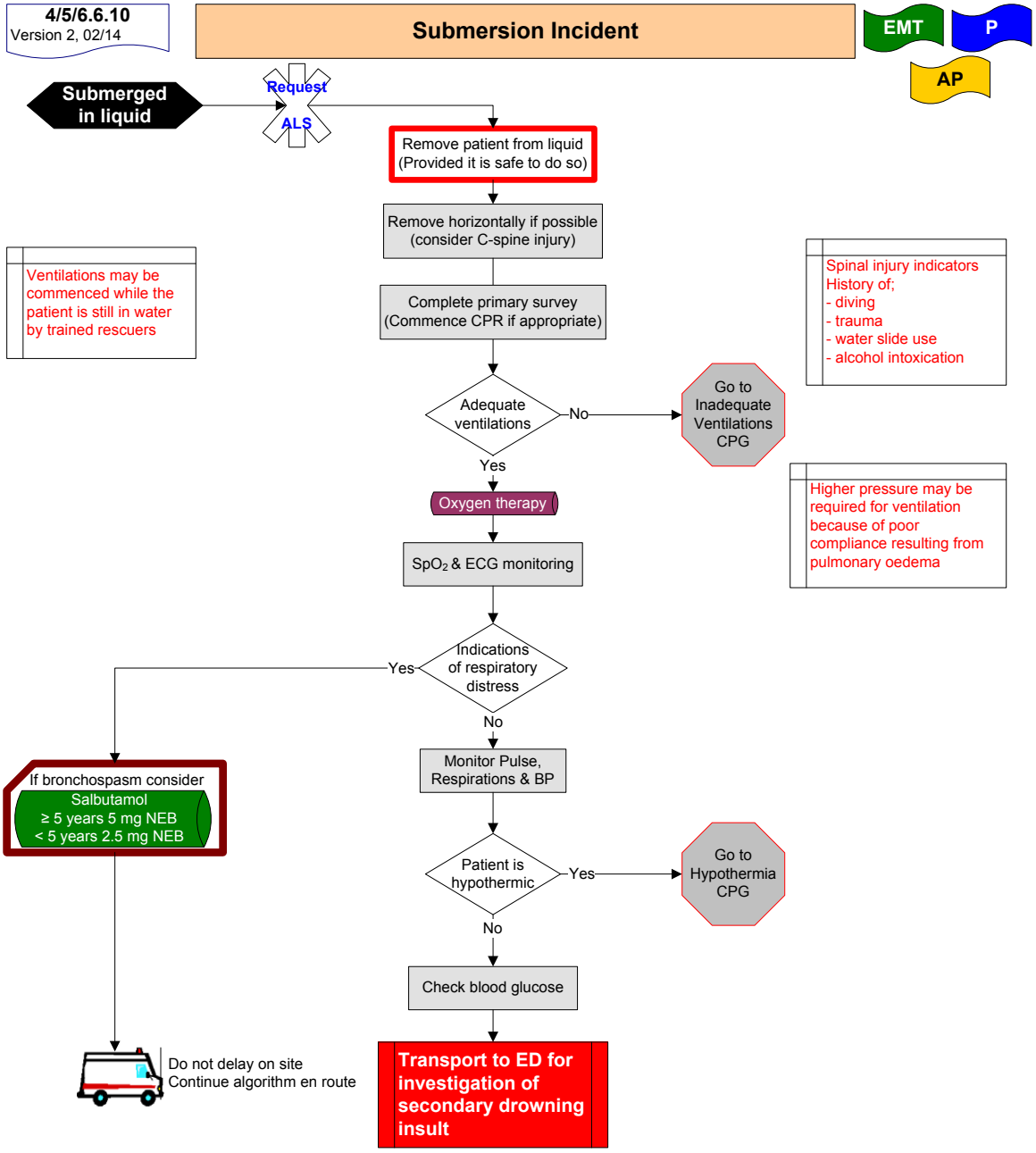
Reference: Gruen, R. L. and M. C. Reade (2012). "Administer tranexamic acid early to injured patients at risk of substantial bleeding." BMJ **345**: e7133

SECTION 6
TRAUMA



Reference: Vaillancourt, Christian et al, 2009, Ann Emerg Med. 2009 Nov; 54(5): 663-671.e1. Ppub 2009 Apr 24

SECTION 6
TRAUMA



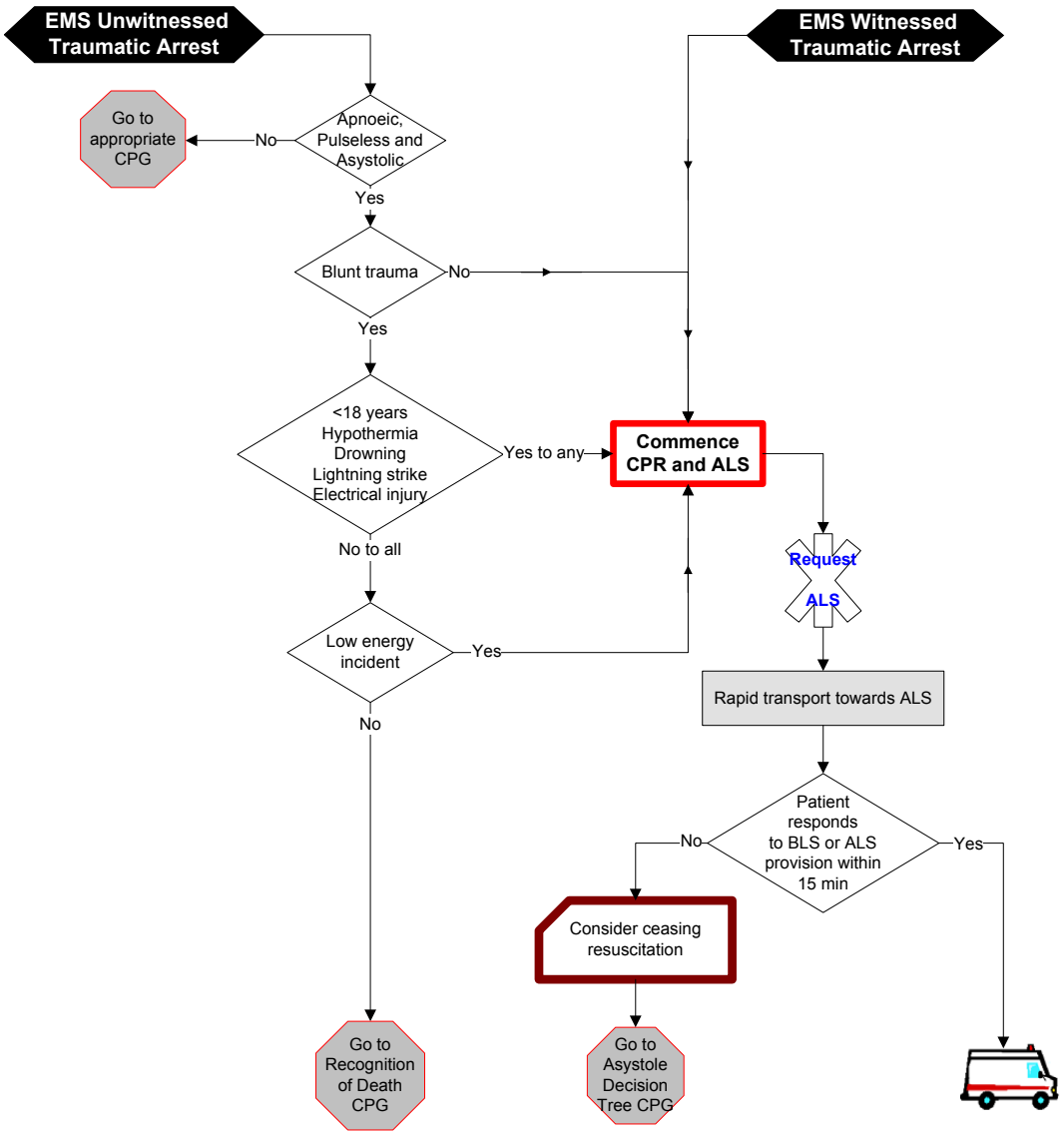
Reference: Golden, F & Tipton M, 2002, Essentials of Sea Survival, Human Kinetics
Verie, M, 2007, Near Drowning, E medicine, www.emedicine.com/ped/topic20570.htm
Shepherd, S, 2005, Submersion Injury, Near Drowning, E Medicine, www.emedicine.com/emerg/topic744.htm
AHA, 2005, Part 10.3: Drowning, Circulation 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

SECTION 6
TRAUMA

5/6.6.11
Version 1, 05/08

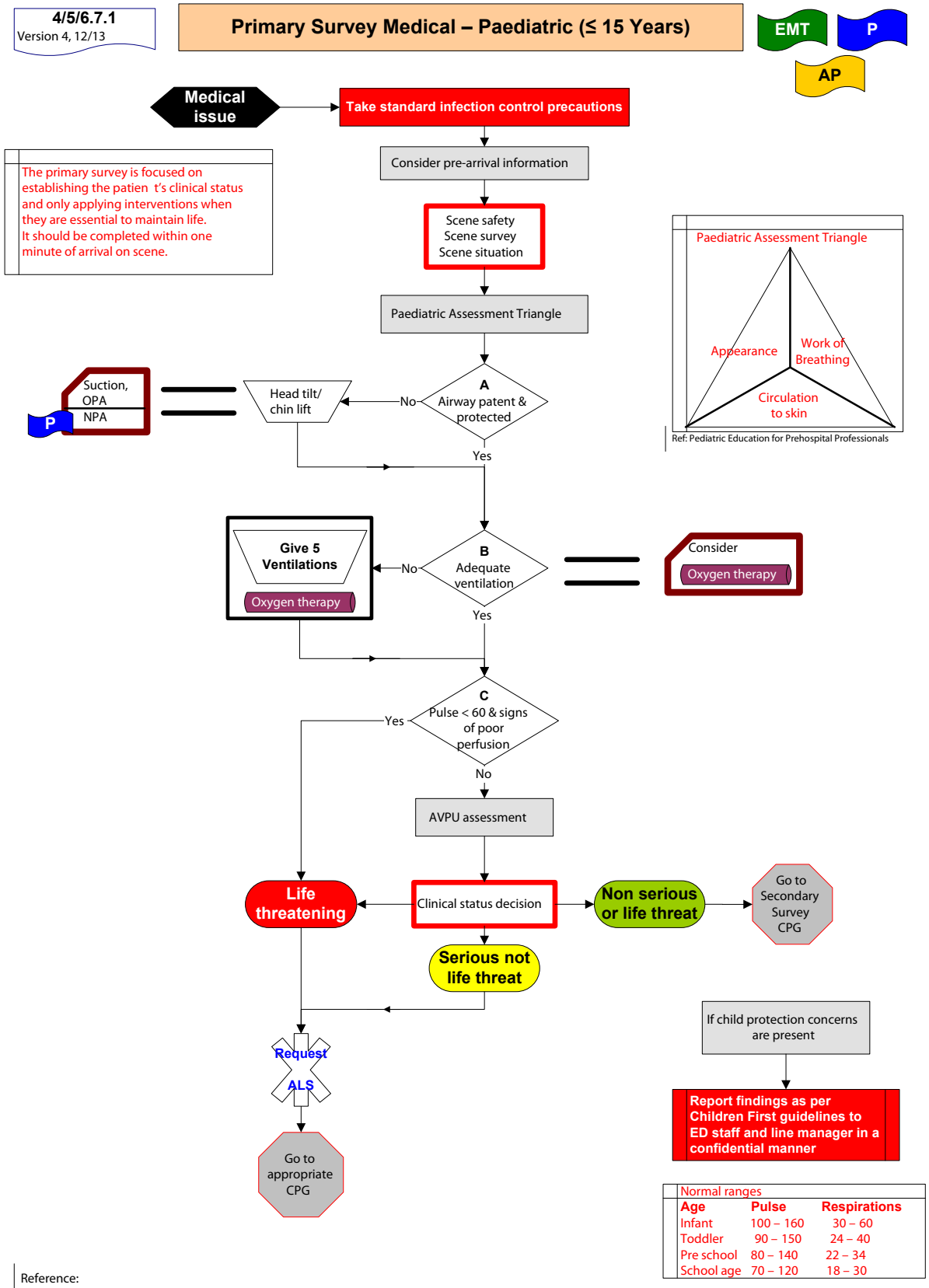
Traumatic Cardiac Arrest – Adult

P AP



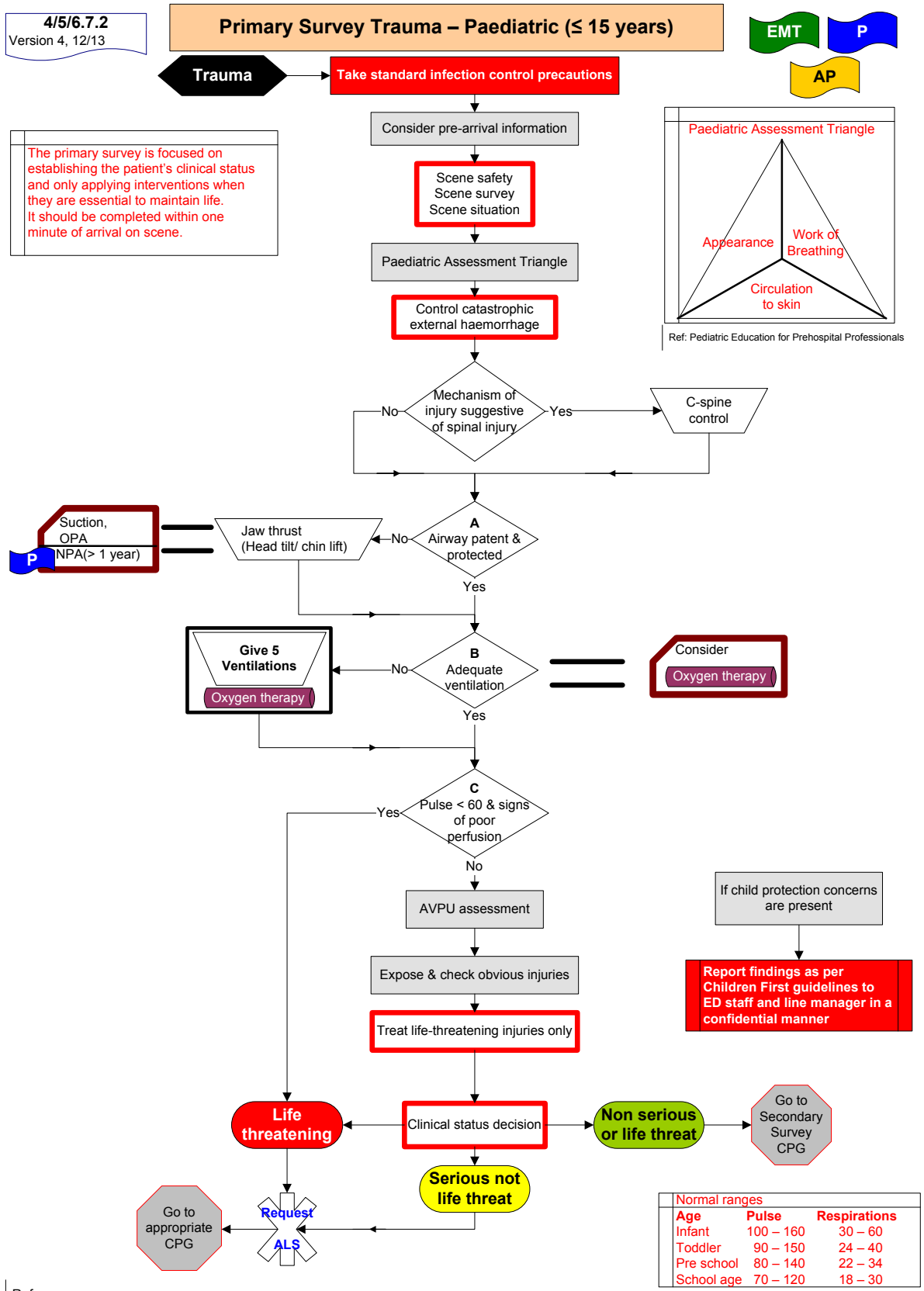
Reference: Hopson, L et al, 2003, Guidelines for withholding or termination of resuscitation in prehospital traumatic cardiac arrest, Position paper for National Association of EMS Physicians, Prehospital Emergency Care, Vol 7 p141-146

