

SAQ questions from DEMENT Discussion Group: November 2014

Note:

- X-rays, clinical images and ECGs are reproduced in this document without owner's consent
- There are some questions in the document without model answers
- Items have been briefly reviewed and some typographical errors amended and small changes to increase consistency provided. Detailed quality assurance by the exam sub-committees has not been undertaken.
- If you have any questions about these items please contact mary.lawson@acem.org.au

1. A 19 year old university student presents to the ED via ambulance. She is confused and has a widespread purpuric rash but no meningism. Her temperature is 38.7°C, HR 140 /min, BP 70/30 mmHg.

a. What is the likely diagnosis? (1 mark)

b. List 4 immediate drug management priorities with doses. (4 marks)

c. What other management needs to be considered? (2 marks)

d. The patient is deteriorating despite aggressive intervention. The parents arrive in the resus room and 5 minutes later the patient has a cardiorespiratory arrest. Outline 3 issues around having the parents present in the resus room. (3 marks)

2. A 23 year old man with known asthma is brought to ED by ambulance with an acute exacerbation.

a. What features on history would concern you that his attack might be severe?

b. What features on examination would suggest he had a severe exacerbation?

c. Clinical examination confirms he has had a severe episode. List and justify the investigations you would perform.

d. List your immediate treatment priorities.

3. A 25 year old woman presents to ED after a large wooden plank fell on her left foot. She describes pain in the mid-foot region.

a. What are the three components of the Ottawa foot rules (OFR's)?

b. What are the three exclusion criteria for the application of the OFR's?

c. Foot x-rays are taken and reveal an isolated un-displaced fracture of tuberosity of the navicular bone. What are 5 important features of your subsequent management?

4. A 40 year old male presents with swelling and pain in his right ankle. There is no history of recent trauma.

a. What are 4 major differential diagnoses?

b. What are 4 important features you would enquire about on history?

c. List and justify 4 investigations you would you order.

d. Following full assessment you are confident your patient has an STI. What are your 4 management priorities?

5. A 17 year old woman presented to ED after taking an overdose. She weighs 50kg and has taken 60 tablets of 300mg aspirin.

Her vital signs are:

HR	110	/min
RR	28	/min
BP	100/60	mmHg
Sats	100	% room air
Temp	36.5	°C

a. What features stratify her as high risk? (2 marks)

b. What investigations, apart from an ECG and paracetamol level, would you request? (2 marks)

c. She deteriorates further and requires intubation. What are the specific considerations when intubating patients who have taken an overdose of aspirin? (2 marks)

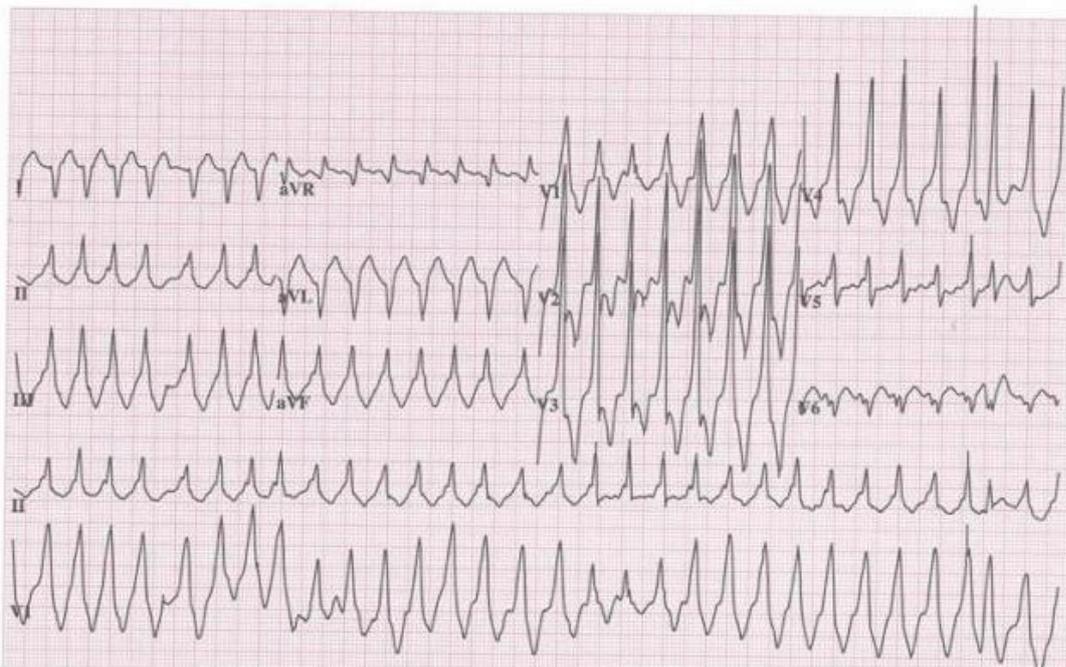
d. What are the indications for haemodialysis? (4 marks)

6. A 55 year old woman presents by ambulance. This is her appearance upon arrival in ED:



- a. List 3 differential diagnoses.
- b. List 5 features of her medical history that are particularly important to ask about.
- c. State your first 5 management steps.

7. A 35 year old woman presents with palpitations and shortness of breath. On arrival her BP is 70/40 mmHg. An ECG is taken and is shown below.



a. What are 5 important features of the ECG?

b. List three possible differential diagnoses.

c. List the important steps in your immediate management.

8. The triage nurse rings you regarding a 32 year old with diabetes and bipolar disorder who is a frequent presenter to your ED. She often presents with disruptive behaviour but the nurse is concerned that today she appears disorientated, ataxic and complains of nausea and vomiting for the last two weeks.

Temp	37.4	°C
HR	110	/min
BP	90/60	mmHg
RR	22	/min
Sats	97	% on air

Her lithium level is 3 mmol/L.

a. List 4 potential causes you would consider in this patient that may have resulted in lithium toxicity.

b. A urine bHCG confirms pregnancy, and a UTI. List four antibiotics used to treat UTI and discuss why you would or would not use them in pregnancy.

c. Your 4th year student asks you about the role of charcoal in lithium overdose. You explain that charcoal does not bind lithium. Name 3 classes of drugs seen in overdose that are not bound by charcoal and give two examples of each.

d. What alternative enhanced elimination technique may have a role in lithium toxicity?

e. Name 3 toxicokinetic or toxicodynamic features of a drug that make it amenable or appropriate to this method of enhanced elimination, and 2 other drugs toxicities where the method plays a role.

f. You find on questioning that it is likely she is 16/40 pregnant, homeless and with no regular medical care. List and expand briefly on 4 issues that should be discussed with this woman, including other services that may need to be involved.

9. A 35 year old woman who is 30 weeks gestation, is brought to your ED after a witnessed cardiac arrest.

a. What are the leading causes of maternal death in pregnancy? (4 marks)

b. List 5 airway and ventilation issues you could anticipate when attempting to intubate this patient. (5 marks)

c. What are the indications for a perimortem caesarean section? (1 mark)

d. Outline the steps in performing a perimortem c-section.

10. You are working in the resus room on a patient who is intubated and has capnography attached.

What are four uses/indications of capnography in intubated patients?

11. A 28 year old man presents to the ED complaining of shortness of breath and pleuritic chest

pain. His arterial blood gases are as follows:

On Air

pH	7.37
pO ₂	8.0
pCO ₂	2.3
BE	-2.0

a. Give three investigations, other than D-Dimer, you would perform. (3 marks)

b. At this stage give 4 risk factors as described by the BTS to exclude Pulmonary Embolism. (4 marks)

His D-Dimer result returns at 0.2 (normal range <0.14)

c. What 2 management steps would you now make? (2 marks)

d. The patient becomes acutely short of breath and hypotensive. What management step would you now take? (1 mark)

12. A 7 year old child presents to the ED with a 12 hour history of headache and photophobia, but no rash.

Urea and Electrolytes as follows

Na ⁺	125	mmol/L
K ⁺	3.7	mmol/L
U	3.2	
Cr	51	

a. Give 2 possible neurological diagnoses for the symptoms described. (2 marks)

b. What is the neurological cause for the Hyponatraemia? (1 mark)

c. What are 2 complications of Hyponatraemia? (2 marks)

d. List 5 investigations you would perform in the ED for a patient with Hyponatraemia. (5 marks)

13. A 45 year old man presents to the ED with a rash on his palm which is intensely itchy. The SHO thinks it is Scabies. A picture is shown below.



a. Describe 2 features of the rash. (2 marks)

b. Give the Diagnosis and one differential. (2 marks)

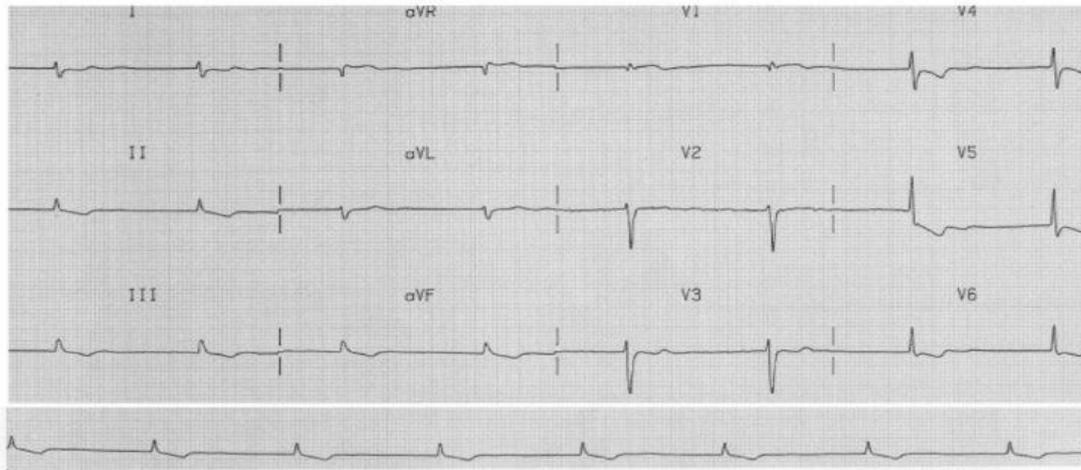
c. What causes the itching? (1 mark)

d. What are 2 other features of this condition? (2 marks)

e. What are 2 treatments that could be given to this patient? (2 marks)

f. What further advice would you give to the patient? (1 mark)

14. A 65 year old man is in your ED with a known overdose of Digoxin. An ECG has been performed and is shown below.



His U+E's are Na⁺ 142 mmol/L, K⁺ 6.7 mmol/L, U50.1, Cr 502.

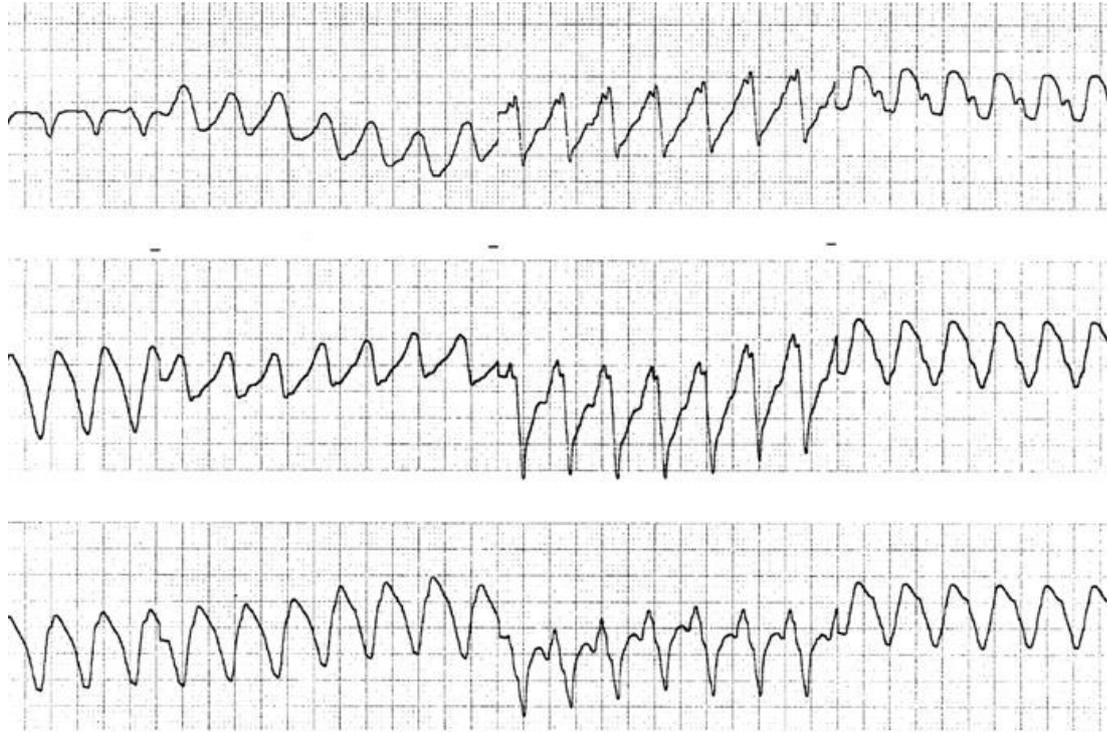
a. Describe 4 features of the ECG. (4 marks)

b. Give 3 indications for digibind. (3 marks)

c. List 3 other treatments for this patient and give reasons for using them. (3 marks)

15. A 30 year old female who works as an accountant and is known to have been depressed for some time is brought to the ED after having been found unresponsive.

An ECG has been taken on arrival and is shown below.



a. Describe the ECG and give the cardiac diagnosis. (2 marks)

As you are looking at the ECG the patient has a fit.

