PLS Candidate handbook

Please use this handbook to help you prepare for the PLS e-modules and the face-to-face course. It also contains the assessment criteria for the face-to-face course.

The following information and algorithms are intended for you to review before you do the e-modules. The relevant reading materials for each e-module are listed in the table below:

E-module	Recommended reading material	Page
The structured approach to the deteriorating child	Structured approach to paediatric emergencies PLS ABCDE Rapid Assessment APLS Aide Memoire	2 3 4
The structured approach to the seriously injured child	Structured approach to paediatric emergencies PLS ABCDE Rapid Assessment Fluid resuscitation in trauma Traumatic cardiac arrest ATMISTER	2 3 5 6 7
Triage and pain management	Pain assessment	8&9
Basic and advanced life support	APLS Aide Memoire Basic Life Support Cardiac arrest Cardiac arrest (expanded)	4 10 11 12

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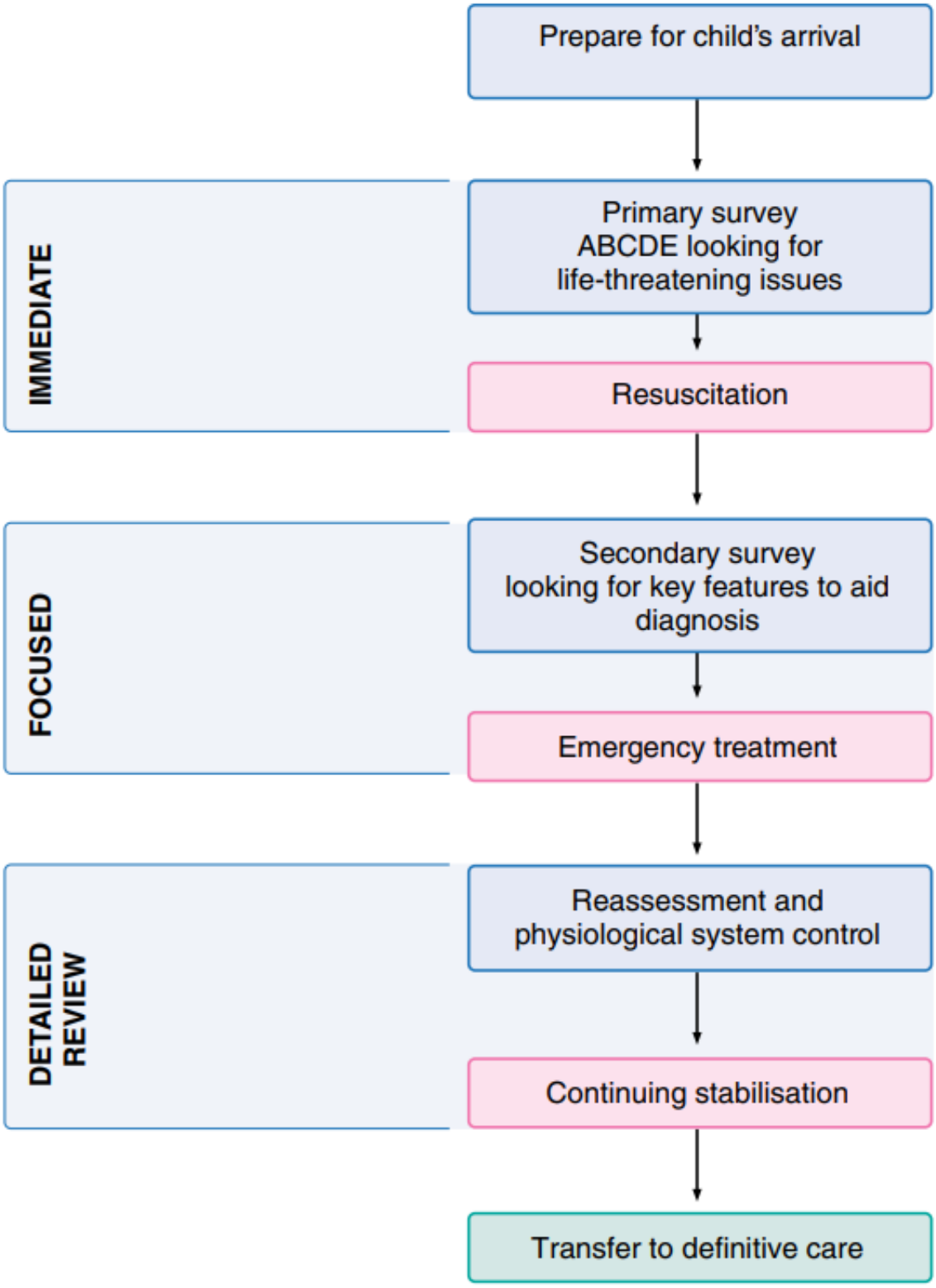
APLS: Structured approach to paediatric emergencies