SECTION 7
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

SECTION 7
PAEDIATRIC EMERGENCIES



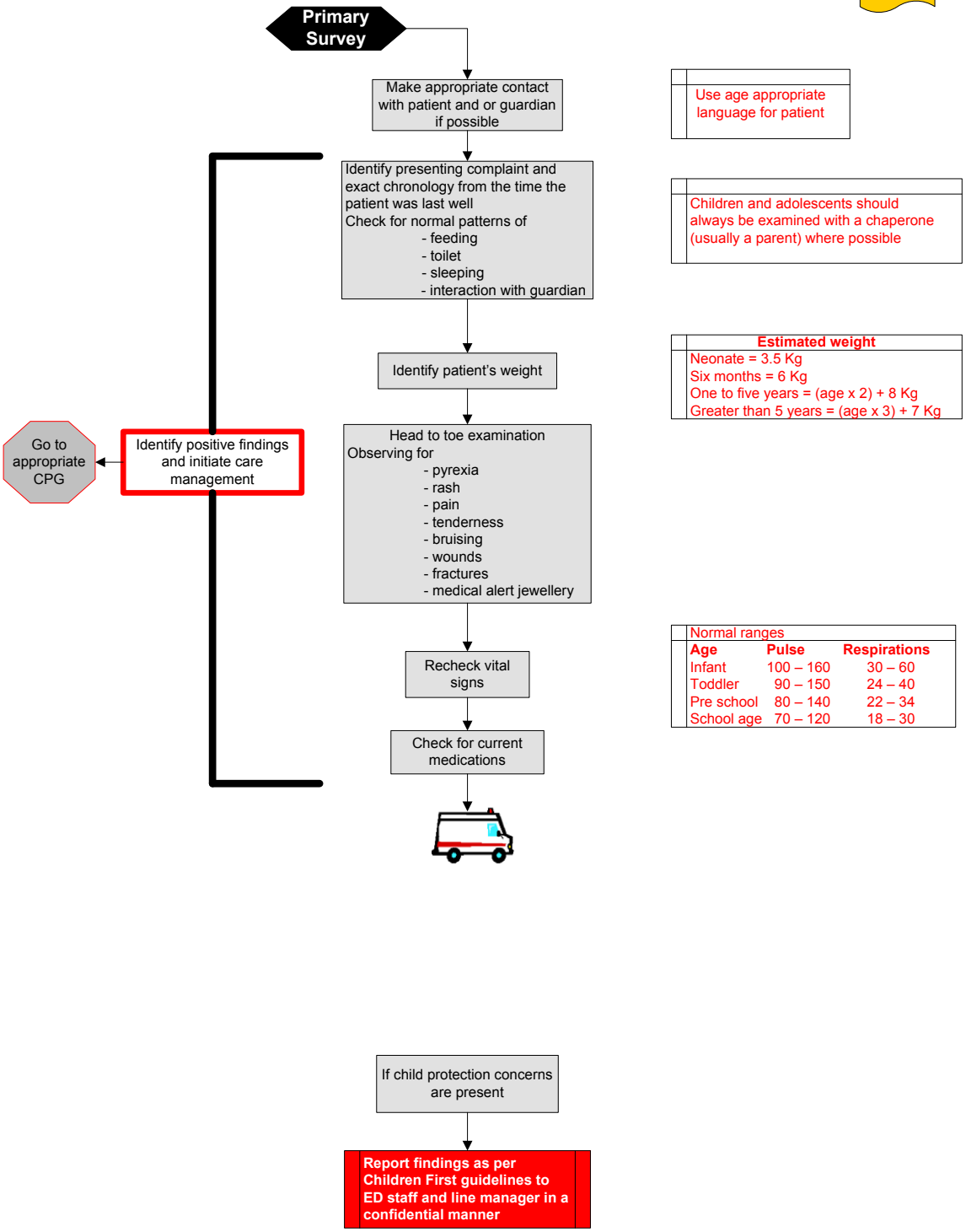
Reference:
ILCOR Guidelines 2010, American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Professionals
Department of Children and Youth Affairs, 2011, Children First: National Guidance for the Protection and Welfare of Children

SECTION 7
PAEDIATRIC EMERGENCIES

4/5/6.7.4
Version 3, 12/13

Secondary Survey – Paediatric (≤ 15 years)

EMT P AP



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^{E}3(age)+7'

SECTION 7
PAEDIATRIC EMERGENCIES

4/5/6.7.5
Version 6, 02/14

Pain Management – Paediatric (≤ 15 years)

EMT P AP

Pain

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

Pain assessment

Administer pain medication based on pain assessment and pain ladder recommendations

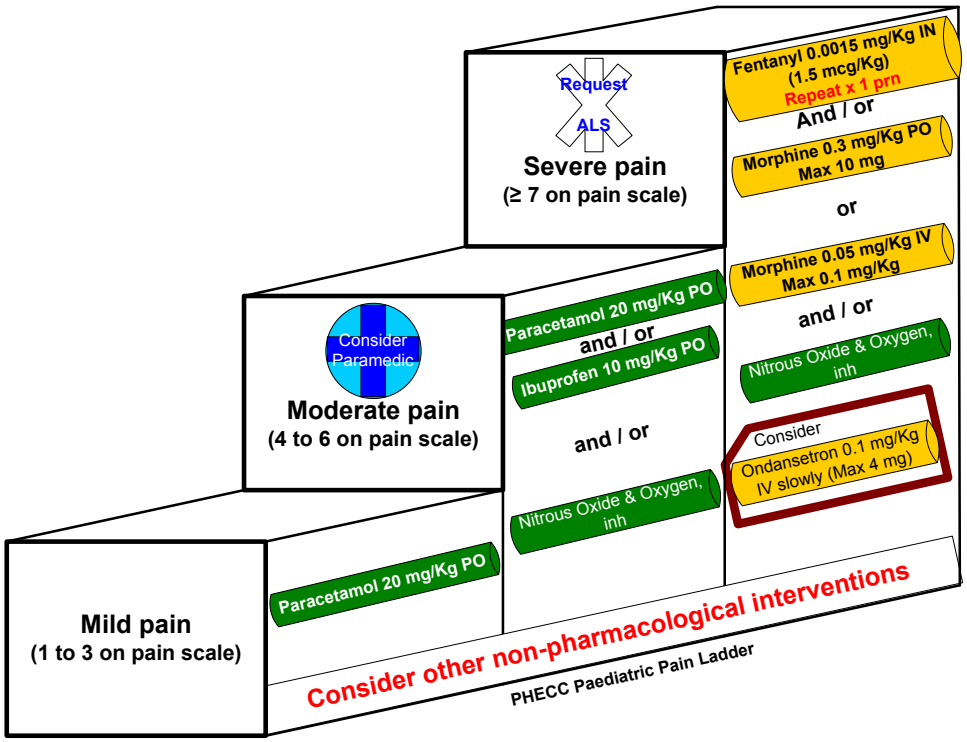
Adequate relief of pain

Yes or best achievable → Go back to originating CPG

No → Reassess and move up the pain ladder if appropriate

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

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



Fentanyl IN & Morphine PO for ≥ 1 year old only

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

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

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

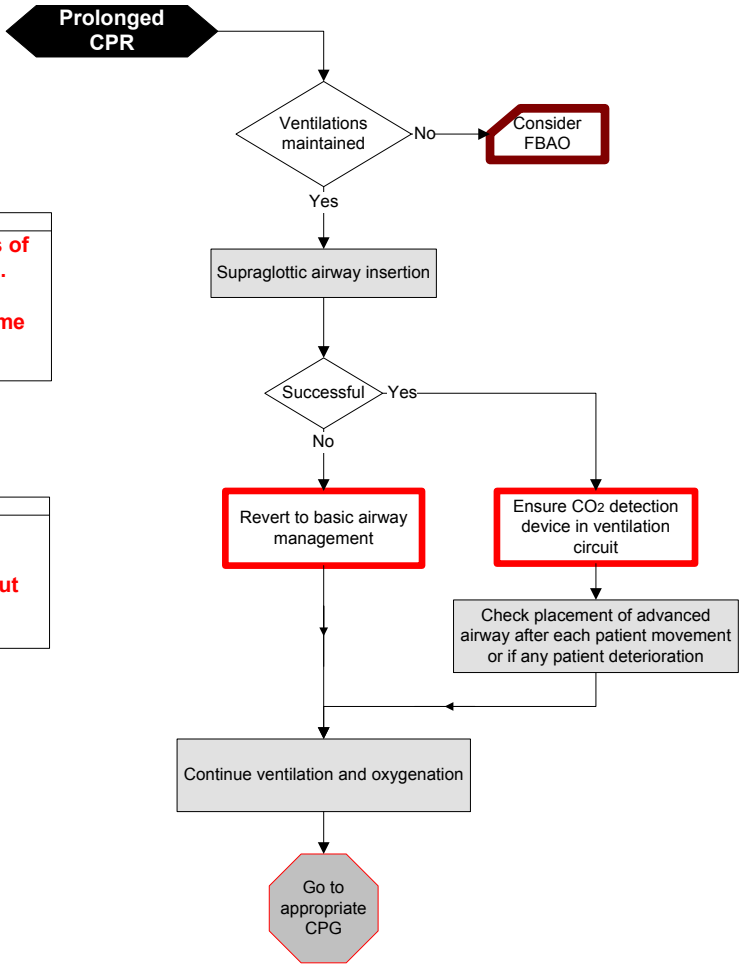
Reference: World Health Organization, Pain Ladder

SECTION 7
PAEDIATRIC EMERGENCIES

5.7.10
Version 1, 03/14

Advanced Airway Management – Paediatric (≥ 8 years)

P



Minimum interruptions of chest compressions.

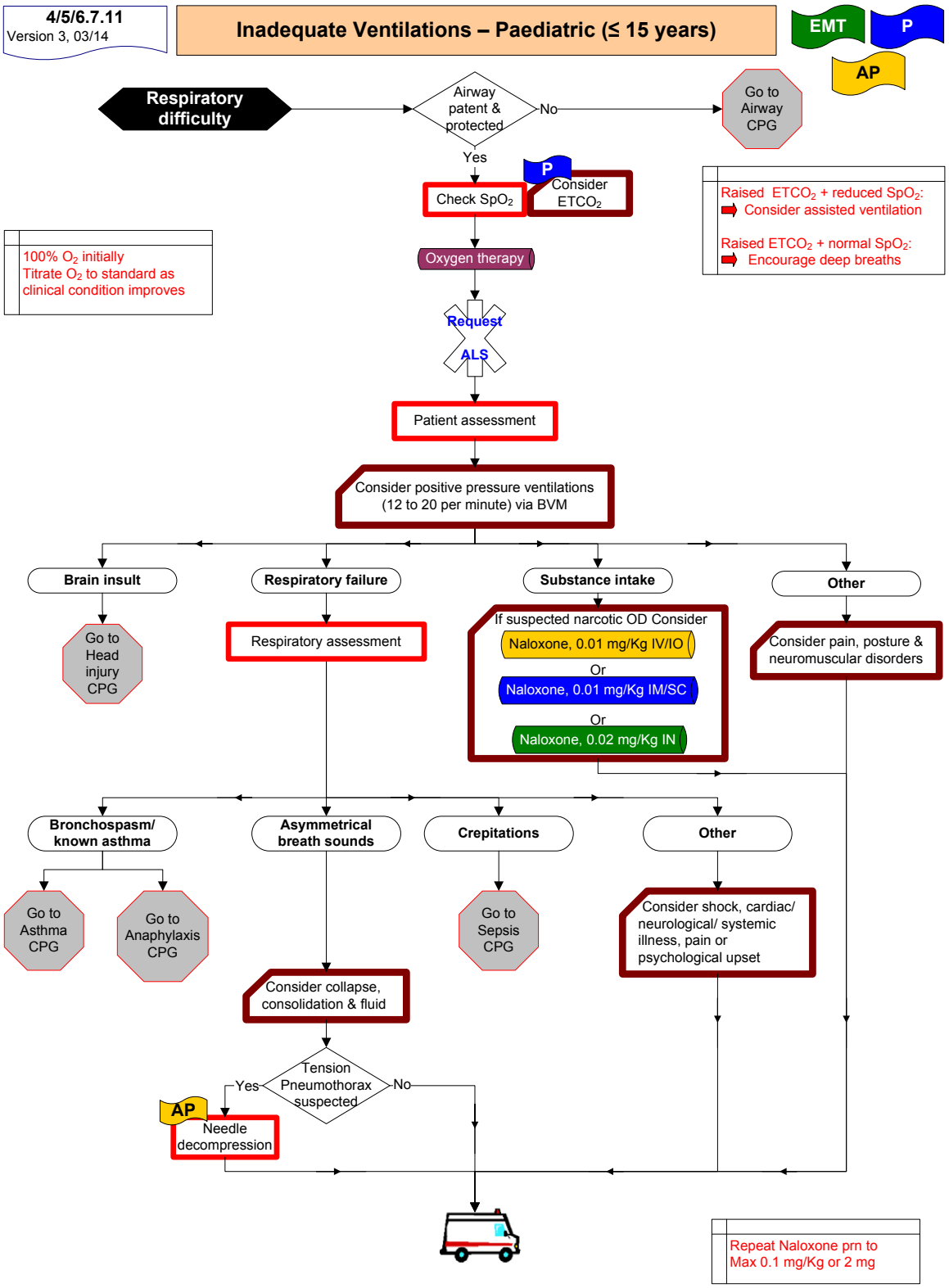
Maximum hands off time 10 seconds.

Maintain adequate ventilation and oxygenation throughout procedures

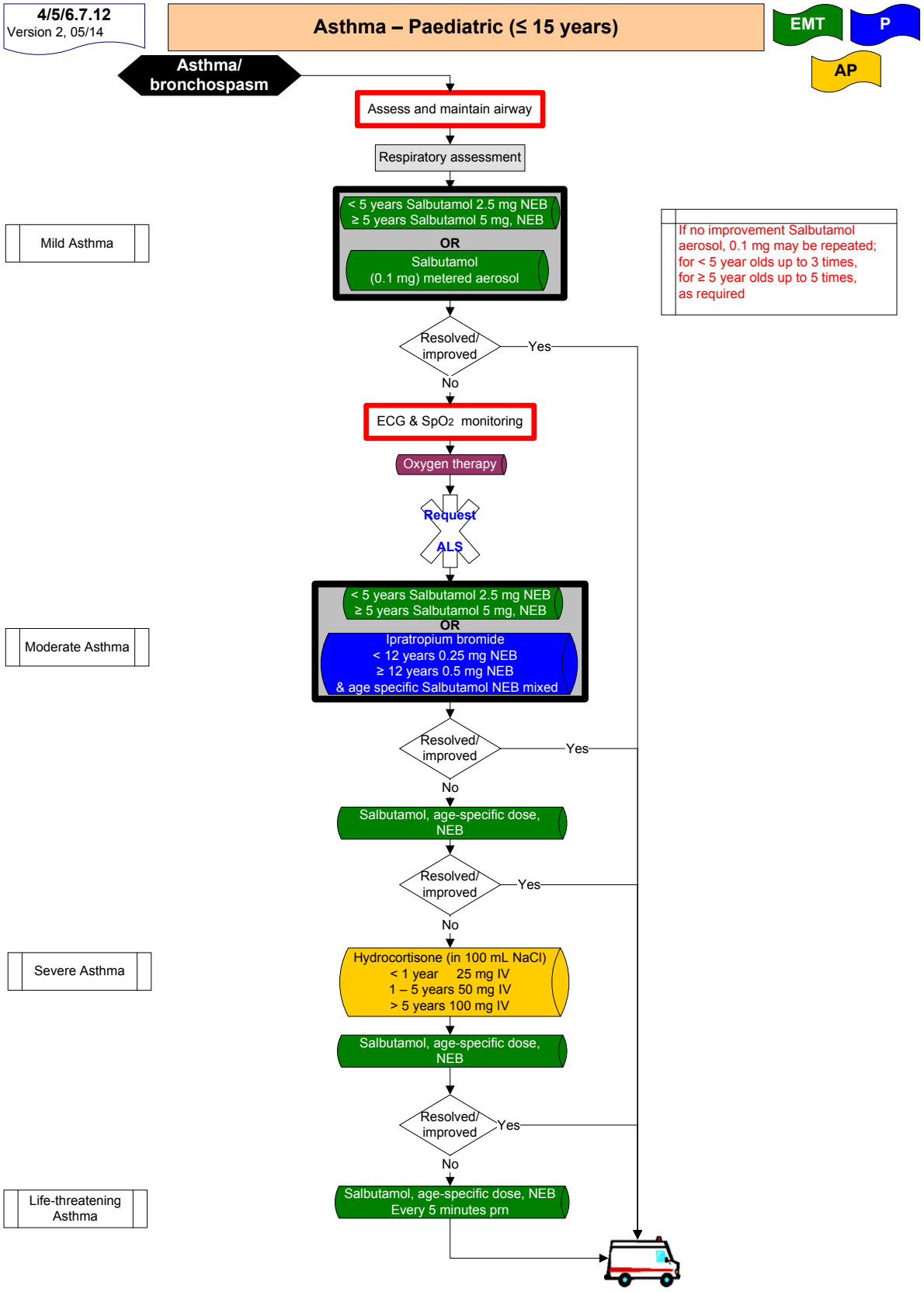
Following successful Advanced Airway management:-
i) Ventilate at 12 to 20 per minute.
ii) Unsynchronised chest compressions continuous at 100 to 120 per minute