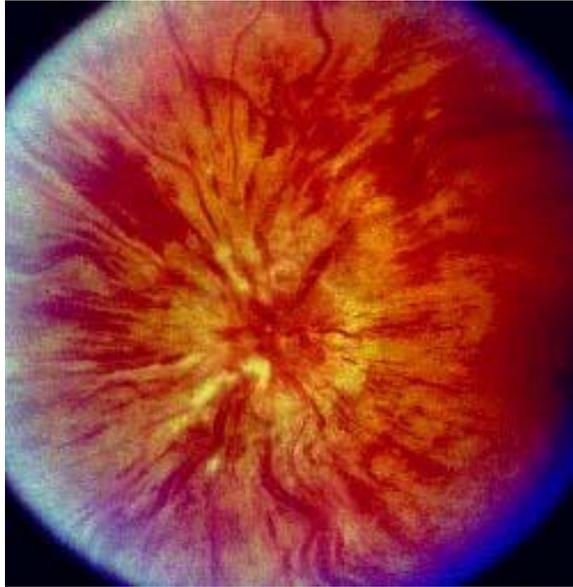
b. Given this event, what is the most likely diagnosis for the patient? (1 mark)

c. What drug would you give and what is its mode of action? (2 marks)

d. What aspects of the patient's condition would you monitor after giving this drug? (2 marks)

e. Give 4 other actions you would take to manage this patient's fitting. (4 marks)

16. A 65 year old male attends complaining of loss of vision in his left eye.



a. Give six features you would enquire about in the history. (3 marks)

b. List 2 abnormalities of the fundus shown in the picture above. (2 marks)

c. What is the diagnosis? (2 marks)

d. Give 6 associations of this condition. (3 marks)

17. A 10 year old girl has fallen off a wall and presents with a "sore arm".

18. A 38 year old woman 35 weeks pregnant comes to the ED with visual disturbance and headache. Her BP is 165/100 mmHg.

<u>FBC</u>	<u>WTU</u>	<u>LFT</u>
Hb 8.1	Blood ++	Bil 12
Plt 50	Protein+++	AST 1000
WCC 5.1	Nitrates -	GGT 817

poikilocytes seen

a. Describe 2 abnormalities of the FBC and explain them. (2 marks)

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

c. To control BP what drug, including dose and route, would you use? (3 marks)

d. Give 3 other steps in the management of this patient. (3 marks)

19. A 28 year old man has been out kite surfing and was thrown into the water at high speed. He is brought in on a spinal board with C-spine protection. He is intubated and ventilated and put on a propofol infusion.

His observations are: Pulse 65 /min, BP 90/60 mmHg and he is warm and well perfused.

The C-spine film and tomogram are shown below.



- a. Describe 3 abnormalities on the x-ray. (3 marks)
- b. Describe 2 aspects of his cardiovascular status. (2 marks).
- c. What is the likely diagnosis? (2 marks)
- d. What 3 signs would support this? (3 marks)

20. A 42 year old man has been found outside the ED fitting. He is dishevelled and smells strongly of alcohol.

His BM is 2.4

- a. What is the definition of status epilepticus? (1 marks)

b. Name 3 steps in managing his fitting. (2 marks)

c. List 3 reasons for organising an urgent CT head on this man.(3 marks)

d. Give 4 reasons why alcoholics are more prone to fit. (4 marks)

21. A 15 month child comes to the ED following a 3 day history of a viral illness with a maculopapular rash. On the day prior to presentation he had bouts of colic but had been eating and drinking and had been otherwise settled.

He comes to the department unwell, with bloody diarrhoea and a capillary refill time of 3 seconds.

This is his abdominal x-ray.



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

b. List 3 predisposing factors. (3 marks)

c. What are the child's fluid requirements over the next 12 hours? (3 marks)

d. Name 2 treatment options. (2 marks)

22. A 60 year old man comes to the ED with his sister. She says he has been withdrawn and quiet lately, and has been saying he wants to die.

a. Give 6 features in assessing his risk of suicide. (6 marks)

b. What are 4 important aspects of the mental health act in the state where you work? (2 marks)

c. How would you ensure this patient could make a decision regarding his treatment? (2 marks)

23. A man staggers into your department and says that he and many other people have been on a train and were sprayed with a liquid. He then collapses.

a. Other than calling your ED consultant, give 4 actions you would take to manage the situation. (3 marks)

b. Give 4 muscarinic effects of organophosphate poisoning. (4 marks)

c. Give 3 drugs to treat organophosphate poisoning.

24. A 3 year old girl attends your department late one night. She has stridor but is alert, and has previously been well.

a. Apart from croup, give 4 differential diagnoses. (2 marks)

b. List 3 drugs, the dose and route of administration used to treat croup. (3 marks)

c. Give 4 aspects of the scoring system to evaluate croup. (4 marks)

d. Give 2 reasons to admit a child with croup. (1 mark)

25. A 35 year old male attends your department. His partner is HIV positive and being treated for TB.

Blood gases on 60% oxygen show:

pH	7.44	
pCO ₂	4.0	Kpa (30mmHg)
pO ₂	16.5	Kpa (124mmHg)
Bicarb	22	mmol/L
Base Excess	-1	

Chest x-ray is shown below.

- Describe the chest x-ray. (2 marks)
- Excluding TB, give 2 differentials diagnoses. (2 marks)
- List 3 organisms that may infect the pulmonary system in HIV. (3 marks)
- Give 6 tests in the ED which would help in the management of this patient. (3 marks)

26. A 24 year old male had been assaulted. He has swelling around his LEFT eye and a cut on his RIGHT cheek. Your SHO has requested facial views.



a. Give 3 abnormalities on the x-ray. (3 marks)

b. List six aspects of assessment of the orbit and its contents. (4 marks)

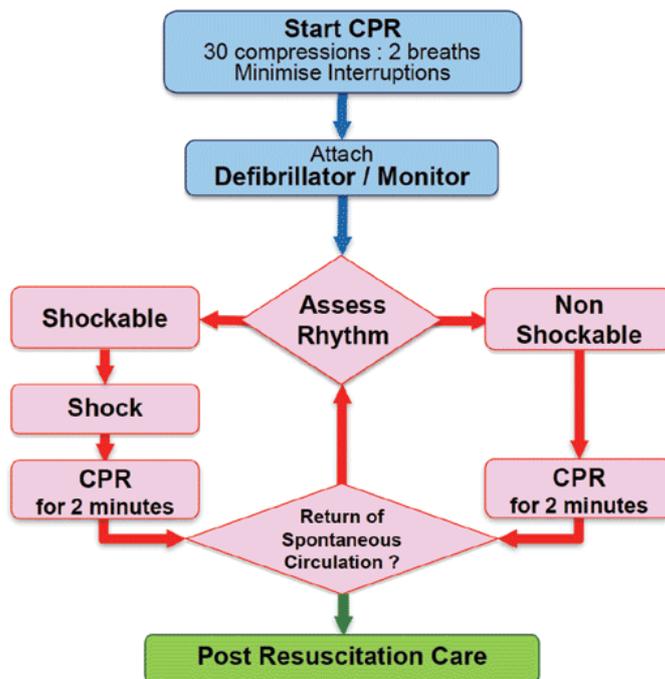
c. List 3 further steps in this patient's management. (3 marks)

27. A 35 year old man is flown in by air ambulance after being found unconscious in a remote area of bushland in winter. He is in asystole and the ambulance officers are currently performing CPR. His Temp is 28.6°C.

a. What is the current advanced life support algorithm? (3 marks)



Advanced Life Support for Adults



During CPR

Airway adjuncts (LMA / ETT)
Oxygen
Waveform capnography
IV / IO access
Plan actions before interrupting compressions
(e.g. charge manual defibrillator)
Drugs
Shockable
* Adrenaline 1 mg after 2nd shock
(then every 2nd cycle)
* Amiodarone 300 mg after 3rd shock
Non Shockable
* Adrenaline 1 mg immediately
(then every 2nd cycle)

Consider and Correct

Hypoxia
Hypovolaemia
Hyper / hypokalaemia / metabolic disorders
Hypothermia / hyperthermia
Tension pneumothorax
Tamponade
Toxins
Thrombosis (pulmonary / coronary)

Post Resuscitation Care

Re-evaluate ABCDE
12 lead ECG
Treat precipitating causes
Re-evaluate oxygenation and ventilation
Temperature control (cool)

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b. What are the major modifications needed to be made to this algorithm in the case of unintentional (environmental) hypothermia? (3 marks)

●

c. Name 2 methods of each:

- i. Passive external rewarming
- ii. Active external rewarming

4 marks (2 each)

iii. Passive external rewarming

●

iv. Active external rewarming

d. Describe 3 methods of active internal rewarming (3 marks; includes at least 1 method of lavage)

28. A 25 year old man sustains facial injuries in a high speed motor vehicle crash in which he was the unrestrained driver.



His observations are:

GCS 15
HR 100 /min
BP 130/75 mmHg supine
O₂ sat 97 % room air

a. Describe 3 abnormalities shown in this photograph. (3 marks)

b. What 3 underlying injuries could there be? (3 marks)

b. List 5 factors that provide a risk to his airway? (5 marks)

29. a. List 4 indications for endotracheal intubation. (4 marks)

b. List 2 indications for non-invasive ventilation. (1 mark)

c. List 4 contra-indications to NIV. (2 marks)

d. What is the mechanism of action of NIV? (3 marks)

30. A 65 year old male presents following a fall. He complains of a painful swollen left wrist.

An x-ray of his wrist is shown below.



a. Describe his x-ray. (2 marks)

b. List the contra-indications to performing a Bier's block. (4 marks)

c. List the key steps in performing a Bier's block. (4 marks)

31. A 4 year old boy is brought to your ED having sustained a 4cm eyebrow laceration following a fall at a playground. He is accompanied by his mother.

You plan to suture the wound under procedural sedation using ketamine.

a. List 8 contraindications to ketamine use in this setting. (4 marks)

b. List 4 potential side effects/complications associated with ketamine use in this setting. (2 marks)

c. Complete the following table regarding ketamine usage in paediatric procedural sedation by route of delivery. (4 marks)

	Intra-muscular (i.m)	Intra-venous (i.v)
Initial dose		
Top-up dose		
Advantage		
Disadvantage		

32. a. What patient factors may make rapid sequence intubation difficult or impossible? (3 marks)

b. What alternatives should be considered in these cases? (2 marks)

c. List the steps of preparation for rapid sequence induction. (5 marks)

33. a. Name 2 indications for electrical defibrillation. (2 marks)

b. Name 2 areas to avoid placement of pad. (2 marks)

c. Name 4 complications of defibrillation. (4 marks)

4.

d. How will you optimise transthoracic impedance while using a defibrillator for an adult patient? (2 marks)

4.

34.a. Name composition of normal saline and Ringer's lactate. (2 marks)

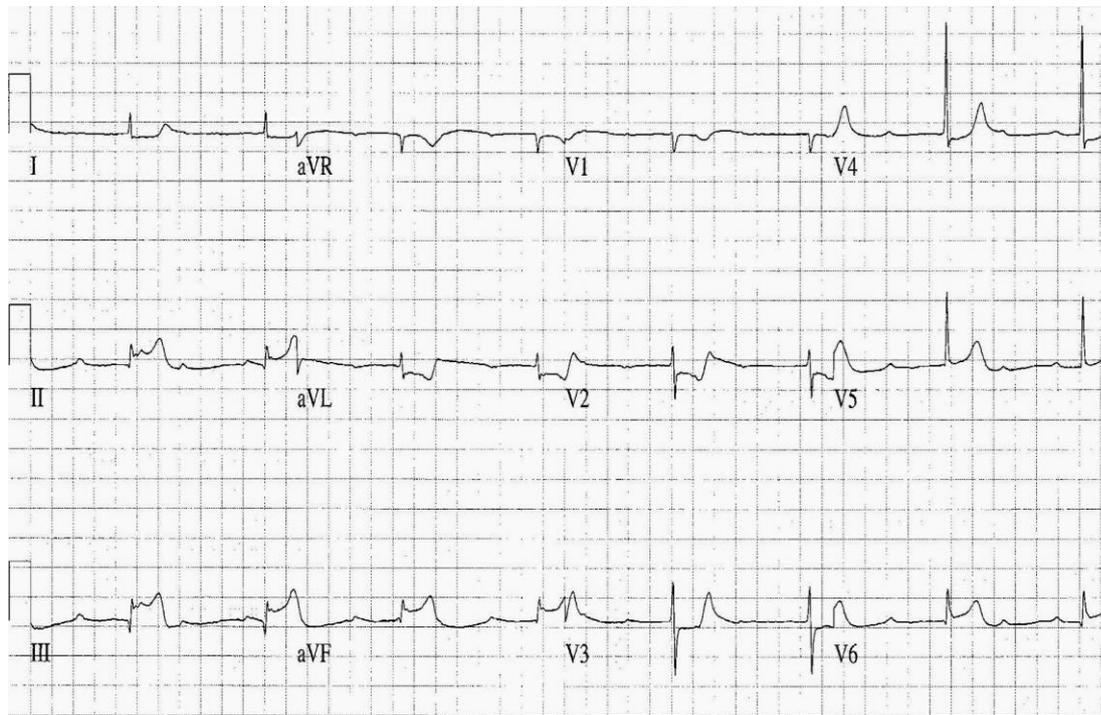
b. What are the targets to titrate fluid therapy? (4 marks)

c. What are the complications of fluid therapy? (4 marks)

35. A 60 year old male presents to your ED complaining of chest pain for the last 2 hours. He has

no known medication history and does not take any regular medications.

His ECG on arrival is below.



a. What is your interpretation of his ECG? (3 marks)

b. The patient's blood pressure is 80 mmHg. Outline the key steps in managing his hypotension. (4 marks)

c. The cardiology team have advised you to commence the patient on a vasoactive agent to improve his blood pressure. List 3 appropriate inotropes / vasopressors and their dosing in the table below. (3 marks)

	Agent	Dose
1.		
2.		
3.		

36. A 40 year old female is brought to your ED following a 2.5g propranolol overdose taken 3 hours ago.

Vital signs:

Pulse 45 /min
BP 82/45 mmHg
RR 16 /min
Temp 36.8 °C
GCS 13 (E=3, V=4, M=6)
BSL 6.7 mmol/L

a. Outline a step-wise approach to the patient's bradycardia and hypotension? (4 marks)

b. Clinical toxicology have been consulted and advised you to commence HDI therapy. How is HDI administered? (4 marks)

c. What are the potential complications associated with HDI therapy? (2 marks)

37. A 72 year old diabetic female is brought to your Emergency Department by ambulance. She complains of feel generally unwell for the last two days with abdominal pain, cough and fevers.

