

1. Lead examiner

Candidate Number:

2. Co-examiner

Final

Mark:

SCENARIO

You are on duty in a small urban district hospital. You attend to an 8 year-old boy who was rescued from the bottom of a saltwater backyard pool, unconscious. He was resuscitated by pre-hospital personnel and presents with the following vital signs:

- HR 72 bpm, regular
- BP 90/60 mmHg
- RR 24 bpm
- spO₂ 100 % on high flow oxygen

Question 1: Outline the key features in your examination of this child. (included in stem) 1 min

Expected Response	Details & Comments	
Aims PROMPT: Any other possible complications of immersion you would examine for?	Assess: - Acute life threats - Lung injury from immersion - Other injury - Prognostic indicators – mainly neurological	
General	Appearance: Colour, perfusion, GCS (12 is worrying; trend is crucial); level of interaction Temp – hypothermia warrants re-warming Body weight – actual or estimated	
Respiratory	Ventilatory adequacy – normal sats on high FiO ₂ do not exclude wide Aa gradient ? aspiration	
Cardiovascular	HR slower than anticipated - ?hypothermic Clinical signs of perfusion : skin colour, mental state. Skin temp may be cold due to immersion.	
Neurological	Agitation and non cooperation expected, even if normal CNS function, at this age Neurological deficit , pupils Indicators of post-ictal state	
? Trauma	Head, C spine	

Question 2: Describe the factors which determine THIS child's prognosis. 2 min

Expected Response	Details & Comments	
Combination of factors	Clinical, laboratory, systems	
Clinical	Prognostic tools: Conn & Modell, Orlowski Scales Dependent on co-morbidities, intercurrent injuries (eg physical trauma, hypothermia) Clinical progress over sub-acute period	
Better prognosis PROMPT: Any other pre-hospital features affecting prognosis? Any features of the resuscitation? Of the incident?	Pre-hospital Immersion Time <5 min, effective CPR within 10 min, Response to resus - first spontaneous breath within 30 min, ROSC prior to arrival in ED Immersion in water <10deg C – more applicable in southern Aust and NZ ED Pupillary response, ROSC, any motor response to pain. This child's GCS (provided it improves with Rx) portends a good prognosis. Neurological recognition mandatory	4 bold to pass
Poorer prognosis	Pre-hospital / ED Immersion >10 min; unwitnessed/prolonged submersion, asystole, prolonged resuscitation ED Initial serum pH <7.0; CT abnormality in first 36 hrs – highly unlikely in this case. CT prob not even indicated, unless clinical deterioration	
In general: OK to prompt to expand answers		
Fresh vs Salt Water	Pathophysiological changes may be present, but outcome not very different	

Question 3: The child's GCS is now 14, but he shows signs of respiratory distress from aspiration pneumonitis. Describe your treatment. 2 min

Expected Response	Details & Comments	
	Aspirated water causes surfactant depletion, resulting in atelectasis and impaired gas exchange. Pulmonary oedema occurs, with reduced lung compliance. Rx aims: prevent hypoxaemia, hypercapnoea and acidosis.	
Initial Mx	High flow oxygen by mask. Sit up. Antiemetics.	
Non-invasive ventilation	BiPAP, on high FiO ₂ : Initial settings Insp = 10cmH₂O, Exp = 5cmH₂O . Ratio 2:1 May need to titrate up. Compliance may be an issue in an 8 year old	
Invasive ventilation PROMPT: Any treatment you would use before invasive ventilation?	Prepare and consider - Last resort if the above fail, ?retrieval (6mm cuffed ETT , 25kg = 150-200ml +/- PEEP) PROMPT: What equipment would you have available?	
Monitoring	Clinical state: colour and perfusion, RR, GCS, O ₂ sats ABGs (anticipate initial resp alkalosis, given GCS) or VBG + sats CXR	
Other PROMPT: What is the role of antibiotics?	No indication for corticosteroids In simple case no empiric antibiotics – only if contaminated Treat underlying condition(s) if existent: eg asthma Fluid therapy "judicious" Seek assistance – in small hospital	

Question 4: The child is stable on BIPAP but will require transfer to the paediatric hospital 25km away. No retrieval team is available and you elect to transfer the patient. Describe how you will prepare for transfer. 2min

Expected Response	Details & Comments	
Given scenario, Need to consider		
Personnel	Appropriately trained medical staff, nurse familiar with paediatric ventilation	
Equipment	Ready for ETT if NIV and portable ventilator	
Drugs	For maintaining patient on ventilator	
Vehicle	Oxygen supply, number of crew, appropriate ambulance	
Parents	Parents to come on transport, room in vehicle? parental co-operation?	
State ED	Is ED cover available and ED safe -	
Documentation	Complete, clear and copied	
Communication	Receiving hospital and in own hospital	
Principles	Maintain at least same standard of care as provided in ED	

SUPPLEMENTARY: What are the advantages of intubation prior to transfer in this child?

Comments: (if you fail the candidate, please state why)

If the candidate fails the exam overall, what feedback would you suggest CIC provide for this SCE?

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