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

SECTION 7
PAEDIATRIC EMERGENCIES

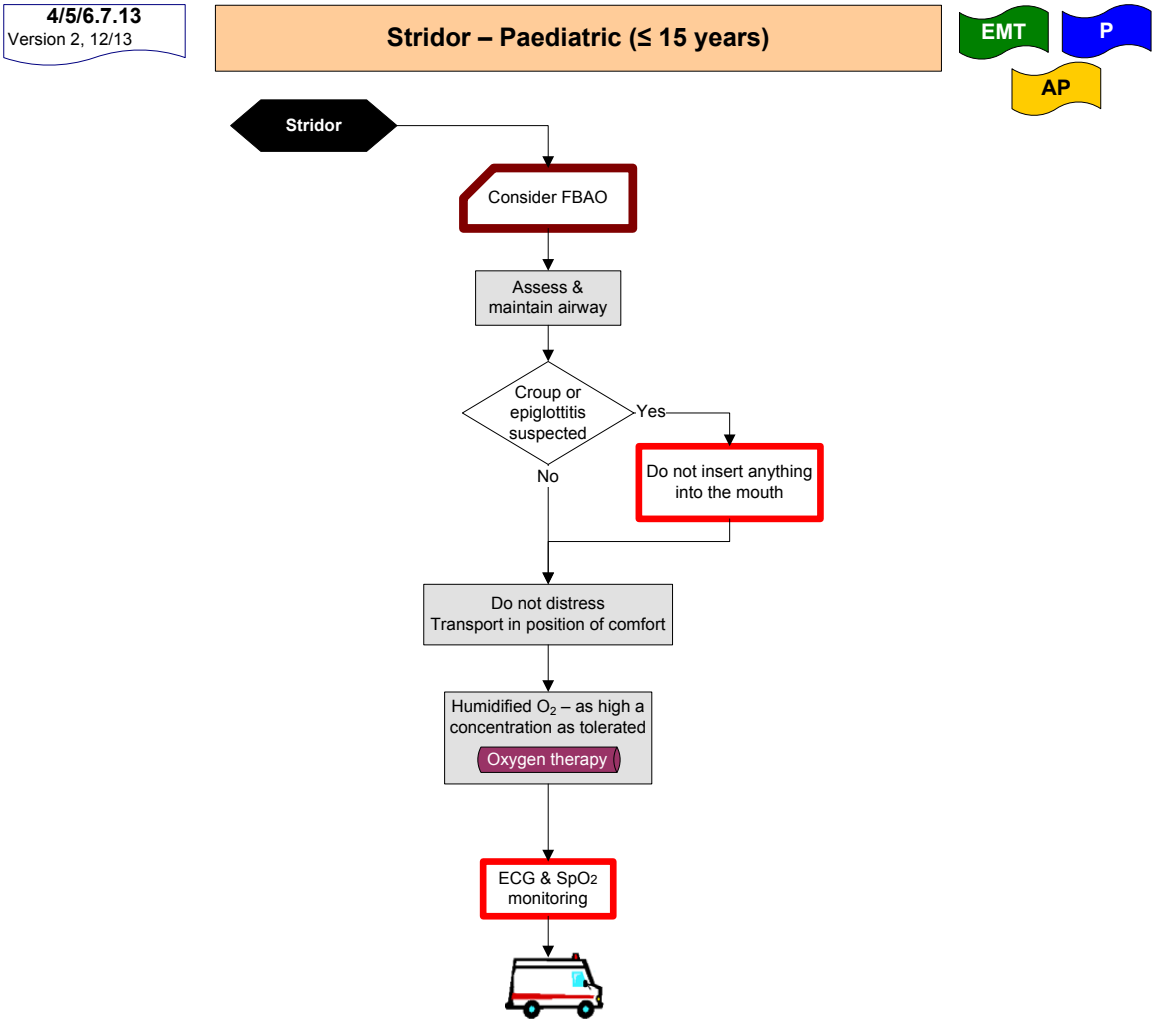


SECTION 7
PAEDIATRIC EMERGENCIES

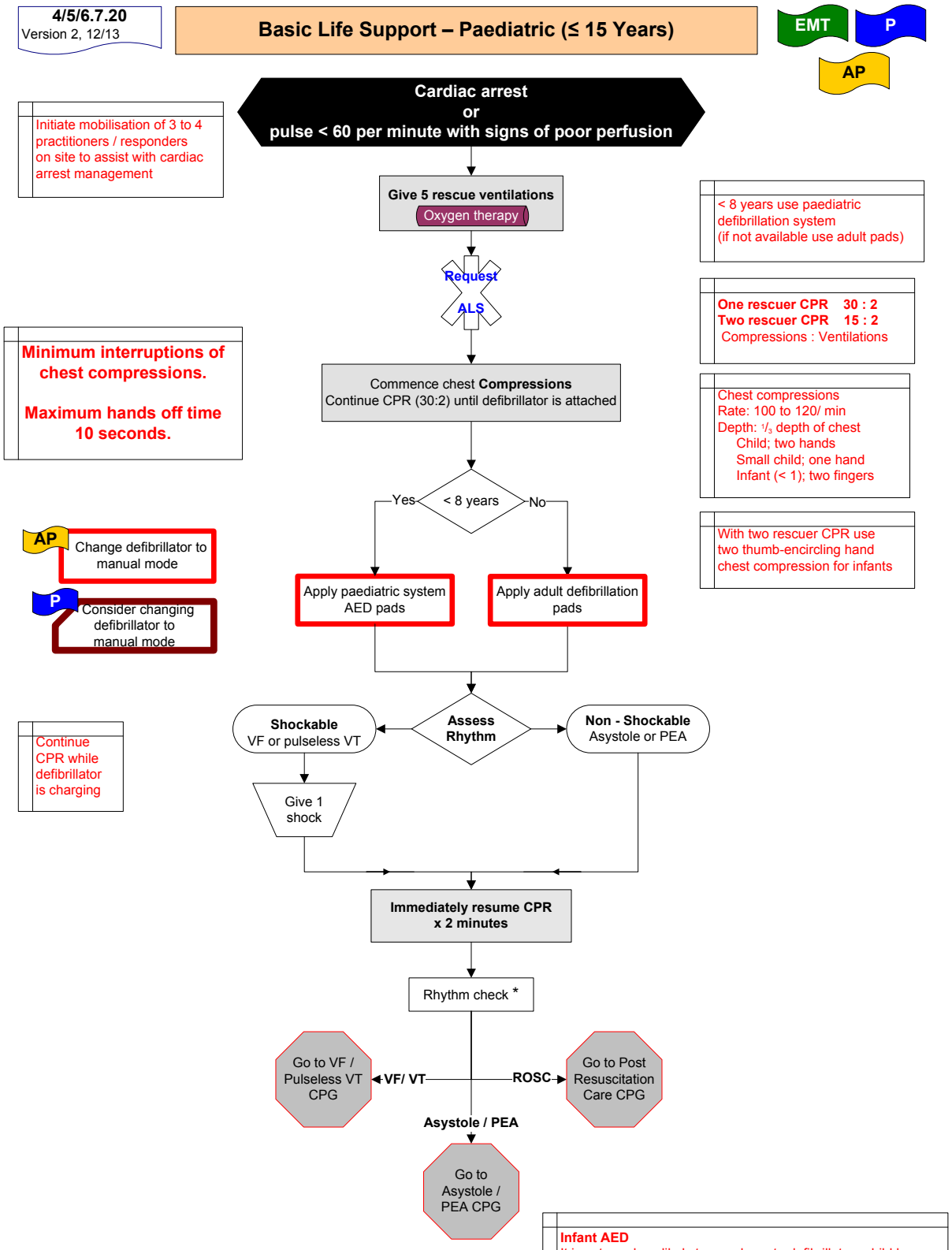


Reference: HSE National Asthma Programme 2012, Emergency Asthma Guidelines, British Thoracic Society, 2008, British Guidelines on the Management of Asthma, a national clinical guideline

SECTION 7
PAEDIATRIC EMERGENCIES



SECTION 7
PAEDIATRIC EMERGENCIES

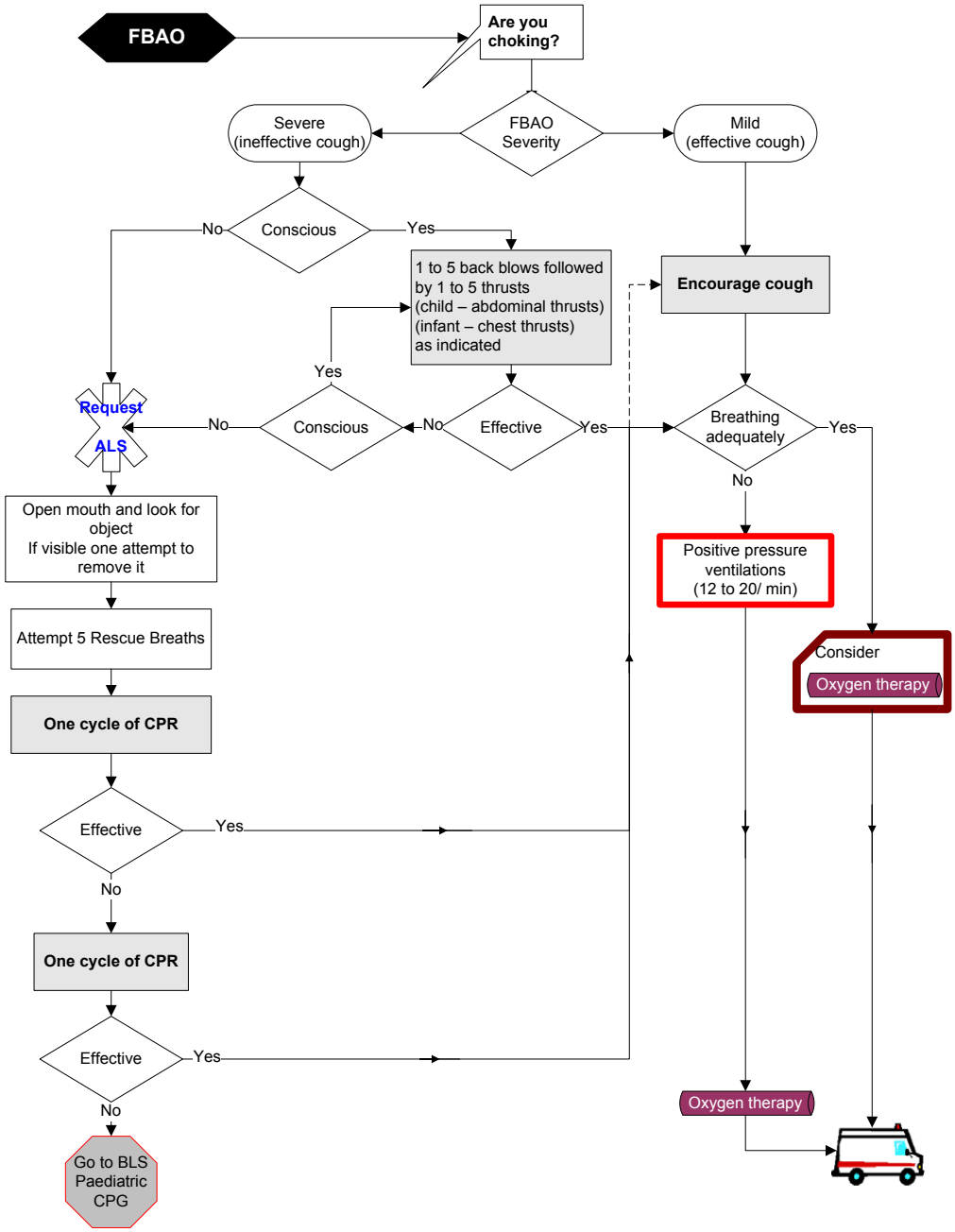


SECTION 7
PAEDIATRIC EMERGENCIES

4/5.7.21
Version 2, 12/13

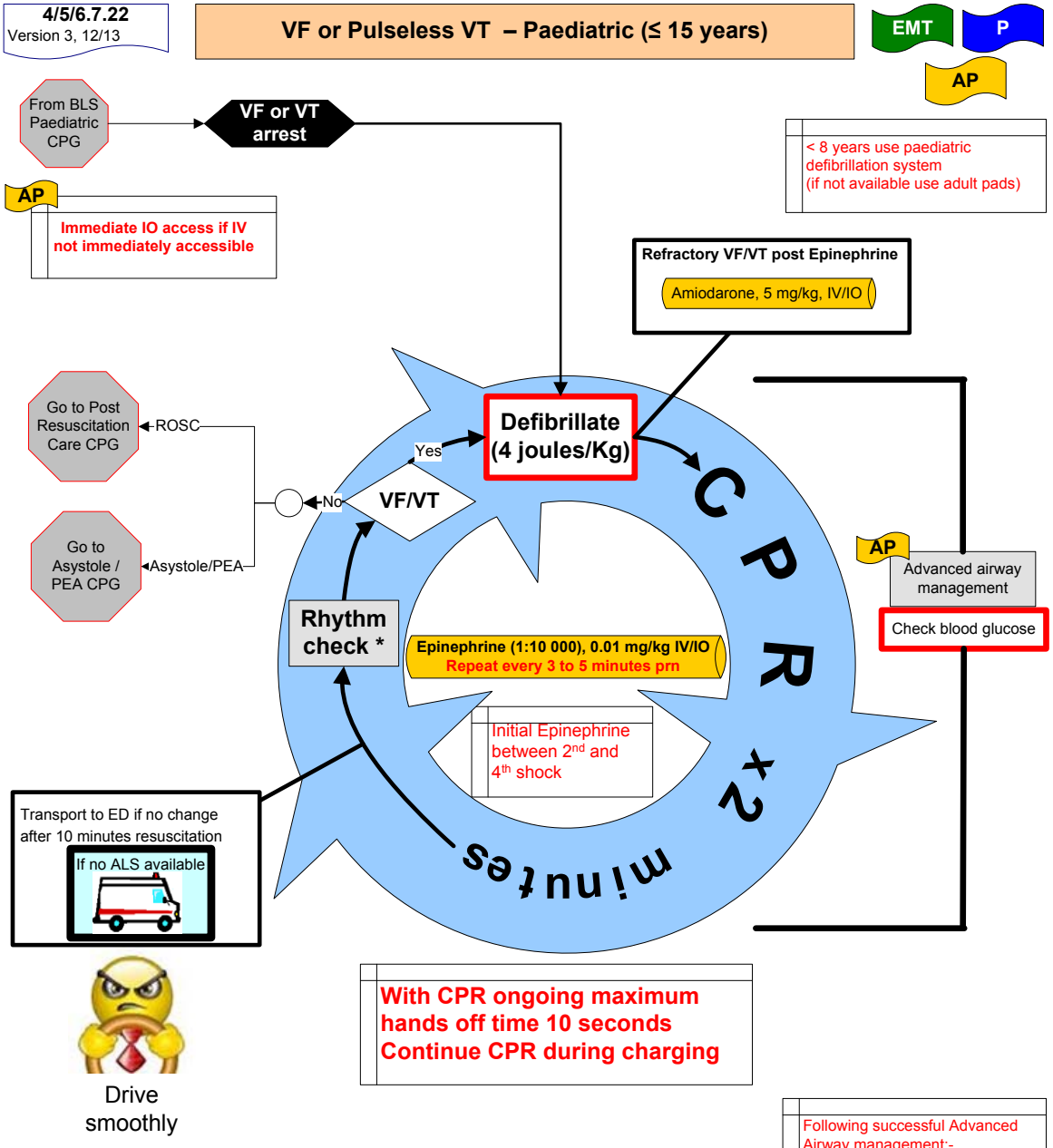
Foreign Body Airway Obstruction – Paediatric (≤ 15 years)

EMT P

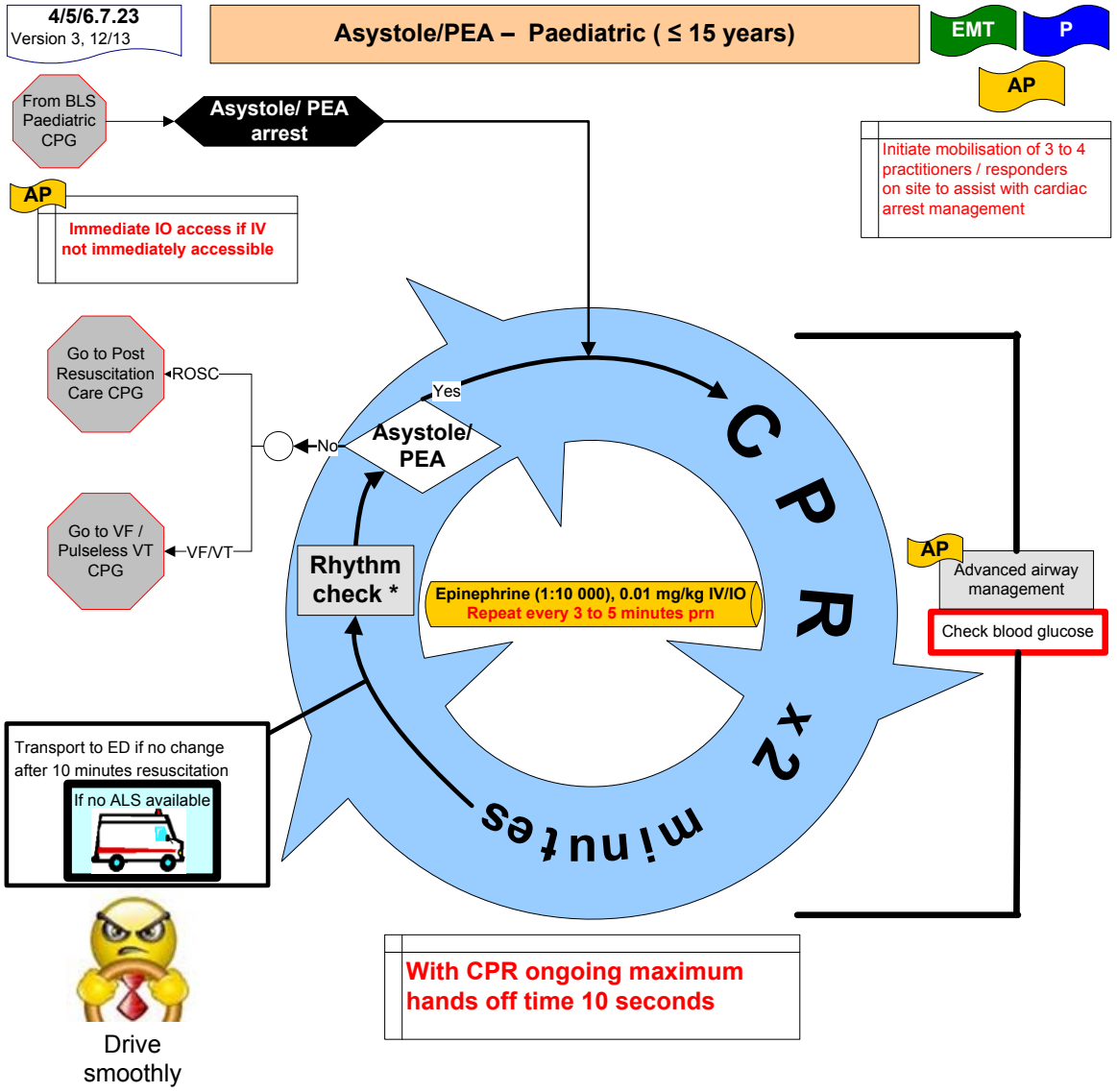


After each cycle of CPR open mouth and look for object.
If visible attempt once to remove it