Vitals signs:

Pulse	121	/min
BP	89/58	mmHg
RR	28	/min
Sats	89	% Room Air
Temp	39.8	°C

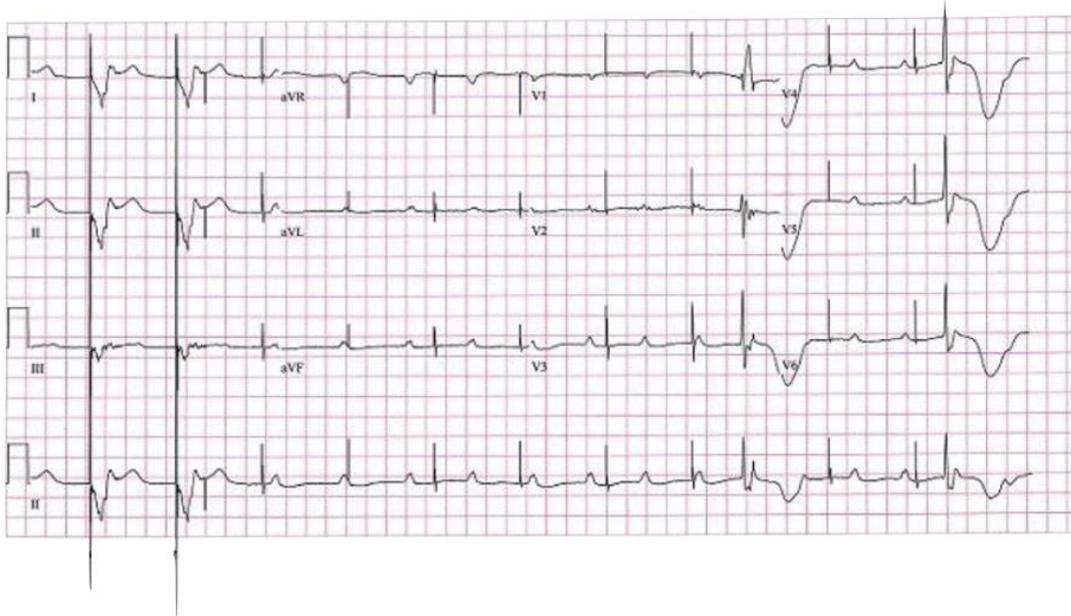
a. List 3 key steps in this patient's management. (3 marks)

b. List your resuscitation goals for the first 6 hours. (4 marks)

c. The patient requires inotropic haemodynamic support. Which inotrope should be used? (1 mark)

38. A 16 year old boy with a congenital heart problem presents to ED with episodes of syncope.

This is his ECG.



a. Describe the ECG. (5 marks)

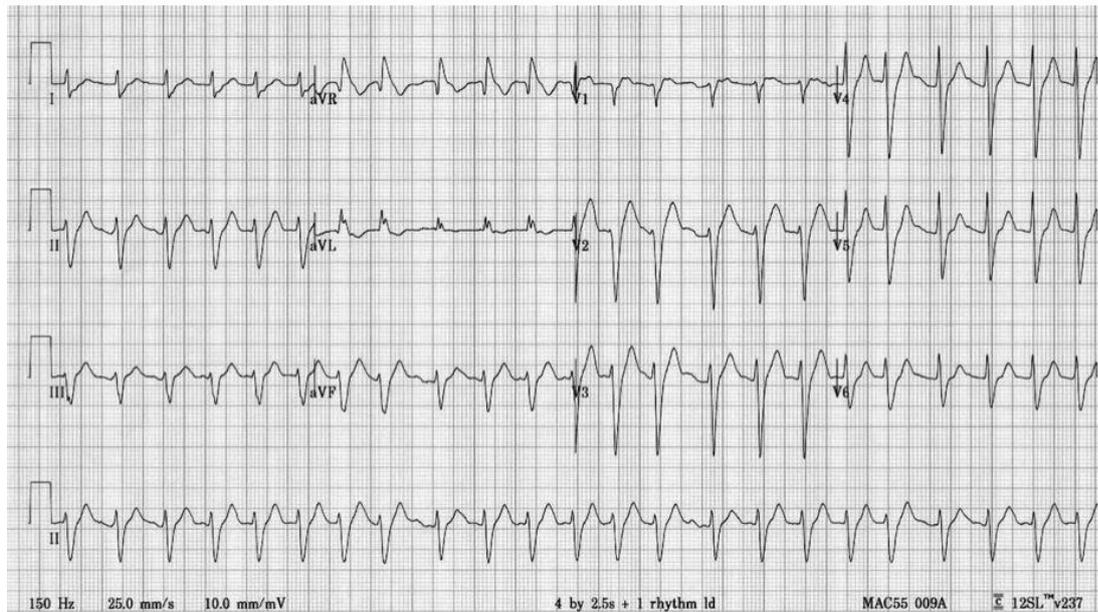
b. Name 5 potential causes for this appearance. (5 marks)

39. A 46 year old man is brought to your ED by ambulance following an overdose of unknown medications. He had a brief generalised seizure en route.

On arrival his observations are:

GCS	12	
BP	85/60	mmHg
Temp	37.0	°C
O ₂ Saturation	100	% on 8 L/min O ₂

His ECG is shown below.

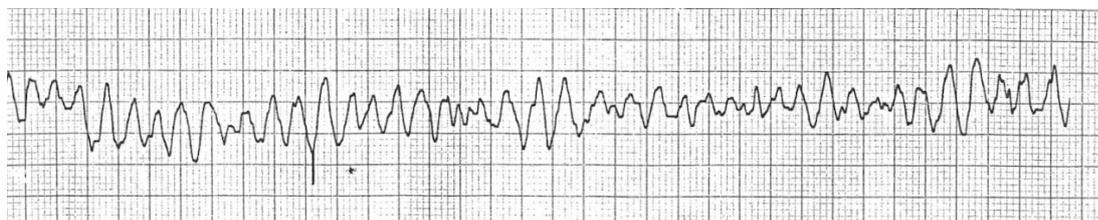


a. Describe the ECG. (5 marks)

b. What are the first 5 things you would do to manage the patient?

40. An elderly man collapses and is unresponsive at a shopping centre.

He receives prompt BLS from bystanders, then defibrillation from an AED prior to the arrival of the ambulance 10 minutes post-arrest. He is found to be in VF and does not revert with defibrillation by the ambulance crew. He is transported to the ED, where he is still pulseless and the monitor shows this rhythm.



What are your immediate actions? (8 marks)

41. A 24 year old woman has just died in your ED despite active resuscitation after sustaining massive head injuries in a motor vehicle accident. Police are in attendance but her family members are unaware of the situation.

a. Provide 6 principles to follow when communicating the news to the family. (6 marks)

b. Provide 4 circumstances when a death must be reported to the coroner. (4 marks)

42. You are the duty consultant. A 30 year old patient is being brought in by the paramedics as a Priority 1 patient (ETA 5 mins). He was found hanging by his friend at home. Initial rhythm was PEA. The paramedics have been working on the patient for 55 minutes and the patient has not regained circulation. You have been informed that patient is intubated and there is an IO access in.

a. How will you generally prepare for the patient's arrival? (4 marks)

b. A decision was made to call off the resuscitation attempt immediately after patient arrival. Describe the next steps you will take, (6 marks)

43. You are checking pathology results when you come across a positive chlamydia result. The pathologist has flagged that this is a notifiable disease.

a. What action should you take? (5 marks)

b. Give three other examples of incidents that require mandatory reporting in the ED. (5 marks)

44. You have been asked by the Head of your ED to give a presentation on Access Block and the National Emergency Access Target (NEAT).

a. What is the definition of Access Block? (2 marks)

b. What is the National Emergency Access Target? (2 marks)

c. Outline potential solutions to improving Access Block & Overcrowding (6 marks)

2 Solutions to access block and overcrowding

Reducing demand

In the community

- Improved funding of complex care for general practitioners and community providers
- Improved planning for end-of-life care
 - Mandate for residential care
 - Improved education of community and providers
- Coordination of community services
 - Reduce duplication between state, federal and community services
- Integrated and coordinated care of "frequent attenders"
- Hospital outreach — hospital-in-the-home, hospital-in-the-nursing-home, and medical assessment teams

In the emergency department

- Senior decision making (24/7)
- Short-stay units
- Accelerated evidence-based protocols
- Access to consultations and investigations

Balancing demand between elective and emergency programs

Increasing capacity

Emergency department processes

- Fast-tracking
- Laboratory and x-ray turnaround times
- Senior staffing 24/7
- Full capacity protocol (send patients to ward when emergency department is full)

Emergency department beds

- Only to the levels recommended by the Australasian College for Emergency Medicine.

Ward processes

- Whole-of-health-service bed coordination 24/7
 - Designated bed coordinator
 - Daily coordination rounds
 - Improved information technology for bed tracking and demand prediction
 - Long-stay monitoring
- Clinical inpatient rounds at least daily
- Improved speed of investigations and consultations

Ward beds

- Increase to > 3 acute hospital beds per 1000 population

Improving exit

Ward processes

- Morning discharge
- Weekend discharge
- Improved allied health and pharmacy access
- Better use of transit lounge

Community capacity

- Increased residential aged care beds
- Post-acute care services

Monitoring of acute health sector

- Emergency department processes
- Hospital processes
- Community processes

Non-solutions (unproven to reduce overcrowding)

- Nurse on call
- Ambulatory care clinics
- Ambulance bypass

45. a. You are about to see a 4 year old child in ED. Name 3 people considered to have parental responsibility. (3 marks)

D.

b. Name 3 subsets of ED patients who might not be able to provide consent. (3 marks)

c. You are dealing with a hypotensive 6 year old child who was involved in an accident. The patient has free fluid in the abdomen on FAST scan. You need to urgently transfuse the child but the parents are Jehovah Witnesses and are opposing transfusion. Name 2 immediate steps you would take in this situation. (2 marks)

d. What is the legal age of consent in Australia? (1 mark)

46. a. Name 2 types of consent in the ED. (2 marks)

b. You are going to perform a chest drain on a conscious patient. He is a 60 year old man with a history of COPD who has 50% pneumothorax. His vitals are: Pulse 90 /min, BP 140/80 mmHg, RR 28 /min, Sats 93 % on 2L NP Oxygen. Provide 6 principles you would follow when obtaining consent from your patient. (6 marks)

47. You have been invited to join your Emergency Department's Quality Improvement Workgroup.

a. List the key steps in the Quality Improvement Cycle. (4 marks)

b. List 6 clinical indicators used in Emergency Medicine to measure clinical care and outcomes. (6 marks)

48. There have been a number of incidents in your ED Short Stay Unit where patients have unexpectedly deteriorated during their stay.

a. Provide 2 examples of the role of a Short Stay Unit. (2 marks)

b. What steps would you take to develop a solution to this problem of patients unexpectedly deteriorating during their stay? (4 marks)

c. You have been asked to develop a set of exclusion criteria for your Short Stay Unit. List your exclusion criteria. (4 marks)

49. a. Define triage. (3 marks)

b. What are the underlying principles of triage? (2 marks)

c. Populate the following table with the correct values. (5 marks)

ATS Category	Max waiting time	ACEM target % seen in time
ATS 1		
ATS 2		
ATS 3		
ATS 4		
ATS 5		

50. A 2 week old term baby weighing 4kg is brought to the ED with difficulty breathing and

floppiness.

Her vital signs are as follows:

HR	160	/min
BP	65/35	mmHg
Sat	83	% on air
Temp	37.6	°C
CRT	4	seconds

She is lethargic, and will respond to voice.

a. List 4 differentials for her presentation.

b. List your treatment priorities in sequential order. (4 marks)

c. You decide to intubate this baby. What 2 sizes of ETT will you prepare?

51. A 4 year old boy presents to the ED with cough, stridor and fever.

a. List 4 causes of stridor in this patient. (4 marks)

b. List 4 features on history or examination that would make epiglottitis a more likely diagnosis. (4 marks)

c. In a patient with suspect epiglottitis, what are your management priorities? (2 marks)

52. A 12 month old child presents to ED with a widespread red rash and difficulty breathing shortly after eating peanut butter for the first time.

Her vital signs are

HR	150	/min
Sat	88	%A with wheeze, no stridor
RR	50	/min
BP	60/30	mmHg
GCS	15/15	

a. What is the initial dose and route of administration of adrenaline (1:1000) in millilitres for this patient? Show your working. (3 marks)

b. List 4 other treatments (with doses) that you would consider giving as adjuncts to IM adrenaline. (4 marks)

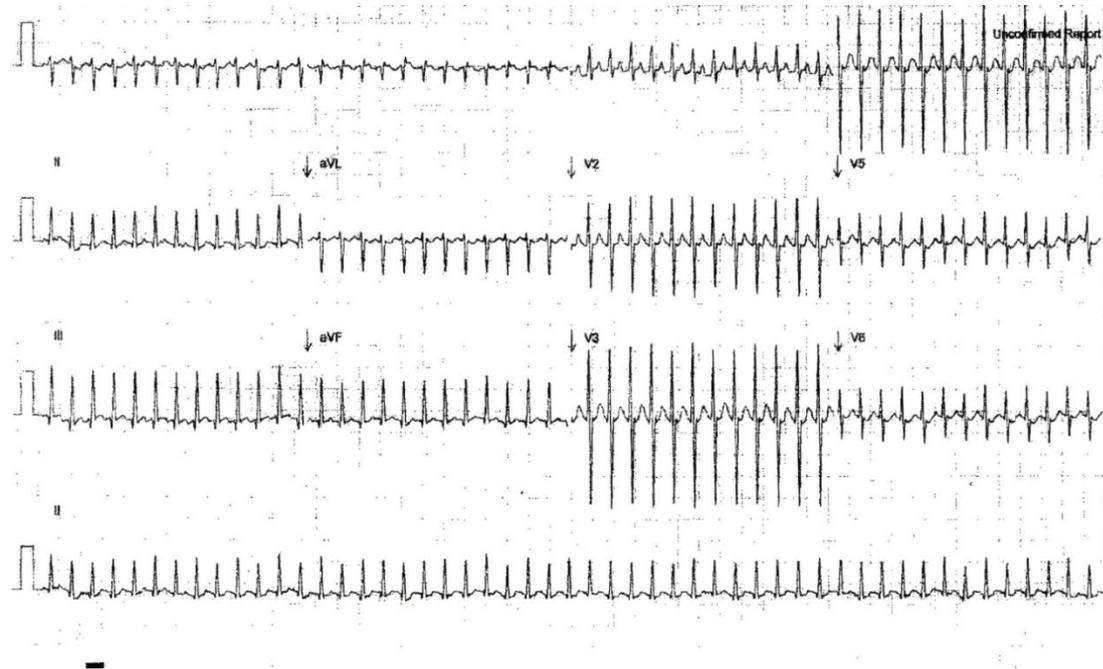
c. After a period of observation you decide to discharge the child with a prescription for an EpiPen. List 3 important pieces of discharge advice. (3 marks)

53. A 3 month old girl is brought in to ED with pallor and lethargy for the past hour. She has had fevers and URTI symptoms for the past 3 days.

