



AUSTRALASIAN COLLEGE
FOR EMERGENCY MEDICINE

2016.1B FELLOWSHIP CLINICAL EXAMINATION (OSCE)

STATION 1 SIMULATION DOUBLE STATION

1. STATION SUMMARY

This station is a simulation double station. The candidate has been called about an incoming trauma – a 24 year old man involved in a motorcycle crash. The candidate is to prepare the resuscitation team for this patient's arrival, receive clinical handover from the ambulance crew, lead the team's ongoing assessment and management and make appropriate referrals.

2. CANDIDATE INSTRUCTIONS

This is a Simulation Double Station.

You are the Consultant on duty in a small regional ED, it is 2000hrs on a weekday. You have been called about an incoming trauma.

Your Setting:

- Regional ED
 - 2 hours by road from the nearest trauma centre
 - Aeromedical Retrieval response time 25 min
- ED staff: 1 experienced Registrar, 2 ED nursing staff
- On site: radiographer, standard lab facilities, blood bank
- On call: General surgeon, CT radiographer (30 min response time). No orthopaedic service

The Patient:

Ambulance control ring to pre-notify you of a 24 year-old man involved in a motorcycle crash. He was thrown from his motorcycle after losing control at a road bend. He was wearing a helmet. Ambulance personnel arrived at the scene within minutes of the crash. The patient is alert, complaining of lower abdominal pain. His vital signs are GCS 15; HR 130/min; BP 80/50 mmHg; O₂ Sats 97% on air, RR 24/min. The patient is not intubated. Estimated time of arrival is 3 minutes.

Your tasks are to:

- Prepare your resuscitation team for this patient's arrival
- Receive clinical handover from the ambulance crew
- Lead your team's ongoing assessment and management
- Make appropriate referrals

This OSCE will assess the following domains:

- Medical Expertise
- Teamwork and Collaboration
- Prioritisation and Decision Making

3. ROLE-PLAYER INSTRUCTIONS

This adult trauma scenario involves a mannequin, two competent nurse confederates, one competent registrar confederate, standard airway equipment, and an iPad monitor for patient vitals. Standard fluid/ blood giving sets and a warmer will be available. A white board will be used to record patient medications/orders, infusions, fluids etc. Each of these will be recorded by one of the nurse confederates.

The candidate will be expected to prepare the resuscitation team in a regional ED for the arrival of a young male patient involved in a high speed motorbike accident before a paramedic (role played by one of the examiners) arrives and gives handover. The patient requires a standard trauma assessment. He has a severe pelvic fracture with ongoing bleeding resulting in persistent hypotension (haemorrhagic shock). The patient requires initiation of blood products in a 'massive transfusion protocol' situation. The patient requires transfer to a Tertiary trauma centre. The Candidate will discuss the patient with the General Surgeon who arrives. The scenario finishes with preparation to transport the patient by helicopter to the Trauma centre.

Your role as a registrar:

- You are a competent Emergency Department registrar with all resuscitation and trauma skills
- You are competent in performing a primary and secondary survey and will convey the findings to the candidate.
- Your role is important in moving the scenario in the correct direction in a timely manner
- You provide information to the candidate about examination findings
- You give prompts where appropriate about changes in patient condition.

Your role as a nurse:

- You are a competent ED nurse
- You will confirm all doses/ orders with the candidate, where appropriate you will write on the whiteboard
- Where observations or the situation changes you will convey this information.

However

- You will not show initiative or suggest solutions/problems e.g. If the BP is low you will merely state *'The BP is 75'* and try to avoid statements that tend to suggest that there is a problem needing fixing *'The BP is still low at 75, should we do something about that'* or potential solutions *'Would you like to give some fluid for that?'*. This can be difficult as it is the opposite of good nursing practice.
- If a candidate has mentioned a particular treatment/management earlier in the scenario which has not actually been delivered it is reasonable to give a reminder e.g. *'What did you say earlier about the BP?'* or *'should we give the x now?'*

Stage 1: Preparation

- The Candidate will arrive and begin planning for the arrival and assign roles
- You can reinforce important information about your Regional Hospital if asked
 - General surgeon + Anaesthetist, no Orthopaedics
 - Trauma centre: 2hrs by car, helicopter retrieval 25mins once activated
 - O-ve blood/ Blood products/FFP/etc available
 - Radiographer here for Xray, can do FAST
 - Standard blood tests available, blood gas analyser in ED
 - CT radiographer call in – 30 min response time
- You may ask candidate the following prompts (x1 each)
 - *'What jobs would you like me/us to do?'* if no tasks assigned
 - *'Is there anything you would like me/us to get ready?'* if no requests made

- 'Is there anyone we need to call?' if no calls made

Stage 2: Arrival

You competently perform primary and secondary survey. Nursing staff can obtain access and take bloods. You communicate your findings to the Candidate.

