1. Lead examiner……..……..…

Candidate Number:

2. Co-examiner……..…….

SCENARIO: Communication

	Not Met	Partly Met	Fully Met
Rapport, Reassurance, Trust and Ethical Therapeutic Relationships			
Convey relevant information and explanations			
Develop a common understanding of issues, problems and plans			
Convey effective oral information			
Appropriate non verbal communication			
Appropriate use of demeanour, language and words			
Identify and explore issues, including reasons for refusal / preferences			
Problem-solve			
Implement an effective plan in collaboration with colleague			

Total Mark:

ACTOR feedback:

Not Comfortable	Partially Comfortable	Fully Comfortable

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

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

SCENARIO

It is a Friday evening in your regional ED. Your patient is Mrs Thelma Brown, a 72 yo woman brought in by her daughter with a one week history of respiratory tract infection. Her daughter states that she can no longer look after her mother at home.

- **History: A widow with early dementia; nil else relevant. No medications or allergies. She usually lives alone at home but for 2 days her mobility has required two persons' assistance.**
- **Examination: vital signs normal; bi-basal crackles.**
- **Investigations: relevant blood tests normal; CXR reveals minor bi-basal changes consistent with bronchopneumonia.**

Your management plan includes admission, oral antibiotics, no supplemental oxygen. In this hospital there are available medical beds but there is NO Short Stay Unit or Hospital-in-the Home service. Patients must be accepted by an inpatient unit prior to admission.

The on-call general physician, Dr Troy Young, whom you've not met before, is in the ED. You are going to refer Mrs Brown to Dr Young.

Dr Young, ROLE PLAYED by an actor, is waiting for you in a private office.

Other people in this scenario will NOT be present. Examiners will NOT be interacting with you or the actor.

Background Information for Actor

Important Note

The ACEM Fellowship Exam involves examiners and candidates from all Australian states and New Zealand. To optimise fairness for all candidates, all character and scenario features will NOT have demographic details.

In interactions with candidates, please do NOT refer to demographic specifics. For example, you work in the general hospital instead of the PA; you live in the inner suburbs instead of Fortitude Valley.

The Character

Dr Troy Young is a 39yo specialist physician, a Fellow of Royal Australasian College of Physicians (FRACP).

In addition to working 30 hours per week as a general physician at the regional hospital, Dr Young runs a busy private practice in the same town. He is a competent, well-regarded professional. However, recent stressors of work have made him irritable lately.

Dr Young lives with his wife and 4-month old daughter in an inner suburb. His daughter's sleep habits occasionally disrupt his sleep, and he is frequently fatigued. Otherwise, he has no personal, social or financial problems. He enjoys good health.

The Scene

It is 2100hrs on a Friday. On call for the hospital until 0800hrs the following day, you have endured a long day at your rooms and the hospital, and are fatigued. Just about to leave for dinner, you are in the ED in a private office and are referred a patient for admission.

The case as described on the telephone is not unusual. Thelma Brown is a 72yo woman has a mild lower respiratory tract infection (LRTI), which may be treated by oral antibiotics, such as roxithromycin (Rulide^{TM}). While the illness itself may be safely treated in an outpatient setting, her pre-morbid status has apparently made her unsafe for discharge. As such, admission may be required for additional assessment and implementation of various aged care services. Your clinical unit often cares for such elderly patients, who are debilitated by otherwise minor acute conditions.

You anticipate that his case will take considerable time to assess. Moreover, it's not particularly fulfilling work. In your current state, you reluctant to undertake it, and resent your referring colleague. Indeed, you conclude that it may be possible to discharge this patient; you offer this option to your colleague, declaring you do not wish to see the patient.

This colleague is the ED Consultant. S/he is an Emergency Physician - a specialist in Emergency Medicine. You have not met him/her before. S/he has personally reviewed Mrs Brown. He/she asks you review Mrs Brown.

The ED Consultant, played by the exam candidate, will enter the room and introduce him/herself.

Note:

- Neither Mrs Brown nor her daughter will be part of this interaction; you have not met them.
- The "Scenario" in the preceding page is all the information provided to the candidate before s/he interacts with you. That is, s/he will NOT be aware of your own circumstances.
- Stress that the patient could be discharged and will not be admitted; you will stress that the ED Consultant has no rights of admission and therefore the ultimate decision to admit or discharge the patient is yours alone.
- State that the hospital is not able to assess the patient's functional status on the weekend, and having her in hospital to take oral antibiotics is not good use of hospital resources.
- You think that outpatient services including a home social and functional assessment can be arranged on Monday.

PROMPTS:

Give me a clear picture of her clinical condition
I think that she can mange on oral antibiotics at home / Can you explain why she needs admission
What is the problem / what are you worried about with sending her home?
I am not convinced this is the best use of the hospital resources
I am not sure I understand the clinical picture, can you give me a clear picture of the situation
Couldn't she stay in ED overnight?
If I admit her, what do you expect me to do for her over the weekend?

FACTS:

- You are usually a reasonable and safe clinician. However, now you are tired and grumpy.
- The patient has a minor case of LRTI, consistent with her clinical state and chest X-ray (CXR).
- The patient's vital signs and relevant blood tests are normal.
- The patient, her daughter and your ED colleagues do not think she should be discharged.
- The ED Consultant (played by the candidate) is the doctor in charge of the ED.

YOUR OBJECTIVES:

- Avoid taking direct responsibility for this patient.
- Defer your involvement as much as possible, allowing you to proceed with your existing workload.
- Convince your colleague to pursue any option other than yourself.

SCE DESCRIPTION

Subject	***Communication*** ***Recalcitrant medical colleague***
Authors	*D Liew, J Ting*
Modality	*SCE*
Syllabus Alignment	*Fellowship Curriculum Reference Number(s)* *1) 1.5: Patient Encounters*
Level of Practice	*1) Expert*
Competencies examined	*1) Communicator* *2) Collaborator* *3) Health Advocate*
High Level Discriminators	*All*
Data or props to be utilised	*Professional actors*
References	
General Comments	*Which mandatory issues must be covered, either by candidate raising it or by actor using prompts?* *Actor feedback should be sought and considered in mark. (Should it be included formally?)* *<u>Examiner interjection must be avoided other than at start and end of SCE.</u>* *Formal termination of interaction by candidate is not required once the bell rings. Ie, as usual, the SCE will end suddenly when the bell rings.*

1. Lead examiner ……

Candidate Number:

2. Co-examiner ……

Final Mark:

SCENARIO

A 28 yo female is brought by ambulance to your tertiary ED. She was the front seat passenger involved in a medium speed motor vehicle accident less than one hour ago. She is 32 weeks pregnant. The patient is in your resuscitation room, with full cardio-respiratory monitoring and spinal immobilization. The trauma team is assembled.

On examination: **GCS 15/15; HR 128/min; BP 92/48 mmHg; RR 22/min; O_2 sats 99% on 6 L/min O_2.**

Question 1: What are the key features of your initial examination? (included in stem) 3.5 min

Expected Response	Details	
Worrying vital signs, indicating potential abdo injury and shock. This is a surgical / obstetric emergency. Examination concurrent with early Rx as required.		
Aims	**Confirm pregnancy and gestational age** Assess maternal and foetal wellbeing Risks of injuries, and indications for specific Ix and/or Rx Complications, such as placental abruption, early labour	
Mother	**A and B: compromised by gravid state** Cervical spine **Circulation: wedge under hip,** other signs of shock; **potential sites of blood loss** Caveats: Lower BP may be normal at 32/40; high circulating blood volume, so potential 30-40% blood loss before signs.	
	Primary and secondary survey Abdomen: difficulties in assessing for intra-abdominal injury, given advanced pregnancy. Bruising (eg seatbelt) **Signs of abruption or uterine rupture; contractions** **evidence of vaginal bleed, ROM**	
Foetus PROMT what obstetric issues do you need to assess	**Consistent with dates, Heart rate** (needs urgent CTG) Movements ,liqor volume.	

Question 2: The patient has abdominal tenderness. DISCUSS the options for pelvic / abdominal imaging for this patient. 1.5 min

Expected Response	Details	
Radiation exposure of negligible concern in this case, given 3rd trimester plus risk:benefit ratio. Mother assumes priority over foetus. Key factors: stability of mother, foetal state, diagnostic yield (esp skill of operator in ultrasound, skill of person reading scans), availability of tests.		
Plain XR	Only pelvic XRs taken. Aim to identify pelvic #s. Pros: Accessible, rapid and non-invasive. Cons: Radiation dose, difficult to interpret, with foetus superimposed.	
FAST/abdo u/s	Pros: rapid, bedside, non-invasive, immediate results. Aim to indentify intra-peritoneal fluid, suggesting bleed or visceral rupture. May assess foetal features concurrently: HR, lie, position, movements. Cons: technically difficult, for anatomical reasons. Insensitive for retroperitoneal pathology and specific organ injury. Of value when patient unstable: assists decision re laparotomy vs pelvic angiography. Operator dependent.	
CT Abdo and Pelvis	Pros: high definition scans with radio-contrast have high sensitivity and NPV. Detects visceral injuries, views retroperitoneal space. Reconstructions allow anatomical detail: spine, pelvis, foetus! Cons: limited access to patient, high radiation dose. Potential radio contrast allergy or nephropathy. Limited availability (of scan or radiologist), although should be high in tertiary centre. Expertise limited: even trauma centres do NOT read many 3rd trimester trauma scans!	

Question 3 There is persistent foetal bradycardia. Describe your management.

2 min

Expected Response	Details	
Possible placental abruption, or early labour. If possible, needs urgent Caesarean, but mother assumes priority. Recruit best available expertise, esp Anaesthetics for airway.		
oxygenation	adequate	
breathing	**Maintain BP** and uterine circulation. Additional risks in this patient: gastric stasis / GOS incompetence, low FRC (resp reserve), increased O_2 consumption and demand, large breasts, pharyngeal soft tissue swelling. In-line C spine immobilisation. Ventilation: high F_IO_2, settings to optimise pO_2 and pCO_2.	
Circulation		
Positioning	**Left lateral** - prevent aortocaval compression & uterine hypoT. For spinal precautions, use spinal board with tilt to left.	
Resuscitate	Volume,	
Delivery	Urgent obstetric consultation. Consider stability for Caesarean, given unlikely need for neurosurgical intervention in OT. Disposition to OT (or ICU)	
Other	Urgent blood group. Consider need for prophylaxis against rhesus iso-immunisation. IDC, oro-gastric tube and stomach decompression. Liaise with NOK	

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

……...

……

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

……

……

SCENARIO

A 28 yo female is brought by ambulance to your tertiary ED. She was the front seat passenger involved in a medium speed motor vehicle accident less than one hour ago. She is 32 weeks pregnant. The patient is in your resuscitation room, with full cardio-respiratory monitoring and spinal immobilization. The trauma team is assembled.

On examination:

GCS	**15 / 15**	
HR	**128**	**bpm**
BP	**92 / 48**	**mmHg**
RR	**22**	**bpm**
O_2 Saturation	**99%**	**On 6 L / min O_2**

Question 1: What are the key features of your initial examination?


Se:5
Im:16
[AH]
B.BARRY, WALTER
Study Date:30/03/2003
Study Time:13:42:57
MRN:
[R]
50
[L]
mm
[PF]
C35
W80

1. Lead examiner ……

Candidate Number:

2. Co-examiner ……

Final Mark:

SCENARIO

You are on duty in your regional Emergency Department. The aero-medical retrieval service has brought in a 23 yo male from the bush, who was probably bitten on the lower leg by a snake 4 hours ago. He walked out of the bush to a local first-aid station where a nurse applied a pressure immobilisation bandage.
Currently he is complaining of a headache, but no weakness or blurred vision.
On examination: GCS 15; HR 88 bpm; BP 135/80 mmHg; RR 20 bpm.

Question 1: Outline your approach to this patient.

Expected Response	Details & Comments	2 m
Potential Issues	**Potentially fatal snake bite / envenomation.** Clinical info provided suggests not severe envenomation (yet?). Needs detailed assessment. Seek syndrome(s). Delay in presentation - 4 hrs ago without 1st aid at scene. Urgent Ix / assays: VDK, laboratory tests. Urgent Rx: antivenom - assess for indications, specific agent. May require large amounts, exceeding available supplies.	
Immediate	Manage in appropriate bay: cardio-respiratory monitoring **Monitor for developing Sxs / signs of envenomation** Leave dressing intact until initial assessment complete Assess effectiveness of immobilization dressing: sufficient pressure and proximal extension IV access; send serum for FBE, U&E, CK, coag, Gp & Hold Cut window over bite site and assess wound. Swab for VDK and lab assays	
Subsequent	Detailed, accurate Hx from pt, esp if any 1st aid at scene or developing Sx suggesting envenomation **Look for developing features of envenomation: (prompt for signs)** • CVS collapse / instability • **Neurotoxicity** – ptosis, weakness or paralysis, decreased LOC • **Coagulopathy** – oozing from IV site, bleeding gums • Acute renal failure – high U & Cr • Rhabdomyolysis – high K+ with ECG changes, brown urine, high CK	
Urgent Mx	Supportive care, including titrated analgesia Identify indications for urgent antivenom administration	

Question 2: The patient has been stable since arriving, except for a worsening headache. The initial blood results are available. Interpret these results.

Full Blood Examination			***Reference***
Hb	128	g / L	*130 - 170*
White Cell Count	10.2	x 10^9 / L	*3.9 - 9.9*
Platelets	88	x 10^9 / L	*150 - 400*

Clotting Profile			***Reference***
PT	> 150	sec	*11 - 18*
APTT	> 150	sec	*25 - 36*
INR	> 15		*0.9 - 1.1*
D-Dimer	positive		
Fibrinogen	< 60	mg / L	*180 - 440*

Expected Response	Details & Comments	2 m
FBE	Hb, plt low consistent with coagulopathy. WCC mildly elevated.	
Coagulation Profile	PT, APTT, INR all grossly elevated with +ve D-Dimer and low fibrinogen. **Consistent with severe consumptive (or defibrinating) coagulopathy.**	
Interpretation	Features indicate envenomation. Consistent with Brown, Tiger or Taipan snake envenomation. **Urgent antivenom Rx is indicated.**	
Antivenom dose and type *Prompt: "Outline your*	Monovalent ideal: urgent VDK from bite site. Result should be available before, or same time as the above. Determine turn around time - likely to be 20-30 min - monovalent if patient's condition	

antivenom Rx regimen."	permits. **VDK should not delay empiric Rx of envenomed patient, using polyvalent.** Dose is controversial: new evidence indicates that 2-5 vials may be as/more effective than large doses of 20+ vials	

Question 3: It is 2 hours post arrival of the patient. Antivenom treatment is underway.
The patient now complains of diplopia and mild dyspnoea. He has a new ptosis and is oozing blood from his gums and IV sites. HR 120; BP 90/60; spO_2 88% on 4 L/min O_2.
Outline your response.

Expected Response	Details & Comments	2 m
Impression	Features of neurotoxicity, CV compromise, respiratory failure and coagulopathy Most likely Tiger snake snake envenomation.	
Management	**Airway and Respiratory failure**: high flow O_2, requires **intubation** and ventilation as pt unlikely to be able to have effective ventilation on BIPAP. Caution with suxamethonium if serum K very high. **CV compromise**: **Fluid** resuscitation with crystalloids; monitor renal function and urine output. **Coagulopathy**: in adequate doses, antivenom prevents further progression but won't reverse present problem. **FFP indicated if severe bleeding.**	
Ongoing	Monitor coag, renal function, serum K. Avoid unnecessary needle punctures. Care for bleeding sites. Liaise with NOK.	
Disposition	ICU	

Question 4: In general, DISCUSS the role of the Venom Detection Kit (VDK) in assessment of suspected snakebite.

Expected Response	Details & Comments	1 m
Key Points	**- Must be used in conjunction with an assessment for features of envenomation.** **- For severe envenomation (eg cardiovasc collapse) Rx with antivenom should occur immediately, with polyvalent or the monovalent(s) most appropriate to the clinical picture / geographic area. VDK should not delay such Rx.**	
Pros	May detect the presence of venom on a patient's skin at the bite site Used on a patient's urine sample to confirm systemic envenoming Positive VDK with signs of envenomation it indicates specific antivenom to administer Relatively short turnaround time	
Cons	Positive VDK from bite site does not: • confirm envenomation; only venom's presence • indicate antivenom Rx by itself Urine VDK can result in false positives –esp brown snake Does not identify snake genus – only indicates specific antivenom to use if required Cannot be performed on the patient's serum Negative VDK swab from the bite site may occur if bite site is washed of envenomation. Requires skill and familiarity for use / interpretation; these are NOT common!	

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?

……

……

SCENARIO

You are on duty in your regional Emergency Department.

The aero-medical retrieval service has brought in a 23 yo male from the bush, who was probably bitten on the lower leg by a snake 4 hours ago. He walked out of the bush to a local first-aid station where a nurse applied a pressure immobilisation bandage.

Currently he is complaining of a headache, but no weakness or blurred vision.

On examination:

GCS	**15**	
HR	**88**	**bpm**
BP	**135 / 80**	**mmHg**
RR	**20**	**bpm**

Full Blood Examination			***Reference***
Hb	128	g / L	*130 - 170*
White Cell Count	10.2	x 10^9 / L	*3.9 - 9.9*
Platelets	88	x 10^9 / L	*150 - 400*

Clotting Profile			***Reference***
PT	> 150	sec	*11 - 18*
APTT	> 150	sec	*25 - 36*
INR	> 15		*0.9 - 1.1*
D-Dimer	positive		
Fibrinogen	< 60	mg / L	*180 - 440*

1. Lead examiner **……**

2. Co-examiner **……**

Candidate Number:

Final Mark:

SCENARIO
A 30yo man visiting from interstate presents to your ED with a one hour history of palpitations and dizziness. He is pale and diaphoretic.
Vital signs: BP 80/55 mmHg; GCS 15.

An initial ECG (included in stem) is taken.

Question 1: Describe and interpret the ECG. ***(included in stem)*** **1 min**

Expected Response	Details & Comments	
12 lead ECG	Standard rate calibration, **irregular broad complex tachycardia**, rate approx 230 /minute, LAD	
Relevant negatives		
Interpretation	**Rapid AF** with aberrant conduction. In clinical setting, suspect pre-excitation syndrome such as WPW *Unstable patient with broad complex tachy*	
Implications (can prompt)	**Needs urgent cardioversion** as haemodynamically compromised	

Question 2: The patient is appropriately sedated. Describe your procedure for cardioversion. **2 min**

Expected Response	Details & Comments	
Pad placement	1. Anteriorly: midaxillary line over 6th left ICS and right parasternal area over 2nd ICS **OR** 2: Anterior (-ve) and posterior (+ve) placement **(1 to pass)**	
Paddles or adhesive pads	If paddles are used application firm pressure; conductive gel pads recommended. No electrical contact between two	
Shock type	**Synchronised** (but may not work)	
Biphasic vs monophasic	*Candidate should demonstrate familiarity with the chosen option.*	
Joule selection	50-100J to commence	
Safety Issues	**Clear instructions** by team leader Responsibility of person doing defibrillation to ensure safety of team Only charge paddles on patients chest **Keep paddles/ pads away** from ECG leads, medication patches, pacemakers, AICDs **No direct contact** with pt being defibrillated Keep oxygen away	
Re-assess	For successful reversion Potential complications	
Subsequent	Recovery; observations; documentation	

Question 3: At the first attempt, there is no muscle contraction or other evidence of current delivery; the cardiac rhythm remains unchanged. Outline your response. **2 min**

Expected Response	Details & Comments	
Trouble shooting failed charge delivery: • **Machine: power, charge, leads, pad, mode** • **Patient: impedance** • **Operator: poor technique, poor contact**		
Machine	**Check machine power**: battery / mains	
	Defibrillator charged? Applied properly? Leads plugged in? **Leads/paddle setting**	
	Was shock properly delivered? Consider higher energy dose.	
	Synchronised mode may not work- if not, unsync	
Patient	**Recheck pad positions** and application; remove impedance items; ensure adequate sedation	
Operator	Recheck technique. Firm pad pressure; Discharge at appropriate time	
Repeat attempt	When re-checked and safe to do so.	

Question 4: The patient is successfully reverted. Describe and interpret this post reversion ECG. 1 min

Expected Response	Details & Comments	
12 lead ECG	Standard rate and calibration **SR rate 75/minute**, LAD, **short PR** interval, **delta wave seen, inverted T wave I & aVL** Subtle ST segment depression seen leads V2- V6 (likely related to repolarisation or previous fast rate)	
Relevant negatives		
Interpretation	Consistent with **WPW (pre-excitation) syndrome** (Type A) Requires **cardiology follow up** for EP studies	

Question 5: Twelve hours later, the patient is clinically well and stable and wants to go home. He plans to return interstate the following day, by a 3-hour flight. Describe your discharge procedure. 1+min

Expected Response	Details & Comments	
Diagnosis / Prognosis	Presume dx of WPW and underlying cardiac cause Potentially amenable to ablation therapy	
Appropriate follow-up	Needs **cardiology follow-up and EP studies, probably echocardiogram** **Detailed discharge letter** of treatment given for GP and cardiology referral Include copies of pre and post reversion ECGs	
Advise regarding future episodes	Present to ED if above fail or symptomatic Bring copy of previous ECG / discharge letter Discharge letter to include drugs to avoid Ca channel blockers, β-blockers and digoxin **Comment on fitness to fly** if returning interstate by plane	

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

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

SCENARIO

A 30yo man visiting from interstate presents to your ED with a one hour history of palpitations and dizziness. He is pale and diaphoretic.
Vital signs: BP 80/55 mmHg; GCS 15.

An initial ECG is taken.

Question 1: Describe and interpret the ECG.

1. Lead examiner ……

2. Co-examiner ……

Candidate No:

Total Mark:

SCENARIO

A 58 year old man is brought to your Emergency Department by the ambulance service after spontaneous epistaxis for the last 3 hours. The ambulance officers report that he vomited at least 500ml of fresh blood at the scene. They also report that there were a number of empty alcohol bottles at his house, which was in a dilapidated state. They have been maintaining pressure to his anterior nose. His GCS is 15/15.

Question 1: The patient is in a resuscitation area with comprehensive monitoring. Outline the key features in your history and examination with respect to his epistaxis. ***(included in stem)*** ***1.5 min***

** Refocus candidate on assessment of epistaxis as necessary.*

Expected Response	Details & Comments	
Hx and Examination may be concurrent in unwell patient		
Hx		
Evidence/history of chronic liver disease due to alcohol or other causes.	Examine for stigmata of **chronic liver disease**. Ask for history of same and **alcohol** consumption. Ask for evidence to suggest GI bleeding source such as varices (haematemesis preceding epistaxis, melena etc), history of prosthetic heart valves.	
Other causes of bleeding tendency	**Anticoagulant or platelet inhibitors** use (warfarin, clopidogrel, aspirin). **Bleeding diathesis**. Recent nasal trauma, URTI, H/T etc.	
PROMPT: ***Are there any underlying conditions you would consider in a patient with major epistaxis?***		
Examination: need to mention equipment required (head lamp, suction, nasal speculum).		
Airway and Breathing	Likely not compromised. Assess for evidence of aspiration	
Circulation	Evidence of **hypovolaemia** (tachycardia, hypotension as a late sign, peripheral perfusion, respiratory rate, conscious state, anaemia)	
Epistaxis	Ensure adequate anterior nasal compression. **Examine for evidence of posterior nasal bleeding by inspecting nasopharynx**. Any relevant ENT history eg. Surgery etc.	

Question 2: He is clinically shocked and fluid resuscitation has been initiated. There is evidence of significant active nasopharyngeal bleeding. The charge nurse has laid out a set of equipment, please demonstrate how you would perform posterior packing of his nose. ***2.5 min***

If relevant, explain to candidate that the procedure has been explained to the patient, his nose has been topically prepared, he is prepped and draped, lighting and suction is available. Actively direct candidates to perform procedures to save time.
Provide airway trainer or similar mannequin in seated position + appropriate range of equipment. Foley catheter and "Rapid Rhino" device as only options.

Expected Response	Details & Comments	
Local anaesthetic/ vasoconstrictor to nose	Co-phenylcaine or similar (eg. cocaine/ adrenaline) to both nostrils and nasopharynx.	
Posterior haemorrhage control starting with most likely nostril, bilateral may be required.	Options include • Foley catheter in nose, balloon inflated in nasopharynx, traction applied and secured to face with tape or against nares with locking forceps and padding to prevent pressure necrosis • Inflated custom built nasal balloon packs (posterior and anterior balloon) eg. Rapid Rhino etc ***Candidate must demonstrate effective technique to achieve posterior haemostasis on one side and indicate intent to apply bilateral compression if bleeding continues.*** ***Prompt: He has brisk bleeding visible at the back of his pharynx.*** ***Prompt: You have placed one catheter and the bleeding is continuing.***	
Analgesia as required	Titrated analgesia/sedation as required (eg. aliquots fentanyl 25 mcg, midazolam 1 mg)	
PROMPT: Is there anything you would do before inserting the device?		

<u>Question 3:</u> Despite the nasal packing, the bleeding has not been controlled. ENT is taking him to theatre urgently. The results of some initial investigations are now available. ***3 min***

Hb	**95**	**(120 - 180)**	**INR**	**2.5**	**(0.8-1.3)**
WCC	**10.2**	**(3.5 - 11.0)**	**APTT**	**36**	**(26 - 41)**
Plt	**155**	**(140 - 400)**	**Fibrinogen**	**0.4**	**(1.7 – 4.5)**
			D-Dimer	**< 0.40**	**(< 0.40)**

Outline your management of this patient.

Expected Response	Details & Comments	
Evidence of ongoing active bleeding, with anaemia and significant coagulopathy. Needs tranfusion and fluid resuscitation, airway protection maintain oxygenation, electrolytes, acid-base status, keep patient warm, monitor response and fluid status.		
Anaemia	**Tranfusion if shock**: O neg, followed by cross matched packed cells	
Elevated INR	Coagulopathy due to problem in intrinsic or common pathway. Most likely in this patient due to both vitamin K deficiency (diet) and factor deficiency (liver disease). Correct with 10 mg **vitamin K** IV **and FFP** 4 units **OR**. Prothrombin complex concentrate (PCC / **Prothrombinex**) has a role but is not yet mainstream **OR cryoprecipitate**.	
Low fibrinogen + normal D-Dimer	Likely due to liver synthetic dysfunction (inadequate production of fibrinogen). Normal D-Dimer is makes DIC unlikely. Replacement of fibrinogen with cryoprecipitate is indicated. Give cryoprecipitate 5-10 units (200-400 mls)	
Warm all products	Large volume of blood products. Coagulopathy will worsen with hypothermia. All products and fluid should be warmed.	

<u>Question 4 (Supplementary):</u> Blood products are now ready for transfusion. This man has known severe aortic stenosis. How would this affect your resuscitation?

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Expected Response	Details & Comments	
Resuscitate	Does not alter initial management. Has haemorrhagic shock. Needs rapid administration of blood products to restore circulation of vital organs(eg. cerebral perfusion, HR <100 and BP >100/ MAP > 65-70) + due for GA so needs adequate volume. Needs correction of coagulopathy pre OT.	
Avoid over resuscitation	Fixed outflow obstruction, needs good preload. Once FFP/cryoprecipitate +/- platelets given and hemodynamics improved then replace remainder of blood products more slowly to minimise risk of overload. Observe respiratory status for decompensation with heart failure (tachypnoea, falling saturations). Most relevant for anaesthetist.	

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

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

SCENARIO

A 58 year old man is brought to your Emergency Department by the ambulance service after spontaneous epistaxis for the last 3 hours. The ambulance officers report that he vomited at least 500ml of fresh blood at the scene. They also report that there were a number of empty alcohol bottles at his house, which was in a dilapidated state. They have been maintaining pressure to his anterior nose. His GCS is 15/15.

The patient is in a resuscitation area with comprehensive monitoring.

Question 1: Outline the key features in your history and examination with respect to his epistaxis.

The results of some initial investigations are now available.

			Reference
Hb	95	g / dL	*(120 – 180)*
White Cell Count	10.2	x 10^9 / L	*(3.5 – 11.0)*
Platelets	155	x 10^9 / L	*(140 – 400)*
INR	2.5		*(0.8 – 1.3)*
APTT	36	seconds	*(26 - 41)*
Fibrinogen	0.4	mg / L	*(1.7 – 4.5)*
D-Dimer	< 0.40		*(<0.40)*

1. Lead examiner **……** **Candidate Number:**

2. Co-examiner **……** **Total Mark:**

SCENARIO
A 4 month-old girl is referred to your urban district ED by a GP, after a fall. She is accompanied by her mother, but details of the fall are not clear. The baby appears normal except for a left parietal scalp haematoma.

Question 1: Describe the key points in your history and examination. (2 minutes)

Expected Response	Details & Comments	
Collateral hx important. Liaise with GP and other sources High risk features of NAI: • History of abuse • Low socio-economic status • Unemployment • "Blended" family • Family psychiatric history • Family drug history • Child or siblings known to authorities		
Aims Need 8 items that address the 4 aims **Must mention NAI**	Cause of injury; mechanism Severity of head injury; complications Associated injuries: if NAI, older injuries and/or those suggestive of intentional harm Other features of child at risk: developmental delay, malnutrition	
History	HOPC – consistency of injury with mechanism Other injuries sustained Past History: ? other injuries Developmental history Social circumstances: socio-economic status, illicit drug dependence, other dependents Consistencies in mother's history; correlation with other sources	
Examination: **Child**	Observe mother's interaction with child Vital signs & GCS Neurological examination including fundoscopy for retinal haemorrhages Developmental: physical (height, weight & head circumference) and neurological General examination: • Signs of neglect (general hygiene, dermatitis, poor clothing, poor medical care, malnutrition) • Bruising, burns, old fractures and injuries	
Mother	Behaviour: detached, depressed, hostile, defensive Drug affected Unkempt Poor eye contact	

Question 2: The child has no other obvious injuries, but you are concerned the haematoma is a non-accidental injury. DISCUSS the role of imaging for this patient. (1.5 minutes)

Expected Response	Details & Comments	
CT Brain **CT plus one other with reasonable pros and cons**	**Pros:** Diagnose significant ICH, parenchymal brain injury or skull #s Directs immediate neurological management May show old injuries **Cons:** Requires sedation +/- definitive airway Needs mother's cooperation Radiation exposure; radio-contrast reaction	
Skull XR	**Pros:** Less radiation, readily accessible, no need for sedation **Cons:** No information on intracranial bleeding etc	
Skeletal Survey	**Pros:** whole skeletal assessment; may detect associated current or previous bony injuries Available; simple procedure for infant **Cons:** Radiation exposure	
Other	Cranial US for ICH: bedside, non invasive. Requires expertise; operator dependent. CT other regions, but no indications in this case, as otherwise uninjured.	

Question 3: A CT brain of this child has been performed. Describe and interpret this CT. (1.5 minutes)

Expected Response	Details & Comments
1 supra-tentorial slices.	
Findings	**High attenuation in left frontal subdural space, suggestive of blood** ? acute subdural haemorrhage ? frontal lobe contusion ? extradural ? any Bilateral subdural hygromas: larger on left, with fronto-parietal involvement.
Relevant negatives	**No mass effect**; no other areas of acute haemorrhage, including contra-coup injury. No skull fracture evident. Needs evaluation of full series.
Interpretation	**Acute intracranial injury** Acute on chronic subdural haematoma **Consistent with acute blunt trauma to L side,** and previous similar injury. In clinical context, these injuries heighten the probability of NAI. Is at risk. Child requires admission with neurosurgical input
	Needs review of full series.
	Needs activation of child protection resources.

Question 4: Before you can undertake further assessment, the mother wants to take the child home, refusing to stay. Outline your response to this situation. (2 minutes)

Expected Response	Details & Comments	
Issues	**Sufficient suspicion NAI: Duty of Care to child, & potentially other dependents** **Attempt persuasion of mother first** **Enforce actions if above fails** **Medico-legal issues** Recruit expert help **Needs activation of child protection resources.** Potential safety of staff at risk	
Persuade mother	Inform them of diagnosis, required Mx and intentions Advise of options if still refuses Ensure safety of staff: enlist security staff if required Enlist other resource to discuss with mother: nursing, social work, GP	
Enforcement	If required	
Medico-legal issues	Mandatory reporting in some states / jurisdictions Notify police Documentation: may include clinical photography Alert child protection services: care of other dependents	
Recruit help	Social work, Paediatrics May need transfer if services unavailable at urban district ED	
Support staff	Potentially distressing for staff Debrief post event	

Need to pass three out of four questions to pass SCE (unless serious error in failed question)

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

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

SCENARIO

A 4 month-old girl is referred to your urban district ED by a GP, after a fall. She is accompanied by her mother, but details of the fall are not clear. The baby appears normal except for a left parietal scalp haematoma.

1. Lead examiner **……** **Candidate No:**

2. Co-examiner **……** **Final Mark:**

SCENARIO
You are asked to see a 61 year-old man on holiday from the United Kingdom. He presents with recent onset of sharp left-sided chest pain, worse with breathing. He is a smoker. There is no history of trauma.
Sent to x-ray from triage, he has returned with the films.

Question 1: Describe and interpret the x-ray (included in stem).

Expected Response	Details & Comments	
Small L pneumothorax	Prompt to estimate size.	
Small haemo / hydrothorax	Left sided horizontal air-fluid level	
Relevant negatives	No pneumo-mediastinum; no radiological features of tension; no rib #s	
Interpretation	Small simple PTx Appears to be spontaneous, but subject to further assessment. Recent and impending air travel are relevant to his condition.	

Question 2: How would you assess this man with respect to the possible treatment options?

Expected Response	Details & Comments	
History	Lung disease, past PTx, chest surgery, duration of symptoms	
Medication	Anticoagulation	
Social	Travel plans, accommodation	
Examination	Vital signs, level of pain	

Question 3: History and examination reveals a well patient. Outline the information you would provide him about his treatment options?

Expected Response	Details & Comments	
Options	Nothing – expectant only Needle aspiration Small indwelling catheter Conventional ICC Surgery – not an option	
Expectant Only – supplemental O_2	**Pros:** Non invasive. Small lesion, may resolve spontaneously. Depends on duration and natural progress. **Cons:** If recurrent, or pt has structural lung disease, less likely to be successful. Time-consuming – relevant if pt has to fly soon, or is itinerant in his plans. Needs close follow up, which may be logistically difficult for traveller.	
Aspiration Only	**Pros:** High chance of re-inflation on first attempt. Less invasive and painful. Less risk of Cxs. **Cons:** However, higher chance of recurrent collection. Variation in practice re value of repeat aspiration if first attempt not successful.	
Small Indwelling Catheter	**Pros:** Increasingly popular and acceptable. Suitable for simple PTx. Commercial kits available. Allows repeated aspirations without needles re-insertions. **Cons**: Small PTx may require imaging-guided insertion. Indwelling device increases risk of infection, bleeding. Care and support required if pt discharged, which is less available for traveller.	
Formal ICC	**Pros:** Gold standard Rx. Allows continuous drainage of air and fluids. If recurrent PTx, pt is likely to be familiar with this procedure. **Cons:** Invasive, higher risks of complications such as infection (empyema is a significant issue), bleeding, misplacement. Procedural skill required. Requires formal admission.	
Surgery	Very unlikely to be feasible or reasonable first option in this scenario.	

Question 4: You opt to aspirate the pneumothorax. A repeat CXR 4 hours post procedure is done. Describe and interpret this XR.

Expected Response	Details & Comments	
Significantly larger PTx		
Relevant negatives	Absence of re-inflation!	
Interpretation	Failed aspiration Prompt for next action - probably requires ICC, or indwelling catheter. *Candidates should justify their option.*	

Question 5: Unrelated to this case, your department decides to reduce the complication rate of large-bore ICC insertions by ED staff. Outline the relevant issues in this task.

Expected Response	Details & Comments	
Scope current problem	Current complication rate; details of complications ? Relevant to skills / seniority of proceduralists Other systems factors, such as supervision after hours, techniques used, or higher incidence in special settings such as trauma	
Targets	Benchmarks and timelines Comparable to like services	
Resources	Expertise, such as cardio-thoracic service Time and money for training	
Strategies	Evidence based; best practice Training and credentialing, esp for staff on unsupervised shifts and in high turn-over (ie rotating) Procedural log books for all clinicians Practical / simulated teaching is best Level of supervision Ongoing monitoring: audits and register	
Risks	Adverse event monitoring Poor buy-in from staff Resource-consuming Compromised inter-departmental relationships (eg from highlighted problems)	
Other		

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

You are asked to see a 61 year-old man on holiday from the United Kingdom. He presents with recent onset of sharp left-sided chest pain, worse with breathing. He is a smoker. There is no history of trauma.

Sent to x-ray from triage, he has returned with the films.

Question 1: ***Describe and interpret the x-ray (x-ray in exam room).***

1. Lead examiner **……** **Candidate No:**

2. Co-examiner **……**

Final Mark:

A 4 year old boy presents with a 2-day history of increasing nausea, vomiting and epigastric pain. Some of his preliminary results are depicted below:

pH	**7.08**		**(7.35 – 7.45)**
pCO_2	**30**	**mmHg**	**(35 – 45)**
pO_2	**135**	**mmHg**	**(80 – 95)**
HCO_3	**10**	**mmol/L**	**(22 - 28)**
Base excess	**- 20**		**(- 3 to +3)**
O_2 sats	**98%**		**(>95)**

Na^+	**140**	**mmol/L**	**(134 – 146)**
K^+	**4.1**	**mmol/L**	**(3.4 – 5)**
Cl^-	**100**	**mmol/L**	**(98 – 106)**
Creatinine	**160**	**mcmol/L**	**(50 – 100)**
Urea	**20**	**mmol/L**	**(3 – 8)**
Lactate	**4.7**	**mmol/L**	**(<1.3)**

Question 1: Describe and interpret the results (included in stem)**.** **1.5 min**

Expected Response	Details & Comments	
Severe acidaemia	Mixed metabolic with inadequate respiratory compensation. Expected PCO_2 is approx **20** - some hypoventilation	
Anion gap	**140 - (100 + 10) = 30 = elevated** (allow some variation in actual number)	*
A-a gradient	Unable to determine without FiO_2	
Renal function	Significantly deranged creatinine and elevated urea → pre renal issue predominantly Likely total body K^+ deficit	
Severe elevated anion gap met (and resp) acidosis. Critically unwell child. Candidate should outline a reasonable differential for a wide AG metabolic acidosis		*
Differentials	DKA : needs serum glucose. If high, has implications for serum Na. Dehydration **Pre renal impairment** **Lactic acidosis** → Infection/↓ tissue perfusion Other: toxic alcohols, iron, isoniazid, pyroglutamic acidosis from paracetamol repeated doses, salicylates	2+1

Question 2: The serum glucose result is 40 mmol/l. Outline the key management principles in this patient. **2.5 min**

Expected Response	Details & Comments	
Paediatric Resus Fluid Management Adjuncts - IDC	Get help. Team response. Assume leadership. Delegate tasks. Assign staff to support parent(s). On average – water deficit will be 100ml/kg (or accept around 10% dehydrated) Sodium deficit 7 – 10mmol/kg Weight likely 15-20 kg **Initial resus should be with 0.9% saline** then move to ½ normal saline (maintenance) Likely will require 2 x 10ml/kg boluses of 0.9% saline in the first 30 minutes then rest of deficit plus maintenance should be calculated and replaced more slowly over 48 hours….. Rough aim → replace 50% water deficit over first 12 hours, and next 50% water deficit over 12 – 24 hours. Key is to avoid rapid fluid overreplacement - risk cerebral oedema	*
Insulin	**Commence infusion 0.1 units/kg/hr** Once glucose <15mmol/L commence dextrose in fluid replacement Continue insulin until ketonaemia has cleared and anion gap has normalised	*
Potassium replacement	**K^+ replacement is invariably needed** in DKA – often K^+ deficit → 3-5mmol/kg Rough guide = initial serum K^+ level >3.3mmol/l and <5.0mmol/l with adequate urine output calls for 10mmol KCl every hour for at least 4 hours.	*
Identify and treat any precipitants	Infection – pneumonia; UTI Meningitis	*
Other	Endocrine input; explanation and support for parent(s)	
Disposition	HDU or ICU. Regular monitoring, esp of gluc and K^+	

Question 3. You are urgently called back to the resuscitation area 60 minutes after treatment commencement. The patient is suffering a generalised seizure. Describe your management.

2 min

Expected response	Details and comments	
Initial response Seek & treat causes.	High flow O_2, left lateral, blood glucose, **Stop seizure** ? Benzodiazepines (consider phenytoin 18 mg/kg) **Consider causes**: **cerebral oedema, hypoglycaemia**, hypoNa, intracerebral cause CT head as soon as stable Slow / stop IV fluid administration momentarily. Calculate fluid amount given so far.	* *
Airway/ventilation	Ensure adequate ventilation and oxygenation Inform that seizure has stopped	
Possible raised ICP and cerebral oedema	Mannitol 0.25 to 1 g/kg Tight fluid, glucose and electrolyte balance	
Other	Full explanation and support to family of child	
Disposition	ICU, Paed endocrinology. Other invasive measures may be required in an ICU setting – ICP monitoring etc	

Question 4: Discuss the role of bicarbonate in this patient. **1 min**

Expected Response	Details & Comments	
If severe metabolic acidosis persists – other causes for refractory acidosis should be sought		
Cons	Limited role for DKA as acidosis will resolve on its own, with appropriate Rx. Potential risks of bicarbonate administration in this setting - paradoxically increase CNS acidosis and worsen hypokalaemia and hypernatraemia - shift the O_2 dissociation curve to the left thereby causing relative tissue hypoxia	
Pros	Severe acidosis threatens to cause cardiac dysrhythmias / decreased cardiac contractility.	

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

If the candidate fails the exam overall, what <u>feedback</u> would you suggest regional censor provide for this SCE?

SCENARIO

A 4 year old boy presents with a 2-day history of increasing nausea, vomiting and epigastric pain. Some of his preliminary results are depicted below:

pH	**7.08**		**(7.35 – 7.45)**
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Creatinine	**160**	**mcmol/L**	**(50 – 100)**
Urea	**20**	**mmol/L**	**(3 – 8)**
Lactate	**4.7**	**mmol/L**	**(<1.3)**

1. Lead examiner ……

2. Co-examiner ……

Candidate No:

Final Mark:

A 67 year-old woman who lives independently has been brought in after being found by her daughter on the floor of her shower. It appears that she has been there all night. She was well the day before.
Initial observations: GCS 7/15 (E-1 V-2 M-4); PR 70 irregular; BP 70/40; RR 6/min; SaO_2 95%.
This is her initial ECG (included in stem).

Question 1: Describe and interpret the ECG (included in stem) - expected time 1 min

Expected Response	Details & Comments	
Features consistent with **severe hypothermia**		
Rate, Rhythm	**AF, 78 bpm**	
Morphology	J (Osborn) waves, shivering artefact, non spec IV conduction **> QRS**, **prolonged QT**	
Other	N axis, difficult to interpret ST segment	
Relevant -ves	Rate higher than expected, given scenario and BP	
Interpretation	Severe **hypothermia** with consequent CNS and cardiovascular effects. Given scenario, probably secondary to environmental exposure. Still need to identify causes of fall, and possible other complications.	

Question 2: The patient's core temperature is 27degC. Observations remain unchanged. There appear to be no other injuries and no apparent cause of collapse has been found. How would you rewarm this patient? Expected time 2-2.5 min

Expected Response	Details & Comments	
Active warming	Dry, clothe and cover patient **External:** - Forced-air re-warming blanket, warmed mattress if available - Warm ambient temperature: heating, removing draughts **Internal:** - Warmed IV fluids. Warm saline (up to 40 deg) resuscitation – 20 ml/kg +repeat (hypotensive initially + likely to vasodilate further as warms) - Warmed humidified air / O_2 +/- ETT If becomes unstable or more severe / refractory hypothermia - Warmed fluid lavage (IDC - feasible in ED, NGT, peritoneal - ?practicality) - Cardiopulmonary bypass	Pass –fail Tiered sensible response at least 1 external/ 1 internal + **prompted (if the temp is not rising what else could you try**) aggressive technique
	Minimal handling / movement	

Question 3: Active re-warming measures have been started. The GCS and observations are unchanged. DISCUSS the pros and cons of doing an immediate CT head. (2-2.5 minutes)

Expected Response	Details & Comments	
Expect exploration of potential risks of intubation / transfer to CT of hypothermic 'unstable' patient vs the likelihood of finding an acute intracerebral lesion (ICH) that will alter management.		**Pass Fail criteria**
Intubation **Prompt** if intubation not discussed-**what are the pros and cons of intubating this lady before transferring for CT.**	Discuss the role of immediate CT vs delay of CT until warmed (> 31) and response to this assessed Concerns • Hypotensive, bradycardic, extremely hypothermic patient (= not stabilised) leaving ED for less safe environment of CT • Difficulty of continuing warming efforts in CT • Potential destabilising effects of movement and transfers (?induce arrhythmias – controversial) • Potentially plausible cause for presentation – slipped + NOF# + spent night under cold water with resultant hypothermia	**Must have 2 pros and cons-risks of moving unstable,hypothermic patient and intubation issues with sensible cogent**

	• If ICH detected ?change management ?neurosurgery while markedly hypothermic vs when warmed in 67 yo. CT indications • Prognostic/diagnostic • May identify lesion for treatment (SDH, SAH etc) Stronger case for urgent CT if signs of head trauma, localising neurological deficit	**reasoning**
	Discuss role of intubation Pros • Provide **definitive airway protection** in patient with low GCS (7/15) • Facilitate warming and humidification of inspired air • Optimise oxygenation and ventilation (hypoventilation potentially leading to hypercarbia and abnormal repiratory status) • Careful intubation with minimal movement (C-spine protection with immobilisation) may well have minimal risk Cons • **May destabilise patient eg arrhythmia** • Has inherent risks • Patients oxygenation appears adequate and if hypoventilation (CO2) an issue then can be managed simply with bag-mask ventilation • Airway patency can be maintained with simple non-invasive measures, close observation, immediate suctioning • warming may rapidly improve low GCS due to hypothermia making intubation unecessary	

<u>Question 4:</u> The patient's daughter arrives and says that her mother would not want to end up on a ventilator. What are the factors that would determine your further management? (1.5-2 minutes)

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Expected Response	Details and Comments	Pass Fail
Patient wishes and autonomy	Clarify presence or absence of Advanced Health Directive (or similar document) or any enduring power of attorney	
Duty of Care	To identify and treat reversible pathology, if reasonable belief of advantage to life or QOL	
Information to Assist Decision	For staff: Collateral regarding events, medical background, pre-morbid QOL. Results of CT and other tests, response to initial Mx For daughter: Clarify concerns and answer queries. Explain current situation (uncertain cause for events, severe hypothermia = potentially reversible) and level of care (active warming, fluid resuscitation, good nursing/supportive care = standard care rather than resuscitation). Outline (in absence of documented patient wishes) plan to maintain current level of care in absence of evidence of futility.	**Must discuss end of life issues/ medico-legal, + QOL_ PMH, Collateral hx**
Other stakeholders	Other NOK, ED nursing, GP, ICU colleagues	
Definitions and agreements	Actual limits of Mx, and their indications. Includes Rx goals and disposition destination. Timing of actions	
Impacts and Implications	Medicolegal, ethical. Personal biases.	

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

If the candidate fails the exam overall, what <u>feedback</u> would you suggest the regional censor provide for this SCE?

SCENARIO

A 67 year-old woman who lives independently has been brought in after being found by her daughter on the floor of her shower. It appears that she has been there all night. She was well the day before.

Initial observations:

- **GCS 7/15 (E-1 V-2 M-4);**
- **PR 70 irregular;**
- **BP 70/40;**
- **RR 6/min;**
- **SaO_2 95%.**

This is her initial ECG (included in stem).

***Question 1*: Describe and interpret the ECG**

1. Lead examiner ……

Candidate No:

2. Co-examiner ……

Final Mark:

You are the emergency physician on duty on a Saturday evening when the duress alarm at triage is activated.

A 32 year-old man on an ambulance trolley is aggressive and swearing. He is kicking at the ambulance officers and trying to get off the trolley. The ambulance was called by his family, who were concerned by his agitation. Initially agreeing to be transported to hospital, the patient became aggressive *en route*.

