

Metro North Hospitals
ACEM Fellowship Trial
Examination
Short Answer Questions
SAQ Paper
2015.2



ACEM Fellowship Trial Examination

2015.2

Short Answer Questions (SAQs)

Examination time: 180 Minutes

Direction to candidates

- 1- All questions must be attempted
- 2- Answer each question in the space provided.
- 3- Enter your name for each question.

SAQ 1:

A 35 year old man has been intubated overnight by the night ED Registrar after ingestion of an unknown quantity of alcohol and methadone.

The indication for intubation was airway protection secondary to low GCS. He had a normal BSL and normal CT brain performed at the time of admission.

He has spent the night in ED as no ICU beds were available. You decide to extubate him in the ED.

His vital signs are:

HR 80
BP 120/80
Spo2 100% on FiO2 40%
Temp 37.2C

1- What clinical criteria must be met to ensure this patient is a candidate for extubation in the ED? (6 marks)

2- What non-clinical criteria must be met to ensure it is safe to extubate this patient in the ED? (5 marks)

3- List the key equipment you would have immediately available prior to extubation of this patient in the ED. (4 marks)

SAQ 2:

A 42 year old male is brought to your Emergency Department following a motor vehicle accident in which he has sustained a suspected spinal cord injury.

1. Compare the clinical features of neurogenic vs. spinal shock?

(6 marks)

Neurogenic shock	Spinal shock

2. He is GCS 15 with no motor function below C5. Outline your management priorities:

(5 marks)

3. The patient is found to have an isolated 3 column injury on CT at the C4/5 level with a burst fracture and suggestion of cord injury. He has no other injuries on extensive and complete imaging.

List 3 options for cervical spine immobilisation in the Emergency Department and the pros and cons for each:

(9 marks)

1.	Pros
	Cons
2.	Pros
	Cons
3.	Pros
	Cons

SAQ 3:

A young man has been involved in a motor vehicle accident. He was driving his car unrestrained when he drove head-on into a wall. He was found by the emergency services unconscious at the wheel, with his neck hyper-extended.

On arrival, he is GCS 13 (E3 V4 M6) with a soft inspiratory stridor and a hoarse quality to his voice.

The rest of his vitals are:

BP 85/60
HR 60
RR 14
SpO2 95% RA
Temp 36.5

Below is a photograph of his neck.



1. Describe the key features on the photo.

(2 marks)

2. List 5 major injuries you would be concerned about in this patient.

(5 marks)

3. List 5 indications for intubation in this patient.

(5 marks)

4. List 3 possible difficulties you would anticipate may occur during intubation of this patient and your planned solution to each.

(6 marks)

Anticipated Difficulties	Planned solution

Questions:

1. Describe 2 significant findings on this ECG and your interpretation (3 marks)

2. Outline the criteria used for question 1 (3 marks)

3. List six management priorities for this patient (6 marks)

SAQ 5:

A 5 day old neonate is brought in to ED by his mother after being discharged post normal vaginal delivery.
Mother reports poor feeding for last few hours and she noticed increase yellow discoloration of his skin:

His vital signs are:

HR 160
RR 32
CRT 2 -3 sec
AVPU Alert

The child is jaundiced.

Questions:

1- List 7 likely causes for his jaundice (7 marks)

2- List 6 red flags during history and examination that warrant admission to the hospital. (6 marks)

3- List 6 investigations required in ED and justify each one of them.

(6 marks)

Investigations	Rationale / Justification

4- This baby did not require therapy and no serious cause was found for his jaundice.

List 4 criteria this child needs to meet for safe discharge :

(4 marks)

SAQ 6:

You are a new FACEM and your director has asked you to look into access block and overcrowding in your emergency department.

Questions:

1. What is the definition of access block? (2 marks)

2. What is the difference between access block and ED overcrowding? (2 marks)

3. List 4 markers of ED overcrowding. (4 marks)

4. List 4 adverse effects of ED overcrowding. (4 marks)

SAQ 7:

A 28 year old female patient presents to your regional ED with a fever and cough. She is 6 months post-op from a double lung transplant for cystic fibrosis.

Her vital signs are:

Temp	38.0
HR	105
BP	120/75
RR	24
O2 sats	91% on RA

Her CXR is shown below.



Questions:

1. Describe the key findings on her CXR. (3 marks)

2. List your differential diagnosis for her presentation.

(6 marks)

3. Outline 5 key steps in your management of this patient in the ED.

(5 marks)

3. List 5 travel-related differential diagnoses for this patient's presentation & state 1 specific investigation you would perform to exclude the diagnosis.