A – Patent and protected. GCS 15/15. C/o severe pain in lower abdomen and back.

B – RR 28, SaO₂ 95% RA, good bilateral air entry, no pain on palpation chest, no subcutaneous emphysema.

C – Pale, sweaty, shut down. Palpable radial pulse. HR 130/min, BP 80/40. Tender lower abdomen. No binder in situ. No femoral fractures or external bleeding.

D – Moving both legs. Can feel his feet.

E – Temperature 35.9 degrees. Clothes being removed.

Temperature management is a critical competency – the initial temperature should be communicated clearly once to the candidate (there is a reminder later on).

Stage 3 Initial Assessment and Management

Candidate should coordinate the following:

- Analgesia – ongoing aliquots, pain gradually improving.
- IV access – Tell them 'He has an 18 g L ACF', they should suggest 1-2 16g or larger cannula which you put in rapidly.
 - Ask them what bloods they wish taken: Should specify VBG, X-match, FBE, UEG/LFT, coag profile
 - Fluid loading
 - If they do not specify ask them what fluid/rate
 - They should specify warming of all fluid especially products
 - If they fail to there will be another reminder of their Temp later
- CXR/ pelvis Xray/ FAST scan
 - Ask 'What do they show?'
- Bloods including VBG.
 - Ask 'What does the gas show?'
 - Must explain:
 - Metabolic acidosis/ elevated lactate/ base deficit due to shock
 - Respiratory compensation
 - Hb low (early Hb –predilution)

If necessary ask 'What's the CO₂...what's the Hb?'
- Pelvic binder placement
 - You will indicate that your primary survey reveals a very tender lower abdomen and pelvis
 - You will ask after the pelvis xray is done 'What does it show?' and 'Do we need to do anything for the pelvic fracture?'
 - If you are asked to place a binder you will ask the candidate to check that you are doing it correctly.
 - If the candidate instructs you to place the binder early then do so and tell the candidate 'The xray was taken before the binder was placed'
- Secondary survey: Candidate should ask you to perform. Convey the following.
 - No head or facial injury, no neck pain.
 - No upper limb injuries.

- Tenderness and bruising lower abdomen.
- No long bone # in legs. Pulses present. Sensation and power seems intact.
- Ask them '*Should we do a log roll?*' if they have given no instruction. They may respond
 - No, concern re pelvic #
 - Yes, with caution re pelvic #

Stage 4: Ongoing Shock

The patient will not have a sustained response to fluid loading. They will remain pale, clammy and tachycardic.

It is expected that the candidate will give them 2-4 units of blood before transitioning to MTP principles (using other blood products) and a lower BP target

- HR will remain 130/min
- BP will respond to loading with blood to reach SBP 90 initially but will then fall to 80-85. Pulse will be palpable with this.
- If do not give adequate fluid initially then will become hypotensive to SBP 70 and become less responsive (HR 140), they will lose their radial pulse.
- BP will drift down below 80 requiring further blood on several occasions.
- Notify the Candidate any time the BP drops
- After 1 bag of blood is given you/nurse will indicate that T is 35.5 C if blood warmer not being used. If warmer is used T will stay at 36.

If the candidate moves towards using other blood products/MTP ask them:

- '*What is the plan with the products?*'
- '*What BP are we aiming for?*'

Stage 5 Preparation for Transfer (after Candidate discussion with Surgeon RP)

If necessary ask the candidate '*What do we need to do for transfer?*' If the above conversation regarding blood products/targets has not occurred it should occur now.

If time permits ask regarding the need for:

- Intubation (the patient has a GCS of 15)
 - '*Will he need intubation for transfer?*'
- Arterial line
- IDC – '*Should we put in an IDC?*'

4. EXAMINER INSTRUCTIONS

Examiners have 2 roles:

1. Ambulance handover (at 2-3 minutes)
2. General Surgeon – discussion with candidate regarding patient status and decision making regarding imaging / transfer (at 13 minutes)

Ambulance Handover in IMIST AMBO Format (Examiner Role-play)

Identity – 24 year old male, Jack Smith. **Mechanism** – MBA at 80 kph, helmeted, failed to make a bend on slippery road, thrown from bike onto grass. Witnesses called ambulance who arrived within 10 minutes. **Injuries**: Alert, lying on the grass, complaining of lower abdominal, back, and pelvic pain. Airway / Chest normal. No upper or lower limb injuries noted. No neck or thoracic pain. **Signs**: GCS 15/15, HR 130, BP 80/50, looks unwell, pale and clammy. RR 24, SaO₂ 97% RA, bilateral equal air entry. No other injuries apparent. **Treatment**: 18 g IV L ACF, 500 ml N Saline, 5 mg morphine. C-collar applied. **Allergies**: No allergies. **Medications**: No regular meds. **Background**: No medical history or **Other** details of note.