SECTION 7
PAEDIATRIC EMERGENCIES



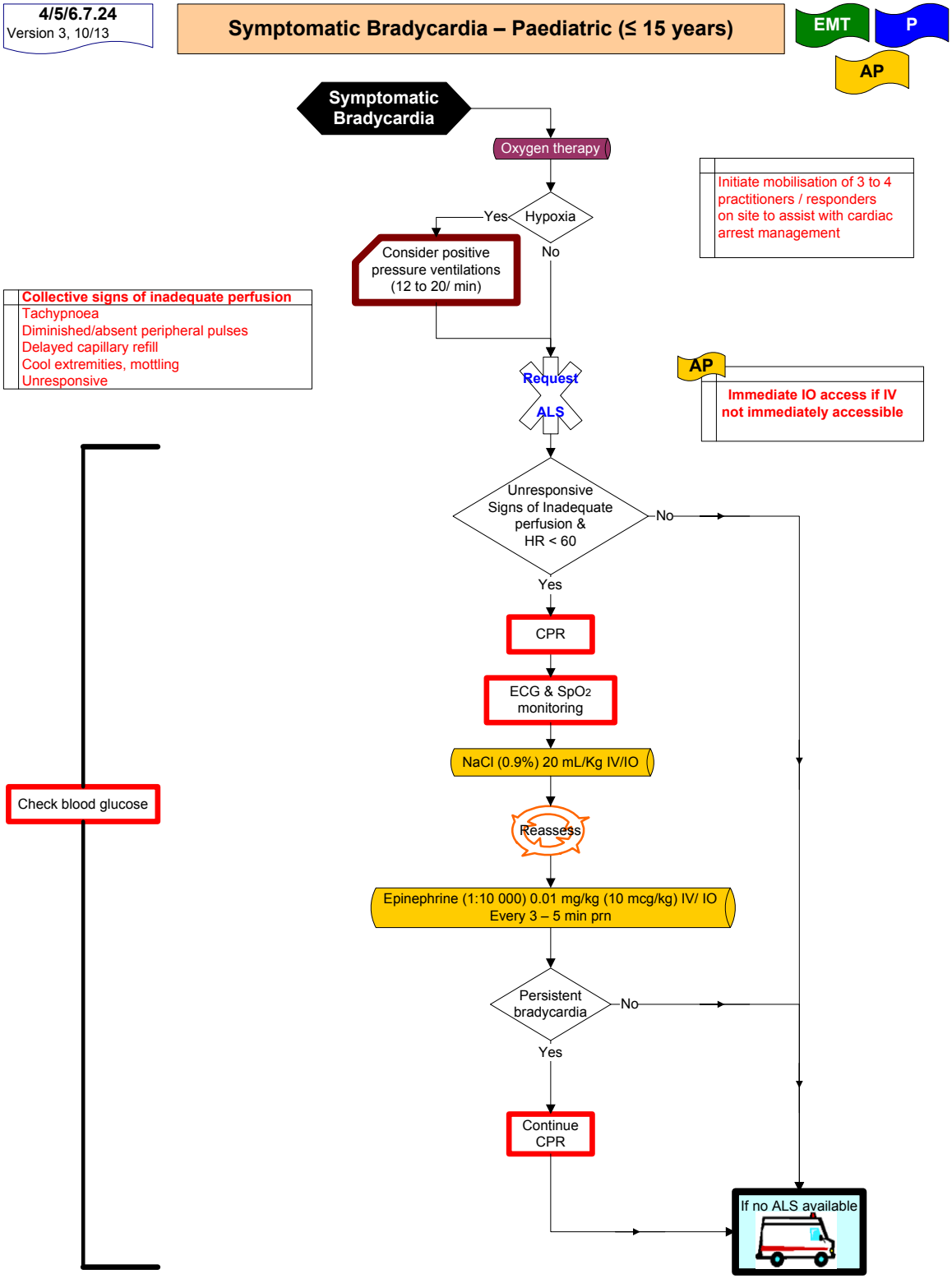
SECTION 7
PAEDIATRIC EMERGENCIES



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

Reference: ILCOR Guidelines 2010

SECTION 7
PAEDIATRIC EMERGENCIES



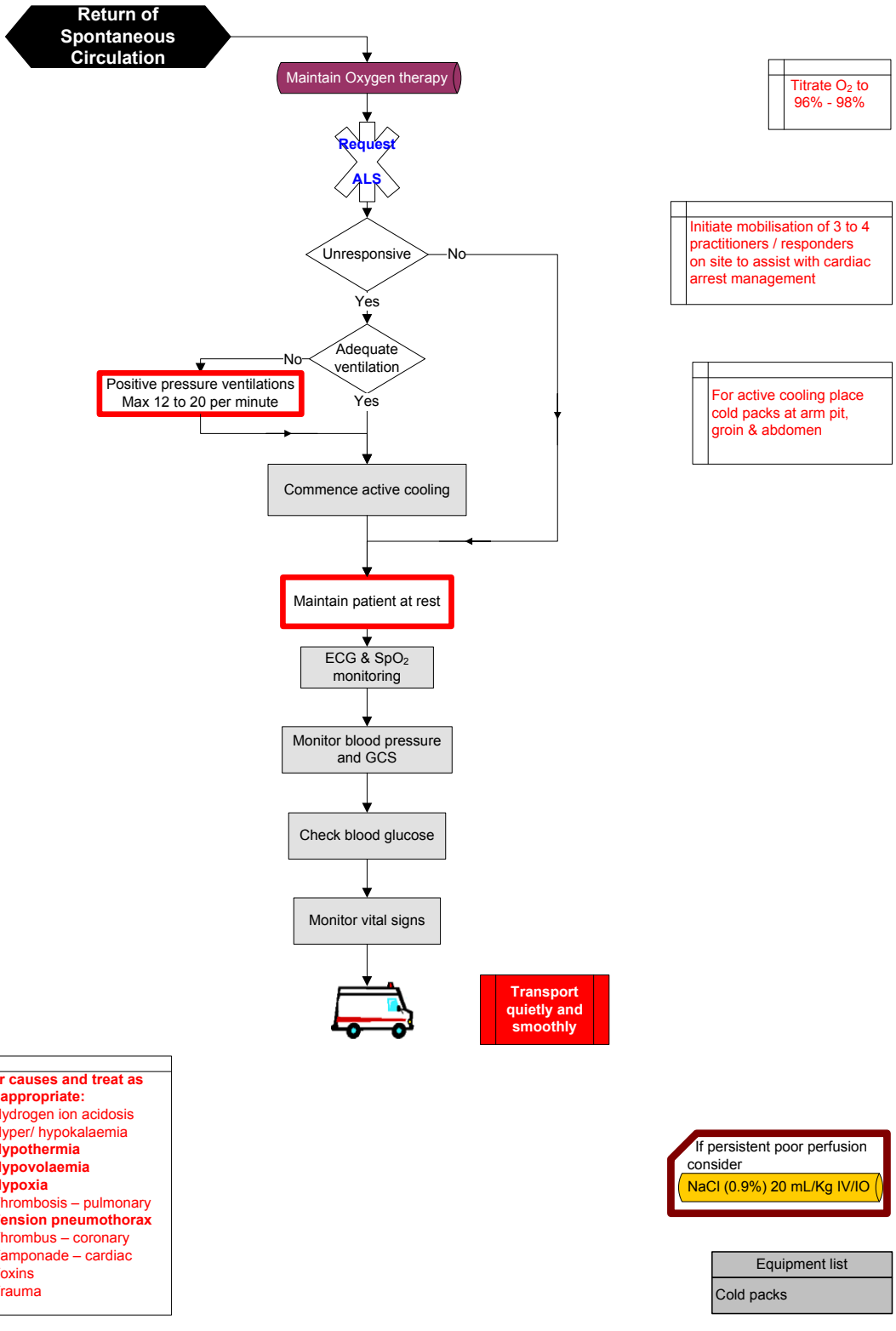
Reference: International Liaison Committee on Resuscitation, 2010, Part 6: Paediatric basic and advanced life support, Resuscitation (2005) 67, 271 – 291

SECTION 7
PAEDIATRIC EMERGENCIES

5/6.7.25
Version 2, 12/13

Post-Resuscitation Care – Paediatric (≤ 15 years)

P AP



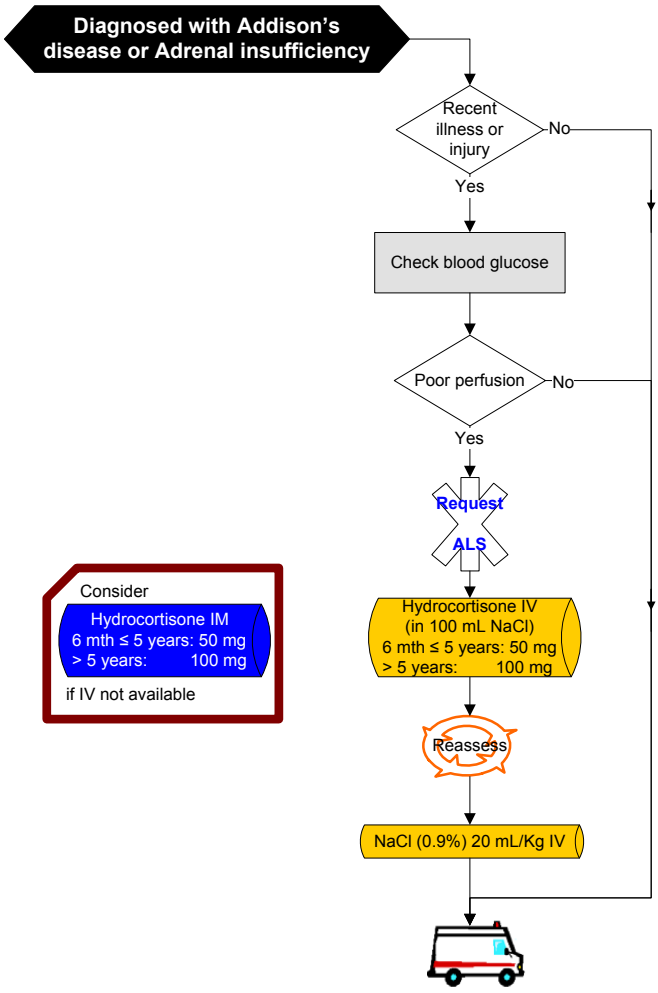
Reference: ILCOR Guidelines 2010

SECTION 7
PAEDIATRIC EMERGENCIES

5/6.7.30
Version 1, 12/13

Adrenal Insufficiency – Paediatric (≤ 15 years)

