

SIMULATION CASE PI-4

Learning outcomes:

By the end of this simulation the candidates will:

- appreciate physiological changes that may occur during a convulsion
- have a knowledge of the emergency management of the fitting child
- be familiar with drugs used in the management of status epilepticus

Simulation focus: Seizures

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*

You have received a pre-alert from the paramedic crew bringing in a 4-year-old child with a generalised tonic clonic seizure. They have received buccal midazolam from the paramedics in the ambulance and on arrival they are no longer convulsing but are only responding to painful stimuli.

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 Non-Paramedic SBAR to Team Leader}*

Situation	This 4-year-old has had a generalised seizure.	
Background	The seizure occurred at home. They have been given one dose of buccal midazolam in the ambulance. They are no longer convulsing but only responding to painful stimuli.	
Assessment	A	Patent.
	B	Respiratory rate ~30/min but brief periods of irregular breathing observed.
	C	Pulse 170/min and irregular. Blood pressure - unable to determine.
	D	Conscious level: responds only to pain.
	E	Temperature: 39.7°C.
Recommendation	Needs resuscitation	

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

As the candidate starts to assess the patient the child starts to convulse again, having a generalised tonic clonic seizure. They then become apnoeic and bradycardic. If the airway is opened, protected and ventilatory support given the bradycardia improves and stabilises. There is no response to a second dose of benzodiazepine and the convulsion continues. Glucose stick should be requested and is 8.2 mmol/L. An anaesthetist should be in attendance. The convulsion eventually stops with an infusion of intravenous phenytoin or levetiracetam, but the candidates must monitor pulse rate, rhythm and blood pressure.

Key treatment points



Airway	Establish airway patency		
	Consider tracheal intubation		
Breathing	High flow oxygen via mask		
	Bag valve mask support with added oxygen		
	Consider ventilation by tracheal tube		
Circulation	IV-IO access		
Specific therapy	Status epilepticus protocol		
	Blood sugar check		
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	<p>All of the above, plus</p> <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

Potential issues that may be raised for this specific simulation

- discuss updated status epilepticus algorithm (*a copy of the algorithm will be available in the simulation station*)
- importance of control of fever
- management of raised ICP

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.