If asked, the Ambulance will say 'Yes, he was moving his legs' and 'Sorry no, we haven't placed a binder'

Scenario Progress Summary

Jack has an unstable pelvic fracture with severe persistent (?) arterial bleeding. He has several superficial abrasions but no other injuries. He presents in haemorrhagic shock and fails to have a sustained response to fluid loading. Ongoing blood products are required. Investigations reveal an open-book pelvic fracture as the only apparent source of his hypotension. Early transfer to tertiary trauma centre for definitive management is indicated.

Key Actions Expected from Candidate

Preparation: Trauma team activation and preparation of receiving team in small, regional ED. Role allocation. Anticipate needs. Prepare fluids, drugs, equipment. Pre-notification of other services: blood bank, radiology, surgeon. Consider suitability of transfer to tertiary centre after initial assessment and management.

Initial care:

- Directs and asks for results of primary survey. Reassesses regularly.
 - Airway OK and stable. Maintain C-spine collar.
 - Breathing OK. SaO₂ 97% RA- may provide high flow oxygen.
 - Circulation is focus of concern. Signs of hypovolaemia present. Establish 2 large bore IV access. Take bloods for comprehensive panel, including cross-match. Fluid resuscitation: Rapid infusion of crystalloids initially reasonable however early use of blood products indicated (particularly once pelvic # seen). Avoid hypothermia – active warming of blood products mandatory. No external haemorrhage seen.
 - Neurological: No disability, low back pain indicates need to assess for lower limb neurology (?spinal injury) .
 - Exposure and environmental control. Maintain normothermia.
- Initial treatment
 - Place Pelvic binder
 - IV analgesia (fentanyl / morphine), +/- antiemetics.
 - IDC at some stage (if no signs or urethral trauma eg.blood at urethral meatus etc.)
- Preliminary imaging
 - CXR, pelvis Xray, C-spine
 - FAST scan: Radiographer performs: negative result. Remains –ve if repeated.
- Initial bloods: X-match, VBG, FBE, UEG/LFT, coag profile

- VBG interpretation (*Registrar to prompt for details*)
 - Metabolic acidosis/ elevated lactate/ base deficit due to shock
 - Respiratory compensation
 - Hb low (early Hb –predilution)

Ongoing care:

- Secondary Survey: Directs registrar to complete examination. Log roll with caution or omit, given pelvic injury. Candidates should acknowledge this limitation.
- **Key aspect: Recognition of uncontrolled haemorrhage.** Recognising persistent haemorrhagic shock despite fluid therapy. BP never improves significantly with fluid loading, VBG shows significant acidosis. BP will fall if inadequate fluids given. Early recognition of need to progress to blood / blood products. Awareness of potential need for activation of Massive Transfusion Protocol (MTP). MTP will vary between candidates, but they are expected to specify PC, platelets and FFP in roughly equal ratios. Recognition of ongoing haemorrhage with reasonable parameters/end points recognising that is early in resuscitation process. Will advise team re these as part of 'preparation for transfer'.
- **Disposition/Management:** Surgeon en route, CT radiographer potentially also. This patient has a major pelvic fracture with ongoing hypotension. There is no injury obviously amenable to laparotomy – the candidate should recognise that expedition of transfer to tertiary centre for possibility interventional radiology is in his best interest. CT will delay transfer. Nursing staff will ask '*shall we activate an aeromedical retrieval?* They can be here in 25 minutes'. Candidate is expected to articulate in a conversation with the Surgeon the key problems, and decide if the patient should have urgent CT, emergent laparotomy, or urgent transfer to tertiary service.

General Surgeon – Candidate conversation (Examiner role play)

This can occur as 'face-to-face'. Key aspects are:

- Summary and priorities

"What is the situation?"

"What do you think needs to happen"

Candidate should decide that patient needs urgent transfer to the nearest tertiary centre for potential angiography etc. If they do not explain this then ask '*Why do you think that?*'. The retrieval team can be here in 25 minutes. If candidate summary and plan is appropriate then agree. The Candidate should then have approximately 2 minutes to make further plans with his team.

