

Scenario:

It is a busy shift on Boxing Day. You note the following Triage note as you go through the waiting room box. This one has caught your eye:

“ 32 year old, dived into water from 10m yesterday. Now has a black eye and says he has blurred vision. O/E Looks well, has black eye, can't open it, not distressed. Cat 5”

Q1. You pull him out of the pile. What diagnoses are you concerned about and why? (/2)

Accept reasonable answers that would explain the reason(s) for concerns – is why this man may have a time critical diagnosis. Hence * is essential for one of the 2 marks

- Blurred vision may suggest *globe trauma – from cornea to retina
- Vision is always suggestive of a time critical pathology

You bring him in and he looks well. He has a left orbital haematoma. He has subcutaneous emphysema over the left orbital area. His visual acuity is limited – he says he can see the fingers you hold up and he has diplopia in all directions.

Q2. What are the potential injuries to each of the following structures? (8 marks)

Below, are the acceptable answers, the list is not exhaustive. One mark for each pathology.

Structure	Pathology
Anterior chamber	Hyphaema
Pupils	Afferent defect – optic nerve pathology from retrobulbar haematoma leading to orbital compartment syndrome
Lens	Dislocation
Vitreous	Bleeding, detachment Raised IOP
Retina	Detachment
Globe	Globe asymmetry; Enophthalmos: globe rupture Exophthalmos: retrobulbar haematoma
Eye movements	Entrapment of EOM usually the inferior rectus in orbital floor fractures

Optic nerve	Raised IOP - ischaemia

3. You are most concerned about your clinical findings. You are unable to do a satisfactory slit-lamp examination of him. The ophthalmology Registrar is coming in to see him. In the meantime, the CT that you have organised has been done.



3. What are the abnormalities seen? (/2)

The following are the expected answers.

- *Left Retrobulbar collection – haematoma*
- *Exophthalmos*

4. What is the diagnosis that would explain his clinical signs? (/1)

- the diagnosis is orbital compartment syndrome

5. How does this diagnosis explain the following: (/5)

a. Reduced visual acuity (/3): raised ocular compartment pressure causes a rise in the intraocular pressure. This leads to reduced perfusion pressure of the ophthalmic artery. This leads to optic nerve ischaemia – retinal ischaemia. There is also traction on the optic nerve. After 24 hours, it is possible that he may have retinal infarction already.

b. Diplopia in all directions of gaze (/2) ?

Expanding haematoma may place traction on his extraocular muscles and limiting their actions. Eye movements may be limited hence diplopia results from lack of conjugate movement with gaze.

He may have an orbital floor fracture. However, that usually only impacts on the inferior rectus and diplopia is only present with upward gaze.

6. What temporizing measure can you take in the ED while waiting for the ophthalmology registrar? Include a rationale in your answer.(/2)

- Lateral canthotomy to reduce the raised compartment pressure.

NSW Fellowship trial 2019-1 Question 2

A 78 year old woman is brought into the ED with confusion. She has been taking bowel prep for a colonoscopy due the next day. Her husband says she has been drinking lots of fluid. She has passed copious amounts of urine such that he was concerned that she was overdoing it.

On arrival, she is mumbling but cooperative. She is noted to have increased tone in all her limbs.

Her HR is 80/min. BP 140/90. Temp 37C. RR 20/min. Weight: 70kg

Na	110	135-145mmol/L
K	2.9	3.5-4.5 mmol/L
Cl	62	95-110mmol/L
Urea	3.6	2.9-7.1 mmol/L
Creatinine	50	45-90 umol/L
Glucose	5.0	3.0-6.0 mmol/L

Q1. Indicate the 3 investigation pertinent to the investigation of hyponatraemia in this patient? (/3)

1. Measure serum osmolality. Calculated and formal lab measurement
2. Measure the urine osmolality to differentiate between normal or abnormal renal response to the type of hyponatraemia
3. Measure the urine spot/random Na concentration (< 40mmol/L)

Q2. Indicate how you would determine the cause of her hyponatraemia from the results of your investigations and the history. (/3)

- Patient is hypo-osmolar hyponatraemia
- Dilute urine with spot urine Na < 40 means water excretion is less than water intake. There is no Na wasting. Suggestive of Polydipsia
- Dilute urine with spot urine Na > 40 means there is water and Na excretion in excess/wasting. Points to renal problems: ATN polyuric phase; Post-op diuresis. This is unlikely in this case
-

Within 30 mins of arrival, she has a tonic-clonic seizure for 2 mins, which stopped spontaneously.