Her observations are as follows:

GCS	15/15	but floppy/lethargic
HR	250	/min
BP	75/45	mmHg
CRT	2	seconds
Sat	95	%A
Temp	38.2	°C

This is her ECG.



a. What is the most likely diagnosis? (1 mark)

b. What are 2 features of the ECG that support this diagnosis? (2 marks)

c. List 3 treatment options in the order of escalation that you would perform them. (3 marks)

d. List 4 investigations you would perform in the ED and their justification. (4 marks)

54. A 32 year old woman presents to your tertiary ED from her GP.

She has been referred with a letter stating:

“Thank you for reviewing this 32 year old who has recently returned from a trip to the UK, she has pleuritic chest pain and I am concerned about a possible PE.”

a. Name 3 risk stratification tools that you use to guide your assessment. (3 marks)

b. You calculate a Wells score of 3. What is the patient’s risk of PE? (1 mark)

c. A D dimer is 1100 and you need to discuss imaging with the patient. List 3 benefits and 3 negatives of CTPA. (3 marks)

d. The CTPA is positive for bilateral proximal PEs. The patient has a BP of 100/70 mmHg, HR 98 /min, SpO2 94% RA. How could you risk stratify her further with regards to possible treatment? (3 marks - need to only list 3 to score 2.5, 4 scores 3 marks)

55. A 4 year old boy presents to your ED at 1830h with his mother. He has had a runny nose, cough and wheeze for 2 days. His past history includes asthma and eczema since 18 months of age. He has required several hospital admissions for asthma.

a. List 6 important clinical signs when assessing this child. (3 marks, 0.5 marks each)

b. He does not have an oxygen requirement and is assessed as “mild”. List treatment in ED including doses. (1 mark, 0.5 marks each)

c. The child improves and you wish to educate his mother in spacer and MDI technique and in spacer care. List 6 points that you will cover. (3 marks, 0.5 marks each)

d. List discharge criteria and advice you would give his parents. (3 marks, 0.5 marks each)

56. A factory worker presents to your department with 3% body surface area burns to his hands and forearms from a 100% hydrofluoric acid solution.

a. What percentage of body surface area burns would be expected to be associated with systemic toxicity from this acid and how does it cause toxicity?

b. List 3 investigations that may be useful to help determine further management of this patient and describe the abnormality that may be detected.

c. Name the antidote used to treat hydrofluoric acid toxicity.

d. List 3 routes by which it may be administered and the dose typically used for each route.

57. A 3 year old child is brought into ED with a history of having ingested 'at least' 20 of her mother's iron tablets.

a. List 2 clinical features of significant iron toxicity that are likely to be seen within the first 6 hours after the ingestion.

b. List 2 investigations that may be helpful in confirming that a patient has ingested iron tablets and when the abnormality is likely to be detected.

c. List 2 methods of decontamination that may be useful in the management of iron toxicity and their indications for use.

d. Name the antidote used to treat iron toxicity and list 2 indications for its use.

58. A 32 year old female with a history of bipolar disorder is brought in by ambulance after having taken her weeks worth of lithium. She is alert and orientated and complains of no systemic symptoms at this time.

a. List two early signs or symptoms that suggest a significant amount of Lithium has been ingested acutely and the earliest and most frequent sign of neurological toxicity associated with Lithium ingestion.

b. List 2 tests that may have an influence on further management of a patient presenting after an acute overdose of lithium and explain why they may be relevant.

c. List two treatments that may be considered for a patient suffering from acute Lithium toxicity and one possible indication for each.

59. A 20 year old female presents saying she has taken an overdose of aspirin.

a. List 4 features of acute salicylate intoxication and the dose expected to cause severe toxicity.

> 300mg/kg causes severe toxicity.

Symptoms include (Together known as salicylism):

- Tachypnoea
- Tinnitus
- Vomiting

Progressing to altered LOC / seizures / hyperthermia / metabolic acidosis / pulmonary oedema (10%) and alveolar haemorrhage

b. What method of decontamination may be useful in the management of salicylate toxicity and for up to how long after the ingestion?

Activated charcoal – for up to 8 hours post ingestion (as gastric emptying can be delayed after an OD). A repeat dose after 4 hours may also be useful.

c. Name 2 methods of enhancing the elimination of salicylates and list 1 possible indication for each.

60. This 32 year old male lost control of a high pressure injector and comes in with a wound on his

left lower leg.



a. List three complications that are likely to occur within the next 48 hours. (3 marks)

3.

b. List the management priorities for this injury. (5 marks)

c. What factors contribute to damage? (3 marks)

i.

61. A 34 year old man presents 10 days after a business trip to Papua New Guinea. He has had fevers, malaise, generalised aches and frequent episodes of diarrhoea.

His vital signs are:

HR	130	/min
BP	100/50	mmHg
Temp	38	°C
Sats	98	% on air

a. List 10 potential causes of fever and illness in this man.

b. What blood tests will you request?

Investigation	Justification

c. List 5 major complications of severe Plasmodium falciparum malaria.

d. What are the two main choices for the urgent initial treatment of severe Plasmodium falciparum malaria?

62. A two month old infant has been brought in following a brief seizure. She has had coryzal symptoms and high fevers for two days. She has no relevant past history and no allergies. On examination: HR 110 /min, BP 80/45 mmHg, Temp 39.7°C. There is no rash and no clear focus of infection but the child is ill-appearing and drowsy.

a. What investigations are required?

Investigation	Justification

A lumbar puncture is performed:

CSF white cell count

Neutrophils 120 (nil)

Lymphocytes 25 (<5)

CSF red cell count 200

CSF Protein 1.2 (< 0.4 g/L)

CSF glucose 0.4 (> 2.5 mmol/L)

b. Interpret these results.

c. List and justify the medications you would use to treat this child.

Medication	Justification	Dose

d. A senior nurse complains to you that one of the junior doctors involved in this case has been caught stealing a box of ciprofloxacin. A formal incident report has been filed and the nurse wants you to “deal with the JMO”. The doctor says he only wanted to take some as prophylaxis against possible meningococcus.

What key principles should you consider in your discussion with the JMO?

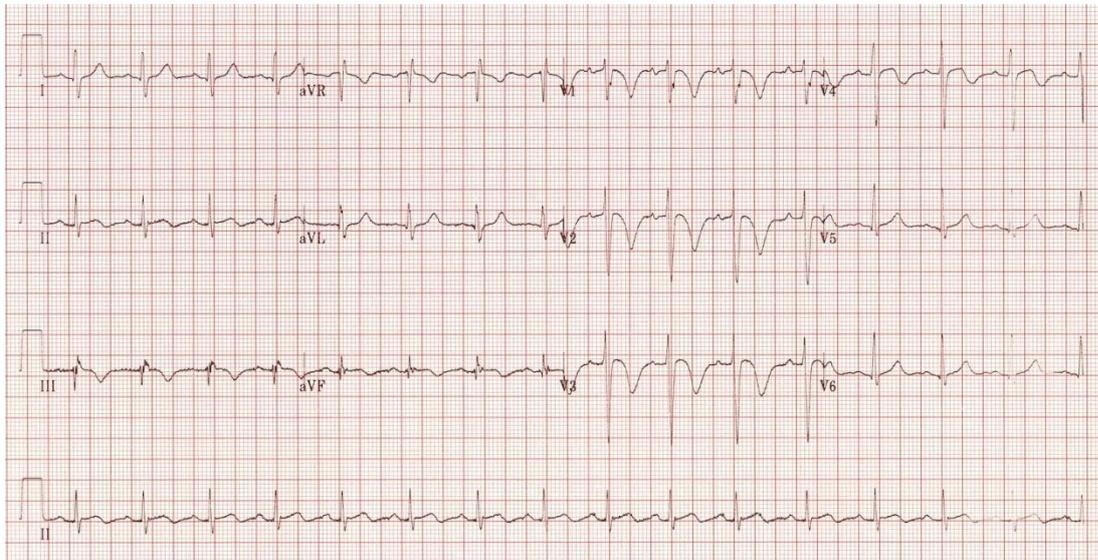
63. A 24 year old women who is 10 weeks pregnant presents with suspected pulmonary embolus.

a. List five clinical features that would increase her likelihood of having PE. (5 marks)

b. Describe the utility of the following investigations in this patient. (5 marks)

	Investigation	Utility
1	D Dimer	
2	CXR	
3	Lower limb US	
4	CTPA	
5	VQ	

c. The patient has been diagnosed with pulmonary embolism. What are the ECG changes below? (1 mark)



d. What do the ECG changes suggest? (1 mark)

e. The patient becomes hypotensive. List 4 treatment options (2 marks)

64. A 30 year old man presents with a left sided spontaneous pneumothorax.

a. What are 3 features to elicit on evaluation that will help determine your management? (3 marks)

b. Give a clinical circumstances in which each of the following would be appropriate. (3 marks)

Management	Clinical circumstances
Observation	
Aspiration	
Intercostal catheter/ pneumocath/ pigtail catheter	

c. List 6 complications of intercostal catheters. (3 marks)

65. A 5 year old girl is brought to the ED, with worsening asthma for the last 4 hours.

a. What are 4 clinical features of life threatening asthma? (4 marks)

b. On assessment she is unable to speak, has marked use of accessory muscles, RR 60 /min, Pulse rate 160/min and oxygen saturation of 89% on room air.

List your immediate management, including any drug doses. (4 marks)

c. Despite appropriate escalation of management the patient's condition deteriorates over several hours and they are intubated in the ED. Give ventilation settings and justify. (6 marks)

Parameter	Setting	Justify
Respiratory Rate		
Tidal volume		
Peak inspiratory pressure		
PEEP		
I:E ratio		

d. After connecting to the ventilator the patient suddenly deteriorates becoming progressively hypotensive and tachycardic. Give three possible causes. (3 marks)

e. What is your first step in management? (1 mark)

66. A 42-year-old man is brought to your ED by ambulance with acute confusion. His wife states that he is previously well and on no medications, but his health has been deteriorating for three months, with tiredness and 10kg weight loss despite an enormous appetite. She also states that, on the bright side, he has become completely impervious to the cold and the extra money they've spent on groceries has been saved on heating bills.

Observations are:

- A intact
- B RR 40 /min, sats 100%, chest clear
- C HR 140 /min, BP 180/100 mmHg, CR 2 sec
- D E4(staring & bulging), V4 (agitated & aggressive), M5 (localising to pain), no focal neurology
- E Temp 38.5°C, BSL 10, vomiting, no rash or other signs

a. What is your provisional and differential diagnosis for this man's clinical picture? (3 marks)

Provisional diagnosis:

Differential diagnosis:

- *Most likely thyroid storm*
- *But also other causes of confusion & high temperature e.g.*
 - *Infection (meningoencephalitis, sepsis of any source)*
 - *Too much drug: e.g. salicylates, TCAs, anticholinergics, amphetamine/cocaine,*
 - *Too little drug: e.g. withdrawal of etoh/benzos, heat stroke, phaeochromocytoma)*

b. What conditions may precipitate this clinical picture? (2 marks)

- *Nasty precipitants eg acute MI, sepsis, trauma, IV contrast*
- *UnderDx/Rx TTX esp Graves*
- *Also XS thyroxine or too little antithyroid Rx*

c. How will you treat him in the ED? (5 marks)

67. A 40-year-old female has been brought in following increasing confusion and agitation at home this morning. She has had no other symptoms. She is day 3 after normal vaginal delivery of a healthy baby at another hospital, but her antenatal history is unknown.

Ambulance officers report a generalised tonic-clonic seizure in the ambulance which required 5mg IV midazolam to terminate, followed by ongoing drowsiness and confusion. On arrival in the ED she begins to seize. ED staff and ambulance officers activate the 'arrest call' button and transfer her to the Resuscitation Room.

When you arrive she is being nursed on a bed and a provisional trainee is supporting her airway with jaw thrust. Her intravenous cannula has tissued.

On examination:

Airway: snoring / partly obstructed

RR 40 /min

O₂ saturations 95%

HR 130 /min

BP 180/100 mmHg

Generalised tonic-clonic seizure

Afebrile

a. List the causes of seizure you would consider in this patient. (4 marks)

b. What is your initial management? (4 marks)

c. If you suspect eclampsia, what **initial drugs/ dose/route/rate** would you administer? (2 marks)

•

68. You are the director of a tertiary ED which is a level one trauma centre. Recently the directors of trauma and haematology have both written to you regarding your department's haphazard use of blood products in the severely injured. You search your intranet and realise that you do not have a policy.

a. What are 3 triggers for massive transfusion? (3 marks)

b. Name 4 physiological or biochemical parameters that should be measured early and often. (2 marks)

•

c. What is the indication for Cryoprecipitate delivery? (2 marks)

d. What are the targets for Hb, Platelets and INR in massive transfusion? (3 marks)

69. A 14 month old girl presents via ambulance to your tertiary ED. She was eating a sausage when she appeared to choke and turn blue. Parental back blows were given.

On arrival the child is drooling, has mild respiratory distress, is upset and has Sats of 96% on 6L O₂,

a RR of 34 /min and a mild stridor.

A neck x-ray has been done and is shown below.



a. What is the major abnormality on the neck x-ray? (2 marks)

b. List and justify 3 options to managing her airway issue. (6 marks)

c. What are 2 ways an unwitnessed **bronchial** foreign body aspiration may present in children. (2 marks)

70. A 27 year old woman is brought in by housemates to your tertiary ED. She had been not seen for 2 days and was found beside her bed slumped on the floor.