Question 1. List your differential diagnoses for this patient. (1 minutes)

Expected Response	Details & Comments	
NB: Aetiologies in combination are common – must list mention at least drugs, glucose, metabolic, psychosis		
Drug toxicity	Sympathomimetics, Anticholinergics, EtOH	
Drug withdrawal	EtOH, Benzodiazepine	
Metabolic	Hypoglycaemia, high/low sodium, hypoxia	
Sepsis	Encephalitis	
Intra-cerebral event	SOL, SDH	
Psychosis	Bipolar, schizophrenia	

Question 2 Describe your approach to this situation. (3 minutes)

Expected Response	Details & Comments	
Duty of Care	Priority is safety of patient and staff Enlist security staff	
Consideration and exclusion of organic cause	Obtain corroborative history from family, old notes, LMO	
Attempt verbal de-escalation	Try to calm patient down and obtain co-operation, attempt to establish rapport	
If required: physical restraint in order to sedate	5-person technique with attention to head/neck/airway protection Safety, PPE ? IV access, Vitals	
Move into ED		
Work-up for potential causes	Initial assessment, incl collaborative hx Ensure glucose has been checked if not mentioned in differential	
Sedation	Benzodiazepines and/or Neuroleptics (justify use, safe doses, frequency, end point of sedation)	
Monitoring	Cardiac, NIBP, SaO_2, $EtCO_2$	
NOK	Liaise with family if present	

Question 3. Your registrar was kicked in the chest while assisting staff in the restraint of this patient. Outline the issues relevant to this situation. (1.5 minutes)

Expected Response	Details & Comments	
Registrar	Remove from area. Assess and treat (delegate to another staff member). Includes analgesia and psychological support. Certificate of capacity if required. Arrange follow up. Consider impact on staffing if unable to continue.	
Patient	Ensure ongoing care of pt; safety remains paramount.	
Risk Management	OH&S concern. Documentation. Incident report. Staff health / work cover assessment form.	
Quality	Explore the circumstances around the event - ? contributing factors or departures from protocol. Identify and mitigate these factors Review relevant protocols Educate clinical and security staff re the management of the behaviourally disturbed patient	

Question 4. The clinical situation is under control. However, the patient's mother accuses you of assault and threatens legal action. Outline your response. (1.5 minutes)

Expected Response	Details & Comments	
Diffuse / De-escalate	Move to relatives' room to discuss Acknowledge concerns, fears, emotions (incl guilt) Calm demeanour; simple language	
Provide information	Explain reasons for restraint: duty of care / Mental Health Act Explain this is being done in the patient's best interest	
Explore mother's position	? Previous experiences Level of understanding; expectations Socio-economic impediments	
Provide options	Time; opportunities to discuss with other kin, GP Liaison with hospital services, eg social work Time with son when clinically appropriate	
Risk Management	Documentation Support of all staff If required, report to admin and/or legal personnel	

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

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If the candidate fails the exam overall, what <u>feedback</u> would you suggest the regional censor provide for this SCE?

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SCENARIO

You are the emergency physician on duty on a Saturday evening when the duress alarm at triage is activated.

A 32 year-old man on an ambulance trolley is aggressive and swearing. He is kicking at the ambulance officers and trying to get off the trolley. The ambulance was called by his family, who were concerned by his agitation. Initially agreeing to be transported to hospital, the patient became aggressive en route.

1. Lead examiner ……

2. Co-examiner ……

Candidate No:

Final Mark:

SCENARIO

A 5 yo boy has been allocated a triage category 4 after falling from playground equipment on a busy Saturday afternoon. He presents with his mother. After a 1-hour wait he is wheeled into ED treatment area crying.
Photo of the boy included with the stem.

Question 1: Outline the key features of your history and examination (included in stem).

Expected Response	Details & Comments	
History Event Symptoms AMPLE	Witnessed? May get an idea about safety of the playground from the scene Hx Dominant hand?	
Examination	Exclude **other injuries** Arm: **potential limb threatening injury**; **open/closed**; **NV status** – at risk with this injury particularly bleeding with compartment syndrome from injury to brachial artery and bleeding from #d bone ends, risk to median nerve +/- ulna nerve **Skin** at # site **Cap refill** of fingers Degree of **pain**	

Question 2: These are his x-rays. (AP + lateral views). Describe and interpret these films.

Expected Response	Details & Comments	
Findings	Off ended **supracondylar # humerus** > 100% **displaced** medially and dorsally; **shortened** *Prompt:* How would you describe this x-ray to the orthopaedic registrar	
	Significant **swelling**	
Relevant -ves	Closed No other #s seen No gas in tissues	
Interpretation	**Severe supracondylar # requiring urgent reduction** Risk of neurovascular compromise is high *Prompt:* how would you summarise this injury to the orthopaedic registrar	

Question 3: There is no Orthopaedic service at your hospital and the nearest is 3 hours away. The boy's skin around the fracture site appears white. Outline your management now.

Expected Response	Details & Comments	
Orthopaedic emergency	**Needs reduction in ED** via procedural sedation as skin is compromised *Prompt:* What if there is no pulse?	
Informed consent	Explain injury and risk of permanent disability; reason for urgency; potential risks of procedure and sedation; potential complications. ***Prompt:** What information do you need to convey to the mother to ensure **informed consent?**	
Analgesia	IN Fentanyl (2mcg/kg), nitrous oxide, IV Morph	
Procedural sedation	As per **ACEM guidelines**: 2 docs (1 for sedation, 1 for procedure) + 1 Nurse Appropriate area in the ED IV access; monitoring Many options for drugs eg ketamine (1-2mg/kg IV; 2-4 mg/kg IM), propofol (anaesthetic dose is 2.5-3 mg/kg), morphine + midaz (0.15mg/kg) candidate to specify and justify their choice) *Prompt:* What agent/s would you use and what dose/s?	
Procedure	**Gentle longitudinal traction** with counter traction on the upper arm **Above elbow back slab** with elbow close to 90 degrees, with pulse maintained. Elevation in **sling**	
Post procedure care	Post-sedation **observations** **Re XR** to check position Needs **ongoing assessment** re distal NV status Ongoing **analgesia** Arrange **transfer**	

Question 4: What issues would you highlight in a departmental review of this case?

Expected Response	Details & Comments	
Triage category		
Waiting time		
Analgesia		
Potential limb threatening injury		
Potential threatening injury		
Medico-legal issues		

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

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

SCENARIO

A 5yo boy (see photo) has been triaged category 4 after falling from playground equipment on a busy Saturday afternoon.
He presents with his mother.

After a 1-hour wait he is wheeled into ED treatment area crying.

QUESTION 1: ***Outline the key features of your history and examination (Photo included in stem).***


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1. Lead examiner **……** **Candidate No:**

2. Co-examiner **……**

Final Mark:

It is 2100hrs in your tertiary Emergency Department. Ambulance bring in a 74 year old lady with a probable acute stroke.
Initials findings: Complete expressive aphasia, dense right hemiplegia. BP 170/95 mmHg; P 100 Sinus Rhythm; O_2 saturation 97% on room air; normothermic.
She has a history of hypertension, but otherwise has no significant past medical history.
She was last seen to be well approximately 2 hours ago, but was found by relatives in her current state.
Question 1: Outline key issues in the care of this patient? (included in stem)

Expected Response	Details & Comments	
Principles	**Initial resus, check glucose, ensure that the patient is stable** **Safe and rapid transport to** CT - potential risks: airway compromise, seizures **Activation of Stroke services**, such as coded response **Liaison with NOK** Managing rest of ED	
Initial Resus	Team approach, take leadership, assign roles ABC	
Safe Transport to CT	Personnel Equipment Drugs Documentation Communication	
Notification / Activation	Notify IP Stroke Services - ? suitable for <u>thrombolysis</u> Radiology Ward ? ICU	
Liaison with NOK	Assign staff member initially Speak with them directly subsequently	
Rest of ED	Competing demands, flow, safety, staff support etc	

Question 2: The CT brain reveals no radiological abnormalities. DISCUSS acute thrombolysis for this patient.

Expected Response	Details & Comments	
Overview	Current evidence for thrombolysis evolving. Therapeutic window of 3 hours post Sx onset being stretched to 6 hours, but remains controversial. CT interpretation preferably requires neuro-radiology; likely not available at 2100hrs. Thrombolysis only initial part of wider therapeutic strategy. Meaningfully improved outcomes also require tertiary level stroke service in acute-subacute phase. **4 out of 6 to pass**	
For Thrombolysis	Most current evidence applies to tPA. If this lady can receive it within 3 hours of possible Sx onset, may have better intermediate – longer term neurological outcome. Raised expectations within medical fraternity and public Allows healthcare professionals a sense of action ("doing something"); there is little if any other meaningful acute Rx	
Against Thrombolysis	Elderly lady at higher risk of ICH, esp if body weight is less than 65kg Need to drop her BP to minimise ICH risk Risk of significant bleed from other sites. Specialised stroke service may not be available at this time. This pt sits at borderline of indication! Positive CT findings may be missed by radiology trainee reading scan after hours	

Question 3. A decision has been made to offer thrombolysis. Outline the issues of consent in this case.

Expected response	Details and comments	
Principles	**Key elements: Informed, specific, freely given, competent.** **3 out of 4 to pass** Difficulties in this scenario: - Time pressure compromises all the above – risks are significant and catastrophic! - Patient not sufficiently competent, so consent has to be by proxy Are there sufficient grounds to act on **implied consent**? Requires sincere belief that benefits are too great to ignore. Enacts paternalistic approach.	
Informed	By senior staff, preferably neurology Benefits vs Risk discussion. Explanation of agent and intended effects. Simple estimate of probability and odds. Alternative treatments Very likely that person granting consent is not fully informed, given time pressure and likely emotions of situation.	
Specific	Risks higher in this patient, esp as she's at borderline of therapeutic window Issue of external validity of current evidence	
Freely Given	Likely to be so in this scenario, by NOK. Time to decide probably greatest impediment	
Competence	If patient not deemed to be so then person granting consent has to be so. Moreover, need to establish if s/he is suitably assumed / appointed proxy.	
Other		

Question 4: Shortly after thrombolysis, the patient suffers a massive haemorrhagic stroke confirmed on CT. Her is GCS is 3 and she is intubated. Outline your management.

Expected Response	Details & Comments	
Issues	**Must have discussion with family** Grim prognosis. Ongoing clinical care; life support. ??Reversal of lytic agent. Liaison with NOK Disposition - ?End of Life discussion. Consider only palliation. Risk Mx: Documentation, notification. Staff support – debrief Critical Incident Review	
Clinical	Supportive measures. Aim for, and maintain normal physiological parameters. ?Reversal of Lysis. Unlikely to be of any benefit in this scenario. Cease anticoagulation agents, and avoid hypertension. Disposition:	
NOK Liaison	Separate room. Clear and simple language. Open disclosure. Explain all events. Allow to grieve. Allow time and contact with pt. Communicate clearly a grim prognosis, and futility of ongoing aggressive Rx	
Quality Issues	Thorough documentation, and critical incident notification Staff support and debrief if required	
Other	Notify other stakeholders: Stroke Service, ICU	

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

If the candidate fails the exam overall, what <u>feedback</u> would you suggest regional censor provide for this SCE?

SCENARIO

It is 2100hrs in your tertiary Emergency Department. Ambulance bring in a 74 year old lady with a probable acute stroke.

Initials findings:

- **Complete expressive aphasia, dense right hemiplegia.**
- **BP 170/95 mmHg**
- **P 100 Sinus Rhythm**
- **O_2 saturation 97% on room air**
- **Normothermic**

She has a history of hypertension, but otherwise has no significant past medical history.

She was last seen to be well approximately 2 hours ago, but was found by relatives in her current state.

Question 1: Outline key issues in the care of this patient.

1. Lead examiner ……

2. Co-examiner ……

Candidate No:

Total Mark:

SCENARIO

You are the consultant in charge of a regional base hospital ED. A rapid assessment nurse has organised investigations on a 17 year-old girl who was brought in by her parents with a 6-month history of weight loss. She is complaining of weakness and intermittent palpitations.

Vital signs at triage are BP 90/65, Pulse 60, spO_2 99% on air, temp 36^3 deg C. A 12-lead ECG was taken on arrival.

Question 1: Describe and interpret this ECG (1 ½ *minutes*)

Expected Response	Details & Comments	
Features	Sinus arrhythmia 60(50-75)/min, PR normal **MUST HAVE SYSTEM** QRS normal, ?Prolonged QTc, ST depress. PROMPT: Could it be anything else? Abnormal T wave morphology and/or U wave Relevant negatives: no ectopics, no cause for palpitations in current graph	
Diagnosis PROMPT: *Look at the anterior chest leads. Electrolyte abnormality?*	Hypokalaemia Diffs: - ?normal variant in teenager - hypomagnesaemia	
Interpretation	May be due to vomiting, laxative use, large bowel enteropathy, diuretic abuse Possible anorexia. Minimum: **eating disorder, medication abuse**	

Question 2: Outline your history and examination of this patient. (1 ½ *minutes*)

Expected Response	Details & Comments	
Be mindful of privacy, caring approach to assessment		
Hx	Details of events, **eating Hx** – esp for anorexia or bulimia, **weight hx** for loss or fluctuations, **vomiting or diarrhoea** , exercise history, menstrual history **Drugs** causing low K – diuretics, steroids, bronchodilators, laxatives, drug & alcohol Collaborative History from **family** Prompt: What sources of history? **Psychological** history, Suicide risk assessment – often associated	
Ex	For signs of possible eating disorder: weight loss, body hair – down, teeth for enamel loss from vomiting, skin sores – poor healing with malnutrition (**one** to pass) Look for evidence of self harm – often associated **CVS** exam , signs autonomic instability, heart failure **Neuro** exam to exclude focal features, look for esp hyporeflexic, gen weakness Height, **Weight** and BMI **Must get weight unprompted**	

Question 3: Venous blood gases assay shows a serum K^+ level of 2.2. Her clinical assessment is consistent with anorexia nervosa and ventricular ectopics. DISCUSS the methods of potassium replacement. (1 ½ *minutes*)

Expected Response	Details & Comments	
Considerations	Likely chronic onset associated with anorexia However, weakness and VEs warrant rapid K replacement to a level >3.0 mmol/L Serum K a poor indicator of total body K, which is likely to be low in this pt Compliance in 17yo girl with eating disorder will be an issue!	
Oral	PROS: Rapid absorption formulation (eg Chlorvescent) indicated Avoids IV complications of rapid infusion and pain at IV site May be more acceptable to patient, Can be given via NG tube CONS: Unpleasant taste DOSE: 40 mmol every 6 hours	
IV	PROS: Avoids compliance issues , Can be titrated to repeat VBG measurements CONS: Pain and irritation at IV site if rapid and / or concentrated Danger of rapid overdosing; nowadays only pre-mixed IV bags available DOSE: max 40 mmol/hr (peripheral); needs cardiac monitoring	

Perspective	Oral likely to be first choice, needs magnesium/other electrolytes as well If true cardiac arrhythmias are present or extreme weakness this would be an indication for IV (add if giving fluids for dehydration)	

Question 4: Before you implement your management plan, she asks to get dressed and discharge herself. Outline your approach. (2 ½ minutes)

Expected Response	Details & Comments	
Issues **PROMPT: What are the issues here?**	**Autonomy vs Duty of Care** ? Reasons for wanting to leave Attempt to secure pt's **trust and confidence** Address these reasons if possible **Determine level of Competence** Seek assistance: NOK, nursing Empower pt with options **Involuntary intervention only if indicated** and legally empowered	
Engagement	Remain calm/try and build rapport Articulate reasons to stay	
Assess risk of self discharge	Balance against risks to future attitudes/compliance from restraint	
Reasons for intentions Attempt to address these	Identify misunderstandings and reassure Identify patient priorities - Fear: of hospital, treatment; loss of control - Pain - Social: fear of stigma, specific reasons at home; school pressures	
Enlist help	Parents: awareness that this may cause conflict Nursing staff: who often have strong rapport GP	
Assess competency	Use parents as collateral history Assess depression/suicide risk Age at 17 does not make her incompetent Use of psych services for background history or second opinion Use of witnesses to discussion eg nurse	
Negotiate options	Outpatient oral potassium Discuss with regional eating disorders unit	
Legal Considerations	Medico-legal indications for involuntary intervention: prob not justified in this case Information for discharge at own risk form Signature if still discharges herself	
If Discharged	Close follow up GP, ancillary services such as social work, psychology Eating disorders unit referral Involve patient with follow up plans Information to patient and parents, incl indications for return	
Confidentiality	Approach is to guide acceptance of referrals	

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

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

SCENARIO

You are the consultant in charge of a regional base hospital ED. A rapid assessment nurse has organised investigations on a 17 year-old girl who was brought in by her parents with a 6-month history of weight loss. She is complaining of weakness and intermittent palpitations.

Vital signs at triage are
BP 90/65
Pulse 60/min
SpO_2 99% on air
Temp 36^3C

A 12-lead ECG was taken on arrival

Question1: Describe and interpret this ECG

1. Lead examiner ……

Candidate No:

2. Co-examiner ……

Total Mark:

SCENARIO

You are working in a regional hospital ED. You receive a call from ambulance that a 4 year-old boy is *en route* after an apparent near-drowning accident in a family swimming pool.
CPR is in progress. Estimated time of arrival is 10 mins.

Question 1: Describe your preparations (1 minute)

Expected Response	Details & Comments	
Environment	Prepare resus bay; ensure adequate ambient temp Family room free	
Equipment PROMPT: What weight would you estimate for this child	Airway / Breathing: 500 ml BVM, appropriate size face mask, small/straight laryngoscope blade Mac 2, small Yankauer sucker, ETT= (age/4)+4 = 5 Circulation: IO devices accessible Overhead heater or warming pad Drugs and Fluids **Estimated weight is 16 kg using 2(age+4)**	
Personnel PROMPT: What staff would you want to have?	ED resus team – assume leadership, assign roles Paediatrician PICU or ICU if available or paeds anaesthetist Social Worker/Pastoral Care Remove redundant staff	

Question 2: The child arrives and is in PEA with a ventricular rate of 50. He is not intubated and has no IV access. Describe your actions. (2-3 minutes)

Expected Response	Details & Comments	
Airway PROMPT: Are there any other precautions?	Supportive measures **Emergent endotracheal intubation** **C spine immobilisation**	
Establish effective CPR PROMPT: What rate and ratio would you use	**Rate of 15:2, compression rate 100/minute.**	
Circulatory access PROMPT- what are your essential bloods test?	**Immediate circulatory access needed** Options- Peripheral access/IO/Central line Can give drugs ET if necessary **Estimated weight is 16 kg using 2(age+4)** **Crystalloid for fluid bolus 20mls/kg = 320 mls** Blood tests- **glucose**, venous gas/electrolytes	
Drugs PROMPT- for dose if not already provided	Adrenaline every 3-5 minutes Drugs: Adrenaline dosage: 10mcg/kg = 0.16 mg/160mcg/1.6ml of 1:10000 Glucose, +/-Bicarbonate (only recommended in prolonged arrest at 1-2 mmol/kg)	
Reversible causes: PROMPT: what causes are most likely in this child?	**Hypothermia, hypoxia**, hypovolaemia, tension PTX, electrolyte disturbance	

Question 3: The family wish to come in to resus with the child. What are the advantages and disadvantages for their presence during the resus? (1 minute)

Pros	Cons	
Allows parents to see that everything possible is being done May help grieving if unsuccessful	Requires nurse or other support person Plus requires more effort to keep them informed Adverse reactions Staff uncomfortable with idea; degradation in performance Can be tricky if there are child protection issues	

Question 4: You achieve a Return of Spontaneous Circulation. What are the key elements of post resuscitation care? (2 minutes)

Expected Response	Details & Comments	
Airway Breathing PROMPT: What are the ventilation settings? Circulation	Check tube position Reassess vital signs **100% oxygen** (avoid hyperventilation) **Ventilate at 12-16 breaths/min initially, V_T 7-10 mls/kg, PEEP advisable given drowning** **Monitor E_tCO_2** Fluids for hypovolaemia May need a pressor via central line (preferred route groin in this child)	
Secondary	Gastric tube and catheter Sedate / paralyse. Cool vs don't rewarm CXR, ECG, basic bloods Detailed history: ?imaging with trauma in mind	
Transfer	Will need transfer to specialist centre	
Non-clinical PROMPT: What are the non-clinical aspects of care?	Care of NOK-Support, inform, counsel Refer to ancillary services (eg social work) if required Communication-Thorough documentation Follow up communications, eg referrals and updates to receiving services Care of Staff De-brief Evaluate (at later date)	

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

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

SCENARIO

You are working in a regional hospital ED. You receive a call from ambulance that a 4 year-old boy is *en route* after an apparent near-drowning accident in a family swimming pool. CPR is in progress. Estimated time of arrival is 10 mins.

1. Lead examiner ……

Candidate Number:

2. Co-examiner ……

Final Mark:

SCENARIO: Communication

	Not Met	Partly Met	Fully Met
Rapport, Reassurance, Trust and Ethical Therapeutic Relationships			
Convey relevant information and explanations			
Develop a common understanding of diagnosis, prognosis and plan			
Convey effective oral information			
Appropriate non verbal communication			
Appropriate use of demeanour, language and words			
Identify and explore issues, including reasons for position			
Inform patient to facilitate understanding of situation (tailored to patient's demographic, cultural and intellectual context)			
Problem-solve			

ACTOR feedback:

Not Comfortable	Partially Comfortable	Fully Comfortable

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

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

SCENARIO

It is 2000hrs in your tertiary level ED in Sydney.

You are managing Mrs Margaret Lee, a 65 year-old woman who has just been diagnosed with a massive intra-cerebral haemorrhage.

She presented via ambulance after being found unconscious at her home, where she lives alone. Her presenting GCS was 3 and she was intubated after arrival. CT brain revealed a large intra-cerebral haemorrhage. With consultation by Neurosurgery and ICU, her condition is deemed unsuitable for surgery and organ donation; it portends a grim prognosis. She is not sedated or paralysed in the ED, her GCS remains 3. She is being ventilated but is haemodynamically stable.

Mrs Lee's daughter, Jenny Santos, has just arrived. She does not know the outcome of your assessment, and waits for you in the relatives' room. There are no other members of staff available to accompany you.

Jenny, ROLE PLAYED by an actor, is waiting for you in the room for information regarding her mother.
Examiners will NOT be interacting with you or the actor.

Background Information for Actor

Important Note

The ACEM Fellowship Exam involves examiners and candidates from all Australian states and New Zealand. To optimise fairness for all candidates, all character and scenario features will NOT have demographic details.

In interactions with candidates, please do NOT refer to demographic specifics. For example, you work in the general hospital instead of the Royal North Shore Hospital; you live in the inner suburbs instead of Glebe.

The Character

Mrs Jenny Santos is a 45 year-old married mother of 2 healthy children. Her husband John is a 46 year-old engineer. She is a personal assistant to a finance executive in the CBD. She has no medical knowledge beyond that of an average lay-person. Her children are Jack (16) and Melanie (12). Jenny and all her family are in good health.

Jenny's mother Margaret is an independently living elderly lady with a medical history of hypertension (high blood pressure). She is self-caring and undertakes all activities of daily living herself. She was widowed 4 years ago when her husband (Jenny's father) died of lung cancer following a protracted illness.

Jenny sees Margaret weekly; Margaret enjoys a close relationship with Jenny and her immediate family, particularly with Melanie. Jenny has a 42 year-old sister, Ros, who lives in Melbourne. Ros is single with no children.

The Scene

It is 2000hrs on a Wednesday. Jenny received a telephone call at home from an emergency department (ED) nurse, who advised that Margaret was brought to hospital by ambulance shortly before. Apparently she was found unconscious at home, by her visiting neighbour. The nurse indicated she was unwell, and currently subjected to assessment by ED medical staff. Tests like a CT scan of her brain were planned, but pending.

Obviously very concerned, Jenny immediately drove to the hospital, which is 20 minutes from home. John stayed at home with the children. Upon arrival, she was ushered by the ED nurse to a visitors' room. Jenny was only told that the senior ED doctor will soon come to speak with her.

S/he arrives within 3 minutes.

NB: The "Scenario" in the preceding page is all the information provided to the candidate before s/he interacts with Jenny. That is, s/he will NOT be aware of Jenny's own circumstances.

FACTS:

- Margaret suffered a very large bleed into her brain. This is inoperable, and she is very likely going to die from it, or be rendered permanently in a vegetative state.
- There is no cure or other therapeutic option.
- She is on life support, comprising an artificial ventilator. If this is removed, she has a high chance of dying soon after.
- The senior doctor (played by the candidate) is very likely to declare this, and suggest that ongoing aggressive treatment would be futile.
- You and your family are educated, reasonable lay people, who have never encountered a situation like this before. You are aware of issues such as withdrawal of medical therapy and organ donation, but have not considered, and are unfamiliar with them.
- The senior doctor is a specialist in Emergency Medicine.
- Each interaction lasts only 7 minutes, and many will be done in quick succession.

YOUR OBJECTIVES:

- Comprehend the situation.
- If the conversation proceeds that way: seek the opportunity for your family and Ros to see Margaret before she dies.
- Otherwise, your reactions, emotions and opinions should be that of Jenny (considering her characteristics) when faced with this scenario. React to individual candidates as Jenny would.
- Please **maintain consistency** with Jenny's character nuances, events and tendencies.

1. Lead examiner ……

2. Co-examiner ……

Candidate No:

Total Mark:

SCENARIO

You are the consultant in charge of an urban district Emergency Department at 2300hrs.
You overhear the junior medical officer - who recently commenced night shift - asking nursing staff to arrange the discharge of a 72 year-old man, diagnosed with renal colic. Nursing staff express their concerns with you, as they state that the patient has persistent right sided loin pain.
You have not worked with this junior medical officer before.

Question 1: Outline your approach to this situation ***(included in stem)***

Expected Response	Details & Comments	
Issues	Clinical – **pt safety, and suitability for discharge** **Support and education of junior staff** Inter-disciplinary relationships	
Clarify situation	Introduce self to JMO as in charge consultant Ask for clarification of case regarding nurses concerns re late discharge of elderly patient with persistent Sxs ? Policies regarding discharge or managing overnight - ED or short stay area	
Further assessment	Review patient personally, with RMO Appropriate Ix, consider bedside ultrasound scan Correct Dx, Mx: risk assessment for life threatening diagnoses such as AAA and other retroperitoneal pathology including urinalysis and blood tests, analgesia Suitability for discharge: medical, social, systems	
Communication	Patient and NOK RMO, nursing staff	
Formulate clinical plan	Dependent on findings **Plan to do a CT prior to discharge**	

Question 2: The patient is haemodynamically stable, with residual mild right loin pain and tenderness. CT films are available. Describe and interpret the films.

	Details & Comments	
Findings	**IV contrast intra-arterial phase. AAA. Likely infrarenal. Mural thrombus** – Renal cysts	
Relevant Negatives	**Absence of extravascular contrast suggesting leak**. Difficult to detect posteriorly directed bleeding. No reno-uretreric calculi seen.	
Interpretation	Prob infra-renal AAA. No leak. Wrong initial Dx.	

Question 3:

In transit back from CT scan his pain worsens. He looks pale and sweaty and his BP is 70 systolic.
List your immediate priorities.

Expected Response	Details & Comments	
Immediate approach: - Reassess - Initial Mx	**Needs urgent vascular surgery input.** Reassess patient including vital signs, and observe in monitored environment, O2 NBM **Large bore IV access; x match, transfuse** Titrated analgesia Set targets for physiological parameters, **close monitoring** **Comment on fluid therapy** in a patient with ruptured AAA *prompt – BP rises to 90 after fluid*	
Consultation	Surgery – laparotomy on site vs referral vascular surgery at accepting center	

Tertiary referral and transfer	**Logistical challenges** at 2300hrs Transport physician required; *Prompt if time:* on clinical coordination; transfer preparations	
ED level issues	Rest of department	

Question 4: The patient has been appropriately transferred to the operating theatre.
When reviewing this delayed diagnosis the following day what issues would you consider.

.

Expected Response	Details & Comments	
Issues	JRMO performance: Systems vs Individual Issues - Systems issues highly pertinent, esp for night shifts at urban district dept - Combinations of both are typical Method of communication and performance Mx: timing, context, language **Safety call** from nurse/ team communication – acknowledge	
JRMO	Support /counsel/**debrief** Acknowledge incident and issues in real time, and arrange time to meet to discuss Best to defer detailed communication to day time, when RMO off duty Seek info from others, such as nurses and DEMT re previous issues DEMT or Director may be more appropriate to conduct Conduct in non-threatening manner May be in conjunction with, or in context of incident debrief for all staff	
Systems Issues	Context of JRMO's clinical encounter: red flags, **guidelines**, **On-floor support/ staffing** **Night shift** – **Training and education** provided by dept Implement appropriate guidelines and policies, esp for classic **clinical red-flags**	
Wider Issues	Support and confidence of nursing staff crucial to effective team Recruit involvement in policy / guideline revisions Hospital Medical Administration should also be involved for systems issues adverse event review / register	

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

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

SCENARIO

You are the consultant in charge of an urban district Emergency Department at 2300hrs.
You overhear the junior medical officer - who recently commenced night shift - asking nursing staff to arrange the discharge of a 72 year-old man, diagnosed with renal colic.
Nursing staff express their concerns with you, as they state that the patient has persistent right sided loin pain.
You have not worked with this junior medical officer before.

Q1. Outline your approach to this situation.

Candidate No:

1. Lead examiner ……

Final Mark:

2. Co-examiner ……

SCENARIO
A 70 year-old lady is referred by her GP with a 2-day history of apparent confusion, with episodes of agitation. She complains of a dry mouth and blurred vision. Her son states she took some over-the-counter medications from the chemist recently.

Question 1: What is your differential diagnosis?

Expected Response	Details & Comments	
List	Sepsis Drugs Electrolytes Metabolic Neurological Environmental Cerebrovascular Space-occupying lesion	1

Question 2: What toxidromes would you consider in this case and what are their clinical features?

Expected Response	Details & Comments	
Anticholinergic antihistamines	**Central** Delirium, agitation, drowsiness/coma Visual hallucinations Behavioural disturbance Slurred speech Seizures **Peripheral** Tremor, myoclonus Mydriasis CVS – Tachycardia, hypertension Hyperthermia Skin - dry, red/flushed (dry skin a key differential from sympathomimetic cause) GIT- dry mouth, ileus, GUT -urinary retention	2
Sympathomimetic pseudoephedrine	Features similar to those of anti-cholinergic syndrome, except skin is sweaty	
Serotonin syndrome	Confusion, myoclonus, tachycardia, pyrexia	

Question 3: You decide that her presentation is due to an overdose of OTC antihistamines. Outline your management priorities for this patient.

Expected Response	Details & Comments	
Ensure patient safety	Prevent injury, nurse in low stimulus area	3
Resuscitation	A B C Support vital signs	
Cease contributing medications	Cease all anticholinergic agents Review patient's medications – re potential for drug interactions	
Supportive management	IV Fluids Temperature regulation Benzodiazepines IDC if retention Low stimulation area Avoid anticholinergic drugs for the treatment of agitation eg haloperidol (and document this on the medication chart)	
Disposition	Probably ward admission	

Education	Re potential for side effects and drug interactions	
? Role of physostigmine	Controversial May be beneficial for central features of anticholinergic toxicity If toxicity recalcitrant to supportive measures and time	

Question 4: The patient has a brief generalized seizure. What is your response now?

Expected Response	Details & Comments	
Stop seizure	Seizure has already ceased.	2
Reassess	A, B, C, D, Temp, Glucose, ECG	
Check results	pH, anion gap, electrolytes	
Consider additional Ix	CT	
Prevent further seizures	Treat reversible causes.	
Disposition	HDU	

Question 5: What features in the history and examination might raise the possibility of elder abuse?

Expected Response	Details & Comments	
Inconsistent histories		2
Examination	Features of neglect – malnutrition, poor hygiene, pressure sores Features of physical abuse – bruises, injuries	
Family interactions	Inappropriate or antagonistic	

Question 6 (optional extra): What are potential other causes of an anticholinergic syndrome?

Expected Response	Details & Comments	
Medications		
Antidepressants	TCA	
Antipsychotics	Haloperidol, chlorpromazine, olanzepine	
Anticonvulsants	Carbamazepine	
Antihistamines		
Antiparkinsonian drugs	Benztropine	
Antimuscarinic agents	Atropine	
Illicit / Recreational	Less likely in this patient, unless inadvertent	
Plants or plant products		
	Datura, mushrooms,	

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

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

SCENARIO

A 70 year-old lady is referred by her GP with a 2-day history of apparent confusion, with episodes of agitation. She complains of a dry mouth and blurred vision. Her son states she took some over-the-counter medications from the chemist recently.

1. Lead examiner **……** **Candidate No:** ☐

2. Co-examiner **……** **Final Mark:** ☐

SCENARIO
It is 2100hrs in your urban district ED. An 18 y old man presents with right shoulder pain, sustained in an accidental fall less than 1 hour ago. He has no other injuries, but you suspect a shoulder dislocation.
Question 1: Discuss the Role of pre-reduction x-rays in this setting.

Expected Response	Details & Comments	Pass
Issues	Availability of x-ray: delays (esp in urban district ED) may compromise care Likelihood of dislocation, and associated fracture. Latter should not be relevant if dislocation present. Requires careful clinical assessment	Prompt: outline the pros and cons
Pros	- Markedly swollen and painful shoulder makes clinical assessment difficult - Higher chance of fracture if traumatic force great, first dislocation, non-anterior dislocation - Guides method of reduction: anterior vs posterior - Slight delay allows time for patient understanding, analgesia effect - relevant re medicolegal purposes	Must do Xrays if available Recurrent Vs new dislocation key
Cons	- Immediate definitive Rx is otherwise possible! - May not change management/reduction technique even if fracture present (whether acute fracture/Hillsachs Lesion/Bankart Fracture) - Unlikely fracture, given these circumstances - Prolonged delays may make reduction more difficult. This lesion is very recent. - Radiation exposure(this patient a male)	

Question 2: You opt for a pre-reduction x-ray, which is done promptly. Describe & interpret this film.

Expected Response	Details & Comments	Prompt for why candidates think it is anterior if going down wrong track Can you outline where the glenoid is? To pass must get posterior
Right Shoulder x-ray		
Posterior Dislocation R gleno-humeral Joint	Features suggestive of Posterior Dislocation: *On AP* a) Widening of the Joint Space b) 'Light Bulb' Sign of humeral head c) Suggestion of a 'Reverse Hill-Sachs' Sign (prob more evident on Tangential View in 1 set of xrays c.f. other set) *On Tangential Lateral View* a) humeral head lies behind scapula	
Relevant negatives	No fracture seen No other injuries seen	
Interpretation	Acute gleno-humeral posterior dislocation, **requiring urgent reduction**	

Question 3: The patient had a solid meal 2 hours prior to arrival. DISCUSS the sedation options for this patient.

Expected Response	Details & Comments	
Considerations	- Urgency of reduction/neurovascular compromise - Availability of GA/OT services - Suitability of patient for procedural sedation - Patient preference -Meal before or after injury -Evidence for aspiration in acute setting-2 hour meal -Posterior dislocation may be more prolonged/difficult **- Options:** None, Procedural, GA, Regional Block; Sedation agent	Prompt: outline the pros and cons
No sedation	**Pros:** no delays, no risk aspiration, early discharge if uncomplicated **Cons:** pain, higher chance technique failure, newer techniques not needing sedation more suitable for anterior lesions	**Talks around most considerati**

Procedural Sedation	**Pros:** easier to organise, high familiarity with staff, rapid **Cons:** fasting delay required (subject to recent re-evaluation), risks of aspiration, esp as not fasted - other risks associated with sedation - higher chance technique failure if inadequately sedated - high ED resource requirement, unsafe/difficult is busy dept	**ons at consultant level**
General Anaesthesia	**Pros:** Clinical "Gold Standard" **Cons:** Risks associated with GA; practically more difficult to organise; requirement for available anaesthetic staff + OT Significant delay not ideal for patient's condition	**Prompt for alternative techniques**
Regional Nerve Block	**Pros:** Averts risks of aspiration and others associated with sedation / GA; rapid onset of effect, provides effective post-reduction analgesia **Cons:** Less acceptable for patient, esp young man! Higher level expertise required; neuropraxia; vascular injury; inadequate effect, compromising reduction.	

Question 4: The patient is adequately and safely sedated in the ED. Describe your technique for reduction in this patient.

Expected Response	Details & Comments	Traction Abduction Disimpaction
Aim	To disimpact the posteriorly displaced humeral head from the posterior aspect of the glenoid.	
Technique(s) demonstrated should include/incorporate the following common principles	1. Slight upright sitting position best 2. Apply axial traction in line with humerus - slight abduction + flexion at shoulder - elbow may be bent/straight - countertraction offered by assistant (sheet around axilla + torso affected side, same force applied in opposite direction to upperlimb) 3. Gentle Internal rotation & adduction of shoulder (aids disimpaction of humeral head) 4. Humeral head can be pushed anteriorly by 2nd assistant/further disimpaction of humeral head from posterior glenoid can be achieved by applying pressure against the humeral shaft in a lateral direction 5. Gentle external rotation can be attempted	

Question 5: The injury has been successfully and safely reduced. Outline your considerations in the disposition of this patient.

Expected Response	Details & Comments	Prompt – safe discharge considerations Pass: All safety elements
Key Elements	- Joint stability - Adequate analgesia - Recovery from sedation - Rehabilitation - Follow up – incl return to normal function and recurrence prevention	
	- Assess Neuro-Vascular status of limb b/f discharge - Assess joint stability – unstable joints should be placed in a spica 40° abdn, 60° ext rotn, fully extended - Consultation with Orthopaedic Services if unstable /other concerns e.g. #s, N-V compromise - No complications of sedation -Ensure appropriate 'wearing off' of sedation - Ensure & provide adequate splinting & analgesia -Social situation -Transport -Intoxication - Consider SSU - Provide printed advice, esp return to function and avoidance of activities - Follow-up: GP, Physio	

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

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

SCENARIO

It is 2100hrs in your urban district ED. An 18 y old man presents with right shoulder pain, sustained in an accidental fall less than 1 hour ago.

He has no other injuries, but you suspect a shoulder dislocation.

ACEM Fellowship Exam 2010.2 SCE 1

1. Lead examiner …… Candidate Number:

2. Co-examiner …… Final Mark:

SCENARIO

The ambulance has brought in a 65 year-old man with severe dyspnoea. The patient has a history of Chronic Obstructive Airway Disease (COAD), with regular use of bronchodilators. He is still a heavy smoker, but has no other relevant past history. On arrival, he is sweaty, distressed and peripherally cyanosed.

Vitals signs:

RR 45/min, with inter-costal recession **Temp 38^5 deg C**

BP 180/90 mmHg **Heart rate 125/min**

Upon arrival, arterial blood gases are taken (on 12L / min of O_2):

pH	**7.15**		***(7.35 – 7.45)***
pO_2	**80**	**mmHg**	***(80 – 95)***
pCO_2	**95**	**mmHg**	***(35 – 45)***
HCO_3	**42**	**mmol/L**	***(22 – 28)***
Base Excess	**+17**		***(-3 – +3)***
SaO_2	**90**	**%**	

Question 1: Describe and interpret the ABG. *(included in stem)* *1 min*

Expected Response	Details & Comments	
Moderate acidaemia with borderline hypoxaemia in CO_2 retainer. Probable infective exacerbation of COAD.		
Acute respiratory acidosis	Very high pCO_2 and low pH suggest acute primary respiratory failure.	
Metabolic alkalosis	Raised bicarbonate and base excess indicate chronic CO_2 elevation and metabolic compensation.	
Borderline hypoxaemia	Probably assisted by supplemental O_2. Expect usual pO_2 to be lower, even without acute illness. High risk of abolishing usual hypoxic drive. However, at risk of excessive hypoxaemia with acute impairment of O_2 exchange.	
Low O_2 saturation	O_2 dissociation curve is rightward, as this is lower than expected for given pO_2. Is the key determinant of tissue oxygenation.	
Relevant negative(s)	Expect pO_2 to be lower. Comparison with patient's previous ABGs would help.	
Interpretation Prompt: what do you think is the cause	Borderline fever suggests infective exacerbation. Indication for non-invasive PPV, bronchodilators, immuno-stabilisation, emp Abx.	

Question 2: You opt to treat the patient with BiPAP ventilation, what things would you consider when initiating this therapy. 2min

Indications	Acute respiratory failure with high risk of abolishing native respiratory drive. May avert invasive PPV.	
Risks / Caveats	Barotrauma,Declining consciousness and risk of aspiration. May impair venous return and BP, although BP currently OK, and no cardiac Hx. Poor compliance with mask.	
Ventilation settings	Monitor F_IO_2 to maintain respiratory drive Initial IPAP 10-15 cmH_2O; EPAP 5- 8 cmH_2O; differential greater than $4cmH_20$	P/F
Titrate to clinical and physiological response	Initial response should be rapid. Requires O_2 sats and ABG monitoring.	
Adjunct Rx	Bronchodilators, corticosteroids, emp Abx	

Question 3: Discuss the options for bronchodilator therapy in this patient. 2min

Expected Response	Details & Comments	
Considerations	Optimal drug and mode of delivery without excessive SEs, esp tachyarrhythmias (this pt is already tachycardic). Routes of delivery: parenteral, inhaled, oral. Metered dose inhalers may be pumped into BiPAP circuit. Nebulised options carry infection risk. Rx of trigger (ie infection) and adjunctive steroids are synergistic.	
Salbutamol	May be given as nebulised form into BiPAP circuit. May be given IV. Titratable. Easily available and familiar to staff. Tachy-arrhythmias and tremors are SEs. The latter interfere with ECG monitoring. Low K+, lactic acidosis	
Iprotropium bromide	Proven benefit in moderate to severe exacerbation COAD, as in this case. Some SEs similar to those of salbutamol.	
Xanthines	Aminophylline, theophylline. (? Also assists spontaneous respiratory efforts?) Evidence for efficacy more debatable in this setting. Narrow therapeutic window. Oral theophylline of no acute value. Parenteral aminophylline may be considered if bronchospasm refractory to first line agents. Vomiting,seizures	
Magnesium	Evidence for efficacy as per xanthines. But less SEs. Typically reserved for refractory cases in those with normal serum Mg. Hypotension, dec muscle tone	
No bronchodilators	Poor option in this patient! Has reversible component despite chronic disease.	
other	Adrenaline, ketamine	

Question 4: Despite your initial efforts, the patient deteriorated, and required endotracheal intubation. Outline the principles of invasive ventilation in this patient. 2min

Expected Response	Details & Comments	
Anticipate difficult mechanical ventilation due to auto PEEP; high mean & peak airway pressures; high risk barotrauma. Apply principle of permissive hypercarbia. Note also options may be limited by unsophisticated, portable ED ventilator.		
Controlling airway pressures	Pressure at no more than 35 cmH_2O. If only volume-controlled option available, set tidal volume < 7ml/kg Sedate, paralyse, bronchodilate. Tracheal toilet to clear upper airway. Insert NGT to decompress stomach. Incline chest at 45 deg up if no contra-indications. Set low inspiratory : expiratory (I:E) ratios.	
Permissive hypercarbia	Permit low minute ventilation and consequent high pCO_2. Low ventilation rate (less than 10/min)	
Oxygenation	High F_IO_2 to optimise tissue oxygenation. Patient's respiratory drive now irrelevant.	
Intensive Care	Mandates intensive monitoring. Check serial ABGs, CXR. All settings to be titrated to response. Anticipate >24 hours before suitability to wean off invasive PPV.	

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

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

SCENARIO

The ambulance has brought in a 65 year-old man with severe dyspnoea.
The patient has a history of Chronic Obstructive Airway Disease (COAD), with regular use of bronchodilators. He is still a heavy smoker, but has no other relevant past history.
On arrival, he is sweaty, distressed and peripherally cyanosed.
Vitals signs:

- **RR 45/min, with inter-costal recession**
- **Temp 38^5 deg C**
- **BP 180/90 mmHg**
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pCO_2	**95**	**mmHg**	***(35 – 45)***
HCO_3	**42**	**mmol/L**	***(22 – 28)***
Base Excess	**+17**		***(-3 – +3)***
SaO_2	**90%**		

Question 1: Describe and interpret this ABG.

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO
You are on duty at 1800hrs in your ED. Ambulance brings in a 48 year-old man who suffered 2 episodes of large-volume haematemesis, estimated at 500ml each time. He had one episode of melaena.
On presentation, the patient is clammy, with a HR of 120/min and a systolic BP of 85 mmHg.

Question 1: Outline the key features in your History and Examination. *(included in stem)*

Expected Response	Details & Comments	2 min
Aims - to determine:	**Risk - severity, complications, life threat** **Implications for acute Rx - need for emergent endoscopy (stem suggests so), reversal of coagulopathy** **Implications for resource utilisation - staff, rest of ED, need for transfer**	
Severity of bleed	Estimated volume. Number of episodes/ over what period of time. Associated melaena. Haemodynamic compromise – Clinical evidence of shock (tachycardia, hypotension, shutdown etc) or significant volume loss (syncope, dizziness). Details of any fluid resuscitation and response to same.	
Past History / Risks	Risk factors for Life threatening upper GI bleed. Variceal haemorrhage: Known varices, prior chronic liver disease or risk factors for same (alcohol, hepatitis etc). Coagulopathy: Chronic liver disease. Warfarin/ anticoagulants. Antiplatelet agents (aspirin, clopidogrel) Peptic ulcer disease. Known history, risk factors such as steroid or NSAID use. Other: Prior upper GIT surgery, AAA repair etc. Other medical history: - Known cardiac and/or resp disesase including smoking - which may affect capacity to cope with volume loss/resp compromise Medications which may blunt or obscure cardiovascular compensation (eg. β-blockers, anti-hypertensives) - Details of any treatments given thus far and response (eg IV fluid).	
Examination	Vital signs: haemodynamic compromise as above (PR, BP, peripheral perfusion, RR, postural BP, temperature). Mental status – confusion, flap Signs of chronic liver disease: Jaundice, splenomegaly, ascites, spider naevi, gynaecomastia, caput medusae, peripheral oedema. Abdominal examination – exclusion of surgical signs (not expected). PR for melaena/fresh blood. Baseline cardiorespiratory examination.	

Question 2: The patient reports a history of longstanding heavy alcohol intake. He takes no regular medications. On examination he is jaundiced with obvious ascites. His initial Hb is 100 g/dL (via bedside measurement). Outline your management.

Expected Response	Details & Comments	2 min
Underlying chronic liver disease and possible portal HT: risk of variceal bleeding. Potential life threatening bleed + possible coagulopathy (this should be corrected empirically)		
Urgent endoscopy	Indicated now. Will take time to facilitate, given late evening in peripheral hospital.	
Resuscitation	Large bore access. Saline 1-2 litre load. In view of Hx, early use of products appropriate. Ie 2 units packed cells + reversal of coagulopathy. Monitor volume/haemodynamic status: Follow PR/BP/UO (insert IDC for hourly UO) and VBG (pH, Base excess, lactate) Seek and treat metabolic derangements, such as hypoglycaemia.	

Reverse potential coagulopathy	Vitamin K 10 units IV. FFP 4 units (10 ml/kg). Prothrombinex 25-50 IU/kg is an option but unlikely to be available. Platelets (1 megabag/ 4 units) if ongoing haematemesis/ melaena/ hypotension as likely thrombocytopaenic and ongoing blood loss. *Prompt: "Does his history of liver disease alter your early treatment?"*	
Medications	PPI infusion (eg. omeprazole 80 mg IV + 8 mg/hr) and octreotide (50 mcg IV + 50 mcg/hr); empiric ceftriaxone; IV thiamine.	
Consultation	Urgent discussion with gastroenterology service and intensive care	

Question 3: Following 2 units of packed cells and 4 units of FFP, the patient's haemodynamic status has improved, and stabilized. The gastroenterology registrar suggests that the patient be admitted for endoscopy on the morning list. Outline your response.

Expected Response	Details & Comments	1.5 min
Urgent endoscopy tonight ideal.	Major upper GIT bleed with haemodynamic instability requiring blood products. Possible underlying varices/CLD = potential further major bleed. Endoscopy best done now as controlled procedure rather than emergent contingency in middle of night.	
Escalate to gastroenterology consultant if required	Gastroenterology consultant should be involved with, and supervising this gastroscopy.	