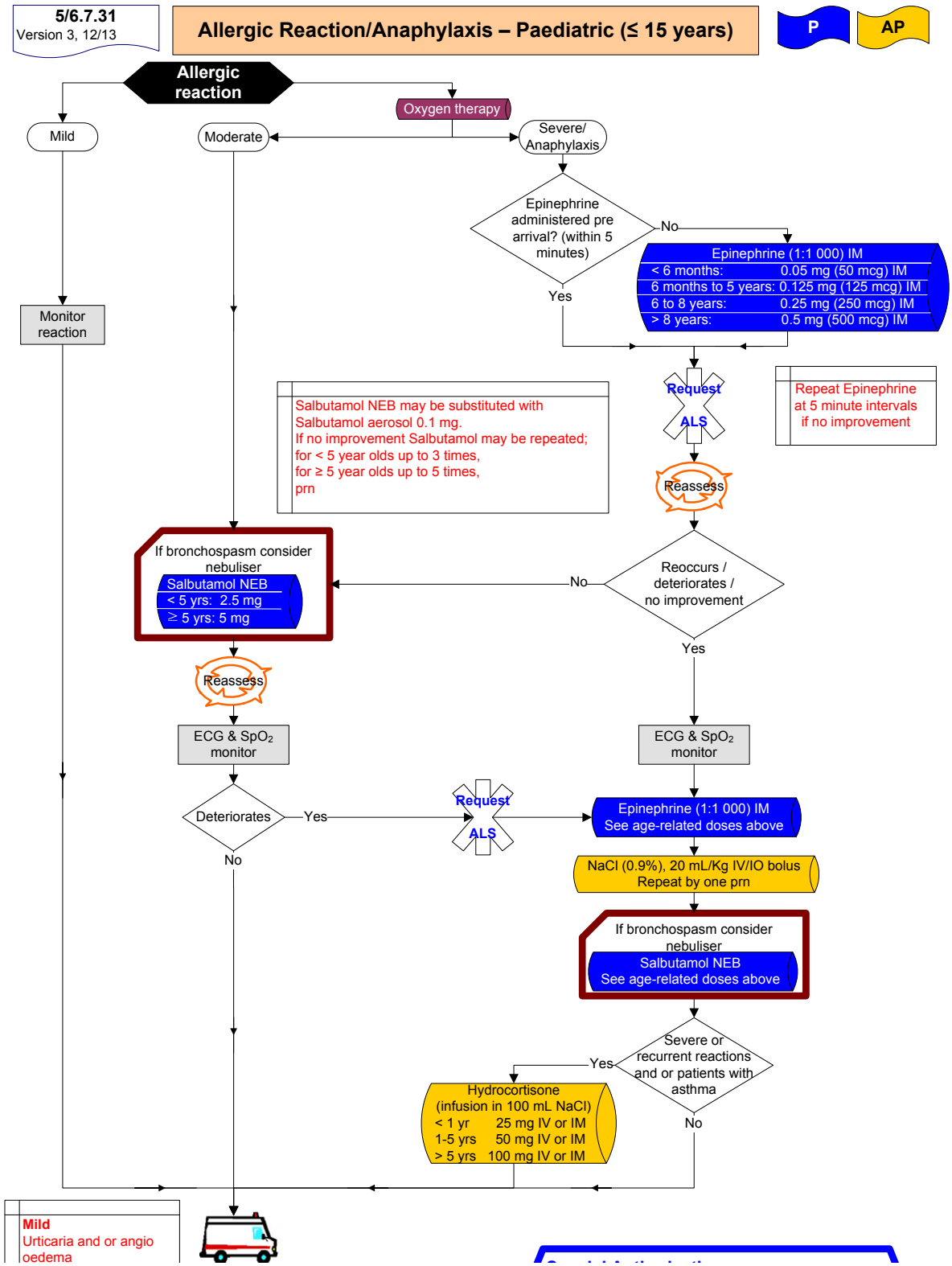
P AP



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

SECTION 7
PAEDIATRIC EMERGENCIES

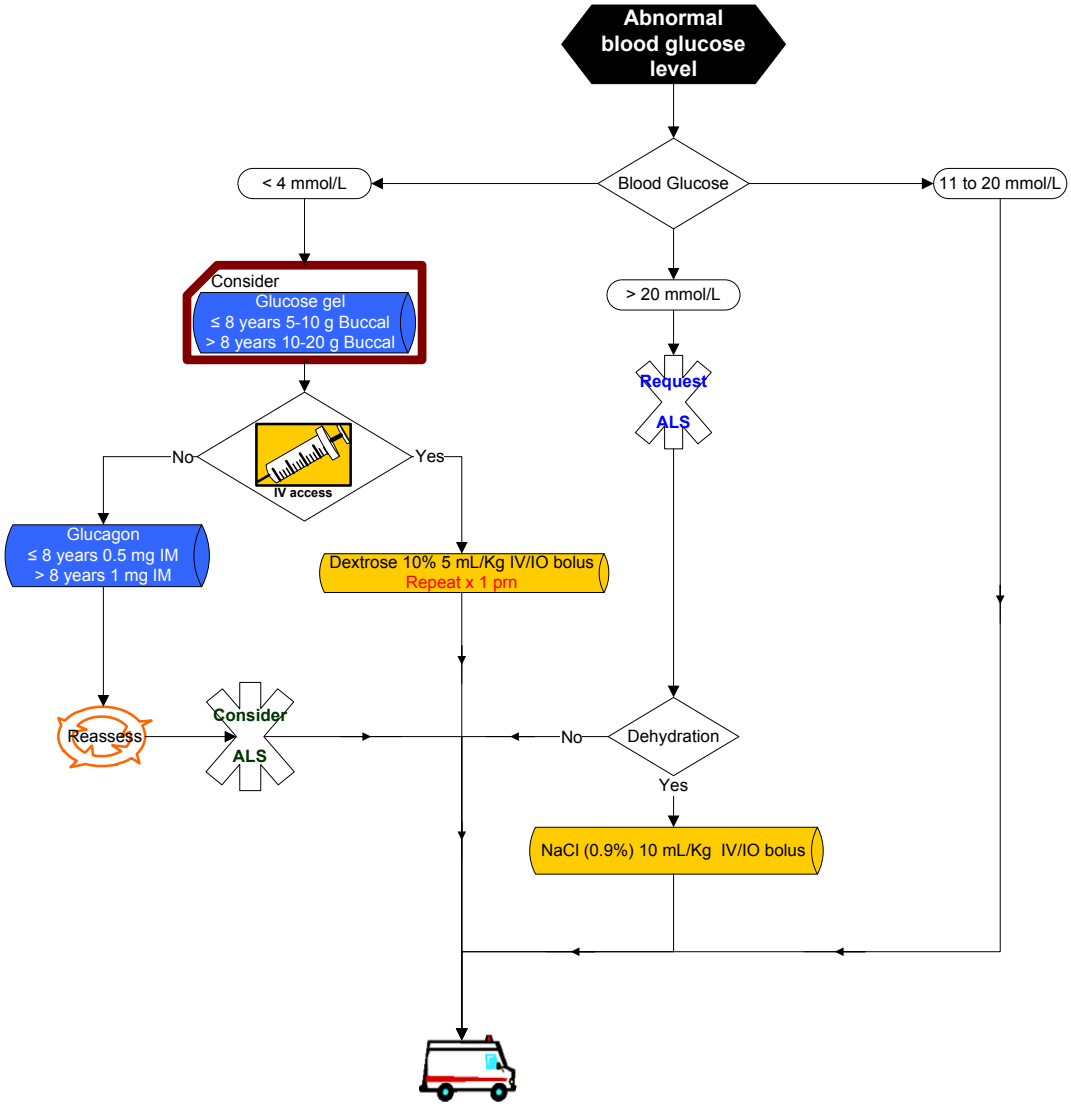


SECTION 7
PAEDIATRIC EMERGENCIES

5/6.7.32
Version 3, 12/13

Glycaemic Emergency – 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

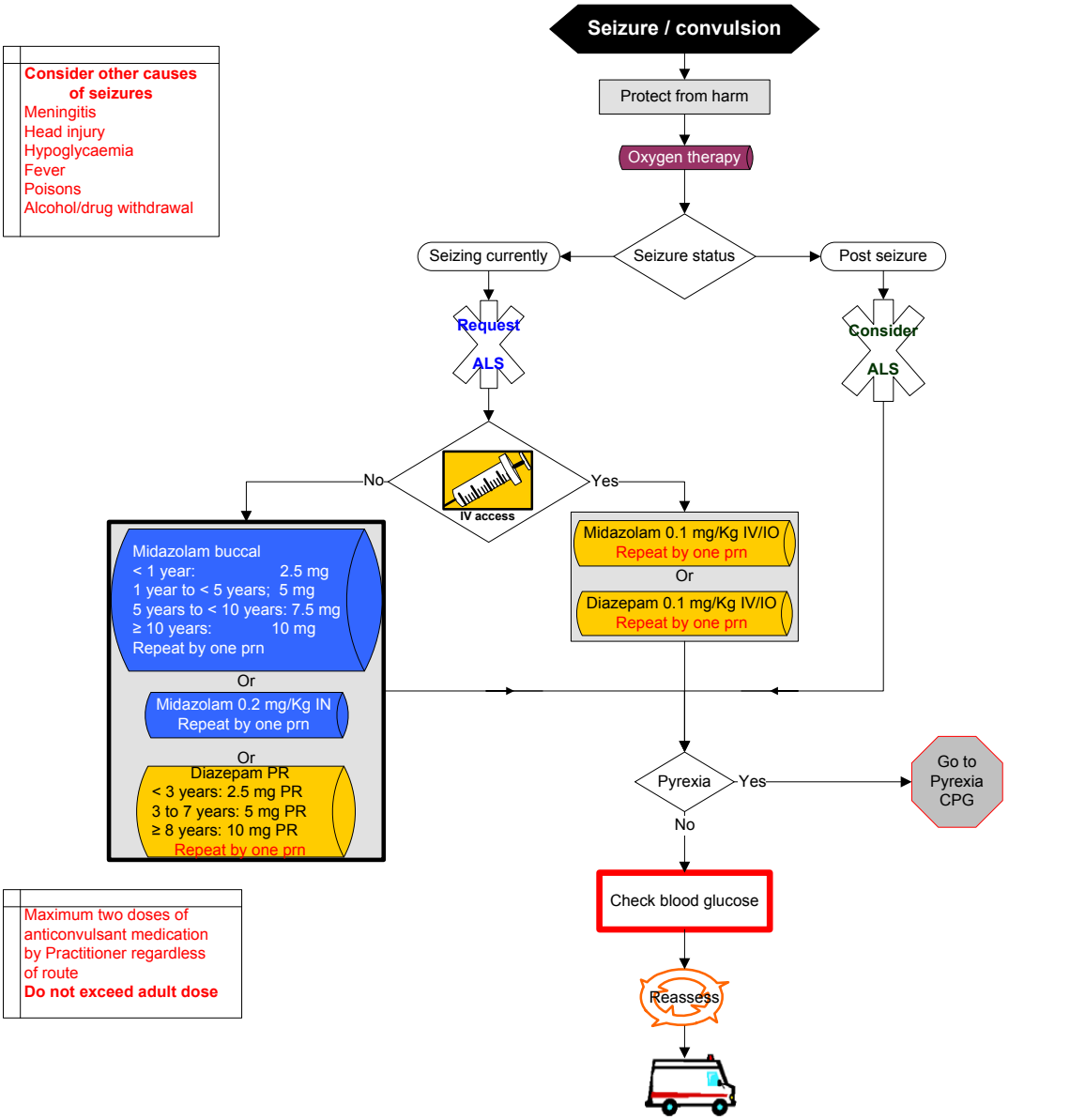
Reference: Dehydration- Paramedic Textbook 2nd E p 1229

SECTION 7
PAEDIATRIC EMERGENCIES

5/6.7.33
Version 3, 02/14

Seizure/Convulsion – Paediatric (≤ 15 years)

P AP

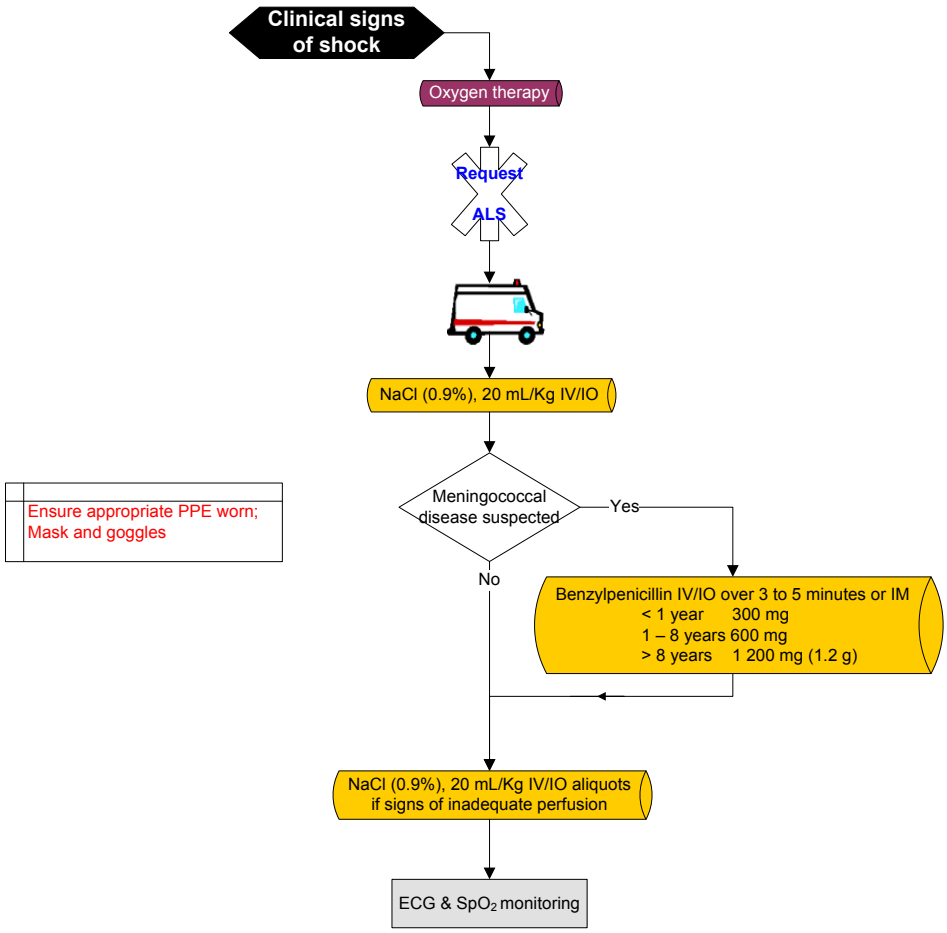


SECTION 7
PAEDIATRIC EMERGENCIES

5/6.7.34
Version 3, 12/13

Septic Shock – Paediatric (≤ 15 years)

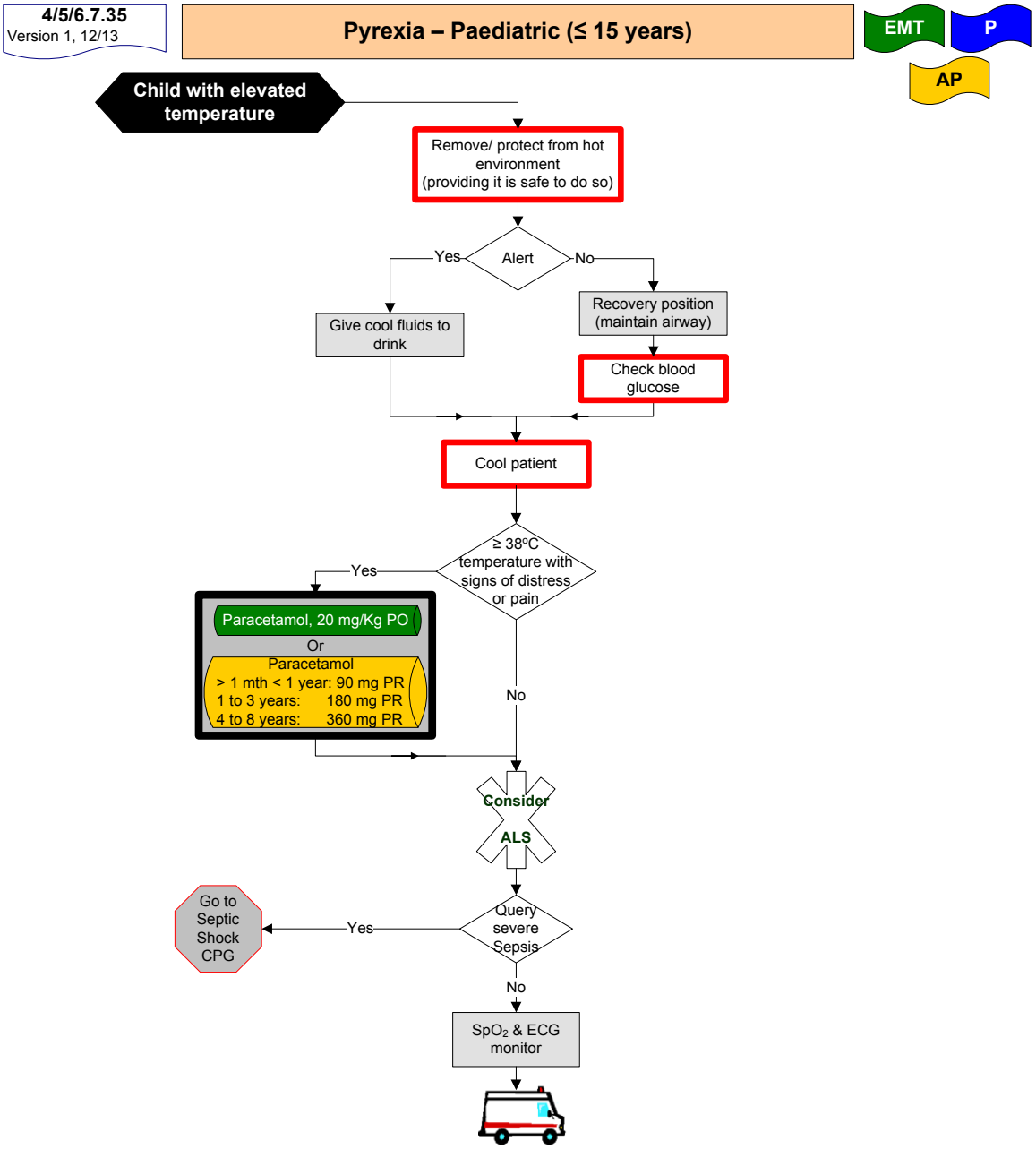
P AP



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

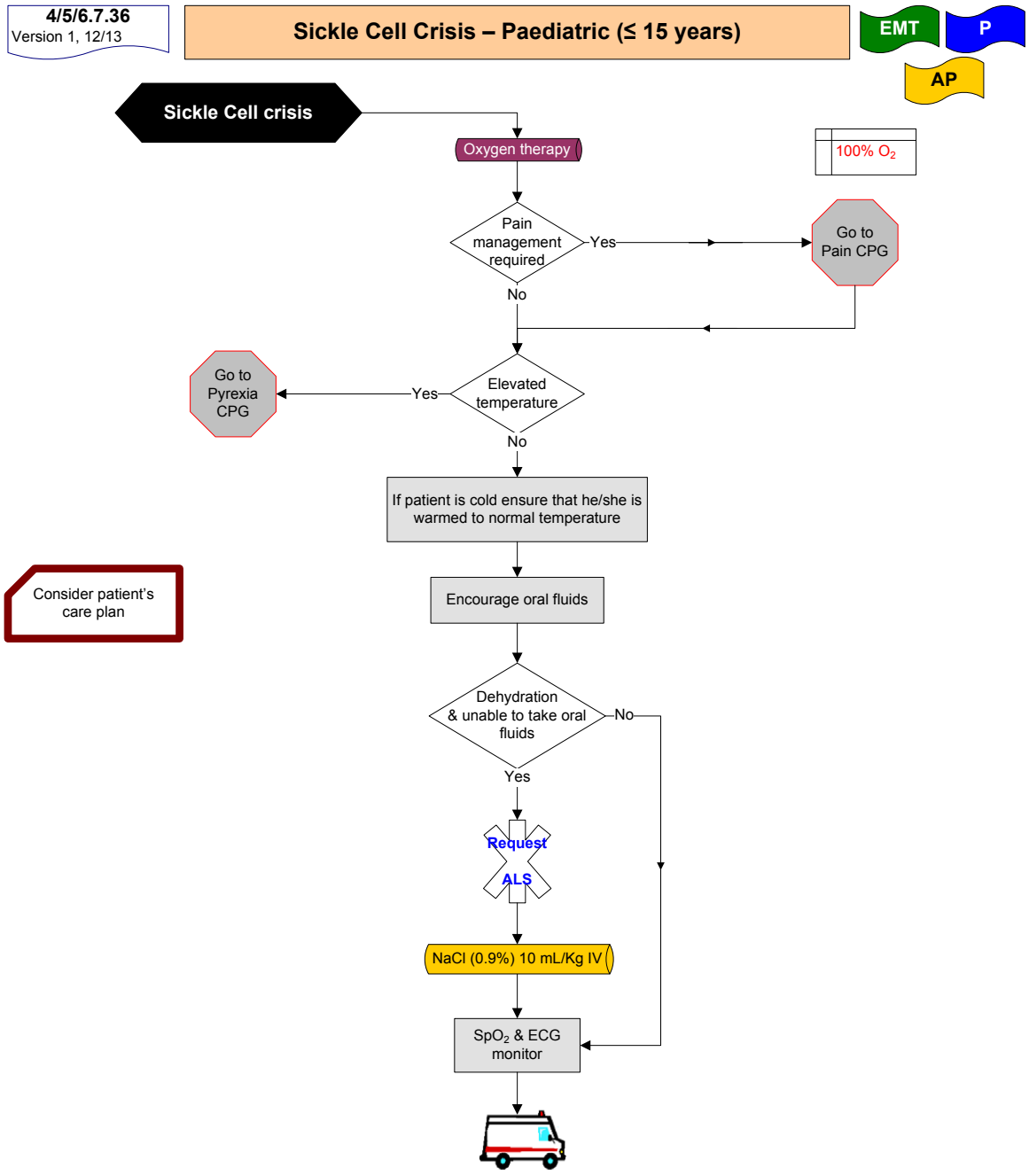
P **Special Authorisation:**
Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or Doctor during transportation