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PLS: Rapid clinical assessment of an infant or child

From Advanced Paediatric Life Support: A practical approach to emergencies 7e 2023 Chapter 3, p39

Summary: rapid clinical assessment of an infant or child

Airway
- Patent or obstructed
- Additional noises

Breathing
- Effort of breathing
- Respiratory rate/rhythm
- Stridor/wheeze
- Auscultation
- Skin colour
- Oximetry

Circulation
- Heart rate
- Pulse volume
- Capillary refill
- Skin temperature

Disability
- Mental status/conscious level
- Posture
- Pupils

Exposure
- Fever
- Rashes and bruising

The whole assessment should take less than a minute

Remember to obtain information from pre-hospital staff about the initial condition of the child and any treatment given

Once airway (A), breathing (B) and circulation (C) are clearly recognised as being stable or have been stabilised, then definitive management of the underlying condition should be started

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APLS Aide Memoire

Age	Guide weight (kg)	A Cuffed ET Tube		C Joules	C Fluid	C Adrenaline	D Lorazepam	D Glucose	RR At rest Breaths per minute 5th-95th centile	HR Beats per minute 5th-95th centile	BP systolic		
		Int. diameter (mm)	Length (cm)	4 J/kg	10 ml/kg (ml)	0.1 ml/kg of 1:10 000 (ml)	0.1 mg/kg Max 4 mg (mg)	3 ml/kg of 10% glucose (ml)			5th centile	50th centile	95th centile
Birth	3.5	3.0 (or uncuffed 2.5-3.0)	9	20	35	0.4	0.4	10.5	25-50	120-170	65-75	80-90	105
1 month	4	3.0	9	20	40	0.4	0.4	12	25-50	120-170	65-75	80-90	105
3 months	5	3.0	10	30	50	0.5	0.5	15	25-45	115-160	65-75	80-90	105
6 months	8	3.5	12	30	80	0.8	0.8	24	20-40	110-160	65-75	80-90	105
12 months	10	3.5	13	40	100	1.0	1.0	30	20-40	110-160	70-75	85-95	105
2 years	12	4.0	13	50	120	1.2	1.2	36	20-30	100-150	70-80	85-100	110
3 years	14	4.0	14	60	140	1.4	1.4	42	20-30	90-140	70-80	85-100	110
4 years	16	4.5	14	60	160	1.6	1.6	48	20-30	80-135	80-90	85-100	110
5 years	18	4.5	14	80	180	1.8	1.8	54	20-30	80-135	80-90	90-110	110-120
6 years	20	5.0	15	80	200	2.0	2.0	60	20-30	80-130	80-90	90-110	110-120
7 years	23	5.0	15	100	230	2.3	2.3	69	20-30	80-130	80-90	90-110	110-120
8 years	24	5.5	16	100	240	2.4	2.4	72	15-25	70-120	80-90	90-110	110-120
9 years	28	5.5	16	120	280	2.8	2.8	84	15-25	70-120	80-90	90-110	110-120
10 years	30	6.0	17	120	300	3.0	3.0	90	15-25	70-120	80-90	90-110	110-120
11 years	35	6.0	17	140	350	3.5	3.5	100	15-25	70-120	80-90	90-110	110-120
12 years	40	6.5	18	150	400	4.0	4.0	100	12-24	65-115	90-105	100-120	125-140
14 years	50	7.0	21	150	500	5.0	4.0	100	12-24	60-110	90-105	100-120	125-140
Adult	70	8.0	24	120-150 Joules biphasic	500	10 ml (i.e. 1 mg)	4 mg	100 ml	12-24	60-110	90-105	100-120	125-140

TIP: If a child is particularly big, go up one or two years; particularly small, go down one or two years
The final responsibility of delivery of the correct dose remains that of the physician prescribing and administering the drug