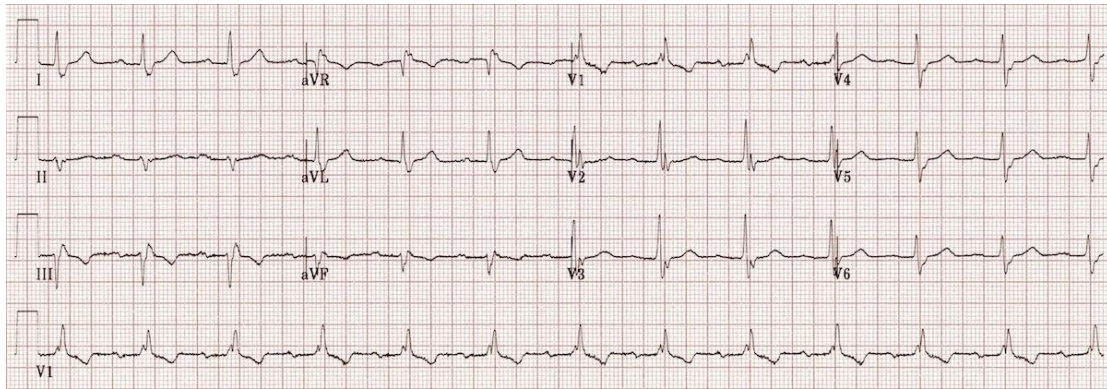
You decide to use 3% hypertonic saline to correct her hyponatraemia because it is readily available in your ED.

4. Outline your approach (/4)

Suggested answer is below. Other reasonable answers accepted. Main points are : careful titration and monitoring and waiting for effects.

- 2ml/kg up to a limit of 100mls
 - Over a minimum of 10 mins (range accepted is 10-60mins)
 - Titration point is a rise of 0.5mmol/L in one hour
 - Maximum rise is 6mmol/L over the first 24 hours in acute hypoNatraemia
 - NB Seizure is likely if the acute hyponatraemia is below 120mmol/L.
Hence it was expected in this patient
 - Sit tight, fluid restrict and wait
 - Likely to need CTB later for other causes of seizure
-

NSW Fellowship trial 2019-1 Question 3



Question

A 64 year old man is brought in by ambulance after falling over at the club. He has had 3 beers during the Christmas lunch. He does not appear to be intoxicated.

He had a previous admission to your ED 3 months ago after a fall.

On arrival:

BP 145/90

HR 75/min

SaO2 98% RA

Temp 37C

1. What is your interpretation of the ECG? (1 mark) Please outline the features to support your answer (3 marks)

- Trifascicular block
- Left axis deviation
- RBBB
- Prolonged PR – first degree heart block

2. What are the likely causes of his fall? (2 marks)

Must include the * answer and then any 1 of the below. Nb The list is not exhaustive. Reasonable answers accepted on examiner's discretion.

- *Arrhythmia – he is at risk of complete heart block
- Alcohol – intoxication
- Mechanical fall
- Medication related

3. What investigations would be warranted? (2 Marks)

Any 2 of the following. Nb The list is not exhaustive. Reasonable answers accepted on examiner's discretion.

- Electrolyte abnormalities via EUC or vBG
- Imaging of injuries as appropriate
- CXR – for cardiomegaly

You note that his previous ED presentation had an ECG that looked the same as this one. He was discharged with a letter to his GP for removal of sutures to his forehead.

4. What is your management of the patient? (/2)

Answer must include the * and then one of the other listed. Nb The list is not exhaustive. Reasonable answers accepted on examiner's discretion.

- *Refer to cardiology for admission and assessment – likely to need a pacemaker due to his second fall
- Review his medication history
- Review his D&A history – ETOH/intoxication as a contribution to his falls

27 yo M known presents after using large amounts of intranasal cocaine over past 4 hours with suicidal intent.

On arrival to ED:

BP 180/105

HR 160

O2 Sats 98%

RR 24

Temp 40

GCS 15 but very tremulous and agitated.