Question 4: The patient has a further large haematemesis in the ED, The Gastroenterology service agrees to perform immediate endoscopy. They ask if the ED could assist with performing endoscopy in a resuscitation room as anaesthetic personnel are occupied in theatre.
Outline the issues involved in this situation.

Expected Response	Details & Comments	1.5 min
Current ED workload + staffing	Will require resuscitation room + senior medical and nursing staff Will require sedation and possibly intubation. Particularly high risk scenario – unstable pt, airway at risk	
Anaesthetist/OT availability	Discuss with anaesthetist. What will be the delay? Is it clinically appropriate. What options are there for calling in additional staff.	
Department/ Hospital policy	Is there an agreed policy for this situation?	
Clinical indication	Endoscopist requires appropriate skills and equipment to perform therapeutic scope	
Medicolegal	Consent, particularly if pt confused and shocked Scope of practice	

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

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

SCENARIO

You are on duty at 1800hrs in your ED. Ambulance brings in a 48 year-old man who suffered 2 episodes of large-volume haematemesis, estimated at 500ml each time. He had one episode of melaena.

On presentation, the patient is clammy, with a HR of 120/min and a systolic BP of 85 mmHg.

Question 1: ***Outline the key features in your History and Examination.***

1. Lead examiner **……** **Candidate Number:**

2. Co-examiner **……** **Final Mark:**

SCENARIO
A 34 year-old man is brought to your tertiary ED after a motorbike crash. Your junior registrar assesses the patient and reports to you a diagnosis of dislocated left patella. He asks you to review X- rays of the patient's knee.

Question 1: Describe and interpret the xrays. *(Included in stem. XR on paper)*

Expected Response	Details & Comments	
AP view - left side	**Medial displacement** of the tibia is seen with widening of the lateral joint line Dislocated tibio – femoral joint Possible # lat condyle, medial tibial plateau (debated)	Prompt: what direction?
Lateral view – left side	**Anterior displacement** of the tibia on the femur Anterior knee dislocation Lipohaemarthrosis	
Relevant negatives	No air in joint.	
Implication	**Dislocation of knee.** Risk of vascular compromise, Needs urgent attention.	***highlighted to pass***

Question 2: You assess the patient and find this is his sole injury. Describe your examination given this injury.

Expected Response		
Neurovascular assessment	**Pulses and 1 other re circulation** (cap return, colour, temperature) **sensation, motor function** Up to 33% of patients sustain popliteal artery injury – important to establish whether there is a vascular injury early Perpiheral pulse check, sensory examination is important – 25% patients have peroneal nerve injury, and 10 % of patients with normal pedal pulses will still have vascular injury	
Open/closed	Skin, **signs of penetration**	Prompt: Anything else

Question 3: Describe your immediate management

Analgesia	Titrated fentanyl/morphine – strong analgesic agent	
Move to monitored area	Will require sedation for reduction	
Emergent reduction	**Procedural sedation** – should identify which agent or combination **Reduction** by longitudinal traction usually works	If won't move limb - prompt
Post reduction care	**Splint,** elevate, (**analgesia) repeat xray, reassess neurovascular**	Prompt: Any other post-reduction care?
Consultation Disposition	**Orthopaedic**, vascular team involvement early	Anything else?
Full explanation to patient	Including complications resulting from the injury (risk of amputation, persistent nerve problems, continued instability of knee, long rehab time, chronic pain/stiffness,..)	

Question 4: Discuss investigations for vascular injury in this patient.

Expected response	Details and comments	
Doppler / ultrasound Bedside v radiology dept	Bedside Pros: cheap, easy to do, establishes flow Cons: not definitive, uncertain sensitibity Dept Pros: Faster than CT? No contrast. Identifies lack of flow Cons: availability, expertise	Prompt: Any other imaging modality?
Angiogram: In OT or radiology dept	OT Pros: Gold standard option. Immediate limb saving surgery / vascular repair will likely decrease risk of amputation. OT Cons: Contrast. Resource intensive. Challenge to mobilise vascular and ortho teams. Limb is still perfused. Timely non-operative imaging may suffice. Dept Pros: More sensitive for detection of small intimal tears. Dept Cons: Contrast. Requires presence of interventional radiologists.	
MRI / MRA	Pros: Able to identify ligamentous / other injuries in addition to vascular damage. Cons: Poor access, esp after hours (even in tertiary ED); less sensitive at detecting smaller intimal tears.	
CT angiography	Pros: Greater sensitivity with high resolution scanners. Less invasive. More accessible than MRA and conventional angiogram. Cons: Dependent on calibre of radiology service	

Question 5: How would you address the registrar's initial mis-diagnosis?

Expected Response	Details & Comments	
General	- **Debrief / feedback/education at appropriate time** - Establish reasons and contributing factors to event - If significant issue: enlist and involve key stakeholders: DEMT, assigned mentor - Adopt non-punitive, inclusive approach - If indicated, employ realistic, systems-orientated solutions	
Expectations for the level of a junior registrar	Knee dislocation is uncommon but critical to recognise early. Exposure to this injury wouldn't necessarily occur in early stages of ED training.	
Identify possible individual impediments	Identify if radiology interpretation an issue, identify if clinical examination problem identify if other problems in the past Example: Impaired physician, personal problems or distractions, fatigue, night shift	Prompt: What individual factors might contribute to this misdiagnosis?
Identify possible systems impediments	Poor supervision on ED floor; punishing registrar roster, education program	Prompt: What systems factors might contribute to this misdiagnosis?
Reassurance	Advising the registrar about the correct step of seeking senior help early	
Debrief	Important to reiterate the issues in the management of a dislocated knee.	
Enhancing education	Suggest the registrar prepares a CME session on knee and patella dislocations.	
Other solutions	Dependent on findings. May not be required. If so, focus on feasible, systems-orientated actions. Eg mentor program; roster revisions	
Follow up	Monitor trainee's performance and progress. Reviewing departmental education programme and ensuring orthopaedic (and other key) topics are covered.	

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

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

SCENARIO

A 34 year-old man is brought to your tertiary ED after a motorbike crash. Your junior registrar assesses the patient and reports to you a diagnosis of dislocated left patella. He asks you to review x-rays of the patient's knee. ***See x-ray appended.***

Question 1: Describe and interpret the x-rays.


Ser:1
Im:1
Lossy Compressed
TJONATHON
Study Date:15/05/2002
Study Time:17:01:13
MRN:
50
mm
L
C2117
W2729


Ser:1
Im:1
Lossy Compressed
T JONATHON
Study Date: 15/06/2002
Study Time: 17:01:13
MRN:
50
mm
L
HORIZ-RAY

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO
A 3 year-old boy is brought to your ED by his concerned mother. He complained of progressive pain in his right groin after playing in the back garden. The boy is a usually healthy, developmentally normal child.
On initial assessment he is in obvious discomfort, with noticeable sweating of his right leg.

Question 1: Outline your differential diagnoses for this child's condition. *(included in stem)*

Expected Response	Details & Comments	1 min.
Envenomation /Toxins	Consistent with pain and distal sweating - Spider (Arachnid): **Redback**, Funnel Web - Snake: less likely, given symptoms and signs - Insect: bee, wasp, ant, other - toxins – organophosphates - allergic	**All 3 Bold to pass and 2 others**
Trauma/NAI	Occult trauma (unwitnessed) Fracture, soft tissue injury, joint injury	
Joint Infection	Less likely, given scenario. Septic arthritis; transient synovitis Too young for Perthes or SUFE	
Genitourinary	UTI Testicular Torsion	
Non specific infections	Influenza like illness Other viral illness	

Question 2: Your assessment leads to a diagnosis of Redback spider bite. He has persistent localised pain despite paracetamol. There is no evidence of systemic toxicity. What are the considerations in using antivenom in this situation.

Expected Response	Details & Comments		2min
Considerations	Indication: in this case, pain resistant to conventional analgesia. Other analgesia: NSAIDS, morphine,Mg, BZDs **Benefits vs Risks** Objectives of antivenom: in this case, analgesia Parameters to titrate Rx against – pain may last days Dose, Route **Parental understanding and expectations** ? Pre-medication		
	Pros	**Cons**	
Observation only	Non invasive Reasonable option if other analgesia effective Avoids foreign protein exposure	Requires time in ED	
Antivenom	**Effective analgesia** Will likely confirm diagnosis IM preferred route Will likely assure parent(s)	**Risk of reaction (0.54%)** Injection in a 3yo child May need multiple doses Difficult to determine specific aims of Rx (?complete analgesia)	
Premedication	None – not currently recommended (previous Hx of allergy unlikely in 3yo)	Antihistamine: sedation Adrenaline: tachycard; hyperT	
IM Route **(prompt if needed)**	Easy administration Rapid effect	Multiple injections if multi-dose	
IV Route	Allows antivenom to be titrated Indicated if child deteriorates with systemic toxicity	Not indicated in this setting No more efficacious than IM (CRITTA and RAVE trials)	

Question 3: You opt to administer IM antivenom to this child. Outline the principles of this treatment.

Expected Response	Details & Comments	1.5min
Consent	Explanation and verbal consent from parent(s). Identify and advise of potential risks.	All bold needed to pass
Dose	Adhere to guidelines. **Not weight-based**. One ampoule to commence with.	
Monitoring	Close observation: symptoms, HR, pulse oxim, limb signs, pain score. General obs: allergic reaction	
Titration	**Prompt: When would you consider a second dose?** Indications for repeat dosing (qualitative and quantitative); dosing intervals.	
Disposition	Needs 4-6 hr observation. Indications for discharge after this period. Specific and general considerations relevant to paediatrics	

Question 4: In general, compare and contrast Redback versus Funnel Web spider envenomation. *(2.5 minutes)*

Expected Response	Details & Comments		
Features	Demographics: including high risk groups, geography, climate Local features Systemic features First Aid Antivenom Disease impact: severity, complications, fatality rate, prognosis Current controversies		
Prompt bolded if needed	**Redback**	**Funnel Web - *Bold needed to pass***	
Spider characteristics	Small, hairless; not aggressive. Bites when disturbed.	Large, hairy. Females larger than males. Aggressive, esp males.	
Demographics	Wide distribution in Aust. Related to NZ Katipo. Bites typically in summer.	Eastern Aust states. Severe envenomations confined to NSW and southern Qld.	
Local features	Delayed pain. Profuse regional sweating.	Immediate pain. (Visible bite)	
Systemic features	Abdo pain, headache, vomiting, shivering. Muscle weakness and paralysis	APO, CVS instability, sweating, lacrimation, salivation, altered conscious state. Muscle fasciculations and spasms.	
First Aid	Avoid restrictive bandages. Ice.	**Urgent, as death may be rapid.** **Pressure immobilisation**; retain until IV access and antivenom available.	
Antivenom	500U per ampoule. IM if no systemic envenomation. IV if severe systemic envenomation. In 200ml NS over 30 minutes. Rarely need > 3 amps.	125U per ampoule. 2 amps slow IV. May need up to 8 amps in total. Premed: steroids not mandatory. Adrenaline not indicated. Consider steroids after multiple doses.	
Disease Impact	**Very rarely fatal**. But symptoms may last days. No reported death for more than 50 years, since antivenom.	Potentially rapid fatality without antivenom. Neuro-toxicity causing autonomic storm. 14 reported deaths, but none since antivenom.	
Controversies / Future Directions	IM versus IV antivenom in systemic toxicity. Role of antivemom given via Bier's Block. Value of premedication to avert serum sickness with antivenom.	Period of observation required if asymptomatic without pressure immobilisation. Value of steroid pre-med with antivenom. New venom detection kit.	

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

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

SCENARIO

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On initial assessment he is in obvious discomfort, with noticeable sweating of his right leg.

Question 1: ***Outline your differential diagnoses for this child's condition.***

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO

As duty consultant in a tertiary ED, you have just arrived for handover to a late shift on Monday evening. The department is full. There are no monitored or general cubicles available and the waiting room is full. More than 1/3 of the patients in cubicles are awaiting ward beds. Your medical staff are currently occupied with several high-acuity cases. 3 ambulance cases have just arrived, and are waiting in the corridor. Of these, one patient looks to be in pain; another appears short of breath.

Question 1: What are the key issues and outline your general approach to this situation? *(included in stem)* **3 min**

Expected Response	Details & Comments	
Issues	Full department Access block Handover time 3 high acuity patients waiting No cubicles (incl monitors) Medical staff fully engaged with patients.	
Situation Control	- **Liaise with early shift ED consultant and nurse in charge** - Facilitate handover and assess overall safety of department - Adopting a command and control approach - Gather information: ambulance cases yet to be triaged, triaged but await doctor, those already seen - **Establish priorities ranked by clinical demand**	
Leadership and Delegation Meeting clinical demand	**Maintain oversight: avoid detailed involvement in individual cases** Delegate tasks: senior staff to attend sickest cases; re-assign personnel if required Liaise with senior nurse re best use of cubicles **Liaise with hospital administration, IP units and other stakeholders (internal escalation)** Communication is paramount	
Recruit resources	Seek additional resources / redistribute or free up current resources: call backs, retention of day staff, recruit ward personnel	
Demand Management	Internal hospital response to over-loaded department **Bypass or diversion considerations (communication with ambulance)** Clear patients able to leave/await investigations in WR etc. **Move boarded patients out as soon as possible**	
Communication	This is a hospital-wide situation, involving a range of stakeholders Inform / involve ED Director, administrators	
Staff support	Schedule and rotate breaks Display positive, supportive attitude during stressful period	

PROMPT by HEADINGS… are there any issues?

Question 2: What are the options for the care of the patients waiting on the ambulance trolleys? (2 minutes)

Expected Response	Details & Comments	
Defer all intervention until cubicles available	Leaves responsibility with ambulance but delays emergency treatment; keeps ambulance resource off road; negative effects on relationship with ambulance	
Initiate nursing triage and registration on trolleys	Initiates processes; allows detailed risk assessment and prioritisation; allows simple interventions such as analgesia and fast track Ix Limited in value; blurs delineation between ambulance and ED responsibilities	
Medical triage and treatment on trolleys	Marginal value added. Should improve process times downstream. Consumes additional resources; potential confusion between nursing and medical roles.	
Clear a cubicle and use as rapid (in-out) assessment area	Permits more detailed assessment; privacy Consumption of precious resource; corridor only temporarily relieved	
Clear 3 cubicles to offload patients, per normal processes.	Ideal option. At least 2 of these cases likely to need cubicle! Least feasible, given current circumstances. Case(s) may need monitoring anyway.	

Pass/fail two options reasonable discussion and safe practice

Question 3: The ambulance wish to reload a 53 year old patient with chest pain and transfer him elsewhere. Outline the issues that would influence your response. (2 minutes)

Expected Response	Details & Comments	
Duty of care **MUST have ECG prior to considering transfer** **Someone senior needs to see the patient before they leave.** **Discussion of risk vs benefit with patient and ambulance.**		
Likelihood of intervention within safe period	Cubicle free; staff available to assess and treat	
Additional risk assessment	? Value of personally reviewing this patient (? worthy of ATS 2) Low-risk case may make transfer more appropriate	
Value of going to other ED	Distance, time to travel. More likely to cater for this case?	
Anticipated downstream needs	Eg need for interventional cardiology or CCU may already determine most appropriate hospital for pt	
Impact on personnel	Ambulance ED staff Other patients in ED	
Assistance	Advice from others: nurse in charge, ED Director Protocols, policies or guidelines	

Question 4: DISCUSS the value of triage for patients with chest pain presenting to the ED.

Considerations:

- Clinical safety
- Optimal use of limited resources
- Standardisation of care
- Ability to measure and benchmark
- Validity, reliability, acceptability

Worst-case scenario typically assumed: usually assigned ATS category 2

Pros	Cons	
ATS Cat 2 increases sensitivity. Low "false negative" rate for serious illness.	ATS Cat 2 reduces specificity. High "false positive" rate, high resource consumption.	
High pick-up rate for serious conditions like STEMI	Directs resources from other, equally deserving cases	
Permits measurement of healthcare access and efficiency: ATS is integral to several ED performance measures.	ATS too simplistic a measure of healthcare – leads to inaccurate assessments. May affect funding.	
Ample scope for research: automatically categorised data		
Standardises healthcare	Assumes all healthcare sites are equal, in casemix & resources	
	No evidence on validity & reliability of triage for chest pain	

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

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

SCENARIO

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3 ambulance cases have just arrived, and are waiting in the corridor. Of these, one patient looks to be in pain; another appears short of breath.

Question 1: ***What are the key issues and outline your general approach to this situation?***

1. Lead examiner **……** **Candidate Number:**

2. Co-examiner **……** **Final Mark:**

SCENARIO

It is 1600hrs at your tertiary ED. You are asked to review a 22 year-old woman who presents with lower pelvic pain and PV bleeding. Her vital signs are:

- **HR 90 per min**
- **BP 120/80 mmHg**
- **GCS 15**

Question 1: Describe your assessment of this woman.

Expected Response	Details & Comments	
Broad DDx (Prompt if not given)	• **Ectopic pregnancy (EP)** • **Threatened, incomplete, missed abortion (miscarriage)** · **Dysmenorrhoea** • Non-gynaecological cause of pain	
Directed History	Previous pregnancies **LMP - ? normal period** Quantify PV bleeding - no of pads **Risk factors for EP- prev EP, IUD, Hx PID, smoker, fertility enhancing drugs** Abdo pain-quality, location, radiation, ?shoulder tip pain Other Sx Previous Surgery Hx of PV discharge, dyspareunia, endometriosis and PID	
Examination	Current vital signs indicate **haemodynamic stability** - postural BP may help Ongoing monitoring important Abdo exam- peritonism Perineal / pad inspection +/- PV exam-cervical excitation, ?adnexal mass / tenderness	
Investigation	Bedside - urine HCG Laboratory - FBC, quantitative β-HCG, blood group ? FAST or bedside U/S (? TV) Formal U/S	

Question 2: Her last menstrual period (LMP) was 6 weeks ago. The patient's quantitative β-HCG is 1200 IU/L. A trans-vaginal ultrasound reveals no intrauterine gestational sac, no adnexal mass and no free pelvic fluid. Discuss these findings.

Expected Response	Details & Comments	
β-HCG and U/S findings are indeterminate	May still be an EP or early pregnancy Concept of discriminatory zone for β-hCG	
Rpt *β-HCG*	*β-HCG will increase in normal pregnancy by at least 50-60% in 48 hrs*	

Question 3: What is your approach to the disposition of this patient.

Expected Response	Details and Comments
Clinical factors	Amount of bleeding, pain, vital signs, anxiety
Social factors	Access to hospital, resources at home, patient understanding and expectations
Follow up options	Requires rpt *β-HCG in 48 – 72 hrs* and F/U ultrasound when clinically indicated Early pregnancy clinic / GP / specialist
	Time of evening (would be early to late evening, after tests performed)
Advice to pt if discharged	Indications for return: • Increased pain, bleeding • Subsequent U/S proof of EP or failed pregnancy Provide written discharge advice Offer counselling, social worker

Question 4: The patient's blood group returns as O negative. Discuss your management of this finding.

Expected Response	Details & Comments	
Risk of Rhesus iso-immunisation		
Explain need for anti-D	Indications, reasons, Administration of anti-D: 250 IU, given IM (may need to look up dose) Provide details of potential isoimmunisation	
Risk and benefits	Blood product Risk of isoimmunisation in subsequent pregnancies	
Consent (prompt)	Verbal/ written	
Follow up	Need for further immunisation later in pregnancy	

Question 4: The patient was appropriately discharged. She returns 2 weeks later with further PV bleeding and an ultrasound showing intrauterine foetal demise. She is upset and angry, alleging poor care during her first visit. Outline your approach to this situation.

Expected Response	Details & Comments	
Clinical priorities	Deal with current clinical situation Attend to Mx needs: fluid resus if indicated, analgesia, referral for D&C	
Gather info	Understandable emotions Acknowledge her complaint Establish specific reasons for her sentiments Determine progress since last discharge ? Additional Rx, advice, Investigations in the interval period Review clinical records, includingl follow up Instructions	
Recruit help	Advice from peers, senior colleagues, experts Liaise with patient's GP Social work Support person for patient	
Explanations	Explain management was appropriate in first visit Foetal demise potential / expected complication in this case Advise that specific issues will be investigated and addressed Offer scheduled time to meet and discuss, after initial Rx	
Risk Management	Documentation Review processes for F/U of such cases Incident report Advise ED Director	

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

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

SCENARIO

It is 1600hrs at your tertiary ED. You are asked to review a 22 year-old woman who presents with lower pelvic pain and PV bleeding.

Her vital signs are:

- **HR 90 bpm**
- **BP 120/80 mmHg**
- **GCS 15**

1. Lead examiner ……

Candidate Number:

2. Co-examiner……

Final Mark:

SCENARIO

A 65 year-old man is brought to your urban district ED from a burning factory. Firefighters found him unconscious within the building. His observations are as follows

- Pulse 110 beats / min
- BP 104/58 mmHg
- Resp Rate 10 / min
- O_2 saturations 99% on a non re-breathing mask
- GCS 6 (E1, V1, M 4)

Arterial blood gases on 15 l of oxygen.

pH	7.2		*7.35 - 7.45*	HCO_3	20	mmol/L	*22 - 28*
$paCO_2$	55	mmHg	*35 - 45*	Base Excess	-8		*-3 - +3*
paO_2	144	mmHg	*80 - 95*				

Question 1:List possible causes for his reduced conscious state.

Expected Response	Details & Comments	
Factors may be in combination, or contributory to / exacerbating each other		
Toxic Inhalation	**hypoxia** **CO poisoning** **CN poisoning** other	
Trauma **+ one other**	Head injury-from falling debris or attempts to flee fire / smoke Other injury causing CNS hypoxia / hypoperfusion (note tachycardia and mild hypoT) Airway burns causing hypoxia	
Metabolic	Hypercarbia, from low resp rate	
Incidental - preceding event, or exacerbated by it	Stroke Hypoglycaemia Cardio-respiratory arrest OD	

Question 2: Describe and interpret the ABG results.

Expected Response	Details & Comments	
Moderate acidaemia	**Mixed acidosis:** • **Metabolic: tissue hypoxia** • **Respiratory: altered conscious state**	
Oxygenation	High arterial O_2 tension reflects high FiO_2 with non-rebreathing mask– however, concerns re tissue hypoxia, given high COHb Probable impairment in O_2 exchange in setting of acute lung injury – ie Aa grad likely high Normal O_2 sats do not reflect high level of COHb and therefore cannot predict tissue oxygenation in this setting	
Interpretation	Significant mixed metabolic and respiratory acidosis with CO poisoning. Needs oxygen therapy. Consider CN poisoning as well.	

Question 3: What features in the assessment of this patient would support a diagnosis of CO poisoning ?

Expected Response	Details & Comments	
History **Setting in which found**	Breathing car exhaust fumes- engine running with pipe connecting exhaust into car Fires – especially in large fires in closed spaces Indoor exposure to combustible gases /combustion engines / stoves / heaters/fireplaces	

Symptoms- neuro or cardiac	**Altered sensorium**	
		3/4
Investigations	**High CO level**	
	Unexplained metabolic acidosis and respiratory acidosis	

Question 4:Outline the key issues in the airway management of this patient.

Expected Response	Details & Comments	
Key Issues	**Needs ETT urgently!** **Difficult airway** – potential airway burns and oedema **Possible difficult to ventilate** Low respiratory reserve, with toxic inhalation Low cardiac reserve, with tissue hypoxia and other potential injuries – high risk of **hypotension** with induction **? C spine injury** – may need in-line immobilization **4/5**	
Preparation	Lead team. Most experienced airway practitioner to intubate. Pre-oxygenation In-line C spine immobilisation if suspect C spine injury.	
Rapid Sequence Induction	Preload with IV fluids Fentanyl as drug of choice Suxamethonium – hyper K potential caveat	
Post procedure	ETT position confirmation: $ETCO_2$, CXR Ongoing sedation and paralysis Ventilate with 100% oxygen Needs IA line	

Question 5:The patient is safely intubated. COHb = 15% Discuss the role of hyperbaric oxygen therapy in this setting.

Expected Response	Details & Comments	
Considerations	Indications – potential benefit Risks – probably needs transfer Availability Evidence – conflicting in literature: Weaver vs Scheincastle	
Indications	In this case: coma, hypotension, acidaemia	
Risks / Cons	HBO service likely not available at urban district hospital, so needs transfer High resource consumption!	
Availability	Likely limited, as restricted also by ICU access	
Evidence	Indications less ambiguous in this setting, as tissue hypoxia is evident	
	Longer term neurological and other end-organ function are key outcomes	
Decision	Despite the above, decision for HBO therapy rests with accepting service rather than ED	

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?

……

……

SCENARIO

SCENARIO
A 65 year-old man is brought to your urban district ED from a burning factory. Firefighters found him unconscious within the building. His observations are as follows

- Pulse 110 beats / min
- BP 104/58 mmHg
- Resp Rate 10 / min
- O_2 saturations 99% on a non re-breathing mask
- GCS 6 (E1, V1, M 4)

Arterial blood gases on 15 l of oxygen.

pH	7.2		*7.35 - 7.45*	HCO_3	20	mmol/L	*22 - 28*
$paCO_2$	55	mmHg	*35 - 45*	Base Excess	-8		*-3 - +3*
paO_2	144	mmHg	*80 - 95*				

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO
A 24 year-old multiparous woman who is 36 weeks pregnant presents to triage in labour. She is transferred to the resuscitation room and the nurse tells you the head is on show. The maternity ward is located in an separate building to the ED.

Question 1: Outline your actions in response to this situation.

Expected Response	**Details & Comments** (to pass must address each category)	
Possible imminent delivery Prompt:"head on show"; "delivery imminent"	Near-term baby, therefore at lower risk **Prepare for delivery in ED (critical error to move patients to O&G building)**	
Assemble team	Assume leadership Allocate staff to roles- delivery, resuscitation of baby, support for mother	
Call for help	Midwife +/- O&G reg, paediatric registrar	
Prepare equipment Prompt "what about the baby"	Delivery pack available and open **Neonatal Resuscitaire turned on / warmed up (must address neonatal resus) (critical ommission)** **Check neonatal resuscitation equipment, suction, BVM etc** Syntocinon available- drawn up -/+ IV access -/+ apply monitoring	
Brief relevant history	Delegate	

Question 2: The baby is delivered within minutes. The cord is clamped and cut. Outline your routine initial management of the newborn infant.

Expected Response	**Details and Comments** (must address bold categories)	
Temperature control	Warm, rub and dry. Nurse in heated cot.	
Airway	Anticipate a cry. Stimulate if required. Suction mucous if required.	
Breathing/Circulation	Anticipate pink colouration if crying. BVM and oxygen usually not required.	
Initial assessment (APGAR)	Tone, colour, **HR (circulation)**, breathing, reflexes.	
If well	Dry, wrap in swaddle cloth. Give to mother.	

Question 3: The cord has been clamped and cut and the placenta is still in-situ. The midwife is yet to arrive. Describe how you would manage the third stage of labour.

Expected Response	**Details & Comments** (must address bold categories)	
Check no twin	Pass requirement	
Administer syntocinon if not already given	10 Units IV or IM **(prompt for twin – should you check for anything before giving syntocinon)**	
Delivery of placenta "prompt how do you deliver the placenta"	Controlled cord traction (Fundus guarded by other hand) Inspect for complete placenta	
Uterine massage	After placenta delivered to ensure uterus contracted	
Observe for further PV loss		
Examine the perineum for tears		

Question 4: The placenta is delivered. It appears incomplete and the patient has very heavy PV bleeding. Outline your actions in response to this.

Expected Response	**Details & Comments** (must address bold categories)	
Call again for help if still no help arrived –notify O&G consultant if registrar not yet arrived		
Uterine massage/IDC	Until uterine contraction	
Visual inspection of perineum	Check for uterine inversion Direct pressure if site of bleeding identified eg. episiotomy site	

Give further syntocinon	**Must be IV** 40 IU in 1 litre N saline infusion (order of 10 U/hr depending on rate of bleeding)	
Prepare for massive Blood transfusion	Ensure large bore IV access X 2 (must have IV access now) Send off bloods- FBC, EUC, coags, fibrinogen, urgent X-Match Begin fluid resuscitation- early use of blood products IDC Notify lab and activate massive transfusion protocol	
Consider manual removal of the placenta in ED under procedural sedation (if had experience in past)	Potentially life saving if severe bleeding- wait for O&G support unless very experienced with this procedure	
Consider vaginal packing		
Bimanual uterine compression		
Notify theatre	Notify O&G consultant if registrar not available Notify anaesthetics	
Communication	Explain to patient and try to contact family Check on welfare of baby	

Question 5: Following this incident you decide to review the contents of the emergency delivery pack in your ED. Describe how you would undertake this review.

Expected Response	Details & Comments	
Discuss key stakeholders re contents	O&G, ED nurses,ED doctors, sterilisation procedure	
Contents (prompt for contents if have time)	Surgical scissors -For possible episiotomy Needles, syringes and lignocaine 1% Placenta basin Towels Cord clamp Sterile gloves Gauze sponges- multiple syntocinon	
Educaton post review		

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

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

1. Lead examiner …… Candidate Number:

2. Co-examiner …… Final Mark:

SCENARIO
A 15 year old girl presents from school after her art teacher was concerned by her behaviour in the classroom. She was found seated at her desk cutting her wrists with a craft knife.

Question 1: What are the key features of assessment in this patient? 2.5 min (@2.5)

Expected Response	Details & Comments	Minimum to pass
Hx	Patient demographics & social situation Hx of **Presenting Complaint** – further information re circumstances of self harm, crisis, precipitant, what was the intention? Overdose? Past Medical Hx **Past Psychiatric Hx** **Drug & Alcohol Use**	**Bold**, 5 total to pass
Mental State Examination	Description of pt appearance, attitude & behaviour **Mood & Affect** Speech Perception **Thought Processes** – content, form **Cognition / orientation** Insight & Judgement Impulsivity	**Bold** + 1 more to pass
Examination	**Vitals**, orientation, self harm marks, focal neurology	**Vitals** + some exam
Corroborative Hx	Family, friends, teachers	
Investigation	As appropriate on findings (can stop at this point)	

Question 2: What factors would place this patient at increased risk of suicide? 2 min (@4.5)

Expected Response	Details & Comments	
Patient factors	Sad Persons Scale (**S**ex, **A**ge, **D**epression, **P**revious attempt, **E**xcessive ethanol/drug use, **R**ational thinking loss, **S**ingle, separated, widowed, divorced, **O**rganized plan, **N**o social supports, **S**ickness, Stated future intent) M>F Single, separated, widowed, isolated Unemployed/ retired Psychiatric Hx-depression, schizophrenia, personality disorder D&A use Victim of sexual, parental, emotional abuse/assault	Depression Alcohol/Drugs Abuse Previous attempts Precipitant Social Situation 5 of these 6 to pass
Social factors	Socially isolated – family, peers, culture Unsupportive family Interpersonal relationships –if poor or strained Poor coping skills	
Attitude to future Current Ideation	Ambivalence, hopelessness, continued suicidal ideation, stated future intent	
Suicidal Behaviour	Suicidal ideation Suicide attempts –number, lethality, planning, rescue, final acts	
Precipitant	Acute crisis or precipitant not resolved or ongoing	

Question 3: Your assessment reveals superficial injury only in a previously healthy girl who has been subjected to cyber bullying over the past few months. She states her boyfriend broke up with her last week. Outline your approach to this patient's treatment and disposition. 1.5 min (@ 6)

Expected Response	**Details & Comments**	
Treat wrist lacerations	Incl ADT, analgesia, assess depth/ neurovascular involvement involvement and close as required	
Stratify risk of further self harm and suicide	Patient safety paramount	
Patient safety	Ensure treatment is in a secure / safe area of ED Special +/- Schedule if mentally disordered or at risk of absconding Secure patient possessions	Mandatory
Arrange psych services assessment	Adolescent psychiatric service	Mandatory
Anti depressants ? (decision to prescribe left to the assessing psychiatrist / MH team)	Unlikely to be clinically warranted –appears situational - patient may have an adjustment disorder	
Notify parents/guardian	Be aware that parents may be a contributing factor	Mandatory
Disposition/**Adequate followup** (Prompt Allowed: "What factors will affect your disposition decision?")	Will depend on • whether patient has insight • is able to guarantee safety • has good support network • is not suicidal • is not acutely psychiatrically unwell • stressors can be mitigated ?school May be managed in the community with CMHT follow up/adolescent services/counseling – if not will need admission – as voluntary/involuntary pt depending on pt's risk of self discharge and home environment	Mandatory 3 reasonable factors

Question 4: Whilst waiting for psychiatric services, she becomes agitated after receiving a text message on her phone. She throws the phone, starts swearing and screams at the nurse to get out of the way as she is leaving. How would you respond? 1 min

Expected Response	**Details & Comments**	
Immediate Response	Activate duress alarm (**recruit security team**) Safety of patient, staff and ED patients is paramount Attempt **verbal deescalation** strategies If unsuccessful –will need chemical restraint. (may need brief physical restraint -5 person technique – to attain IV access and then administer IV benzodiazepine / neuroleptic – titrate and reassess to desired response) Apply O2 and monitoring Consider patient high risk of further self harm Schedule patient under the mental health act	Reasonable approach
Subsequent response	Notify parents / Guardian if not already present Notify Psychiatrist / Mental Health Team Ensure patient is in a secure, monitored ED bed Place patient under a special (1:1 nursing)	
Long term response	Ensure no access to weapons/ medications in ED	

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

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

SCENARIO

A 15 year old girl presents from school after her art teacher was concerned by her behaviour in the classroom. She was found seated at her desk cutting her wrists with a craft knife.

Question 1: What are the key features of assessment in this patient?

Lead Examiner …… **Candidate Number:**

Co-Examiner …… **Final Mark:**

SCENARIO
A 27 year old woman presents to your Emergency Department with left calf swelling for the last 2 days. She is a smoker who had a left knee arthroscopy approximately 10 days ago. She is otherwise healthy, takes no other medications, and has no drug allergies.

Question 1: How would you assess this patient's risk of a DVT?

Expected Response	Details & Comments	1.5 min
Prompt for pre-test risk if they move to investigation.		
History	**Recent surgery**, obesity, **previous DVT, immobility**, oestrogen therapy, other trauma, pregnancy, FHx, **malignancy**, **smoking**, hypercoagulable states, long-haul flight.	4 bold 1 other
Examination	Less than 50% predictive Swelling, tenderness, Homan's sign, fever. Consider also features suggestive of other pathology – eg wound infection, cellulitis	
Well's Criteria	1 point for: paralysis, cast, major surgery, local tenderness over deep vein, swelling of entire leg, affected calf 3cm greater than asymptomatic, unilateral pitting oedema. 2 points deducted if alternate diagnosis is at least as likely. Score 0 (Low Probability): 55% of patients but <5% incidence DVT. Score 1-2 (Moderate Probabilty): 30% of patients, 14% incidence DVT. Score ≥3 (High Probability):15% of patients, 50-80% incidence DVT.	

Question 2: Discuss the investigations available for DVT.

Expected Response	Details & Comments	2 min
Ultrasound	Looking for venous compressibility. Serial USS may be indicated if intermediate+ risk. Pro: **Non-invasive**, painless, inexpensive and available. **highly sensitive (above knee) with Doppler,** repeatable. Con: Lower yield for distal veins or small calf veins. Operator-dependent. May require serial studies.	
D-dimer	Marker of coagulation activity. - In low risk patients negative test excludes diagnosis. - In medium risk patients role is not clear. *Of no value in this patient, as risk is high, and imaging indicated anyway.* Pro: 70-90% sensitive, proportionate to clot load. Con: Multiple techniques with very different sensitivities and cut-off values, large number of false positives. ELISA: "Gold Standard" but labour intensive. Latex Agglutination: inexpensive, rapid bedside tests but lower sensitivity – SimpliRED is best of these.	
Venography	Pro: "Gold standard". Con: Painful, 1% DVT risk, ?historical.	
MRI/CT +/- venography	Pro: 80% sensitive, 100% with venography, cheaper than venography. Con: limited availabiltiy, high cost.	

Question 3: The scan confirms the presence of an isolated, below-knee DVT. Describe and justify your management.

Expected Response	Details & Comments	2.5 min
Key Issues	**- Explanation and consent to Rx** - Symptomatic Rx - Risk factor control **- Need for anticoagulation** - Follow up	
Supportive	Explanation of findings, treatment and implications. Establish no contraindications: pregnancy, bleeding diathesis, bleeding lesions • Address risk factors – smoking cessation not likely to succeed at this stage • Simple analgesia	
Anticoagulation / Antiplatelets This is controversial. No clear evidence of benefit in this case, provided not recurrent, and no reversible risk factors Candidates expected to demonstrate familiarity with options, and justify choice	OPTIONS (may be used in combination) 1. Aspirin with follow-up 2. Heparin - Low molecular weight heparin eg enoxaparin 1.5 mg/kg sc daily or 1 mg/kg sc bd – most practical immediate option, as may be administered on outpatient basis 3. Warfarin for 3 months – INR target 2.0 – 3.0	
Disposition	Short stay or Hospital-in-the-Home admissions are feasible Repeat USS 7 to 10 days (depending on options) – may see no difference, but key is to detect clot progression Follow up with Haematology, and Orthopaedics Anti-embolic stockings – minimises post-thrombotic syndrome	
Implications	Discuss with, and inform patient of implications for: - Activities: sporting, other high risk - Menstruation: no effect expected - Employment: esp if involves physical tasks - Pregnancy: family planning requires discontinuation of warfarin - Travel: esp if on long-haul journeys - Duration of warfarin: typically 3 months, provided not recurrent - Complications: post-thrombotic syndrome, hence importance of compression garments, recurrent DVT - Ongoing risks: smoking, future surgery, OCP	optional

Question 4: If this patient was pregnant, how would this influence your management?

Expected Response	Details & Comments	1 min
Aspirin only	Ongoing risks, ?reconsider anticoagulation.	
Warfarin	**Prompt if not raised.** Absolutely contra-indicated during first trimester due to teratogenicity. Not usually used during rest of pregnancy unless mechanical valve.	
LMWH's	Anticoagulant of choice.	
Unfractionated Heparin	May consider changing to this peripartum	
Duration	Continue until at least 6 weeks post partum and minimum of 6 months total.	
Notifications	Patient's obstetrician and antenatal service GP	

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

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

SCENARIO

A 27 year old woman presents to your Emergency Department with left calf swelling for the last 2 days. She is a smoker who had a left knee arthroscopy approximately 10 days ago. She is otherwise healthy, takes no other medications, and has no drug allergies.

How would you assess this patient's risk of a DVT?

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO
You are the Consultant in an urban ED, on a busy shift. You receive ambulance pre-notification about a domestic dispute. They are transporting 2 patients both with shotgun wounds. ETA is 10 minutes.

- **Patient 1: 46 year-old male with wounds to his left chest and abdomen.**
  GCS 12 (E3, V4, M5); HR 110/min and thready
  BP 80/p He is on high flow oxygen and has IV saline running.

- **Patient 2: 43-year-old female with minor wounds to her left forearm. Her vitals are stable.**

Question 1: Outline the issues involved in this scenario. **1 min**

Expected Response	Details & Comments	
2 injured pts, 1 critical	Will need adequate personnel/teams to care for them – designate clear roles **Trauma Call** for Trauma team, **alert OT**, CT, blood bank etc, ensure SW involvement	
Busy dept	**Organisation of care for these pts and others in dept** Will need to clear space for incoming pts – may need to shift some out etc	
Shotgun wounds	forensic evidence, documentation, police involvement	
?Safety	Pts, staff, ?others	
Media	Likely tv, press, radio – need a plan to manage them, involve media liaison	

Question 2: The ambulance arrives. The male patient is in shock despite 2 litres of normal saline; his GCS has fallen to 8. His chest is hyper-resonant on the right, with bilaterally reduced breath sounds. He has an acute abdomen. Outline your approach to his management.

2 min

Expected Response	Details & Comments	
Critically injured	Hypotensive, tachycardic, decr GCS with unprotected airway, sig chest and abdo inj Aim = stabilise while preparing for OT as definitive mgt	
Acute/initial resus	**Oxygen** 100 % **Fluid resuscitation Blood (**Saline, activate massive transfusion guideline)	
Manage chest inj	**Decompress right side and intercostal tube**, **bilat chest drains**	
Secure airway	**RSI** – most experienced person	
FAST US	For free intraperitoneal fluid and ?pericardial fluid	

Question 3: You have initiated management of this patient. A CXR is ordered. Describe and interpret this film.

2 min

Expected Response	Details & Comments	
CXR - supine	Multiple **shot gun pellets** overlie the left hemithorax, with a cluster of pellets in the midline - ? in the mediastinum **ETT** in situ - ?tip in right main bronchus **(some comment on tube position)** **Large right pneumothorax with radiological tension** **Right ICC drain – crosses midline (needs reposition or second tube)** Left side – No IC catheter at present no obvious pnuemothorax (? Haemothorax) but air under heart and LUQ abdo ? ruptured diaphragm **Fractured left ribs** (?6-8)	

Question 4: The male has been transferred to theatre. While you are reviewing the female, the police ring to advise you of her husband's possible arrival. He is the suspected perpetrator, and may be armed. Outline your response.

1 min

Expected Response	Details & Comments	
Issues	**Request immediate police presence** and **alert hospital security** Activation of hospital code/ disaster plan (? Regional variation) Clinical leadership – communication with, and liaison with key stakeholders including alerting hospital management Notifications Ongoing clinical Mx – patient 2, and rest of ED Media	
Security	**Liaise with police and hospital security** Alert hospital Mx – activation of hospital code	
Communication	**Staff: notification**, and role delegation. OT staff should also be notified. Careful communication with **patients and members of public**: balance of effect - cooperation vs panic Hospital management	
Rest of ED	Patient 2 still requires care +/- protection **Other patients require ongoing care** **Attempt to secure department, make staff patients and visitors as safe as possible** All patients and members of public incorporated into hospital code Ambulance bypass	
Media	Code specifies response to media: issues are safety, confidentiality, public awareness	

Question 5: In general, outline the principles of forensic evidence collection.

1 min

Expected Response	Details & Comments	
Principles	Collection only by trained personnel, without compromise of emergent clinical care **Preservation of evidence, chain of evidence** Documentation Hand over to police	
Meticulous collection without destroying / contaminating evidence	Gloves Collect clothing and all articles in bags Do not cut through holes in clothing, cut around them	
Documentation	Write in pts words, do not embellish Draw pictures to help with recall Take photos – yourself +/- Police photographer preferably	
Hand over	Storage before hand over: preservation and security Hand over to designated member of police **Documentation**	

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

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

SCENARIO

SUPINE

1. Lead examiner …… **Candidate Number:**

2. Co-examiner……

Final Mark:

SCENARIO

A 10 year-old boy re-presents to your ED with right iliac fossa pain and vomiting. He presented late the previous evening, with the same condition. Seen by a junior medical officer, he was discharged with analgesia. His mother is concerned about persistent symptoms.

Question 1: Outline the key features in your history and examination, including a differential diagnosis.

Expected Response	Details & Comments	Pass
Differential diagnoses *Prompt: Any other causes?*	**Acute appendicitis,** Mesenteric adenitis, Constipation, gastroenteritis **Extra-abdominal cause** eg UTI, pneumonia, Acute testis: torsion, torsion of cyst, orchitis, Complication of inguinal hernia	>= 3 incl bold
History	**Pain features:** Onset, site, intensity, radiation	
	Associated symptoms: vomiting/diarrhoea/dysuria/fever/ URTI symptoms Bowels? Appetite?	Bold
	Progress of symptoms since yesterday	
	AMPLE: Allergies, Past History, Medications, Last ate, SHx etc	
Examination	**General appearance, hydration, vital signs** **Abdominal exam adequate**: eg Tenderness, rebound, guarding **Scrotal examination** **General exam** eg resp	Bold

Question 2: Examination of the child's genitalia reveals the following. Describe and interpret this photograph.

Expected Response	Details & Comments	
Red swollen R testicle	**Acute R scrotum**: in view of this and other features,. L scrotum and penis look probably normal; appears to be circumcised.	Bold
Interpretation	DDx: **Torsion of testis** & 1 day or more without intervention: **concerns re testicular viability**. Emergent urology intervention indicated **Infection,** NAI, trauma	Bold
	Governance implications from yesterday's events	

Question 3: You are concerned about testicular torsion. The Urology registrar requests that an ultrasound is done before they see the patient. Discuss the role of ultrasound in this setting, and your response to the registrar.

Expected Response	Details & Comments	
Considerations *Prompt if don't discuss:* *What is the role of ultrasound in the setting of suspected testicular pathology?*	Pros: Non invasive, **can diagnose torsion**, or alternative diagnosis Greater value in adults to demonstrate testicular blood flow and demonstrate orchitis or torsion of cyst	Bold
	Cons: **Can't exclude torsion**, Torsion is a clinical Dx. US not sensitive enough for diagnosis in children; all should have **surgical exploration if torsion suspected**	Bold
Response	**Advise colleague of indication for surgery.** Offer options to facilitate emergent surgical review (eg senior medical staff), rather than US or other procedure. Escalate if necessary.	Bold

Question 4: The child is found to have a non-viable testicle at operation, leading to an orchidectomy. The next day, his mother contacts you to complain. What actions will you take?

Expected Response	Details & Comments	Pass
Key Issues	Complaint management process Clinical Governance Risk Management Staff Support	
Clinical Governance		
Case Review	**Full investigation, interview staff, check documentation**, systems issues Was this preventable? How can this be prevented in the future?	Bold
Resource Issues	Staffing, on-floor support Rostering - ?staff fatigue Availability of other resources, eg after hours US, IP unit advice	
Risk Management		
Communication with patient's NOK **Open disclosure principles**	**Acknowledge bad outcome.** **Arrange time-frame for follow-up contact/meeting** Meet in private environment. Discuss other party's concerns, answer any questions. Gain an understanding of their perception of situation. Expression of regret: "We are so sorry that this has happened". Discuss KNOWN facts. Speculation is risky. Offer ongoing care, assistance	Bold
Documentation	In notes Incident notification	
Notifications	GP, IP unit, **hospital admin**	Bold
Staff Support		
Notification to RMO involved	Avoid punitive attitude Gain info from his/her perspective Counsel re indemnit	Bold
Staff education	Training re clinical red flags Clinical pathways and protocols Optimise on-floor support from senior clinicians Liaise also with other staff, esp Emergency Nursing	Bold

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

……...

……

……

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

……

……

……

SCENARIO 6

A 10 year-old boy re-presents to your ED with right iliac fossa pain and vomiting. He presented late the previous evening, with the same condition. Seen by a junior medical officer, he was discharged with analgesia. His mother is concerned about persistent symptoms.

Question 1: Outline the key features in your history and examination, including a differential diagnosis.

1. Lead examiner ……

Candidate:

2. Co-examiner ……

Final Mark:

SCENARIO

A 47 year-old woman presents to your emergency department complaining of a gradual onset generalised headache and vomiting since yesterday. Her past history includes a renal transplant 2 years ago. She appears disorientated and memory impaired.
Her observations are

Pulse rate	**100**	**bpm**	**BP**	**160/90**	**mmHg**
RR	**14**	**bpm**	**Temp**	**37.8**	**deg C tympanic**
GCS	**14**	**(disorientated)**	**SaO2**	**98%**	**(room air)**

Her medications are perindopril, caltrate, prednisolone and azathioprine.

