



OSCE 2

Candidate Instructions

This is a **7 minute** Standardised Case-Based Discussion (SCBD) station.

You will be interacting directly with an examiner. You will be asked to outline your assessment and management to the following clinical situation. Further information will be provided as the case evolves. The examiner will be assessing your medical knowledge, as well as the reasoning and rationale to your approach and decisions.

Please be as specific as possible when answering. You are an emergency consultant in a tertiary level hospital. For example, when discussing drugs describe doses, when discussing investigation or management provide reasons why you chose that approach.

Case Information:

Mark Matthews is a 65 year old man who has been brought in by ambulance following an out of hospital cardiac arrest.

Mr Matthews developed chest pain whilst mowing his lawn. Shortly after he was witnessed to collapse and his wife called the ambulance. His son performed chest compressions until the ambulance arrived.

History as per the paramedic team:

- Initial rhythm was ventricular fibrillation (VF)
- DC shock x 2 delivered
- 1 mg adrenaline IV
- CPR with bag valve mask ventilation performed
- Return of spontaneous circulation (ROSC) was achieved 10 minutes after the emergency call
- Time since the start of his pain: 75 minutes

The patient's vitals on arrival to hospital are:

HR 55 bpm
BP 85/50 mmHg
RR 12 /min
SaO₂ 94 % (6L/min O₂)
GCS 14 (Eyes open to voice)



The patient's ECG on arrival is attached.

Your tasks are to:

- Interpret this patient's ECG
- Outline your assessment and management of this patient

You can ask for further clinical information as the case progresses including physical examination findings and investigation results. You may adjust your patient management according to new information.

This OSCE will assess the following domains:

- Medical Expertise – 60%
 - Assessment (20%)
 - Treatment (40%)
- Prioritisation and Decision-making – 40%



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Examiner Instructions

This is a **7 minute** Standardised Case-Based Discussion (SCBD) station.

This is an SCBD involving the ED management of a patient with ROSC, following an out of hospital cardiac arrest.

The candidate's tasks are to:

- Interpret the patient's ECG
- Outline their assessment and management of this patient.

The OSCE assesses the candidate's ability to:

- Identify inferior STEMI with RV involvement
- Management of AMI
- Management of hypotension (modifications with RV involvement) with fluids then inotropes
- Recognition of need to intubate for PCI
- Safe approach to RSI in this patient
- Anticipate potential for deterioration e.g. progressive heart block, further VF

The questions are standardised for this SCBD. They are to be delivered in the same manner to all candidates.

If a candidate's response is confusing or lacking in the medical expertise expected – then the lead examiner may probe further for clarity, to provide the candidate with an opportunity to show their depth of medical knowledge or to justify their decision making process.

This OSCE will assess the following domains:

- Medical Expertise – 60%
 - Assessment (20%)
 - Treatment (40%)
- Prioritisation and decision making – 40%



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Lead Examiner Script

The questions are standardised for this SCBD. They are to be delivered in the same manner to all candidates.

If a candidate's response lacks clarity– then the lead examiner may probe further or ask the candidate to justify their decision making process.

Patient Assessment (if requested by candidate as the SCBD progresses)

- History:
 - History of hypertension and diabetes mellitus type 2 (diet controlled)
 - Meds – Perindopril 10mg daily
 - Nil known allergies
- Examination
 - Normal heart sounds, no murmurs
 - JVP not raised
 - Lung fields clear
 - No peripheral oedema
- Investigations: Bedside ECHO – no pericardial effusion

Section 1-ECG interpretation (1 minute)

“Please interpret this ECG, which was taken on the patient’s arrival to the ED”.

If the candidate gives a diagnosis only e.g. STEMI, then say:

“Please describe the features of the ECG that lead you to this conclusion”.

Section 2 – AMI & hypotension management (2 minutes)

“What are your immediate priorities for this patient’s management? Please explain why.”

Mx of STEMI – Urgent Cath lab / ASA / second antiplatelet agent / heparin or enoxaparin / analgesia.

Optimise haemodynamics – IVF. Avoid nitrates and β -blockers, exclude pulmonary oedema / murmur.

Anticipate progressive heart block – role of positive chronotropes, pacing.

Anticipate further VF – prepare appropriate treatment modalities. Optimise electrolytes.

Preparation for transport to cath lab.

If hypotension management is not mentioned please say: “His HR is 55, his BP is 85/45”.



Section 3 – Recurrent VF, airway management (4 minutes)

“The cardiac cath lab has been called and will be ready in 20 minutes.”

“Despite implementing your management, the patient has two further episodes of VF which respond to defibrillation. Their vital signs are now:

HR 55/min

BP 80/40 mmHg

RR 18/min

SpO₂ 96% (6L/min O₂)

GCS 13 (E4, V4, M5) and combative”

(hand them sheet with these Obs on it as you say this).

“What will you do now and why?”

Candidate should outline

- Management of recurrent VF
 - *If the candidate does not cover electrolyte or drug therapy say*
“You’ve mentioned the arrhythmia. Are there any other medical therapies you would consider?”
Electrolyte management – when mentioned hand the candidate the VBG.
 - K⁺ minimum of 10 mmol/kg over 30 mins given recurrent VF
 - Mg⁺⁺ 10 mmol over 30 mins also appropriate given low K⁺
 - Amiodarone or lignocaine (lidocaine) load
 - Appropriate level team to transport to lab
- Further management of hypotension with initiation of inotrope and / or chronotrope
- Recognition that patient is no longer obeying commands and will need to be intubated for urgent RSI
- Description of key features of approach to RSI in this patient

If the candidate’s decision re intubation is not justified, then please ask:

“Why are you intubating this patient?”