1. List 3 complications you could expect in this patient and what investigations you would like to perform to investigate for these (3marks)

Complication	Investigation
Intracranial haemorrhage	CT Brain
Aortic dissection	CXR for widened mediastinum: If concern CTA
Acute coronary syndrome	ECG, Troponin, ECHO
Hyponatraemia	EUC – low Na
Rhabdomyolysis	Elevated CK
Na channel blockade	ECG – wide QRS

(any 3 of these listed)

2. Outline 3 treatment priorities in this patient including clinical endpoints of treatment (3 marks)

Treatment	Clinical Endpoint
Benzodiazepines IV (ESSENTIAL ANSWER TO PASS THIS SECTION) Oral BDZ is not accepted.	To treat seizures, agitation, hypertension. To achieve gentle sedation
Active cooling as febrile: Cool if still febrile temp > 40: Cold IVF, ice in pulse points: armpits, groin, tepid water and fan, paralysis if no resolution of fever. If temp < 39 avoid paralysis so	Aim for normothermia

can monitor seizure activity	
<p>Treat hypertension: Benzodiazepines (as above)</p> <p>If remains HT for</p> <p>GTN (10 mcg/min increasing by 10 mcg/min every 3 minutes /</p> <p>phentolamine (1 mg every 5 minutes)/</p> <p>SNIP (0.3 mcg/kg/ minute for 10 minutes: then titrate to response)</p> <p>(ANY OF THESE 3 ANSWERS ARE ACCEPTED. B BLOCKERS is an INSTANT FAIL FOR THIS SECTION and it is POTENTIALLY a FATAL ERROR)</p>	Titrate to BP aim BP 140-150 systolic

3. List 2 specific treatment, drug dose and endpoint you would initiate based on this ECG (4 marks)

Treatment	Dose	Endpoint
Benzodiazepines	Diazepam IV 2mg boluses Midazolam IV 2mg boluses	Gentle sedation and improvement in HR and BP
NaHCO ₃ 8.4%	1 mmol/kg bolus	until narrowing of QRS and haemodynamically stable

Question 4

1. Most candidates scored 2-3 in this section.
2. Essential to say "IV benzodiazepine" to pass. Better answers had dose, frequency and number of repeat doses. Oral benzodiazepines did not score a mark and you failed the question.
3. Many candidates answered adenosine and amiodarone.

NSW Fellowship trial 2019-1 Question 5

A 78 year old woman presents from home. She is combative on arrival. Her neighbour found her lying on the floor of her ground floor unit. She is known to have diabetes on metformin. She is normally well.

pH	7.30	(7.35-7.45)
pCO ₂	31	(35-45mmHg)
pO ₂	90	(95-100mmHg)
HCO ₃	20	(22-28 mmol/L)

Na	140	(135-145mmol/L)
K	3.9	(3.5-4.5 mmol/L)
Cl	105	(95-110mmol/L)
Urea	21.8	(2.9-7.1 mmol/L)
Creatinine	220	(45-90 mmol/L)
Glucose	40	3.0-7.8 mmol/L
Lactate	4.8	<2 mmol/L

1. What is the most likely diagnosis? Explain your answer using the results. (/2)

Suggested answers

- *hyperosmolar hyperglycaemia state (HHS)*

* *required answer – scores 1 mark*

- **Glucose of 40*

- **Osmolality : $2 \times 140 + 21.8 + 40 = 341.8$ (275-290) Hyperosmolar is when > 320*

Examiner's marking scheme and comments:

1. . 1 marks for:
 - a. HHS
 - b. Calculated osmolality
 - c. Corrected Na

Many candidates went on to calculate AG, expected compensation etc.

2. What complications of this diagnosis is this patient showing? (/3)

Examiner's comments:

2. Mark each for
 - i. Altered LOC/altered mental status/stroke/CVT/delirium
 - ii. Renal impairment/AKI
 - iii. Electrolyte abnormalities usually hypoK (<5 candidates mentioned this)
 - iv. Lactate acidosis

Cerebral oedema is not a complication of the diagnosis but a complication of the treatment i.e. overzealous fluid rehydration so no mark for this as no treatment evident for this patient.