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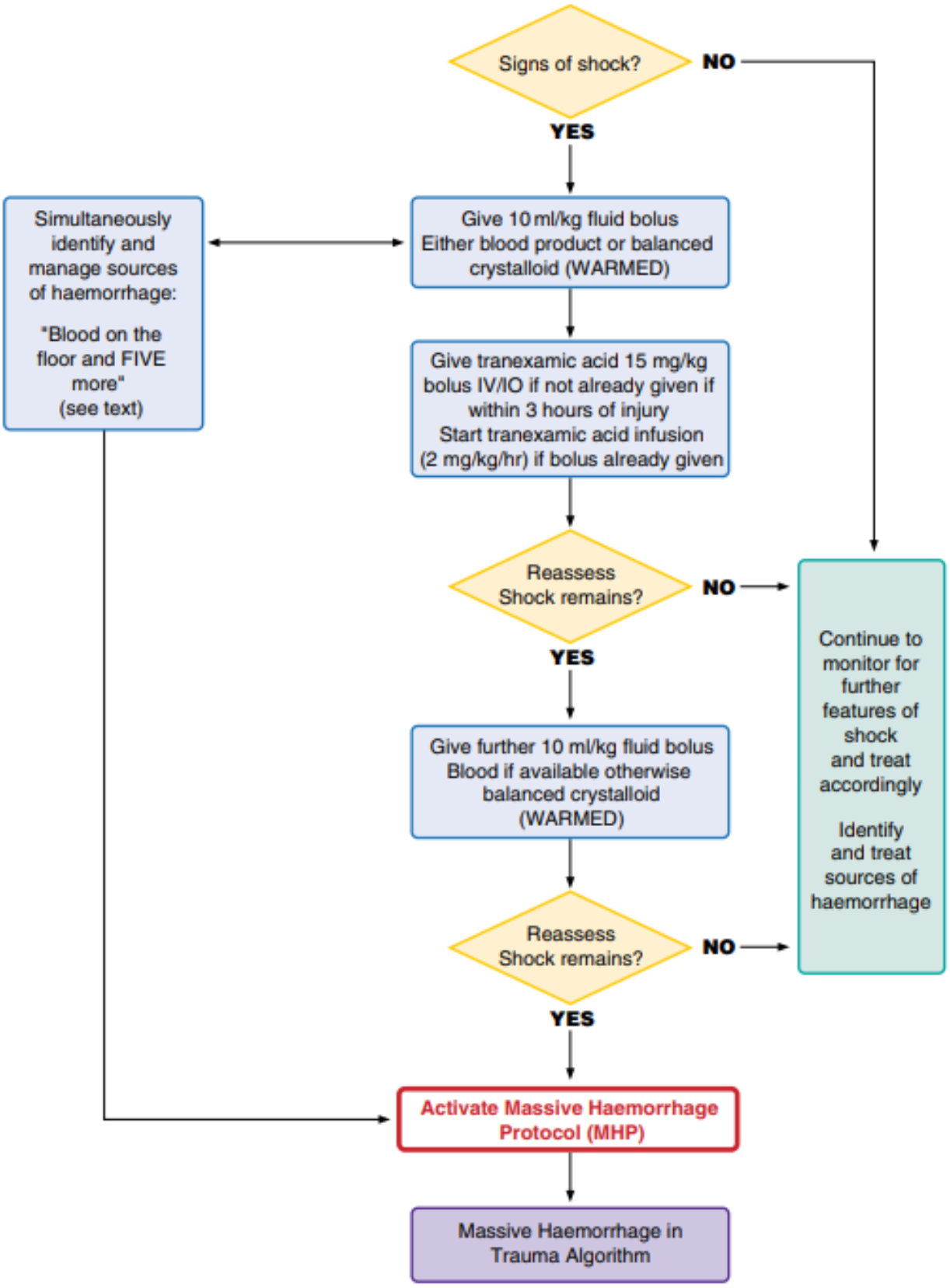
APLS: Fluid resuscitation in trauma



