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Royal College of Paediatrics and Child Health
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Advanced Life Support Group
A charity dedicated to saving life by providing training

SIMULATION CASE PSI-1

Learning outcomes:

By the end of this simulation the candidates will:

- Recognise life-threatening asthma and cardiac arrest
- Implement resuscitation of the child with cardiac arrest and life-threatening asthma

Simulation focus: Acute severe asthma

Timing: 0-3 minutes: introduction; remaining time: split equally between simulation and debrief

Introduction [Environment and Set]

Prior to the start of the simulation: one instructor to:

1. [Environment] Brief candidate group to *check the Environment*:

Room	Candidates to set up the room appropriately	
Equipment	Candidates to check required equipment present and accessible	

Equipment list:

In addition to generic equipment list:

- Appropriate size manikin to be ready for simulation in room and covered until simulation commences
- Nebuliser

2. [Set] Give *History*

You have received a pre-alert from the non-paramedic crew bringing in a nine year old into the Emergency Department with shortness of breath. Initially he was tachypnoeic and talking, but became quiet and collapsed, turning blue.

Then leave the room for candidate group to prepare and after 2 minutes, return with instructor team and commence simulation

[Dialogue] Simulation

Initial handover *{to tell candidate on your arrival with the child as a Non- Paramedic SBAR to Team Leader}*

Situation	Asthma 9 year old	
Background	Known asthmatic. Tachypnoeic at scene – able to talk; became quieter en route, then collapsed and became cyanosed. Last night he received nebulised salbutamol from the local urgent care provider with improvement of symptoms. Usual therapy - salbutamol inhaler as needed.	
Assessment	A	patent
	B	apnoeic, central cyanosis
	C	Carotid pulse 50/min; peripheral pulses not palpable Cold clammy skin
	D	BM 5, unresponsive
	E	-
Recommendation	Needs resuscitation and acute management of severe asthma	

Clinical course *{to be given as the simulation progresses}*

Bag-mask ventilation is not possible because of severe bronchospasm. Orotracheal intubation is easily accomplished and ventilation is possible but still difficult. If chest compressions not commenced the heart rate continues to fall. Heart rate increases after ventilation with oxygen, chest compressions and intravenous adrenaline. Bronchospasm improves after salbutamol, magnesium and/or aminophylline. The child requires admission to PICU.

Key treatment points

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Airway	Establish airway patency		
Breathing	Attempt bag-mask ventilation with oxygen		
	Orotracheal intubation and ventilation with oxygen		
Circulation	Chest compression		
	IV-IO access		
	Bradycardia protocol: adrenaline IV-IO		
	Fluid bolus		
Specific therapy	Refer to latest BTS guidelines		
Handover to PICU Consultant	S		
	B		
	A		
	R		

[Closure] Debrief

Using the learning conversation, carry out the debrief of both the technical and non-technical elements of the simulation.

The debrief will be for the team as a whole and should focus on some or all of the following:

- Technical skills in an A, B, C, D, E format and guided by the KTPs; in particular the safe and effective demonstration of all continuously assessed skills:
  - BLS
  - Defibrillation
  - Airway management
- Non-technical skills, including qualities of team membership and leadership:

Team members	• Clear communication • Respect • Flexibility • Assertiveness • Ability to listen
Team leaders	All of the above, plus • Full overview of all aspects associated with child, parents and team • Prioritises according to KTPs • Summarises and re-evaluates

- Feedback on Environment, where required

Potential issues that may be raised for this specific simulation

- Role of blood gas analysis or chest x-ray
- Role of additional medications: adrenaline, difficulties of inhaled medications
- Role of RSI and paralysing agents, use of isoflurane, ketamine & heliox (all broncho-dilating)
- Slow rate of manual inflations
- Management of bradycardia: atropine not used unless vagal cause likely

At the end of the debrief, give the opportunity for candidates to ask questions, answer these and then summarise the key points

Assessment

Refer to the *Instructor guidance on simulations* document for a guide to the assessment of the simulation station. These assessments should be documented on the paper-based or electronic system for the final faculty meeting. Any scores of *serious concern* should be reported immediately to the course director.