3. What are the causes of her high lactate? (/1)

- metformin in the context of dehydration and renal failure

Examiner's comments:

Mark awarded for

- b. Metformin use in renal failure/dehydration OR
- c. Tissue hypoxia/shock

4. How would you interpret her ABG taken on room air? (/4)

Examiner's comments:

Interpret questions as: provide conclusion/s after analysing an investigation result or image

Mark awarded for correct calculation with a reasonable interpretation.

- a. 0.5 mild hypoxemia/normoxia (still within safe range)
- b. 1.0 HAGMA – due to lactate and uraemia/ARF
- c. 1.0 calculate expected pCO₂ - respiratory alkalosis present
- d. 1.0 A/a gradient is 22 and expected for age is 23.5. When A/a gradient is high, there is a problem. This patient's is lower than expected for her age so there is A-a gradient is normal. Thus her alveolar units appear to be functioning.
- e. 0.5 delta ratio 0.75 – there is a combined HAGMA and NAGMA but ratio often < 1 in acidosis with renal failure.

A-a gradient
= PAO₂-PaO₂
= 150-PaCO₂x1.25-90
=150-40-90
=20

NSW Fellowship trial 2019-1 Question 6

The orthopaedic team ask you to perform a Fascia Iliaca Block on an 80yo with a fractured neck of femur. Her only comorbidities are hypertension and atrial fibrillation.

a) List 4 legal requirements of consent. (4 marks)

1. Mentally competent to consent or refuse treatment.
2. Legally authorised to consent or refuse treatment.
3. Not being coerced in any manner.
4. Understands the general nature of proposed treatment.

a) Describe the type of additional information required for informed consent (3 marks).

Accepted answers:

Awareness of the consequences of consent or refusal:

- Understands the condition and prognosis.
- Understands all treatment options and their material risks/benefits.
- Understands the reasons why you wish to pursue a particular course of action.
- Understands the hospital/doctor's ethical and legal duty of care.

b) List 3 major risks of this procedure (3 marks)

Accepted answers:

1. Intravascular LA administration causing toxicity including cardiac arrest.
2. Bleeding extending into retroperitoneal space causing shock.
3. Arterial puncture complications: bleeding, dissection, false aneurysm, ischaemia.
4. Venous puncture complications: bleeding, AV fistula, thrombosis.
5. Peritoneal/bowel puncture.
6. Not major risks - pain/bruising/infection, nerve injury very rare.

A 32 year old man is brought in by ambulance after a fall at home. He tripped and fell down 4 steps. He landed on his right knee which swelled up immediately. He was unable to stand. The ambulance officer was able to straighten his right knee after giving him some analgesia.

On examination, his right knee is swollen. He is still in pain. He has already had morphine 10mg IV. He weighs 129kg.

1. You examine his right knee after giving him more analgesia. What 4 potential injuries are you looking for and why? (/4)

- Looking for fracture of patella and bones of his knee joint
- Looking for ligamentous laxity – if the joint is lax in more than 3 directions, it is possible that he had a knee dislocation
- Possibly meniscal injury – hard to determine with the swelling
- Look for distal pedal pulses – dorsalis pedis and posterior tibial artery

2. You examine him under nitrous oxide. You notice his knee is giving way in all directions despite the knee effusion. What diagnosis do you need to rule out? (/1)

- Knee dislocation pre-arrival and reduction by the ambulance officers

3. What investigations would you do and why? (/2)

The * answer is required

- *Need to visualise his neurovascular bundle integrity – CT angiogram today, successful revascularisation is 6-8 hours. Looking for popliteal artery tear and or popliteal vein thrombosis.
- Plain Xray for fractures – knee and patella views

4. What is your management of his knee injury? (/3)

A mention of what to do if vascular injury is found is required. Apart from that, any of the following are reasonable.

Analgesia

- Immobilisation and elevation
- If confirmed vascular injury, refer to vascular team
- Knee ligamentous injury – refer to orthopaedic team but less of a priority than revascularisation
- If no vascular damage – full leg back slab, crutches, appt for orthopaedic follow up for definitive treatment
- *Most at risk is his popliteal vessels as it may be traumatised by the dislocations due to its proximity to the posterior aspect of the distal femur*
- *NB The tibial nerve lies more superficial*

NSW Fellowship trial 2019-1 Question 8

A 28 year old soldier from the army barracks is transferred to your hospital. He feels lethargic and has generalised myalgia. He has passed dark urine. On arrival, he is alert.

HR 100/min. BP 128/70. RR 20 Temp 37.5C.

