

SCE 4

Question 4: Please interpret the infant's venous blood gases prior to resuscitation

pH	7.55	(7.35-7.45)
pCO ₂	30	(35-45 mmHg)
pO ₂	45	
HCO ₃ ⁻	41	(22-30 mmol/l)
BE	+15	(-3-+3)
Cl ⁻	70	(95-115 mmol/l)
Na ⁺	155	(135-145 mmol/l)
K ⁺	2.5	(3.5-5.5 mmol/l)
Glucose	2.5	(3.0-7.6 mmol/l)
Lactate	5	(<2 mmol/L)

1. Lead examiner

Candidate Number:

2. Co-examiner

Total Mark:

SCENARIO

The triage Nurse calls you about a paediatric patient who has just arrived in your regional ED. A Mother has arrived at triage carrying her 6 week old son who looks mottled and lethargic. He has a 2 week history of recurrent vomiting post feeds. He was born at term, BW 2500g, well until 2 weeks ago when he started vomiting

Vitals:

Wt 2650g, HR 160/min, RR 80/min, cool and cyanosed peripheries

Question 1: Outline your initial treatment

(2 minutes)

Expected Response	Details & Comments	
Attend triage – critically unwell	Mottled, lethargic, low weight, poorly perfused, markedly tachypnoeic Needs urgent care	
Transfer infant to paediatric resus room	Assemble team, monitor, assess and manage simultaneously	
Treatment will occur concurrently with assessment <i>Prompt: is there any other specific treatment you would provide</i> <i>Prompt: is there any other supportive treatment you would provide</i>	Gain urgent access IV fluid boluses-10- 20 ml/kg repeated of normal saline Strategies for dealing with difficult peripheral access including IO, USS guided femoral. Early IO Consider antibiotics If fever/ suspicion meningitis or serious bacterial infection, give <3 months broad spectrum antibiotics after blood cultures taken and dexamethasone 0.5-1 mg/kg administered. Consult eTG and institution specific ID recommendations: amoxicillin 50 mg/kg plus gentamicin 7 mg/kg plus cefotaxime 50 mg/kg Address hypoglycaemia Keep warm-external heating	Minimum all bold to pass
	Airway , respiratory status, perfusion-high risk deterioration	
Monitor response to treatment	Catheter, monitor urine output	

Question 2: What features would you look for on history and examination?

(2 minutes)

Expected Response	Details & Comments	
Differential Diagnosis	Sepsis, UTI Pyloric stenosis, Reflux, Gastro, Bowel obstruction/volvulus Intra-cranial pathology	Bold to pass
History	Fever? Vomiting – nature of vomiting : bilious v non-bilious, projectile, relationship to feeds, hungry post vomits; getting progressively worse? Hematemesis-coffee grounds, bright red; melena, mucus? Birth Hx – any perinatal problems eg jaundice requiring phototherapy, peripartur infection or prolonged ROM-maternal GBS Recent infectious contacts Growth trajectory and centiles– weight gains (poor by BW v current) Feeding – breast v bottle; hunger or lethargy post feeds urine output – no. of wet nappies risks for pyloric stenosis: male, 1 st born, +ve FHx PHx: old notes, GP ?neglect	
Examination: Prompt- what specific findings would you look for?	Measured temperature Activity, “Looks unwell,” monitor clinical progress with initial resuscitation- especially perfusion state and shock-related tachypnoea, rash Specific: estimation degree of dehydration – severe on known findings so far, also skin turgor, sunken fontanelle, delayed cap refill Abdo exam : distended, tympanic, increased bowel sounds, palpable hernia, palpable olive (to right of midline, best felt post vomit or while feeding), peristaltic waves , examine anus for patency Examine another system for alternative cause : carefully examine skin/ hips/ valves/ respiratory/ abdo/ failure/ cyanosis	Bold to pass plus + 2 features to assess the degree of dehydration and 2 features on abdominal exam

Question 3: Please interpret the infant's venous blood gases taken prior to resuscitation (2 minute)

pH 7.55	(7.35-7.45)	pCO ₂ 30	(35-45 mmHg)
pO ₂ 45		HCO ₃ 40	(22-30 mmol/l)
BE +15	(-3-+3)	Cl ⁻ 70	(95-115 mmol/l)
Na+ 155	(135-145 mmol/l)	Glucose 2.5	(3.0-7.6 mmol/l)
K+ 2.5	(3.5-5.5 mmol/l)		
Lactate 5	(< 2 mmol/l)		

Expected Response	Details & Comments	
Hypochloraemic hypokalemic metabolic alkalosis +respiratory alkalosis + HAGMA	Upper GI HCl loss-critical. (0.7x HCO ₃ + 20 +/-5) Calculated gap 47	Bold to pass
Profound hypokalaemia	Needs urgent replacement via large calibre IV	
Hypoglycaemia	Needs urgent correction with 5-10% IV dextrose via large calibre IV	
Elevated lactate	Serial progress as correlates with shock and sepsis severity	
Likely pyloric stenosis Prompt: what is the most likely diagnosis?	Needs urgent surgery once electrolyte abnormalities corrected	

Question 4: The diagnosis of pyloric stenosis is suspected. The child requires transfer to a paediatric hospital. Outline the preparations for transfer (1 minute)

Expected Response	Details & Comments	Bold to pass
Transport team	As per local arrangements	
Receiving hospital	Communication/documentation Notes/drug sheets/path/imaging copies to go with patient	
Patient	Ongoing resuscitation and K replacement, repeat VBG Two IV lines, well secured	
Parents	Inform parents. One will need to travel with child, May need social work to help with accommodation at/near referral hospital	

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

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

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Scenario:

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Outline your initial treatment.