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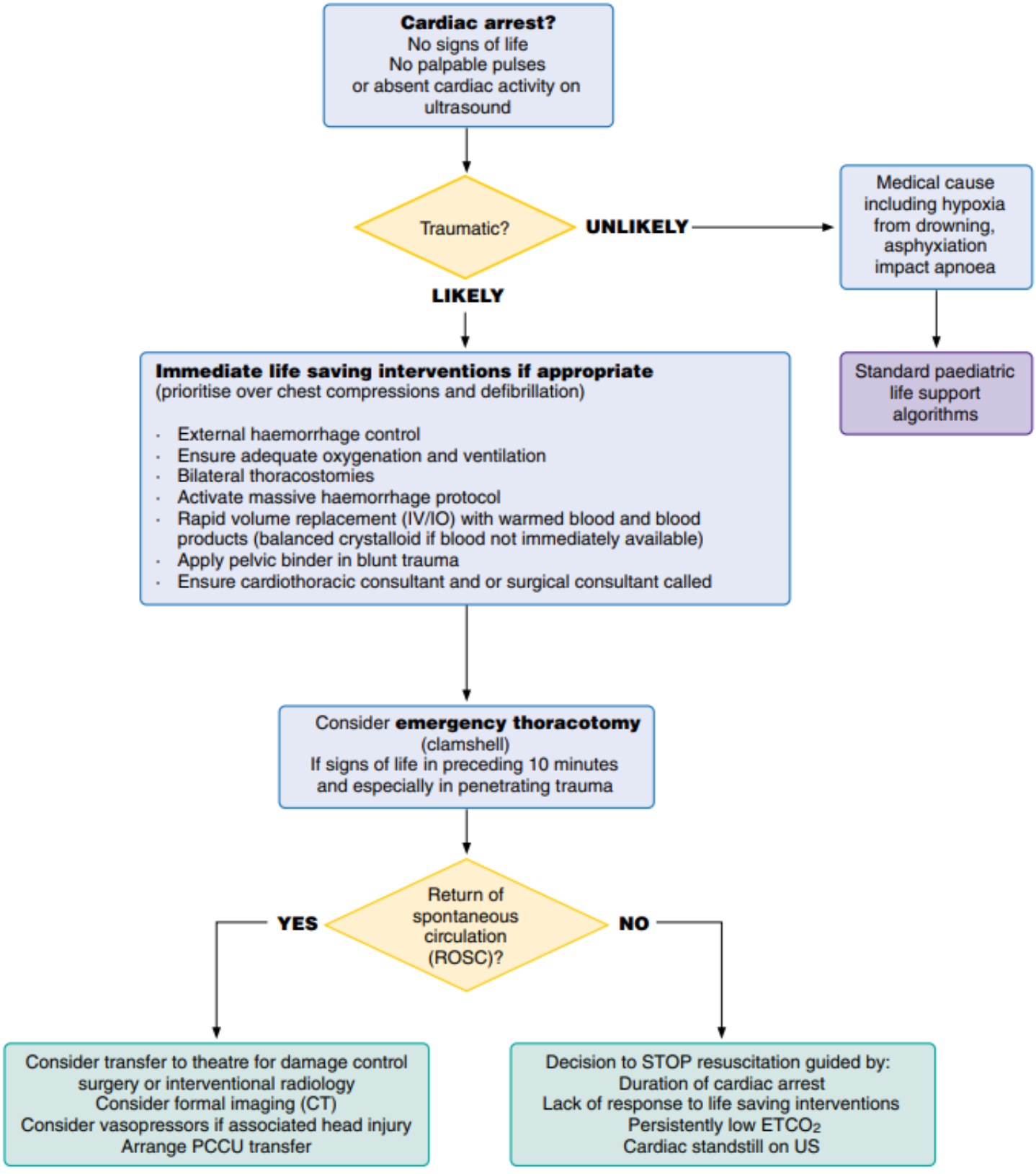
APLS: Paediatric traumatic cardiac arrest



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PLS: ATMISTER

From Advanced Paediatric Life Support: A practical approach to emergencies 7e 2023 Chapter 8, p131

Trauma alert, team briefing and preparation

Preparation is the key to effective and efficient trauma management. Capturing the information given when the trauma alert is received using a structured approach, for example ATMISTER, enables appropriate briefing and planning prior to the arrival of the child.

A	Age/sex
T	Time of incident
M	Mechanism of injury
I	Injury suspected
S	Signs including vital signs, Glasgow Coma Scale
T	Treatment so far
E	Estimated time of arrival to emergency department
R	Requirements, i.e. bloods, specialist services, tiered response, ambulance call sign

It also allows the team leader to decide on the appropriate response, either a full paediatric trauma team or a targeted specialty response. However, it is important to have an awareness that 30% of children with significant trauma may arrive by car with friends/family without a pre-alert. With less information available another structured approach can be STEP UP.

