

1. Lead examiner .....

Candidate No:

2. Co-examiner .....

**SCENARIO**

You are the duty Consultant in your rural ED. You receive ambulance notification regarding 2 paediatric patients with burn injuries. Estimated time of arrival is 5 minutes. Both children were playing in the kitchen. One of them grabbed the handle of a large pot of boiling oil, tipping its contents over both of them.

- Patient 1: 2 year old girl. Burns to her face, head, chest, abdomen, back and legs.
- Patient 2: 4 year old boy. Burns to the same areas but apparently less severe.

Both patients have cold saline soaks over the injuries. Neither have intravenous access; no observations are known.

**Question 1: Describe your preparation for the arrival of these 2 patients. (included in stem) 1min**

Expected Response	Details & Comments	
Issues	2 critically injured children Resources: <b>staff, equipment</b> , drugs, fluids, dressings. May be limited in rural ED Care of parent / caregiver Rest of department	Bold to pass
Staff	<b>Departmental organisation</b> Assemble teams; oversee both. Designate leader and roles for each. Briefing - outline key objectives and requirements: assessm and Mx Enlist assistance: on-call staff, from other dept, such as Paeds, Anaesthetics. Non-clinical support staff Staff to care for parent(s)	
Space and Equipment	Resus areas Cardio-resp monitors; IV access is critical: cannulae, IO options	
Drugs	IV crystalloids, narcotic analgesia	
Supplies	Dressings, emollients, bandages, IV cannulae	
Rest of dept	Liaise with nurse in charge; deploy staff where appropriate	
Disposition Planning	Anticipate need for transfer. ? Paed retrieval service	

**Question 2: Here are 2 photos of the 2 year old girl. Describe and interpret these photos. 2 mins**

Expected Response	Details & Comments	
<b>Photo 1: features</b>	Girl lying on bed with head turned to right Child awake and not obviously distressed (?sedated) Burns to left face, ear, head, chest, both arms and legs Extent of burns: mixture of superficial and partial thickness, with ? small patch of full thickness burn to left chest and upper arm Burns covered with gladwrap and ?gauze to left thigh	
<b>Photo 2: features</b>	Posterior view, supported in sitting position Burns to back, arms and left leg Extent of burns: mixture of superficial and partial thickness, with ?small patches of full thickness burn to left upper arm and forearm, right shoulder and upper arm	
Relevant negatives	No apparent acute airway or breathing problem (not expected from history) No monitoring visible and no obvious IV line seen No obvious other (non burns) injuries	2/3 to pass
<b>Burns Assessment</b>  (Prompt on how to assess injuries – area and depth specifically)	<b>Depth:</b> superficial, partial thickness (skin broken), full thickness (loss of pinprick sensation) <b>Surface Area:</b> only include partial and full thickness injuries. Few methods, including Lund and Browder chart (most accurate), rule of nines, patient's palm (or hand in paed) From these photos: estimated TBSA of 15-30% More accurate assessment using a Lund and Browder chart No IV access No apparent airway burns	Must be 20-35% to pass
<b>Implications</b>	Severe burns. Requires aggressive fluid resuscitation, critical care / monitoring and urgent transfer to tertiary Burns service after resuscitation.	

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**SCENARIO**

The nurse shows you an x-ray of a 9 year old boy with a right elbow injury. He fell from playground equipment at school, and was brought by his teacher. There are no other injuries and the child is otherwise well.

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

Expected Response	Details & Comments	30s
Positive	<b>Markedly displaced, off-ended supra-condylar fracture Postero-superior displacement with neurovascular compromise potential</b>	
Relevant negatives	Bones within soft tissue margins: prob closed injury Incomplete views of shoulder reveal no AbN, no wrist views	
Interpretation	Potential for brachial artery and median/ulnar nerve injury <b>Needs urgent clinical review.</b> Supervise the registrar. <b>Orthopaedic emergency: needs urgent reduction</b>	

**Question 2:** On reviewing the patient, you find the injured arm is dusky and cold. Describe your immediate management.