Question 1: Outline the key features in your history. .....2 min

Expected Response	Details & Comments	
Hx presenting illness (**confirm / expand** on detail)	**Headache** – details - onset, severity, past episodes, prodrome, visual disturbance, speech change, weakness, paraesthesia, other neurological Sx **Systemic features** – rigor, cough, D/V, urinary Sx **Recent antibiotics** / recent illness Travel / infectious contacts / trauma	
Renal Hx	Cause and duration of ESRF; complications of Rx, esp sepsis or graft rejection Baseline renal function Principal healthcare service involved in her Mx	
Medications	Dose / compliance Allergies / adverse reactions, esp to Abx. Recent changes, esp to immunosuppressive agents. Compliance with Rx. Complications of Rx.	
Co-morbidities / Risks	DM (but not on specific Rx); smoking	
Social	Implications for family, income, other personal Level of understanding of chronic disease, and expectations Special circumstances: eg non English speaking background, indigenous etc	
Differential Dx (prompt if not given)	**Meningitis / Encephalitis**- meningococcal, pneumococcal, viral (CMV, HSV), toxoplasmosis, TB Viral encephalitis, in particular HSV **Cerebral abscess** **Subarachnoid haemorrhage** - especially if polycystic kidney disease **Other sepsis**: As with immunocompetent patient: typical/atypical pneumonia, influenza, UTI. Or opportunistic: eg Toxoplasmosis, pneumocystis pneumonia	

Question 2: A non-contrast CT brain is normal. The radiologist suggests a contrast CT. The patient's creatinine is 135 (ref. range <110), which is normal for her. Outline your approach to renal protection in this case.....1.5 min

Expected Response	Details & Comments	
Adequate hydration key, **N-actetyl cysteine** to be considered (prompt if not mentioned) Protection against contrast nephropathy. Highest risk with established renal impairment and dehydration. Despite her higher creatinine, this pt at low risk, provided she is well hydrated.		
Evidence	Limited. Outcomes in studies not optimally established – eg definitions of acute nephropathy, meaningful change in serum creat, and if such changes reversible. Need to account for potential bias, such as intercurrent dehydration as cause of nephropathy. Variations in NAC regime (dosage, route, duration).	
Benefits	Though limited, some evidence suggests prevention of creat rise in certain groups. Very few adverse effects of NAC; does not consume much time to administer. Available, inexpensive, easy to administer.	
Risks / Disadvantages	Potential allergy Most marked disadvantage is that it's probably ineffective, or at best avoids creatinine changes which are reversible anyway. **Adequate hydration** is probably the key preventive method.	

Question 3: The CT Brain with contrast is normal. What are the key issues to consider regarding a lumbar puncture in this patient? .....1.5 min

Expected Response	Details & Comments	
Diagnostic yield	CSF assay the gold standard test for CNS infection Able to direct antibiotic treatment to known organism/sensitivities Public health benefit of data collection/epidemic monitoring PCR/ gram stain may redirect early therapy	
Alternatives	MRI	
Procedure details	Needle size and type; pt position; use of manometry; ?pt sedation **Body habitus** – effect on ease of procedure **Ability to cooperate** / remain still (altered mental status)	
Risks / Complications	**Specific contra-indication**: e.g. thrombocytopaenia / coagulopathy Raised ICP may not be identified on CT Local infection, nerve damage, ICP leak	
Timing	Delays to procedure delay antibiotics Delays to results-delaying antibiotics Would the LP **result actually modify treatment**? i.e. why do it?	
Pt consent & preference	May not be **competent to consent**	

Question 4: Prior to the LP the patient has a generalised seizure. Describe your management. .....2 min

Expected Response	Details & Comments	
Seizure	**General measures** - O_2; guard airway Seek extra assistance, nursing, medical Move to resus bay if not previously- observe further seizures Seek and treat **hypoglycaemia** / hyponatraemia **1st line** - BZD – IV midazolam, clonazepam or diazepam (prompt for doses if time) **2nd line** - Phenytoin load- adjust dose (prompt for doses if time) Watch GCS, if fails to recover to GCS within reasonable post-ictal period - intubate	
Infection	**Empiric antibiotics** / **antivirals**: Ceftriaxone, Acyclovir, Penicillin or Ampicillin (for Listeria) Bolus dose corticosteroid prompt for antibiotics – if not given earlier	
Lumbar Puncture	Defer, at least until pt stabilised Seizure is not an absolute contra-indication for LP, given normal CT. Candidates should justify their choice to proceed or not	
Disposition (prompt if needed)	Will need transfer to tertiary centre with home renal team- may need to intubate for transfer Communication with receiving team Documentation	

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?

SCENARIO

A 47 year-old woman presents to your emergency department complaining of a gradual onset generalised headache and vomiting since yesterday. Her past history includes a renal transplant 2 years ago. She appears disorientated and memory impaired.

Her observations are

Pulse rate	**100**	**bpm**
BP	**160/90**	**mmHg**
RR	**14**	**bpm**
Temp	**37.8**	**deg C tympanic**
SaO_2	**98**	**% (room air)**
GCS	**14**	**(disorientated)**

Her medications are perindopril, caltrate, prednisolone and azathioprine.

Question 1: Outline the key features in your history.

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**
- **spO_2 100 % 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 FiO2 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 <u>THIS</u> 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 = 10cmH_2O, Exp = 5cmH_2O**. Ratio 2:1 May need to tritrate 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 paedaitric ventilation	
Equipment	Ready for ETT if NIV and portable ventilator	
Drugs	For mainatining 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 <u>feedback</u> would you suggest CIC provide for this SCE?

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**
- **spO_2 100 % on high flow oxygen**

Question 1: Outline the key features in your examination of this child.

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO

An 82 yr old woman presents with 10 hours of abdominal pain, fever and diarrhoea. Her past history includes ischaemic heart disease, chronic atrial fibrillation, Type 2 diabetes mellitus and chronic renal impairment. Her vital signs are: *Temperature of 39.1℃; HR of 110/min and irregular; BP of 90/ 66 mmHg.* A plain abdominal XR is taken. She is in a monitored cubicle of your Emergency Department.

Question 1: **Describe and interpret the x-rays** *(included in stem)*

Expected Response	Details & Comments	1.5
Positive findings	Erect and supine plain AXR – *small bowel dilatation and multiple air:fluid levels suggestive of obstruction or ileus. Well defined R lower quadrant opacity – extra-peritoneal, probably subcutaneous Scoliotic, spine. Osteopaenia.	
Relevant negatives	No gas in rectum; free gas not excluded Diaphragms not fully viewed	
Conclusion(s)	Patient showing signs of shock. Given her age and preliminary findings, the prognosis is guarded, irrespective of actual Dx.	
Differentials (asterisks and 1 other)	***Small bowel obstruction:** adhesions, herniae **Ileus:** sepsis, GI ischaemia **Inflammatory intra abdominal pathology**- diverticulitis, pancreatitis, appendicitis, inflammatory bowel disease **Vascular pathology**- mesenteric ischaemia* **Infective gastroenteritis** Other: Digoxin toxicity	

Question 2: **Your clinical assessment leads to suspected mesenteric ischaemia. Discuss the options for further imaging in this patient.**

Expected Response	Details & Comments	2 m
Pros and cons Consider: Diagnostic yield, risks, contra-indications, logistics**.**	***CT with contrast/ CT angiography**- given the clinical condition of the patient. Most sensitive for patient's with mesenteric venous thrombosis. However, risk of contrast nephropathy. Sensitivity and specificity can be as low as 64% and 92%. Findings – absence of contrast enhancement, pneumobilia, pneumatosis intestinalis, arterial and venous occlusion- thrombotic / embolic. Caution -Cr clearance and contrast allergies **MRI/MRA-** MRI**-** good resolution of bowel wall oedema, limited resolution of bowel gas, MRA- detailed information of the vasculature. Dependent on availability and turn-around time. **Angiography-** specific and gold standard, diagnostic and therapeutic. Limited availability, and risk with radiocontrast. This patient is a high-risk candidate for complications. Identify the type of occlusion, site of occlusion and state of collateral circulation. Emboli – filing defect, Thrombus- acute cut off of contrast. **US** –Limited value in acute setting. Useful in chronic state, assessing vascular flow- 87% and 98% sensitivity in identifying celiac and SMA stenosis respectively	
*No imaging (prompt)	If deemed only for palliative Mx, **OR** If immediate exploratory laparotomy/ laparoscopy indicated	

Question 3: Describe and interpret the patient's CT scan of abdomen.

Expected Response	Details & Comments	2 m
Findings **Only basic info required**	CT with *contrast. Identify main structures: *Dilated, oedematous loops of small bowel- thick walled and non-contrast enhancing. Note also loops which are clearly contrast enhancing. No free gas, minimal mesenteric contrast, aorta normal diameter	
Interpretation	Acute ischaemic bowel, probably from cardiac embolus. Aetiologies: - Acute mesenteric arterial embolism or thrombosis - Mesenteric venous thrombosis - Non occlusive mesenteric ischaemia Laparotomy is potentially life-saving. Regardless, prognosis is poor	

Question 4: Outline the factors affecting the decision regarding operative treatment for this patient.

Expected Response	Details & Comments	1.5
Critical decision: 100% mortality without surgery; time critical if opt for it		
*Patient's wishes	Advance directives Patient potentially unfit to decide, even if *compos mentis* pre-morbidly	
Next of Kin	Medical power of attorney if applicable Choice must be informed and not coerced	
Co-morbidities	Premorbid QOL Complications of current illness – eg acidaemia, shock Other illness – heightening risks of perioperative morbidity / mortality Other risks: eg current warfarin or antiplatelet therapy	
Clinical progress	Response to initial resuscitation	
Current resources	Availability of urgent surgical services and ICU, and their *opinion If unavailable, pt unlikely to be suitable for transfer	
If time available	Describe pre-operative workup and treatment	

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

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

SCENARIO

An 82 yr old woman presents with 10 hours of abdominal pain, fever and diarrhoea. Her past history includes ischaemic heart disease, chronic atrial fibrillation, Type 2 diabetes mellitus and chronic renal impairment.

Her vital signs are:

- ***Temperature of 39.1˚C***
- ***HR of 110/min and irregular***
- ***BP of 90/ 66 mmHg***

A plain abdominal XR is taken (enclosed). She is in a monitored cubicle of your Emergency Department.

Question 1: **Describe and interpret the x-rays.**

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final** **Mark:**

SCENARIO
You are the ED consultant receiving morning handover, when you receive a request for your immediate help from the Emergency Short Stay Unit. You attend a 25 year-old female who is receiving her first unit of packed red cell transfusion, for anaemia complicating menorrhagia. Her vital signs are:
HR 120 (thready) BP 60/40 mmHg RR 40 /min T 40 ^{0}C

Question 1: Outline your differential diagnosis and your initial response to the scenario.

Expected Response	Details & Comments	
Patient in Shock	**2min**	**/3**
Differentials	**Acute transfusion reaction** - haemolytic or non-haemolytic-ABO incompatibility Anaphylactic shock Transfusion related non-cardiogenic fluid overload including transfusion related acute lung injury Acute septic shock from contaminated blood Hypovolaemic shock from ongoing bleeding -exclude Ruptured Ectopic Pregnancy	
Response	**Cease blood transfusion – mandatory** **Move to ED resuscitation area, assemble team and roles**	
Reassess ABC	Seek and treat immediate life threats Continuous physiological monitoring Ensure adequate IV access Supplemental O_2 Reassess patient's PV loss	
Specific actions	**Volume resuscitation** Consider Inotropes/Steroids/Antihistamines **Review blood products and compatibility / Return sample to blood bank ASAP / Re-Xmatch** Investigations as clinically indicated: Blood / Urine/ CXR, abdo/pelvic imaging	
Other	Communications: Patient, NOK Documentation / Incident report Rest of ED: handover still needs to happen! Delegate tasks.	

Question 2: She is now in the resuscitation room. After 2L of IV Normal Saline, she remains hypotensive, with a BP 80/40 mmHg, but a stronger pulse of 100/min. Your examination has excluded vaginal bleeding, and her Beta HCG is negative. What are the issues in her ongoing treatment?

Expected Response	Details & Comments	
	2 min	**/3**
Volume resuscitation PROMPT for endpoints	Crystalloids, although she is anaemic! – Candidates to justify and acknowledge caveats if use blood / products. **Justify resuscitation end point**s – vital signs, ABGs, UO, CVP monitoring, peripheral perfusion, not confused, IDC with UOP 0.5-1 ml/kg/h, lactate	
Consider **Inotropic support**	Noradrenaline, Adrenaline, Doses – bolus vs infusion; adrenaline preferred as anaphylaxis not responsive to other vasopressor Rx; steroids helpful for allergic reaction and to augment vasopressors	
Anaemia	Weigh balance between benefit and risks of continuing transfusion. Depends of original Hb, ongoing losses, likelihood of Tx reaction…	
Fever Control	Paracetamol; antihistamines are antipyretic but care with vasodilatation in context of shock	
? Empiric antibiotics	Fever more likely to be from acute transfusion reaction, but temp is very high. ? Sepsis. Choice also based on clinical assessment, eg localising Sxs and signs. Broad spectrum indicated if used.	

Question 3: Please describe and interpret her blood tests: (hand to candidate)

ABG on 6L/min O_2:

pH	**7.1**		**(7.35 – 7.45)**
pCO_2	**20**	**mmHg**	**(34 – 45)**
pO_2	**120**	**mmHg**	**(80 – 100)**
HCO_3^-	**10**	**mmol/L**	**(20 – 26)**
BE	**-10**		**(-3 - +3)**
Lactate	**7.0**	**mmol/L**	**(0.5 – 2.2)**
WCC	**17**	**x 10^9/L**	**(4 – 11)**
Hb	**88**	**g/L**	**(130 – 185)**
Platelets	**170**	**x 10^9/L**	**(150 – 450)**

Expected Response	Details & Comments	
	2 min	**/2**
Severe **acidaemia** Metabolic (lactic) acidosis	Consistent with prolonged hypo-perfusion or correlates with severe sepsis.	
Resp alkalosis	Significant resp compensation for primary metabolic acidosis	
pO_2	However, high Aa gradient exists (precise calculation not possible) - ?pulmonary infiltrate or fluid. PE less likely.	
Elevated WCC	Stress or sepsis related increased WCC	
Mild **anaemia**	Hb 88 suggests not a transfusion trigger and not consistent with massive pre-event menorrhagia. But possibly partially treated with Tx. Comparison with pre-Tx Hb needed.	
Interpretation	Consistent with current clinical picture. Critically unwell patient. Severe met acidosis tissue hypoxia and/or sepsis.	

Question 4:. The patient is admitted to ICU for further management of a severe transfusion reaction. What measures can be taken in the ED to prevent transfusion reactions?

Expected Response	Details & Comments	
	1 min	**/2**
Hospital and clinical unit blood transfusion protocol if not already done	Use ANZBT/NHMRC Guidelines on Blood Product use: Trigger: for packed cell use-Hb<75 or if >75 symptomatic anaemia or pre-existing COPD/CCF/IHD Blood compatibility testing: in concert with Blood Bank Blood product checking-pt name/ DOB, blood product expiry, macroscopic check for contamination, counter check Intensive initial monitoring and surveillance for early reactions	
ED protocol	Review ED Short Stay Unit admission Criteria Consider ED Consultant / senior medical approval for blood transfusion Special nursing assigned to patient initially Avoid transfusions commencing overnight unless clinical status requirement Monitored area with visual access	
Education	Inservice / CME to Medical and Nursing staff within ED Review of adverse events in M+M meetings	

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?

SCENARIO

You are the ED consultant receiving morning handover, when you receive a request for your immediate help from the Emergency Short Stay Unit. You attend a 25 year-old woman who is receiving her first unit of packed red cell transfusion, for anaemia complicating menorrhagia.

Her vital signs are:

HR	**120 (thready)**	**bpm**
BP	**60/40**	**mmHg**
RR	**40**	**/ min**
Temperature	**40**	**^{0}C**

Question 1. ***Outline your differential diagnosis and your initial response to the scenario.***

Question 3: Please describe and interpret her blood tests.

ABG on 6L/min O_2:

pH	**7.1**		**(7.35 – 7.45)**
pCO_2	**20**	**mmHg**	**(34 – 45)**
pO_2	**120**	**mmHg**	**(80 – 100)**
HCO_3^-	**10**	**mmol/L**	**(20 – 26)**
Base Excess	**-10**		**(-3 - +3)**
Lactate	**7.0**	**mmol/L**	**(0.5 – 2.2)**
Hb	**88**	**g/L**	**(130 – 185)**
WCC	**17**	**x 10^9/L**	**(4 – 11)**
Platelets	**170**	**x 10^9/L**	**(150 – 450)**

Lead Examiner …… **Candidate Number:**

Co-Examiner …… **Final Mark:**

SCENARIO

A 73 year-old woman is brought into your urban district Emergency Department after a fall at home. Her husband witnessed the fall; he reports that she fell forward, striking her forehead on a coffee table. Currently her heart rate is 90, her systolic blood pressure is 110 and her GCS is 15.
Neurological findings:

- **Weakness and hyporeflexia in all limbs, worse in upper limbs than lower limbs.**
- **Reduced sensation in parts of the upper limb but normal in the lower limbs**

Question 1: Outline the key features in your history. (2 minutes)

Expected Response	Details & Comments	Expected Answer
Issues	Cause of fall – "Mechanical" vs "Medical" – Not mutually exclusive in elderly pt Establish if contributory medical conditions eg arrhythmia, hypotension, CNS deficit, anaemia "Medical" causes – syncope vs seizure vs other CNS Determine consequences of fall – findings are suggestive of central cord syndrome	• Must have high index of suspicion of non-mechanical fall • Obtain appropriate history, including o Collateral from husband o Account of fall o Past medical history (CVD, CAD, Falls) o Medications (anticoagulants, antihypertensives, anti-arrhythmia) • Identify sequelae of fall o Conscious level o Neck or other pain o Motor deficits
History	Collateral is crucial, from husband – circumstances, triggers, preceding phenomena, such as dizziness, CP, headache Post fall events – LOC, seizure, drowsiness, confusion Trauma to other areas apart from head Risk factors: Hx of falls, CNS deficits such as stroke, arrhythmias, anti-HT meds Other PHx: DM, stroke, CVS disease are relevant Other meds – anticoags or antiplatelets are relevant Home circumstances – premorbid QOL, levels of support **Symptoms:** neck pain, focal weakness or numbness (?consistent with exam findings)	

Question 2: You suspect a spinal cord injury. Outline your management of the patient (2.5 min)
PROMPT: If necessary, redirect towards spinal cord injury.

Expected response	Details and comments	Expected Answer
Supportive	**ABC**s – anticipate <u>possible</u> neurogenic shock **Immobilisation** (if not already applied): collar as minimum **Analgesia** Communication and support – she is awake and aware. Also care of husband.	**Bold to pass**
Specifics	**Treat co-morbidities and other injuries** Superficial wound Mx – eg on forehead If anticoagulated – reversal, balanced against risks Tetanus immuno-prophylaxis ? High dose corticosteroids – evidence is equivocal, particularly for incomplete lesion such as this. Candidate expected to justify their choice, and demonstrate familiarity with issues. **Consultation with spinal service** is indicated. NGT- Ileus possible **IDC**- Monitor urine output - urinary retention common Pressure care	
Disposition	**Needs transfer to specialised spinal (or Major Trauma) unit** Candidates may organise retrieval or facilitate medical escort themselves	

Question 3: Just prior to transfer, nursing staff alert you to a deterioration in the patient. Her HR is now 101 bpm and her SBP 88 mHg. Outline your response. (2.5 min)

Expected Response	Details & Comments	Expected Answer
Delay transfer	Delay until confident that transfer is safe and appropriate	Bold required Identify three causes: • Haemorrhage • Cardiac • Sepsis
Reassess patient	Reassess patient	
Identify reversible causes for deterioration	Medical causes of original fall – cardiac arrhythmia/failure Needs cardioresp monitoring and repeat 12-lead ECG. Specific Rx pending findings.	
	Precipitating event- Search for other causes! Eg Haemorrhage, sepsis, allergic reaction.	
	Exclude haemorrhage- Tachycardia is a concern. Other imaging such as FAST or CT, subject to clinical re-evaluation.	
	Exclude sepsis- May cause hypothermia	
	?Neurogenic Shock- HR is not consistent. Central cord syndrome is an incomplete injury, and usually does not cause neurogenic shock. Low temp from ? exposure or other injury.	
Fluid therapy	IV crystalloids, titrated to parameters: specific target BP, UO, ABG, GCS	
Other	Documentation Update stakeholders: retrieval service, receiving hospital, NOK	

Question 4: Compare and contrast CT versus MRI in the evaluation of suspected acute spinal cord injury.

Urgent neuroimaging indicated. Trade off between diagnosic yield and availability / safety.		
CT	**MRI**	
Higher yield for bony injury; limited assessment of discs, cord, roots	Gold standard for neuroimaging	
Higher availability	Unlikely to be available at urgent notice in urban district ED	
Rapid assessment with late generation scanner	Prolonged period on table – high risks if pt unstable Likely delay of inevitable transfer to tertiary service	
Radiation exposure	No radiation exposure, but contra-indicated if she has PPM or other certain metal in situ	
Easier to interpret: gross abN can be determined without radiologist	Need for radiology interpretation adds to turn-around time	
Conclusion: MRI definitive option, but impractical in urban district ED setting. Opt for urgent CT if suspect associated C-spine #. Then defer MRI until transferred to tertiary service.		

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

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

A 73 year-old woman is brought into your urban district Emergency Department after a fall at home. Her husband witnessed the fall; he reports that she fell forward, striking her forehead on a coffee table. Currently her heart rate is 90, her systolic blood pressure is 110 and her GCS is 15.

Neurological findings:

- **Weakness and hyporeflexia in all limbs, worse in upper limbs than lower limbs.**

- **Reduced sensation in parts of the upper limb but normal in the lower limbs**

1. Lead examiner **……..……..**

2. Co-examiner **……..……**

Candidate:

Final Mark:

SCENARIO: Communication / Febrile Convulsion

This is Mrs Morris. Please proceed with the consultation.	**Not Met**	**Partly Met**	**Fully Met**
Rapport, Reassurance, Trust and Ethical Therapeutic Relationships			
Convey relevant information and explanations			
Develop a common understanding of issues, problems and plans			
Convey effective oral (and written) information			
Appropriate non verbal communication			
Appropriate use of demeanour, language and words			
Identify and explore issues, including reasons for refusal / preferences			
Inform patient to facilitate appropriate consent for procedure (tailored to patient's demographic, cultural and intellectual context)			
Problem-solve			
Implement an effective plan in collaboration with the patient			

ACTOR feedback:

Not Comfortable	Partially Comfortable	Fully Comfortable

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

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

Initial Contact / Introduction

PATIENT / PROMPT	Details & Comments	Score
Introduction	Name/title / position	
Overall Objectives	• Explanation of diagnosis, procedures undertaken and ongoing care • Address mother's concerns and queries	
Open the discussion with patient	Broach subject at hand Explanation	
Seek mother's view **PROMPT**	Allow her to speak Variety of approaches acceptable	

Explanation / Communication re Injury/procedure

PATIENT / PROMPT	Details & Comments	Score
PROMPT	Needs adequate explanation in terms comprehensible to mother Explanation of febrile convulsion • Seizure due to febrile illness, does not signify serious pathology • Common: 2-4% of children have one, age group 3 mo – 6 yrs • Usually short lasting (15 mins) Explanation of causes and pathophysiology • Due to temperature rise • Does not signify serious bacterial infection more likely than viral • No good evidence that paracetamol prevents Explanation re implications of this condition • Does not have developmental implications - no link with neurological sequelae, developmental delay, behavioural disorders • No association between simple febrile convulsions and sudden death • Recurrent febrile convulsions occur overall in approx 30% of patients, in 20% of older patients like this one • Future epilepsy – there is an increased risk but this is small. Population studies suggest 2-5% of patients with a simple febrile convulsion go on to develop epilepsy by young adulthood (this is approximately 2-5x the normal risk) • Does not indicate need for special investigations ie. May occur with simple illness like URTI	

PROMPT	Explanation of ongoing care of child
	• Discharge and management at home is common
	  ○ Explains rationale
	  ○ Advice re actions in event of further seizure	

SCENARIO

- **You will ROLE PLAY a consultation with Julie, who will be played by an ACTOR.**
- **The examiners will NOT be asking any questions and do NOT expect you to interact with them.**

You are the consultant in charge of the ED.

4 yo Alana Morris presented via ambulance with her mother after a febrile convulsion. She suffered a viral URTI for the preceding 2 days, with a temperature of 38deg C. The child suffered a generalised convulsion lasting approximately 2 minutes. Her mother, Julie, called the ambulance immediately.

The ambulance crew arrived promptly to find the child in a drowsy, post-ictal state. Delivered to your ED soon after, Alana remains drowsy, with a persistent fever of 38.5 deg C. Your assessment deems that she has an isolated viral URTI. All biochemical and metabolic parameters are normal. The child is recovering, and you anticipate full recovery.

Julie was present during initial care in the resuscitation bay. She began to feel unwell so was taken to the Family Room shortly after their arrival. 10 minutes have elapsed since then, and <u>she awaits your arrival to discuss Alana's condition.</u>

Background Information for Actor

Important Note

The ACEM Fellowship Exam involves examiners and candidates from all Australian states and New Zealand. To optimise fairness for all candidates, all character and scenario features will NOT have demographic details.
In interactions with candidates, please do NOT refer to demographic specifics. For example, you work in the city, you live in the inner suburbs instead of Mermaid Beach.

The Character

Mrs Julie Morris is a 37 year-old married mother of 2 healthy children. Her husband James is a 38 year-old public relations officer for an electricity supplier. She works as a human resources coordinator part-time for an insurance company in the city. She has no medical knowledge beyond that of an average lay person. Her children are Patrick (aged 7) who is a healthy boy who has had no significant illnesses, and Alana (aged 4) who is also usually well. Neither child has ever been to hospital. Julie and her husband James are both well, with no significant medical history. Neither they nor their immediate family have ever had a seizure or 'fit'. Patrick attends primary school and Alana goes to day care 3 days a week. Today was supposed to be a 'day-centre day'; however Julie stayed home to look after her as she had been unwell.

The Scene

Alana had been off colour for the last 2 days with a runny nose and a bit of a cough. She had been eating reasonably and behaving pretty normally yesterday. This morning she did not want to get out of bed and said she felt sick. You let her sleep in and helped James get Patrick ready for school. After they left you got Alana up and took her to the bathroom. She felt very hot, so you went to the kitchen to get her some paracetamol for her temperature. While there, you were calling your work to tell them you wouldn't be in when you heard a funny noise from the bathroom. You rushed there to find Alana shaking or 'fitting' on the floor. She kept fitting for another minute and then stopped. She looked a bit blue and you weren't sure if she was breathing. You panicked a bit because you thought she might be dead. She then started to breathe and you called 000. The ambulance then arrived. It seemed like forever, but was probably only 5 minutes. You thought the ambulance personnel were great. You and Alana were rushed to the nearest Emergency Department.

It is now 10.00am on a Tuesday. You have been in the ED for about 30 minutes after arriving by ambulance with Alana. During this time your daughter had an initial assessment in the resuscitation room. An IV cannula was placed, blood tests taken, and she has received some rectal paracetamol. Several nurses and doctors have been involved in her care, including the Emergency Consultant who is coming to speak with you now. You had been impressed with the care that Alana has received so far. Alana had been gradually becoming more responsive to you. You began to feel a little faint, so were taken to the relatives' room where you have been for about 10 minutes. The senior ED doctor said that they would come and talk to you soon. He or she will arrive within 3 minutes.

FACTS:

Febrile convulsions (a seizure due to a high temperature) are common in childhood. They do not necessarily signify a serious infection and the vast majority of children recover completely to have no further seizures. The vast majority of children who have a febrile convulsion do not grow up to have epilepsy and continue to develop normally.

You do not know this. Your concerns include

- You were very frightened, for a period you though she might have died
- You are worried that she might have a serious infection such as meningitis or a problem such as a brain tumour
- You are concerned that she may have some brain damage from the seizure
- You are concerned that she may go on to have further seizures in the future ie. Be an 'epileptic'
- You are worried about what you should do or what might happen if she has further seizures at home (if you take her home)

It is expected that Alana should gradually return to her usual state over the next few hours.

The standard approach is to assess and investigate Alana for the cause of her temperature, disregarding the fact that she has had a seizure. That is, if the child recovers normally and assessment suggests a viral upper respiratory infection as the cause, it is appropriate consider discharging him/her from hospital. Special investigations (eg CT head, lumbar puncture, x-rays etc) are not performed unless there is a particular reason. Children are usually observed for a number of hours in the ED until results of necessary investigations are available, the child has returned to normal, and satisfactory discussions have occurred with parents.

The senior doctor (examination candidate) is likely have a discussion with you regarding the above information. It is likely that they will raise the topic of Alana going home with you today.

You and your family are educated, reasonable lay people, who have never encountered a situation like this before. Your main concern is to make sure that nothing bad happens to Alana.

The senior doctor is a specialist in Emergency Medicine.

Each interaction lasts only 7 minutes, and many will be done in quick succession.

YOUR OBJECTIVES:

Understand what has happened

Obtain answers to your concerns outlined above

- You were very frightened, for a period you though she might have died
    - How serious is it ?
    - Is it life-threatening?
        - Could she have some brain damage from the seizure?
- Why has it happened?
    - Does she have a serious infection such as meningitis or a problem such as a brain tumour?
    - Does she need special tests for this or a scan?
    - Does she need antibiotics for her cold?
- What will happen from here?
    - Will she go on to have further seizures in the future ie. Be an 'epileptic'?
    - Will she develop normally?
    - Will she have fits every time she gets a temperature?
    - How long will she be in hospital for?
- Is it safe to take her home
    - Wouldn't she be safer in hospital?
    - What to do if she has further seizures at home (if you take her home)?

Your reactions, emotions and opinions should be that of Julie (considering her characteristics) when faced with this scenario. React to individual candidates as Jenny would.

Please **maintain consistency** with Jenny's character nuances, events and tendencies.

1. Lead examiner…… **Candidate Number:**

2. Co-examiner ……

Final Mark:

SCENARIO

A 35 year old female is triaged into a monitored cubicle in your ED after taking an overdose of her mother's 'heart tablets'.

Question 1: Please outline your initial assessment. (2 minutes)

Expected Response	Details & Comments	
History	**Details of ingestion.** Collateral, pill packets**. Co-ingestion**	Bold to pass
Prompt: what ingestions are you concerned about.	? life-threatening ingestion: Ca++ channel blockers (CCB), B-Blockers, digoxin, anti-arrhythmics (Type I & III).	3 to pass
	Past medical history & medications	
	Mental state & safety issues - Voluntary patient? Mental health act regulation/ 1:1 Nursing required? Psychiatric history.	Bold to pass
Examination If give very generic answer, use prompt Prompt: Given the possible ingestion, what specific examination findings are you looking for	ABC, pulse, BP, toxidrome to suggest agent, co-ingestion. 1) CCB, B-Blocker: bradycardia/AV block/hypotension 2) type I antiarrhythmic (or propranolol): tachycardia, hypotension, QRS widening 3) Digoxin: Peaked T wave, nausea, bradyarrhythmias/ AV block or rarely tachyarrhythmias 4) Sotalol: bradyarrhythmia, ↑QT, torsades	
	Psych features: Hallucinations, delusions, etc	
Investigations	**ECG** as above (*Prompt for features if not given above.)* **BSL** (up in BB, down in CCB), Blood gas (hyperkalaemia with Dig), U&E's , digoxin level **Paracetamol** level	Bold to pass

Question 2: Her mother reports that she has taken 30 x 240mg sustained release verapamil 2 hours ago. Initial observations are normal. Her initial ECG shows normal sinus rhythm at a rate of 70/minute.

What would you do now ? (2 minutes)

Expected Response	Details & Comments	
Potentially lethal OD Prompt: What is your risk assessment ?	Sustained release verapamil, **high risk of deterioration**, may be delayed	
Decontamination	Activated **charcoal** and consider whole bowel irrigation indicated. *Prompt: what is the role of decontamination in this patent?*	All bold to pass
Seek expert advice		
Monitoring	Continuous **monitoring** in high dependency area. 24 hours minimum.	
Mental Health Act?	May require **involuntary detainment**/ treatment under Guardianship or Mental Health Act / Duty of care	

Question 3: When you next review the patient, these are her observations: PR is 40, BP 80/40, RR 18, Sats 97%on RA. Her GCS is 12 (E3, V4, M5). How would you manage her? (2 minutes)

Expected Response	Details & Comments	
Life threatening ingestion confirmed.	Escalation of therapy to support circulation + continuation of bowel decontamination which may require intubation for **airway protection** in light of fall in GCS. **Relocate to resus** room with 1:1 nursing. Consultation Toxicologist.	
Airway	**Airway protection** Needs ongoing whole bowel irrigation. Toxicity likely to worsen + be prolonged. Unless GCS 'normalises' with improved BP then perform RSI and continue WBI.	
IV fluids		
CVS support	End points of therapy: MAP 60-70, HR 60, perfusion, UO 1ml/kg/hr, lactate/BE	
	IV calcium: hi dose boluses + infusion. Target ionised Ca > 2 mmol/L	
	Inotropes: Catecholamine (eg. Adrenaline/ noradrenaline up to 50 mcg/min). Art line + CVL.	
	Insulin euglycaemic therapy: Actrapid 1 u/kg bolus + 25g **glucose** IV. Insulin at 0.5-2u/kg/hr. Dextrose 50% at approx. 1 ml/kg/hr. 30 min BSL.	
2nd line therapy	Glucagon: 5mg bolus + 5mg /hr if effective. Supply issues. Trancutaneous pacing: May be of benefit, issues with poor pump function Intralipid ECMO	
ICU/ HDU	Notify ICU : potential admission depending on degree of therapy. If requiring maximal medical therapy then transfer to facility with availability of IABP +/- ECMO or cardiopulmonary bypass	

Question 4: After phone consultation ICU suggests CCU admission under cardiology as they have no vacant ICU beds. How would you respond? (1 minute)

Expected Response	Details & Comments	
Inappropriate suggestion	Risk of deterioration. CCU lacks expertise to manage all potential complications/ administer therapies. Ask ICU consultant to review the patient	Needs to engage in consultant level discussion
Options	Make an ICU bed or transfer to ICU	
	Transfer a less unwell patient to another ICU	
	HDU level of care available?	
	Ongoing review by ICU, Appropriate documentation of discussions	

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

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

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SCENARIO

A 35 year old female is triaged into a monitored cubicle in your ED after taking an overdose of her mother's 'heart tablets'.

Question 1: Please outline your initial assessment.

These are now her observations:

PR is 40

BP 80/40

RR 18

Sats 97% on RA

Her GCS is 12 (E3, V4, M5)

1. Lead examiner…… **Candidate Number:**

2. Co-examiner ……. **Final Mark:**

SCENARIO

A 40 year-old man is brought to your tertiary ED after being found unconscious in a police watch-house cell. It appears he hanged himself with a belt, tied to a ceiling beam. Ambulance personnel report the following at handover:

- **GCS 5 (E1, V1, M3)**
- **Temp 37deg C**
- **HR 110 bpm**
- **BP 180/90 mmHg**
- **RR 16 bpm – spontaneous respirations, with stridor**

Ligature bruising / oedema around neck. Some ventilation assistance provided with bag/valve/mask device. Hard cervical collar applied.

Question 1: Describe your initial management (included in stem). (2 minutes; 3 marks)

Expected Response	Details & Comments	
Incomplete hanging with strangulation	Given mechanism and initial findings: probable laryngeal trauma, with hypoxic cerebral injury. C spine injury less likely, but initial precautions prudent.	
Resuscitation approach	Assemble team. Assume leadership. Delegate tasks. Clear communication.	
Primary Survey	ABC, determine neurological status prior to RSI: GCS, deficits, pupils, spinal reflexes	
Airway	Needs urgent **intubation**. **Anticipate difficult airway**. Assign to most experienced airway personnel. Manual in-line C spine immobilisation (C spine injury is low probability, so candidates may opt to justify their reason for NOT performing this). **RSI** – maintain BP (hence CPP)	
Ventilation	Post intubation – maintain high pO2 and normocarbia, given hypoxic cerebral ischaemia	
Circulation	Hypoxic cardiac arrest is a risk, dependent on hypoxia "down time". Current high BP probably from high ICP. Avoid BP drop. Maintain full **cardiac monitoring**. Aim **MAP at 90mmHg**	
Disability	Neurological assessment important prior to RSI (see above). Anticipate significant secondary neurological injury from hypoxia and venous congestion. Needs ongoing **neuroprotective measures** (keep ICP low): head up at 30deg, high pO2, normal pCO2, sedation, paralysis. Consider induced hypothermia.	

Question 2: The patient is successfully intubated, and is clinically stable with supportive management. Outline the important features in the HISTORY of this case. (2 minutes; 2 marks)

Expected Response	Details & Comments	
Prognostic Indicators	"Down Time"; first aid / BLS rendered, if any; initial vital signs and GCS Cardiac arrest at scene – if so, a poor prognosis, as the cause is secondary Co-morbidities, including illicit drug history and possible current drug / alcohol effects Previous / current injuries Estimated height of hanging "fall" – fall of patient's height (complete hanging) poses high probability of C-spine trauma	3 of 5 sections
Psychiatric and D&A	Reasons for suicide attempt Known mental illness, esp previous such attempts, psychosis Drug and EtOH history, including possible current intoxication	
Medical Hx	Pre-existent illness may lower threshold for complications – eg DM, previous cardiac Hx Current prescribed medications Allergies / adverse reactions	
Social	Next of Kin – need for notification Current supports – eg social work case worker	
Medico-legal	Reason for incarceration – consider current safety issues Police liaison – mandatory notifications	

Question 3: The patient has been on a ventilator for a brief period. Initial arterial blood gases are available. FIO_2 is 100%.

pH	**6.8**	
pCO_2	**55 mmHg**	
pO_2	**180**	**mmHg**
O_2 saturation	**90**	**%**
HCO_3	**11**	**mmol/L**
Base Excess	**-15**	

Describe and interpret these results. **(1 minute; 2 marks)**

Expected Response	Details & Comments	
Severe acidaemia	**Mixed severe metabolic and respiratory acidosis** Likely prolonged tissue hypoxia from strangulation. Possible other causes like toxins (?deliberate ingestion prior to hanging) Hypoventilation / apnoea pre intubation. However, expect pCO2 to be lower, post intubation and ventilation.	Bold
Hypoxia despite high FIO_2	A-a gradient >470. Impaired gas exchange.	
Hypercarbia	Inadequate ventilation	
Implications	**Critical ventilatory inadequacy** (equipment, patient factors). Need to seek and reverse cause(s)	

Question 4: The patient develops high airway pressures.

Outline your approach. **(2 minutes; 3 marks)**

Expected Response	Details & Comments	
Control situation **(Systematic approach required- patient + equipment factors)**	**Remove from ventilator. Hand ventilate** with BVM device, on 100% O_2. Check all lines and tubing. View ETT and cords with laryngoscope. Ensure adequate sedation and paralysis. Insert gastric tube and empty stomach. Seek and treat other possible condtions, as per below:	
? PTx	Clinical signs, high ventilation pressures; urgent portable CXR	+ 3 of 5
? [R] main bronchus	Clinical signs, CXR	
? Aspiration	Hx of vomiting; may not be visible on early CXR	
? Airway trauma	Subcut emphysema, low ventilation pressures	
? Bronchospasm	High airway pressures; exp wheeze; chest hyperinflation	

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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- **GCS 5 (E1, V1, M3)**
- **Temp 37deg C**
- **HR 110 bpm**
- **BP 180/90 mmHg**
- **RR 16 bpm – spontaneous respirations, with stridor**

Ligature bruising / oedema around neck. Some ventilation assistance provided with bag/valve/mask device. Hard cervical collar applied.

Question 1: Describe your initial management.

1. Lead examiner ……

Candidate Number:

2. Co-examiner …….

Final Mark:

SCENARIO

A 26 year old female is transferred to your tertiary emergency department with a 2 day history of recurrent syncope. Her referral letter states that she has a 3 day hx of nausea and vomiting and a diagnosis of recurrent pseudo-obstruction.

Her vital signs on arrival are PR 75/min, BP 105/50, RR 20/min, T 36.8°C, O_2 saturation 99% (room air). She looks unwell and appears significantly underweight.

The nurse performs a 12 lead ECG.

Question 1: Please describe the ECG. (1 minute)

Expected Response	Details & Comments	
Shows 12 lead ECG	**Sinus rhythm** **Rate changes** (possible sinus arrhythmia, possible Mobitz 2) Normal PR interval **QT prolongation** (esp inferior leads) **U waves** T wave abnormality anteroseptal leads	To pass = Prolonged QT + 2 other bold

Question 2: How would you assess this patient? (2 minutes)

Expected Response	Details & Comments	
Assessment Location	Monitored bed – main concern re cardiac syncope Key. identify causes/preciptants of syncope	Bold to pass
History	**Detailed Hx of syncopal events** – from both patient and any witness ? warning, ? aura, ? duration, ? precipitants, ? assoc chest pain, SOB, palpitations, nausea, diaphoresis, neurological phenomena, ? recovery - incontinence	
	Detailed hx re GIT s/s, weight loss	
	Systems review – to identify cause of syncope, source of potential sepsis	
	PMHx – metabolic, endocrine, DM, renal, anaemia, valvular heart disease, prolonged QT syndrome, PE etc Mental health, eating disorders, pseudo seizure, conversion disorder	
	FHx – esp sudden death, MVP	
	Meds – prescribed and OTC Allergies	
	Recreational Drugs	
	? **pregnant**	
Examination	**Vitals** – general appearance, hydration status, ?anaemic, ?identify septic focus, ?rash – postural BP, **BMI/weight**,	
	CVS (any suggestion of structural cardiac disease, murmurs, MVP)	
	Neuro - ? focal neurology	
	Resp – ? resp distress, pneumonia, PE, DVT	
	GIT – assess for peritonism, rectal examination	
Investigation	Bedside – **BSL**, **ABG/VBG**, U/A, Urine BHCG,	
	Lab – FBC, EUC, **CMP**, BSL	
	Imaging - CXR	
	Compare present ECG to previous	

Question 3: Whilst you are assessing the patient she loses consciousness and her output. This is her rhythm strip. What is your immediate management? (2 minutes)

Expected Response	Details & Comments	
Immediate Mx = terminate TDP		**All bold to pass**
?Precordial thump	Aim = terminate TDP	
Institute CPR	**Institute CPR, call for defibrillator**	
DC shock Biphasic 200J x 3 as witnessed (ACLS protocol)	**DC shock** in TDP if HD compromise or arrest with shockable rhythm May not be effective – CPR and intubate if not responding and continue with ACLS as per ARC guidelines	
Correct underlying cause	IV magnesium to terminate arrhythmia Correct electrolyte abnormality eg K, Mg, Ca Unstable – recurrence likely	
Prevent recurrences of TDP	External overdrive pacing Or Pharmacologically –Isoprenaline infusion (C/I in congenital long QT)	
Avoid antiarrhythmic drugs	As they may potentiate it	

Question 4: The patient responds to your treatment and has been stable for several hours. She is attempting to leave. What are the issues? (2 minutes)

Expected Response	Details & Comments	
Complex issues		Consultant issues; discussion of complexities
Competence	Clear consciousness; able to make decision to leave, patient autonomy	
Duty of care	Potentially life threatening, medical stability,	
Mentally disordered	Suicidiality, eating disorder, scheduling	

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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Her referral letter states that she has a 3 day hx of nausea and vomiting and a diagnosis of recurrent pseudo-obstruction.

Her vital signs on arrival are PR 75/min, BP 105/50, RR 20/min, T 36.8°C, O_2 saturation 99% (room air). She looks unwell and appears significantly underweight.

The nurse performs a 12 lead ECG.

Question 1: Please describe the ECG.

1. Lead examiner……. **Candidate Number:**

2. Co-examiner ……. **Final Mark:**

SCENARIO

A 3/12 old term baby is brought to the ED by his parents who state that he has become increasingly blue over the last few hours. He has had previous surgery for congenital heart disease. He is triaged to the resuscitation area.
On your initial examination he is deeply cyanosed and floppy.
Observations: P 160/min, RR 80/min, O_2 sats – no trace detectable

Question 1: Describe your initial management **(2 minutes)**

Expected Response	Details & Comments	
Call for help	Paediatric registrar/ Consultant +/- NICU registrar	1
Assemble team	ED Medical and nursing staff Social worker/ nursing staff assigned to take care of parents Appropriate equipment **estimate weight** 4kg (eg Broselow tape) **Radiant heater** **Paed airway equipment / resuscitation trolley**	3
Airway/ Breathing	**Airway manoeuvres, BVM ventilation, 100% oxygen,** gentle suction	2/3
Circulation	**Rapid IV access +/- IO** if delay Urgent **BSL** and treat if <3- 5ml/kg 10% dextrose **IV bolus** 10ml/kg N/Saline bolus (warmed) Assess perfusion (cap refill / BP), Temp	3
Early IV antibiotics	Ampicillin 50mg/kg + cefotaxime 50mg/kg or 50mg/kg ceftriaxone + vancomycin 25mg/kg	
CXR	ECG / FBC/EUC/ BSL/ Bl culture/ Blood gas	1
Concurrent history	From parents/ old notes / Cardiothoracic Sx Neonatal Hx etc	

Question 2: After 10 minutes of BVM ventilation he is less cyanosed but still floppy and poorly perfused with no recordable oxygen saturations. His BSL is 6.8
You decide to intubate. Describe how you would do this **(2 minutes)**

Expected Response	Details and Comments	
Preparation and intubation	**Allocate roles**- experienced intubator **Appropriate sized equipment**- ETT, (3.5-4 mm uncuffed) blade **Position** **Suction** available **Safe drug choice / why**- eg fentanyl/ ketamine/ midazolam / suxamethonium / morphine / ? atropine **NGT** **Secure ETT/ NGT**- (tape / elastoplast)	5/7
Confirm ETT position	**Clinically / Formula** (age/ 2 + 12) **$ETCO_2$** **CXR**	3/3
Ventilate	Appropriate paed ventilator/ neopuff / hand bag	1

Question 3:

After intubation you organise a CXR, please describe and Interpret this xray

(1 minute)

Expected Response	Details & Comments	
Mobile supine film	ECG Monitoring in-situ **NGT in stomach** **ETT good position** Globular heart **Right pleural effusion** Bilateral interstitial infiltrate ? Pulmonary oedema **Hazy right heart border** ? infection ??prosthetic material midline	4/5
DDx: **CCF/Pul oedema/ infection**	Infection + one other	2

Question 4: Following intubation and ventilation his perfusion has improved and the decision is made to retrieve him to a specialist centre. The retrieval team will arrive in 45 minutes

Describe his ongoing care in the ED whilst awaiting their arrival **(2 minutes)**

Expected Response	Details & Comments	
Reassessment and supportive care	**Recheck ABC / Ventilation / ECG monitoring / NIBP** Blood gas / SaO2/ ETCO2 BSL **Keep warm- radiant heater** **Ongoing sedation +/- paralysis** **Secure IV access /** appropriate fluids **Maintain adequate perfusion / BP-** ? need for inotropes- based on expert advice Role of ?digoxin/ frusemide **IDC- urine output** (1-2ml/kg/hr) End points: pink warm, cap refill < 2 sec, BP >70 mmHg, passing urine	5/6
Communicate with parents	Support from staff member	
Prepare for team's arrival	Documentation copies of notes, Xray	

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

A 3/12 old term baby is brought to the ED by his parents who state that he has become increasingly blue over the last few hours. He has had previous surgery for congenital heart disease. He is triaged to the resuscitation area.

On your initial examination he is deeply cyanosed and floppy.
Observations: P 160/min, RR 80/min, O_2 sats – no trace detectable

Question 1: Describe your initial management.

1. Lead examiner…….

Candidate Number:

2. Co-examiner …….

Final Mark:

SCENARIO: Communication

	Not Met	Partly Met	Fully Met
Rapport, Reassurance, Trust and Ethical Therapeutic Relationships Identification of doctor, role, correct relative, appropriate introduction **Convey relevant information and explanations** **Develop a common understanding of diagnosis, prognosis and plan** "Tell me what's going on?" – requires detailed explanation of pts condition and management "Collapsed lung, what does this mean?" (wife upset) – reassuring + technical explanation PTX and that ICC has been inserted "How could you have let this happen?"– "was Dr Smith competent to perform procedure?" Ability to de-escalate **Appropriate use of demeanour, language and words** "I want my husband to have the best care, do you think he needs to be transferred to another hospital?" "Is he going to be alright", "is he going to die"? Bonus question: "Are my children at risk?" **Convey effective oral information** **Appropriate non verbal communication** **Identify and explore issues, including reasons for position** **Inform Jane to facilitate understanding of situation (tailored to her demographic, cultural and intellectual context)** **Problem-solve** **PASS/FAIL Needs to meet 4/5 Criteria** **Technically correct information** **Appropriate lay terms** **Appropriate manner** **Non judgemental** **Listens and understands wife's concerns**			

ACTOR feedback:

Not Comfortable	Partially Comfortable	Fully Comfortable

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

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

SCENARIO

You are in charge of a tertiary ED at 1900hrs one weekday. Your registrar, Dr Smith, is managing 40 year-old John Roberts, who is in septic shock from an unknown focus. Chest x-ray and blood tests are normal, a lumbar puncture revealed clear, colourless CSF, with further assays pending. The patient is sedated, intubated and ventilated. Empiric broad-spectrum intravenous antibiotics were administered after microbiological assays taken. Reviewed by relevant inpatient units, he awaits transfer to the Intensive Care Unit.