S	Self	Prepare communication, recognise stresses
T	Team	Plan roles and positions of the team
E	Environment	Prepare equipment
P	Patient/Primary survey	Clear roles/<c>ABCDE
U	Update	Treatment so far
P	Plan	Requirements

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PLS: Pain assessment

From Advanced Paediatric Life Support: A practical approach to emergencies 7e 2023 Chapter 7, p118-119

Recognition and assessment of pain

There are three main ways to recognise that a child is in pain:

- Listening to the child for statements that they are in pain or listening to their parent or carer
- Observing the child's behaviour and physiology for things such as crying, guarding of the injured part, facial grimacing, pallor, stillness and withdrawal, tachycardia and tachypnoea
- Anticipating pain because of the nature of the underlying problem

The purpose of pain assessment is to establish, as far as possible, the degree of pain experienced by the child to allow selection of the right level of pain relief. Reassessment using the same pain tool will indicate whether the pain management has been successful or whether further analgesia is required – the assess, treat and reassess cycle. The use of suitable pain tools and protocols in the emergency setting has been shown to shorten the time to delivery of analgesia.

An observational pain scale overcomes the problems caused by anxiety at presentation and is more appropriate. The Alder Hey Triage Pain Score (AHTPS) is one such tool that has been developed specifically for this situation and is shown to have some validity as well as good levels of inter-rater reliability (Table 7.1). It is an observation-based pain score, which is quick and easy to use.

Table 7.1 The Alder Hey Triage Pain Score: reference scoring chart

Response	Score 0	Score 1	Score 2
Cry/voice	No complaint/cry	Consolable	Inconsolable
	Normal conversation	Not talking/negative interaction	Complaining of pain
Facial expression	Normal	Short grimace or similar less than 50% of time	Long grimace more than 50% of time
Posture	Normal	Touching/rubbing/sparing	Defensive/tense
Movement	Normal	Reduced or restless	Immobile or thrashing
Colour	Normal	Pale	Very pale/'green'

Other commonly used pain scales are self-assessment tools, for example a faces scale or pain ladder (Figure 7.1). Self-assessment tools, however, were primarily developed for use with children where there was the opportunity for explanation of the scale prior to the painful event (e.g. before surgery). This is rarely the case in the emergency department.

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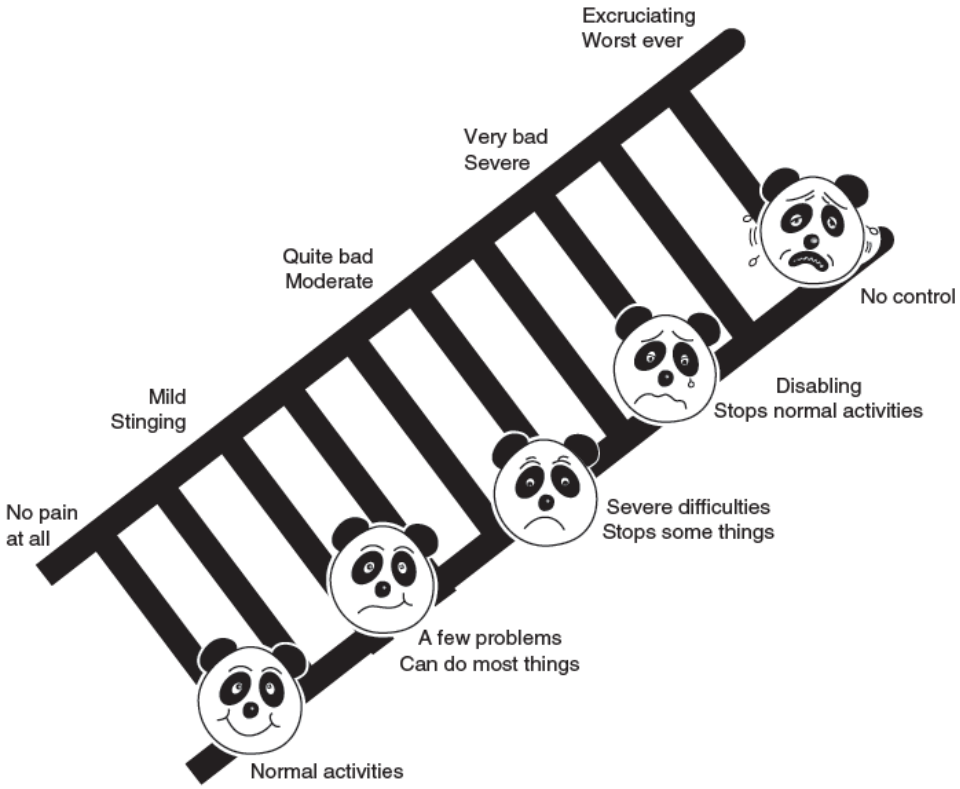

Figure 7.1 Faces scale and pain ladder

Both or either of these tools can be used to assess the pain experienced by the child and help to guide the level and route of analgesia required. The tools can then be used again to assess the efficacy of the intervention and to guide further analgesia.