Expected Response	Details & Comments	1-2m
<b>Needs emergent reduction</b>	Refer to Orthopaedic service	
<b>Supportive</b>		
<b>Analgesia</b>	Titrated narcotics: IV, intranasal, other	
Explanation and reassurance	To child and teacher. Consent issues. Need to liaise with parents / NOK	
<b>Immobilisation</b>	<b>Reposition to improve circulation. Back slab / splint while awaiting OT if time allows</b>	
IV fluids		
Keep nil by mouth		
<b>Definitive Rx</b>	Preferably reduction in OT In ED if delays to OT	
<b>Disposition</b>	Admission. Notify OT and Anaesthesia	

**Question 3:** The OT will be unavailable for hours. Discuss your options for procedural sedation to facilitate reduction in the ED.

Expected Response	Details & Comments	3 min
<b>Candidates expected to refer to this specific case. Aim is to restore pulse, not to anatomically reduce the fracture. Unlikely to be able to perform complete reduction without image intensifier, and will often need ORIF anyway to maintain position Key considerations for options: safety, efficacy, availability, acceptability. Other: cost.</b>		3 or > class with dose
N <sub>2</sub> O / O <sub>2</sub> , Methoxyfluorane	Analgesic, safe, quick, minimal set up time, may be enough to allow immediate reduction to restore pulse, but not to fully reduce the fracture	
(BZD, narcotics): Midazolam Fentanyl	Safe, may be delivered by other routes: IM for midaz, IN for fentanyl But incomplete analgesia, incomplete relaxation, as above	
Anaesthetics: Thiopentone, Propofol, Ketamine	Allows good reduction with good sedation and relaxation In unfasted patient, risk of aspiration, need airway competent staff Risk of hypoxaemia/hypoventilation/airway obstruction Takes much longer to set up, requires at least two doctors and one nurse, full monitoring, etc May be difficult from staffing point of view in busy ED.	
Ketamine	Dissociative anaesthetic. Rapid, no CVS compromise, less resp suppression. May be given IV or IM. Widely available. Risk of: emergence phenomenon, paradoxical agitation, laryngospasm	
Other	What end point are we trying to achieve?	

**Question 4:** The patient has now left the ED and is under the care of the Orthopaedic team. This patient was sent to X ray directly from triage. What other issues do you need to consider?

Expected Response	Details & Comments	1 min
Protocols for nurse initiated X rays	Single limb or joint, dependent on clinical exam, analgesia needs, QA measures	
Examination at triage	Appropriate triage cat patients selected and regions to be imaged	
Analgesia	Appropriate level given prior to imaging	
Escalation of care and appropriate triage category	Involvement of consultant and or registrar at early time.	

**Question 5:**

His mother has arrived, and is angry that she was not informed about his treatment. Outline the principles of your communication with her.

Expected Response	Details & Comments	1 min
Language and demeanour	Simple language Limit to relevant info Calm and non-confrontational demeanour Conduct in appropriate environment	
Facilitate grievance(s)	Explore mother's issues. Allow to express. Listen	
Provide info	Explain medical emergency and duty of care Explain actions undertaken and anticipated outcomes Advise on processes from here Liaise with Orthopaedics, Anaesthetics	
Provide options	Need to obtain her consent for ongoing and planned interventions ? Alternatives (eg transfer to private facility)	
Answer additional questions		
Inform other parties	Offer to inform other parties, such as father, GP	
Documentation		

Total Mark:

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

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## SCENARIO

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He fell from playground equipment at school, and was brought by his teacher.

There are no other injuries and the child is otherwise well.

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

1. Lead examiner .....

Candidate No:

2. Co-examiner .....

**SCENARIO**

You assess a 28 year old woman who collapsed two hours ago. She complained of dysuria for one week; there is a history of recurrent urinary tract infections.

She has a past history of recurrent urinary tract infections and bipolar affective disorder.

On examination: confused and tremulous. Temp 37.4°C BP 100/65 mmHg. HR 110. RR 20. SpO2 95% on room air.