SECTION 7
PAEDIATRIC EMERGENCIES



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

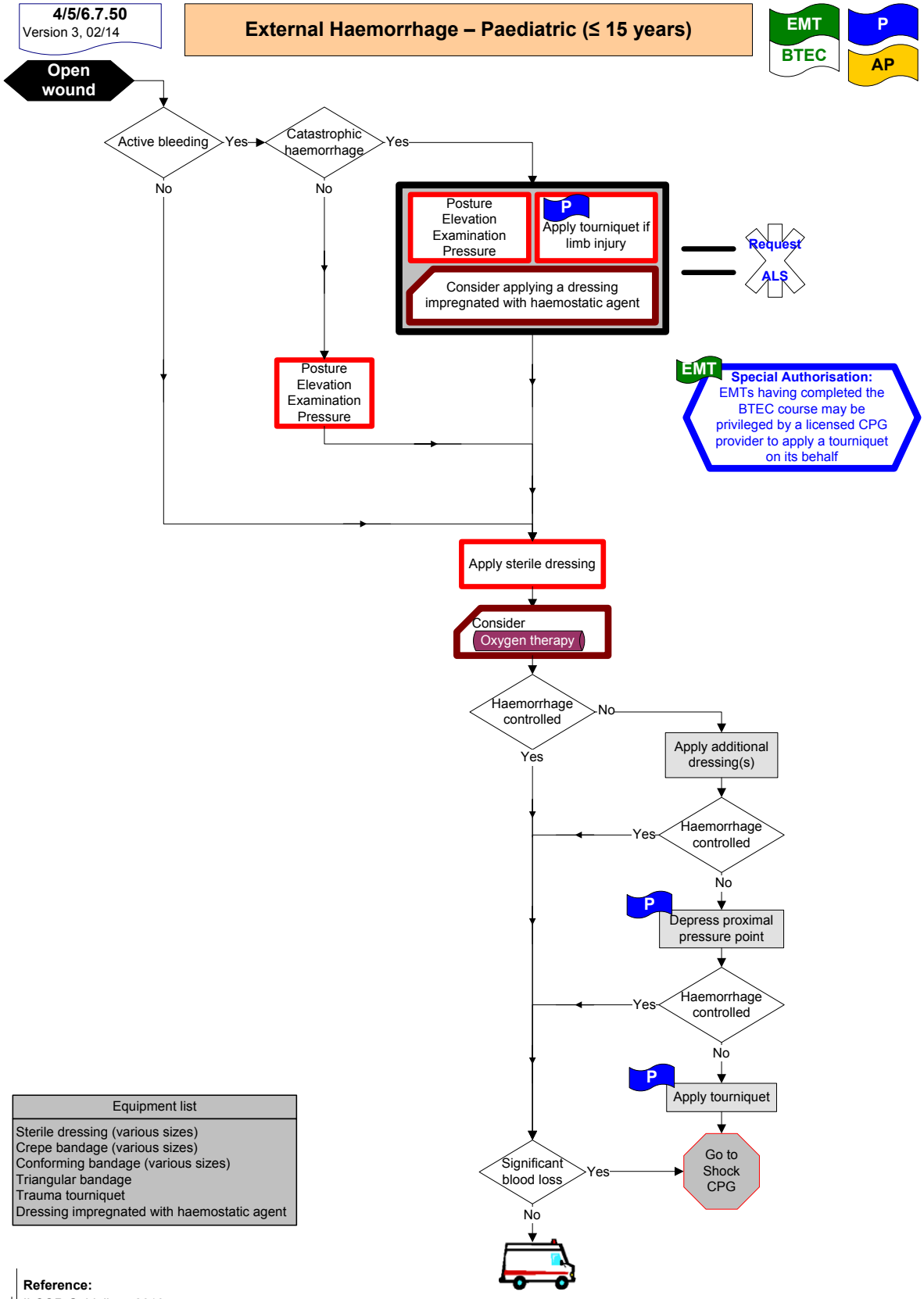
SECTION 7
PAEDIATRIC EMERGENCIES



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 7
PAEDIATRIC EMERGENCIES



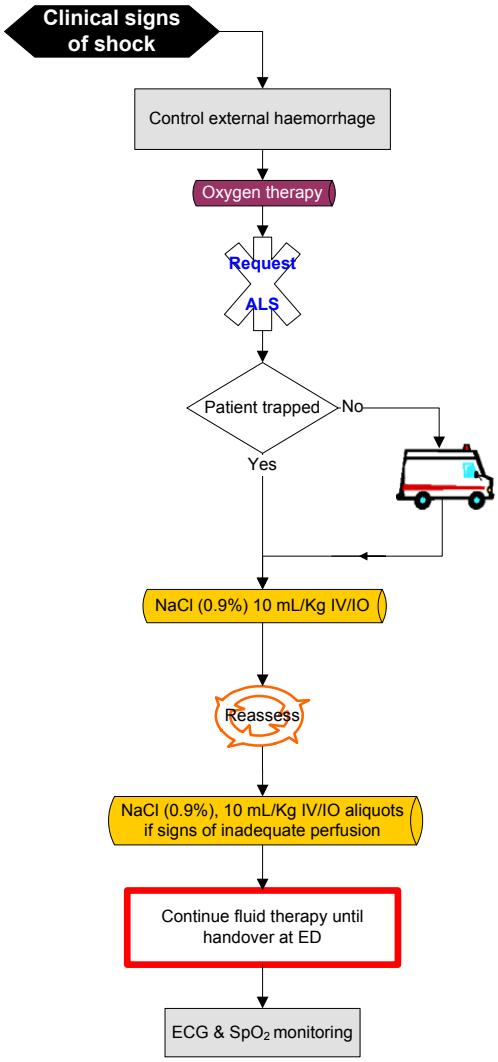
Reference:
ILCOR Guidelines 2010,
Granville-Chapman J, et al. Pre-hospital haemostatic dressings: A systematic review. Injury (2010), doi: 10.1016/j. injury. 2010.09.037

SECTION 7
PAEDIATRIC EMERGENCIES

5/6.7.51
Version 3, 12/13

Shock from Blood Loss – Paediatric (≤ 15 years)

P AP

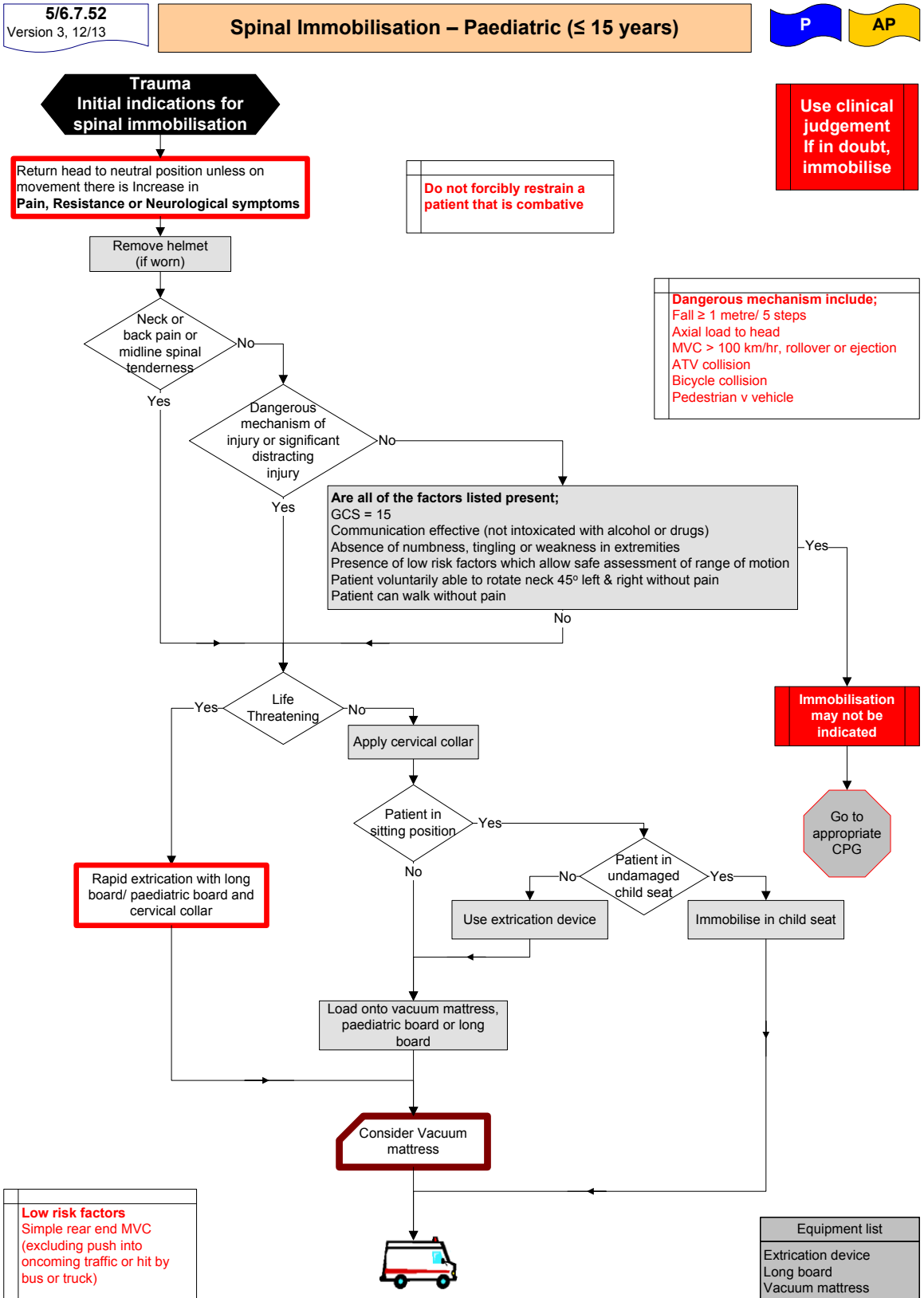


Signs of inadequate perfusion
A: (not directly affected)
B: Increased respiratory rate (without increased effort)
C: Tachycardia
Diminished/absent peripheral pulses
Delayed capillary refill
D: Irritability/ confusion / ALoC
E: Cool extremities, mottling

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

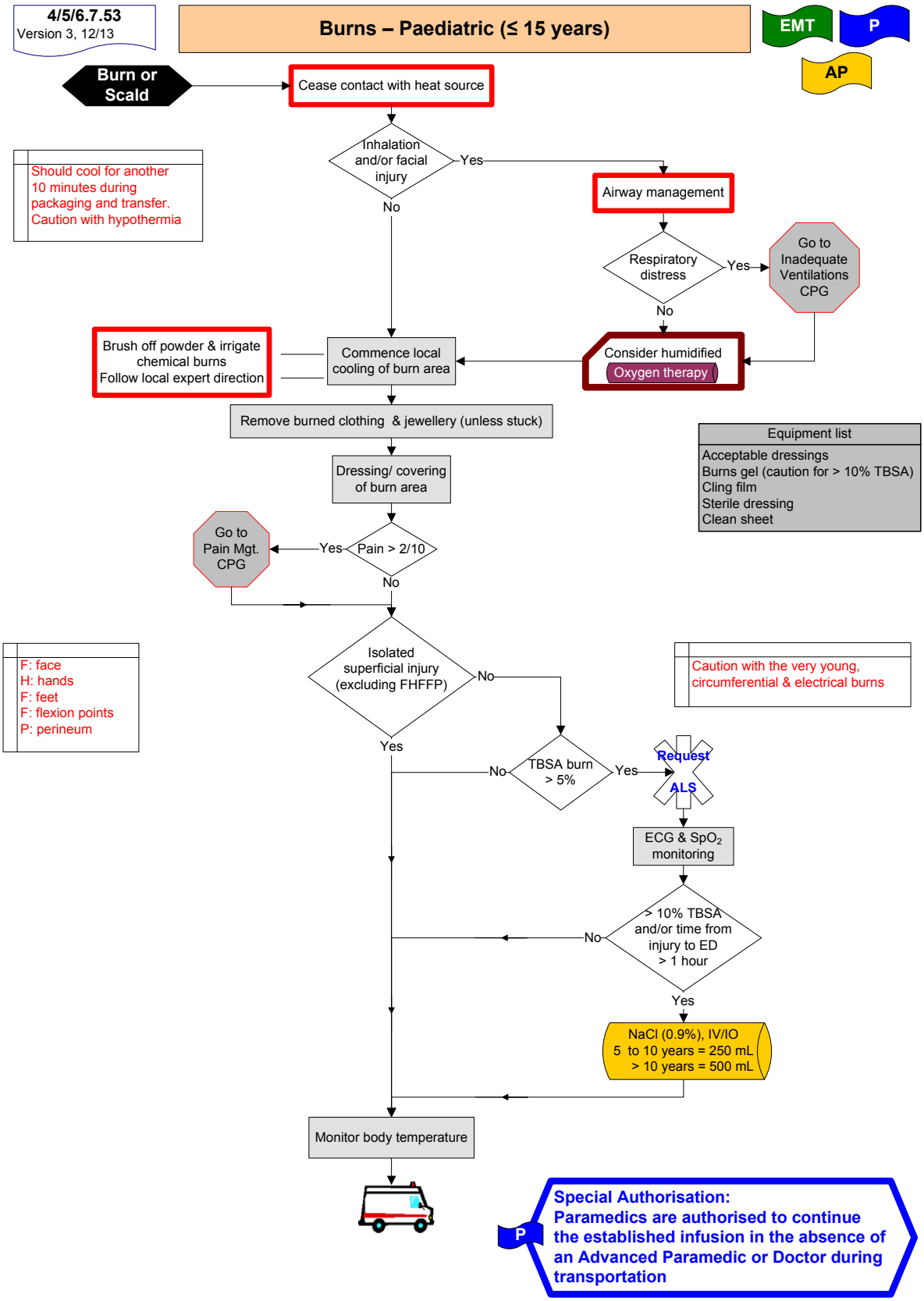
Reference:
American Academy of Pediatrics, 2000, Pediatric Education for Prehospital Prefessionals, Jones and Bartlett.

SECTION 7
PAEDIATRIC EMERGENCIES



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

SECTION 7
PAEDIATRIC EMERGENCIES



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 8
PRE-HOSPITAL EMERGENCY CARE OPERATIONS

4/5/6.8.1
Version 2, 01/13

Major Emergency (Major Incident) – First Practitioners on site

EMT P AP

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

Possible Major Emergency

Take standard infection control precautions

Consider pre-arrival information

PPE (high visibility jacket and helmet) must be worn

Practitioner 1

Park at the scene as safety permits and in conjunction with Fire & Garda if present

Leave blue lights on as vehicle acts as Forward Control Point pending the arrival of the Mobile Control Vehicle

Confirm arrival at scene with Ambulance Control and provide an initial visual report stating Major Emergency (Major Incident) Standby or Declared

Maintain communication with Practitioner 2

Leave the ignition keys in place and remain with vehicle

Carry out Communications Officer role until relieved

Practitioner 2
(Ideally MIMMS trained)

Carry out scene survey

Give situation report to Ambulance Control using METHANE message

Carry out HSE Controller of Operations (Ambulance Incident Officer) role until relieved

Liaise with Garda Controller of Operations (Police Incident Officer) and Local Authority Controller of Operations (Fire Incident Officer)

Select location for Holding Area (Ambulance Parking Point)

Set up key areas in conjunction with other Principal Response Agencies on site;
- Site Control Point (Ambulance Control Point),
- Casualty Clearing Station
- Ambulance loading point
- On site co-ordination centre

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

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

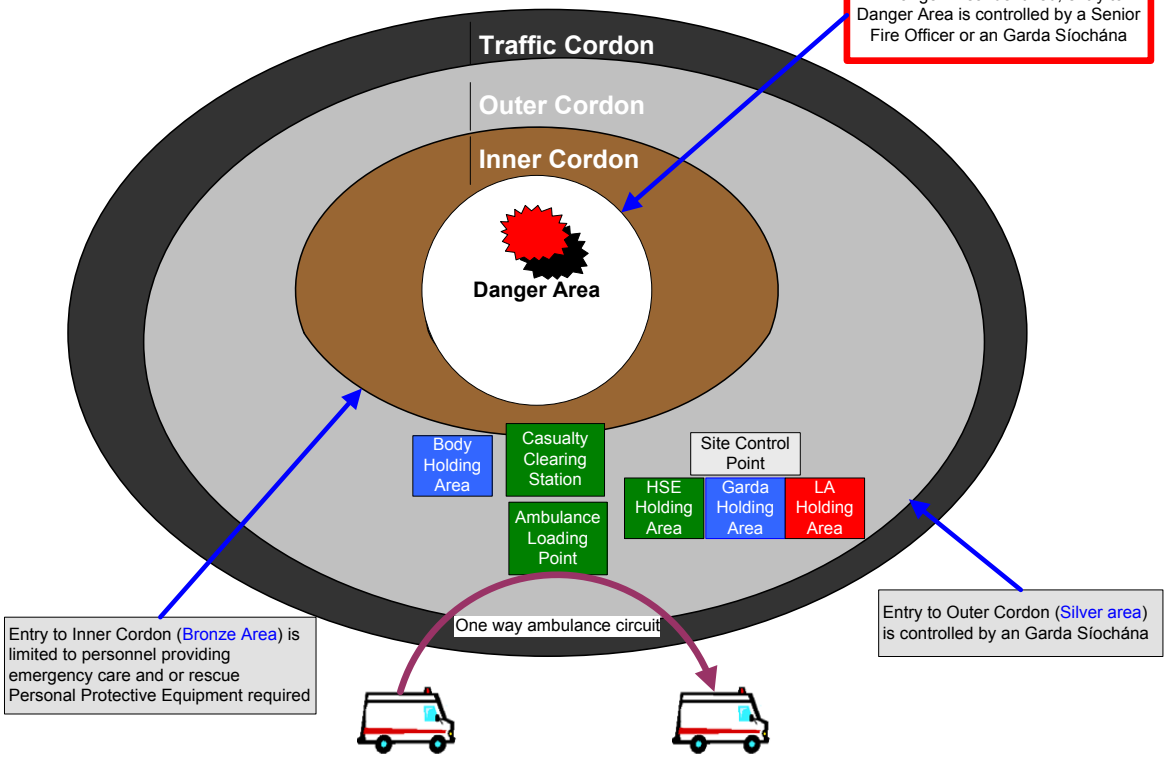
4/5/6.8.2
Version 2, 01/13

Major Emergency (Major Incident) – Operational Control

EMT P AP

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

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



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

Entry to Outer Cordon (Silver area) is controlled by an Garda Síochána

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)