If the candidate does not make the decision to intubate the patient then say:

“The Interventional cardiologist has asked you to bring them up in 15 minutes, they tell you that they will have to lie flat and still for 30 minutes for the procedure”

Once the Candidate has made the decision to intubate the patient:

“What are the key aspects of the intubation?”

- Pre-oxygenation (NIV or BVM, high flow nasal O₂)
- Cardiovascular stabilisation / support prior to induction (adrenaline bolus and / or infusion)
- Appropriate induction drug selection (e.g. ketamine 0.5-1mg/kg, fentanyl + propofol up to 1 mg/kg)



Patient Assessment (if requested by candidate as OSCE progresses)

- History:
 - History of HT and DM type 2 (diet controlled)
 - Meds – ACE inhibitor
 - Nil known allergies
 - Examination
 - HS dual, no cardiac murmurs, no CCF, JVP not raised,
 - Investigations: Bedside ECHO – no pericardial effusion
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OSCE 2 – Props

- ECG 1 - Inferior AMI (with RV involvement)
- Vitals after successful defibrillation (written prop)
- VBG after VF



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Vitals after successful defibrillation

HR	55 bpm
BP	80 /40 mmHg
RR	18 /min
SpO ₂	96 % (6L /min O ₂)
GCS	13 (E4, V4, M5)



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Initial VBG

		Reference range
pH	7.29	(7.35 – 7.45)
pO ₂	33 mmHg	(80 – 100)
pCO ₂	50 mmHg	(35 – 45)
HCO ₃	20 mmol/L	(22-27)
BE	- 3.1	(-2.5 - +2.5)
Lactate	4.1 mmol/L	(< 2.0)
BSL	7.9 mmol/L	(5.5 – 8.0)
Na ⁺	138 mmol/L	(135 - 145)
K ⁺	3.4 mmol/L	(3.5 – 4.5)



CANDIDATE
barcode

EXAMINER
barcode

Domain	Criteria and comments	Marking rules to be 'at a minimum level of competence' (i.e. 'just at standard')	Criteria met / not met
Med Ex: Assessment (20%)	- Identify Inferior STEMI (ST elevation in inf leads with reciprocal lateral ST depression) - RV involvement – need to identify 2 features to justify RV involvement (STE V₁ +/- depression in V₂, STE III>II, look for R sided STE V_{3R}-V_{6R}) - Prolonged PR (1st degree heart block) - Cardiogenic shock	Identify Inferior STEMI and RV involvement	
Med Ex: Treatment (40%)	- Mx AMI – activates cath lab / aspirin / prasugrel or equivalent / heparin / supportive care e.g. analgesia - Initial Mx hypotension. Modifications with RV involvement – preload dependent – IVF crystalloid bolus, may need inotropes. Avoids nitrates and β-blockers. Considers / excludes LVF, new murmur, heart block. - Conduction disturbance – anticipates need for positive chronotropes, pacing. Prepares for VF, optimised electrolytes, amiodarone or lignocaine (lidocaine). - Approach to intubation 1)Pre-oxygenation sitting. NIV 100% or BVM. PEEP. Role for non-apnoeic RSI, and/or apnoeic oxygenation. 2)Circulatory support: Ideally initiate adrenaline (epinephrine) pre-induction either infusion or 50 -100mcg bolus (maximum safe dose in view AMI) / metaraminol bolus 0.5-2 mg / noradrenaline (norepinephrine) peripheral. 3)Induction drugs: ketamine 0.5 -1 mg/kg preferable. Other combinations may be accepted. Low dose propofol maximum 1mg/kg or 100mg & fentanyl - Recurrent VF: Amiodarone 300 mg load / Lignocaine acceptable. Correct hypokalaemia & expedites PCI	Mx AMI – activates cath lab / aspirin + 1 of clopidogrel/ ticagrelor/prasugrel OR heparin Mx hypotension - IVF crystalloid bolus - No nitrates or β-blocker Approach to intubation - Preoxygenation: BVM, NIV or 15 l/min NP AND 15 l/min NRB. - Circulation: Use of inotrope/pressor pre-induction - Safe drug dose as per left Recurrent VF: - Give amiodarone 300mg/5mg/kg or Lignocaine - Corrects potassium to > 4 mmol	



Prioritisation & Decision Making (40%)	<i>Comment: Prioritising early reperfusion is the key priority in this scenario, and should be demonstrated throughout the station.</i> - Actively recognises that failure to respond to treatment / deterioration with recurrent VF and agitation signifies need for intubation for PCI - Recognises with prompt that this patient will not be able to lie still & flat for PCI, hence intubation required. <i>If requires prompt from Cardiology re lying flat can NOT score more than 'above minimal standard' for this domain.</i> - Describes practical approach to hypotension + intubation which is achievable in 20 minutes - Use of peripheral inotropes ideal - Does not mandate CVL insertion prior to inotropes/ intubation (= not feasible) - Efficient optimisation of patient for intubation in < 20 mins. Pre-oxygenation/ circulatory stabilisation/ drug doses - Able to respond decisively when patient has further VF arrest in the ED - Amiodarone (5mg/kg) or lignocaine (1mg/kg) (load over 20 mins or less) - Correct electrolytes: K to > 4.0. Treats hypokalaemia with minimum of 10 mmol/30 mins. Empirically gives Mg++ 10 mmol in view hypokalaemia. - Anticipates patient may need pacing - Endeavours to expedite cardiac cath / updates the cardiologist re: reperfusion - Transport equipment / monitoring - Anaesthetist for cath lab	- Recognises need for intubation and ventilation. - Outlines with minimal detail practical approach to correct hypotension + intubate safely within 20 minutes - Able to respond decisively when patient has further VF arrest in the ED - Prioritises correction of potassium - Amiodarone or lignocaine loading for recurrent VF	
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