**Investigations:**

			<i>Ref</i>
Na	143	mmol / L	135 - 145
K	3.8	mmol / L	3.5 - 5.5
Cl	116	mmol / L	95 - 110
HCO <sub>3</sub>	20	mmol / L	22 - 30
Glucose	9.8	mmol / L	3.3 - 7.7
Urea	11	mmol / L	2.5 - 8.3
Creatinine	307	mcmol / L	50 - 90

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

Expected Response	Details & Comments	
Renal Impairment	Moderate Possible chronic component	
Mild hyperchloremic (normal anion gap) metabolic acidosis (probably)	Anion gap = 11. Normal.	
Mild hyperglycaemia	<b>PROMPTS: Is there anything else?</b>	/1

**Question 2:** List your differential diagnoses

Expected Response	Details & Comments	
Pre-existent pathology	<i>May be combination of causes</i>	
UTI / sepsis		
Dehydration	Pre-renal failure	
Drug Effects	<b>Lithium toxicity (pass/fail) + at least 1 other syndrome/drug, Serotonin Syndrome, NMS, other drugs</b>	
Other	Intracerebral haemorrhage, neoplasm, head injury	
	<b>PROMPTS IF NEEDED: "Looking at the stem, are there any other blood tests that are required?" "What drugs may cause this?"</b>	/2

**Question 3:** Her serum Li level on arrival is 2.2 mmol/L (0.8 – 1.0). Please interpret this, given her presentation.

Expected Response	Details & Comments	
Likely Lithium toxicity	<b>Acute versus chronic; prompt "What are the differences between acute and chronic lithium toxicity?" "What are the manifestations of lithium toxicity?"</b> CNS depression; renal failure; possible deliberate OD Risks: cardiac arrhythmias; seizures, worsening renal failure	/2

**Question 4:** Describe your management.

Supportive care	ABC, IV crystalloids/correct deficits + establish urine output;	
Treat co-ingestions	Serotonin syndrome <b>Decontamination if indicated: candidates should discuss; prompt if needed; "What is the role of decontamination"</b>	
Seek and treat other path	Neuroimaging, septic screen, UTI, empiric Abx if indicated	
Target Parameters and Rx Aims	Euvolaemia, diuresis, normoglycaemia. Anticipate improvement in Creat Drowsiness prob persist for few hours	
Disposition	Toxicology / Renal services / ICU. <b>Haemodialysis may be indicated.</b> Candidates should list indications for this. <b>Prompt if needed; "What is the role of haemodialysis"</b>	
Mental Health; Self Harm Risk	Special/close supervision, liaison with MH service	/4

**Question 5:** Eventually the patient will need a formal mental health assessment. When would this be appropriate?

Expected Response	Details & Comments	
<i>Mental state sufficiently clear of organic impairment to facilitate interaction. Not synonymous with all normal parameters and zero toxin levels.</i> <i>Candidates expected to articulate principles and justify their criteria</i>		
<b>Clinical</b>	<b>No ongoing / potential effects or complications from organic causes</b> <b>Patient’s mental state not impaired by organic, reversible causes</b> Delirium excluded : Normal vitals (GCS, T, BP, RR, Sats), clear sensorium Undiagnosed /ongoing drug toxicities excluded All other acute pathologies managed	
<b>Safety</b>	Of patient, staff and others Interview will not exacerbate patient’s condition Escorts or restraints if required	
<b>Resources</b>	Qualified MH staff. Will offer opinion re suitability Suitable interview environment to gather detailed history	
Other	<b>PROMPT “What are your criteria for the patient being fit for mental health assessment?”</b>	/1

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On examination: confused and tremulous.

**Investigations:**

			<i>Ref</i>
Na	143	mmol / L	135 - 145
K	3.8	mmol / L	3.5 - 5.5
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**SCENARIO**

You are asked to attend to a 40 year old man in your emergency department waiting room. He is agitated and verbally abusive towards triage staff. He is morbidly obese.