Her observations are:

GCS 13
P 128 /min
BP 95/50 mmHg
T 34.7 °C

a. What are the 3 most important abnormalities on the UELFT? (3 marks)

Sodium	136	mmol/L	137-145
Potassium	4.0	mmol/L	3.2-5.0
Chloride	92	mmol/L	98-111
Bicarbonate	23	mmol/L	22-31
Urea	23.2	mmol/L	2.5-7.5
Creatinine	424	µmol/L	60-110
Est. of GFR	15	mls/min	>90
Glucose	3.6	mmol/L	3.5-5.5
Osmol-calc	292	mmol/L	280-300
Bili Tot.	10	umol/L	2-20
ALT	720	U/L	<55
AST	15	U/L	5-50
ALKP	89	U/L	20-110
GGT	23	U/L	15-73
CK	>103000	U/L	20-200
CRP	1.2		<10

b. List the principles of your fluid management. (4 marks)

c. List 6 differential diagnoses. (3 marks)

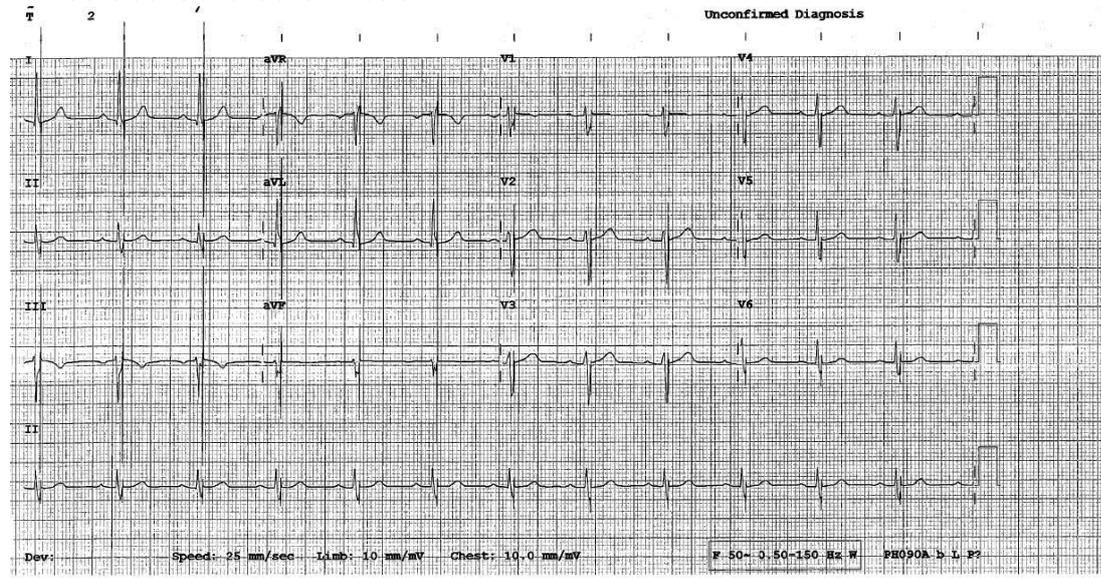
71. A 58 year old man with a PPM presents to your rural ED with palpitations intermittently for 8 hours.

His observations are:

P 60 /min
BP 123/54 mmHg
Sats 96 % RA

GCS 15

An ECG is done and is shown below.



- What is the ECG diagnosis? (2 marks)
- List 4 possible causes. (4 marks)
- Outline the major consideration of arranging his disposition. (4 marks)

72. A 58 year old Chinese Australian woman presents with fatigue. On examination she has a pulse of 95 /min, BP 100/45 mmHg and sats of 98% RA. She is afebrile. She appears deeply jaundiced.

Bloods are done and appear below

FBE. Hb	39
RCC	0.95
MCV	129
Retics	31.58%
WCC	5.4
Neut	4.26
UELFT Na	137
K	3.6

Cl	106
HCO ₃	17
Urea	4.4
Cr	66
Bili	137
ALT	5
LDH	693
GGT	20
ALP	79

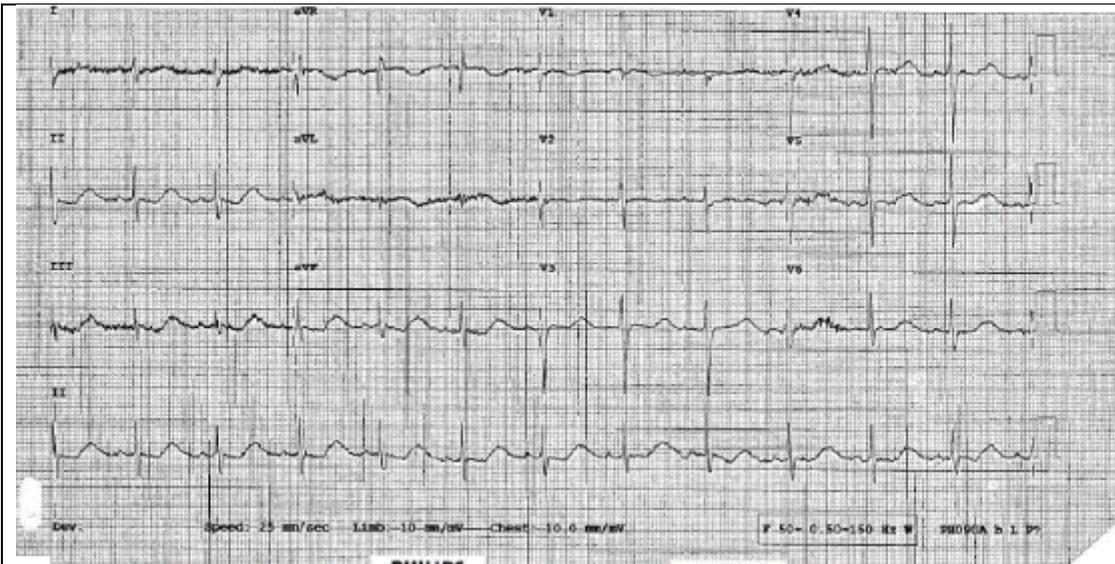
a. Interpret the blood tests and provide a provisional and differential diagnosis. (3 marks)

b. List 3 other pathology tests with a brief justification you would order to help determine the diagnosis. (3 marks)

c. Briefly outline your management. (4 marks)

73. A 55 year old man comes into ED with a history of gastroenteritis for 4 days.

His ECG is shown below.



a. What is the most important abnormality? (1 mark)

b. List 3 important features to obtain from the history of presenting complaint. (2 marks)

c. List the most likely cause in this context and then 2 alternate differentials. (2 marks)

d. List and justify your immediate management priorities. (5 marks)

74. A 25 year old man is brought into your regional ED after a bicycle accident. He is not moving his legs and has limited upper limb movement. He has a soft stridor.

His vitals are:

GCS 14

P 62 /min
BP 80/40 mmHg
Sats 95 % 10L O2

A CT neck is done as part of his assessment.



a. Describe the major abnormalities. (3 marks)

b. Outline your management of his airway and breathing. (7 marks)

75. You are the director of an urban district ED. Your short stay unit has been suffering with prolonged length of stays and high admission rates.

a. List 5 contributing factors to these issues. (5 marks)

b. Outline the key steps in improving the short stay unit's length of stay and admission rates. (5 marks)

76. A 35 year old woman arrives after being brought in by friends due to her altered level of consciousness. Last seen 4 hours ago. They state she has been upset recently and has been commenced on 2 new medicines by her GP. Her GCS is 10, P 130 /min, BP 102/44 mmHg. She is Afebrile.

a. List 4 key ECG features you would look for on initial assessment and justify those. (4 marks)

b. List 3 key examination findings and relate these to differential diagnoses for her presentation. (3 marks)

c. List 5 key historical features you would ask her friends and justify. (3 marks)

77. A 55 year old woman is brought in with a GCS of 7. There is no sign of trauma. There is a history of ethanol abuse. P 105 /min, BP 100/40 mmHg, afebrile, Sats 98 2L NP, RR 34 /min.

Her VBG is TCH-ED			
Type	VENOUS		
Analys. Time 08:49			
FIO2	21	%	
Temperature	36.4	Deg. C	
pH	7.53H		7.34-
7.44			
pCO2	22L	mmHg	35-45
HCO3	21.9L	mmol/L	22-26
Base Excess	-4.3L	mmol/L	-
2.4/+2.3			
pO2	48L	mmHg	75-100
O2 Sat	85.9L	%	95-98
<u>TEMPERATURE CORRECTED</u>			
pH (37.0)	7.54H		7.34-
7.44			
pO2 (37.0)	46L	mmHg	75-100
pCO2 (37.0)	21L	mmHg	35-45
<u>ELECTROLYTES</u>			
Potassium	3.9	mmol/L	3.5-5.0
Sodium	146H	mmol/L	137-145
Chloride	116H	mmol/L	98-106
iCa++	1.06L	mmol/L	1.13-
1.32			
iCa++ (pH7.4)	1.12L	mmol/L	1.13-
1.32			
Glucose	7.8H	mmol/L	3.7-5.9
Lactate	3.3H	mmol/L	<2.0
Anion Gap	16	mmol/L	8-16
<u>BLOOD CO-OXIMETRY</u>			
Total Hb	69L	g/L	117-146
Oxy Hb	82.1L	%	94-98
Reduced Hb	13.5H	%	0-6
CarbOxy Hb	2.9H	%	0.5-1.5

a. What is the acid-base abnormality? (1 mark)

b. What are the 3 other significant findings? (1 mark)

E

c. What is the likely diagnosis (with justification) and what are 2 differentials? (3 marks)

d. Outline your major goals of management. (5 marks)

78. A 72 year old man comes in with change in facial appearance and mild headache.



- a. What are the key clinical findings from this photo? (2 marks)
- b. What is the likely diagnosis with justification? (2 marks)
- c. What other findings would you search for on physical exam? (2 marks)
- d. Outline your disposition and management plan (4 marks)

79. A 22 year old man presents having taken an overdose 2 hours ago. His family state he may have taken aspirin.

- a. What clinical features might the patient have? (4 marks) (any of)

b. State 2 biochemical abnormalities that might be evident. (2 marks)

c. What are the indications for urinary alkalinisation? (2 marks)

d. What patients can be discharged? (2 marks)

80. A 60 year old woman presents to ED with the primary complaint of being a 'funny colour'.

Blood results reveal:

Bilirubin	60	(1-20)
AST	400	(4-45)
ALT	200	(0-45)
GGT	125	(0-60)
Amylase	100	(25-136)

a. What is the predominate pattern of these blood results? (1 mark)

b. What are your 4 most likely differential diagnoses? (4 marks)

c. List 5 further investigations you would order in the ED to assist your diagnosis. Briefly justify each one. (5 marks)

81. An 18 year old factory worker is rushed to ED having sustained a chemical burn to his eye. He thinks the chemical had ammonia in it. It is now 20 minutes since the accident.

His eye is pictured here.



a. Describe the picture. (3 marks)

b. What is your immediate management? (4 marks)

c. Name 3 things you would do to assess this injury, including prognostic indicators. (3 marks)

82. A 74 year old lady presents to ED with a history of being found on the floor at home confused.

Her arterial blood gas is shown below

FI O₂ = 6 litres O₂

pH	7.29	(7.35 – 7.45)
pO ₂	80 mmHg	(35 – 45)
pCO ₂	64 mmHg	(90 – 100)
Bic	30 mmol/l	
Base excess	+3	

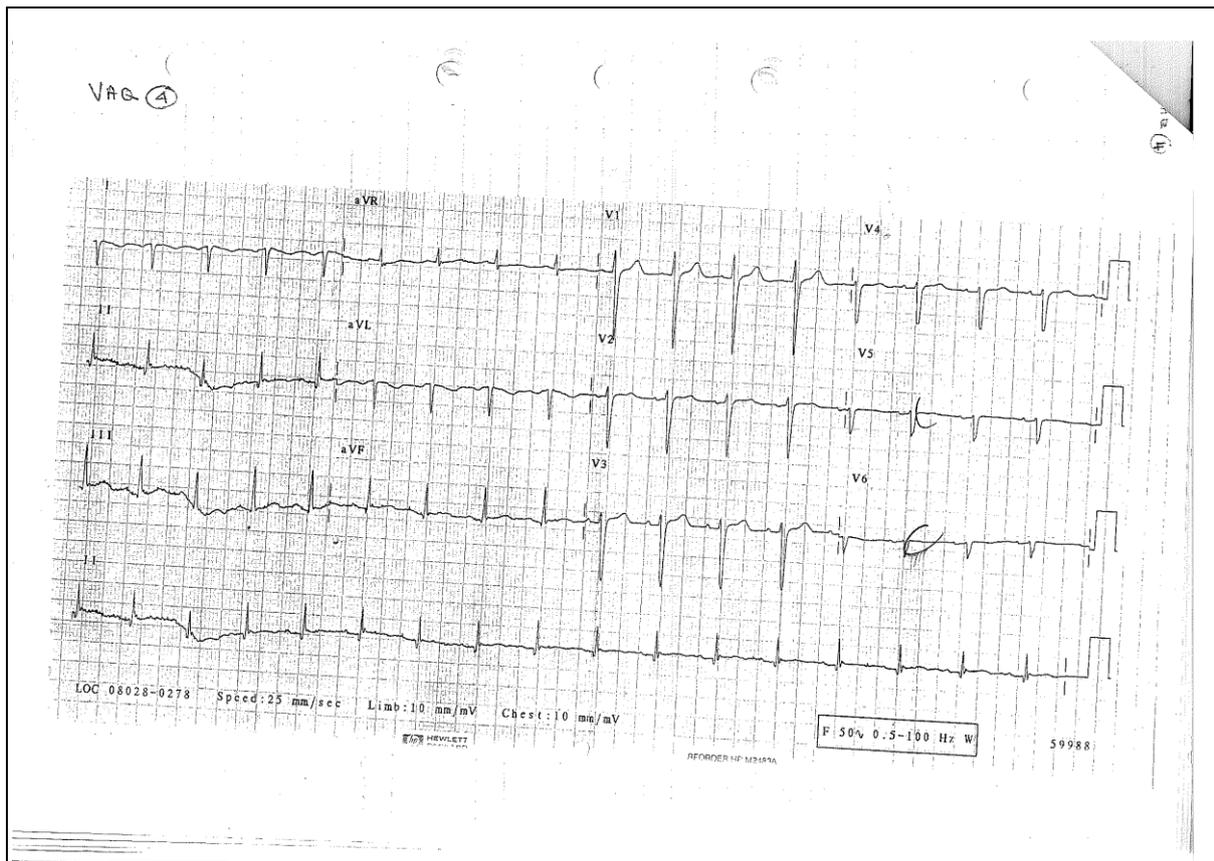
a. What do these blood results indicate? (Interpret these results) (3 marks)

b. Name 4 conditions you should consider in the differential diagnosis for the woman's presentation. (4 marks)

c. List your immediate management priorities. (3 marks)

83. A 25 year old previously fit and well man presents to the ED with chest pain following a tackle at rugby.

An ECG is attached.



a. Describe the ECG. (3 marks)

b. What are 3 possible causes of the ECG appearance? (3 marks)

c. How would you further assess this patient? (4 marks)

84. A 1 year old presents to your ED with a history of a few days of fever and general unwellness.

A picture of his hand is attached.