Dr Smith is senior registrar who is very competent at central line insertion. He attempted to insert a right subclavian central venous catheter (CVC). His attempt failed, and was complicated by an unrecognised right-sided pneumothorax. John's ventilation became increasingly difficult and you were called to assist. You promptly recognised and treated the pneumothorax. Stable now with inotropic support and normal gas exchange, John has a functional intercostal catheter and right-sided internal jugular line.

Jane, the patient's wife, is present in the ED. She is aware of John's diagnosis and ventilated state. She was asked to step out before the invasive medical procedures. Informed of latest events, she is upset, and wishes to speak to the doctor in charge. She waits for you in the relatives' room.

Jane, ROLE PLAYED by an actor, is waiting for you in the room. Examiners will NOT be interacting with you or the actor.

Background Information for Actor

Important Note

The ACEM Fellowship Exam involves examiners and candidates from all Australian states and New Zealand. To optimise fairness for all candidates, all character and scenario features will NOT have demographic details.

In interactions with candidates, please do NOT refer to demographic specifics. For example, you are in the general hospital instead of Monash Medical Centre; you live in the inner suburbs instead of Richmond.

The Character

Jane is a 39 year-old office administrator, who is married to John, the patient. They are happily married, with 2 healthy children: Tom (aged 11 years) and Sarah (aged 9 years). Both Jane and her husband are likewise healthy, requiring no medications. Both work full time. John is an engineer, working for a large organisation. The family enjoys a stable middle class lifestyle, with no significant stressors, until this current medical incident.

The Scene

Earlier that same day, at about noon, Jane took John to the Emergency Department (ED) of a large, tertiary hospital after a referral from your GP, Dr Jones. John had been ill for the last 3 days, with fever, muscle aches and headache. He had not travelled recently, nor been in contact with sick people. He only took Panadol, but his condition worsened this morning. Dr Jones was concerned about John's illness, thus referred him to the ED. Jane drove him there. Their children were minded at home by capable relatives.

The initial assessment by ED staff was prompt and appropriate. Dr Smith (a young man), informed Jane that John was very unwell with sepsis (a severe infection), but no known site yet (that is, in lungs, abdomen, urine *etc*). A chest x-ray and blood tests are so far normal; a lumbar puncture to look for brain infection is also so far normal. Owing to concerns about John's low blood pressure, they opted to place John in an induced coma and support his breathing and blood pressure through artificial ventilation and medications via special lines. Jane and John consented to these procedures; Jane was asked to wait in the relatives' room while they were performed. After an anxious and tearful goodbye to her husband, Jane proceeded to the waiting room.

Of the procedures John underwent, one involved insertion of a catheter (small tube) into a large vessel in his upper chest, so that special medication to support his blood pressure (BP) could be administered through it. The catheter is called a central venous catheter (CVC). CVC insertion was to be performed after John was induced into coma. Approximately an hour after you left John, Dr Smith came to the relatives' room to update you on John's progress. He stated all procedures went well, except that a complication arose from the CVC insertion. Specifically, John suffered a collapsed right lung from inadvertent puncture from a large needle. He deteriorated for a short period before the condition was recognised and rectified. However, it means he now has a large plastic tube in his right chest, called an intercostal catheter, in addition to all the other interventions he's been subject to.

Jane comprehends the situation reasonably well, but her anxieties are exacerbated. Her concerns about John's illness are now compounded by additional worries about this medical complication. Moreover, she is bewildered by its occurrence, and increasingly angry at medical staff. She is so far satisfied by Dr Smith's explanations, but recognises that he is not the most senior doctor on duty. She wishes to:

- Discover more about the situation
- Speak to the senior doctor in charge to express her concerns

NB:

- The "Scenario" in the preceding page is ALL the information provided to the candidate before s/he interacts with Jane. That is, s/he will NOT be aware of Jane's own circumstances.

- Candidates will only have 7 minutes to interact with the actor. Successive candidates will be interrupted by 3-minute breaks, during which the examiners and actor discuss the preceding candidate.

- After a succession of 10 or less candidates, there is a longer break to permit rest and refreshments.

Facts

- Punctured lung (called a pneumothorax) is a well-known complication of CVC insertion. Intercostal catheter insertion is the correct treatment for it; the catheter is typically in place for a few days. In the absence of other complications, pneumothorax itself in John has a good prognosis, without permanent sequelae. Potential complications of the intercostal catheter itself include infection, significant bleeding or unsuccessful correction of the pneumothorax.

- John is suffering septic shock, a condition resulting from severe systemic infection that lowers his blood pressure and compromises his ability to deliver oxygen to vital organs. Moreover, at this stage, the site of infection remains unknown. Treatment rendered so far for John are appropriate, including the CVC. The CVC permits finer levels of measuring John's physiological parameters, and the longer-term administration of blood-pressure supporting medications. John has been appropriately given broad-spectrum, powerful antibiotics.

- As the illness is relatively early, and the infection site is unknown, it is currently impossible to give a precise prognosis to John's condition. However, positive indicators thus far are his young age, previous good health and the absence of serious abnormalities in test results. Furthermore, he is receiving optimal care in a tertiary-level hospital.

- The candidate will role-play an Emergency Physician, a medical specialist who is the most senior doctor on shift. S/he is expected to carry the highest level of clinical experience and authority in the ED at that time. The examiners will mark candidates against standards expected of a recently-graduated Emergency Physician. **The actor will be asked to provide input on a key, core skill of such a doctor: verbal communication.**

1. Lead examiner ……. **Candidate Number:**

2. Co-examiner ……. **Final Mark:**

SCENARIO

You are a consultant in tertiary referral hospital ED in a major city on a Saturday afternoon. You are called and told of a stadium collapse. Ambulance Control confirm there are multiple injured patients who will probably be sent to your ED.

Question 1:

How would you prepare for the anticipated influx of patients? (2 minutes)

Expected Response	Details & Comments	
Activate disaster plan **Prompt – who else needs to be notified?**	**Activate Hospital Disaster Plan via Operator.** This initiates a cascade of events within the hospital, of which the Emergency Department has a key role. All activities are coordinated through the Central Command Area. **I would request assistance from the ED Director to coordinate the ED response:**	
Disaster triage	**Establish triage area** with doctor nurse clerk triage team in ambulance bay The triage area may be located outside the ED doors	
Surge management Staff, Care areas, Equipment	**Make space in ED.** Patients to wards, clinic areas, Home for GP review Admitted patients to wards, over-census	
Identify alternate venues of care	**Establish areas** such as clinic areas for treatment of walking wounded Establish specific areas in ED for treatment of categories of patients	
Staff Tracking of Pts	**Call in extra staff,** all meet in central area, then delegate to specific areas, Ensure roster, to allow for prolonged response Organise easily visible ID to aid with assigning tasks- challenging to keep tabs on. impt for tracking / location of pts, relocating with families, audit at later date	
Sustaining supplies and stock	Management of open fractures, airway equipment and RSI drugs, fluids, bicarbonate glucose, calcium, dressings. Storeman to keep stock supply.	
Manage sustainable/ appropriate level of staffing	Ensure staff rotation, watch for signs of stress/distress, consider recruiting from offers of help regionally and internationally, enable staff to check family friends.	

Question 2:

You receive a call from the Ambulance to say that they are transporting the 1st patient, a 40 year old man with chest injuries. The remaining patients are trapped and will be at least 50 minutes away.

Please describe the key features of his X-ray. (1 minute)

(included in stem)

Expected Response	Details & Comments	
Poor film, supine		
Fractured upper ribs **Right side at least 4**	**Fractured upper ribs** (1-6 at least) No obvious Pneumo or Haemothorax Mediastinum wide, trachea deviated to right. [no monitors, no collar] Indicates high energy chest trauma with high likelihood of severe chest injury, lung contusion, haemothorax etc. Very likely will require intubation and ventilation to manage his chest injury	Pass bold + one other

Question 3:

His oxygen saturation has now decreased to 85% on high flow oxygen.

Outline your immediate management **(2.5 minutes)**

Expected Response	Details and comments	
Reassess patient. Team approach, **ABCD** **-treat reversible causes** **Prompt if intubating without mention of ICC 'what are the potential complications of intubation in this patient?'**	Assess and treat concurrently **[needs to have systematic, safe approach]** - A - clear if needed. **Prepare for intubation.** - B - check for tension, needle if present, ventilate if hypoventilating **ICC will be needed**. Timing after relief of tension and/or ventilation -C - IV access and **fluids.** Send bloods **Saturation 85% suggest need for urgent intubation and ventilation** **Disposition – ICU via CT (prompt if needed)**	

Question 4:

Discuss the use of imaging during this multiple casualty situation. **(1.5 minutes)**

Expected Response	Details and comments	
Issues to consider:	Access to other parts of the hospital Number of patients and demands on the imaging resources	**Prompt if required** **'what are the pros and cons of the imaging modalities available?'**
Within ED Plain XR	**Pros** Pt stays in ED/Resus room portability to bedside Useful for CXR, Pelvis XR, limbs	**Cons** Time consuming Set up time Radiation in clinical area
Ultrasound	Bedside test, repeatable Useful for FAST, myocardial assessment, pneumo/haemothorax, vascular access, some limb #s, pregnant patients	Needs cleaning. Infection risk.
Outside ED clinical area CT	Accurate, rapid, diagnostic	Requires transfer – resource intensive and takes time
Summary	Likelihood of needing large number of plain x rays various types. Likelihood of frequent use of USS Judicious use of limited CT scans	

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

You are a consultant in tertiary referral hospital ED in a major city on a Saturday afternoon. You are called and told of a stadium collapse. Ambulance Control confirm there are multiple injured patients who will probably be sent to your ED.

Question 1: How would you prepare for the anticipated influx of patients?

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO

You are a consultant in a tertiary emergency department. A 31 year old man presents with 6 hours of severe central chest pain, in the background of a flu-like illness over the last week. Vital signs at presentation:

HR 60/min, BP 100/60 mmHg, RR 35/min, O_2 Saturation 93% on room air, Temperature 37.5^oC
He is triaged to the resuscitation area. A 12-lead ECG is taken (included in stem).

Question 1: (1.5 mins) **Describe and interpret the ECG** *(incl in stem)*

Expected Response	Details & Comments	
12 Lead ECG	Sinus rhythm, approx. 60 bpm	
	Infero-lateral ST elevation -1 mm, concave upwards laterally. PR segment depression, most obvious in inferior leads	
Relevant negatives	Normal axis, no ectopics, QTc looks within normal range	
Differential diagnosis	Acute Pericarditis, Myocarditis, Myocardial infarct less likely High take-off – normal variant	
Interpretation	Young patient with clinical and ECG features suggesting acute pericarditis. Borderline fever and Hypoxia, and hypotension are a concern – distributive or restrictive shock. Needs urgent cardiac Ix.	

Question 2: (1.5 mins) **His blood pressure subsequently falls to 85/50. His pulse is 110 and he is increasingly dyspneic and still has chest pain. Outline your approach to this patient.**

Expected Response	Details & Comments	
Cardiovascular compromise	**Shock:** Cardiogenic / obstructive ; septic ? Pericardial effusion with tamponade. ? Myocarditis-cardiomyopathy ? Aortic dissection **Other:** PE, Pneumonia with incipient septic shock,	
Clinical features	Hx – Pericarditis sx, other risks ie ischemia, IVDU, autoimmune etc Exam – JVP, Lungs, heart sounds, periphery, septic focus, (ie LVF, Tamponade etc)	
Bedside Investigations	ECG monitoring; Repeat 12-lead ECG, ABG, BSL Urgent CXR Bedside echo – volume, tamponade, LV function global or local, valves **Prompt – What is the role of bedside ultrasound?**	
Initial Management	Depending upon dx. Consider IV fluid bolus; titrated narcotic analgesia; supplemental O_2, BiPAP	
Definitive / Disposition	Formal echocardiogram Pending outcome of initial findings Requires admission, likely CCU or HDU/ICU ? Cath Lab – Balloon pump etc	
Pathology	FBE, Troponin, UEC	

Question 3: (2 mins) **The patient continues to deteriorate despite initial Mx. Your findings are of cardiogenic shock from severe myocarditis, without pericardial tamponade. Describe your technique to intubate this patient**

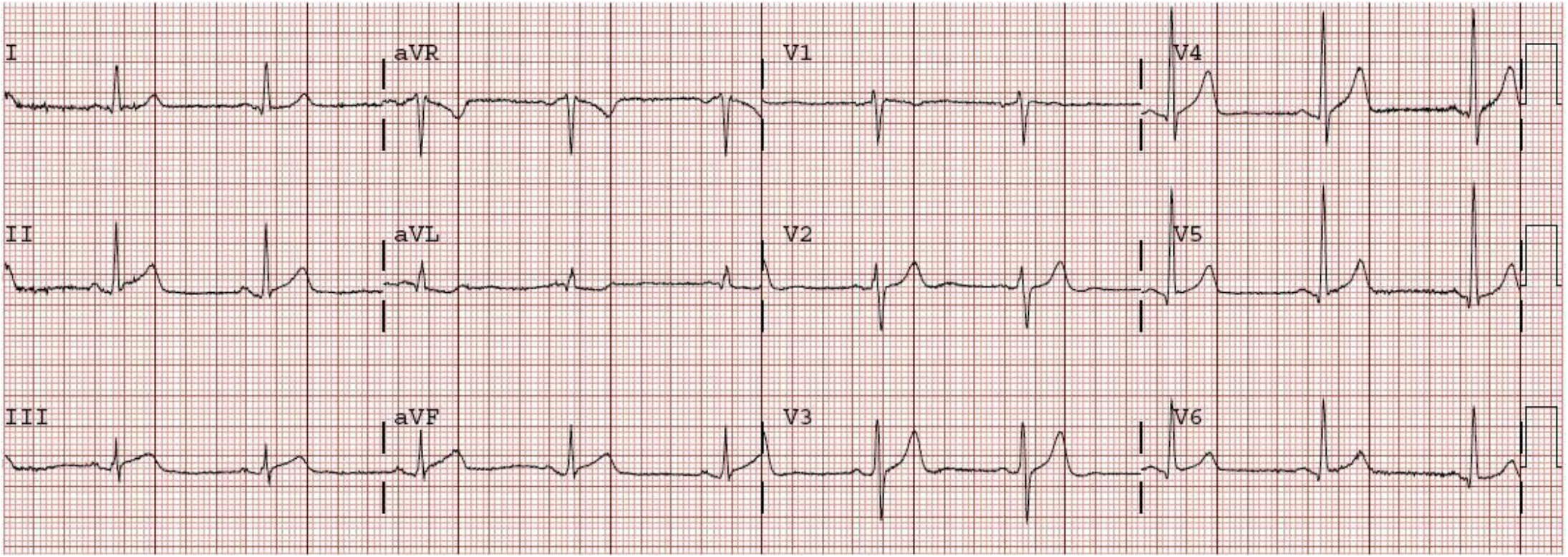
Expected Response	Details & Comments	
Equipment	BVM device, suction, laryngoscope, ETT size 7.5 or 8; oropharyngeal airway; ventilator	
Drugs	**Cardiostable induction drugs: SENSIBLE** Optimise hemodynamic state with commencement of low dose aramine or adrenaline prior to induction. Cardiostable sedation maintenance - fentanyl/midaz. Ongoing muscle relaxation.	
Induction / Intubation	Pre-oxygenation, positioning, cricoid pressure	
Post intubation	Confirmation of tube positioning: bedside methods (incl capnography), CXR	
Ventilation settings	ETT Ventilator settings: 5 ml/kg TV, RR 15, minimal PEEP, FIO_2 1.0 Titrate to clinical and ABG parameters	
Maintenance	Ongoing sedation and muscle relaxation and hemodynamic support Gastric tube	

Question 4: (2 mins) **Soon after successful intubation the patient's BP is 60/40 mmHg. Outline your approach to the hypotension.**

Expected Response	Details & Comments	
Confirm BP		
Check rhythm		
Check induction drugs	Side effects, correct dose and drug, allergy etc	
Examine patient	Chest – trachea, air entry, bronchospasm, rash	
Check ventilator	Disconnect and hand ventilate, check circuit and settings etc	
Repeat tests	ECG, CXR, echo, electrolytes	
Antiarrhythmic drugs as needed	Amiodarone?	
Fluid	As required	
Inotropic support	Adrenaline/aramine boluses if recalcitrant hypotension, followed by infusion. Aim for normotension (MAP ≥ 75mmHg).	
Other	Specific Rx: ? corticosteroids Refer to ICU / cardiology Consider IABP/VAD if refractory shock Retrieval and transfer prn	

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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1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO
A 48 year old man arrives by ambulance to your rural emergency department after being found collapsed on the floor of the shed of his property. He was vomiting violently. He has a history of hypertension. On arrival, he has a GCS of 14 and is diaphoretic. Vital signs are: HR 50/min, BP 82/50 mmHg, RR 20/min, Temperature 37.1^{o}C, O_2 Saturation 89% (on non re-breather mask).

Question 1: List your differential diagnoses

Expected Response	Details & Comments	1 min
Poisoning *Prompt: what potential agents?*	**Cholinergic** (eg organophosphates), beta-blocker, CCB, digoxin	**All bold to pass**
Envenomation	Snake, Funnel Web Spider	
Cardiovascular	AMI with cardiogenic shock; arrhythmia	
CNS	ICH, SAH, SOL (with bleed and/or mass effect), post ictal	
Metabolic	Hypoglycaemia	
Trauma	Head injury	
Septic Shock	Any cause	

Question 2: The patient's wife arrives with a suicide note, written by him. It appears he deliberately ingested organophosphate insecticide. What are the clinical features of an organophosphate poisoning?

Expected Response	Details & Comments	1 min
CVS	**bradycardia, hypotension** (tachycardia, hypertension)	**5 bold & 2 other**
Neuromusc	reduced GCS, **miosis**, increased lacrimation, fasciculation, muscle weakness, seizures	
Resp	**bronchorrhea, bronchospasm**, signs of resp failure	
GIT	salivation, **vomiting**, diarrhoea	
Skin	**diaphoresis**	
Genitourinary	incontinence	
	Prompt: what other systems can be involved?	

Question 3: He remains hypotensive, bradycardic & hypoxic on high flow oxygen. Outline your management.

Expected Response	Details & Comments	3 min
Life threatening overdose	Clinical features c/w mod- severe cholinergic poisoning – Consult early with Toxicology and ICU	**All bold with appropriate prompts**
Resuscitation & Stabilisation	Team approach, **universal precautions for staff, well ventilated resus room** Remove all patient's clothing, bag / secure disposal, decontaminate skin with soap and water if applicable (eg vomitus)	
Early airway & breathing intervention	**Adequately oxygenate**, Suction, BVM support, **prepare for intubation & ventilation**	
Antidote	**Atropine** (counters muscarinic effects). Notify Pharmacy –anticipate large requirements. **High doses**, commence1 - 2mg repeat boluses q 2-3 mins (escalating doses) **Endpoints** – drying of secretions,↑HR,↑BP**,** mydriasis Commence infusion. *Prompt: What are your endpoints of treatment with atropine?*	
Pralidoxime	Controversial (reactivates AChE ie. reverses ChE inhibition – if given prior to ageing) Consult Toxicology 2g IV load then 0.5g/hr infusion Rx seizures	
GI Decontamination	No role for activated charcoal, agent likely fully absorbed, can aspirate OGT if coingestants	
Supportive Care / Critical Care Monitoring	Correct haemodynamic instability - IV crystalloids Seek and treat hypoglycaemia Invasive monitoring: CVC, arterial line, IDC, NGT Ongoing sedation: caution with maintaining BP	
Disposition	ICU/transfer	
Consult	Toxicology, ICU, Social Work (for family)	

Question 4: The patient suffers a generalized tonic-clonic seizure. Outline your response

Expected Response	Details & Comments	1 min
Terminate seizure	Seizures are a recognized complication of OP poisoning	**All bold**
Check BSL	**Correct hypoglycaemia** with 50% dextrose	
IV BDZ	To terminate seizure	
Correct underlying cause	Correct electrolyte abnormality eg BSL, K, Mg, Ca	
	Ensure adequate atropinisation –bolus atropine IV Correct cerebral hypoperfusion – bolus atropine IV **Intubate if not already intubated**	
Prevent recurrences of seizures	D/W toxicology – unlikely an anticonvulsant such as phenytoin will helpful – if recurrent- IV BDZ infusion would be more appropriate	
Avoid	Hypotension, hypoglycaemia etc which may potentiate seizures	

Question 5: A member of the resuscitation team develops a headache and is concerned about possible toxic exposure. Outline your response.

Expected Response	Details & Comments	1 min
	Risk to staff low, especially if appropriate precautions taken. Symptoms usually related to solvent exposure, however work related incidence, requires **appropriate risk assessment and documentation**. Offer counselling, consider department debrief.	**All bold**

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

……..

……

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

……

……

1. Lead examiner **……** **Candidate Number:**

2. Co-examiner **……** **Final** **Mark:**

SCENARIO

You are a consultant in a small rural emergency department. The hospital has radiology and pathology with general medical and general surgical cover. There is a small high-dependency unit (HDU) staffed by anaesthetists. A 57 year-old man presents to the ED with 12 hours of severe upper abdominal pain, fever, nausea and vomiting. He appears jaundiced. Initial assessment:
HR 120 bpm; BP 110/60 mmHg; RR 22, Temperature 37.8^{o}C. He is exquisitely tender and guarded in his epigastrium and right upper quadrant.

Question 1: What are your differential diagnoses?

Expected Response	Details & Comments	½ - 1 min
Unwell pt & abnormal vital signs Differential diagnosis:	**Cholecystitis, complicated** **Ascending cholangitis** **Acute pancreatitis** (alcohol, or gallstone) Acute hepatitis Perforated peptic ulcer Other	3/3 to pass

Question 2: Describe and interpret his results.

Expected Response	Details & Comments	1 min
Biochemistry	Grossly **deranged LFT with evidence of obstruction** Markedly elevated lipase = c/w **acute gallstone pancreatitis**. Consistent with clinical picture Normal renal function and bicarbonate.	
Haematology	Mild leucocytosis with neutrophilia, consistent with acute inflammatory response No anaemia or thombocytopaenia, indicating haemorrhagic complication	
Diagnosis	**Probable choledocholithiasis with acute gallstone pancreatitis**. Differential = EtOH. No evidence acute renal failure, acidosis or haemorrhagic complication, but patient at risk.	

Question 3: Describe your management of this patient.

Expected Response	Details & Comments	2.5 min
Supportive care **PROMPT** for details	• **IV fluids** – details, aggressive crystalloid, resuscitative plus maintenance, target parameters e.g. UO 0.5 ml/kg • **Analgesia** - Titrated narcotic analgesia, antiemetic • **Nil by mouth** / NGT if severe vomiting • Monitoring progress eg glucose, Ca.	Bold to pass
Specific Rx	• **Empiric antibiotics** – ceftriaxone / metronidazole, or ticarcillin/ clavulanic acid. • Transfer for definitive Rx - ERCP (not available) or surgery	
Disposition **PROMPT** for details	• Urgent transfer to tertiary hospital • high morbidity & mortality for this condition • needs definitive Rx e.g. need ERCP • Managing this patient at the regional hospital as described would be inappropriate given the condition's prognosis and its treatment	**Consider options, justify**
? CT scan	Can be justified for scoring / prognostic purposes – unlikely to be of benefit in this situation. Better to expedite transfer.	
Other	Liaisons: patient and NOK, receiving hospital, retrieval service Documentation	

Question 4: Describe the predictors of severity in acute pancreatitis?

Expected Response	Details & Comments	2.5 min
PROMPTS: Are there any patient / laboratory / radiological / scoring systems	Aetiology **Patient factors:** Age / co-morbidities **Presence of organ failure** **Scoring systems** • Ranson's Criteria (5 on Ax): • APACHE II score ≥ 8 (not all physiological for this are known either) **Radiological** (contrast enhanced CT): local Cx e.g. necrosis, abscess, pseudocyst **Location** – Facilities, staff, expertise	3/5

Question 5: (Optional). Discuss the utility of scoring systems in acute pancreatitis.

Expected Response	Details & Comments	
	Ranson's Criteria: 48-hour parameters are to be measured. Unsure if to use criteria for gallstone, or no gallstone aetiology. **In other words, Ranson's Criteria of little value.** APACHE II Score > 7 at admission: sensitivity for severity is 65% and specificity 76%.	

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?

Test type	**Value**	**Units**	**Reference range**
Na	135	mmol/L	135 – 145
K	3.9	mmol/L	3.5 – 5.0
Cl	100	mmol/L	95 – 110
HCO_3	27	mmol/L	20 – 31
Urea	4.1	mmol/L	2.7 – 7.8
Creatinine	62	mcmol/L	50 – 100
Anion gap	8	mmol/L	5 – 15
Total protein	76	g/L	60 – 80
Albumin	44	g/L	35 – 50
ALP	**577**	**IU/L**	**40 – 115**
ALT	**972**	**IU/L**	**<65**
GGT	**226**	**IU/L**	**<55**
Bilirubin TOTAL	**89.4**	**mcmol/L**	**<25**
Lipase	**8523**	**IU/L**	**8 – 78**

FULL BLOOD COUNT				**Reference range**
	Hb	120	g/L	115 – 165
	WCC	12.2	x 10^9/L	3.5 – 11
	Plt	246	x 10^9/L	150 – 450
Blood Film	Neutrophils	9.7	x 10^9/L	1.5 – 7.5
	Lymphocytes	1.8	x 10^9/L	0.8 – 3.5
	Monocytes	0.6	x 10^9/L	0.0 – 0.8
	Eosinophils	0.05	x 10^9/L	0.0 – 0.4
	Basophils	0.02	x 10^9/L	0.0 – 0.1

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO

A 25 year old male soldier is brought by ambulance to your emergency department. He was found collapsed at the top of a large hill while participating in military exercises. He has been administered only basic first aid. Initial findings:

- **Decreased conscious state. Eyes open to voice, localising pain, mumbling a few words.**
- **Hot to touch, sweating profusely. Temperature (tympanic membrane) 41.5 degrees Celsius.**
- **HR 140/min**
- **BP 90/30 mmHg**

Question 1: What is your differential diagnosis?

Expected Response	Comments	Mark
Differential Diagnosis	Critically unwell – haemodynamic compromise and severe hyperthermia. GCS is 11. Causes in combination are possible, or some the consequence of others. - **Environmental**: Heat Stroke; Heat Exhaustion (although poor GCS suggests the former) - **Metabolic**: Dehydration (initial findings make this likely), hypoglycaemia, thyroid storm - **Infective**: Serious bacterial illness, incl CNS - **Neurological**: Seizure - **Trauma**: esp CNS - **Drug ingestion**: amphetamines anticholinergics, thyroxine, *Heat stroke & 2 others*	

Question 2: You believe he has heat stroke. Outline your management of the key issues

Expected Response	Comments	Mark
Dehydration	**Cool IV fluids**, rapid infusion (monitor for pulmonary oedema). Ensure adequate circulating blood volume.	
Cooling *Prompt "what are your goals?)*	Needs urgent cooling. **Candidate should describe a suitable method of cooling, and target core temperature**. **Exposure** plus suitable external cooling method/s. Consider intubation, (issues are induction agents, paralysis (no sux), and doses, K+)	
Monitoring	**Continuous core temperature** continuous ECG Urine output (IDC) arterial line; CVC SpO2 Frequent electrolyte assay, esp K	

Question 3a: Some of his lab results are available:

				Reference
Full Blood Count	Hb	180	g/L	*(115-165)*
	WCC	21.7	x 10^9 / L	*(3.5-11)*
	Plt	45	x 10^9 / L	*(150-450)*
Urea / Electrolytes	Na	145	mmol / L	*(136-146)*
	K	5.5	mmol / L	*(3.5-5.0)*
	Urea	23.5	mmol / L	*(2.0-7.0)*
	Creatinine	330	mcmol / L	*(60-110)*
	CK	24,000	IU / L	*(60-220)*

Describe and interpret these results.

Expected Response	Comments	Mark
Hb 180	**Haemo-concentration**, dehydration	
WCC 21.7	Stress response, possible sepsis	
Plt 45	Severe thrombocytopaenia; **?DIC**	
Urea 23.5, Cr 330	**Acute renal failure**, with moderate hyperkalaemia. Consistent with dehydration. Possible myoglobinuria from rhabdomyolysis. Anticipate low HCO_3.	
CK 24,000	Probable MM fragment. **Rhabdomyolysis**.	
Findings suggest heat stroke with end organ dysfunction (ARF/ rhabdo). Medical emergency. Indicates aggressive IV rehydration, cooling and nephro-protective measures.		

Question 3b: In light of these results how would you manage his rhabdomyolysis:

Renal failure	May respond to **IV fluid loading, aim to ensure urine output** (1-2ml/kg/hr) to facilitate myoglobin excretion Urine alkalinisation with bicarbonate – close arterial pH monitoring required ?Saline diuresis with mannitol or diuretics. Candidates should acknowledge potential caveats with this, such as electrolyte disturbance. **Dialysis if not improving**	
Disposition	Admit to ICU, may involve retrieval	
Liaisons	NOK; receiving unit (may be another hospital), ?retrieval team Military personnel	

Question 4: The patient temperature remains 42.1 after adequate initial treatment. Outline your further management.

Intubation	**Appropriate dosage and drugs and explanation**	
	Suxamethonium is fatal error- "so you would use suxamethonium in this situation"	

Question 5: How might this situation have been prevented

Expected Response	**Comments**	**Mark**
Preparation	Prevention is the key **At least two of first four**	
Clothing	Optimal garments: loose-fitting, lightweight clothing to allow body to cool. Avoid dark clothing if possible, on hot days.	
Hydration	Personnel training to ensure adequate fluid intake, and recognition of early symptoms of dehydration. Electrolyte solutions may benefit. Ensure participants have adequate supplies, and time to replenish fluids.	
Climate	Avoid activities in hottest parts of the day. Acclimatisation	
Medications	Standard precautions with all medications. Vigilance for potential heat-related problems with medications that affect hydration and heat dissipation.	
First Aid Capacity	Deploy 1st aid officer(s) available at key locations to assist and identify at-risk participants 1st Aid stations with appropriate supplies and equipment 1st Aid training / certification for army medics	
Evacuation	Advise on medical criteria for evacuation; assist in policy development Protocols to receive field evacuees Communication systems	

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

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

				Reference range
Full Blood Count	Hb	180	g/L	115 – 165
	WCC	21.7	x 10^9/L	3.5 – 11
	Plt	45	x 10^9/L	150 – 450
Urea / Electrolytes	Na	145	mmol/L	136 – 146
	K	5.5	mmol/L	3.5 – 5.0
	Urea	23.5	mmol/L	2.0 – 7.0
	Creatinine	330	mcmol/L	60 – 110
	CK	24,000	IU/L	60 – 220

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO

You are the consultant in a busy rural emergency department, when one of the junior doctors presents a case of an 18 month old boy with 24 hours of vomiting and diarrhoea. The parents report that he vomits every time he is given anything orally.

He has a temperature of 37.9^{o}C; a pulse of 140/min. He appears alert and responsive to his surroundings. You evaluate the patient as a viral gastro-enteritis with mild to moderate dehydration.

Question 1: Describe your treatment.

Expected Response	Details & Comments	1.5 Minutes
Implications for Treatment	Methods of oral hydration; pros/cons of oral/NG or IV fluids, choice of fluid • Trial oral rehydration fluid • Observation • +/- anti-emetics • Failure of oral = NG (?*IV – but don't require details of fluids*) Role of anti-emetic? Fever management	Fluids & anti-emetics for pass *(Prompt; what other measures would you consider?)*

Question 2: Outline your criteria for safe discharge and your discharge instructions.

Expected Response	Details & Comments	1.5 Minutes
Successful TOF	Vitals within normal range, happy interactive child, social circumstances adequate, parents have transport & can return if necessary, time of day	Bold to pass. *(Prompt; any other considerations?)*
Address parental concerns	Reassurance/Education: Majority of gastro self-limiting – oral hydration key – frequent low volume oral hydration fluid	
When to return	Return criteria (Bilious vomiting, bloody/mucousy diarrhoea, distress or lethargy), failure to tolerate fluids, high fever, abdominal pain, parental concern	
Planned Follow-up	Within the next 24 hours	

Question 3: Two days later the child is brought back to the ED. He has bloody diarrhoea and no wet nappies in the last 24 hours. He is pale and poorly responsive with a pulse of 180/min with a temperature of 39$^{3.}$ Describe your actions now.

Expected Response	Details & Comments	2 Minutes
Resuscitation	Team approach with paediatric help, O_2, IV Access (I/O). Drugs and fluids based on est. weight ~ 12kg Appropriate fluid (N/Saline) and volume – 20ml/kg boluses and reassess Check BSL and treat if low (2ml/kg 10% dextrose) Consider Antibiotics Fever management	**Bold to pass** *(Display an understanding of each topic)*
Rehydration	Weight based formula + maintenance to account for ongoing losses	
Investigations	Electrolytes and renal function, FBC (bloody stool/fever/rule out anaemia), VBG (incl Lactate), LFTs. U/A & urine culture. Stool and blood cultures. ECG	
Supportive care	Non-invasive monitoring, urine output	
Parental support		

Question 4: Investigations show the following:

				Reference
Full Blood Count	Hb	83	g/L	*(115-165)*
	WCC	18.1	x 10^9 / L	*(3.5-11)*
	Plt	25	x 10^9 / L	*(150-450)*
Urea / Electrolytes	Na	142	mmol / L	*(136-146)*
	K	5.9	mmol / L	*(3.5-5.0)*
	Urea	15	mmol / L	*(2.0-6.0)*
	Creatinine	75	mcmol / L	*(20-50)*

Interpret these results and outline your further management

Expected Response	Details & Comments	2 Minutes
Interpretation	Anaemia, leucocytosis, thrombocytopenia, ARF with hyper-K	*Prompt: apart from sepsis what other causes can you think of?* **Bold to pass**
Differential	HUS, sepsis	
Cause	Shiga toxin Classic *E.coli 0157:H7,*	
Further management	Ongoing fluid resuscitation + maintenance ("Monitoring") of hyper-K^+ Consider parenteral antibiotics IDC – monitor U/O	
Disposition	D/W paediatrician Need to transfer to tertiary paeds facility	
Parental support		

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

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

				Reference range
Full Blood Count	Hb	83	g/L	115 – 165
	WCC	18.1	x 10^9/L	3.5 – 11
	Plt	25	x 10^9/L	150 – 450
Urea / Electrolytes	Na	142	mmol/L	136 – 146
	K	5.9	mmol/L	3.5 – 5.0
	Urea	15	mmol/L	2.0 – 6.0
	Creatinine	75	mcmol/L	20 – 50

1. Lead examiner **……** **Candidate Number:**

2. Co-examiner **……** **Final Mark:**

SCENARIO
You are the consultant taking morning handover of patients in your emergency department observation ward. There is a 54 year old male patient who was admitted with apparent anaphylaxis. His condition stabilised after adrenaline. The plan was for review and likely discharge.

Question 1: Outline the issues you will consider when reviewing this patient **3 mins**

Expected Response	Details & Comments	
Confirm diagnosis of anaphylaxis	History Is there an identifiable precipitant? eg bee/wasp sting, particular food, drugs etc,	
Review past allergy history	Prior episodes of anaphylaxis. Prior use of/ prescription of Epipen. Training in use. Prior visits to immunologist ?allergy testing ?possible role for desensitisation.	
Medical Comorbidities	Ischaemic heart disease (relevant in acute management, increases risk of inappropriate use of Epipen) Beta-blocker use: Reduces effectiveness of adrenaline.	
Social factors	Employment/ social situation. Number of Epipens required. Need for education of others.	
Review treatment received	Why was adrenaline given? **How was it given** (route, dose(s), response, time)? What else was given? eg steroids, antihistamines (DON'T LET CANDIDATE EXPAND)	
Review suitability for discharge	**If has received adrenaline requires minimum 4 hours observation post adrenaline.** Follow-up arrangements PROMPT: What are the criteria for discharge?	
Is adrenaline autoinjector indicated?	Anaphylaxis + unidentified or not easily avoidable precipitant. Indicated for most precipitants PROMPT: What are indications for supplying an adrenaline autoinjector?	
PROMPT (if not covered) **How do you define anaphylaxis?**	*1) Acute illness with cutaneous symptoms (urticaria/ erythema/ itch/ swelling lips/tongue/pharynx) and at least 1 of* *a. Respiratory symptoms (dyspnoea/ stridor/ wheeze/ hypoxia)* *b. Hypotension or symptoms of hypoperfusion* *2) >=2 of after exposure to likely allergen (minutes to several hours)* *a. Cutaneous symptoms* *b. Respiratory symptoms (dyspnoea/ stridor/ wheeze/ hypoxia)* *c. Hypotension or symptoms of hypoperfusion* *d. Persistent GIT symptoms (crampy pains, vomits etc)* *3) Hypotension/hypoperfusion with exposure to known allergen (minutes to hours)*	

Question 2: When would you use IV adrenaline in anaphylaxis and how? **1.5 mins**

Expected Response	Details & Comments	
Indications	Failure to respond to IM adrenaline (which may be repeated in doses of 0.3 – 0.5 mg concurrently) **Life-threatening** or rapidly progressing anaphylaxis (significant airway symptoms/ hypoxia/ bronchospasm/ hypotension) Cardiac arrest in setting of anaphylaxis	

Administration	**Arrest: 1mg IV bolus** **Non-arrest**: appropriate description of technique to rapidly give **10-100mcg** bolus of adrenaline in a monitored resuscitation environment • 0.1 – 1 ml of 1: 10 000 adrenaline minijet (1 mg in 10ml) • Double dilution technique of 1 in 1000 adrenaline (1 mg in 1ml) • IV infusion: 1 mg in 1 litre crystalloid, run at appropriate rate (eg. 20 ml boluses Titrate to effect with repeat doses until symptoms improving and patient stabilises. Use of small boluses/ infusion provides rapid effects and minimises risks of side effects (hypertension + tachycardia leading to myocardial ischaemia/CVA) PROMPT: What is the dose in cardiac arrest? What is the dose range in the non-arrested patient?	

Question 3: I am now the patient. Can you give me instructions on when and how to use this device? 1.5 mins

Expected Response	Details & Comments	
Indications	Cutaneous symptoms + **signs of another system** (dizziness/ faintness or dyspnoea/ chest tightness or oral swelling/throat lump or tightness/ voice change or nausea/vomits LAY TERMS) Call ambulance. Lie down. Administer Epipen. PROMPT: If I just get a rash do I use the epipen?	
Technique	Demonstrate how to open Epipen Demonstrate how to identify correct end for application Describe appropriate **site** (lateral thigh, through clothing) Describe appropriate force and duration of holding applicator on (in) *Good candidates will refer to using trainers +/- pharmacist to practise* PROMPT: Where should it be injected?	

Question 4: Define the role of other medications in the management of anaphylaxis 1 min

Expected Response	Details & Comments	
General comments	Adrenaline is the only 1st line agent recommended for anaphylaxis and is life saving, no other treatment should delay its administration. There is no good evidence for the role of any other '2nd line medications' in the management of anaphylaxis.	
Corticosteroids	Commonly used with aim of reducing incidence of protracted or rebound anaphylaxis. No evidence. (eg prednisolone 30-50 mg for adults for 3-5 days)	
H_1 receptor blockers (antihistamines)	Symptomatic benefit of reducing itch, flushing, urticaria, angioedema. Do not treat airway swelling, hypotension (ie. not life-saving). Slow onset. Parenteral often used in acute setting but caution re sedation. (Non-sedating frequently given on discharge for 3-5 days).	
β_2 agonists (salbutamol)	May be helpful for wheeze, coughing, dyspnoea but does not treat hypotension, airway oedema etc thus must not be substituted for adrenaline.	
H_2 receptor blockers (eg ranitidine)	No evidence. Theoretical benefit of increased histamine blockade leading to reduced flushing/ other symptoms.	
Fluids and oxygen	Indicated	

PROMPT: What is the role of steroids or H1 receptor blockers?

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

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

1. Lead examiner …….. **Candidate Number:**

2. Co-examiner …….. **Final** **Mark:**

SCENARIO
A 60 year-old man presents with 2 hours of severe central chest pain.

Question 1: What is your differential diagnosis for a serious non-ischaemic cause for this patient's pain? What are the key features in your history and examination that would discriminate these causes? (2.5 minutes)

Expected Response	Details & Comments	
Differential Diagnosis	**PE, Dissection**, malignancy, pneumothorax, perforated oesophagus, pneumonia pericarditis/myocarditis, pericardial effusion, traumatic causes	PE, Dissection + 2 others
Pain	**Nature:** severe, tearing, pleuritic. **Radiation:** to back, to abdomen. Not relieved with rest. Onset while eating or vomiting?	
Associated symptoms	Cough, haemoptysis **Significant dyspnoea.** Sweating, vomiting, **Stroke symptoms** (facial droop, limb weakness or numbness). **Calf pain or swelling**.	
Risk factors for Venous Thromboembolism	Including: reduced mobility, advanced age, cancer, major surgery, obesity, smoking, fractures.	
Examination	-Vital signs:Tachypnoea, tachycardia, low oxygen saturations. **-Blood pressure (high or low)** **-L – R BP differences**. -Radio-radial or radio-femoral delay. -Fever -Creps, bronchial breath sounds -Pleural rub – with pulmonary infarction. -Pulmonary hypertension (high JVP, loud P2, right sided gallop, RV heave) - **- Limb ischaemia -Clinical evidence of DVT** – (may be mentioned in associated symptoms) -Signs of pneumothorax or pericardial effusion -**Neurological deficits** -Surgical emphysema	4 out of 5 bold to pass extra marks for others

Question 2: The patient becomes hypotensive with a systolic BP of 80mmHg before investigations have been performed. Resuscitation is commenced. How will you investigate this unstable patient? (1.5 minutes)

Expected Response	Details & Comments	
Unsuitable to leave resus cubicle. Simple, easy access tests and laboratory assays are useful. But the key to Dx is urgent bedside imaging.		
Bedside tests in resuscitation cubicle.	Would *not* transfer to radiology for CTPA nor VQ scan.	4 bolded to pass
ECG	Exclude arrythmia and infarct.	
CXR-mobile	Exclude major pulmonary pathology, may see evidence of dissection but AP view less helpful	
Assessment of oxygenation – SaO2	Pass if mentioned O2 sats earlier	
ABG / VBG	Looking for hypoxia, increased A-a gradient, lactic acidosis.	
D-dimer	Evidence of thromboembolic disease but non-specific, significant delay	If mentions D-dimer ask how it will help
Echo- Bedside, in ED **Either by ED or cardiology**	Most useful test is bedside echo to look for a cause of the hypotension Tamponade, dilated RV/IVC or decreased RV volume suggesting hypovolaemia	
Hb (point of care)/ other blood tests		

Question 3: The patient remains persistently hypotensive despite initial fluid resuscitation. Bedside echo shows features of massive pulmonary embolism (PE). Outline your management of this patient. (1 minute)

Expected Response	Details & Comments	
Resuscitation	Assume team leadership. Continue resuscitation. ABC. **High flow oxygen**. **Fluid challenge**: **Vasopressor support**.	Bold to pass Prompt vasopressor if needed
Clot removal	Needs urgent t**hrombolysis**: generalised (eg t-PA) or localised (eg urokinase). Mechanical disruption if available?: catheter embolectomy or CPR.	
Anticoagulation	Therapeutic dose heparin or LMWH.	
Disposition	ICU referral or transfer. May require thoracic surgical, respiratory, haematology or interventional radiology involvement.	

Question 4: The patient stabilised and was admitted. It is brought to your attention that the patient was seen in your ED 2 days ago with chest pain and admitted to CCU under Cardiology. He was discharged after a negative exercise stress test. Describe your response to this. (2 minutes)

Expected Response	Details & Comments	
Key Issues	**- Critical Incident / potential missed diagnosis. Reporting of this.** **- Joint ED and Cardiology investigation** **Clinical Governance: Risk management, identifying quality improvement issues** **- Open disclosure - Liaison with patient and/or next of kin** **-** Education opportunities	3 Bolded to pass
Clinical Governance Aim: Investigate with Cardiology to identify systems causes, and prevent recurrences.	ED Admitted via ED. Investigate and manage ED processes. Cardiology Discharged from CCU. Discuss with cardiology unit. Blame free investigation, Serious outcome. Indications for "Root Cause Analysis" or at least investigate further. Notifications: eg "Risk Man", hospital legal counsel.	
Liaison with pt and/or NOK	Meet with patient/spouse/family, Discuss situation and explain what has happened. Plan to feedback to family once investigation is complete.	
Education Opportunities	Use case as teaching example	

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

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

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SCENARIO

A 60 year-old man presents with 2 hours of severe central chest pain.

Question 1: What is your differential diagnosis for a serious non-ischaemic cause for this patient's pain? What are the key features in your history and examination that would discriminate these causes?

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO

A 30 year-old man was working at a Silicon Chip factory when hydrofluoric acid was spilt onto a hot surface and "exploded". He has suffered chemical burns to his arms and chest. Decontamination was performed at the scene and he has been brought in by ambulance, complaining of severe pain.

Question 1: What are the important features in your history and examination? (2 minutes)

Expected Response	Details & Comments	
Aims are to assess A. Risk of dermal / soft tissue necrosis and systemic toxicity, including hypoCa B. Need for treatment beyond topical Ca gluconate		
HISTORY		
Exposure	- Time of contact with HF - Concentration of HF solution (liaise with employer if possible) – in this industry, should be less than 50%. 100% solution carries high risk, but typically causes immediate pain. - Estimated BSA exposed – usually hands only. Greater than 10% is higher risk of systemic toxicity. - Protective gear - Decontamination- Delay between exposure and washing?	
Local Sxs	Severity of pain, extent of apparent injury Additional Sxs such as blistering, desquamation, joint or tendon involvement	
Systemic Sxs	Inhalational: mucosal irritation, cough, dyspnoea, wheeze Features of hypoCa –Tetany, muscle spasm, dizziness from arrhythmia	
Co-morbidities, or Implications for Rx	PHx – respiratory illness such as asthma Medications, allergies / adverse reactions	
EXAMINATION		
Hands	Pallor and blanching may be evident at this stage Erythema, blistering and dermal necrosis may be impending if untreated Neurovascular deficit or other complication	
Other systems	Seek signs of systemic fluorosis Vital signs – baseline pulse, rhythm, BP Oral mucosa, eyes Chest exam – wheeze or other adventitious sounds	

Question 2: Outline your initial management. (1 minute)

Expected Response	Details and Comments	
Critical Care Scenario	Resus cubicle, team approach, assume team leadership Cardiorespiratory monitoring Protective gear for staff	
Supportive Care (A,B.C)	Skin decontamination (if incomplete). Remove contaminated clothing, irrigate skin and/or mucosal surfaces with copious amounts of water. Assess and treat airway burns, stridor, dyspnoea etc High flow oxygen, ventilatory support if required IV access – crystalloid IV infusion, aiming for normotension Titrated narcotic analgesia, may require large doses	
Chemical cutaneous burns	IV fluid requirements according to estimated BSA of burns Topical: Calcium chloride in water-based gel, applied liberally to affected areas	
Systemic toxicity	Anticipate hypocalcaemia, with / without ECG changes and dysrhythmias. IV Ca if confirmed.	

Question 3: A 12-lead ECG is performed. Describe and interpret the ECG. (1 minute)

Expected Response	Details & Comments	
12 lead ECG with features suggesting electrolyte abNs		
Findings	SR 56bpm, sinus arrhythmia. Markedly prolonged (apparent) QTc in limb leads U waves in praecordial leads. Prolonged QTc in limb leads may reflect merged T and U waves. Non specific inferolateral ST depression. Meets voltage criteria for LVH.	
Relevant negatives	Normal axis, no ectopics.	
Interpretation	Features of low serum cation: K, Ca, Mg. In this setting, significant concern for hypoCa and / or hypoMg. This is indicative of systemic fluorosis. Serum K needs to be checked too! ST changes and LVH of uncertain significance in this context.	