**Question 1. Outline the key issues in management of this situation. (included in stem) 1 – 1.5 min**

Expected Response	Details and Comments	Score
Key Issues	<ul style="list-style-type: none"> <li>○ Care of agitated patient: de-escalate / diffuse,</li> <li>○ Identify and treat cause(s): organic vs functional, or both</li> <li>○ PROMPT ; What specific organic causes would you consider?</li> <li>○ Safety: patient, others in WR, staff</li> <li>○ Management of overall dept</li> </ul>	Min 3 organic causes to pass
Care of Agitated Patient	<p><b>High risk: body habitus, co-morbidities</b></p> <p>Liaise with nurse in charge; recruit security (activate hospital code / response)</p> <p>Create cubicle space in ED for this pt</p> <p>Gather additional information about this patient, incl mental health Hx</p> <p>Approach patient, attempt verbal de-escalation</p> <p>Resort to physical restraint if this unsuccessful</p> <p>Attempt to move him into dept</p> <p>Assemble team to assess and manage him</p>	
Safety	<p>Ensure safety procedures followed</p> <p>Universal precautions</p> <p>Remove other people from area</p>	
Overall dept	<p>Allow triage to resume normal function; support staff</p> <p>Oversee care of new patient</p>	

**Question 2. Outline your approach to verbal de-escalation of this patient. 1 minute (at most)**

Expected Response	Details and Comments	Score
Assess Situation	<p>Likelihood of success of this approach: dependent on cause and severity of agitation</p> <p>Back up options (ie physical restraints) available if unsuccessful</p>	
Attitude and demeanour	<p>Calm, even and non-confrontational</p> <p>Clear and simple language</p>	
Acknowledging and Facilitating patient issues	<p>Allow to settle and express concerns</p> <p>Focus on current problem</p> <p>Answer and address queries; reassure</p>	
Offer Options	<p>Provide patient with choice, and ability to choose behaviour options</p> <p>Advise on consequences of his choices</p> <p>Encouraging patient to chose help</p>	
Set limits		

**Question 3. Despite your attempts, the patient remains agitated and aggressive. It's evident he is delirious. What do you do now?**

1 – 1.5 min

Expected Response	Details and Comments	Score
Issues	<ul style="list-style-type: none"> <li>○ Incompetent patient presenting risk of harm to self and others</li> <li>○ Duty of care to institute measures against his wishes</li> <li>○ Requires physical restraint, and urgent transfer into dept for assessment. High risk.</li> </ul>	
Restraint	<p>In waiting room: requires clearance of area and management of other individuals in that space</p> <p>Assemble team</p> <p>Assign staff member to manage others</p> <p>Prepare monitored cubicle in ED: assign roles</p> <p>Universal precautions</p> <p>Remove potentially hazardous articles, or those that may be used as weapons / implements</p>	

	Implement restraint by security team at pre-arranged signal, from behind and flanks. Member for each limb. Talk to the patient from in front Transfer into dept	
In ED	Lead assembled team Resus cubicle with cardio-respiratory monitoring IV access IV sedation: BZD and / or antipsychotic agent <b>PROMPT; What particular problems would you envisage in sedating this pt?</b> Assess for aetiology of delirium Seek and treat immediately urgent problems	

**Question 4. The patient is now in the ED. Describe and interpret these initial results. 2 min**

			<i>Reference Range</i>
Na	109	mmol/L	135 - 145
K	4.0	mmol/L	3.5 - 5.5
Cl	89	mmol/L	95 - 110
HCO <sub>3</sub>	16	mmol/L	22 - 30
Glucose	15	mmol/L	3.3 - 7.7

Expected Response	Details and Comments	Score
<b>Description</b>	Severe Hyponatraemia Moderate Hyperglycaemia: insufficient to induce observed level of Na Moderate Metabolic Acidosis: Anion Gap = 8.6 (low)	
<b>Interpretation</b>	HypoNa may be cause of delirium, or at least contributory <b>PROMPT; What are the possible causes of his hyponatraemia ?</b> ( Factitious, Drugs, Tumour, Water intoxication) Establish if acute or chronic. If acute, needs urgent correction to >120 Hyperglycaemia insufficient to cause hypoNa alone	
<b>Implications</b>	Urgent correction of serum Na required, but careful approach required Need to identify potential other causes of delirium	