(10 marks)

Travel-related Infection	Investigation

SAQ 9:

A 14 year old girl presents to ED with a rash, as seen in the accompanying clinical photograph. The rash has been present for the last 24 hours. She describes a recent flu-like illness one week ago that included a sore throat for which she was prescribed some medications from the GP.

She appears alert and active.
Her vital signs are as follows:

GCS	15/15
HR	88
RR	16
SpO2	100% in room air
Temp	36.5 C
CRT	< 2
BP	119/80



Questions:

1. Describe the main features present in this photograph. (2 marks)

2. Provide a broad differential diagnosis for her presentation by completing the table below:

(15 marks)

Disease Category	Provide 2 Examples

3. The patient's FBC shows the following:

Hb	112 g/dL	(115-165)
MCV	72fL	(80-100)
WCC	$6 \times 10^9 /L$	(4-11)
Neutrophils	47%	(40-70%)
Lymphocytes	30%	(14-45%)
Monocytes	6%	(4-13%)
Eosinophils	1%	(0-7%)
Basophils	0%	(0-3%)
Plt	$14 \times 10^9 /L$	(150-400)

What is the most likely diagnosis in this patient?

(2 marks)

4. What are the main indications to consider urgent treatment for this condition?

(2 marks)

SAQ 10

A 32 year old man presents to your urban district (non-tertiary) ED with 48hrs of worsening sore throat and fever. At triage he is noted to have difficulty swallowing and to have a hoarse voice. When assessed in a resuscitation area, he has a soft inspiratory stridor, and prefers not to lie down during examination.

His vital signs are:

Temp	38.4C
HR	98
BP	115/75
RR	18
SaO2	98% on RA

Questions:

1. List five clinical features used to assess the severity of a patient's upper airway obstruction

(5 marks)

2. Outline your initial treatment of this patient

(5 marks)

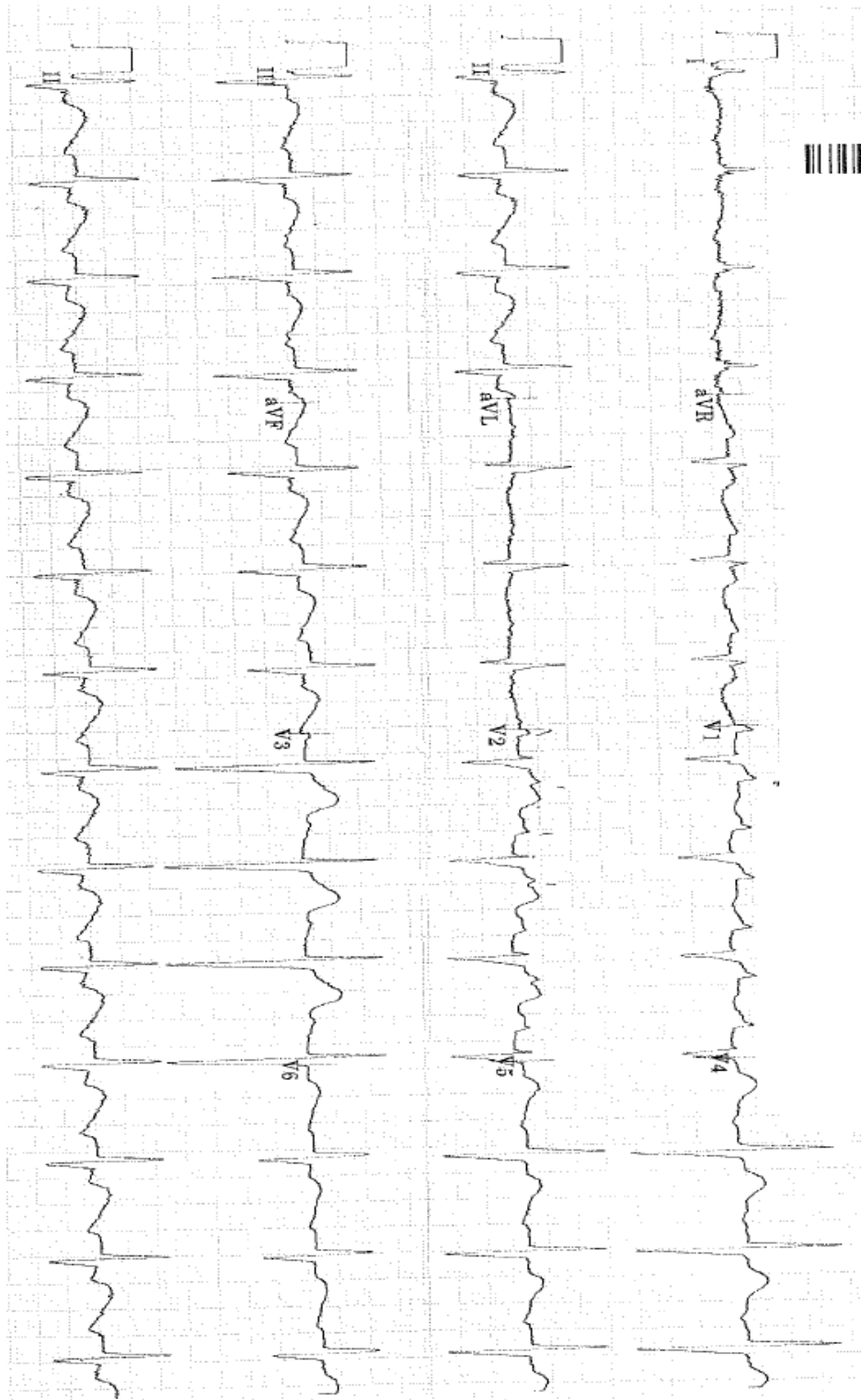
3) This patient is to be transferred to tertiary ENT care. Outline four important considerations when preparing to transfer this patient and provide some details of each. The department is currently well staffed, with good senior cover.