Assess, treat, reassess

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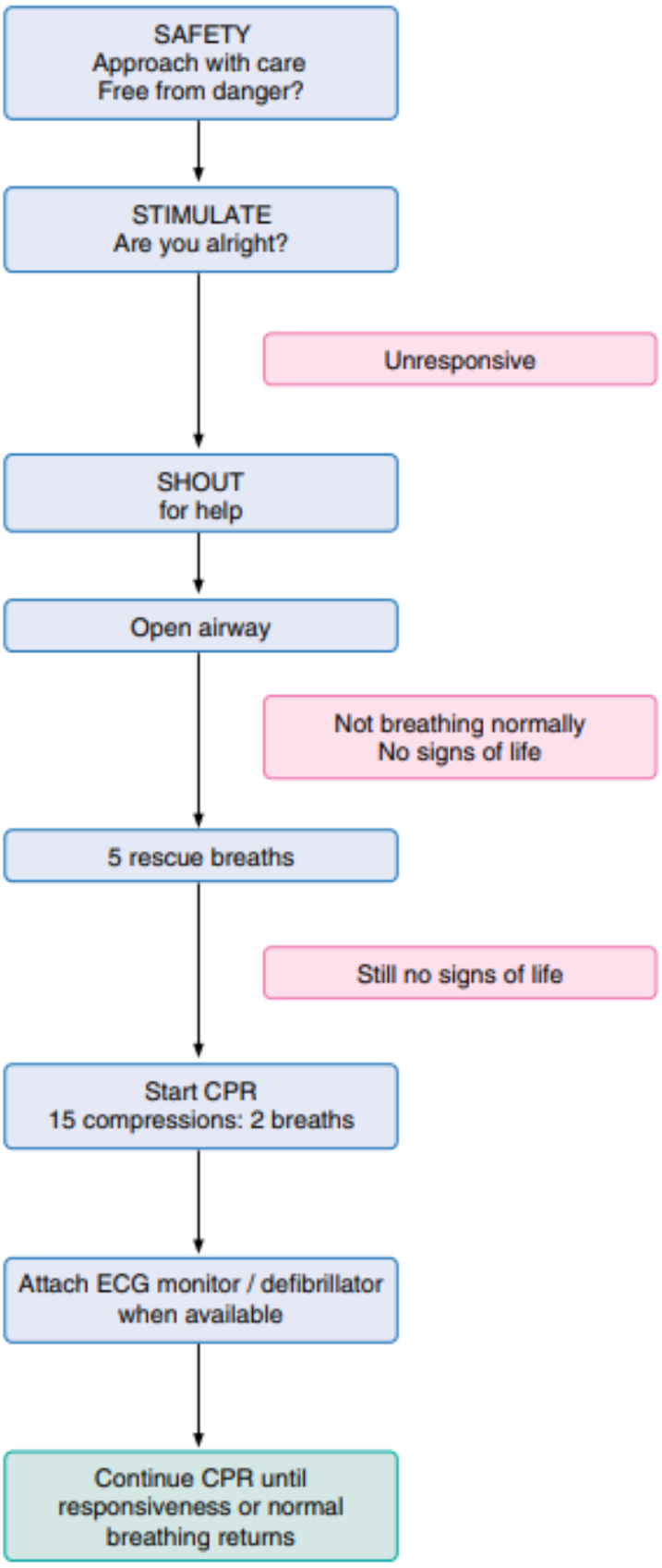
APLS: Basic life support