a. List 4 differential diagnoses for this patient. (4 marks)

b. List 4 other features you would look for on examination to support your most likely diagnosis. (4 marks)

c. List possible complications of this condition. (2 marks)

85. A 50 year old man presents to ED unable to weight bear on his right leg after falling 4 metres off a ladder.

His x-ray is shown below.



a. Describe the x-ray finding. (2 marks)

b. List 4 commonly associated injuries or complications of this injury. (4 marks)

c. List your immediate management priorities in this patient. (4 marks)

86. A 50 year old woman presents to ED with a 4 days history of malaise, intermittent fever, and the rash depicted here.



Source: Wolff K, Johnson RA: *Fitzpatrick's Color Atlas and Synopsis of Clinical Dermatology*, 6th Edition: <http://www.accessmedicine.com>

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a. Describe this rash. (3 marks)

b. List 4 important examination findings that would be relevant in this case. (4 marks)

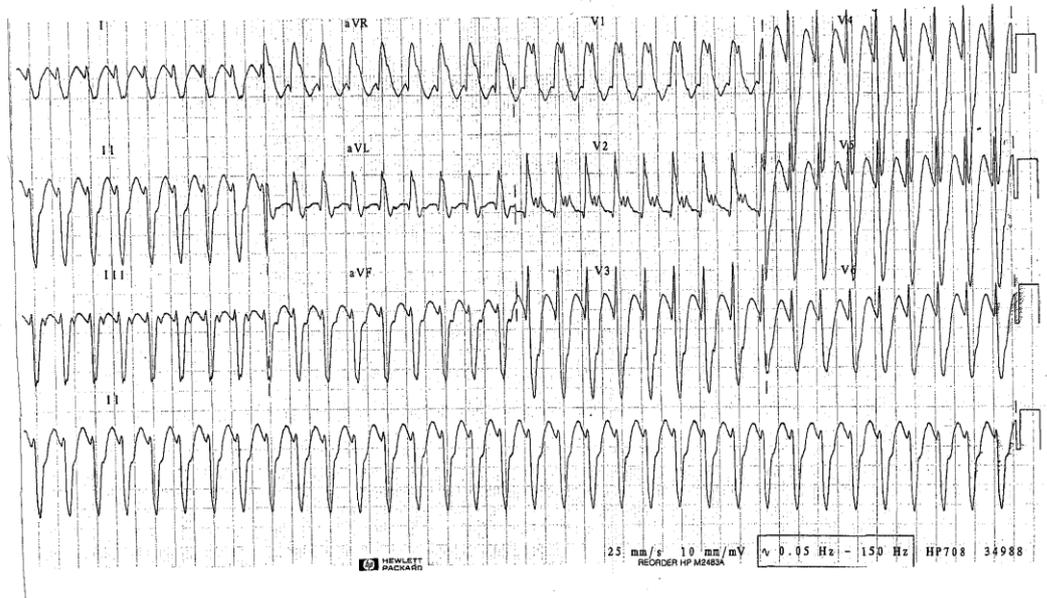
c. Name the 4 most relevant investigations that you would perform in the ED. (4 marks)

87. A 41 year old man is brought in by ambulance with a one hour history of palpitations

associated with chest discomfort. His GCS is 15 and BP 90/60 mmHg.

His ECG is attached.

VHQ 5



a. What is the most likely diagnosis? (1 mark)

VT

b. What features on history and ECG are supportive of your diagnosis? (3 marks)

Hx – age over 35

ECG – regular broad complex tachycardia, assume VT as safest approach, see ARC guideline note below

Very high rate 200 bpm

'Northwest axis' +ve aVR, neg I, aVF

Brugada's sign – onset QRS to nadir S >100ms seen in II

Josephson's sign notching near nadir S wave

Not a RBBB or LBBB pattern

c. Name one algorithm or diagnostic criteria that you use clinically when interpreting an ECG such as this one. (1 mark)

A number of algorithms – Brugadas, ultra-simple Brugadas,....see LITFL VT page, great reference

d. Briefly outline your immediate management priorities. (5 marks)

88. A 35 year old woman presents to your ED with an acute asthmatic attack. She is on continuous salbutamol nebs, is highly distressed and only speaking single words.

a. Name 4 features on history that increase the risk of severe life threatening asthma. (2 marks)

a. List at least 6 therapeutic drug classes that may be used in the treatment of a severe attack. (2 marks)

b. Outline what your initial ventilator settings would be. (4 marks)

c. What physiological targets are you aiming for? (2 marks)

89. A 7 year old boy presents with acute respiratory distress. He is intubated in your department by a senior registrar as he has oxygen saturations of 84% on 15L oxygen via NRB mask and is tiring. You are called to the resuscitation room after intubation as his HR falls from 142 /min to 70 /min and oxygen saturations drop from 90% to 75% on 100% oxygen. He is attached to the Oxylog 3000 ventilator. The registrar reports a first pass intubation taking 40 seconds to complete.

a. List your top 6 differential diagnosis for this deterioration (6 marks)

b. Outline your approach to the airway in the order that you would perform. (4 marks)

90. A 70 year old man with type 2 diabetes presents to your ED with 24 hours of malaise. His initial observations are: HR 120 /min and BP 70/40 mmHg. His bedside BSL is 11.2 mmol/L and his central capillary refill is 5 seconds. He is confused and review of past notes indicates that this is new and he has a history of alcoholism.

a. What are the 3 most likely causes of this presentation? (3 marks)

b. What key initial investigations will you perform? (4 marks)

c. You perform a PR that shows heavy melena, the patient then has a large fresh haematemesis. List 4 initial management. (2 marks half a point for each)

91. This 24 year old female presented to the emergency department complaining of painful lumps and redness confined to her lower legs which had developed over the last two weeks.



a. List your main differential diagnosis with the most likely listed first. (5 marks)

Erythema nodosum
Cellulitis
Contact dermatitis
Insect bites
Burns
Erythema multiforme
HSP
Trauma
Erythema induratum
Well's syndrome
Panniculitis

b. List the most likely aetiologies for the most likely diagnosis. (5 marks)

92. A 17 year old male is brought to ED by ambulance, complaining of abdominal pain and vomiting. He appears confused and is unable to provide a good history. On examination his vitals are: Temp 37.9 °C, BP 100/50 mmHg, HR 110 /min.

Blood tests taken on arrival show:

Na	140	mmol/l	(135-145)
K	5.0	mmol/l	(3.5-5.5)
Chloride	100	mmol/l	(95-110)
Creatinine	0.1	mmol/l	(0.03-0.08)
Urea	16	mmol/l	(3.0-8.3)
Glucose	40	mmol/l	(3.3-8.3)
Hb	167	g/l	(135-175)
PCV	50	%	(41-53)
Plt	224		(140-400)

WCC	21.8		(4-11)
Neutrophils	19.2		(4-11)
pH	7.133		(7.35-7.45)
pCO ₂	24.8		(35-45)
pO ₂	112		(90-100)
HCO ₃	8.3		(24-32)
BE	-19.6		
SaO ₂	96.8	%	

a. List the major abnormalities. (4 marks ½ for each)

b. What is the diagnosis? (1 mark)

c. What is your initial management? (5 marks)

93. A 30 year old man presents after 24 hours of vomiting. He looks sweaty and unwell.

Initial observations: Temp 37.2°C, HR 120 /min, BP 80/50 mmHg, RR 22 /min, SaO₂ 99% on room air.

Initial lab results:

Hb	154	g/L	(110-165)
WCC	13.3	x10 ⁹ /L	(3.5-11)
Plt	239	x10 ⁹ /L	(140-400)
Na	130	mmol/L	(135-145)
K	5.2	mmol/L	(3.5-4.5)
Cl	101	mmol/L	(100-110)
HCO ₃	21	mmol/L	(22-33)
Urea	10.7	mmol/L	(3-8)
Creat	94	umol/L	(50-100)

Ca (total)	.39	mmol/L	(2.15-2.6)
Alb	48	g/L	(33-47)
Gluc	4.1	mmol/L	(3-7.8)

a. What are the abnormalities? (2 marks)

b. List your differential diagnosis with most likely listed first. (7 marks)

c. What test is used to confirm the most likely endocrine diagnosis? (1 mark)

94. A 55 year old man is referred to your ED by his GP with a complaint of being “generally unwell”. He has a history of hypertension.

The patients chemistry and venous blood gas are shown below:

Na	144	mmol/L	(135-145)
K	1.7	mmol/L	(3.3-4.9)
Cl	85	mmol/L	(98-106)
HCO ₃	40	mmo/L	(3.0-8.0)
Creat	0.08	umol/L	(0.05-1.12)
pH	7.56		(7.35-7.45)
pCO ₂	44	mmHg	(35-45)
pO ₂	68	mmHg	(90-100)

a. Describe and summarise the results. (4 marks)

b. What is your differential diagnosis? (6 marks)

95. A 65 year old man with insulin dependent diabetes mellitus presents to the ED with a marked sudden decrease in vision.

a. What are your top 6 differential diagnoses? (3 marks)

b. What are the key historical features you would ask for to help differentiate between these? (7 marks)

96. A 60 year old female presents to ED with a painful red eye. There is no history of trauma.

a. What features on history and examination would you expect in acute closed angle glaucoma? (3 marks)

b. You diagnose acute closed angle glaucoma. Outline your management. (7 marks)

97. A 58 year old woman presents to the ED complaining of a five day history of sore throat and progressive difficulty swallowing. Examination reveals she is febrile with stridor at rest. Oropharyngeal examination does not reveal an overt diagnosis.

a. What is your differential diagnosis? (2 marks)

b. What are the key features in your immediate management? (8 marks)

97. A 74 year old female presents to ED with 2 hrs of left sided epistaxis. HR is 80 /min, all other vitals are within normal limits. She has been pinching the anterior nares tight for 20 minutes.

a. List 4 risk factors for epistaxis in this patient population. (2 marks)

b. You examine the nose and the nostril is full of clotted blood, there is still active bleeding around this and the patient reports blood trickling down the back of their throat. Outline your approach. (6 marks)

c. You are now able to examine the nose and there is still active bleeding but you are unable to see a bleeding point.

The patient's vitals are HR 115 /min, BP 105/60 mmHg, SaO₂ 96% RA.

What methods are available to specifically treat this scenario? (2 marks)

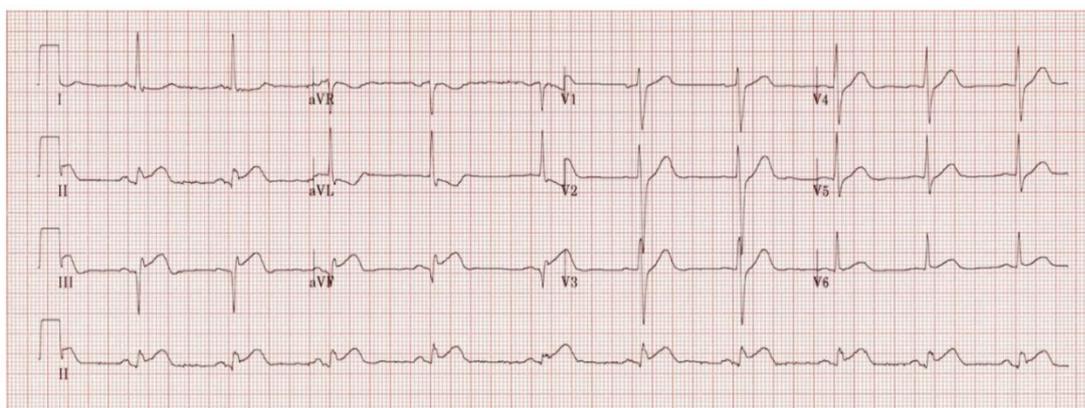
98. You have just intubated a 75 year old 60kg woman with deteriorating respiratory function after a fall causing isolated closed chest injuries. She has a history of COPD. She has become increasingly hypoxic and hypotensive since intubation. Your hospital does not have an intensive care unit.

a. List 8 causes for her deterioration (4 Marks)

b. Her hypotension resolves although she has an ongoing high oxygen requirement and high ventilator peak pressures. You have a simple VOLUME cycled ventilator.
List basic ventilator settings for this woman and outline your ventilation strategy. (4 Marks)

c. This woman needs to be transferred to a tertiary hospital for ongoing management. A retrieval team will arrive in 2 hours to transfer her by fixed wing. You do not need to supply staff for the retrieval. Outline how you would prepare for this transfer. (2 marks)

99. A 68 year old woman presents with central chest heaviness and nausea. An ECG is performed and is shown below.



Her vitals are:

BP	120/70	mmHg
PR	60	/min
RR	18	/min
SaO ₂	99	% RA
GCS	15	

a. List the 4 most important features on this ECG. (2 marks)

b. List 3 arrhythmias associated with these ECG findings. (3 marks)

c. You are 3 hours away from the nearest cardiac catheter facility. Describe how this might change your management approach. (3 marks)

d. List 2 important management differences between an inferior ST-elevation myocardial infarction and an anterior ST-elevation myocardial infarction. (2 marks)

100. The mother of a child makes a complaint.

She states that three days previously, her 5 year old son had presented to the ED with elbow pain after a fall onto his outstretched hand.

Following x-rays, the treating doctor had “pulled on the elbow several times causing him to cry”. The doctor stated that he had suffered a “sprained elbow” and to return if the pain did not settle. The mother is distressed that her son had received no analgesia for the sprain and that he continued to not move the elbow because of pain. She also complained that the doctor spoke in a rude and insulting manner, and was very rough in his examination.

During your investigation, you find that the official report of the x-ray revealed a supracondylar fracture.

a. Describe 3 steps in dealing with this child’s second presentation.

b. List the 4 most important steps in dealing with the mother’s complaint.

c. Describe 3 strategies to mitigate the risk of this happening again.

d. List 3 key features which define a pulled elbow.

101. Your director wants you to write a set of guidelines for the use of physical restraints on a patient in the ED.

a. List 3 indications and three contraindications for patients under these guidelines.

b. Outline 4 mandatory observations that should occur during restraint.

c. Describe 3 circumstances under which you would remove the physical restraints.

d. List 3 legal frameworks under which physical restraint could occur.

102. A number of staff have been assaulted over the last 6 months in your ED.

a. List 5 key stakeholders to involve in discussions around this issue.

b. Outline 3 measures at triage to potentially decrease these assaults.

c. Outline 4 hospital-wide measures (i.e. non-emergency department specific) to potentially decrease these assaults.

d. List 4 factors which may have led to the increase in assaults.