If the candidate is discussing CT scanning you should say – '*That always takes a while to perform here at night....should we try?*'

If they suggest a laparotomy ask them '*What do you think we will be able to fix?*' If necessary ask them '*The FAST was –ve wasn't it?*'. If they suggest pelvic packing say '*I think we'd be better leaving the pelvis alone*'.

- **Preparation for transfer**
 - Blood products: Plan for ongoing use/ targets
 - Intubation
 - IV access, art line, monitoring, IDC, other

Key Assessment Issues:

Structured approach to major trauma, teamwork and leadership, effective communication, fluid resus and MTP, decision making re further imaging (or not), decision making re timing of transfer to tertiary centre.

This OSCE will assess the following domains:

- Medical Expertise
- Teamwork and Collaboration
- Prioritisation and Decision Making

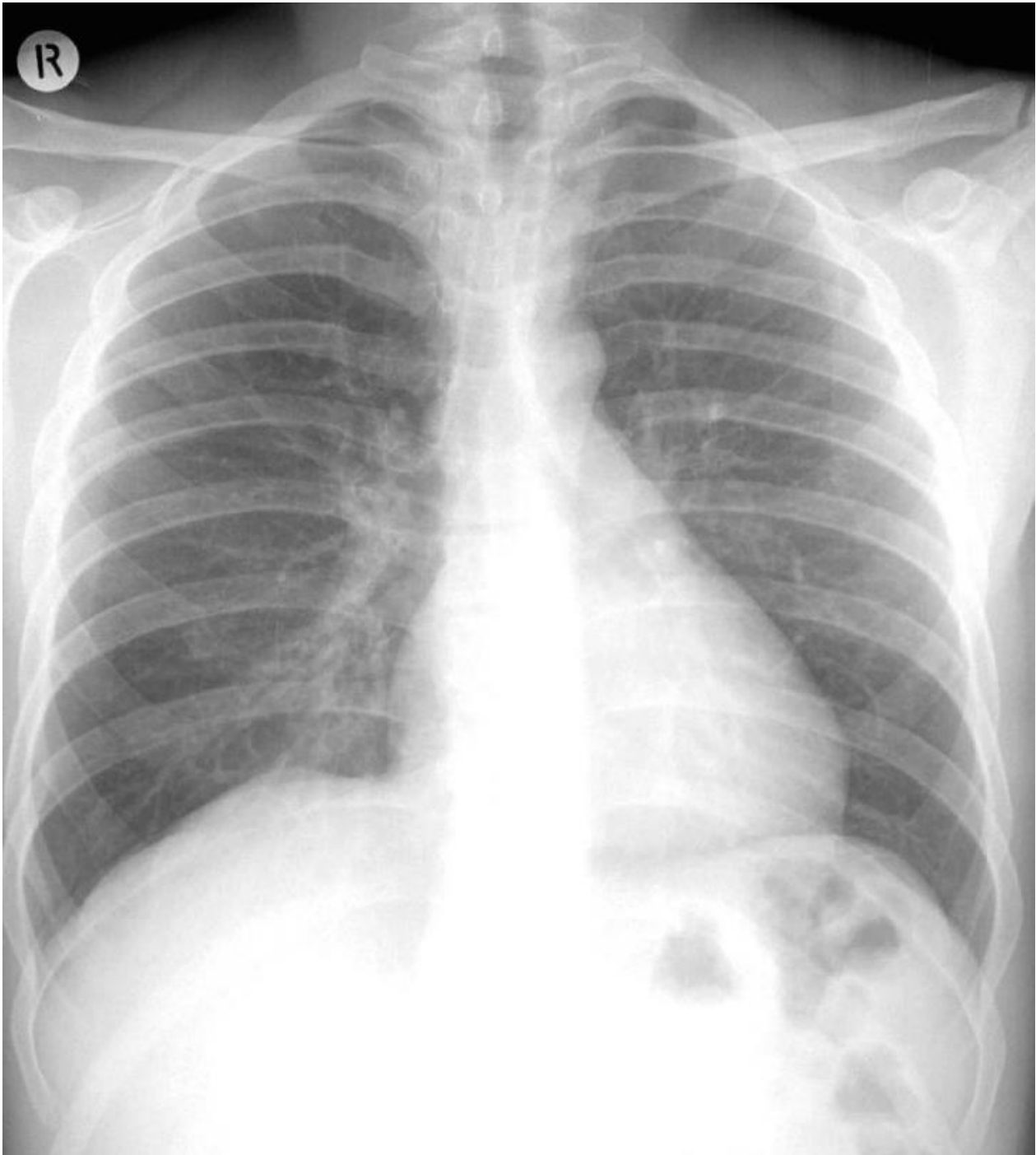
Venous Blood Gas

		Reference range
FiO ₂	On high-flow O ₂	
pH	7.23	7.35 – 7.45
pO ₂	30	30 – 40 mmHg
pCO ₂	25	41 – 57 mmHg
HCO ₃	15	24 – 28 mmol/L
O ₂ sats	70	70 - 75 %
Base Excess	-8.2	(-2.5 - + 2.5)
Na ⁺	145	135 – 145 mmol/L
K ⁺	3.5	3.5 – 4.5 mmol/L
Glu	7.0	6.5 – 8.5 mmol/L
Hb	107	135 – 180 g/L
Lactate	8	(< 2.0)

Pelvis Xray



Chest Xray



Examiner Mark Sheet

CONFIDENTIAL Examiner Rating: OSCE 1

CANDIDATE barcode



EXAMINER 1
barcode

EXAMINER 2
barcode

COMPONENT ASSESSMENT

For each Domain below, select the **ONE** option that best represents the candidate's level of performance. The option **"Minimum level of competency displayed"** represents the level of safe independent practice as a **Junior FACEM** in Australasia.

Very poor level of competency displayed	Well below minimum level of competency displayed	Below minimum level of competency displayed	Minimum level of competency displayed	Above minimum level of competency displayed	High level of competency displayed	Very high level of competency displayed
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Please rate **ALL** the following domains:

Medical Expertise	☐	☐	☐	☐	☐	☐	☐
Teamwork and Collaboration	☐	☐	☐	☐	☐	☐	☐
Prioritisation and Decision Making	☐	☐	☐	☐	☐	☐	☐

Detailed assessment criteria

Please use the following criteria to inform your ratings above