**Question 5. Outline the issues in managing this patient's hyponatraemia. 1 – 2min**

Expected Response	Details and Comments	Score
<b>Issues</b>	<b>Na must be corrected !</b> <b>Delerium / Encephalopathy is an indication for initial rapid partial correction with hypertonic saline eg. 5 –7 mmol/l in the first hour and then slow correction. About 1mmol/L per hour.</b> <b>Target serum Na: &gt;120</b> <b>Avoid and monitor for complications of Rx: hyperNa, hypervolaemia, central pontine myelinolysis</b> <b>Rx concurrent with range of other interventions</b> <b>Identify and correct contributing causes: medications, hyperglycaemia</b>	<b>Rate of correction is NOT a pass/fail criteria</b>
<b>Monitoring</b>	Cardiorespiratory; frequent neurol obs Patient neurological state likely also impaired by sedation Requires CVP monitoring Will likely need other interventions, such as CT Brain Assess other parameters: volume state, serum and urine osmolarity Frequent biochem assays Urine output	
<b>Treatment</b>	Free fluid restriction Hypertonic saline: constitution, volume, rate, complications	
<b>Referrals</b>	Seek expert advice: endocrinology Needs ICU admission	

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## SCENARIO

**You are asked to attend to a 40 year old man in your emergency department waiting room. He is agitated and verbally abusive towards triage staff. He is morbidly obese.**

***Question 1: Outline the key issues in the management of this situation .***

**Question 4.** The patient is now in the ED. Describe and interpret these initial results.

			<i>Reference Range</i>
<i>Na</i>	<i>109</i>	<i>mmol/L</i>	<i>135 - 145</i>
<i>K</i>	<i>4.0</i>	<i>mmol/L</i>	<i>3.5 - 5.5</i>
<i>Cl</i>	<i>89</i>	<i>mmol/L</i>	<i>95 - 110</i>
<i>HCO<sub>3</sub></i>	<i>16</i>	<i>mmol/L</i>	<i>22 - 30</i>
<i>Glucose</i>	<i>15</i>	<i>mmol/L</i>	<i>3.3 - 7.7</i>

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Candidate No:

**SCENARIO**

It is 0750hrs on a weekday at your urban emergency department. You are about to commence day shift as the duty consultant. There are 23 patients in the ED, and 6 waiting to be seen. You are asked by the night registrar to help manage a newly arrived 64 yo man. He was brought in by ambulance with dizziness. The registrar shows you the patient's ECG rhythm strip.

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

Expected Response	Details & Comments
Rate and Rhythm	200+, ?regular, probably ventricular
Complexes	Broad, polymorphic
Segments	Unable to comment
<b>Synthesis:</b>	<b>Polymorphic VT; Possible Torsade de Pointes (needs 12 lead to confirm QT prolongation to confirm Torsades from other PMVT)</b> Potential causes in this pt: common: ischaemia with block, hypoK, hypoMg - to consider: QT prolongation (congenital or drug induced) Needs ongoing monitoring and 12lead ECG analysis Identify and treat causes

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**Question 2: The patient is alert, with a BP of 130/80. Outline your actions. ( minutes)**

Expected Response	Details & Comments
Care of patient	Lead Team Further assessment: Hx and Exam, 12 lead ECG, urgent electrolytes, cardiac markers Management: dependent on assessment IV Mg or cardioversion, Rx of underlying cause if known (unacceptable treatment = Ic or III). Clarify if any treatment or dose unusual Disposition
Rest of department <b>(prompt if needed)</b>	At end of shift New staff about to start Delegate, handover

...../2

**Question 3: The patient is stable following initial treatment. The morning staff have arrived. What are the objectives of clinical handover in general terms?**