(12 marks)

Consideration	Details

SAQ 11:

A 36 year old lady presents to your ED following a 'fainting episode' while at a school fete. Her ECG is shown:



Questions:

1. Describe the rhythm and give your differential diagnosis?
(3 marks)

2. Describe 3 abnormalities on the ECG and explained how each may lead to syncope.
(6 marks)

Abnormality	Mechanism for causing syncope

3. List the components of the San Francisco Syncope Rule and describe its utility.
(6 marks)

SAQ 12:

You receive pre-hospital notification that a 45 year old male motor cyclist has been involved in a collision with a tree. He has obvious compound lower limb injuries and appears to have lower abdominal pain.

Vitals on scene:

GCS 13/15 (E3, M6, V4)
P 120
BP 95/60
RR 26
O2 Sats 96% 15L NRB

He is 10 minutes away from your tertiary, level 1 trauma centre.

1. List 5 priorities in your preparation for this patient's arrival.

(5 marks)

PRIORITIES

2. Patient arrives and following handover and transfer to hospital trolley his vitals deteriorate.

GCS 12/15
HR 140
BP 82/50
RR 30
O2 Sats 92% on 15L NRB

List 4 potential causes for the patient's deterioration and your intervention for each.

(8 marks)

	CAUSES	INTERVENTION
1		
2		
3		
4		

3. List 3 goals of your fluid resuscitation strategy. (3 marks)

1	
2	
3	

4. Your investigations reveal a pelvic fracture with a disrupted pelvic ring in a vertical shear pattern on pelvic XR . The patient has an unremarkable CXR and a negative FAST scan. The patient remains haemodynamically unstable.

List 1 advantage and 1 disadvantage of operative v angiographic management of the patients pelvic bleeding. (4 marks)

	Operative Management	Angiographic Management
ADVANTAGES		
DISADVANTAGES		

SAQ 13:

A 36 year old man with a history of heavy alcohol use is brought in to your department by ambulance with general malaise.
On examination he is drowsy but rousable to voice, with slurred speech and disorientation.

Temp 37.6
HR 95
BP 100/60
SpO2 97% RA

1. Give 8 possible causes for his confusion. (8 marks)

Some bloods are taken as part of his diagnostic work-up:

Specimen type	Blood	Protein	83	g/L	(60 - 83)		
Sample Appearance	Clear	Albumin	51	H g/L	(35 - 50)		
Sodium	133	L mmol/L	(135 - 145)	Globulin	32	g/L	(25 - 45)
Potassium	3.5	mmol/L	(3.5 - 5.1)	Bilirubin	43	H umol/L	(< 20)
Chloride	87	L mmol/L	(100 - 110)	Bili(Conj)	9	H umol/L	(< 4)
Bicarb.	10	C mmol/L	(22 - 32)	ALP	92	U/L	(53 - 128)
Anion Gap	36	H mmol/L	(4 - 13)	Gamma GT	384	H U/L	(< 55)
Glucose	8.0	H mmol/L	(3.0 - 7.8)	ALT	120	H U/L	(< 45)
Fasting RR	-->	(3.0 - 6.0)	AST	202	H U/L	(< 35)	
Urea	6.0	mmol/L	(2.1 - 7.1)	CK	3490	H U/L	(46 - 171)
Creatinine	177	H umol/L	(73 - 108)	Lipase	32	U/L	(< 60)
Urea/Creat.	34	L	(40 - 100)	OSM(Meas)	298	H mmol/kg	(275 - 295)
eGFR	42	L mL/min/(> 60)					
		1.73m ²					
Comment:	Age: 36 years	I	H	L	KC		