Medical Expertise	- Trauma team preparation: Role allocation. Anticipate needs -Fluids, drugs, equipment. Blood bank, radiology, surgeon. ? need for transfer to tertiary centre. - Primary Survey: Directs structured, prioritised approach to injured patient. - Initial management: IV access large bore. Analgesia. Pelvic binder. - Initial Investigation: CXR, pelvis Xray, C-spine, FAST. VBG. FBE/UEG/LFT. Coag. X-match. - VBG: Metabolic Acidosis c/w hypovolaemic shock, resp compensation. Low initial Hb. - Secondary Survey: Directs registrar. - Circulation: Recognise hypovolemic shock. - Fluid resuscitation: Early use blood products (not > 1 litre crystalloid). Avoid hypothermia – active fluid warming. - Recognise possible uncontrolled haemorrhage in setting pelvic #. Ongoing resuscitation with appropriate target (eg. BP >80, palp pulse). Rational use blood products: MTP (FFP, plt, cryo)
Teamwork and Collaboration	Effective coordination of ED team response, Updates as priorities change - Effective interaction with Surgical Colleague - Preparation for transfer.
Prioritisation & Decision Making	- Preparation for arrival Initial reception of hypotensive trauma patient: Differentiation of cause + management Decision making regarding transfer priority vs investigation such as CT

Page 1 of 2 (please turn over)

Examiner Mark Sheet (cont')

CONFIDENTIAL Examiner Rating: OSCE 1



INFORMATION

Station Summary: This station is a simulation double station. The candidate has been called about an incoming trauma – a 24 year old man involved in a motorcycle crash. The candidate is to prepare the resuscitation team for this patient's arrival, receive clinical handover from the ambulance crew, lead the team's ongoing assessment and management and make appropriate referrals.

EXAMINER NOTES (For examiner reference only)

OSCE 'incident reporting' notes: Please provide details if an issue occurs which may influence this candidate's exam outcome e.g. protocol breach, candidate illness etc.

GLOBAL RATING FOR STANDARD SETTING:

This scale is used in the standard setting process for the OSCE. Please rate the candidate's OVERALL performance in this OSCE. The rating should take into account the entirety of the OSCE, rather than just a sum or average of the individual domain scores. This element MUST be completed for the standard of the examination to be set.

	Well Below Standard	Below Standard	Just at Standard	Above Standard	Well Above Standard
In terms of a safely practising junior emergency physician , select the ONE option that best reflects the candidate's performance in this station:	☐	☐	☐	☐	☐

EXAMINER SIGNATURE:



OSCE 1