Expected Response	Details & Comments
<b>Key Issues and Ideal Features</b>	Aim to transfer key clinical info Secondary aim of education / staff support and development Risk management issues, esp re responsibilities and transfer of onus Information reliability reduces with number of handovers Patient confidentiality Minimise time when staff removed from direct patient care Considerations: frequency, site, who attends, paper / board vs electronic, records & documentation
<b>Prepare for handover</b>	Gather medical staff Nurse in charge; other stakeholders Delegate senior staff to manage current patient, and others needing urgent care Includes care of patients both seen and waiting to be seen if urgent Free up night staff for handover
<b>Handover</b>	Safe handover of all patients seen Identify salient issues with each case. Management plan should be clear Teaching and support where appropriate and if time permits Delegation - responsibilities commensurate with level of experience

<b>Post handover</b>	Ensure medical records complete Facilitate night staff going home Oversee department and cases Bed access issues Feedback from night staff	
<b>Documentation</b>	Ensure night staff complete	
<b>Notification / consultation</b>	Relevant inpatient units / Allied health / Bed manager	

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**Question 4: Discuss the methods for optimising clinical handover in the Emergency Department**

**Prompt: firstly discuss the possible formats**

<b>Electronic</b>	Usually using EDIS. Easy and rapid data collection and Mx; trail of accountability Information scope may be limited; relies on infrastructure (ie electricity)	
<b>Paper / Whiteboard</b>	Easier to use, greater acceptability by staff. Free form info. Flexible site. Whiteboard compromises confidentiality. Easy to lose all info. No trail / record of changes.	
<b>Ward Round</b>	Allows staff to view patients and seek direct and immediate info. Allows point of care clinicians to input. Time consuming. Compromised confidentiality. Probably insufficient space for team to move around. Potential threat to staff safety. OH&S concerns.	
<b>Prompt: If not mentioned, prompt for specific factors:</b>		
<b>Site</b>	Within ED: allows key staff to maintain contact with dept "Off-line": handover unfettered by competing demands and distracting environment. More reliable transfer of info.	
<b>Frequency</b>	Typically in mane and afternoon. One prior to nightshift beneficial to night staff and minimizes risk. But difficult to do on typically busy evening shift.	
<b>Attendees</b>	Medical and lead nursing. Others: care coordination, mental health, allied health. Much info irrelevant to latter groups. ? Sectioned handover. Integrated medical and nursing handovers vs separate. Timing an issue, as medical staff not keen to start at 0700hrs. Type of info handed over prob different. ? Separate handovers for different streams: discharge, admit, general clinic	
<b>Records</b>	Electronic vs paper Shift reports	
<b>Other</b>		

...../3

**Question 5 (optional): All treatment spaces are now occupied. What action will you take now? ( minutes)**

<b>Expected Response</b>	<b>Details &amp; Comments</b>	
Senior Staff	Nurse in charge Bed Manager Discharge area	
Prepared Plans	Activate locally agreed escalation strategies	

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## SCENARIO

It is 0750hrs on a weekday at your urban emergency department. You have just commenced day shift as the duty consultant. There are 23 patients in the ED, and 6 waiting to be seen.

You are asked by the night registrar to help manage a newly arrived 64 yo man.

He was brought in by ambulance with a complaint of chest pain for 2 hours, associated with dizziness.

The registrar shows you the patient's ECG.

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

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**SCENARIO**

A 53 yo man is brought to your tertiary level Emergency Department (ED) by his wife with 90 minutes of dull chest pain. During the trip in he felt weak and lightheaded. His wife reports he looked pale and clammy. He is triaged to an appropriate area in your ED. He looks unwell; pale and diaphoretic. GCS 15; BP 85/50; P 50. His ECG is shown to you.