2. Describe the Acid-base status above (including calculations), and give 3 relevant differentials for same. (8 marks)

3. Describe and interpret the patient's LFT's. (6 marks)

SAQ 14:

A 13 year old boy presents to ED with episodes of wheezing and dyspnoea over several weeks and had been diagnosed as having poorly controlled asthma by his GP. Despite commencement of salbutamol and flixotide, his symptoms have not improved over 8 weeks.

He is unresponsive to bronchodilators on arrival in ED.

He was intubated and ventilated due to respiratory fatigue.

His CXR post intubation is shown below:



Questions:

1- Describe 3 positive and 3 negative features in the above CXR:

2- List 5 possible causes for the above radiological abnormalities.

(5 marks)

3- Post intubation, his O2 Saturation remains 75% on FiO2 1.0 and the ventilator keeps alarming with high Peak Pressures. You have excluded a problem with the ventilator.

List the measures you would take in the ED to attempt to improve this situation.

(4 marks)

SAQ 15:

A 24 year old male is brought to your non trauma centre ED by his friends. He is moribund, with no palpable radial pulses and a thready carotid pulse with a HR=155.

His photograph is shown below:



1. Describe 3 important features in this clinical photograph & state the significance.

(3 marks)

2. List 2 ultrasonographic signs that would be consistent with pericardial tamponade?

(2 Marks)

3. List 2 indications for emergency department thoracotomy for penetrating trauma.

(2 marks)

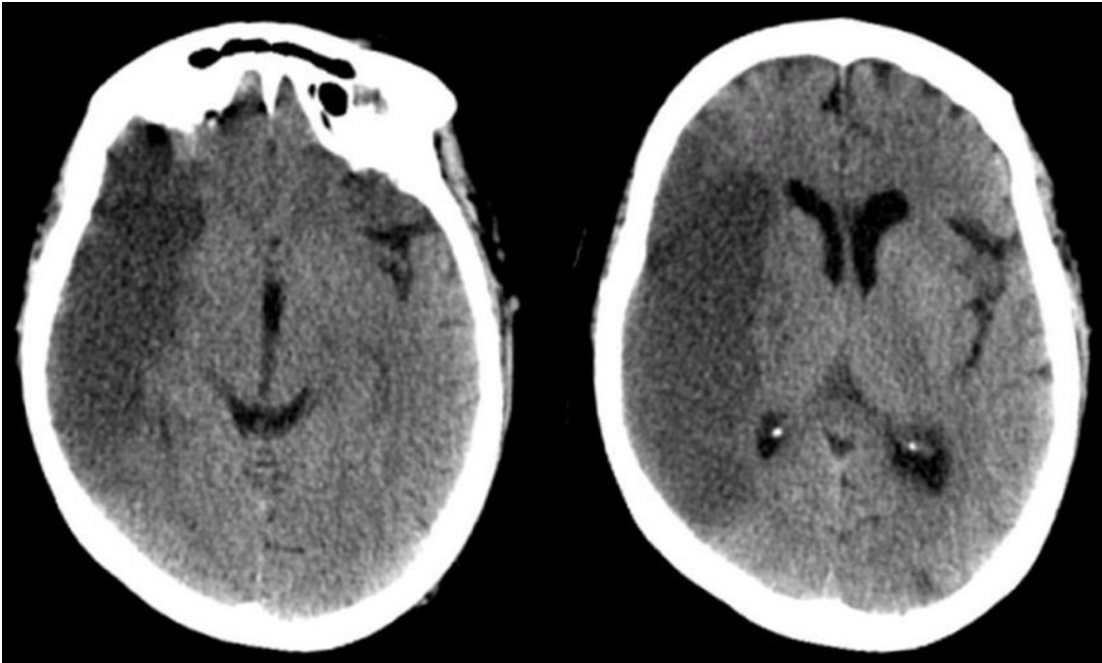
4. List 3 potential complications from resuscitative thoracotomy?

(3 marks)

SAQ 16:

A 72 year old man presents to ED with an acute onset of difficulty walking for 3 hours. He has a history of ischemic heart disease and hypertension. He is left handed.