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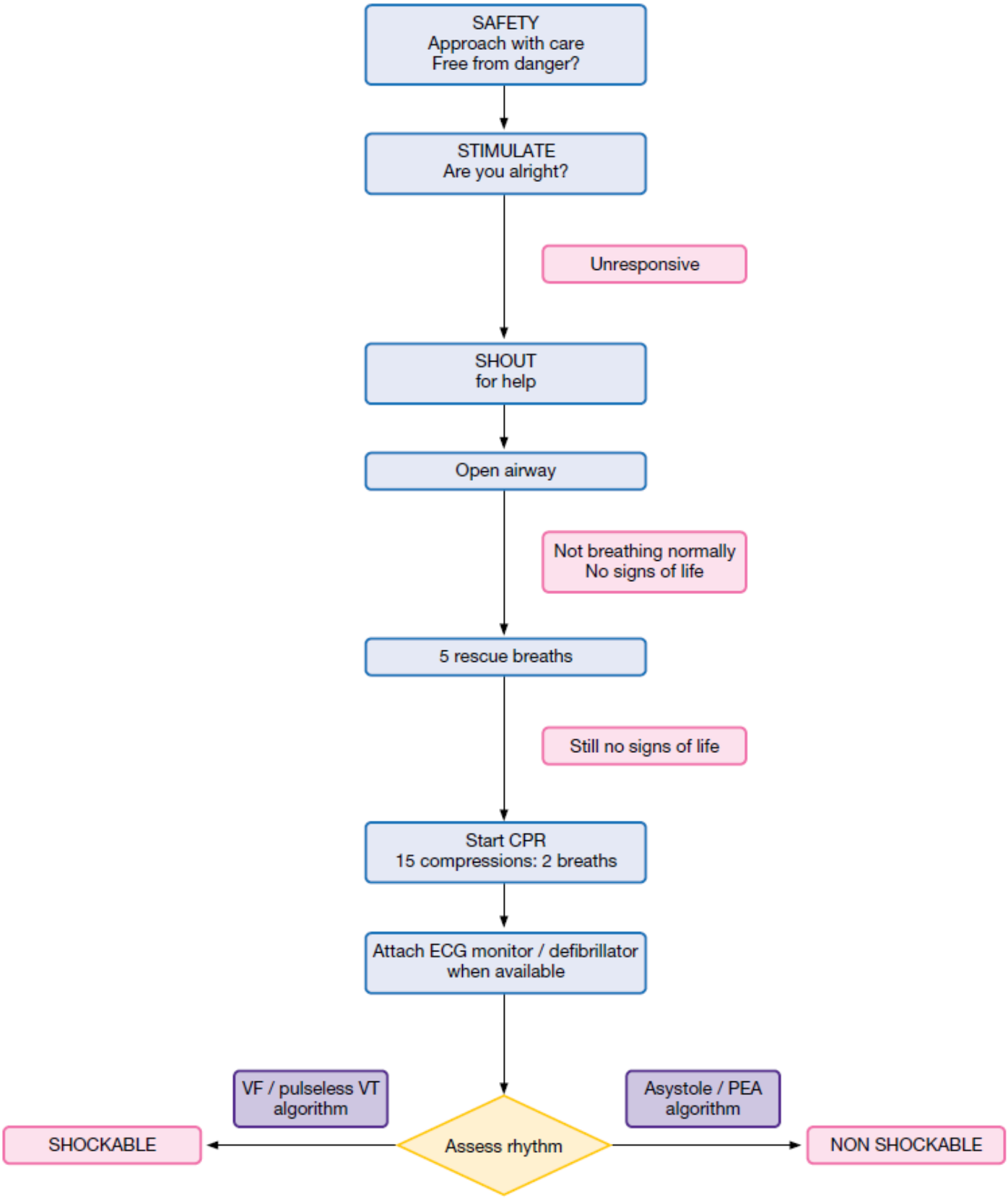
APLS: Management of cardiac arrest