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

Expected Response	Details & Comments	1 min
Rate	Bradycardia; 50bpm	
Rhythm	AV dissociation	
Complexes	Narrow: junctional escape rhythm ?Dominant R in V1	
QT	Prolonged; QTc probably N	
ST/ T	Inferior and V1 ST elevation; lat ST depression	
Interpretation	<b>Acute Inferior (possibly RV) STEMI from RCA occlusion. Complete HB with junctional escape. Cardiogenic shock from pump failure and bradycardia. Needs emergent reperfusion.</b>	

**Question 2: Outline your management.**

Expected Response	Details & Comments	2 min
Response	Critically unwell. Medical emergency. Full cardioresp monitoring; assume team leadership; assign roles <b>IV access</b> ; draw medications <b>Explanation to pt and wife</b> <b>Supplemental oxygen</b> <b>Candidates should demonstrate expertise and awareness of risks with each Rx option</b>	
Analgesia	<b>Judicious nitrates and/or narcotics</b> , titrated to response. <b>Consideration of clinical context.</b>	
Arrhythmia Mx	Chronotropes: boluses of atropine boluses, low dose adrenaline, dopamine, dobutamine. Isoprenaline may worsen BP. Pacing: initially transcutaneous; until transvenous pacing can be arranged. Pacing is Rx of choice	
Blood Pressure	<b>IV fluid bolus to assist preload and counter RV pump failure.</b> Recent evidence suggests inotropes should be given early. Caution re nitrate use	
Reperfusion	<b>Aspirin</b> , clopidogrel (0-600 mg), heparin. <b>Urgent Cardiology referral re PTCA</b>	

**Question 3: Prior to transfer to the cardiac catheter lab, he becomes unconscious. The cardiac monitor shows Ventricular Fibrillation. Outline your response. (NB: the patient will not regain spontaneous circulation until the third series of shocks with 4 cycles of 3-min resus)**

Expected Response	Details & Comments	2 min
Early Defibrillation	<b>Recognise need for immediate action</b> Call for help; lead team Assign staff member to wife <b>Immediate defibrillation:</b> manual biphasic 200J or manual monophasic 360J May give 3 stacked shocks as witnessed arrest  <b>Chest Compressions with 30:2 ratio @ 100/min</b> Airway: BVM ventilation; ET intubation if no ROSC	
ACLS protocol	<b>3 minute cycle:</b> <b>Chest compressions at 100/min</b>	
Resus via continued	<b>1 mg IV adrenaline</b>	

cycles until ROSC	<p><b>Defibrillation with maximum energy</b>  <i>Patient remains in VF.</i></p> <p><i>GCS at 3 (intubated) with ROSC</i></p> <p><b>Identify and correct reversible causes (Prompt)</b>  <b>Anti-arrhythmic agent</b> (high level response expected. Familiarity with dose and risks of chosen option): lignocaine 1-1.5mg/kg, amiodarone 300mg                  Other: Magnesium, Na HCO<sub>3</sub></p>	
Other	Care of Wife & other NOK	

**Question 4:** The patient has return of spontaneous circulation, but remains unconscious. He is intubated and ventilated. Discuss the use of induced hypothermia in this patient.

Expected Response	Details & Comments	2 min
Considerations	<p><b>Reasonable evidence for out of hospital VF arrest;</b> in hospital / monitored <u>not</u> studied. Assumed neuroprotective effect.                      Unconscious despite immediate and continuous CPR.                      Young pt with no apparent co-morbidities: lower risk of long term hypoxic brain injury.</p>	
Pros	<p>Easy, rapid, non-invasive. Most staff likely to be familiar with methods.                      Several cooling options available: ice packs, mattresses and vests, infusion of cold IV fluids (30 ml/kg Hartmann's)                      Probably no additional harm to neurological function</p>	
Cons	<p>No established protocols. Extrapolated from out-of-hospital protocols.                      Moisture if ice packs used: risks with electrical equipment and Rx, slippery floors                      Excessive IV fluids may lead to pulmonary oedema                      Will complicate PTCA procedure                      Difficult to establish optimum BP and HR when core temp low                      Requires longer period of sedation and paralysis                      Prolongs ICU course</p>	

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## SCENARIO

A 53 yo man is brought to your tertiary level Emergency Department (ED) by his wife with 90 minutes of dull chest pain. During the trip in he felt weak and lightheaded. His wife reports he looked pale and clammy. He is triaged to an appropriate area in your ED.

He looks unwell; pale and diaphoretic.

GCS 15; BP 85/50; P 45.

His ECG is shown to you.