103. You have been called to assist a junior doctor dealing with an upset family. The family is unhappy with the proposal of a "Do Not Resuscitate" (DNR) order for their elderly mother.

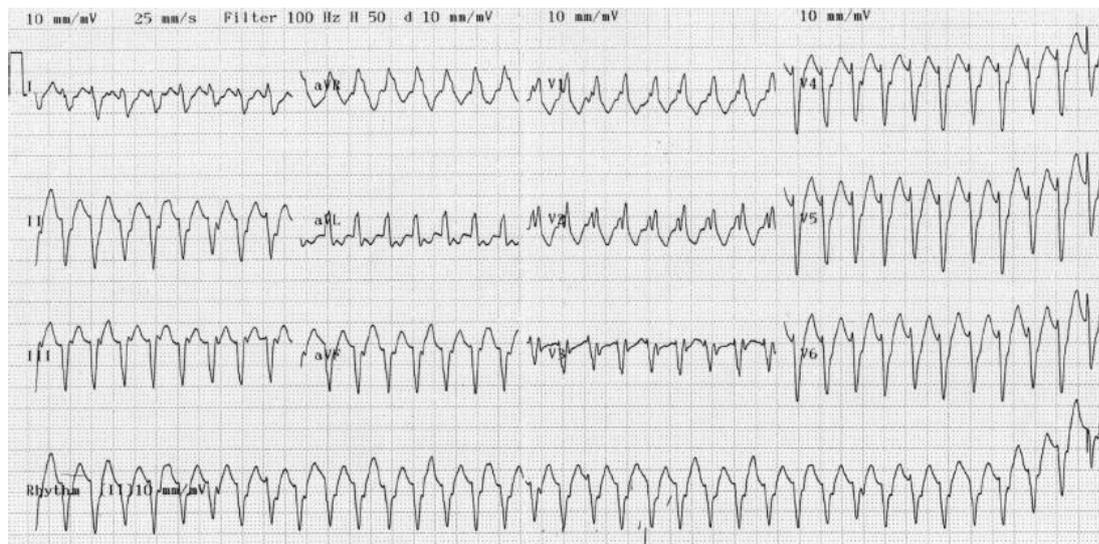
a. List 4 factors which would support the proposal of a DNR order.

b. Describe 3 specific methods for dealing with the upset family.

c. List 3 key pieces of advice you would give your junior doctor in dealing with this in future.

d. Assuming a DNR order was written up and a decision was made to palliate this patient, list 4 medications you would chart on the patient's drug chart to assist this goal.

104. A 48 year old man presents with dizziness and palpitations. An ECG is performed and is shown below.



The patient's vitals are:

BP 100/60 mmHg
RR 18 /min
GCS 15

a. What is the diagnosis? (1 mark)

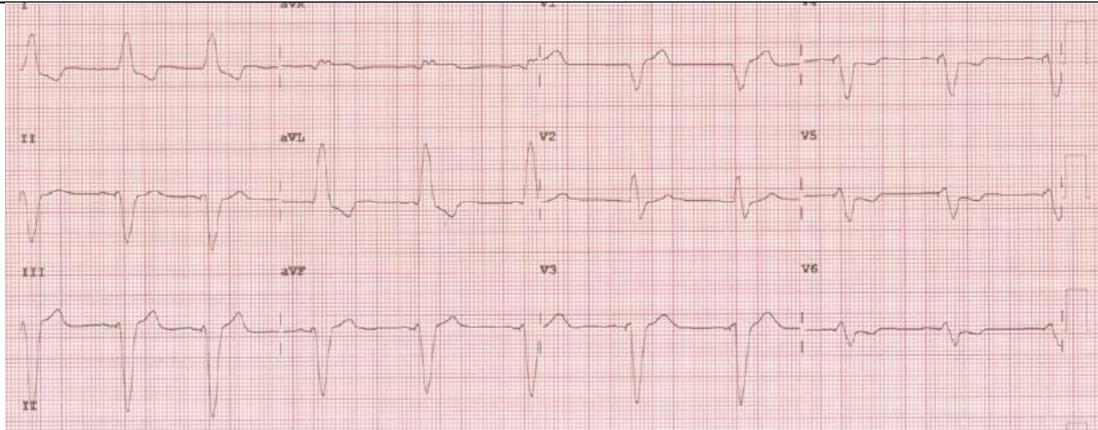
b. List 3 features on this ECG which supports your diagnosis. (3 marks)

c. The patient's BP drops to 70/40 mmHg and he becomes confused. Describe your 2 most important management priorities at this time. (4 marks)

d. Is implantable defibrillator an option in this patient? Justify your answer. (2 marks)

105. This 77 year old man presents with chest pain and dizziness on the background of Type II diabetes mellitus and a permanent pacemaker (PPM) for a sick sinus syndrome 3 years earlier. A recent PPM check was normal.

An ECG is performed and is shown below.



a. List 2 important abnormalities on this ECG. (2 marks)

b. What is the likely pacing mode shown in this ECG? (1 mark)

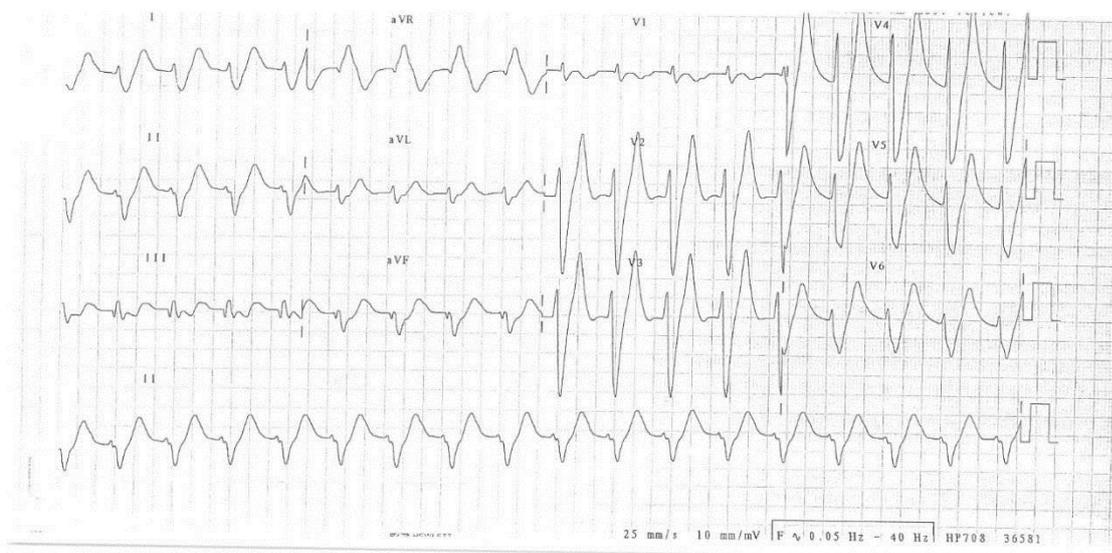
c. List 3 common pacing modes in use in Australia and the common clinical circumstances they are used in. (3 marks)

d. Describe your immediate management priorities in this patient. (4 marks)

106. A 48 year old haemodialysis patient presents to ED complaining of muscle weakness and nausea.

Vital signs are:

Temp 37.2 °C



BP 100/50 mmHg
RR 20 /min
SaO₂ 94 % on air
GCS 15
Weight 76 kg

The following ECG is performed:



- What is the key diagnostic feature of this ECG?
- List 5 potential causes of this condition in this patient.
- List 6 treatments for this condition in this patient.

107. An 18 year old male presents the ED having a severe asthma attack. He is on high flow oxygen and receiving nebulised salbutamol.

His vitals are as follows:

HR 140 /min
BP 110/60 mmHg
RR 32 /min
GCS 13/15

An ABG is taken.

pH	7.10		(7.35-7.45)
pO ₂	54	mmHg	(90-10)
PCO ₂	120	mHg	(35-45)
HCO ₃	18		(24-32)
BXS	-5		
Lactate	4		

a. List 4 abnormalities on this ABG. (2 marks)

b. Give the names, routes and doses of 6 medications you would treat this man with. (3 marks)

c. List 4 complications of RSI/ intubating this man. (2 marks)

d. Describe your ventilator settings in a patient with acute asthma. (3 marks)

108. A 55 year old man is brought to the ED after being found collapsed at home. He has a medication alert bracelet indicating he has type 1 diabetes.

His observations are:

GCS	12		
BP	90/60	mmHg	
HR	130	/min	
RR	30	/min	
Temp	38	°C	

A photograph of the patient's left thigh is taken and is shown below.



- a. Give 3 differential diagnoses. (3 marks)

- b. Name the antibiotics, routes and doses you would use. (2 marks)

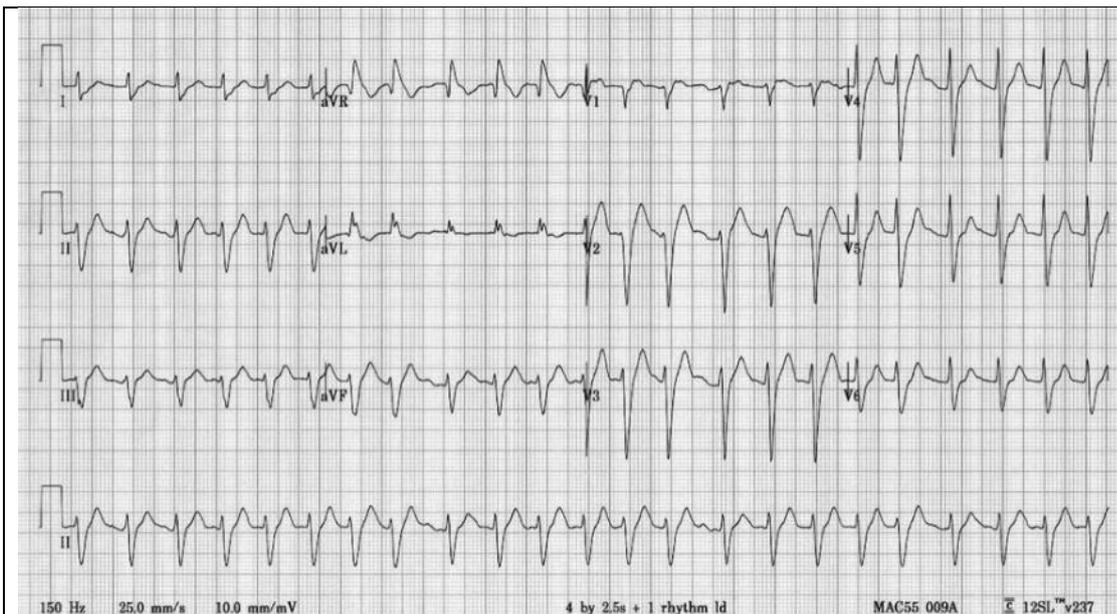
- c. Give a detailed description of management priorities for this patient. (5 marks)

109. A 46 year old man is brought to your ED by ambulance following an overdose of unknown medications. He has had a brief generalized seizure en route.

On arrival his observations are:

GCS	12	
BP	85/60	mmHg
Temp	37.0	°C
O ₂ Sat	100	% on 8 L/min O ₂

His ECG is shown below:



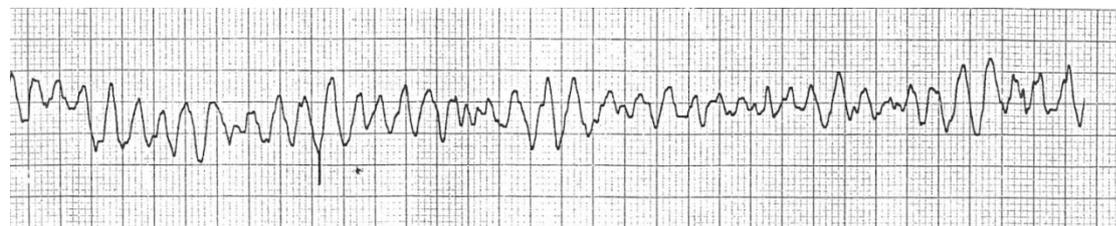
a. Describe the ECG. (5 marks)

b. What are the first 5 things you would do to manage the patient? (5 marks)

110. An elderly man collapses and is unresponsive at a shopping centre.

a. What are the 4 elements in the chain of survival that improve the probability of survival? (2 marks)

He receives prompt BLS from bystanders, then defibrillation from an AED prior to the arrival of the ambulance 10 minutes post-arrest. He is found to be in VF and does not revert with defibrillation by the ambulance crew. He is transported to ED, where he is still pulseless and the monitor shows this rhythm.



b. What are your immediate actions? (8 marks)

111. Old Format SAQs

a. Discuss the investigations for a suspected pulmonary embolus in a 24 year old woman who is 10 weeks pregnant.
(100%) (2010.1)

b. A 24 year old woman presents with a left sided spontaneous pneumothorax.
Discuss the treatment options for her pneumothorax (100%) (2011.2)

112. A 48 year old man is brought by ambulance to your tertiary ED following a collapse at home. GCS on arrival is 3. He is immediately intubated and ventilated before CT scanning of his head and neck. CT reveals a massive intraparenchymal haemorrhage with obstructive hydrocephalus. The neck CT scan is normal. He was previously well on no medication. His partner is present and requests information about his treatment and prognosis.

His observations are:

HR	60	/min
BP	180/110	mmHg
O2 sats	100	%
Temp	36.3	°C

Old Format Question

Describe your management (100%)

New Format questions

a. What are your management priorities?

b. List and justify 4 other investigations you would perform.

c. Describe 5 urgent interventions you would perform.

d. What are the principles for gaining consent for organ donation?

113. You work in a rural edwith only basic specialties represented. An 80 year old man is delivered to your ED with an acute anterior ST elevation MI. He developed central chest pain 2 hours ago, which is ongoing. He is anxious, pale and diaphoretic. Widespread crepitation can be heard throughout his lung fields. Your local helicopter is out on another job and you have no alternative retrieval options for at least 4 hours.

His observations are:

GCS	15	
HR	100	/min
BP	190/105	mmHg
RR	24	/min
O2 sats	91	%
Temp	36.8	°C

Old Format Questions

A. Outline your treatment. (70%)

b. List absolute and relative contraindications to fibrinolytic treatment in patients with acute MI.

New Format Questions

a. What are your treatment priorities?

b. List absolute and relative contraindications to lysis. (as above)

c. Despite your treatment, the patient drops their GCS to 7. List 5 reasons that may explain this deterioration.

d. You elect to intubate this patient. Outline your drug options for induction.