2 Slices of his non-contrast CT Brain are reproduced:



Questions:

1. Describe the radiological abnormalities on the images. (2 marks)

2. What is the likely diagnosis? (2 marks)

3. What other clinical signs would you expect to elicit on neurological examination? (4 marks)

Your Director of the Emergency Department instructs you to write a guideline for managing these patients who present early to ED with this condition.

- 4. List the key components of this guideline, including details specific to this condition. (10 marks)

SAQ 17:

A 45 year old man presents to your urban district ED with suicidal ideation. He is restless and pacing the floor, and appears to be responding to hallucinations. Shortly after arrival he says he feels better, and wants to leave.

Questions:

1. List six factors of history used to assess his risk of suicide: (6 marks)

2. List four features most useful in differentiating an organic cause from a psychiatric cause of his presentation (4 marks)

3. What pharmacological options do you have to calm him down? For each option, list the dose and route of administration. (6 marks)

Drug	Dose, Route of admin

4. List three factors which influence your decision on whether he can leave.
(3 marks)

SAQ 18:

A 4 week old term baby is brought to the Emergency Department with difficulty breathing and floppiness.

Her vital signs are:

HR	170	/min
BP	60/35	mmHg
RR	24	
Sat	87	% on air
Temp	37.6	°C
CRT	4	seconds

She is lethargic and unresponsive.

Questions:

1- List 6 broad categories of illness that could account for her presentation.

(6 Marks)

2- List your treatment priorities in sequential order.

(4 marks)

3- You decide to intubate this baby.
What 2 sizes of ETT will you prepare?
List your drug selection with dosage:

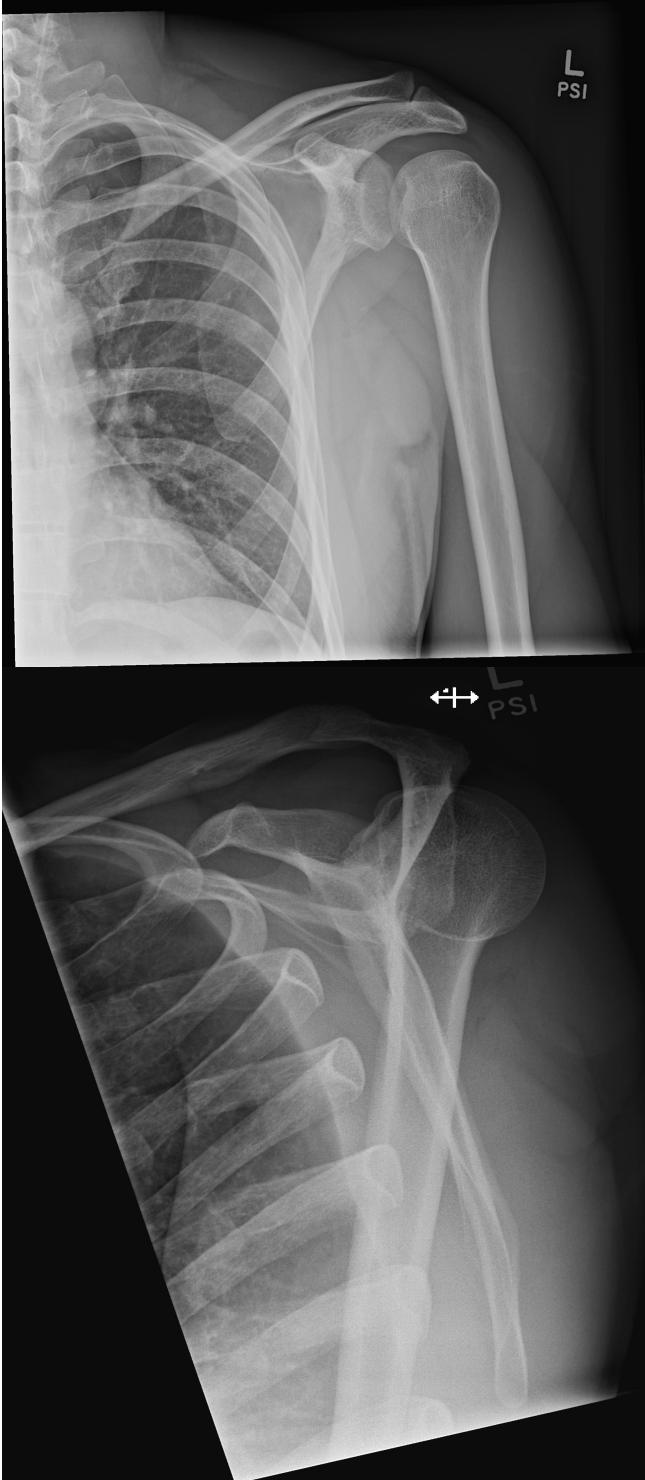
(4 marks)

SAQ 19:

A 28 year old man re-presents to your ED with on-going pain in his left shoulder. He had a fall last night whilst intoxicated and was seen in your ED. He was assessed by one of the Resident Medical Officers overnight and discharged home in a sling.