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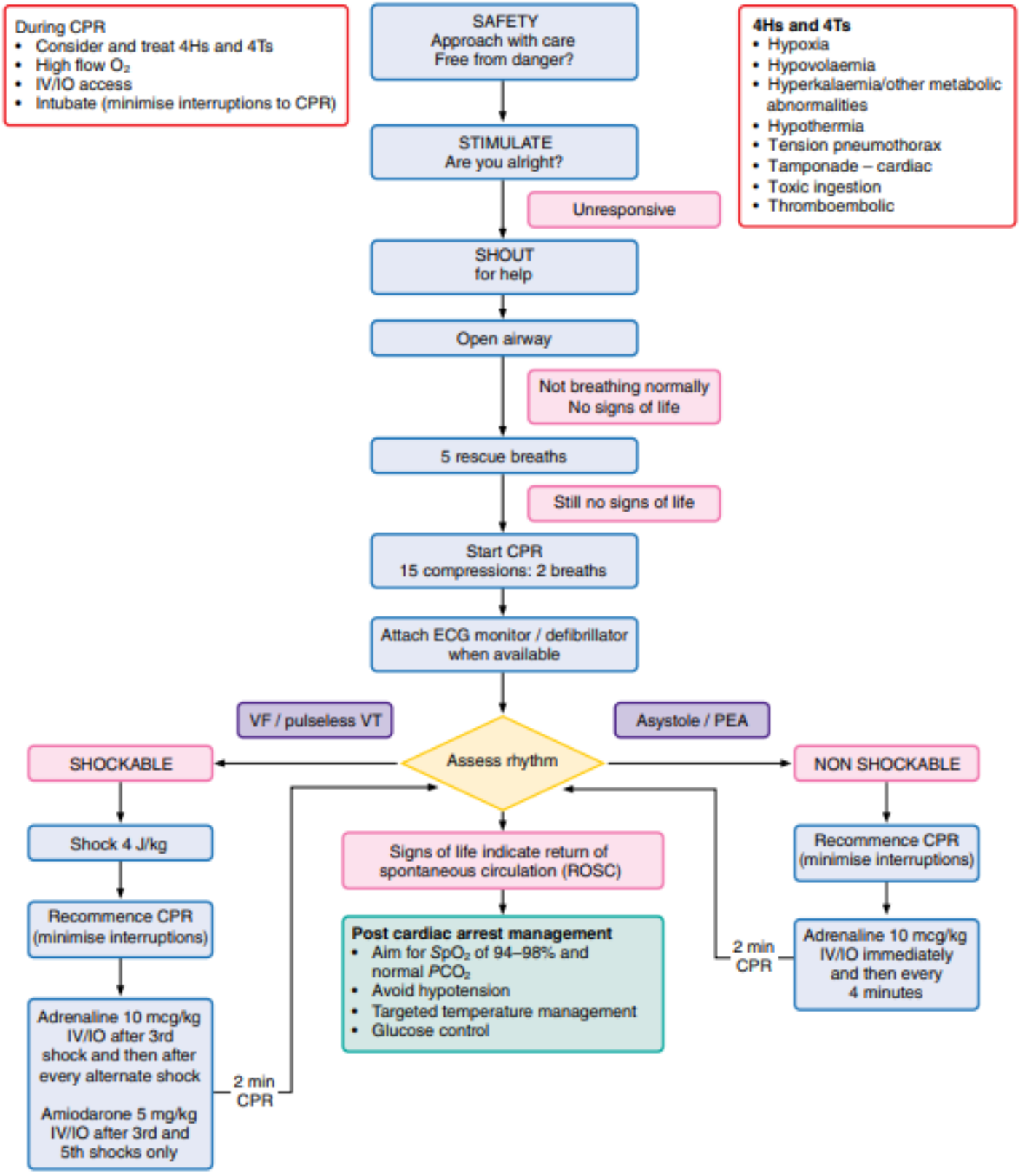
APLS: Management of cardiac arrest (expanded)



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Global development indicators for PLS candidates 7e

Team leader

	Examples of descriptors
Safe/competent/meets	If this person were leading a team I was in, I would feel that they oversaw the ABC(DE), evaluated and made safe decisions and communicated effectively with the team. I would trust them to seek guidance if necessary.
Not quite there yet	The amount of prompting and help needed suggests to me that this person would still need some support before they could manage a deteriorating or arrested child.
Concerns	This person was not able to effectively manage the patient's care in this setting. Their knowledge base and decision making were flawed to the extent that they would have jeopardised the safety of a deteriorating or arrested child.
Did not attend	

Team member

	Examples of descriptors
Safe/competent/meets	I would trust this person to carry out the skill they were tasked to do, but to seek help if, for any reason there were complications. I would feel comfortable that this person would be a safe, reliable member of the team.
Not quite there yet	I would feel that I needed to keep an eye on this person's ability to accurately perform the specific technical skill they were tasked to do. They would still need some support to be a useful member of a team managing a deteriorating or arrested child.
Concerns	From what I observed today, this person would have actively disrupted a team to the detriment of a child's safety. I would be concerned that their competence at the required tasks would put the patient at risk or require too much of my attention to be safe.
Did not attend	

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Specific assessment criteria for PLS candidates 7e

Team leader

Assessment criteria	Performs a systematic structured ABC(DE) assessment
	Manages ABC effectively and initiates BLS and other key treatment points as required
	Recognises signs of deterioration and escalates where appropriate
	Leads the team effectively
	Completes a clear and succinct SBAR handover

Team member

Assessment criteria	Undertakes elements of the ABC(DE) assessment as instructed by the team leader

Everyone

Assessment criteria	Carries out skills safely
	Clear closed loop communication
	Respect
	Flexibility
	Assertiveness
	Ability to listen

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