Question 4: The patient has moderate hypocalcaemia and approximately 10% BSA cutaneous burns involving his arms and chest. There are no other injuries. Outline your ongoing management. (1 minute)

Expected Response	Details & Comments	
HF exposure with dermal burns and systemic fluorosis. HypoCa and/or hypoMg warrant ongoing cardiac monitoring and parenteral Ca +/- Mg.		
Electrolyte abN	Parenteral regime: IV CaCl; IV Mg SO4 if associated hypoMg Titrate to normal QTc and serum levels of Ca and Mg	
Additional Pain Control	Refractory pain may require subcutaneous, intra-arterial or regional IV infusion of CaCl	
Enhanced elimination?	No role here; not indicated	
Disposition	To ICU or HDU. Involve toxicology service.	
Other	Workplace notification / documentation Liaison with NOK	

Question 5: In general, DISCUSS the options to administer local or regional calcium for pain refractory to topical gels, in dermal HF acid burns. (2 minutes)

Topical Rx is limited because Ca is relatively impermeable to skin.
Options: **Subcutaneous, Regional Intravenous, or Intra-arterial.**
Ca gluconate is recommended, as Ca Cl too concentrated, and itself may cause tissue necrosis.

	PROS	CONS
Subcutaneous Infiltration	5% Ca gluc via fine needle. Easy and rapid to administer, therefore 1st line treatment of choice if small area affected. If suitable, pain relief is immediate.	Max dose of 1ml per square cm of affected skin Amount of Ca delivery limited by route of admin May cause initial pain from free Ca ions More tissue damage possible if Ca not bound to fluoride Limited penetration to nail bed (unless remove nail plate!) Excessive volumes around digits may compromise circulation
Regional Intravenous Infusion (Using Bier block method)	Greater penetration of Ca ions into affected tissue Technically requires only IV access and high pressure BP cuff, therefore easier than intra-arterial infusion.	Ischaemic pain for patient! Therefore difficult to assess if Rx effective. Poor pt acceptance. Iatrogenic tissue ischaemia may be harmful Rx time limited by limb ischaemia time. Risk of systemic hypercalcaemia if cuff deflates
Intra-arterial Infusion	Most effective for severe tissue fluorosis. In this case – brachial artery cannulation indicated. Ca gluc diluted in 5% Dex, administered via 3-way stopcock with pressure monitor transducer. Rx over 2 – 4 hours.	Deep tissue infiltration of Ca ions may exacerbate tissue damage. Risk of arterial spasm or thrombosis, causing limb ischaemia. Resource-intensive. Will need ICU admission.

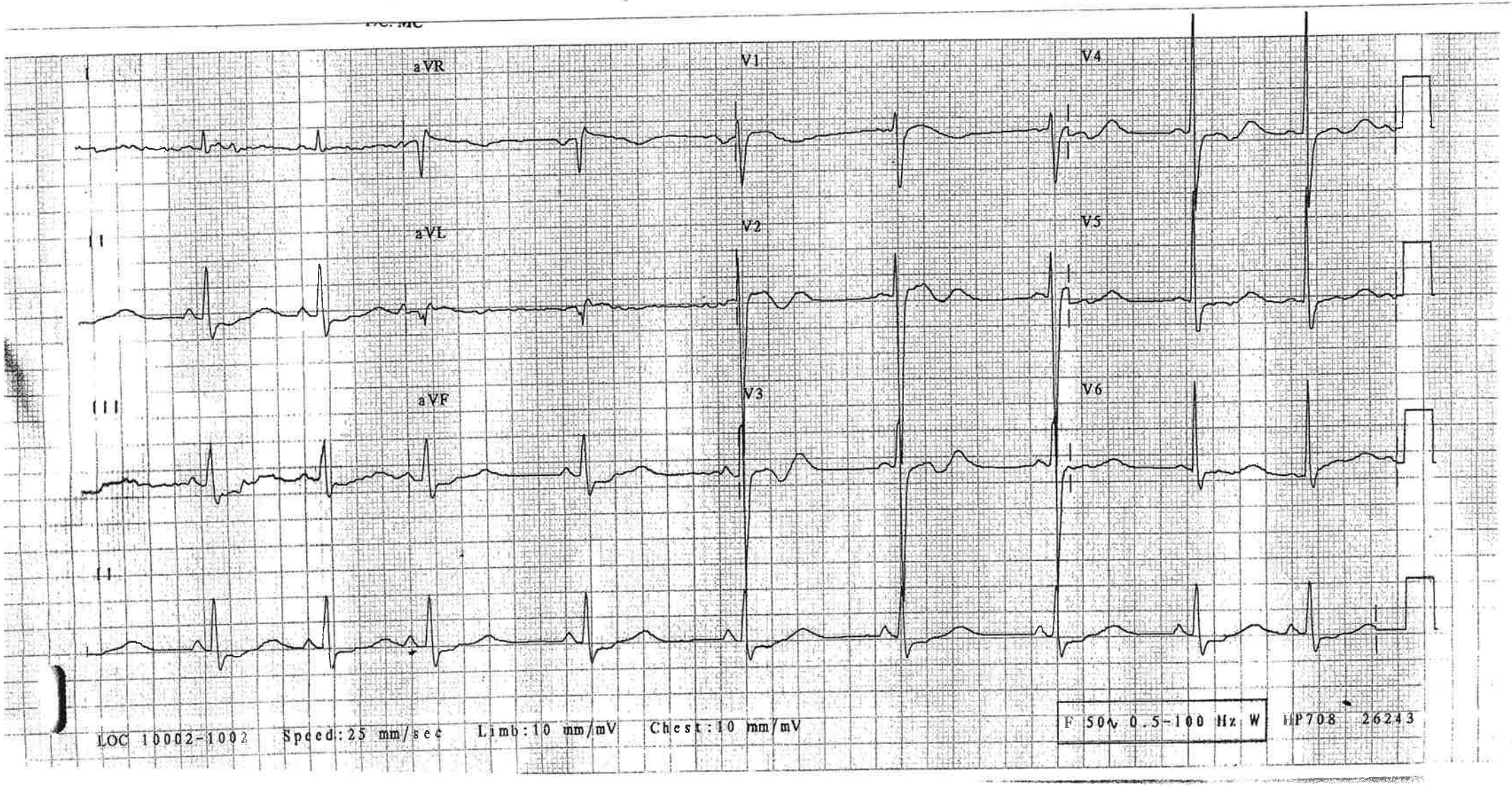
Comments: (if you fail the candidate, please state why)

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

SCENARIO

A 30 year-old man was working at a Silicon Chip factory when hydrofluoric acid was spilt onto a hot surface and "exploded". He has suffered chemical burns to his arms and chest. Decontamination was performed at the scene and he has been brought in by ambulance, complaining of severe pain.

Question 1: ***What are the important features in your history and examination?***


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
II
LOC 10002-1002 Speed:25 mm/sec Limb:10 mm/mV Chest:10 mm/mV
F 50Hz 0.5-100 Hz W HP708 26243

1. Lead examiner ……..……..

Candidate Number:

2. Co-examiner ……..……..

Total Mark:

SCENARIO

A 30 year old woman with known type I diabetes presents with vomiting and abdominal pain for two days. Her vital signs are HR 138/ minute, BP 112/69, Afebrile, GCS 14, RR 24/ minute.

Question 1: Describe and interpret her ABG

pH	6.95	(7.35-7.45)	Glucose	32 mmol/L	(3.0-7.7 mmol/L)
PaO2	165 mmHg	(80-100 mmHg)	Na	132 mmol/L	(135-145 mmol/L)
PaCO2	10 mmHg	(35-45 mmHg)	K	5.8 mmol/L	(3.5-5 mmol/L)
HCO3	2	(22-28 mmol/L)			
Base Excess	-30 mEq/L	(-2 - +2 mEq/L)	O2 Saturation	100%	(95-100%)

(1 minute)

Expected Response	Details & Comments	
Profound metabolic acidosis with partial respiratory compensation	HCO_3 of 2 suggests course over several days	
Marked hypergylcaemia		
Normal corrected sodium (prompt if needed)	Corrected Na = Na + (Gluc-10)/3= 139	
Mild hyperkalaemia	Care with K^+ replacement	
c/w Severe DKA		

Question 2: Describe the key features in your assessment of this patient (2 minutes)

Expected Response	Details & Comments	
Concurrent Assessment and Management	Initiate resuscitation whilst gaining further Hx/Ex/Ix	
History	History of her Diabetes Usual insulin regime/ other meds/ compliance Previous episodes DKA- ?usual precipitants, other complications- hypos- Usual endocrinologist Usual BSLs, HbA_1C, Frequency of monitoring Other known complications IDDM - retinopathy, renal disease, PVDT **This illness?: Possible precipitant, sepsis, non compliance**, History of vomiting, abdo pain, oral intake, other Sx, previous Surgery, pregnancy? allergies	Focus on acute precipitant of severe presentation
Examination	Focused Exam- vital signs Hydration status **Look for site of infection** - chest, skin, renal tract, CNS, abdomen	
Investigations	Bedside- BSL (already have) Urine- ketones, U/A and microscopy, bHCG ECG- ?ischaemia BG (already have most)- lactate ?sepsis, hypoperfusion FBC- WCC- sepsis, stress, Hb- likely haemoconcentration EUC- K+, renal function Ca Mg PO4 Lipase, LFTs- ?cause abdo pain CXR- ?pneumonia	Reasonable, structured approach

Question 3: Outline your specific management in the first 2 hours in the ED (2.5 minutes)

Expected Response	Details & Comments	
Triage to resus area	Comprehensive monitoring, team approach IV access X 2	
Fluid resuscitation	0.9% N/Saline 1L stat, 2nd litre over 1 hr, 3rd litre over 2 hrs Further boluses if hypotension, Aim HR<100, BP>100	
Insulin therapy Prompt at end if required **The BSL is now 12, how does this alter your management.**	Actrapid Insulin 50Units in 50ml N/saline @ 0.1units/kg/hr (infusion without bolus preferred but not essential) ONCE fluid resuscitation commenced. Check BSL hourly When BSL <15 change to 5% dextrose as fluid (maybe in addition to N/Saline) to maintain serum glucose whilst continuing insulin infusion When BSL < 15 may reduce actrapid infusion to 0.05 U/kg/hr (Do NOT stop infusion as need to treat ketogenesis)	Reasonable infusion rate Reasonable end points
Initiate potassium replacement Will have large total body potassium deficit. (prompt for detail if not given)	Current K^+ 5.8- do not commence replacement until repeat EUC in 1 hour-check on VBG for rapid result Potassium will shift into cells with treatment K^+ <3.3 replace at 20mmol/hr K^+ 3.4-5- replace at 10mmol/hr K^+ 5.1-5.5 replace at 5-10mmol/hr Aim for serum K^+ 4-5 mmol/L, max rate K^+ peripherally ~ 20mmol/hr, centrally 30mmol/hr	Anticipate large fall in K+ as treatment commenced Monitor and adjust regime
Treat underlying precipitant	Eg Antibiotics if site of sepsis identified- probably assume sepsis unless other obvious cause	
Consider HCO_3	As pH <7 *may* consider administration of 50mmol sodium bicarbonate 8.4%- probably will resolve without bicarb	
On-going monitoring	Hourly BSLs Second hourly EUC- K^+ VBG 2nd hourly Blood capillary ketones	
Invasive monitoring	Consider arterial line- for ease of repeat sampling IDC- hourly U/0	
Consultation / disposition	ICU/ Endocrine team	

Question 4:

After 2 hours in the ED she wants to discharge herself. Outline your approach. (1.5 minutes)

If / when requested last BSL is 12 and her most recent VBG has a pH 7.1
Her vital signs are HR 110/ min, BP 120/ 85

Expected Response	Details & Comments	
Difficult situation	Needs to stay for ongoing medical management **Duty of care to ensure that the patient is fully informed of risk of leaving** ?capacity to decide-significant physiological derangement. Outline how competence would be determined Negotiate/arrange further treatment and follow up if the patient leaves.	**Assessment of capacity for informed consent**
Elucidate why she wishes to leave	Enlist family /friends Endocrine team may have relationship with pt	**Enlist support as available**
Explain need to remain for treatment	If patient deemed competent then she cannot be kept against her will, but if deemed incompetent due to serious medical condition can be treated "in good faith" in the best interest of the patient	

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

A 30 year old diabetic woman presents with vomiting and abdominal pain for two days. Her vital signs are HR 138/ minute, BP 112/69, Afebrile, GCS 14, RR 24/ minute

Question 1: Describe and interpret her ABG

pH	6.95		Glucose	32 mmol/L	(3.0-7.7)
pO_2	165 mmHg		Sodium	132 mmol/L	(135-145)
pCO_2	10 mmHg		Potassium	5.8 mmol/L	(3.5-5.0)
HCO_3	2 mmol/L		Hb	143g/L	(130-170)
BE	-30				
Sats	98%				

Arterial blood gases (ABG)

pH	6.95	(7.35-7.45)
PaO_2	165 mmHg	(80-100 mmHg)
$PaCO_2$	10 mmHg	(35-45 mmHg)
HCO_3	2 mmol/L	(22-28 mmol/L)
Base Excess	-30 mEq/L	(-2 - +2 mEq/L)
Glucose	32 mmol/L	(3.0-7.7 mmol/L)
Na	132 mmol/L	(135-145 mmol/L)
K	5.8 mmol/L	(3.5-5 mmol/L)
O_2 Saturation	100%	(95-100%)

1. Lead examiner ……..…….. Candidate Number:

2. Co-examiner ……..……..

Total Mark:

SCENARIO

An 84 year old lady is brought to your ED by her daughter, who is frustrated with her mother because she cannot mobilise today. The patient appears unwell, frail and markedly underweight. She has a hot, swollen, painful right leg. She has mild dementia, and lives with adult daughter, who is her carer.
Her vital signs at triage are T 38.6deg, P 120 bpm, BP 95/60 mmHg, RR 22, O_2 sat 97% on air.

Question 1: Outline your immediate management of this patient (2 *minutes*)

Expected Response	Details & Comments	
Very sick elderly lady	Triage to high acuity area, resus, monitoring etc	
Appears to have SIRS (sepsis syndrome) +/- shock	Goal directed therapy	
Supportive Care	Oxygen, IV access, **IV fluid**, N Saline initially, Urinary catheter, monitor urine output Analgesia since in pain	
Specific Care (Prompt for antibiotic choice)	Likely organism G POS cocci, Community acquired MRSA? **Treat with IV antibiotics** according to local protocols Fluclox, vancomycin, timentin, clindamycin?	
Disposition	Likely to need ongoing management in high acuity area, possibly HDU Depending on response to initial resuscitation Need to consider limits of care	

Question 2: Describe your goals of treatment and endpoints in this patient.

(2 *minutes*)

Expected Response	Details & Comments	
Key Issues	- Resuscitation and management of patient with severe cellulitis- hypotensive - Principles of treatment – fluid resuscitation – intravenous antibiotics - Dementia – ability to consent for treatment/carer to give consent – need to establish competance - Boundaries of care may need to be established – Candidate for aggressive treatment/ICU? - Social/carer issues – inadequate care? - Discharge planning	
Goals of treatment	Restore CVS stability Treat the underlying infection Ensure positive interaction with patient/family	
Endpoints	**Discussions with family regarding likely poor prognosis with a plan to specify boundaries of care** Aim for adequate BP, MAP >65 mmHg and adequate urine output 2 ml/kg/hr. Monitor serum lactate, aim for adequate tissue oxygenation, normal lactate level Initial fluid bolus, 1 litre, monitor response. If good response to fluids then persist with IV fluids and antibiotics. In an 84 year old with use simple measures.	
Endpoint depends on: Prompt if needed: Any other issues? **Discharge planning**	**Degree of dementia? Comorbidities? Lives at home with daughter – quality of life?** **Is there an advance care directive?** If low level of dementia then more likely to consider higher level of care Need to establish ability of patient to consent to treatment – competence Will probably need daughters involvement in treatment decisions Consider– Is the patient a surgical/ICU candidate? Have patient's wishes been discussed? What are the daughter's/family's wishes? Information from other medical carers – especially GP Should start from time of admission Is daughter coping in the role? Does daughter require support? Does patient require services/placement? Involvement social work/allied health to further investigate home situation	
Disposition	Admission to inpatient unit for ongoing care- HDU or ward depending on level of care	

Question 3: **The patient does not respond well to treatment. The family say that they want "everything" done. What is your response?**
(2 *minutes*)

Expected Response	Details & Comments	
Discuss boundaries of care with patient and family	Prolonging life versus prolonging death? Offer to do "everything"appropriate eg: oxygen, IV fluids, IV antibiotics but not necessarily including CVC, art line inotropes etc Intubation/ventilation? Probably not	
	Prompt initial treatment, observe response. If good response, keep going with simple measures, If poor response, consider palliative care especially if evidence of renal failure or worsening hypotension	
Ongoing discussion with family	Likely very poor prognosis even if maximal treatment if poor initial response	
If family persist in their request (Prompt if necessary)	Ask ICU consultant or admitting team to join you in a discussion with the family regarding the likely benefits and the likely harm of aggressive/ invasive treatment	
	Collaborative decision regarding boundaries of care	

Question 4: During your interaction with the patient and her daughter you become concerned about the possibility of "Elder Abuse". In general, what features would you look for to support you suspicions?

(*1 minutes*)

Expected Response	Details & Comments	
General	Failure of caregiver to allow staff to be with patient alone Tension or argument between patient and caregiver Signs of undue stress shown by caregiver	Reasonable answer probably 4-6 of all
History	Separate from daughter appropriate to question even with mild dementia	
Physical	Unexplained bruise, welts, unexplained fractures Broken spectacles, pressure sores Restraint marks eg rope marks to wrists	
Sexual	Signs of local trauma	
Neglect	Weight loss, dehydration, malnutrition Untreated physical conditions such as pressure sores Delay in accessing medical care, eg: for infections or injuries Poor sanitation Apparent failure to dispense/use medications appropriately	
Other sources	Information from visiting nurses, LMO etc may be important	

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

An 84 year old lady is brought to your ED by her daughter, who is frustrated with her mother because she cannot mobilise today. The patient appears unwell, frail and markedly underweight. She has a hot, swollen, painful right leg. She has mild dementia, and lives with adult daughter, who is her carer.
Her vital signs at triage are

T 38.6degC
P 120 bpm
BP 95/60 mmHg
RR 22
O_2 sat 97% on air.

Question 1: Outline your immediate management of this patient.

1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO
A 30 year-old woman presents by ambulance to your ED following a generalised seizure at home. Just prior to arrival, she suffered a further seizure, which continues. The patient weighs 140kg. Her past medical history is unknown.

Question 1: Outline your initial treatment of this patient. (1.5 minutes)

Expected Response	Details & Comments	Pass
Resuscitation	**Identify that she is in status epilepticus.** **Resuscitation** room. Full monitoring. Assume team leadership, delegate roles. **Prevent further injury**. Apply **high flow oxygen**. Suction debris from airway. **Establish airway and ensure adequate ventilation.** **IV access** for anticonvulsant, investigations. Monitor rhythm.	Bold
Terminate seizures **Prompt, 'If she continues to seize, what other agents would you use?'**	Recurrent seizures. **Urgent seizure control** indicated. **1st line**: **Midazolam 0.05-0.1mg/kg.** Practically use 5 mg aliquots up to approx 20 mg.(Any other benzodiazepine including dose 2nd line: Traditionally phenytoin 15-20 mg/kg at 50 mg/min. Other options eg. Valproate IV loading , Keppra 1-2g IV loading. (3rd line: Barbiturates, propofol. Likely require/coincide with need for RSI and ventilation.)	Bold
Seek and treat potential causes **Prompt as required – 'What causes are you considering?'**	**Hypoglycaemia** Other: hyponatraemia, hypoxia, toxins, EtOH (incl withdrawal), CNS trauma, CNS sepsis,other (eclampsia), epilepsy	Glucose plus three others

Question 2: Her seizure is successfully terminated. She appears post-ictal with no focal neurological deficit and these are her vital signs (HAND SHEET TO CANDIDATE): (PR 125/min (SR), BP 190/110, Sats 100% on oxygen, RR 18, T 37.2. Her BSL is normal.)
List and justify your investigations. (2 minutes)

Expected Response	Details & Comments	Pass
Bedside	**ECG**: As tachycardic and hypertensive	
	ABG/VBG: **Glucose**, Na+, Ca++. Expect to see mixed metabolic and respiratory acidosis. Act as baseline, evidence for other process/ingestion	
	Urine**:** B HCG, protein	
Pathology ***Prompt: are there any other relevant blood tests in a 30 year old female?***	**Bloods: FBE:** WCC (non specific: expect elevation in seizure, ?sepsis), plt (?bleeding risk). **UEG**/LFT: Baseline. Confirm Na+, Ca++. ?hepatic failure ?coagulopathy likely. Coag profile: if evidence easy bleeding/ bleed on CT. (?DIC in eclampsia) Drug levels as indicated - anticonvulsants Septic screen if clinical concern for CNS/ other infection Serum B HCG	Bolded tests with justification
	LP**:** If clinical concern for meningo-encephalitis. After CT of brain. If ongoing seizures/ failure to recover conscious state then likely empirical treatment with delayed LP in view of risk of deterioration post LP.	
Radiology	CXR: If hypoxia, tachypnoea, clinical evidence of aspiration, failure to recover GCS.	
	Bedside USS: Evidence of pregnancy in view of obesity	
	CT head: If no other clear cause identified. Focal lesion ?bleed (note hypertension) ?tumour ?encephalitis	

Question 3:. You determine that she is in advanced pregnancy and she has a further seizure. Describe your management now. (2 minutes)

Expected Response	Details & Comments	Pass
Eclampsia: **Urgent obstetric consultation**	Obstetric emergency. **Urgent delivery** of fetus and placenta is treatment of eclampsia. 80-90% of eclampsia occurs after 30 weeks gestation. Obstetric review re emergent delivery/caesarian.	All bold
Positioning	Maintain L lateral / use wedge to avoid IVC compression	
Seizure prevention/control ***Prompt: How would you manage further seizures***.	**Magnesium** loading: Safe with wide therapeutic window. Options include 1) 20-30 mmol IV (2 to 4 g) over 15 mins, then 10 mmol/hr, 10 mmol slow IV push if further seizures. Usually successful. Most eclamptic seizures short lived. Titrate to loss of reflexes as sign of upper dose range. Second line: further benzodiazepines, expert advice re other anti-convulsants. If ongoing seizures/coma or failure to recover conscious state then I + V required to protect airway, maintain maternal/foetal oxygenation, allow further anti-convulsant therapy (eg. phenobarbitone, propofol). Avoid ongoing paralysis (allow seizure detection), EEG monitoring ideal.	Mg^{2+} must have bolus and infusion mentioned
Airway	Intubation indicated if ongoing seizures/ failure to recover conscious state. (prevent maternal/fetal hypoxia). **Anticipate and prepare for difficult maternal airway.**	
BP control ***Prompt: A repeat BP remains at 190/110.***	If remains hypertensive (SBP > 170, DBP > 110) then treatment required. Aust: IV hydralazine 2.5-5mg every 15 min + IV fluid. NZ: IV labetalol (20-50 mg IV, repeat if needed 15-30 mins) Target (approx) SBP < 150, DBP < 100. Seek expert advice.	
Management of foetus	Fetal heart monitoring. CTG if able. Formal USS ASAP to assess fetal well being/ gestational age.	
Fetal maturity	Uncertainty re dates. Steroids (Betamethasone IMI) empirically unless formal 'dating' USS easily available.	

Question 4: Her seizures are controlled. Your hospital has no obstetric service. Transfer is suggested by the obstetric service at a nearby hospital. Outline how you would proceed. (1 to 1.5 mins)

Expected Response	Details & Comments	Pass
Urgent transfer is appropriate	Urgent delivery required. Need to expedite safe transfer to facilitate this. Ambulance communication.	All Bold
Patient preparation	2 x IV well secured. IDC. Monitoring. Assessment of conscious state/ airway patency. If ongoing seizures, failure to recover conscious state to GCS > 9 or concerns re airway protection then intubation prior to transfer. Ongoing blood pressure management.	
Staff	Senior Medical and Nursing staff with advanced airways skills and experience in managing status epilepticus. ED consultant or SR ideal. Obstetrician? Receiving hospital is nearby.	
Drugs	Magnesium infusion + bolus doses. Benzodiazepines/ other anticonvulsants.	
Equipment	Airway equipment and intubation drugs. Magnesium and midazolam	
Communication	Receiving hospital Obstetric service, ICU ,ED.	
Paperwork	All ED paperwork/investigations copied for transfer.	

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

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

SCENARIO

A 30 year-old woman presents by ambulance to your ED following a generalised seizure at home. Just prior to arrival, she suffered a further seizure, which continues. The patient weighs 140kg. Her past medical history is unknown.

Question 1: ***Outline your initial treatment of this patient.***

Current Status

Her seizure is successfully terminated after a single dose of benzodiazepines.

Vital signs are:

PR 125/min (SR)

BP 190/110

Sats 100% on oxygen

RR 18

T 37.2

Her BSL is normal.

No focal neurological deficit but appears post ictal

1. Lead examiner …….. Candidate Number:

2. Co-examiner……..……

Total Mark:

SCENARIO

You are the consultant in a regional Emergency Department. A 6 year-old boy re-presents having been discharged 2 hours ago.

He was assessed during the previous presentation for a head injury, sustained from a fall off a tree. No investigations were performed.

Question 1: Outline the indications for CT scan of brain in this child. (1.5 minute)

Expected Response	Details & Comments	
Definite indications	GCS<15, focal neurology, seizures, signs of skull # or penetrating skull injury	
Consider if:	Persistent vomiting History of loss of consciousness Delayed seizure(s) Post-traumatic amnesia Underlying bleeding risk Moderate – severe headache	
Other	- CHALICE Criteria, PECARN, CATCH etc - Unscheduled return, apparent clinical deterioration. Likely parental anxiety. These lower the threshold for CT,	
Conclusion	**Must adequately explain reasoning behind the decision to perform neuroimaging in children giving at least 3 factors from lists above**	

Question 2: A CT Brain is performed. Describe and interpret the CT scan. (1.5minute)

Expected Response	Details & Comments	
Description	Extradural haematoma, left anterior cranial fossa Debatable presence/absence of midline shift Approximately 1.5 x 4 cm Left frontal lobe compressed slightly Fluid in left frontal sinus Air bubble External soft tissue swelling	**2 factors other than extradural**
Relevant negatives	Remainder of brain normal; no apparent skull fracture seen (but expect on other views).	
Interpretation	**Left frontal extradural haematoma adequately described** from recent closed head injury. Expect and plan for deterioration. **Will need liaison with and care under a neurosurgical service**	

Question 3: The child deteriorates to a GCS of 5. Outline your management. (2.5 minutes)

Expected Response	Details & Comments	
Key Issues	**Resuscitate: RSI with appropriate drugs and technique incl spinal precautions** **Maintain cerebral perfusion pressure (CPP). Ie MAP high(ish) and ICP low.** **Needs urgent EDH evacuation. Strong arguments for this to occur prior transfer.** **Liaise with parents and other NOK** **Continue to arrange transfer to tertiary service**	
Resuscitation / RSI	Resus room, assume leadership, delegate roles. Full monitoring, incl SaO_2, $ETCO_2$. Drug / Equipment preparation and selection. ETT size 5.5 plus one size up/down. Rapid sequence Intubation/ventilation, avoid hypotension or hypoxia, spinal precautions. Notify surgeon and OT.	
Maintain CPP	Ongoing sedation and paralysis. Ventilation strategy: aim for paO_2 100mmHg or more, low-normal $paCO_2$ Decompress stomach (orogastric tube only), ETT tape not tight. Nurse 30 deg head up. Load with phenytoin. Avoid hypotension. Mannitol or hypertonic saline in consultation with surgeon.	
Other critical care issues	Maintain euglycaemia Consider cervical spine and other injuries IDC	
Liaisons	Early discussion with parents / NOK re: management plan	
Emergent evacuation of EDH	Mobilise surgeon. Needs burr hole before retrieval. Consult with tertiary receiving neurosurgical service. Prepare patient for theatre.	
Transfer	Post emergency burr hole / evacuation. Requires transfer for definitive treatment.	

Question 4: Concerns regarding the management at the initial presentation are brought to your attention. Outline the issues raised and actions required. (1.5 minutes)

Expected Response	Details & Comments	
Review of clinical case	Explore circumstances in detail: clinical, staffing, resources, other Was alternative management appropriate at presentation	
Review of staff resources	Systems: roster adequacy, sufficient senior support Individual: Clinician competence. Previous clinical issues, recurrent problem? Impaired physician?	
Review of systems / processes	Review by senior Dr? Education / competence of personnel Workload. ?Poor access to radiology and/or IP services Discharge processes / ?applicable guidelines	
Risk management	Highlight in morbidity / mortality meetings; also for educational purposes Notifications: Risk Man, hospital legal counsel	
Implement required changes	Targeted at systems: education, guidelines, accreditation, triage, rostering At individual practitioners IF indicated: eg counseling	
Quality feedback loop	Review after defined period to ensure loop closed and desired effect achieved.	
Liaison with parents / NOK	Open disclosure. Full explanation, apology. Inform them of findings, and actions.	

Optional Question :What specific issues need to be addressed with the parents, regarding this case. (1.5minutes)

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?

……

…….....

SCENARIO

You are the consultant in a regional Emergency Department. A 6 year-old boy re-presents having been discharged 2 hours ago.

He was assessed during the previous presentation for a head injury, sustained from a fall off a tree. No investigations were performed.

The question you will be asked on entering the room is:

“Outline the indications for performing a CT scan of the brain in this child”

SCE 1

Initial investigations include an arterial blood gas on room air:

pH	**7.25 mmHg**	**(7.35-7.45)**
pCO_2	**23 mmHg**	**(35-45)**
pO_2	**99 mmHg**	**(75-100)**
HCO_3-	**10 mmol/l**	**(22.0-33.0)**
Lactate	**5 mmol/l**	**(0.7-2.5)**
Glucose	**10 mmol/l**	**(3.0-7.8)**
Base Excess	**-16 mmol/l**	**(-3-+3)**

1. Lead examiner ……

Candidate No:

2. Co-examiner ……

Final Mark:

SCENARIO

A 22 year-old man who was using intravenous amphetamines has been brought to the ED by police. He is handcuffed and in an agitated state. Vital signs: HR 140 bpm, BP 200/110 mmHg, RR 22, temperature 38.1^{0}C, SpO2 98% on room air. GCS 14- confused

Initial investigations include an arterial blood gas on room air:

pH	**7.25 mmHg**	**(7.35-7.45)**
pCO_2	**23 mmHg**	**(35-45)**
pO_2	**99 mmHg**	**(75-100)**
HCO_3-	**10 mmol/l**	**(22.0-33.0)**
Lactate	**5 mmol/l**	**(0.7-2.5)**
Glucose	**10 mmol/l**	**(3.0-7.8)**
Base Excess	**-16 mmol/l**	**(-3-+3)**

Question 1: Describe and interpret the arterial blood gases. 1 minute

Expected Response	Details & Comments	
Moderate acidaemia; metabolic acidosis with resp compensation; Likely toxin induced. Sympathomimetic toxicity with concordant abnormal vital signs.		
Metabolic	**Metabolic acidosis**	
Respiratory	**Respiratory compensation** as expected Expected pCO_2 = 1.5 x 8 + 8 = ; or pCO_2 approximates last 2 digits pH	
Oxygenation	Good Oxygenation. Aa gradient normal.	
	Glc-stress	
Interpret	Potential causes: prolonged agitation, pronounced activity, dehydration, renal impairment secondary to drug use. Consistent with **Sympathomimetic toxidrome**. Multiple factors are possible.	

Question 2: Outline your approach to this patient's agitation. 2 minutes

Expected Response	Details & Comments	
Issues	Patient is unwell and can be treated without consent "in his best interest" **Maintain physical restraint until safety established** considering best time for removal of handcuffs.	
Difficult to manage due to agitation High risk of deterioration	Team approach, assume leadership, delegate roles. Careful approach, verbal assurances, maintain handcuffs, retain help of police. Safety staff, patient and others in ED. Resus room with cardioresp monitoring. Initial physical then chemical restraint, **Must remove restraints when safe to do so**. The patient will need sedation (+/- intubation and ventilation) to control the situation. Manage rest of ED.	
Sedation	**Appropriate drug, dose and route of administration, end point of sedation** Candidates should justify choice of sedating agents. **Safe monitoring of patient throughout**.	
Other	Consolidate Hx from collateral sources: police, kin, old records.	

Question 3: The patient is now sedated. His serum CK is 80,000 IU/L. He develops a broad complex bradycardia with a HR of 30bpm. His BP is 70 systolic.
Describe your management. 2-3minutes

Expected Response	Details & Comments	
Severe hyperkalaemia	- **Rapid infusion/resus** of IV N Saline. - **Cardioprotection**: Calcium: CaCl or gluconate, appropriate dose, end points - **Shift K** into cells: $NaHCO_3$, Insulin& dextrose, Salbutamol **End points clinical improvement**- CVS improvement, narrowing of QRS, improvement in BP. **Repeat blood gases and serum K analyses**. Monitor urine output, glucose. - May need dialysis if not responsive to initial Rx	
Rhabdomyolysis	Bicarbonate to alkalinise urine. Aim pH 7.5 **IV crystalloids**: aim for **high UO**, viz 100mls/hr. Urinary catheter Consider mannitol. Frusemide contraindicated, as it acidifies urine which can lead to more myoglobin to ferrihaematate(toxin). Consider compartment pressure –careful examination of limbs- fasciotomy if indicated. May need dialysis	
Disposition	ICU; consult toxicology service	

Question 4: During the restraint, a security guard sustained a needlestick injury. Describe the management of the security guard.

1 minute

Expected Response	Details & Comments	
Issues	**Risk assessment**; risks: benefit ratio for HBV, HIV. Consider also tetanus. **Serology testing.** Require pre and post-test **counselling**. Medicolegal issues in testing unconscious patient No PEP available for HCV. **Follow up** Documentation. Hospital notification/riskman. Work cover.	
Recipient	**Hep B immunisation status**. Determine Hx of HBV vaccination; ? previously known results, esp antiHBs Ab His concerns, fears and expectations should also be addressed	
Source	High risk patient IVDU Known patient HIV status? Check documentation, lab results, chart	
Mechanism of injury	Depth of injection, amount of blood, hollow (more likely!) or solid needle	
Consent for testing?	Patient sedated and unable to give consent for testing	
Medicolegal issues/admin	Legality of testing without consent versus commencing PEP whilst awaiting test result from patient Documentation. Hospital notification/riskman. Work cover.	
PEP	If indicated, based on risk assessment, expert advice and recipient wishes: - Tetanus: - HBV: active and passive immunisation - HIV: protocolised regimen	

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

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

SCENARIO

A 22 year-old man who was using intravenous amphetamines has been brought to the ED by police. He is handcuffed and in an agitated state. Vital signs: HR 140 bpm, BP 200/110 mmHg, RR 22, temperature 38.1^{0}C, O_2 sats 98% on room air. GCS 14-confused

Initial investigations include an arterial blood gas on room air:

pH	**7.25 mmHg**	**(7.35-7.45)**
pCO_2	**23 mmHg**	**(35-45)**
pO_2	**99 mmHg**	**(75-100)**
HCO_3-	**10 mmol/l**	**(22.0-33.0)**
Lactate	**5 mmol/l**	**(0.7-2.5)**
Glucose	**10 mmol/l**	**(3.0-7.8)**
Base Excess	**-16 mmol/l**	**(-3-+3)**

Question 1. Describe and interpret the arterial blood gases

ID:

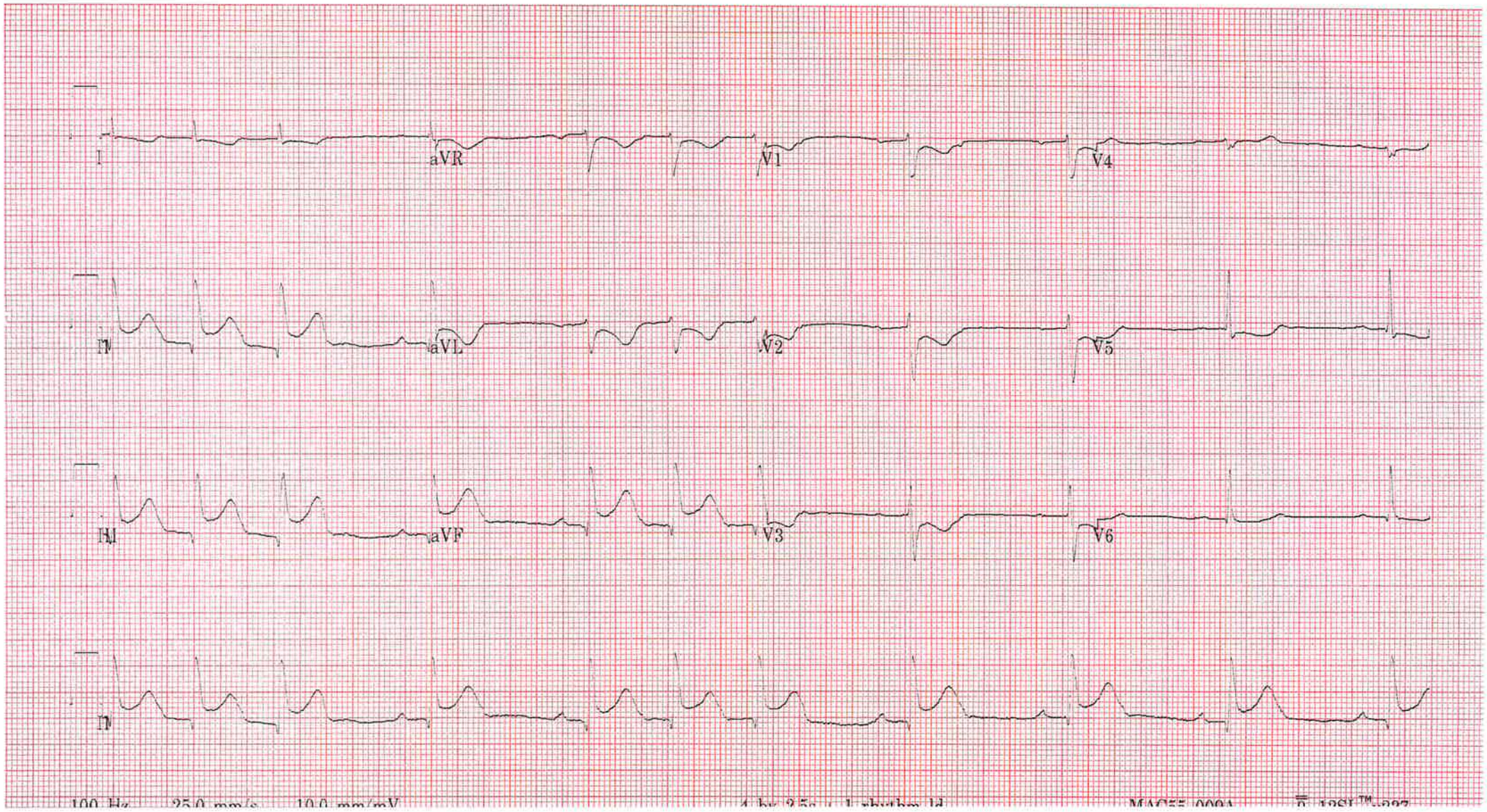
14-May-2013 12:27:32 TOWNSVILLE HOSPITAL

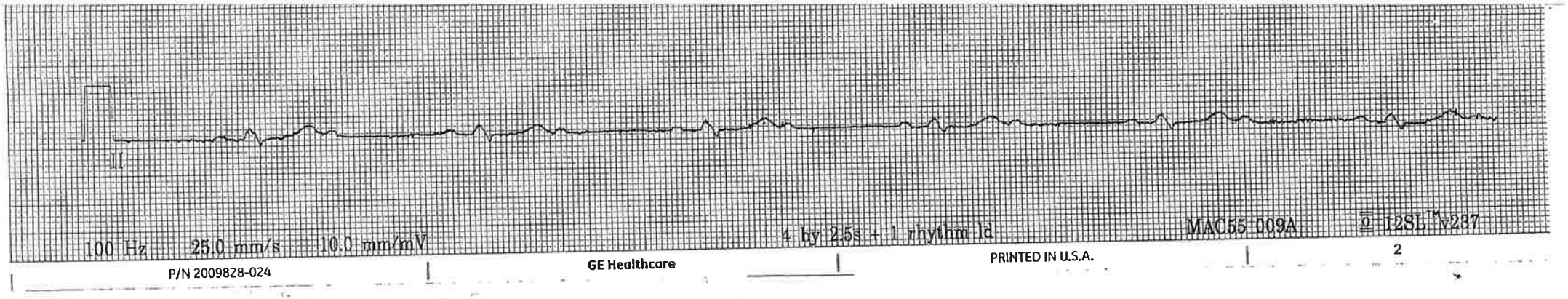
Vent. rate	62 bpm
PR interval	244 ms
QRS duration	98 ms
QT/QTc	450/456 ms
P-R-T axes	79 81 97

Sinus rhythm with 1st degree AV block with premature atrial complexes
Anterior infarct, age undetermined
Inferior injury pattern
** ** ACUTE MI ** **
Abnormal ECG

Technician:

Unconfirmed

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1. Lead examiner …… **Candidate Number:**

2. Co-examiner …… **Final Mark:**

SCENARIO

A 45 year-old man presents to your tertiary ED with persistent shortness of breath and severe epigastric pain after a long run. Other than mild asthma, he has no other medical problems. The attending RMO has tried pulsed salbutamol via metered dose inhaler (MDI) over 30 minutes, with no effect. He then tried 2 sprays of sublingual GTN. Vital signs were P 55/min, BP 110/70 on arrival but now BP 70/50, SaO2 97% RA, RR 30/min. The patient is pale and sweaty. The nurse looking after the patient is concerned about the patient, and requests your assistance.

Question 1: Outline your response to this situation. (included in stem) (2.5 minutes)

Expected Response	Details & Comments	
Issues	Undifferentiated unwell pt; support vital signs while undertaking diagnostic search. Consider DDx: asthma, sepsis, acute cardiomyopathy (such as ischaemic), perforated ulcer. Dissection, PE, allergic reaction, effect of drug(s) Support / educate RMO	
Unwell patient	**Transfer to Resus/monitored room**. Team approach, assume leadership, delegate roles. See patient immediately with the RMO – consolidate Hx, review exam findings, Assess and manage simultaneously **Address hypotension:** Position +/- Rapid IV fluid resuscitation - 1 L N Saline. Discontinue nitrates.	
Diagnosis and Risk Stratification **Prompt for DD** ***Cardiac and two others to pass***	**DDx** **Cardiac – Acute coronary sydrome** (relative brady and hypotensive, esp post GTN – inf AMI, RV Respiratory – PE, asthma (less likely acute attack as no response to salbutamol), PTx +/- tension, Sepsis AMI), pericardial effusion +/- tamponade, acute valvular lesion, CHF Dissection Perforated ulcer Allergic reaction / anaphylaxis, including from agents given in ED Toxin: ?envenoming **Clinical review** **Focused repeat Hx and exam, seeking / excluding features of the above**	
Urgent Ixs	**12 lead ECG**, **seeking / excluding arrhythmia, ST changes** Bloods: Baseline/coags/Trops e FAST: pericardial fluid, PTx, pleural fluid, abdominal free fluid CXR: cardiomegaly, LVF, PTx ABGs: ? adequacy of oxygenation / ventilation; metabolic disturbances	
Early Rx	Dependent on outcomes of the above	
RMO support	Educate, support, assign tasks	

Question 2: An ECG is performed. Describe and interpret the ECG.

(1 minute)

Expected Response	Details & Comments	
Findings	**SR**, N axis, bradycardia	
	ST elevation II, III, aVF >1 mm. Inferior STEMI. **ECG reperfusion criteria present**	
	Reciprocal anterior deep ST depression V1-3. Reflects acute inferior STEMI. Also suggests posterior involvement	
Relevant negatives		
Interpretation	Infero-posterior STEMI. In setting of hypotension, suggests RV AMI. Likely hypotension secondary to GTN/cardiogenic, decreased pre-load. Needs further fluid bolus. Hypotension may improve with atropine. Needs urgent RV4 ECG, to look for RV AMI. **Needs urgent reperfusion.** Consult with cardiology, with a view for immediate angioplasty.	

Question 3: Cardiology services are mobilising for urgent angioplasty. The cath lab will be ready in 30 minutes. The patient complains of dizziness. BP remains 70/50. A cardiac rhythm strip is available.
Outline your immediate treatment.

(2 minutes)

Expected Response	Details & Comments	
Rhythm strip	**Marked brady at a rate of 35/min, Mobitz II 2nd degree or complete heart block** Interpretation: inf MI involving RCA and SA node	
Staged approach to therapy required to pass	Call cardiology, see if cath lab can be ready sooner. **Further IV fluid bolus – 250/500 ml** **Pharmacotherpy**: Trial atropine – use with some caution – will only be affective if block in the AVN Inotropes if hypotension persists. Candidate should specify and justify agent, AND target parameters. Coronary reperfusion is definitive Rx – CHB likely to resolve when reperfusion is achieved. **Pacing if pt remains symptomatic** – options: temporary while awaiting transfer to cath lab. (transcutaneous with sedation or transvenous) or may need permanent pacemaker if no improvement with reperfusion.	

Question 4 The Cardiology consultant comes to see you after the patient has been treated in the cath lab, to raise concerns about the initial management of the patient in the ED.
Outline your response.

(1.5 minutes)

Expected Response	Details & Comments	
Due respect to cardiologist	**Acknowledge** that it seems that the management initially may have been less than ideal. **Clearly it needs to be looked into.** **Investigate further**	
Investigate further	**Discuss with RMO**, nurse, ambulance **Find out details of presentation**	
System issue?	Was an ECG performed in a timely manner? Was it seen by a senior doctor (as per department process) If not, why was this process not followed?- Epigastric pain? Was there any evidence of asthma?	
RMO issue?	Have there been previous issues? Talk with RMO	
Support the RMO	Non-confrontational, Use as educational opportunity Differential diagnosis of dyspnoea, epigastric pain	
Education	Teaching session for junior doctors on RV AMI – RUN by ED!	

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

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

SCENARIO

A 45 year-old man presents to your tertiary ED with persistent dyspnoea and severe epigastric pain after a long run. Other than mild asthma, he has no other medical problems. The attending RMO has tried pulsed salbutamol via metered dose inhaler (MDI) over 30 minutes, with no effect. He then tried 2 sprays of sublingual GTN. Vital signs were P 55/min, BP 110/70 on arrival but now 70/50, SaO2 97% RA, RR 30/min. The patient is pale and sweaty. The nurse looking after the patient is concerned about the patient, and requests your assistance.

Question 1: Outline your response to this situation.