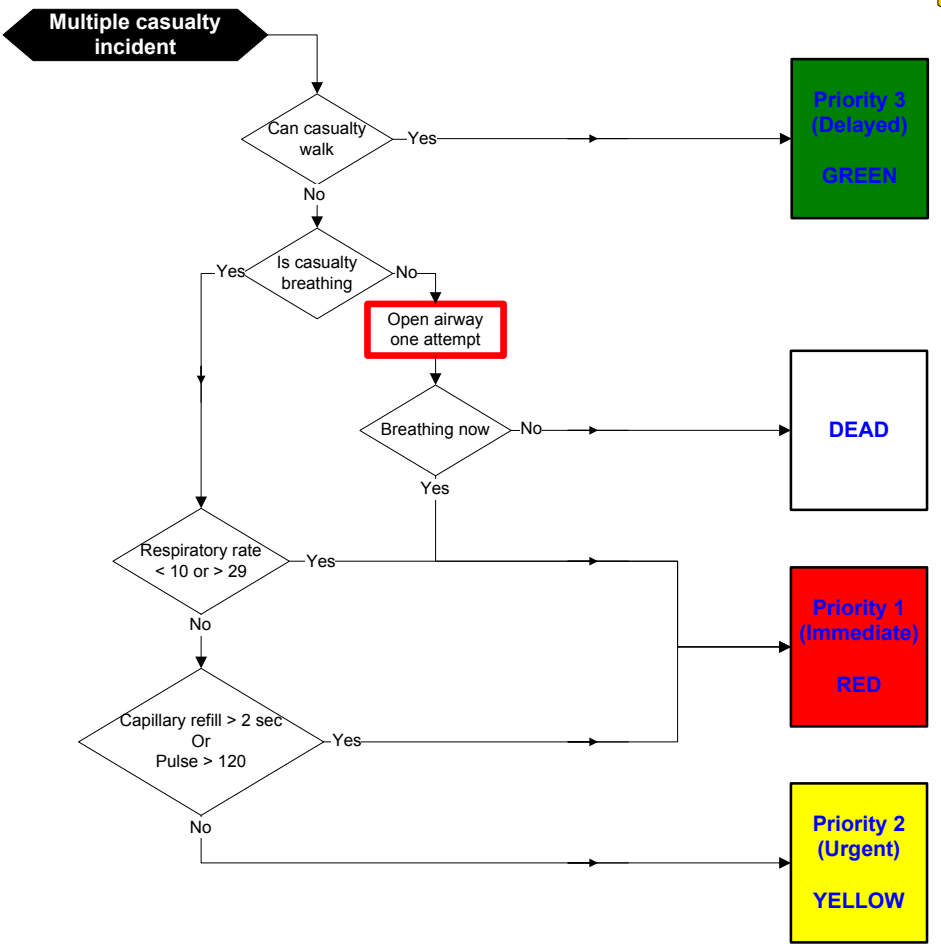
The principles and terminology of Major Incident Medical Management and Support (MIMMS) has been used with the kind permission of the Advanced Life Support Group, UK

SECTION 8
PRE-HOSPITAL EMERGENCY CARE OPERATIONS

4/5/6.8.3
Version 1, 05/08

Triage Sieve

EMT P AP



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

Triage is a dynamic process

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

Revised Trauma Score

- **1 - 10** → **Priority 1 (Immediate) RED**
- **11** → **Priority 2 (Urgent) YELLOW**
- **12** → **Priority 3 (Delayed) GREEN**
- **0** → **DEAD**

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

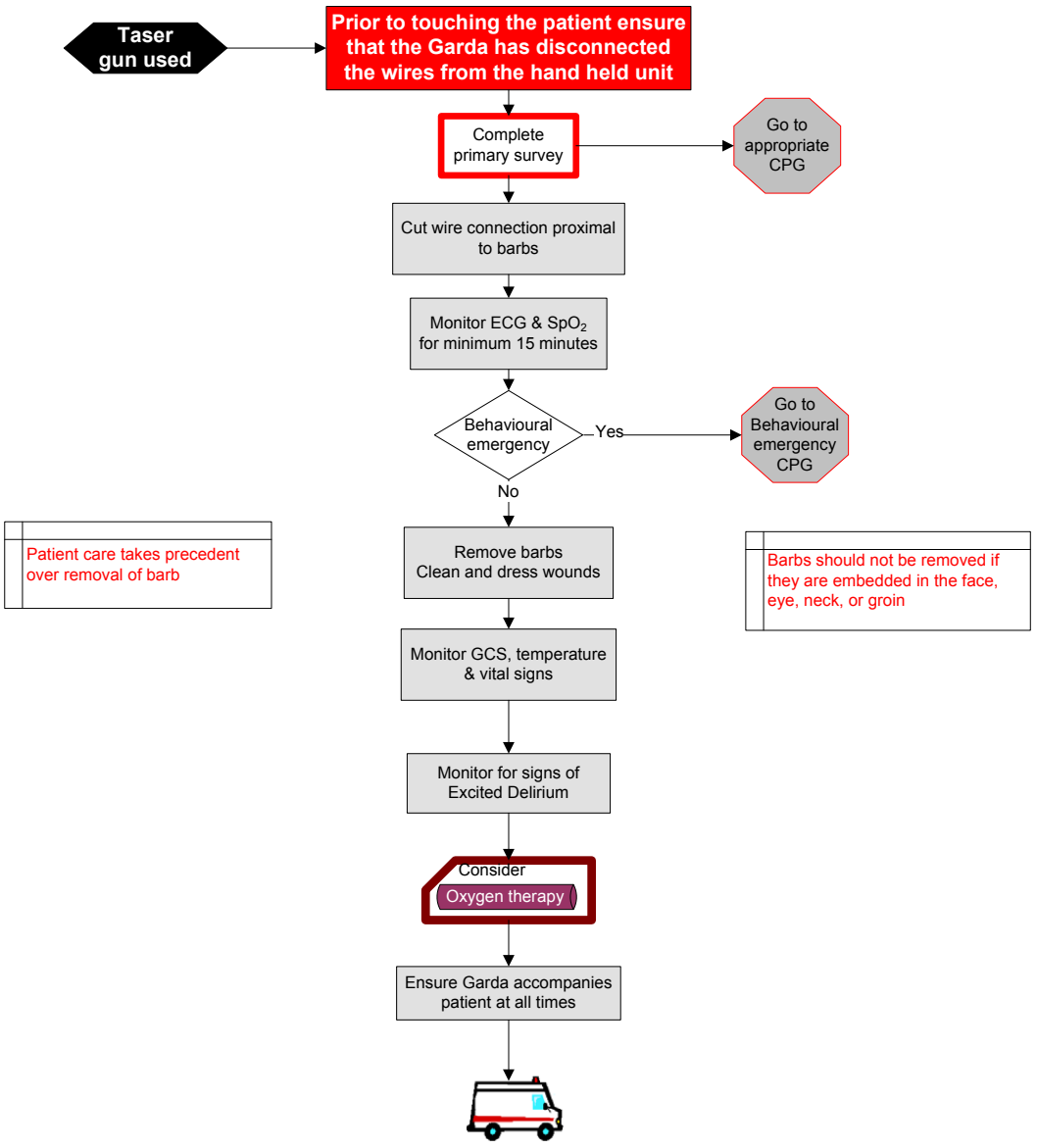
The principles and terminology of Major Incident Medical Management and Support (MIMMS) has been used with the kind permission of the Advanced Life Support Group, UK

SECTION 8
PRE-HOSPITAL EMERGENCY CARE OPERATIONS

5/6.8.5
Version 1, 05/08

Conducted Electrical Weapon (Taser)

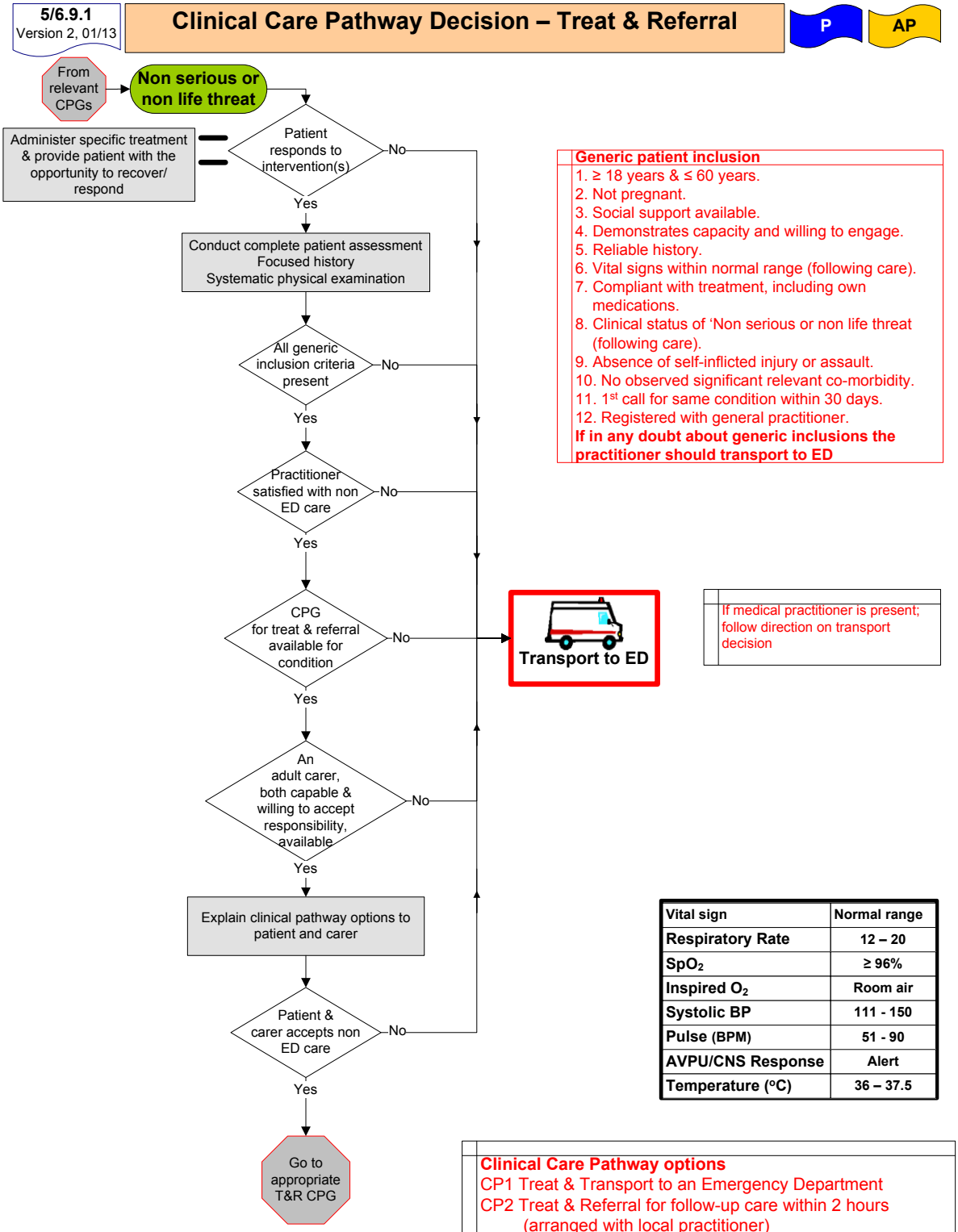
P AP



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

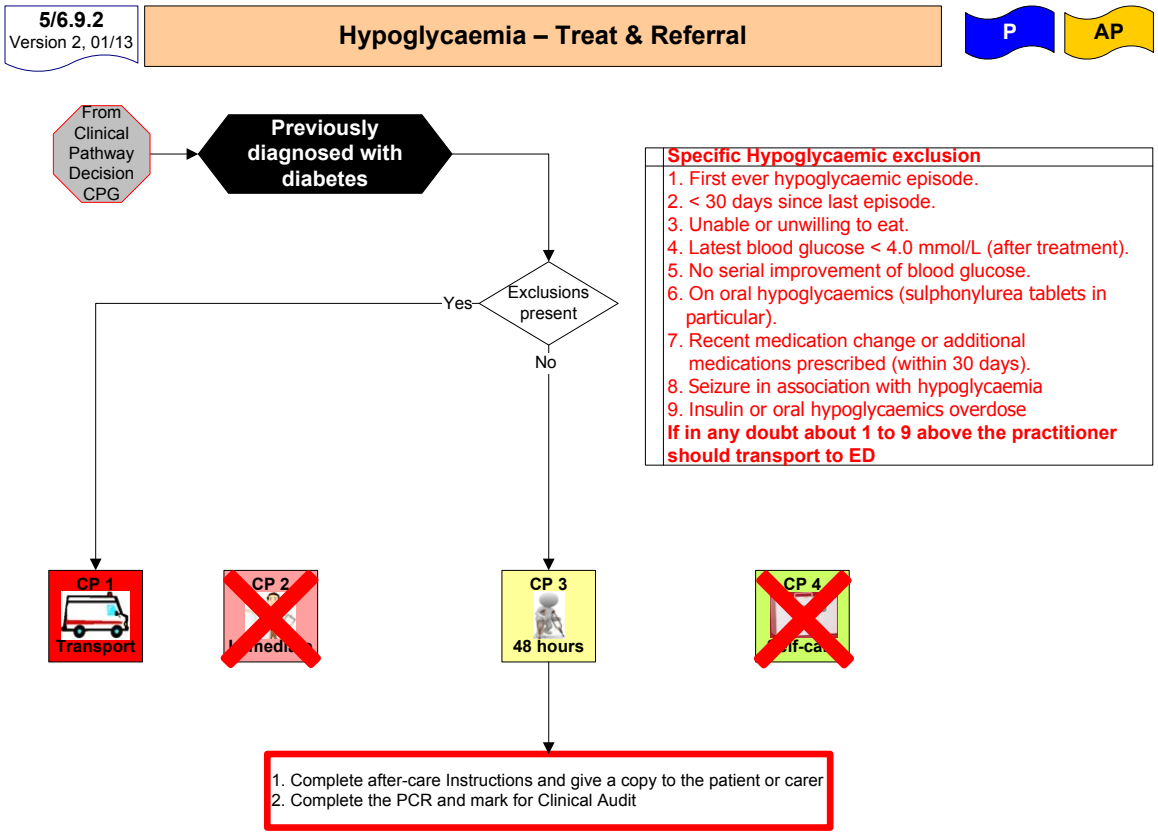
Reference:
DSAC Sub-committee on the Medical Implications of Less-lethal Weapons 2004, Second statement on the medical implications of the use of the M26 Advanced Taser.
United States Government Accountability Office, 2005, The use of Taser by selected law enforcement agencies
Manitoba health Emergency 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



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

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

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

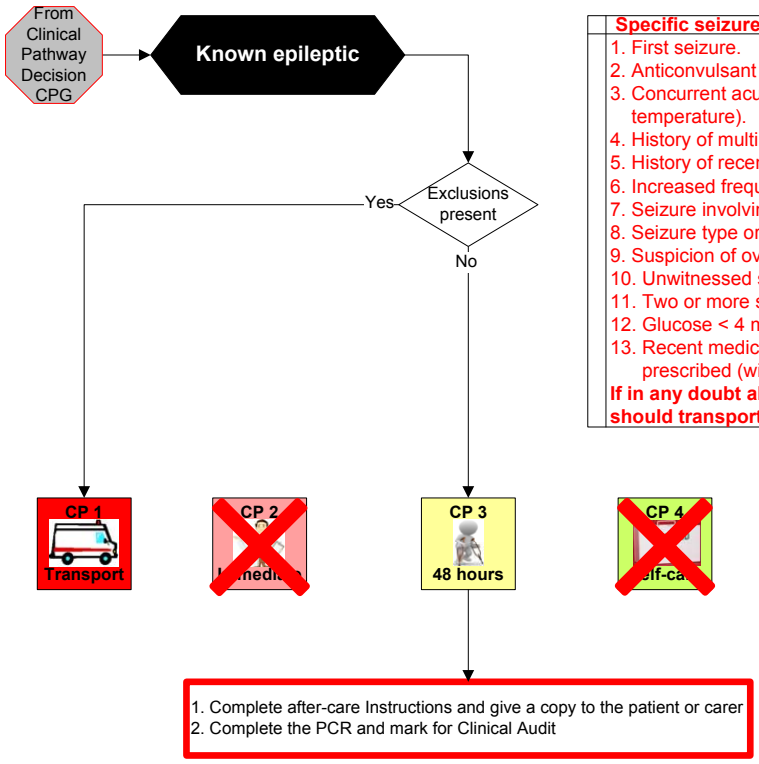
Reference: HSE Diabetes Programme, 2012.
Ambulance Service of NSW, 2008, CARE Clinical Pathways
O'Donnell C, 2007, Hypoglycaemia Treat and Discharge Protocol (unpublished)
Carter A, et al 2002, Transport Refusal by Hypoglycaemic Patients after On-scene Intravenous Dextrose, Academic Emergency medicine, 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

Isolated seizure:
Lasting < 5 minutes
Similar to previous events

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

Reference: HSE Epilepsy Programme 2012
Ambulance Service of NSW, 2008, CARE Clinical Pathways
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 ≤ 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 17 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;

- Hydrocortisone
- Ticagrelor

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

Epinephrine (1:1,000)		
HEADING	ADD	DELETE
Usual Dosages	Auto-injector	EpiPen® Jr

APPENDIX 1
MEDICATION FORMULARY

Ibuprofen

HEADING	ADD	DELETE
Clinical Level	EMT	
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	P	
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

APPENDIX 1
MEDICATION FORMULARY

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	Combative with hallucinations or paranoia and risk to self or others	Psychostimulant overdose Hallucinations or paranoia
Usual Dosages	**Seizure:** < 1 year: 2.5 mg buccal 1 year to < 5 years: 5 mg buccal 5 years to < 10 years: 7.5 mg buccal ≥ 10 years: 10 mg buccal	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

Naloxone

HEADING	ADD	DELETE
Clinical level	EMT	
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	**Adult:** .. (or 0.1 mg metered aerosol spray x 5) Repeat at 5 min prn (**EFRs**: 0.1 mg metered aerosol spray x 2) **Paediatric:** < 5 yrs...(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)	Adult: Repeat at 5 min prn (APs x 3 and Ps x 1) (EMTs & EFRs: 0.1 mg metered aerosol spray x 2) Paediatric: Repeat at 5 min prn (APs x 3 and Ps x 1) (EMTs & EFRs: 0.1 mg metered aerosol spray x 2)

APPENDIX 1
MEDICATION FORMULARY

Sodium Chloride 0.9%

HEADING	ADD	DELETE
Usual Dosages	**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:** 250 mL IV infusion **Sepsis with poor perfusion:** 500 mL IV/IO infusion **Post partum haemorrhage;** 1,000 mL IV/IO infusion **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	Adult: Post-resuscitation care: 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) Paediatric: Glycaemic emergency: 20 mL/Kg IV/IO infusion Hypothermia: 20 mL/Kg IV/IO infusion Shock: 20 mL/Kg IV/IO infusion

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

APPENDIX 1
MEDICATION FORMULARY

LIST OF MEDICATIONS

APPENDIX 1
MEDICATION FORMULARY

CLINICAL LEVEL: 

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 A2, which stimulates platelet aggregation and artery constriction. This reduces clot/thrombus formation in an MI.
Side effects	Epigastric pain and discomfort Bronchospasm Gastrointestinal haemorrhage
Long-term effects	Generally mild and infrequent but incidence of gastro-intestinal irritation with slight asymptomatic blood loss, increased bleeding time, bronchospasm and skin reaction in hypersensitive patients.
Additional information	Aspirin 300 mg is indicated for cardiac chest pain regardless if patient is on anticoagulants or is already on Aspirin. If the patient has swallowed an aspirin (enteric coated) preparation without chewing it, the patient should be regarded as not having taken any aspirin; administer 300 mg PO.