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

**Question 3:** The 4 yr old boy has minor injuries is ably managed by your registrar. The 2 yr old girl has 30% TBSA burns, and no other injuries. Outline your management of this girl. 2 mins

Expected Response	Details & Comments	
Supportive Care	<p><b>Analgesia:</b> options = nitrous, oral, IV/IO, IN Eg nitrous + morphine increments 0.1 mg/kg = 1mg increments IV</p> <p><b>Cooling of injuries:</b> approx 20min to burn areas but prevent hypothermia</p> <p><b>Thermoregulation</b> Distraction therapy. Enlist help of parent(s)</p>	3/3 to pass
Dressings	Assists analgesia and minimises fluid and heat loss	
Fluid Resuscitation	<p><i>Formulae only used as guides to initial therapy. Regimen should be titrated to clinical and laboratory indicators of volume state.</i></p> <p>Parkland's: 2-4 ml/kg/%burn from time of incident. 1<sup>st</sup> half over 8h, 2<sup>nd</sup> half over next 16h Expect to know approximate weight This child: 30% burn = 4x15x30 = 1800 ml, 900 ml over 1<sup>st</sup> 8 h intravenously Candidate should indicate and justify type of fluid used Gauge pt's clinical response and UO – aim for 1-2 ml/kg/hr With or without maintenance – depending on urine output &amp; other clinical indications Must know: <b>Formula</b> <b>How to administer – from time of injury &amp; IV/IO</b> <b>Adequacy of response</b></p>	3/3 to pass
Prophylaxis	Tetanus if required Antibiotics not routinely indicated	
Disposition	Plastics, Paed Critical Care. Transfer / retrieval.	
Support Services	Social work: family support. 2 concurrently injured children. ?? At risk Care of staff: debrief	

**Question 4:** The IV cannula has been displaced, and your staff are unable to re-establish intravenous access. You opt to insert an intraosseous (IO) needle. Describe and demonstrate your technique on this model of a tibia.  
(min 90 secs) 2 mins

Expected Response	Details & Comments	
Set up equipment		
Explanation & consent	To pt and carers	
Technique	<p>Palpate for landmarks. In proximal tibia, site for cannulation is approx 2 fingerbreadths distal to the tibial plateau, midway between the anterior and posterior borders. Support the flexed knee with a towel roll or a sandbag behind calf. LA with 1-2 mL of 1% lignocaine. Prep with topical antiseptic (eg, Betadine).</p> <p>Grasp hub of the needle firmly with the palm of the hand and angle the needle tip either at 90° to surface or slight caudate direction. Some needle types are blunter and may require a small initial incision. Rotating and firm screwlike motion, advance the needle straight through the skin, soft tissues, and bony cortex. Avoid rocking the needle side to side. Anticipate sudden lessening of resistance as needle enters the marrow space. Reduce forward pressure to avoid puncturing the opposite cortex</p> <p>Withdraw trocar, attach a 10-mL syringe to the needle hub, and apply negative pressure. Aspiration of blood and marrow confirms correct placement. Flush needle with 5-10 mL of saline to clear the marrow contents.</p> <p>Flush should not encounter resistance. Needle should stand upright without support. Attach IV tubing +/- 3 way tap and syringe to hub and infuse fluids. Observe for soft tissue swelling or resistance to flow. Secure with tape and anchor to avoid inadvertent traction on needle.</p>	4/5 to pass
Post insertion cares	Observations, documentation. Explanation to pt and parent(s).	

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

Total Mark:

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

## SCENARIO

You are the duty Consultant in your rural ED. You receive ambulance notification regarding 2 paediatric patients with burn injuries. Estimated time of arrival is 5 minutes. Both children were playing in the kitchen. One of them grabbed the handle of a large pot of boiling oil, tipping its contents over both of them.

- Patient 1: 2 year old girl. Burns to her face, head, chest, abdomen, back and legs.
- Patient 2: 4 year old boy. Burns to the same areas but apparently less severe.

Both patients have cold saline soaks over the injuries. Neither have intravenous access; no observations are known.

### Question 1:

*Describe your preparation for the arrival of these 2 patients.*