

SIMULATION CASE PSI-2

Learning outcomes:

By the end of this simulation the candidates will:

- Recognise the presenting features of duct closure in the first two weeks of life
- Perform a full ABCDE approach to the seriously ill neonate
- Initiate resuscitation and specific treatment for shock secondary to coarctation of the aorta

Simulation focus: Shock – secondary to coarctation of the aorta

Additional discussion points:

- Presentation of duct closure in first two weeks of life in duct-dependent systemic or pulmonary circulations
- Use of alprostadil, intubation, inotropes, fluids & diuretics

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

2. [Set] Give History

A five day old infant is brought to ED by his parents. He was born at full term and was born by a normal delivery. Initially he was well, but over the last 24 hours he has become increasingly lethargic and has not fed for 8 hours.

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 Triage nurse SBAR to Team Leader}*

Situation	Unwell neonate	
Background	A five day old infant is brought to ED by his parents. He was born at full term and was born by a normal delivery. Initially he was well, but over the last 24 hours he has become increasingly lethargic and has not fed for 8 hours.	
Assessment	A	Patent
	B	Respiratory rate is 75/min with some recession
	C	Heart rate 195/min and pulse difficult to feel. CRT is 7 seconds centrally. His colour is pale and greyish
	D	He is drowsy but responding to pain
	E	Mum was well through delivery. There are no risk factors for infection. Temp 36.2°C
Recommendation	Needs resuscitation	

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

High flow oxygen should be administered and airway breathing and circulation assessed. IV access is only possible via the intraosseous route. Blood sugar should be checked. The infant worsens after the first bolus of fluid and femoral pulses are still absent. When the candidate listens to the chest, state that a gallop rhythm is heard. This is a duct dependent lesion and requires treatment with an IV infusion of alprostadil. This condition can be difficult to differentiate from sepsis in the neonate so if the candidate gives IV antibiotics this should be accepted as good practice.

Key treatment points



Airway	Airway opening manoeuvres		
Breathing	High flow oxygen		
	Plan for intubation		
Circulation	IV/IO access		
	1 x fluid bolus		
Specific therapy	IV alprostadil		
	Contact paediatric cardiac centre		
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	<ul style="list-style-type: none"> • Clear communication • Respect • Flexibility • Assertiveness • Ability to listen
Team leaders	All of the above, plus <ul style="list-style-type: none"> • Full overview of all aspects associated with child, parents and team • Prioritises according to KTPs • Summarises and re-evaluates

- Feedback on Environment, where required

Discussion Points

- High flow oxygen should maintain saturations between 94-98%

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.