114. A baby is born in your resuscitation room after a precipitous birth from a 32 week pregnant woman. The baby is not breathing and there is thick meconium stained liquor on the bed. The delivery is otherwise uneventful and the mother requires no acute medical treatment. There is no on-site neonatal or obstetric service.

Old Format question

a. Describe your management. (100%)

New Format Question

a. List seven essential equipment items that should be available for resuscitation of a neonate.

b. List the immediate complications of this preterm labour.

c. Describe the main differences between the adult and neonatal airway.

d. List the management priorities for this child for the first 5 minutes.

e. What preparations do you need to make prior to transfer to definitive care?

EMQ 1

a) Adrenaline	e) Milronone
b) Dobutamine	f) Noradrenaline
c) Dopamine	g) Vasopressin
d) Levosimendan	

For each pharmacological effect below chose the corresponding drug from the list above.

1. It is a phosphodiesterase III inhibitor
2. It is a non adrenergic peripheral vasoconstrictor
3. It has a potent alpha agonist with significant action at beta 1 receptors and a relative absence of beta 2 effects
4. It is indicated in the treatment of anaphylaxis

EMQ 2

a) 0.1-0.2 mmol/kg	f) 5 mg/kg
b) 1 mmol/kg	g) 5 mcg/kg
c) 1 mg/kg	h) 10 mcg/kg
d) 2 J/kg	i) 20 mcg/kg
e) 4 J/Kg	

Regarding paediatric cardiac arrest match the correct dosing schedule.

1. Adrenaline
2. Magnesium
3. Amiodarone
4. Defibrillation

5. Atropine

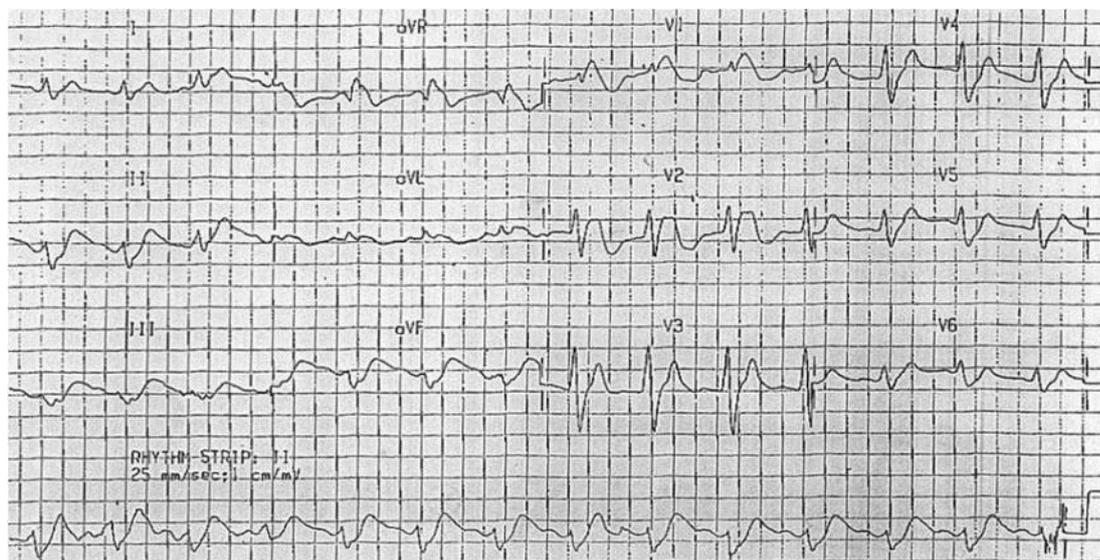
6. Bicarbonate

EMQ 3

a) Adrenaline	g) Crystalloids
b) Atropine	h) Lignocaine
c) Amiodarone	i) Magnesium
d) Bicarbonate	j) Potassium
e) Bretylium	k) Lignocaine
f) Calcium	

In each of the situations below choose the drug which is most appropriate in that setting.

1. A 23 year old man with a history of depression presents via ambulance with a GCS of 10, has a generalised tonic clonic seizure followed by brief VF arrest. They have return of circulation after one DC shock. This was the initial ECG.



2. A 72 year old woman presents to resus via ambulance having arrested during offload. She has known ischaemic heart disease but is otherwise well. The ambulance was called for a complaint of chest pain. CPR has been commenced and a single shock has been given.

3. A 1 week old baby presents to resus in extremis with poor perfusion, tachypnoea with recessions. The baby has a prolonged apnoea and you decide to intubate. Post successful intubation the heart rate drops to 50, there is still a palpable pulse
4. A 64 year old is in VF arrest, they have had 2 shocks and one dose of adrenaline. You are preparing to give the 3rd shock.

EMQ 4

a) 0.05-0.15 mg/kg	f) 5 mg/kg
b) 0.3 mg/kg	g) 0.5 mcg/kg
c) 1 mg/kg	h) 1.5 mcg/kg
d) 2 mg/kg	i) 5 mcg/kg
e) 3-4 mg/kg	j) 10 mg/kg

Match the best dose (or range) with each scenario

1. Propofol initial dose for procedural sedation for young adult requiring relocation of an elbow
2. Intranasal fentanyl initial dose for analgesia in a child
3. Ketamine IM dose for procedural sedation in a child
4. Midazolam IV dose for anxiolysis and amnesia during a minimally painful procedure

EMQ 5

a) Bladder lavage	e) Peritoneal lavage
b) Cardiac bypass	f) Thoracic lavage
c) Forced hot air blanket	g) Warm blanket and removal of wet clothing
d) Gastric lavage	h) Warmed IV fluids

Which **single** rewarming technique from the list is the most appropriate for the given scenario? All patients have been retrieved to your tertiary ED.

1. A 20 year old university student has consumed 6 beers and has decided to paddle to a nearby island on a lilo. He missed the island and was picked up by a rescue helicopter. Immersion time 60 minutes. Temperature on arrival 35C shivering vigorously.
2. A 34 year old woman was ice skating on a frozen lake in the South Island. She fell through the ice. She was recovered after 30 minutes of submersion. CPR commenced immediately. Temperature 19C. She is asystolic
3. A 58 year old man has overdosed on quetiapine in the bush. He has been in the open for 12 hours. Haemodynamics normal. Drowsy but following commands. Temperature 33C. Not shivering.

EMQ 6

a) PO Chloral hydrate	f) Inhaled Nitrous oxide
b) Intranasal Fentanyl	g) IV Propofol with IV Fentanyl
c) IV Ketamine	h) IV Propofol
d) IV Midazolam	i) IV Thiopentone
e) Intranasal Midazolam	j) IV Propofol with nitrous oxide

You are a staff specialist working in a well-staffed tertiary Australasian ED. Choose the best option from the list for each of the following scenarios.

- a. Sedation of a 3 year old child with a displaced distal radius greenstick fracture requiring reduction.
2. Sedation of an otherwise well haemodynamically stable 45 year old man requiring DC cardioversion for atrial fibrillation.
3. Sedation for a cooperative 15 year old boy during a lumbar puncture.

EMQ 7

a) Bendrofluazide	f) Labetalol
b) Cilazapril	g) Metoprolol
c) Doxazosin	h) Midazolam
d) Frusemide	i) MgSO ₄
e) GTN	j) Nifedipine

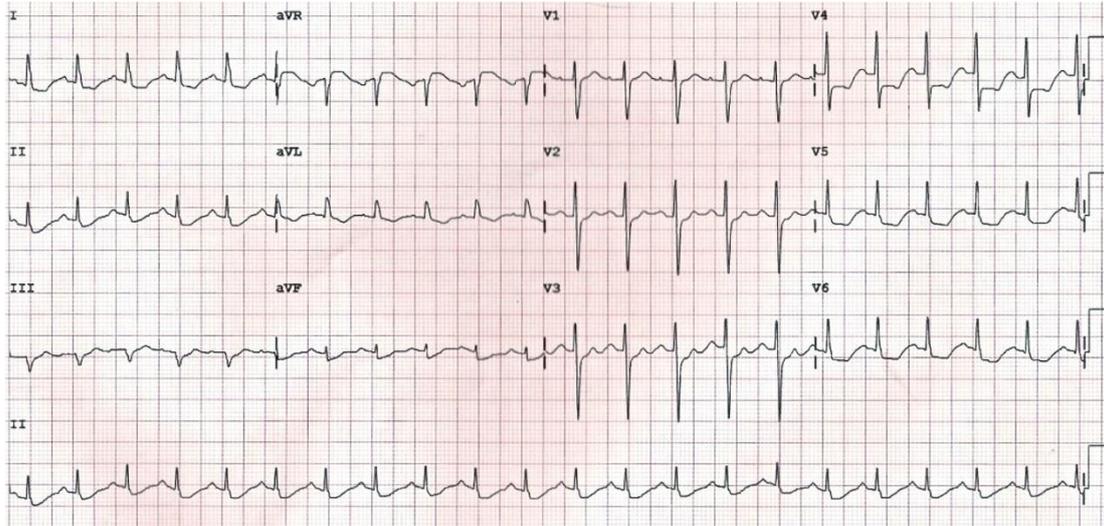
1. A 48 year old man presents with confusion and is found to be hypertensive 260/130 mmHg. What is the most appropriate agent?
2. A 76 year old woman presents with severe breathlessness and bilateral crepitations at 0500h. Her blood pressure is 210/110 mmHg. What is the most appropriate agent?
3. An agitated 21 year old man with needle tracts on his forearms presents with a blood pressure of 200/100 mmHg. What is the most appropriate agent?
4. A 29 year old woman who is 39/40 pregnant presents with headache, abdominal pain, swollen ankles and altered vision. Her blood pressure is 210/120mmHg. What is the best agent?
5. A 20 year old woman is 29/40 pregnant and presents in labour. Her blood pressure is 130/90. What is the best agent?

EMQ 8

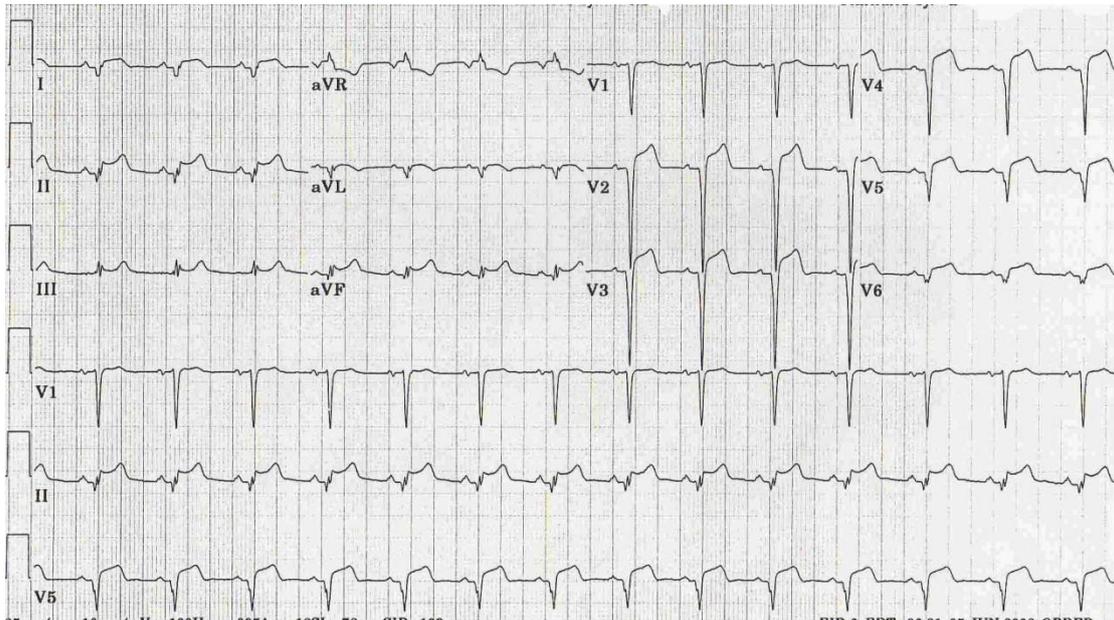
a) Anterior AMI	f) Posterior AMI
b) Inferior AMI	g) Lateral ischaemia
c) High lateral AMI	h) Pericarditis
d) Left main coronary stenosis	
e) LBBB AMI	

Consider 4 previously well middle aged men presenting with severe central chest pain. Each has an ECG taken. Select the most likely diagnosis for each of the following ECGs.

1. This ECG is most consistent with

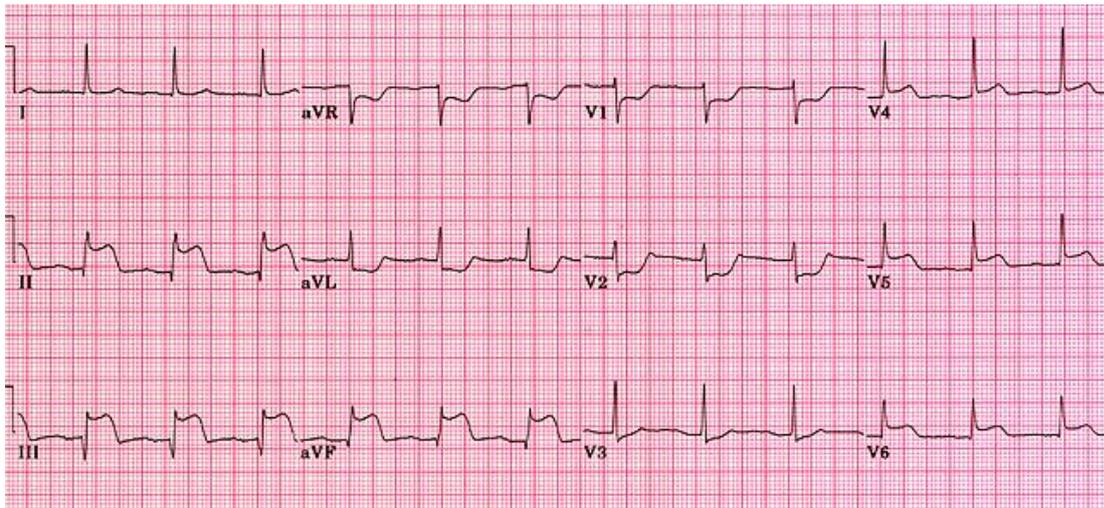


2. This ECG is most consistent with



h.

3. This ECG is most consistent with



4. This ECG is most consistent with