1. Lead examiner ……..……..

2. Co-examiner ……..…….. **Candidate Number:**

SCENARIO

A 43 year old man presents to your metropolitan ED via ambulance, with haematemesis.
Vital signs are: GCS 15; pulse 125, BP 100/65, RR 20, O_2 sats 97% on air, temp 37.3 deg C. **Total Mark:**

Question 1: Outline your assessment? (2 minutes)

Expected Response	Details & Comments	
Key Issues	Tachycardic but maintaining BP at the moment Risk of sudden massive bleed, with sudden deterioration. Needs resuscitation	
Differential	Gastric or duodenal ulcer, oesophageal tear, varices, coagulopathy *(prompt*)	
History	**Assess Volume of bleed** **Time course of events** Previous episodes? Melaena? Coffee-ground or fresh blood? Onset after vomiting? **Comorbidities** **Risk factors for GI bleed including** : Medications (NSAIDS, Aspirin, warfarin, clopidogrel) Ulcer symptoms,Alcohol, smoking, other cause of liver disease, Allergy, fasting status	**Bold to pass**
Examination	**Assessment of signs of circulation** CVS- tachycardic but maintaining BP- peripheral perfusion, cap refill **Signs of chronic liver disease**? Ascites? Spider naevi? Gynaecomastia? Jaundice? Signs of encephalopathy? Palpable liver? Spleen? (portal hypertension) Skin Bruising? Petechiae? Coagulopathy? **Assess for melaena** (PR – not essential)	
Investigations	Bedside VBG **– Haemoglobin**, ECG – arrhythmia, ischaemia Urgent FBC, **Coags, Cross match, EUC** – raised U: Cr ratio**, LFT's** – liver disease If ongoing bleeding will need urgent gastroscopy- diagnosis and definitive treatment	

Question 2: Your assessment confirms long history of excessive alcohol consumption and signs of chronic liver disease. His skin is cool and clammy. Vital signs are unchanged. Outline your initial management (2 minutes)

Expected Response	Details & Comments	
Aims	Stop the bleeding Replace the loss Treat the cause	
Immediately to resus area		
General	2 large bore cannulae, oxygen, haemodynamic monitoring **Volume resuscitation**-Commence IV N Saline warmed/rapid infusion protocol **Correct coagulopathy** Prevent hypothermia – worsens coagulopathy Send bloods for coags, cross match, FBC Urinary catheter- monitor output	**Bold to pass**
Specific	**Discuss approach to control bleeding (eg. Endoscopy)** *(prompt – There is ongoing bleeding - what specific treatment might they need)* May need massive transfusion protocol, un-cross matched blood + products until cross match complete but at the moment BP OK. Blood/platelets/FFP 1/1/1 Medical treatment for oesophageal varices - Octreotide – 25-50 mcg bolus then 25-50 mcg/h infusion (probably) - Terlipressin – 2mg iv bolus can be repeated 4 hourly Consider need for balloon tamponade - Patient needs to be sedated/intubated - Potential for complications	
Disposition	May need urgent gastroscopy under anaesthesia, **Admit- gastro consult or admission** If continued bleeding will need gastroscopy/banding etc May require surgery to control blood loss	

Question 3: The patient has a further large haematemesis and becomes drowsy. His BP is now 60 systolic. You activate the hospital's massive transfusion protocol. Describe the principles of massive transfusion in haemorrhagic shock.
(2 minutes)

Expected Response	Details & Comments	
Massive Transfusion needed if...	Anticipated blood loss of 10 units in 24 hours Entire blood volume in <24 hours 50% blood volume in 3 hours Significant ongoing bleeding - 150 ml/min ongoing loss	**Bold to pass**
Activation	**Activation -** Alert blood bank/haematology Follow local protocol Send blood to pathology – X-match/FBC/Coags/Ca	
Blood product administration	Initially usually O NEG blood then group specific blood until cross match completed, then- **1:1:1 ratio of packed cells: FFP: Platelets** (1 bag platelets ~ 4 units – or close to this) May need other products such as cryoprecipitate (fibrinogen) Aim to closely represent the composition of whole blood **Prevent hypothermia** Aim to achieve this over 6 hours Need to monitor Electrolytes including calcium/FBC/coags Use of ROTEM gives rapid guide to products - Quicker than PT/ APPT for monitoring - Not well validated in ED Consider tranexamic acid for massive haemorrhage – not validated in non traumatic haemorrhage	

Question 4: The patient is improves with your resuscitation, but there is ongoing blood loss requiring urgent intervention. The gastroenterology registrar states the patient is "too unstable" to transfer to the endoscopy unit and requests he be kept in ED until he more becomes stable. Outline your response to this request. (1minute)

Expected Response	Details & Comments	
Key Issues	Inappropriate to delay treatment **Patient needs urgent intervention** **Needs ongoing resuscitation** Appropriate location is OT rather than endoscopy unit - Needs anaesthetic involvement	**Bold to pass**
Deal with registrar	**Deal with the registrar** - Non confrontational, calm manner Explain concerns of delaying intervention Patient is unlikely to become more stable until source of bleeding is managed Recognise registrar might be "out of his depth" Will need to deal with specialist directly	
Deal with patient	**Endoscopy to occur in appropriate location** (theatre, ED, endoscopy unit) and staff are ready and waiting for patient Enlist help in ED for resuscitation from anaesthetics/ICU Prepare for transfer with all necessary monitoring, equipment, drugs, blood products etc.	
Follow-up	Quality assurance issues regarding case Develop departmental/hospital protocols regarding unstable patients for endoscopy Meeting between ED/ Gastroenterology/ Anaesthetics to implement plan for future Use case in departmental teaching/M & M meetings	

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?

.....

.....

SCENARIO

A 43 year old man presents to your metropolitan ED via ambulance, with haematemesis.

Vital signs are:
GCS 15;
Pulse 125,
BP 100/65,
RR 20, O_2
temperature 37.3 deg C.
Oxygen saturation 97% on air,

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 *Prompt*: is there any other specific treatment you would provide *Prompt*: is there any other supportive treatment you would provide	**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 History	Sepsis, UTI Pyloric stenosis, Reflux, Gastro, Bowel obstruction/volvulus Intra-cranial pathology **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, peripartal 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, 1st born, +ve FHx PHx: old notes, GP ?neglect	**Bold to pass**
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)		
K+ 2.5	(3.5-5.5 mmol/l)	Glucose 2.5	(3.0-7.6 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)

.....

.....

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

.....

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

Outline your initial treatment.

1. Lead examiner **……** **Candidate Number:**

2. Co-examiner **……** **Final Mark:**

SCENARIO
You are on the dayshift in your ED when it is shaken by a severe earthquake. Everyone is thrown off their feet. There is severe damage to the ED waiting room. Early reports indicate:

- **That significant structural damage has occurred throughout the city**
- **A number of victims are dead and unknown numbers of people are trapped and injured.**

There is no other ED in the city.

Question 1:
Describe the triage system that you would use in the event of a mass casualty situation. (Included in stem)
(1 minute)

Expected Response	Details & Comments	
Principle	Expect large numbers of casualties, without adequate time and resources to spend in initial assessment in the usual (non-mass casualty) way. The focus is on rapid interventions that salvage patients with highly survivable injuries. Prompt for alternate method	
Immediate (Red)	Critical. Likely to survive if care received within 30 minutes	
Delayed (yellow)	Serious injuries, not immediately life threatening. Likely to survive if care is provided within several hours	
Minor (Green)	Walking wounded, Not serious, care can be delayed.	
Deceased (Black)	Dead or mortally wounded. Not for active management	

Question 2: What are your immediate actions to prepare for the expected influx of patients? (3 minutes)

Expected Response	Details & Comments	
Activate disaster plan **Safety Assessment**	Ensure activated via emergency call to operator – this activates the hospital plan Evacuate unsafe areas/establish safe work zone. Assess safety of staff and pts in the ED	
Establish control and function of the ED	ED is hospital venue for first response, Logistics of actually being heard- PA system throughout department to lead the ED response and keep everyone on the same page. Organise teams and team leaders in all bays. Use other staff arriving as sub specialty consults	
Central Command Centre	Liaise but in reality will be some time before they are functional	
Plan for arrivals	Prepare physical space in ED. All patients present become part of major incident, Redirect waiting room patients, designated areas according to disaster planning. **Identify alternative waiting room site** (Prompt "given the damage to your department") Move sorted in-patients to the wards if safe Establish single triage point at ED (eg. ambulance bay). Anticipate waves of severity and patterns of injury. Ensure availability of pre-packaged disaster packs + headlamps in case of loss of power Focus teams on their roles and quick education on how to proceed via PA system. Admin: be prepared for no computers if power out – tracking of pts by whiteboards	
Support- Path X ray USS	Ensure that relevant staff are notified, prepared	

Question 3: It's now a few hours later. The incident response will be prolonged and a large number of patients are likely to continue to arrive. What further steps will be required to manage the situation? (3 minutes)

Prompt What would be required to keep the department functioning?

Expected Response	Details & Comments	
Internal Staff management	**Set up rosters** for the hours / days ahead. Staff may need to leave to be with / search for family members and friends. (external and internal disaster – staff likely to be traumatised also) **Ensure staff rotation**, watch for signs of stress/distress, consider recruiting from offers of help regionally and internationally.	
Communication	Liaise with CCC and Snr Hospital Staff re on-going plans. Issues to consider: Safety of hospital, staff and pts Requesting outside help +/- transport teams to take pts to other centres in the country Frequent meetings (in ED) to update and keep planning ahead Update ED staff via PA of all new plans	
Tracking of pts	challenging to keep tabs on (esp important for tracking / location of pts, relocating with families, audit at later date	
External staff management	Masses of staff that arrive – all wanting to help Herd into collection area Organise easily visible ID to aid with assigning tasks (eg John Smith, Surg Reg, Advanced Trainee – written on apron front use as consults for sub specialties – ie staff work as much as possible in own area of expertise if computers down)	
Sustaining supplies and stock	High use of Analgesics Fluid resuscitation Blood products (staff may need to donate blood to keep up supplies) Anticipate injuries – set up pre packaged kits: RSI, treatment of hyper K+ with crush	
Other	Food and water supplies for the staff Media – may need to update media re ED situation **3 out of 5 plus some detail to pass**	

Question 4: It is now 3 days later. No further live patients have been located. Thousands of people are homeless and many areas are without power and water.
What are the main issues facing your department over the next period?

Expected Response	Details & Comments	
Building issues	Need Engineers to assess the ED and wider Hospital to know if they are safe to work in. May need to relocate resources based on these findings	
Staffing Issues	Staff have all been a part of the disaster – they will have their own lives to sort out as well as the commitment to on-going work. Many may have worked huge hours and likely to be exhausted. Re-do rosters based on availability and stress levels. Likely to need senior presence at nights in view of on-going EQs. Consider help from outside to give your staff a break.	
Patient Issues	Types of presentations – likely to be increase ACS, stress related presentations. Many pts likely to have no medications	
Health Department Issues	Sanitisation a major concern and so a D&V outbreak likely. Public education needed to help minimise this risk.	
Media Review/Debrief of Response	Close liaison to update public and help with education re above Need to evaluate how your department and hospital responded to the disaster. Need to update plans in case of on-going needs	

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

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

SCENARIO

You are on the dayshift in your ED when it is shaken by a severe earthquake. Everyone is thrown off their feet. There is severe damage to the ED waiting room. Early reports indicate:

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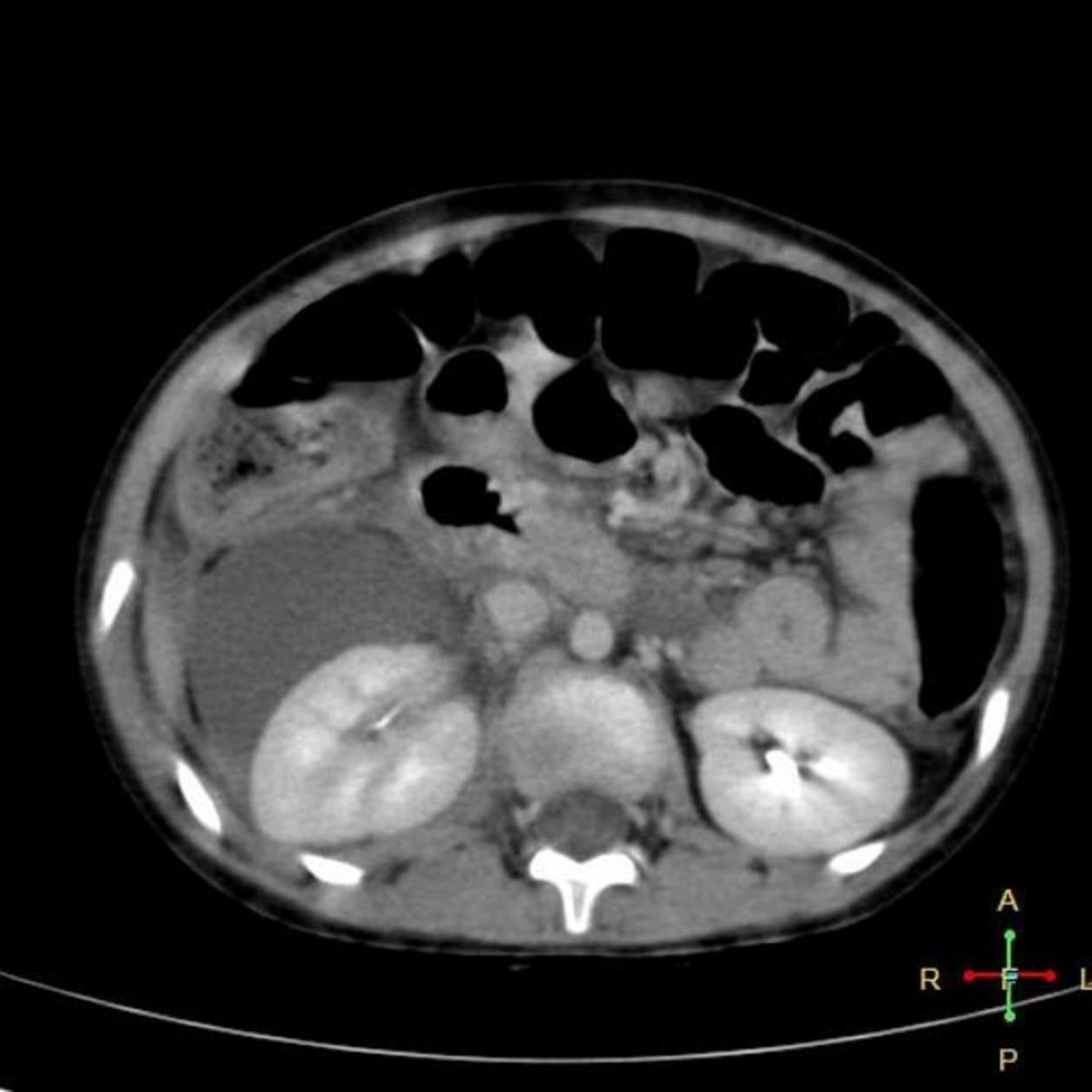
There is no other ED in the city.

Question 1:

Describe the triage system that you would use in the event of a mass casualty situation.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1. Lead examiner **…….** **Candidate Number:**

2. Co-examiner **…….** **Final Mark:**

SCENARIO

A 26 year-old man is brought to your major regional ED after a high-speed motorcycle accident. There is no external haemorrhage or apparent long bone fracture. He has a cervical collar in place and is complaining of pain in his back. The ambulance crew note that he has not been seen to move his legs. His initial observations are GCS 15; Pulse Rate 65/min; Blood Pressure 80/40 mmHg; Respiratory Rate 18/min; SaO2 100% on high-flow oxygen.

Question 1 Outline your initial approach.

(2.5 minutes)

Expected Response	Details & Comments	
Initial approach / Primary Survey	Trauma team response, surgical team in attendance. Assume leadership, delegate roles. MIST (Mechanism, Injury, Signs & Treatment) type handover concurrent with initial assessment/ management Airway and Breathing: Appear currently not requiring urgent management. Circulation is major concern. Treat haemo/pneumothorax with ICC, pelvic binder if suitable pelvic fracture. 2 x large bore IV (bloods for Xmatch, FBE, UEG/LFT, blood alcohol, etc), analgesia IV aliquots Trauma imaging: trauma series Xrays: Chest/ pelvis, bedside FAST. Immediate primary survey, identify and control external haemorrhage, splint/ immobilise major fractures.	**To pass:** **Structured EMST approach**
Resuscitation	Begin resuscitation with warmed fluids (consider early use of blood products, avoid large volume crystalloid) If FAST +ve, significant, major external haemorrhage or clinical impression of haemorrhagic shock then use packed cells (Group O) and be prepared to initiate tranexamic acid & major transfusion protocol. Initiate 2 units packed cells. Consider damage control resuscitation end-points (SBP 70-80) as clinically indicated.	
Secondary Survey *Prompt: What neurological features would you look for on examination?*	Complete secondary survey. Assessment for spinal injury including **log roll**: Vasodilation/warm peripheries. Diaphragmatic breathing pattern. Motor and Sensory level (If spinal injury the cause of hypotension expect lesion above T4). Neurological deficit lower limbs/ upper limbs. PR for evidence of sacral sparing if incomplete. Priapism would suggest complete lesion.	
Past Medical history	AMPLE History	

Question 2: Examination reveals a sensory level above the patient's nipples. X rays of his chest and pelvis are non diagnostic. After 1L of intravenous Normal Saline his observations remain unchanged. What actions will you take whilst waiting for a CT scan in 15 minutes time?

(2 minutes)

Expected Response	Details & Comments	
Patient is hypotensive with a sensory level, suggesting that has major spinal injury above T4.This may be causing persistent hypotension, **however need to ensure no concealed haemorrhage**. Must exclude pelvis/chest/retroperitoneal haemorrhage.		
Monitoring & Supportive Care	Includes pressure area care, temperature control, ongoing non invasive monitoring, consideration of invasive monitoring, euglycaemia, ECG, IDC	
Analgesia	Titrated IV analgesia	
IV fluids	Give details of fluid administration with goals (MAP, urine output) – up to 1 litre per hour of N. Saline	
Immobilisation	Full spinal immobilisation.	
Notify family		
Prepare for transfer to CT	Transport monitor, appropriate staff, drugs	
e-FAST (serial)		

Question 3: A CT is performed. Interpret this single CT abdomen slice. (1 minute)

Expected response	Details and Comments	
Key finding: CT shows extensive retroperitoneal haemorrhage in region of R kidney which is not well seen ?major renal injury.		
Relevant negatives	Contrast scan so unable to comment re blush/ active bleeding. There is no intra-peritoneal free fluid, no liver laceration. No obvious spinal injury on this slice.	
Interpretation (prompt at 30 seconds for interpretation)	Significant "concealed" retroperitoneal haemorrhage due to R renal injury, likely contributing to hypotension. Need CT angiogram and **may need embolization or laparotomy** (nephrectomy) if active bleeding. Urgent General Surgery/ Urology/ Interventional Radiology review/planning.	

Question 4: The CT scan shows no apparent active bleeding. There is an unstable T4 fracture with signs of a cord injury. The patient has unchanged observations (PR 65, BP 80/40). What further actions would you take?

(1.5 minutes)

Expected Response	Details & Comments	
Injuries	Unstable T4 fracture with associated cord injury and neurogenic shock. R renal injury without active bleeding: Conservative management likely (though may still need surgical/ radiological intervention), needs close observation to detect any bleeding.	
Surgical/Urological consult (Renal/ Retroperitoneal bleed)	Possible need for surgery/intervention if further bleeding, Urological opinion.	
Haemodynamic support and monitoring *Prompt: How would you manage and monitor this patient's hemodynamics?*	Consider CVC, Noradrenaline infusion to maintain MAP above 70 to ensure adequate spinal perfusion and prevent secondary injury due to hypotension. Hourly UO. Arterial line, Challenging to detect blood loss in presence of neurogenic shock: Monitor UO, Acid Base status (lactate/base deficit), vasopressor needs, Hb.	
Spinal Injury Care/ Disposition *Prompt: What other specific care will the patient need*	Arrange transfer to Spinal Unit or equivalent for spinal fixation & spinal injury care, provided not requiring urgent surgery locally for retroperitoneal bleed. Will need spinal precautions, spinal care including temperature, NGT, appropriate transfer staff and equipment, antiemetics. Liaise with spinal unit re: steroids	
Communications	Inform patient and next of kin. Difficult task, given implications of injury. Sensitivity and tact required. Thorough documentation.	

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

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

SCENARIO

A 26 year-old man is brought to your major regional ED after a high-speed motorcycle accident. There is no external haemorrhage or apparent long bone fracture. He has a cervical collar in place and is complaining of pain in his back. The ambulance crew note that he has not been seen to move his legs.

His initial observations are:

GCS:	**15**
Pulse Rate:	**65/min**
Blood Pressure:	**80/40 mmHg**
Respiratory Rate:	**18/min**
SaO2:	**100% on high-flow oxygen**

1. Lead examiner……. **Candidate Number:**

2. Co-examiner ……. **Final Mark:**

A 64 year-old man presents to your Emergency Department with dyspnoea and palpitations. His past history includes COPD, chronic renal failure, obesity, IHD and hypertension. Vital signs on presentation:
HR 156/min; BP 88/60 mmHg; O_2 sats 88% on RA; Temp 36^8 deg C; GCS 15.
His nurse shows you his ECG. (ECG and Q1 included in the stem)

Question 1: Describe and interpret the ECG (*1.minute*).

Expected Response	Details & Comments	
Describe	**Broad complex tachycardia**, rate 156, regular Consistent with **ventricular tachycardia** Relevant positives: Very broad, AVR grossly positive (bizarre axis) Relevant negatives: not concordance, no fusion or capture beats Other: peaked t waves, ST changes (interpretation difficult)	
Interpretation	Probable VT, with haemodynamic and respiratory compromise Potential causes: hyperkalaemia (Prompt: renal impairment), drug toxicity, Ischaemia or atrial tachycardia with aberrant conduction **Needs urgent identification and reversal of cause(s) or contributing factors**	

Question 2: A venous blood gas is taken. Describe and interpret this finding:
pH 6.9, pCO_2 60, pO_2 28, bicarb 10, BE -10, K^+ 8.6 (*2 minute*)

Expected Response	Details & Comments	
pH 6.9, CO_2 60, bic 10	**Profound acidaemia** **Mixed** metabolic respiratory acidosis. Predominantly metabolic related to renal failure. High morbidity/mortality.	
CO_2 60	**Hypercapnoea indicates respiratory failure** (Type 2). Other causes include Overload (CRF, IHD), meds such as narcotics, Pickwickian syndrome from morbid obesity. Combinations of causes are likely in this patient.	
K+ 8.6	Severe life-threatening hyperkalaemia– may account for VT Current K elevated by low pH. Predicted K of 6.1 if pH normalised to 7.4. VT more likely to revert if K corrected. Therefore **needs urgent correction of K.**	

Question 3: Outline your treatment of this patient. (*2 minute*)

Expected Response	Details & Comments	
Needs urgent correct K+ before further Mx consideration (Prompt: if cardioverts first: is there anything you would like to do before that?		
General	Full cardiac monitoring. Team approach, assume leadership, assign roles. Equipment, medications. Explanation to patient +/- NOK.	
Hyperkalaemia	**Cardiac stabilisation:** Ca gluconate 10ml 10% repeat as needed (can use CaCl) **K shift:** Salbutamol neb 5 mg; Bicarbonate 8.4% 100 ml IV; Insulin 10 IU + 50 mls 50% glucose Consider enhanced elimination**:** rectal resonium. **Consider dialysis**	

Question 4: When would you consider cardioversion and what are the issues in this patient? (*2 minute*)

When	**If treat high K and still WCT likely required**. VF, Loses output. Synchronised cardioversion at 50-100 J biphasic. Follow safety protocol.	
Issues **Candidate must competently discuss to pass**	*Candidate should acknowledge risks of sedation/ induction / ventilation (viz **Cardiovascular / Resp compromise / Airway/** Renal/ Obesity/ IHD**/** Consent), and demonstrate expertise in this procedure. RSI with airway protection Vs **prepare for this**. However, suxamethonium should be avoided! Safe dose and choice procedural sedation.*	

Question 5 (Additional if time): The patient reverted to sinus rhythm but remains hypotensive. List potential causes for his persisting hypotension and how you would assess for each.

Expected Response	Details & Comments	
AMI/ACS	ECG: tachycardia, arrhythmia, STEMI.	
PE	ECG RV strain, Echo- dilated RV,	
Septic shock	Presence of fever, likely source, urine FWT, CXR	
Medications	Drug history/interactions Anaphylaxis: airway oedema, rash, tachycardia	
Hypovolaemia	Clinical examination	
Other	Pericardial tamponade (?uraemic pericarditis): Beck's triad; echo confirmation Spurious result: recheck reading, assess equipment If intubated and ventilated, consider tension PTx: clinical signs and confirmatory CXR	

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

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

SCENARIO

A 64 year-old man presents to your Emergency Department with dyspnoea and palpitations. His past history includes COPD, chronic renal failure, obesity, IHD and hypertension.

Vital signs on presentation:

- **HR 156 /min**
- **BP 88/60 mmHg**
- **O_2 sats 88 % on RA**
- **Temp 36^8 deg C**
- **GCS 15**

His nurse shows you his ECG. (ECG included in the stem - PTO)

Question 1: Describe and interpret the ECG.

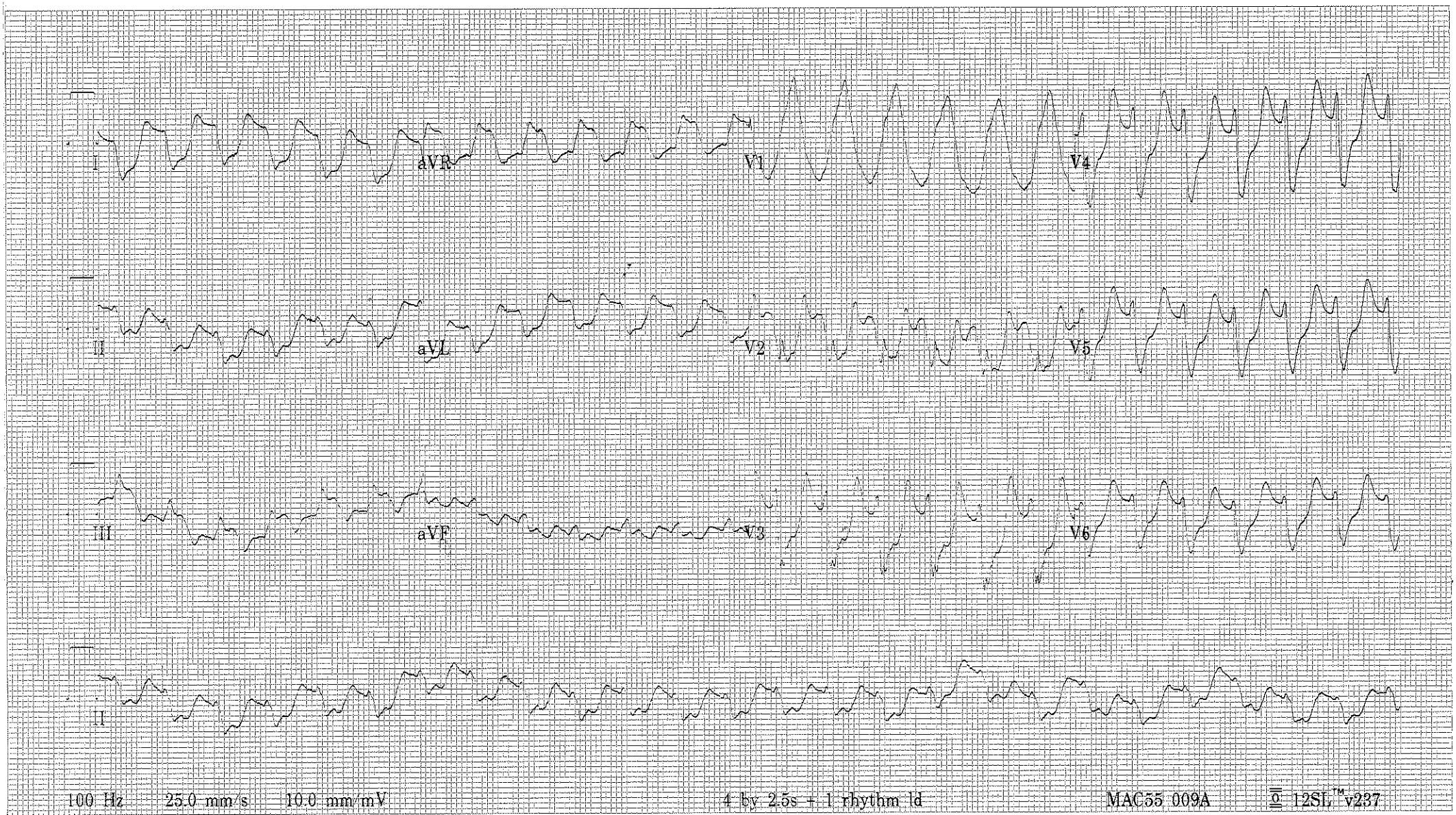
ID: 5-Mar-2013 18:07:27 TOWNSVILLE HOSPITAL

Vent. rate	153 bpm	
PR interval	112 ms	
QRS duration	142 ms	
QT/QTc	326/520 ms	
P-R-T axes	* 178 254	

*** Suspect arm lead reversal, interpretation assumes no reversal
Sinus tachycardia
Nonspecific intraventricular block
Right ventricular hypertrophy
Cannot rule out Septal infarct, age undetermined
Inferior injury pattern
** ** ACUTE MI ** **
Abnormal ECG

Technician:

Unconfirmed



SCE 1

Question 2: A venous blood gas is taken.

Describe and interpret this finding:

pH	**6.9**		**(7.35 – 7.45)**
pCO_2	**60**	**mmHg**	**(35 – 45)**
pO_2	**28**	**mmHg**	
HCO_3	**10**	**mmol/L**	**(22 – 33)**
Base Excess	**-10**		**(-3 – +3)**
K^+	**8.6**	**mmol/L**	**(3.5 – 5.5)**

ACEM Fellowship Exam 2014.1 SCE 2

1. Lead examiner ……..

Candidate Number:

2. Co-examiner ……..

Total Mark:

A 10 year-old boy is carried into your rural Emergency Department by his father. They were camping in outback Northern Australia when the boy stepped on a snake. He has a small bloody wound on his right leg. A bandage was applied by the father. They arrived in your ED by private car after a 50-minute drive. The patient is in a resuscitation bay.

Question 1: Outline the key features in your assessment of this patient. (2 *minutes*)

Expected Response	Details & Comments	Bold To Pass
Key Issues	Establishing whether a bite happened or not. Looking for evidence of systemic envenomation	
History	Exact details of bite – location, time 1st aid measures applied (pressure immobilisation bandage), amount of movement by boy post bite **Symptoms of possible envenomation** (headache, vomiting, dizziness due to hypotension, abdominal pain) **Neurological complaints** (diplopia, dysarthria, muscle weakness, respiratory fatigue) **Coagulopathy** – bleeding from wound sites/venepunctures, haematemesis/haematuria Rhabdomyolysis – red or brown urine, reduced urine output, muscle pain Tetanus status Other AMPLE history	Bold To Pass
Examination	General inspection – **vital signs**(HR/BP/sats/RR/temp/ GCS) looking for signs of shock and respiratory failure, check adequacy of pressure immobilisation. **Neurological exam** – **Eye signs-**ptosis, diplopia, ophthalmoplegia, peripheral **muscle weakness,**paralysis. Skin –look for signs of bleeding. Muscles – muscle pain **Bite site** – Cut window in bandage to view site	Bold To Pass
Investigations	Bedside - BSL,ECG, U/A(Hb =haemolysis / myoglobin = rhabdomyolysis) Lab - Group and Hold /Crossmatch **FBC** – anaemia. Leucocytosis, thrombocytopenia **Coags** – PT/APTT/INR (all elevated in snakebites causing coagulopathy), Fibrinogen low, D-dimer positive, whole blood clotting time if coags not available **UEC's / CK** – looking for renal impairment and rhabdo VBG – looking at acid base status and CO2(can get respiratory failure and metabolic acidosis) VDK -now or later in the SCE.	Bold To Pass

Question 2: The child is asymptomatic, and examination is normal, other than a persistently oozing wound. The following blood test results are received. Describe and interpret the results.

Hb	135 g/L	130-170
Platelets	207	150- 400
APTT	90 secs	25-36
INR	>9.0	
D-Dimer	Positive	
Fibrinogen	< 60 mg/L	180-440
CK	1500 u/L	150-499

(2 minutes)

Expected Response	Details & Comments	
Evidence of venom-induced **consumptive coagulopathy (VICC)** indicates systemic envenoming and is an **indication for antivenom**		Bold To Pass
Hb normal	No features of thrombotic microangiopathy causing microangiopathic hemolytic anemia (MAHA). Platelets and WCC should be sought too.	
Immeasurably high INR, APTT, positive D-dimer and unmeasurable fibrinogen	Not a black snake as fibrinogen would be normal Death Adder doesn't cause coagulopathy Likely Brown or Taipan	
Elevated CK	Rhabdomyolysis could be due to myotoxicity May cause renal impairment, given findings, esp if Brown, Tiger, Taipan	
Interpretation	Presence of VICC limits the possible snakes causing clinical scenario to **Brown snakes, Taipan and Tiger snake.**	**Brown + 1**

Question 3: Outline your management of this child. **(2 minutes)**

Expected Response	Details & Comments	
Key Issues	Systemic envenomation. Potentially critically unwell. Estimated weight 30kg. **Mainstay of Rx are supportive care and antivenom**. Latter guided by VDK result. Role of blood product therapy is guided more by active bleeding than coag profiles.	Bold To Pass
First Aid	**Leave pressure immobilisation in situ until antivenom commenced/completed and pt stable**	
Respiratory support	Currently no evidence of paralysis but needs careful monitoring	
IV Fluids	Anticipate renal impairment and possible cardiovascular compromise 0.9% N/Saline 10-20ml/kg boluses, aim HR <100, normotension Monitor fluid balance closely	
Choice of Antivenom	**Venom Detection Kit. I**deally from bite site through window in bandage. Urine - less reliable. Blood unreliable. **Results guide which antivenom to administer. Monovalent is preferred.** Polyvalent if results indeterminate or insufficient monovalent. (Prompt) Liaise with local toxicology/toxinology experts **Usually 1-2 ampoules of antivenom sufficient to neutralize venom** Premedication: not indicated. No proven benefit *Candidates should justify if using premed.* **Observe for anaphylactic reaction: adrenaline available**. (caution re hypertension)	
Ongoing management	**Key features to monitor:** **- Bleeding**: haemodynamic status, bleeding sites, serum Hb - **Neurotoxicity**: diplopia, focal weakness, flaccid paralysis, respiratory depression - **Myotoxicity**: urine output, serum CK, serum K, renal function - Other: vomiting NB: Coagulation and serum CK should be assayed every 6-8 hours Coagulation assays alone are poorer indicators, as they reflect hepatic replacement of clotting proteins more than effects of venom.	**3/3**
Specific Mx of VICC	*Candidates may answer in this section. Else, use Q4 below as prompt.* *See answers below.*	
Disposition	Disposition to critical care area. Transfer to tertiary Paeds service if appropriate.	

Question 4: Outline your approach to ongoing bleeding in this patient.

(1 minute)

Expected Response	Details & Comments	
Preamble	High-level evidence lacking. Current evidence largely based on data for Brown snake envenoming. Depends on desired outcome. If actively bleeding, esp if haemodynamic compromise then must make every effort to reverse coagulopathy	
Antivenom	Antivenom: Inactivates venom, prevents worsening, but does not itself reverse coagulopathy. In absence of active bleeding coagulopathy will reverse as liver replacs clotting factors	
Blood products	Probably not needed if no active bleeding but if active bleeding, may be of benefit Platelets, FFP, cryoprecipitate, prothrombin complex concentrate (PCC)	
	Provide discussion to support their approach for use of anti venom and blood products.	

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?

SCENARIO

A 10 year-old boy is carried into your rural Emergency Department by his father. They were camping in outback Northern Australia when the boy stepped on a snake. He has a small bloody wound on his right leg. A bandage was applied by the father. They arrived in your ED by private car after a 50-minute drive. The patient is in a resuscitation bay.

Question 1: ***Outline the key features in your assessment of this patient.***

SCE 2

Hb	135 g/L	130 - 170
Platelets	207	150- 400
APTT	90 seconds	25 - 36
INR	>9.0	0.9 - 1.2
D-Dimer	Positive	
Fibrinogen	< 60 mg/L	180 - 440
CK	1,540 U/L	150 - 499

SCE 3

1. Lead examiner …….. **Candidate number:**

2. Co-examiner …….. **Final Mark:**

A 26 year-old man is brought to the ED by ambulance after a suspected deliberate self-poisoning. He had been depressed after losing his job last week, and was agitated at the scene.
***En route* to ED, he suffered a brief seizure which self-terminated. Initial findings: HR 130/min, BP 90/60.**

Question 1: List the possible causes of his seizure. (1min)
Prompt if no mention of non-tox causes: "Are there any other possible causes of seizure?"

Expected Response	Details & Comments	Pass criteria
Drug related Seizure:		
Agent itself being proconvulsant	**Antidepressants eg TCA**, Venlafaxine, Bupropion Antipsychotics eg phenothiazines, butyrophenones, quetiapine Analgesics eg Tramadol, pethidine Salicylates Stimulants/Sympathomimetics eg amphetamine, cocaine Anticonvulsants eg CBZ, tiagabine Others- Antiarrhythmics, Antihistamines, Theophylline, caffeine, Isoniazid, Antimalarials, organophosphates	Antidepressants & drugs from 3 other classes
Hypoxia	2˚ to decreased LOC	
↓ BSL 2˚ to agent	Oral hypoglycaemics eg sulphonylureas, insulin	
Drug withdrawal	EtOH, BZD	
2˚ to ICH	Trauma Stimulants causing HT and ICH	
Seizures not drug related	Epilepsy, metabolic (incl hypoglycaemia), ICH, trauma, etc	Two non-tox causes (Prompt)

Question 2: You are the leader of the resuscitation team. As he is being transferred, he begins to seize. Outline your management priorities. (2mins)

Expected Response	Details & Comments	
Resuscitation & patient stabilisation Rx Seizure (& causes) Drug toxicity (risk assessment) CNS toxicity & likely CVS toxicity Rx Haemodynamic instability	Immediate Rx priorities: Most drug induced seizures are self limited- wait and see? If seizure is prolonged then active treatment of seizure is required: 1. O_2, monitor, IV access, **check Glucose** 2. **Stop the seizure** (IV benzodiazepines, repeat doses as needed) – progress rapidly to RSI if status seizure or unconscious or CVS collapse to protect airway 3. **IVF Crystalloid**/pressors for hypotension 4. **Seek & treat the cause** – likely drug toxicity (check and Rx hypoglycaemia), ECG to exclude arrhythmia/TCA as cause, consider $NaHCO_3$ 5. Consider decontamination once intubated, 6. Consider complications eg ICH or recurrent seizures	**Bold 4/4 with prompt**
Subsequent Rx priorities:	Corroborative Hx – to identify drug/s Inform NOK / relatives Document	
Consults, when stable and awake	Toxicology - toxicology consult Psychiatry Psychiatric assessment – will be delayed	
Disposition	ICU	

Question 3: The patient's seizure terminates with midazolam. His girlfriend arrives and reports that he has taken 100 tablets of amitriptyline 25mg. These are his vital signs (hand over sheet: P=140 BP=80/60 RR=8 GCS 3)
Describe your specific treatment of this poisoning. (2 mins)

Expected Response	Details & Comments	Pass
Secure airway & hyperventilate	**Resuscitation – Early RSI / definitive airway** Modify drug doses - **Caution with induction drug doses in view of vitals** Fluid bolus preload Maintaining ventilation during intubation **Hyperventilate postintubation** *Prompt: "How would you modify your RSI technique in this patient?"*	**Bold**
Bicarbonate	**1-2 mmol/kg $NaHCO_3$ IV bolus then titrate to QRS & pH** Aim pH >7.5 (pCO2 35) Consider before induction	**Bold**
Mx haemodynamic instability	Anticipate postinduction hypotension Early ECG to assess QRS, QT Otherwise IV crystalloid/pressors for hypotension	
Ongoing sedation	eg propofol infusion (avoid further paralysis which may mask seizures)	
Decontamination	Only after airway protected with ETT NGT/OGT – aspirate gastric contents Charcoal 50g if BS present and airway protected with ETT (already significant poisoning –may be helpful in view of large ingested dose – and anticholinergic effects	

Question 4: Shortly after intubation he becomes increasingly hypoxic and hypotensive. Outline your actions. (2mins)

Expected Response	Details & Comments	Pass
Complications of intubation	Check tube position, check ventilator Manual ventilation Exclude/treat tension pneumothorax Seek & treat Anaphylaxis or malignant hyperthermia to induction drugs	**At least 2**
Ongoing toxicity	**Further dose of bicarb** 1mmol/kg $NaHCO_3$ IV bolus if BCT causing hypotension (may repeat dose if QRS remains broad) Seek & treat arrhythmia eg VT/VF – DC cardioversion Correct any metabolic & respiratory acidosis (aim pCO_2 35mmHg)	**Bicarb**
Ensure adequate preload & haemodynamics	IV fluids (bolus IV crystalloid 20ml/kg & reassess) Check IV sedation (agent/dose/rate) – turn down sedation until stabilised Pressor support if volume adequate – eg metaraminol / Norad Ix further eg troponin, eFAST/ECHO Invasive monitoring - Art line, IDC	**At least 2**
Additional	Seek further toxicological advice Notify ICU	

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

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

SCE 3

SCENARIO

A 26 year-old man is brought to the ED by ambulance after a suspected deliberate self-poisoning. He had been depressed after losing his job last week, and was agitated at the scene.

En route **to ED, he suffered a brief seizure which self-terminated**

Initial findings on arrival in ED:

- **HR 130 /min**
- **BP 90/60 mmHg**

Your first question will be:

"List the possible causes of his seizure."

SCE 3

Question 3

Patient vital signs

- **HR** **140/min**
- **BP** **80/60 mmHg**
- **RR** **8/min**
- **GCS** **3**

1. Lead examiner **…….**

2. Co-examiner **…….**

Candidate:

Final Mark:

SCENARIO: End of Life Discussion

This is Julie. Please proceed with the consultation.	**Not Met**	**Partly Met**	**Fully Met**
Rapport, Reassurance, Trust and Ethical Therapeutic Relationships			
Convey relevant information and explanations			
Develop a common understanding of issues, problems and plans			
Convey effective oral information			
Appropriate non verbal communication			
Appropriate use of demeanour, language and words			
Identify and explore issues, including reasons for refusal / preferences			
Problem-solve			
Implement an effective plan in collaboration with the daughter			

ACTOR feedback:

Not Comfortable	Partially Comfortable	Fully Comfortable

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

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

SCENARIO

It is 1200hrs on a weekday in your tertiary ED. Edward Smith, an 80 year-old man with chronic obstructive airway disease (COAD), was brought to your ED for the third time in the last four months. On this presentation he's suffered three days of increasing dyspnoea. He is severely unwell in your resuscitation bay, with the following vital signs:

- **GCS 9**
- **PR 130 bpm**
- **RR 30 /min**
- **O_2 sats 87 % on 6L/min O_2**
- **Temp 38.9 degrees C**

Arterial blood gases reveal a pCO_2 of 125 mmHg. CXR shows multi-lobar pneumonia. Last admission, while fully competent, Mr Smith requested that he receive only comfort measures should his condition deteriorate. He also expressed a desire to die at the nursing home, where he resides. He has a valid, current advance care directive stating that he does not wish to be intubated.

Nursing staff inform you that the patient's only daughter, Julie, has arrived. She's declared that she "wants everything done" for her father. Julie waits for you in the relatives' room.

- **You will ROLE PLAY a consultation with Julie, who will be played by an ACTOR.**

- **The examiners will NOT be asking any questions and do NOT expect you to interact with them.**

Background Information for Actor

Important Note

The ACEM Fellowship Exam involves examiners and candidates from all Australian states and New Zealand. To optimise fairness for all candidates, all character and scenario features will NOT have demographic details.
In interactions with candidates, please do NOT refer to demographic specifics. For example, you work in the city, you live in the inner suburbs instead of Richmond.

The Character

Mrs Julie Morris is a 52 year-old single woman. She works as an accounts clerk for a fashion retailer in the city. She has no medical knowledge beyond that of an average lay-person. Julie is in good physical health, although smokes heavily. She has no children, and lives alone in an inner city suburb.
Julie is the only offspring of Edward. The latter has lived in a nursing home since is wife (Julie's mother) died 4 years ago, from bowel cancer. He has chronic obstructive airway disease (COAD) from many years of smoking, and suffers poor health from it. Julie visits Edward once per fortnight at the nursing home. She has never been too close to him, being more so with her mother. Edward worked long hours as a labourer when Julie was a child. Despite the slight distance between them, Julie has always enjoyed a positive relationship with her father. She enjoys her fortnightly visits, although feels she should spend more time with him, especially with his ill health.
Julie has no detailed knowledge of Edward's health and healthcare, beyond awareness of his advanced smoking-induced COAD, and recent hospital admissions. She is not aware of Edward's advanced care directives, including his recent request for palliative care only.

The Scene

It is now noon on a weekday.
45 minutes ago, while at work, you were called by staff at Edward's nursing home, who advised you of his illness. They reported 3 days of worsening breathlessness, likely an infective complication of his COAD. Asked if you'd like Edward transported to hospital for treatment, you indicated he should. In fact, you were mildly surprised that they asked at all, being certain that hospital care was what your father needed. Having made arrangements at work, you left soon after, arriving by private car to the ED 10 minutes ago. You are familiar with this hospital, having visited Edward here during his previous admissions.
The triage nurse advised that your father is currently being assessed in the ED. She stated he is very unwell. While not surprised at such an event, you are understandably concerned. You queried the nursing home's hesitation in calling an ambulance today, and the nurse indicated some notion of limitation of medical treatment for your father. Surprised by such a notion, which has never been raised before, you replied that you wanted all medical intervention for your sick father.
You were ushered into a private room, and told that a senior doctor will speak to you shortly. At this stage, apart from concern about your father's health, you are worried medical staff may be inappropriately withholding medical care from him. Your emotions are a mix of concern, fear, anger and guilt.

FACTS:

Edward has a very severe acute illness, with a grave prognosis. He faces a very high chance of dying from this illness. Even with no limitations in medical intervention, the mortality rate remains high. Moreover, his quality of life (QOL) is expected to be worse if he survives. Medical intervention comprises a suite of conservative / non-invasive measures such as antibiotics and breathing-assistance masks. It may also include invasive measures such as advanced life support, artificial ventilation and intensive care unit (ICU) admission. The former may be reasonable. The latter are considered futile in Edward, as they may not prolong his life, and will only worsen his QOL if they do.
Edward's expressed wish to receive only palliative care (*ie* no invasive measures) is based on awareness of the above. Made recently when in a competent state, such a wish has significant bearing on the reckonings of his treating healthcare personnel. It is also a reasonable wish that is likely aligned with consensus medical opinion. Is sum, it is unreasonable to render treatment when such treatment will only worsen one's quality of life. In this scenario, the arbiter on limits of medical treatment is the treating doctor. There is no equivocation in his/her decision-making. His/her challenge lies in communicating the issues to Julie.

The treating doctor (examination candidate) will discuss with you the case, and should cover the stated issues. He/she is a specialist in Emergency Medicine. Each interaction lasts only 7 minutes. Several will be done in quick succession, with 3-minute intervals between each candidate.

YOUR OBJECTIVES:

- Understand your father's illness, including diagnosis, management and prognosis
- Obtain answers to your concerns outlined above
- Initially convey your wish that every medical intervention be provided for your father
- Understand the reasons for limiting medical intervention in your father. **Do not accept any explanations until you are completely satisfied that you have been listened to, with respect and understanding. If the candidate fails to demonstrate this, show anger or other appropriate emotions**.
- (Assuage your own guilt about feeling you could have been more involved in your father's healthcare)
- (Allay some deep fears that you may face this situation yourself, as a patient)
- Prompted conversation at 5mins as necessary; father's wishes and the law, ethics/autonomy and the futility of care.

Your reactions, emotions and opinions should be that of Julie (considering her characteristics) when faced with this scenario. React to individual candidates as Julie would. Please **maintain consistency** with Julie's character nuances, events and tendencies.

1. Lead examiner ……. **Candidate Number:**

2. Co-examiner …….

Total Mark:

A 35 year-old woman driver was involved in a motor vehicle accident near your urban district hospital ED at 2100 hours. She arrives by ambulance in a semi-rigid (stiff-neck) collar. Her sole complaint is neck pain and she is haemodynamically stable.

Question 1: Outline your approach to clearing the C-spine in this patient.