APPENDIX 1
MEDICATION FORMULARY

CLINICAL LEVEL: P AP

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: 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	**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 **Paediatric:** < 6 months: 0.05 mg (50 mcg) IM (0.05 mL of 1:1 000) 6 months to 5 years: 0.125 mg (125 mcg) IM (0.13 mL of 1:1 000) 6 to 8 years: 0.25 mg (250 mcg) IM (0.25 mL of 1:1 000) > 8 years: 0.5 mg (500 mcg) IM (0.5 mL of 1:1 000) **EMT** & (EFR assist patient): 6 months < 10 years: 0.15 mg (Auto injector) ≥ 10 years: 0.3 mg (Auto injector) Repeat every 5 minutes prn
Pharmacology/Action	Alpha and beta adrenergic stimulant Reversal of laryngeal oedema & bronchospasm in anaphylaxis Antagonises the effects of histamine
Side effects	Palpitations Tachyarrhythmias Hypertension Angina-like symptoms
Additional information	N.B. Double check the concentration on pack before use

APPENDIX 1
MEDICATION FORMULARY

CLINICAL LEVEL: EMT P AP

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 Phaeochromocytoma
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: EFR EMT P AP

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: EFR EMT P AP

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: P AP

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	**Adult:** **Anaphylactic reaction and Exacerbation of COPD (AP):** 200 mg IV (infusion in 100 mL NaCl) or IM **Asthma (AP):** 100 mg IV (infusion in 100 mL NaCl) **Adrenal insufficiency (P & AP):** 100 mg IV (infusion in 100 mL NaCl) or IM **Paediatric:** **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 **Paediatric: 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) **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)
Pharmacology/Action	Potent anti-inflammatory properties and inhibits many substances that cause inflammation

APPENDIX 1
MEDICATION FORMULARY

CLINICAL LEVEL: P AP

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

APPENDIX 1
MEDICATION FORMULARY

CLINICAL LEVEL: EMT P AP

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: P AP

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: P AP

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	**Adults:** **Seizure or combative patient.** 2.5 mg IV/IO (AP) or 5 mg IM or 10mg buccal or 5 mg intranasal (P & AP) (Repeat x 1 prn) **Paramedic:** IM, buccal or IN only. **Paediatric:** **Seizure:** < 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
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 *(contd)*
	by increasing the effects of GABA at these receptors.
Side effects	Respiratory depression, headache, hypotension & drowsiness
Additional information	Midazolam IV should be titrated to effect. Ensure oxygen and resuscitation equipment are available prior to administration. No more than two doses by practitioners. Practitioners should take into account the dose administered by carers prior to arrival of practitioner. Contraindications, other that KSAR, refer to non seizing patients.

APPENDIX 1
MEDICATION FORMULARY

CLINICAL LEVEL: EMT P AP

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	**Adult:** 0.4 mg (400 mcg) IV/IO (AP) 0.4 mg (400 mcg) IM or SC (P) 0.8 mg (800 mcg) IN (EMT) Repeat after 3 min prn to a Max 2 mg **Paediatric:** 0.01 mg/Kg (10 mcg/Kg) IV/IO (AP) 0.01 mg/Kg (10 mcg/Kg) IM/SC (P) 0.02 mg/Kg (20 mcg/Kg) IN (EMT) Repeat dose prn to maintain opioid reversal to Max 0.1 mg/Kg or 2 mg
Pharmacology/Action	**Narcotic antagonist** Reverse the respiratory depression and analgesic effect of narcotics
Side effects	Acute reversal of narcotic effect ranging from nausea & vomiting to agitation and seizures.
Additional information	Use with caution in pregnancy. Administer with caution to patients who have taken large dose of narcotics or are physically dependent. Rapid reversal will precipitate acute withdrawal syndrome. Prepare to deal with aggressive patients.

APPENDIX 1
MEDICATION FORMULARY

CLINICAL LEVEL: EMT P AP

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 & 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: EFR EMT P AP

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	**Adult:** Cardiac and respiratory arrest or Sickle Cell Crisis; 100% Life threats identified during primary survey; 100% until a reliable SpO_2 measurement obtained then titrate O_2 to achieve SpO_2 of 94% - 98% For patients with acute exacerbation of COPD, administer O2 titrate to achieve SpO_2 92% or as specified on COPD Oxygen Alert Card All other acute medical and trauma titrate O_2 to achieve SpO_2 94% -98% **Paediatric:** Cardiac and respiratory arrest or Sickle Cell Crisis; 100% Life threats identified during primary survey; 100% until a reliable SpO_2 measurement obtained then titrate O_2 to achieve SpO_2 of 96% - 98% All other acute medical and trauma titrate O_2 to achieve SpO_2 of 96% - 98%
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: EMT P AP

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 2nd person. If Paracetamol administered in previous 4 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 20 mg/Kg.

APPENDIX 1
MEDICATION FORMULARY

CLINICAL LEVEL: EFR EMT P AP

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: P AP

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	**ADULT** Keep vein open (KVO) or medication flush for cardiac arrest prn **Crush injury, Suspension Trauma, PEA or Asystole:** 20 mL/Kg IV/IO infusion **Hypothermia:** 250 mL IV/IO infusion (warmed to 40°C approx) Repeat to max 1 L **# neck of femur, sepsis, symptomatic bradycardia:** 250 mL IV infusion **Decompression illness, sepsis with poor perfusion;** 500 mL IV/IO infusion **Shock from blood loss;** 500 mL IV/IO infusion. Repeat in aliquots of 250 mL prn to maintain systolic BP of; 90 – 100 mmHg 120 mmHg (head injury GCS ≤ 8) **Burns;** > 25% TBSA and/or 1 hour from time of injury to ED, 1000 mL IV/IO infusion > 10% TBSA consider 500 mL IV/IO infusion **Adrenal insufficiency, Glycaemic emergency, Heat-related Emergency, Sickle Cell Crisis;** 1,000 mL IV/IO infusion **Anaphylaxis:** 1,000 mL IV/IO infusion, repeat x one prn **Post-resuscitation care:** 1,000 mL IV/IO infusion (at 4°C approx). If persistent hypotension maintain Sys BP > 90 mmHg

APPENDIX 1
MEDICATION FORMULARY

Medication	Sodium Chloride 0.9% (NaCl) *(contd)*
	PAEDIATRIC Keep vein open (KVO) or medication flush for cardiac arrest prn **Glycaemic emergency, Neonatal resuscitation, Sickle Cell Crisis:** 10 mL/Kg IV/IO infusion **Hypothermia:** 10 mL/Kg IV/IO infusion (warmed to 40°C approx). Repeat prn x 1 **Haemorrhagic shock;** 10 mL/Kg IV/IO, repeat prn if signs of inadequate perfusion **Anaphylaxis;** 20 mL/Kg IV/IO infusion, repeat x one prn **Adrenal insufficiency, Crush injury, Septic shock, Suspension Trauma, Symptomatic Bradycardia, Asysotol/PEA:** 20 mL/Kg IV/IO infusion **Post-resuscitation care:** 20 mL/Kg IV/IO infusion if persistent poor perfusion **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
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: P AP

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.

Pre-Hospital Emergency Care Council

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. Practioners 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						✓	✓

Pre-Hospital Emergency Care Council

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 ^{0}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
- 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 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 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 PARAMEDICS

CPGs	The principal differences are	Theory	Skills
CPG 4/5/6.3.3 Exacerbation of COPD	This CPG incorporates all three practitioner levels in one CPG replacing 4.3.3 at EMT level.	✓	x
	Peak expiratory flow measurement is now within the scope of practice for paramedics.	✓	✓
	Salbutamol Neb is now within the scope of practice for EMTs.	✓	x
	Ipratropium bromide Neb is now within the scope of practice for paramedics.	✓	✓
CPG 5/6.4.10 Acute Coronary Syndrome	Thrombolysis has been removed from the scope of practice for advanced paramedics.	✓	x
	Ticagrelor is now within the scope of practice for paramedics and advanced paramedics.	✓	✓
	The dose for Clopidogrel has been reduced from 600 mg to 300 mg.	✓	x
	The indication for Clopidogrel has been changed; it is now indicated for patients with confirmed STEMI who are not transported to a PPCI centre.	✓	x
CPG 4/5/6.4.11 Symptomatic Bradycardia – Adult	The dose of Atropine has been increased from 0.5 mg to 0.6 mg.	✓	x
	Add 'NaCL infusion 250 mL (repeat by one)'	✓	x
	Insert information box; 'Titrate Atropine to effect (HR > 60)'	✓	x
CPG 4/5/6.4.17 Epistaxis	Digital pressure has been increased to 15 minutes.	✓	x
	The insertion of a proprietary nasal pack is now within the scope of practice for paramedics and advanced paramedics.	✓	✓
CPG 5/6.4.21 Hypothermia	Paramedic has been included in this CPG.	✓	x
	Warmed O_2 has been removed.	✓	x
	Mild hypothermia is now defined as 34 – 35.9°C.	✓	x
	Moderate hypothermia is now defined as 30 – 33.9°C.	✓	x
	Paediatric dose for NaCl has been reduced from 20 mL/Kg to 10 mL/Kg.	✓	x

APPENDIX 4
CPG UPDATES FOR PARAMEDICS

CPGs	The principal differences are	Theory	Skills
CPG 4/5.4.22 Poisons – Adult	The methods of introduction of a poison have been removed.	✓	x
	Naloxone has been added to this CPG for opiate induced poison.	✓	x
	Naloxone IN is now within the scope of practice for EMTs and paramedics.	✓	x
	The absolute contraindication for O_2 has been removed following paraquat poisoning.	✓	x
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	This CPG replaces Septic Shock - Adult.	✓	x
	It authorises the administration of Paracetamol for pyrexic patients.	✓	x
	It authorises the administration, by advanced paramedics, of Benzylpenicillin for severe sepsis.	✓	x
	Advanced paramedics may consider additional aliquots of NaCl to maintain systolic BP > 100 mmHg.	✓	x
CPG 4/5/6.6.1 Burns – Adult	Add 'Caution with hypothermia'	✓	x
CPG 4/5/6.6.3 External Haemorrhage – Adult	This CPG has been updated to reflect the importance of managing catastrophic haemorrhage immediately.	✓	x
	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

APPENDIX 4
CPG UPDATES FOR PARAMEDICS

CPGs	The principal differences are	Theory	Skills
CPG 5/6.6.5 Head Injury – Adult	LoC history has been replaced with 'consider spinal injury'	✓	x
	Collar and long board have been replaced with 'see Spinal injury CPG' to avoid repetition.	✓	x
	A 'GCS of < 12' has been replaced with a 'GCS of ≤ 12'	✓	x
	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.	✓	x
	'Maintain SBP > 120 mmHg' has been replaced with 'avoid hypotension'	✓	x
	'Transport to most appropriate ED according to local protocol' has been deleted	✓	x
CPG 4/5/6.6.7 Limb Injury – Adult	Fractured neck of femur has been included.	✓	x
	With a fractured neck of femur, if the transport time to ED is > 20 minutes, ALS should be requested.	✓	x
	With a fractured neck of femur advanced paramedics should consider NaCl infusion.	✓	x
CPG 5/6.6.8 Shock from Blood Loss (trauma) – Adult	This CPG has been renamed from 'Shock from Blood Loss – Adult'.	✓	x
	Add; with polytrauma consider application of a pelvic splint.	✓	x
	Change 'Trauma' to 'Suspected significant internal/ external haemorrhage'	✓	x
	Tranexamic acid is now within the scope of practice for advanced paramedics.	✓	x
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	The estimated weight formula has been updated; Neonate = 3.5 Kg Six months = 6 Kg One to five years = (age x 2) + 8 Kg Greater than 5 years = (age x 3) + 7 Kg	✓	x

APPENDIX 4
CPG UPDATES FOR PARAMEDICS

CPGs	The principal differences are	Theory	Skills
CPG 4/5/6.7.5 Pain Management – Paediatric	Pain assessment recommendations; < 5 years use FLACC scale 5 – 7 years use Wong Baker scale ≥ 8 years use analogue pain scale	✓	✓
	Delete 'Minor pain (2 to 3 on pain scale)' replace with 'Mild pain (1 to 3 on pain scale)'	✓	x
	Change Moderate pain to '4 to 6 on the pain scale'	✓	x
	Change Severe pain to '≥ 7 on the pain scale'	✓	x
	Fentanyl IN is now within the scope of practice for advanced paramedics.	✓	x
	Ibuprofen PO is now within the scope of practice for EMTs.	✓	x
CPG 4/5/6.7.11 Inadequate Ventilations – Paediatric	This CPG replaces Inadequate Respirations – Paediatric (5/6.7.5 and 4.7.5) incorporating all three practitioner levels in one CPG.	✓	x
	This CPG outlines generic care for all patients with inadequate ventilation and then offers pathways for specific clinical issues.	✓	x
	Naloxone IN is now within the scope of practice for EMTs, paramedics and advanced paramedics.	✓	✓
CPG 4/5/6.7.24 Symptomatic Bradycardia – Paediatric	'The routine ventilations' has been changed to 'ventilations if hypoxic'.	✓	x
	Unresponsive has been added as a criteria for CPR	✓	x
	Consider advanced airway management if prolonged CPR has been removed.	✓	x
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.	✓	✓
CPG 4/5/6.7.50 External Haemorrhage – Paediatric	This CPG has been updated to reflect the importance of managing catastrophic haemorrhage immediately.	✓	x
	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

APPENDIX 4
CPG UPDATES FOR PARAMEDICS

CPGs	The principal differences are	Theory	Skills
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 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.	✓	x
CPG 5/6.4.13 Adrenal Insufficiency – Adult	This CPG outlines the care for a patient with an adrenal crisis.	✓	✓
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 5.7.10 Advanced Airway Manage-ment – Paediatric (≥ 8 years)	This CPG outlines the advanced airway management for a paediatric patient ≥ 8 years old.	✓	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.	✓	✓
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

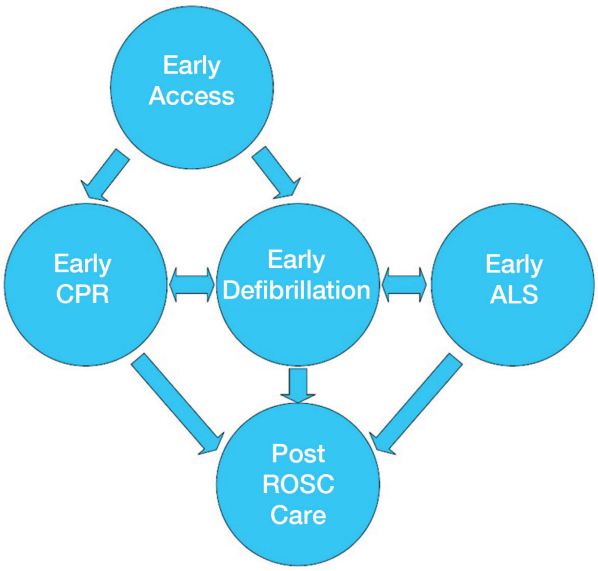
APPENDIX 4
CPG UPDATES FOR PARAMEDICS

New CPGs	The new skills and medications incorporated in the CPG are:	Theory	Skills
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
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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