

Station Number 3: Standardised Case based discussion

Candidate Instructions

This is a 7-minute standardised case base discussion

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. For example, when discussing drugs describe doses, when discussing investigation or management provide reasons why you chose that approach.

Case information:

You are the ED consultant in an urban district Emergency Department.

You have just commenced a day shift on a weekday morning. The nurse in charge requests you to attend the resuscitation cubicle to assist the night shift team with a patient who has just arrived.

The brief handover received from paramedics was of a 25 yo female, with a past medical history of depression, brought into ED in cardiac arrest. She was initially obtunded and hypoxic after having been found with altered conscious state by a flatmate.

On arrival into the resuscitation cubicle the patient had CPR ongoing and ventilation being provided via a BVM with a guedel in situ. The team is about to perform a rhythm check.

Your task is to:

- Outline your initial management steps on entering the resuscitation cubicle
- Answer any further questions from the examiner as the scenario evolves

This OSCE will assess the following Domains:

- Medical expertise 80%
 - Assessment 40%
 - Management: Treatment and resuscitation 40%
 - Prioritisation and decision making 20%
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Examiner Instructions

The questions 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.

Section 1 – Initial assessment - allow up to 2 mins

“Please outline your initial assessment and management on entering the resus cubicle”

- **Assume leadership**
- **Ensure good quality CPR** at 100 bpm, depth 1/3 of chest, 30:2
- Ensure pads are on
- Call for extra help/ relieve night shift
- **Rhythm check** with COACHED or similar
- **Identify rhythm as PEA**
- **Dump charge and resume compressions** with new operator or external compression device

Section 2 Reversible causes- minute 2-4

***“The rhythm check is complete and the team begins another cycle of CPR
Outline your priorities for the pts management over the next cycle.”***

Candidate should explore sensible reversible causes and management of the arrest, and seek to gain further collateral history.

Here a differential diagnosis will be assessed or at least address the relevant 4 H's and T's.

For a young patient with minimal history and predominantly hypoxic PEA should address reasonable differentials.

Hypoxia – suggest adequate BVM +/- adjuncts +/- 2 handed technique and progress to plan for more definitive airway – either LMA or ETT (planned immediately or for next rhythm check)

PE – look for signs of DVT, bedside echo in next rhythm check; primary cardiac unlikely

Tension pneumothorax – assess chest wall movement, bedside US for lung slide

Toxins – possible OD given history depression, TCAs

Hypovolaemia – push fluids

Hypo/hyper k/glycaemia – **request gas**

Tamponade – unlikely but can assess on US

Paramedics still in the building and will return to clarify history

Prompt if investigations not specifically mentioned

“Which investigations will you prioritise?”

Section 3 Interpret gas and management of Methaemoglobinaemia – 4-5 minutes

Give candidate the VBG

“A resus nurse has obtained further IV access and taken a venous blood gas.

Identify the major abnormalities and important negatives. Outline how this will affect your management?”

- **Severe methaemoglobinaemia**
 - **No significant electrolyte abnormality**
 - Mild hyperglycaemia - stress response
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Methaemoglobinaemia as likely cause for arrest

Potential causes for MethHB:

- Dapsone
- Local anaesthetic (unlikely in this situation)
- Amyl nitrite (“poppers”)
- Mothballs (Camphor)

Management with 1-2mg/kg of methylene blue

Consideration of ECMO

(May discuss relative contraindications to ECMO here)

Section 4 - Decision to terminate resuscitation - 6-7 mins

“The paramedic who brought the pt in has completed their paperwork and returns to the resus cubicle. They advise that the initial rhythm was non shockable, and they had performed CPR for 65 minutes prior to arrival in ED.”

What factors will you consider when determining when to cease resuscitative efforts?”

If ECMO is mentioned - it is not available to you in this hospital/case

- Identify prolonged down time
- Assess pupils - Fixed and dilated pupils
- Assess cardiac activity – if asked no cardiac contractility on bedside USS
- Profound acid base disturbance
- ECMO contraindicated given prolonged downtime, severe acidosis

Ask candidate to make a decision for this case “What would you do in this situation?”