Expected Response	Details & Comments	2 minutes
Introduction	From stem this 35 year old patient needs further assessment to determine the need for C-spine imaging vs clinical clearance *If mention decision rule then ask them to outline how they would apply it.*	
Assess need for imaging	**Imaging as indicated by assessment and applying NEXUS or Canadian C-spine rules** – plain x-ray vs CT **If imaging not indicated, or performed and unremarkable then assess ROM to clear clinically** (when conscious state permits)	
History ***Prompt:*** *Is there any past medical history that would be important?*	The following features on history in the presence of neck pain would indicate a need for further imaging **Mechanism:** Hi speed, concerning mechanism (rollover, head on, impact with stationary object at > 60kph), death of other occupant, axial load **Neurological symptoms** - Altered sensation, paraesthesia, weakness **Past history of neck problem which increases risk** - prior neck injury/surgery/spinal disease (ankylosing spondylitis, rheumatoid arthritis) (Mobilising post injury is a low-risk feature) Pain – Present immediately after accident Pregnancy	To pass: 2 mechanisms & 2 examples of past history
Examination	The following would indicate a need for imaging **Altered conscious state** making clinical assessment unreliable –(GCS, confusion, intoxication**)** **Neurological deficit** **Midline C-spine tenderness** **Associated injuries:** Head injury / distracting injury	
Clinical clearance (ROM) *Prompt: If there is no indication for imaging, how will you clear the c-spine?*	**Remove immobilisation**, **assess active range of movement of neck** and to stop if develops pain/ neurological symptoms. If unable then imaging indicated, if able then neck clinically cleared. Analgesia and mobilise, reassess before discharge.	

Question 2: The patient has marked midline C-spine tenderness. Discuss the imaging options.

Expected Response	Details & Comments	2 minutes
Imaging is required. **General considerations**: Sensitivity, specificity, radiation and availability.		
Plain X-ray (3 views) Prompt: What views are required?	Pros: **Identifies most major abnormalities**, radiographer available, Inexpensive. Can be done in trauma bay. **Low radiation. Can be used in combination with clinical examination to safely clear C-spine.** Likely to get adequate images in young patient. Cons: **May miss subtle injuries**. **Films may be inadequate**. Images may be difficult to interpret If films normal but inadequate ROM then CT required (or MRI if acute neurological deficit)	

CT scan ***Prompt:*** *What acute injures may CT miss?*	Pros: **More sensitive for bony injury + accurate than plain x-ray**. May also image other structures in neck. Radiation equivalence to C-spine series if low dose protocol used. Indicated if x-ray is indeterminate, inadequate, difficult body habitus, pre-existing C-spine pathology. Cons: **Does not exclude certain pathology** e.g. ligamentous injury, disc pathology, epidural haematoma, or cord contusion. **Potential additional radiation** depending on CT protocol. Transfer issues. Cost.	**2 examples**
MRI ***Prompt:*** *Are there other imaging modalities which may have a role?*	Pros: Accurately identifies **acute spinal cord pathology requiring intervention - disc lesion/ epidural haematoma** + other pathology e.g. cord contusion, ligamentous injury. No radiation. Cons: **Less sensitive at delineating bony injuries**. **Time** (duration / availability**)**. Cost. **Patient factors**. E.g. Claustrophobia. Contraindications related to metal FB etc.	

Question 3: Plain x ray of the cervical spine is performed. Please comment on the lateral C spine XR.

Expected Response	Details and comments	1 minute
Lateral C spine, Inadequate view	**Inadequate film** (unable to visualize C7-T1) and **otherwise normal**. Needs further imaging (allow comment about C6 spinous process)	

Question 4: Plain films are inadequate and you request a C-spine CT which the Radiology registrar declines to do overnight. Outline your options.

Expected Response	Details & Comments	2 minutes
Key Issue	**Not acceptable** to remain in hard collar overnight Evidence that **hard collar leads to complications** such as - Pain/ Pressure areas, Intolerance, Increased need for analgesia/ sedation, difficulty administering oral medications, food and fluids, aspiration risk	Give 2 examples
Options	**Proceed with CT scan** vs **Philadelphia/soft collar while awaiting CT**	
Proceed with CT scan	Ideal situation. Depends on local protocols and resources **Professional discussion of rationale** with radiology registrar. **Escalate** to on-call Radiologist if needed. **CT will expedite patient's disposition** allowing further management decisions or discharge → may be adequate reason for recall (e.g. ED overloaded) Negotiate timing of scan (e.g. when doing other emergent scan)	
Continued C-spine Immobilisation / Philadelphia collar + bed rest until CT in am	**Reasonable option** - safe and likely to be reasonably tolerated. More tolerable for patient Less complications than hard collar Occupies bed + staff until am. Not able to mobilise. Delays disposition.	

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?

……

……

SCENARIO

A 35 year-old woman driver was involved in a motor vehicle accident near your urban district hospital ED at 2100 hours. She arrives by ambulance in a semi-rigid (stiff-neck) collar. Her sole complaint is neck pain and she is haemodynamically stable.

Question 1: Outline your approach to clearing the C-spine in this patient.


L
HBL

1. Lead examiner **…….** **Candidate Number:**

2. Co-examiner **…….** **Final Mark:**

A 45 year-old man presents to your ED with a 36-hour history of sore throat. This progressively worsened, and is now associated with dysphagia and dysphonia. On examination he has a temperature of 38.5 degC, RR of 28, SpO2 98% on high flow oxygen, HR 120 and BP 125/75. You note a soft stridor. He is drooling. The referring GP had ordered a lateral neck x-ray, which accompanies the patient.

Question 1: Describe and interpret the x ray. (Xray and question given outside the room)

Expected Response	Details & Comments	
Describe Lateral soft tissue x-ray	**Features of epiglottitis/ Para-epiglottitis** **Swelling of epiglottis** with a thumb print sign Airway appears narrowed but patent at this stage No obvious prevertebral swelling No air or air fluid levels No FB No fracture Some degenerative bony change	
Interpretation	Findings consistent with clinical picture. Critically unwell patient**. Airway at risk**. May need to be secured promptly. Abx indicated. **Anticipate very difficult intubation**, prepare for surgical airway	

Question 2: The patient's oxygen saturation and conscious state begin to deteriorate. Outline your approach to this situation.

Expected Response	Details & Comments	
Difficult airway emergency	**Team approach**, allocate roles, allocate procedures, **Resuscitation area**	
Call for assistance	Most experienced airway practitioners: anaesthetics, ENT if immediately available	
Attempt BVM ventilation	Prompt: what is your approach to obtaining a definitive airway	
	Can't intubate but can ventilate Vs can't intubate can't ventilate	
Can ventilate - Try to intubate after bagging up	Optimise position pillow, sniffing position Optimise intubating conditions Prepare difficult intubation equipment, intranasal oxygen Including preparation for surgical airway if intubation is unsuccessful Safe use of paralysing agent (suxamethonium) if able to ventilate with bag valve mask. Remember more unsuccessful attempts may cause greater swelling – most experience person to intubate Laryngoscope: large blade, straight blade Equipment: small tube, long bougie, Cooks catheter, laryngeal Mask (may be helpful as temporising measure if intubation fails) Direct vision instruments –Glide scope, endoscope if available	
Can't ventilate, can't intubate Therefore **surgical airway**	**Patient needs immediate oxygenation.** Candidate must give a suitable option for oxygenation: Needle cricothyroidotomy with jet insufflation – oxygenation surgical cricothyroidotomy-much quicker and easier than a tracheostomy One of various proprietary seldinger tracheostomy kits Emergency tracheostomy (IF ENT surgeon immediately available)	

Question 3: You decide to perform a surgical airway. Please demonstrate how you would do this. Equipment and props provided.

Candidate is to perform surgical airway by manner of their choosing, on mannequin.

Method chosen		
Performed satisfactorily		
Comments and Rating		

Question 4: (optional question if candidates finish early)

Please describe your ongoing management of this patient

Continue with sedation, paralysis	**Don't want the patient to pull out the tracheal tube**	
IV antibiotics	Likely Haemophilis, Strep pyogenes, Staph aureus, other causes Penicillin, fluclox, ceftriaxone,	
Supportive care	Analgesia, IV fluids, urinary catheter	
Admit to ICU		

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

……..

……..

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

……..

……

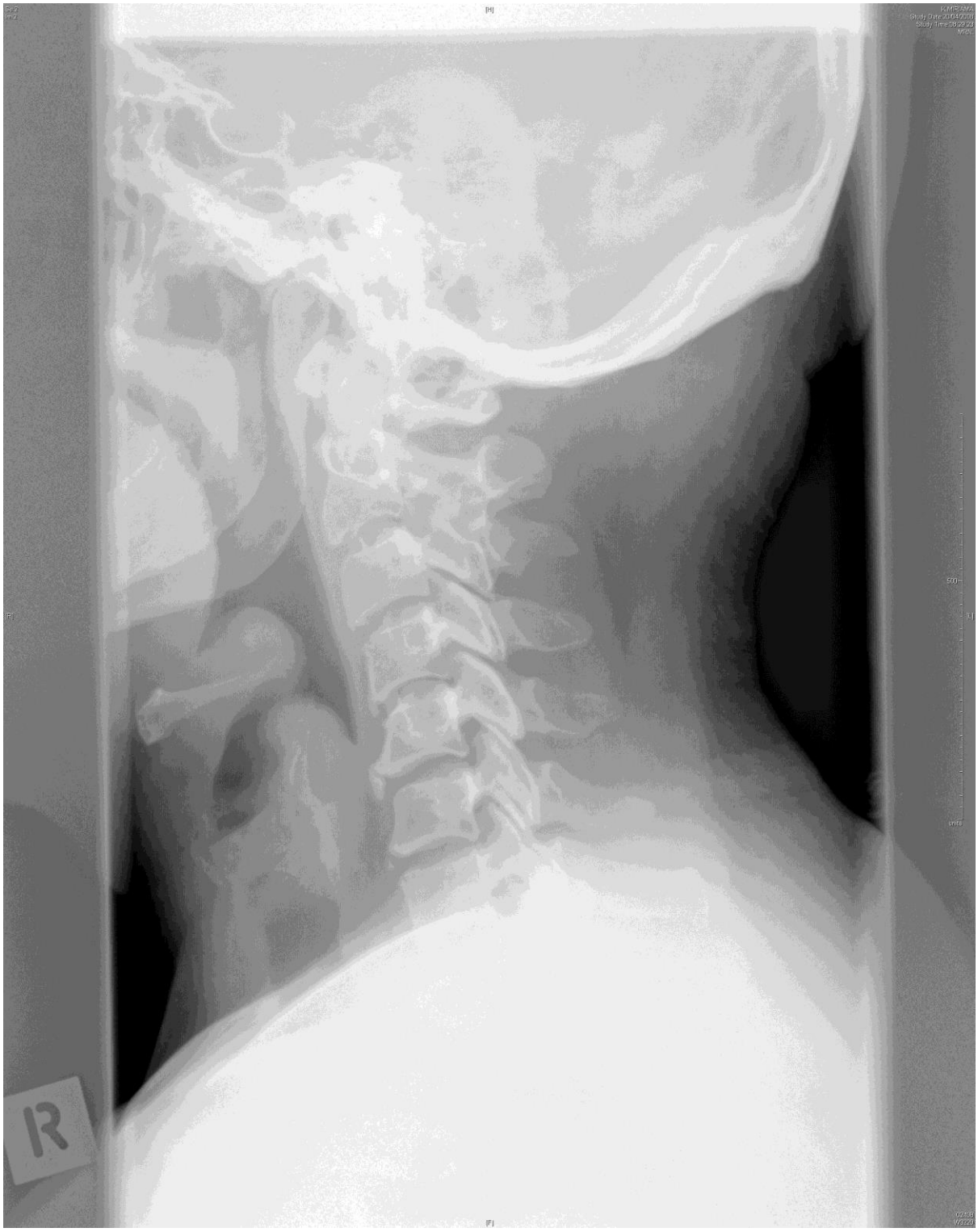
SCENARIO

A 45 year-old man presents to your ED with a 36-hour history of sore throat. This progressively worsened, and is now associated with dysphagia and dysphonia. On examination:

- **Temp 38^{5} degC**
- **RR 28 /min**
- **SpO2 98 % on high flow oxygen**
- **HR 120 bpm**
- **BP 125/75 mmHg**
- **You note a soft stridor. He is drooling.**

The referring GP had ordered a lateral neck x-ray, which accompanies the patient. PTO to view x-ray.

Question 1: ***Describe and interpret the x ray.***


R

SCENARIO

You are the consultant in charge of the ED; it is 2030hrs on a Friday. Your registrar Dr John Smith seeks your assistance re Thomas Brown, a 4-year old boy. Assessment is summarised:

- **History: 3 days of fever and vomiting. Thomas had 2 days of oral amoxycillin by his GP, but symptoms have worsened today. He is a usually healthy, vaccinated child who takes no regular medications.**

- **Examination: Looks moderately unwell, with a temperature of 39^5 degC. No clear clinical focus of infection.**

- **Investigations: CXR and urinalysis are unrevealing, as are full blood tests, coagulation profile and urea/electrolytes. Blood glucose is 5.0 mmol/L (normal). CRP is elevated, at 120 IU/L (< 5).**

Dr Smith regards a lumbar puncture (LP) necessary, as part of Thomas' septic work-up. Partially treated meningitis is a differential diagnosis. He plans to administer empiric broad-spectrum antibiotics, ideally after the procedure. Thomas has no neurological or other features that contra-indicate an LP. Thomas' mother, Mrs Jenny Brown, has refused an LP for Thomas, despite Dr Smith's explanation of the above. She states she is concerned about the adverse impact of this procedure on her son. Dr Smith has not provided detailed information about an LP. He requests that you discuss this situation with Jenny.

You concur with Dr Smith's assessment, including the need for LP. You will enter the examination room to meet Jenny. She knows that you will be coming to talk with her. Dr Smith will NOT be present.

NB: Examiners will be present in the room, but they will NOT interact with you during the SCE, beyond introductions.

1. Lead examiner……

2. Co-examiner……

Candidate Number:

SCENARIO: Communication / Refusal of LP for Child

KEY ASSESSMENT FEATURES	**Core Competencies of Communicator:** ***- Rapport, Trust and Ethical Therapeutic Relationships*** ***- Elicit and Synthesize relevant information and perspectives of patients*** ***- Convey relevant information and explanations*** ***- Develop a common understanding of issues, problems and plans*** ***- Convey effective oral (and written) information about an encounter*** **Non verbal communication** **Appropriate use of demeanour, language and words**
Candidate should demonstrate capacity to:	**Identify and explore issues, including the mother's reasons for refusal / preferences: Fear, Anxiety, Anger, Frustration, Ignorance, Prejudices** **Inform patient to facilitate appropriate consent for procedure (tailored to mother's demographic, cultural and intellectual context)** **Seek and integrate relevant information** **Problem-solve** **Implement an effective plan from collaboration with mother**

Initial Contact / Introduction

PATIENT / PROMPT	Details & Comments	Score
Introduction	Name Title / position	
Overall Objectives	• Provide proper information / communication about reasons for, and risks of LP for child; incl risks of refusing it • Address mother's concerns and queries • Allay her concerns sufficiently for her to make an informed decision • Explore all options for investigating child's illness	
Open the discussion with patient	Broach subject at hand Explanation eg Dr Smith's communication with you / your goals of communication with patient	
Seek patient's view **If LP not raised by candidate:** ***PROMPT: I just don't want Thomas to have a lumbar puncture***	Allow mother to speak / seek views Variety of approaches acceptable	

Address Concerns / Answer Questions re LP

PATIENT / PROMPT	Details & Comments	Score
Candidate may raise issue of reasons for refusal or patient will prompt	Candidate should allow or inquire as to reasons for refusal of LP Candidate should address issues raised by patient	
That sounds like it would be painful	Reassurance / Explanation / Address concerns Highlight differences between child and adult Provide information about analgesia - methods for minimising procedural distress eg LA / sedation options	
And I am scared about the risks of a lumbar puncture. ***What can go wrong?***	Explanation / appropriate empathy Safe procedure Pain - above Infection – less than 0.5% with sterile technique Post LP headache – approx 30% risk, reduced with small gauge pencil point needle Other complications rare (<0.5%) eg haematoma abscess, nerve root injury	
Will the lumbar puncture definitely rule out meningitis?	Reassurance +/- possible limitations eg failure, false negative, but emp Abx anyway Variety of approaches	

Options / Risk of Refusal

PATIENT / PROMPT	Details & Comments	
Is there any other test we can do?	Septic screen in conjunction with LP, incl CXR, BC	
And if the lumbar puncture confirms meningitis?		
(For better candidates.) ***Can't you just treat Thomas with antibiotics?***	Needs adequate explanation in terms comprehensible to mother Explanation of meningitis / serious bacterial illness	

Total Mark: ☐

ACTOR feedback:

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

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

SCENARIO

You are the consultant in charge of the ED. Your registrar, Dr John Smith, seeks your assistance re Thomas Brown, a 4-year old boy. Assessment is summarised:

- **History: 3 days of fever, vomiting and headache. Thomas had 2 days of oral amoxycillin (by his GP), but symptoms have worsened today. He is a usually healthy, vaccinated child who takes no regular medications.**

- **Examination: Looks moderately unwell**
    - **T 39.5^0 C, with no clear clinical focus of infection.**

- **Investigations:**
    - **CXR, urinalysis, FBC, coagulation profile, urea/electrolytes and blood glucose are normal.**
    - **CRP 120 IU/L (< 5 IU/L).**

Partially treated meningitis is the concerning differential diagnosis and a lumbar puncture (LP) is considered necessary. Thomas has no contra-indications to an LP. Thomas' mother, Mrs Jenny Brown, has refused an LP for Thomas. Dr Smith has not provided detailed information about an LP. He requests that you discuss this situation with Jenny.

You concur with Dr Smith's assessment, including the need for LP. You will enter the examination room to meet Jenny. She knows that you will be coming to talk with her. Dr Smith will NOT be present.

NB: Examiners will be present in the room, but they will NOT interact with you during the SCE.

Background Information for Actor

It is now 2030hrs on a Friday. You are a 37 year-old legal secretary, married to John. Thomas is your only child. He is a normal, happy, healthy child who attends kindergarten 3 days per week. He has no usual medications, and has no drug allergies. Your family is stable and happy.

Thomas has been ill for 3 days, with high fevers and vomiting, preceded by runny nose and cough. Your GP prescribed oral amoxicillin (an antibiotic) for Thomas. He has taken 2 days' of this medicine. Earlier the same evening, Thomas appeared worse, with a fever unresponsive to Panadol. He vomited despite missing his dinner. Concerned about Thomas' condition, you brought him to the Emergency Department (ED). Thomas was seen by Dr John Smith promptly after your arrival.

Dr Smith assessed Thomas and undertook some blood tests and a chest x-ray, which he reported were normal. He expressed some concern about meningitis, suggesting a lumbar puncture (LP) be performed on Thomas, prior to stronger intravenous (IV) antibiotic therapy. This worries you, as you've heard bad stories about LP. You are afraid that it will be it very painful. Moreover, you are unsure of other risks from the procedure.

Dr Smith seems a competent doctor, but is unable to allay your concerns about the LP. Other than your rising anxiety about Thomas' illness and the LP, you are now annoyed by his insistence about the latter. You just want Thomas to have the IV antibiotics, without this particular procedure.

Facts About the Case

Antibiotics are indicated for Thomas, and should not be delayed. However, a lumbar puncture (best done before the first dose) represents ideal practice, because it permits directed antibiotic therapy for Thomas. That is, it will help determine if the prescribed antibiotics are the correct agent for this infection. Potential advantages gained are more rapid recovery, less side effects from broad-spectrum agents and reduction in incidence of resistant infective organisms in future cases.

The candidate's task is to explain this to Jenny in an effective, sensitive way. This should allay her anxieties and empower her to make an informed choice re consenting for this procedure. That said, this procedure is not mandatory and should not be an absolute prerequisite for antibiotic therapy. The candidate should also discuss with Jenny alternative options to a lumbar puncture, given her understandable concerns about it.

SCENARIO

A 72 year old man who lives alone is brought to your department by Ambulance after a collapse while shopping. He has no apparent immediate family. On arrival he is awake but unable to speak, with marked right sided weakness.

Question 1:

What are the clinical criteria for thrombolysis in this patient?

1. Lead examiner……. **Candidate Number:**

2. Co-examiner……. **Final Mark:**

SCENARIO

A 72 year-old man is brought to your emergency department by ambulance after a collapse while shopping. He lives alone, and has no immediate family. On arrival he is awake but unable to speak, with marked right hemiparesis. You suspect an acute stroke.

Question 1: What are the clinical criteria for thrombolysis in this patient? (1.5 minute)

Expected Response	Details & Comments	
Confirmation of likely ischaemic stroke lesion eligible for lysis *Prompt "what factors would influence your decision to thrombolyse or not*	• **Presentation c/w acute ischaemic stroke with deficit appropriate for thrombolysis**: Measurable and clinically significant deficit which is not rapidly improving (severe stroke with coma also not appropriate) • **No acute lesion(s) on CT brain**, including demonstrable significant acute ischaemic lesion. • Exclude important differentials: haemorrhagic stroke, SOL excluded with CT head, seizure, migraine, hypo/hyperglycaemia etc. • Appropriate **timeframe**: evidence for benefit suggests time to lysis < 3hrs, now being extended up to 4.5 hrs. Need collateral history to confirm. • **Exclude contraindications(expect at least 3):** hypertension SBP > 185/110, possible SAH, bleeding diathesis, anticoagulation, prior haemorrhagic CVA, recent ischaemic CVA, recent head trauma, active bleeding, other bleeding risks. Likely difficult/impossible in this patient.	

Question 2. What problems may arise in consenting this patient for thrombolysis? (2.5 minutes)

Expected Response	Details & Comments	
Components of valid consent:	Informed, specific, freely given, given by competent, appropriate person(s)	
Informed: **Competence uncertain** Expressive Aphasia ?receptive component Prompt "is there anything relevant to informed consent that may be difficult in this patient?"	In order to give consent patient must be able to understand the pros and cons of treatment to make an **informed choice**. If **receptive aphasia** then can not ensure understanding. If **expressive dysphasia** may be difficult to ensure that he is expressing his wishes correctly. (Accept concept of speech impairment affecting communication) May be difficult to exclude contraindications	
Appropriate consenter(s) Prompt: *"If he is not able to consent what are your options?"* *Prompt: "What is implied consent"*	**Substitute decision makers** if patient deemed incompetent: No apparent next of kin. ? Established medical power of attorney. Possible resort to statutory health authority.	
	Implied consent? Applies if treatment is potentially life/ limb saving, is a standard of care, benefits likely outweigh risks. ie. Treatment a reasonable person would consent to. Depends on physician assessment of benefits vs risks. Needs physician with expertise in assessing degree of deficit (NIH Stroke Scale) + thrombolysis indications/contraindications + consenting process	
Freely given: Physician bias: potential coercion in either direction.	Thrombolysis for stroke remains controversial in ED community but is perceived as a standard of care in National stroke guidelines (Grade A recommendation for those meeting inclusion/exclusion criteria) associated with potentially improved outcomes. 1-2 % risk of intra-cerebral bleed with potentially devastating consequences. Controversy: Benefits vs risks in ED community. Thus ED physician may not be 'comfortable' with consenting patient. Conversely, stroke physician more likely to favour thrombolysis.	

Question 3: **The patient was thrombolysed in ED after review by the on-call Neurologist. Soon after, his GCS drops to 7. Repeat CT shows a large, inoperable intracranial haemorrhage. The Neurologist suggests immediate intubation and reversal of anticoagulation in ED.**

How would you approach this situation? (2 mins)

Expected Response	Details & Comments	
Summary *Prompt: "Do you consider this treatment is indicated?" if proceeds to intervene OR "How would you communicate that to the neurologist?" (if refuses request outright)*	ICH complicating thrombolysis. **Poor prognosis with high chance of death.** **Need to make appropriate decisions re medical/end of life care – medical futility** – potentially more difficult if iatrogenic + patient wishes unknown. Disagreement re extent of care with Neurologist.	
Medical obligations	In presence of likely fatal ICH no obligation to provide aggressive care as not generally required as part of 'good medical treatment' *(not strictly true in all Aust jurisdictions but is a strong principle)*	
Wishes of patient	In absence of Next of Kin/ AHD etc then not able to confirm wishes. Patient wishes not necessarily primary. As a general rule physicians can not be forced to institute inappropriate treatment	
Conflict resolution *Prompt: "How would you deal with the disagreement with the neurologist"*	Shared responsibility for patient. ?Neurologist feeling responsible for iatrogenic harm thus recommending aggressive treatment. Negotiate medically appropriate management and mutually satisfactory professional outcome. **Require one reasonable approach to the conflict resolution** Further discussion with Neurologist re situation, likely poor outcome. Consult/ 2nd opinion from Haematologist + ICU physician as required. Consensus approach.	

Question 4: The patient dies in ED. Outline the subsequent tasks that need to be carried out.**

Expected Response	Details & Comments	
Locate NOK	**Next of Kin need to be located and notified.** LMO notified **Open disclosure**, apology for outcome, grief counselling	
Documentation	Comprehensive, contemporaneous	
Notification	Incident report Registry input Coroner?	
Staff management	Debrief and counselling	
QI opportunities	Review systems flaws / errors, Morbidity meetings/ case discussion with Neurology	

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

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

SCENARIO

A 64 yr old man with no significant co-morbidities is brought in by ambulance following a collapse at home. He denies chest pain, shortness of breath or palpitations but had been experiencing rigors earlier in the afternoon. This is on a background of abdominal pain for 3 days.

His vital signs are:

GCS 15 Pulse 110 BP 90/55 mmHg

RR 26 SpO_2 97% (O_2 6 LPM Hudson mask)

Temperature 37.4

Question 1: This is his Venous Blood Gas on O_2 via Hudson mask at 6 litres per minute. Describe and Interpret.

pH	**7.08**		**[7.35 - 7.45]**
pCO_2	**25**	**mmHg**	**[37 - 50]**
pO_2	**58**	**mmHg**	**[36 - 44]**
Bicarbonate	**12**	**mmol/L**	**[21 - 28]**
Base excess	**- 11**	**mmol/L**	**[-3 – 3]**
O_2 saturation	**78**	**%**	**[70 - 80]**
Na	**142**	**mmol/L**	**[134 -146]**
K	**4.3**	**mmol/L**	**[3.4 – 5.0]**
Chloride	**108**	**mmol/L**	**[98 - 108]**
Creatinine	**387**	**umol/L**	**[45 - 90]**
Glucose	**7.1**	**mmol/L**	**[3.0 – 5.4]**
Lactate	**6.8**	**mmol/L**	**[< 2]**
Haemoglobin	**110**	**g/L**	**[135 - 180]**

1. Lead examiner ……. **Candidate Number:**

2. Co-examiner …….

TOTAL MARK:

SCENARIO

A 64 year-old man with no significant co-morbidities is brought in by ambulance following a collapse at home. He denies chest pain, dyspnoea or palpitations but had abdominal pain for 3 days, with rigors earlier today. His vital signs are: GCS 15, Pulse 110, BP 90/55, resp rate 26, O_2sat 97% on 6L via Hudson Mask, temperature 38.4 degC.

Question 1: This is his Venous Blood Gas on O_2 via Hudson mask at 6 litres per minute. Describe and interpret:

pH	**7.08**		**[7.35 - 7.45]**	**Na**	**142**	**mmol/L**	**[134 -146]**
pCO_2	**25**	**mmHg**	**[37 - 50]**	**K**	**4.3**	**mmol/L**	**[3.4 – 5.0]**
pO_2	**58**	**mmHg**	**[36 - 44]**	**Chloride**	**108**	**mmol/L**	**[98 - 108]**
Bicarbonate	**12**	**mmol/L**	**[21 - 28]**	**Creatinine**	**387**	**mcmol/L**	**[45 - 90]**
Base excess	**- 11**	**mmol/L**	**[-3 – 3]**	**Glucose**	**7.1**	**mmol/L**	**[3.0 – 5.4]**
Lactate	**6.8**	**mmol/L**	**[< 2]**				
Haemoglobin	**110**	**g/L**	**[135 - 180]**				

Expected Response	Details & Comments	
Findings	Severe **metabolic acidosis** with compensatory respiratory alkalosis [expected pCO2 = (1.5 x HCO3) + 8 = **24**] **Raised anion gap** Na – (HCO3 + Cl) = **22** Raised Creatinine – indicates renal impairment (acute v chronic) Significantly raised lactate Mild anaemia Mild hyperglycaemia	
Relevant negatives	Normal electrolytes No urea given, but expect it to be high, with high urea:creat ratio Cannot comment on oxygen tension	
Interpretation	Significant **High Anion Gap Metabolic Acidosis** with appropriate respiratory compensation. No other significant acid base disturbance Consistent with **lactic acidosis** due to **severe sepsis** and **renal impairment** Consider other causes of HAGMA - **Ingestions** (eg salicylates, iron) - **Renal Failure** - Other causes **lactic acidosis** - **Ketosis (alcoholic)** Candidate should be able to give differential for HAGMA on pathological basis for this patient, in preference to listing a generic mnemonic	

Question 2: You diagnose intra-abdominal sepsis. His blood pressure is now 85/45 mmHg. What are your management priorities?

General	Patient is in **septic shock** **Resuscitation** should follow principles outlined in surviving sepsis guidelines	
Fluid Resuscitation	Early **iv fluid** administration 10-20 mL/kg crystalloid and reassess Focus on the first 6 hours with specific haemodynamic goals Targets as per Surviving Sepsis guidelines - CVP 8-12 mmHg,MAP >65 mmHg,urine output >0.5mL/kg/hr	
Treatment of sepsis	**Seeking source of infection – septic screen + abdominal imaging (CT, but caution re radiocontrast, given renal impairment)** Blood cultures prior to antibiotics Urgent general surgery consult in view of abdominal pain Early broad-spectrum empiric iv antibiotic (e.g. tazocin 4.5g). Meropenem if severe penicillin sensitivity	
Haemodynamic support	***Candidate should specify and justify fluid and pressor choices, doses / volumes, rates, target parameters and potential complications*** IV crystalloid (colloid of no additional benefit). 1 to 2 L rapid infusion, aiming for MAP ≥ 70mmHg and UO >30ml/hr. Invasive monitoring arterial line, central line Repeat fluid challenge as long as there is improvement. Large volume of fluid may be required (amount controversial). Be wary of clinical features fluid overload. Use **vasopressor** (noradrenaline 1st line) if MAP <65 despite fluids.	

Other	Blood products – only if Hb <70 g/L FFP – only if bleeding Steroids – if requiring ongoing fluids and vasopressors	
Disposition	Operating theatre for laparotomy if intra-abdominal source suspected/confirmed Notify ICU	

Question 3: Outline options for vascular access site for vasopressor administration in this patient. Justify your choice.

Expected Response	Details & Comments	
	The candidate may choose to describe one or more methods of vascular access. Any reasonable option is satisfactory as long as they explain and justify their choice. Options may include:	
Peripheral IVC	Provided it is placed in a larger vessel,May be appropriate in short term to run peripheral vasopressors.Not suitable for ongoing treatment post ED	
PICC line	Can be placed via existing peripheral access,Relatively straight forward to insert,Probably less time consuming than central line Lower risk of complications compared to CVC,Can still measure CVP Can remain in situ longer term	
Internal Jugular vein CVC	Relatively superficial large vessel compressible site Lower infection risk than femoral line,CVP measurement Risk of carotid puncture, Needs a compliant patient, trendelenburg position Can be difficult if hypovolaemic collapsing vessel, anatomical variants Use of ultrasound guidance improves success	
Subclavian vein CVC	More accessible than the neck, More reliable anatomy, Less likely to collapse CVP measurement, Non compressible site due to overlying bone Risk of pneumothorax and subclavian artery puncture Ultrasound guidance can be used	
Femoral vein CVC	More reliable anatomy, More accessible body region, Compressible site, No risk of pneumothroax, More suitable in non compliant patient Not as suitable in this patient with abdominal sepsis – risk of abdominal compartment syndrome Risk higher for infection, femoral artery puncture, retroperitoneal haematoma	

Question 4: The patient had presented 24 hours earlier, feeling lightheaded and unwell. He had been seen and discharged by an intern. No investigations had been performed. What factors may have contributed to this event?

Expected Response	Details & Comments	
Issues	Potentially a critical incident Initial management / disposition may not have been appropriate Patient, doctor and system issues may need to be addressed	
Patient factors	May have presented early in course of illness Symptoms and signs on initial presentation may not have warranted further investigation Absence of underlying co-morbidities may have lowered suspicion of serious illness	
Doctor factors	Was adequate assessment performed? Were signs present but incorrectly interpreted? Is doctor skilled enough to see patients independently? Should senior input have been sought?	
System factors	Appropriate triage assessment Policy for senior review of all intern patients Adequate level of staffing to provide supervision Department load at time of presentation Opportunity for education, M&M review etc	

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

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

SCENARIO

Question 1:

A nine year old boy was walking barefoot in the school playground and felt a sharp pain in his foot. He has been brought in by his mother from school.
He has a small puncture mark on the sole of his left foot.

Outline your assessment.

1. Lead examiner **…….** **Candidate Number:**

2. Co-examiner **…….** **Final Mark:**

SCENARIO

A nine year-old boy was walking barefoot in the school playground and felt a sharp pain in his left foot. He has a small, painful puncture mark on the sole of his left foot. There are no other injuries, and he reports no other symptoms. He was brought in by his mother from school, and brought to your ED.

Question 1: Outline your assessment. **1.5 minutes**

Expected Response	Details & Comments	Bold
Differential diagnosis	Puncture wound, with or without **foreign body**. Needle Stick/glass etc. **Bite**- snake, spider, with or without envenomation. Lack of other symptoms is reassuring, esp if no first aid applied	2 Examples of FB
History	Incident: Time, **circumstances**, location. First aid if any. Local site: Did he see anything? Did he remove anything? Any broken glass/wire wood/nails/needle etc Systemic features: Vomiting, abdo pain. Weakness, diplopia, slurred speech. Features of envenomation: Bleeding/ooze. Local sweating/piloerection/severe local pain.	**Key is candidate demonstrates wide ranging and justified assessment**
Past Hx	Esp **tetanus** status, fasting status, **allergies** ? Special needs child: developmental delay, cognitive impairment, DM.	
Examination	**General appearance**. Vital signs. Tachycardia, tachypnoea would be of concern. Hypotension and fever not expected, but would be really worrying if present! **Local**: Palpable FB? Excessive tenderness at site may suggest FB. Regional: Lymphadenopathy, neurovascular assessment. Signs of envenomation: Local piloerection/sweating, excessive wound bleeding, neurological deficits: diplopia, focal weakness.	
Investigations	**Depends on likely cause**- Snake bite- FBC, Coags, UEC, CK, bite site swab and VDK **Imaging**- FB? X ray or soft tissue ultrasound.	

Question 2: X ray confirms a glass fragment 8 mm long x 3 mm wide within the soft tissues of the sole of the foot. Outline the treatment issues in this situation? **1.5 minutes**

Expected Response	Details & Comments	
Analgesia options	Oral/IN/IV/other. Reassurance/Mother present	
Shared decision making	Inform mother, permit her choice of option. 9yo may not be cooperative, especially for painful procedure	
Remove in OT, or ED?	If ED option expected to be difficult and prolonged, OT may be better option. Depends on surgical availability. Or may choose to leave alone for 1 week to allow development of abscess, for easy later removal.	
Anaesthetic options	Local or regional anaesthetic, Sedation, GA	**Must cover range**
Surgical procedure- likely difficult	Locate FB with x ray or US, but often difficult to find. Prolonged, **potentially difficult procedure**. Bleeding may be a problem.	
Tetanus	Tetanus prone wound, but low risk if vaccinations up to date.	
Fasting	At school, in playground, probably not fasted.	
Antibiotics?	May have a role if dirty wound/dirty fragment, or delayed presentation.	

Question 3: It is decided to attempt removal in ED. Discuss your anaesthetic options for this child. 2 minutes

Expected Response	Details & Comments	
General considerations	**Efficacy**, **safety**, rapidity of onset, **child's cooperation**, **parental choice**, expectations. **Resources**- Availability of equipment, trained staff, time, ED space.	**Must discuss procedural sedation plus 2 others**
Local anaesthetic Infiltration…	Pros- Quick, may be effective, will allow removal of FB, Not resource intent. Adjunct to sedation etc. With adrenaline decreases bleeding. Long acting-post procedure analgesia. Cons- Very painful, especially in the foot, Unlikely to be an option in a 9 year old, Toxicity if high vol LA should not be used alone	
With N2O/O2	Pros- Nitrous will provide reasonable analgesia to allow infiltration of local anaesthetic, Quick, easy, a 9 year old will be able you use the machine easily, may be sufficient Cons- Not complete analgesia for a very painful procedure. Need extra personnel.	
With IV opiates	Quick, easy, but needs IV access. Time to allow use of EMLA cream Cons –limited efficacy for very painful possibly prolonged procedure	
Procedural sedation	Likely to be best option, depending on staffing and resources. Provides most likelihood of successful removal of FB in ED. Con- Fasting. Resource intensive. Increased pt risk. May need IV	
Regional e.g. Ankle block/Bier's	Ankle block is much less painful (LA) but technically more difficult and less reliable. Biers- unfeasible in 9yo.	
Topical LA	Unlikely to be helpful	

Question 4: You opt for IV procedural sedation to remove the glass. Describe how you would do this. 2 minutes

Expected Response	Details & Comments	
Preparation	**Staffing**- minimum three staff; procedure doctor, sedation doctor (with airway competence) nurse	
	Monitoring- full non-invasive monitoring, especially SpO2 and ET CO2.	
	Equipment- All age appropriate airway equipment and drugs immediately to hand Suitable site according to local protocols eg: resus bay, procedure room, Adequate lighting and space. Establish IV access	
Consent and explanation	Informed consent from mother, mother to stay with child during procedure Explanation to and **reassurance of child**.	
Fasting	Not urgent, procedure can be delayed	
Sedation	Probably ketamine rather than propofol, as likely to be somewhat prolonged procedure IV ketamine, 0.5 mg/kg given slowly over minutes, titrated to effect. Alternatives: propofol, fentanyl, ketofol, midazolam. [**Candidate should demonstrate familiarity with THEIR choice(s), including adverse effects.**]	
Surgical procedure **[Prompt- How would you remove the glass?]**	Lighting, positioning, sterile conditions. Local infiltration of lignocaine 1% with adrenaline, around site of puncture wound and expected site of FB. Small incision over expected site, **localise FB** e.g. USS/XRAY/palpation. Bleeding control- tourniquet/LA & adrenaline. Remove FB (May not be successful). Wash out wound. May need sutures to wound, or tissue adhesive. Dressing	**Must describe safe approach**
Post sedation care	Observation until fully awake, eating, drinking. Then home with mum.	
Discharge instructions	Analgesia, wound care, crutches. Follow up. If used-removal of sutures- 10/7 by LMO Explain when to return e.g. signs of infection, pain, concern re retained FB	

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?

SCENARIO

Question 1:

A 25 year old woman who is two weeks postpartum is brought to the ED by her partner after a witnessed ingestion of iron tablets.

Her vital signs are:

HR	**100**	**/minute**
BP	**110/70**	
Sats	**96**	**% room air**

Outline your initial assessment

1. Lead examiner **…….** **Candidate Number:**

2. Co-examiner **…….** **Final Mark:**

SCENARIO

A 25 year-old woman who is two weeks post-partum is brought to the ED by her partner after a witnessed ingestion of iron tablets. Her vital signs are: HR 100/minute, BP 110/70, sats 96% room air.

Question 1: Outline your initial assessment. ***(included in stem)*** ***2.5min***

Expected Response	Details & Comments	
Aims of assessment PROMPT: What are the aims of your assessment?	- **Risk assessment re DSP iron toxicity** - **Mental Health risk assessment** re Post natal depression/psychosis etc - Risk assessment re domestic violence - **Baby safety**	
History	Ingestion: **Dosing, time. ?Elemental iron, ?SR formulation, coingestants** (like EtOH)?. DSP intent / context. If >60mg/kg Fe, systemic toxicity anticipated. PHx of self harm attempts. Mental health Hx. Hx of recent childbirth. Possible complications. Social / domestic: sleeplessness and stress are expected, but assess coping resources, supports, partner conflict.	
Exam-Specific signs/Sx Fe toxicity	V&D, GI bleeding, abdo pain, systemic toxicity, tachypnoea, HD instability- Likely to be late onset- 4 hours Mental state examination / affect / DV	
Mental health risk assessment	?Post natal depression, ?psychosis, ?domestic violence Context of deliberate ingestion	
Investigations PROMPT: What are you looking for with investigations?	Bloods- **BSL, ABG (HAGMA** as an indicator of systemic toxicity), **Fe level**, lactate, Gp & Hold, **FBC** (possible leukocytosis), **EUC** (low bicarb and renal impairment would be worrying. Paracetamol level. **AXR** looking for tablets - assists with risk assessment ECG -for coingestants	

Question 2: She admits to ingesting over 60 ferrous sulphate tablets. Abdominal x-ray shows a large number of radio-opaque tablets in the stomach and upper GIT. Describe your ongoing management. **2.5min**

Expected Response	Details & Comments	
Overview	High risk poisoning. *Candidate may clarify the amt of elemental iron in each tablet* Supportive care, decontamination, antidote, anticipated clinical course, disposition.	
Resus	Cardioresp monitoring Resuscitation & stabilisation of haemodynamics IV crystalloids, aiming for MAP $\geq$70mmHg. Titrate to clinical parameters and UO.	
Safe decontamination PROMPT: Any other option? How would you choose between them?	**WBI vs endoscopy (consider for large/massive DSP with gastric tablet location)** **WBI –**degree of patient co-operation, need NGT vs intubation (to avoid aspiration esp if coingestants that will cause decreased LOC) 20ml/kg/hr **PEG solution** (Charcoal ineffective unless being given for coingestant)	

Anticipate complications	Monitor BS, abdomen -stop WBI if develop ileus. Monitor BSL and Fe levels q4-6 hrly	
Antidote PROMPT: Is there a specific antidote?	Toxicology advice. Consider **desferrioxamine** depending on presence of systemic Fe toxicity or Fe level >90micromol/L. **Chelating agent.** Weight based IV regime. Complications include pulmonary and renal toxicity. Patient's urine may turn vin rose colour, but this is not reliable guide to Rx. Consider Rx end points and implications for breast feeding.	
Disposition	HDU/ICU Consults - Toxicology / Psychiatry / Social worker / maternal and child health liaison	
Care of partner and baby	Explanation	

Question 3: 2 hours later her vital signs are HR 120/min, BP 85/60. She is agitated and unco-operative and she wants to leave. How will you manage her? 2min

Expected Response	**Details & Comments**	
Patient is deteriorating	Recognition that systemic toxicity present – further Mx (eg desferrioxamine discussion with toxicologist)	
Resuscitation	IV fluid resuscitation – N Saline 20ml/kg reassess and rpt if needed (anticipate large 3rd space losses) Check BSL ?Complication WBI eg aspiration or ileus (may need to briefly cease WBI while this is addressed and potentially restart once intubated) Check for GIT bleed / recheck ABG (is HAGMA worsening?) ie Is this systemic Fe toxicity? v's another toxidrome	
De-escalate situation Re-assess patient	Talk to patient, try to convince them to stay for essential treatment Aim to assess whether psych or medical problem? May be signs of systemic toxicity however, still quite early. May reflect psychiatric issues. Need to consider both and address both. Enlist help: partner, social work If related to concern about her child, offer external help.	
Needs to stay in hospital	High risk, can be detained under mental health act, guardianship or common law Duty of care overide's patient right of self determination	
If physical/medical problem,	Aim to do "what is best for the patient, who is deemed at the time to not be competent to make a rational decision. May be detained under guardianship act.	
Other	Staff debrief, documentation, incident notification / reporting.	

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

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

SCENARIO

A 24 year old female presents to your ED with a 3 day history of lower abdominal pain.

Question 1:

Outline your differential diagnosis in this patient

1. Lead examiner **…….** **Candidate Number:**

2. Co-examiner **…….** **Final Mark:**

SCENARIO: A 24 year-old woman presents to your ED with a 3 day history of lower abdominal pain.

Question 1: Outline your differential diagnosis for this patient.

Expected Response	Details & Comments	
Differential Diagnosis	• Gynaecological: **Pregnancy (ectopic/miscarriage). PID. Ovarian – cyst** rupture/torsion. Cycle related eg. endometriosis. • Surgical: **Appendicitis**, SBO (unlikely if no prior OT), other. • Gastrointestinal : IBD, Mesenteric adenitis, gastroenteritis, other infections • Urinary : **UTI**, pyelonephritis, renal colic • Other: Referred pain from spine (unlikely), shingles	

Question 2: After your initial assessment, she has stable observations, and is maximally tender in the right lower quadrant with a negative pregnancy test. You decide to perform some imaging – outline your options and their relative merits.

Expected Response	Details & Comments	
Overview	Pelvic/renal USS is likely most helpful test. Radiation is concern for young woman, esp if she's pregnant. Other considerations include timing, availability, patient's wishes, expectations and consent.	
USS	**First line in this setting, no radiation,.** (Bedside / TA / TV options) Operator dependent As HCG –ve: **?gynaecological cause** (cyst, mid-cycle pain, ovarian torsion, tubo-ovarian abscess, pelvic fluid), **?appendicitis, ?renal cause** (pyelonephritis, obstructed kidney/calculi)	
Prompt	*Can you expand on use of US in respect to your differential diagnoses?*	
Prompt	*What is the relative accuracy of US for these conditions?*	
CT abdomen *If mention use of CT prompt 'when would you perform CT?'*	**Limited role** due to radiation in young patient, diagnostically helpful. **Only perform if clinically indicated (eg. Likely renal calculus, USS result indicating need for CT) or if clinical direction unclear after initial history/USS.** Pros: Potential cons: fluid status, contrast exposure and renal function	
Prompt		
CXR	Low yield in lower abdominal pain. Indicated if concern for perforated viscus ?free gas prompting OT.	
AXR *If mention must qualify*	Low yield, relatively high radiation**.** Little role unless clinical concern for bowel obstruction.	

Question 3: The US shows no cause for her pain but the appendix was not visualised. She has been discussed with the surgical registrar, who requests an ED Short Stay admission and a CT abdomen. What are the issues to consider in this situation?

Expected Response	Details & Comments	
Several issues to consider	**Clinical condition of patient**, local policies/SSW admission process (ED driven), limited role for CT without senior review. Personally review patient history and examine	
Admission to ED SSW	**Clinical assessment**: • **If period of observation clinically appropriate, later discharge possible, then admit to SSU**. Later Surgical review as needed. • **Not appropriate if patient requires admission or OT**. Patient should be admitted to ward for later review by surgical team. Assuming clinically stable. • (May be appropriate to discharge home if pain adequately managed and clinical concern low. Appropriate follow-up/instructions) Policy issues/Local practice: SSW admission decisions should only be made by Senior ED staff who have assessed the patient and feel it is appropriate.	
CT abdomen	**Unlikely to be appropriate**. If clinical concern for appendicitis with –ve USS then further observation/laparoscopy likely next best step. In absence of firm indication surgical team should **review patient prior to CT** and discuss with Surgical Consultant.	
Surgical team review/ communication	'On take' surgical units should have staff available to review patient if this is required (Consultant or alternate registrar). **Discuss with Surgical team re 1) admission to ward or Surgical SSU as appropriate** 2) CT does not appear indicated and that Surgical Unit needs to review patient and discuss prior to ordering.	

Question 4: After observation in the ED SSU, her diagnosis is confirmed as pelvic inflammatory disease. Outline your management.

Expected Response	Details & Comments	
Treatment:		
Antibiotics Stat **ceftriaxone 250 mg IMI** (Gonorrhea) + **Azithromycin 1g** oral repeated in 1/52 (or doxycycline 100 mg daily for 10/7) for chlamydia + **Metronidazole** 400 mg bd (10/7) (IV route may be necessary) **Analgesia** – oral, parenteral options (and thus impact on suitability for discharge) Supportive care – IV fluids, anti-emetics		
Disposition		
Criteria for admission/discharge	Systemically unwell?, pain control, social, time of day, risk of loss to follow up…	
As required: *Prompt If discharged, what are other important issues to address?* *Prompt: What are your admission criteria?*		
Follow up of ED testing by SHC or LMO	Urine PCR, High Vaginal Swab/PCR Potential Health dept notification	
Patient testing/review for other STD's	Referral to sexual health clinic or LMO followup re need for **further testing for STDs**	
Contact tracing	If swabs +ve or clinical Dx of PID compelling then treatment of partners/ contacts is indicated. Contact tracing and Rx eg assisted by sexual health clinic or LMO.	
Counselling	Discussion with patient re importance of safe sexual practice, treatment (for fertility etc), high 'asymptomatic infection' rate , need for contact tracing etc.	

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

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