He has on-going pain and difficulty moving his shoulder.

You review the x-rays that he had overnight:



1. Describe the relevant findings in the x-rays above. (4 marks)

2. Describe your management of this patient's condition. (8 marks)

3. The patient is unhappy that his injury was not dealt with adequately when he presented overnight.
How will you address this situation? (8 marks)

SAQ 20:

A 38 year old female presents to your ED with a referral letter from her GP requesting a blood transfusion for anaemia. She does not have any obvious source of bleeding other than a history of heavy bleeding during periods.

Her FBC is shown below.

Hb 74 g/L
MCV 75
WCC 7.4
Plt 380

Questions:

1. List 8 possible causes for her anaemia. (8 marks)

2. What would be the indications for a blood transfusion in this patient? (3 marks)

3. List 4 early and 4 late complications of blood transfusion.

(8 marks)

Early Complications	Late Complications

4. After a consent discussion with the patient she refuses a blood transfusion as she is concerned about the risks.

List 2 alternative options you could consider in this patient.

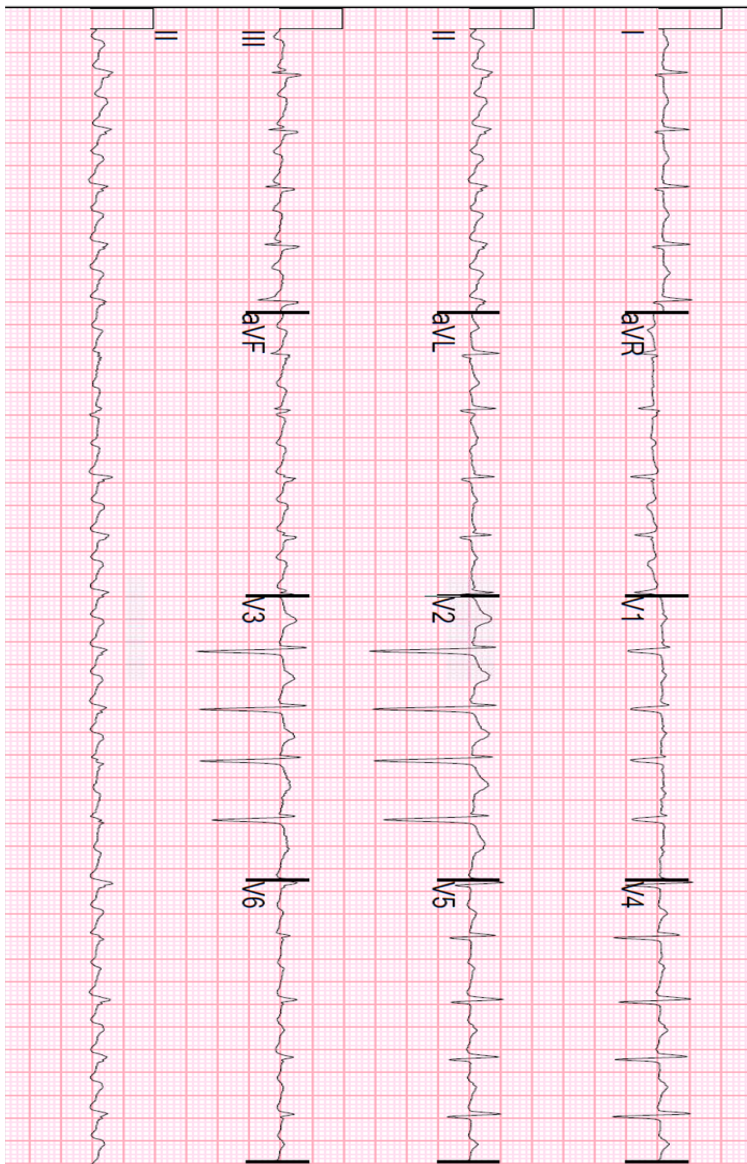
(2 marks)

SAQ 21:

An 82 year old female is referred to ED by her GP for further advice regarding the above ECG. She has had longstanding Atrial Fibrillation and recently stopped taking Metoprolol without her GP's knowledge. She also has hypertension for which she is managed with Irbesartan. She is asymptomatic and has no features of heart failure or any other intercurrent illness.