“Prompt - Is there anything else you will assess to help your decision making?”

Should identify likely un-survivable (in the absence of advanced supports eg ecmo), and if survivable very high likelihood of very poor neurological outcome

- Candidate should have a good knowledge of the factors for and against stopping Resus
- Should advocate that further attempts at resus should be ceased
- Should identify need to inform coroner
- Should mention plan for debrief for staff (strong candidate may acknowledge that this may happen at another time, given involvement of night shift, time that enables as many as wish to attend as possible)

Bonus question if time available

“Resuscitation was ceased and the patient died in ED. Describe the principles of debriefing and the benefits to the team”

Principles

Safe space, invite whole team, not compulsory, offer cold debrief for particularly traumatic cases or if at the end of the shift.

Summarise case

Things that went well

Things that could improve

Key learnings, points to action

Ask how staff are, offer support

Benefits

Allows team to reflect on performance

Highlights any deficiencies in team/equipment/systems/processes

Provides a blame-free, safe environment for team to speak up about concerns or misgivings

Anything sensible

Venous Blood Gas

pH 6.89 (7.35 - 7.45)

CO2 61 (35 - 45 mmHg)

pO2 126 (80 - 100 mmHg)

BE -21 (-3.0 - 3.0 mmol/L)

Na 147 (135-145 mmol/L)

K+ 5.5 (3.5 - 5.5 mmol/L)

Cl 111 (95 - 110 mmol/L)

Glu 16.8 (3.6 - 7.7 mmol/L)

MetHb 94.4 (<1.5 %)

Lac 23 (0.2 - 1.8 mmol/L)

Examiner name(s):

Candidate Name:

OSCE Station:

For each domain below select the **ONE** option which best represents this candidates performance. The option '**Minimum level of competency displayed**' represents the minimum level of safe independent practice as a junior FACEM in Australasia.



Response Category	Percentage
Very poor	25%
Well below minimum standard	20%
Below minimum standard	15%
At minimum standard	10%
Above minimum standard	10%
High standard	10%
Very High standard	10%

Please rate all the following domains:

[illegible]

GLOBAL ASSESSMENT RATING

Please rate this candidate's OVERALL performance in this OSCE:

In terms of a **safely practising junior emergency physician** please select the ONE option which best reflects this candidate's performance in this station

**Well
Below
Standard**

☐

**Below
Standard**

☐

**Just at
Standard**

☐

**Above
Standard**

☐

**Well
Above
Standard**

☐

	Ref. Range	Date
FiO2 (Blood Gas).	Latest Units: %	21
Temperature (Blood Gas).	Latest Units: Celsius	37.0
pH (Blood Gas).	Latest Ref Range: 7.35 - 7.45	6.89 (LL)
pCO2 (Blood Gas).	Latest Ref Range: 35 - 45 mmHg	61 (H)
pO2 (Blood Gas).	Latest Ref Range: 80 - 100 mmHg	23 (L)
Std Bicarbonate.	Latest Ref Range: 22 - 30 mmol/L	Unavail
Base Excess (Blood Gas).	Latest Ref Range: -3.0 - 3.0 mmol/L	-21.5 (L)
O2 Saturation (Blood Gas).	Latest Ref Range: 95 - 100 %	Unavail
Haemoglobin.	Latest Ref Range: 115 - 150 g/L	139
Oxyhaemoglobin (Blood Gas).	Latest Ref Range: 94.0 - 97.0 %	-0.7 (L)
Reduced Hb (Blood Gas).	Latest Ref Range: <5.0 %	2.0
Carboxyhaemoglobin (Blood Gas).	Latest Ref Range: 0.5 - 1.5 %	4.3 (H)
Met Hb (Blood Gas).	Latest Ref Range: <1.5 %	94.4 (HH)