Her vital signs are:

GCS	15
BP	182/92
RR	20
SpO2	97% in room air
Temp	37 C



Questions:

1. What is the main finding on her ECG?

(2 marks)

2. What factors would be important to consider in deciding on whether to control her rate, or control her rhythm?

(8 marks)

Factors favoring rate control	Factors favoring rhythm control

3. You decide to proceed with rate control and long-term anticoagulation. What factors would you consider in deciding whether she is a safe candidate for long-term anticoagulation?

(6 marks)

SAQ 22:

A 4 year old girl presents to the ED with a painful L arm after falling from playground equipment onto grass. She is maximally tender at the elbow joint with limited ROM due to pain.

Her lateral elbow X-ray is reproduced below.



Questions:

1. Describe the key abnormalities on the X-ray & state the significance.

(4 marks)

2. Name a classification system that is used in this fracture type.
Give details of each category and the implications for your management of his fracture in the ED.

(7 marks)

3. What discharge advice would you give the parents if this child is sent home from the ED?

(5 marks)

SAQ 23:

A 39 year old woman presents to your emergency department complaining of a headache. She is G1 P0 at 36 weeks gestation.

Her vital signs are:

Temp 36.7
HR 90
BP 150/90
SaO2 99% RA

Questions:

1. List 5 key differential diagnoses for this patient (5 marks)

2. List and justify the key elements of your early ED assessment of this patient. (14 marks)

Examination	Justification
Investigation	Justification

Shortly after you begin seeing her, she has a generalised tonic-clonic seizure.

3. List and justify your immediate emergency department management priorities (excluding investigations) for this patient. Include doses where appropriate

(10 marks)

Management	Justification

SAQ 24:

A previously well 35 year old male patient presents to your ED with a week of worsening vomiting, diarrhea and abdominal pain. On the day of presentation to the ED he has become drowsy and confused.

His vital signs are:

T 37.0
HR 110/min
BP 120/80
GCS 12/15 (E3V4M5)

His LFTS and Coag profile are shown below.

			Reference range
Bili	199	umol/L	(14 – 37)
ALP	152	U/L	(20-105)
GGT	97	U/L	(< 31)
ALT	7355	U/L	(<31)
AST	4583	U/L	(<31)
Albumin	28	g/L	(38 – 50)
Protein	65	g/L	(65-85)
Glucose	2.0	mmol/L	(3.0-6.0)
INR	2.1		(0.9-1.3)
APTT	38	(secs)	(27.0-43.0)

Questions:

1. Describe the key abnormalities and interpret these results.

(5 marks)

2. List 6 possible underlying aetiologies for these abnormalities.

(6 marks)

3. List and justify 8 additional investigations would you perform in the ED to assist in your management of this patient.

(16 marks)

Investigations	Justifications

SAQ 25:

A 55 year old male patient presents with a painful, swollen R foot for the past week.

His vital signs are:

Temp	38.1
HR	95
BP	95/50
RR	20
O2 Sats	96% RA



Questions:

1. Describe the pertinent findings on this X-ray & give them most likely diagnosis. (3 marks)

2. What are the likely organisms causing this condition? (3 marks)

3. List 5 groups of patients that may be predisposed to developing this condition. (5 marks)

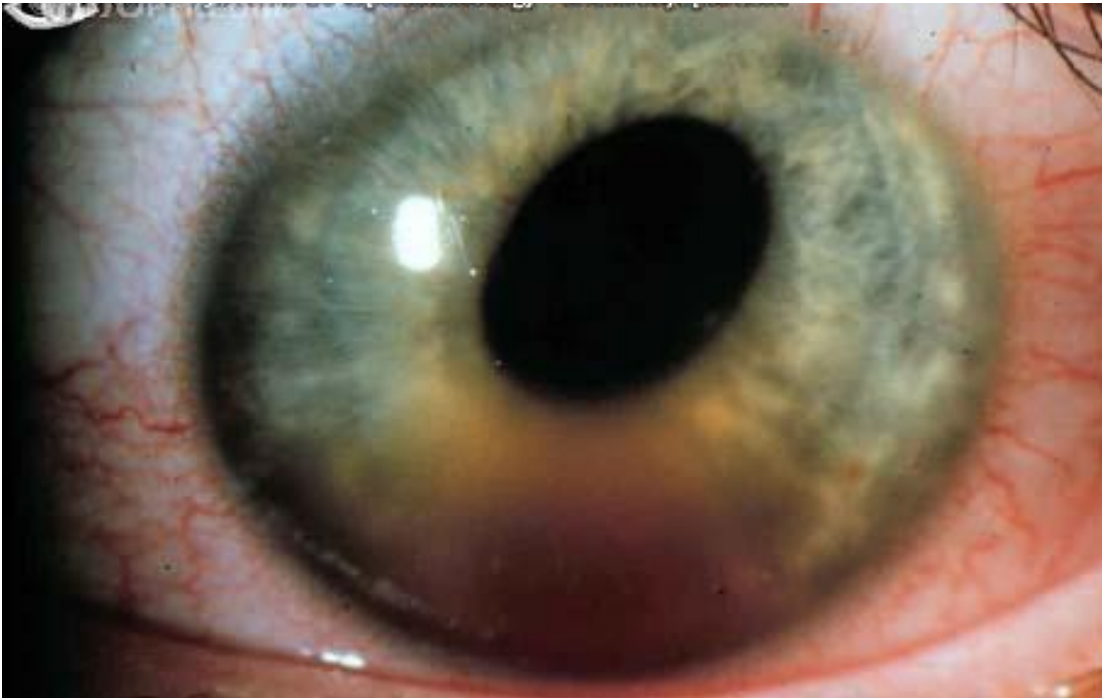
4. List 3 factors that would give the patient a poorer prognosis (3 marks)

SAQ 26:

A 28 year old male presents after being struck in the right eye with a cricket ball. Trauma screening reveals no other injuries. He has the following symptoms in the right eye:

- Decreased vision
- Pain
- Floater

A photograph of his eye is reproduced:



Questions:

1. Describe the key findings on the photograph. (3 marks)

2. What associated injuries need to be considered?

Complete the table below, indicating 2 key clinical features for each associated injury. (12 marks)

Associated injury	2 Clinical Features
1.	

2.	
3.	
4.	

3. List your management steps for the above injury. (5 marks)

SAQ 27:

You are the day shift ED consultant arriving to receive departmental handover at 8am. Your ED has 12 acute monitored beds and a SSU that has 6 beds.

The senior nurse informs you that there are 5 patients in the SSU who were admitted by the ED Night Registrar that all have ongoing abnormal vital signs. She is concerned about the suitability of these patients for short stay care.

Questions:

1- List 8 steps in your approach to managing this issue. (8 marks)

2- In light of this incident, your director asks you to develop a set of exclusion criteria for the Short stay unit. List your criteria. (8 marks)

SAQ 28:

You are a Flight Medical Officer with a state helicopter retrievals service and are tasked as a primary response to a road traffic crash approximately 270km north west of the regional trauma centre. On arrival less than half an hour later, there are two patients, both trapped by the legs inside the vehicle. Fire and rescue and ambulance are both already in attendance.

Patient	Demographic	Pulse	Cap Refill	Resp. rate	GCS	Estimated Extrication Time	Comments
1	Male, twenties	119	5	34	12	15 min	Cyanosed
2	Female, twenties	98	2	46	14	5 min	Screaming incessantly with eyes closed.

Questions:

1. Based on the above information, which patient would you request be extricated first and why?

(3 marks)

2. Based on the above information, list 4 injuries that you are concerned that Patient 2 may have sustained, stating the reason for your concern.

(4 marks)

3. Based on the above information, list 6 potential injuries that Patient 1 may have sustained. For each, state how the injury would need to be specifically addressed before helicopter transportation to the trauma centre.

(12 marks)

Potential Injuries	Management of Injury prior to transport

SAQ 29:

You are working as the doctor on a helicopter retrieval service that is dispatched to retrieve a patient that has collapsed on a dive boat on a nearby reef.

Questions:

1. List 8 key features in the history that you would need to assess this patient's risk of decompression illness. (8 marks)

2. List 5 body systems that may be affected by decompression illness and give one example for each. (10 marks)

Body system	Example

3. Outline 4 key considerations in transporting this patient by helicopter. (4 Marks)

SAQ 30:

A 19 year-old man presents to the ED with 12 hours of unilateral testicular swelling and pain.

Questions:

1-List 4 differential diagnoses for this presentation. For each diagnosis, list two key features (either historical or on examination) that may help distinguish that diagnosis. (12 marks)

Diagnosis	Features

2- You phone the surgical registrar on call to request that he review the patient urgently in ED. The surgical registrar states he will not come to review the patient until you have the results of an ultrasound of the testes.

Briefly describe your approach to this situation. (5 marks)

Good Luck