1. These are his initial results:

Na	130	(135-145mmol/L)
K	6.5	(3.5-4.5 mmol/L)
Cl	95	(95-110mmol/L)
Urea	15	(2.9-7.1 mmol/L)
Creatinine	320	(45-90 mmol/L)

Bilirubin	20	(0-25mmol/L)
ALP	110	(30-110 U/L)
GGT	25	(0-30 U/L)
ALT	100	(<45 U/L)
AST	510	(< 45 U/L)

WCC	20	(3-11 x 10 ⁹ /L)
Hb	150	(115-165 g/L)
Platelets	400	(150-450 x 10 ⁹ /L)

1. What is the most likely diagnosis? Indicate your reasons. (/2)

- Suggestive of rhabdomyolysis with acute renal insufficiency
- Because of: Dark urine, generalised myalgia
- Raised creatinine and urea (renal insufficiency), K (muscle breakdown and reduced renal excretion)
-

2. What other investigations would you do? (/2)

Accepted answers are:

- Confirm and follow the trend in the rhabdomyolysis – serial CK
- Look for other release of other intracellular ions: expect high K, high serum phosphate and low serum Ca. Elevated LDH, high uric acid, lactic acidosis
- *ECG to look for effects of hyperK
- Urine for myoglobin - expect positive urinalysis dipstick but negative for RBC on microscopy

3. What is your initial management of this patient? (/3)

- HyperK – cardiac monitoring, if ECG shows QRS widened, cardiac membrane stabilisation with calcium chloride – 10mmol IV until QRS size is reduce
- Followed by treatment to move K intracellularly – 25g IV dextrose with 10Units actrapid. Check BSL prior and post.

NSW Fellowship trial 2019-1 Question 8

- IVT with N saline until UOP is $> 2\text{ml/kg/hr}$

4. What management options are there?(/3)

Acceptable answers:

- 1. IVT to increase UOP
- 2. Mannitol to induce diuresis
- 3. Renal dialysis to remove the myoglobin

Total mark: 10

A 72 year old woman presents to the ED due to lethargy, anorexia and some confusion. Your medical oncology team knows her.

The triage nurse has taken her bloods an hour ago.

Na	141	(135-145mmol/L)
K	3.8	(3.5-4.5 mmol/L)
Cl	100	(95-110mmol/L)
Urea	11.5	(2.9-7.1 mmol/L)
Creatinine	150	(45-90 umol/L)
Ca	4.69	2.10-2.60 mmol/L
Phosphate	0.4	0.8-1.5 mmol/L
Albumin	44	38-48g/L

1. What is your interpretation of the results? (/2)

For the 2 marks, must include the * component ie: Hypercalcaemia

*Hypercalcaemia causing or contributing to the renal insufficiency.
Secondary hypophosphataemia.

2. Assuming the hyperCalcaemia is due to her underlying malignancy, what is the pathogenesis of the hyperCalcaemia? (/3)

For the 3 marks, accept any of the following answers.

- Bony lysis
- Ectopic parathyroid hormone – leads to increased osteoclasts to resorb bones. Renal effect: acts on renal tubules to reabsorb Ca and increased the conversion of 25OH D to 1,25 OH D which leads to the GIT effect of increased absorption of Ca from the gut
- Parathyroid related peptide release in malignancy

3. Besides the symptoms mentioned above, what other clinical findings (name 2) are likely to be present? (/2)

Clinical features are magnitude dependent. The demarcation line is 3.5 mmol/L. At 4.9 she is severely unwell.

- CNS: delirium – to coma
- CVS: arrhythmia from shortened QT, PR prolonged, QRS prolonged, AVBlock, CHB hypertension
- Renal: renal failure from dehydration from polyuria, nephrogenic diabetes insipidus, renal tubular acidosis, calculi
- GIT: pancreatitis, constipation, PUD
- MSK: muscle weakness, bone pain

4. What are the priorities in the treatment of her hyperCa ? (/3)

- *Restore blood volume/ fix the dehydration to dilute the serum Ca, using N Saline

-
-

NSW Fellowship trial 2019-1 Question 9

- Reduce renal tubular resorption and promote urine excretion of the: N Saline (up to 300ml/hr depending on clinical status)
- *Reduce **bony** resorption: use calcitonin, bisphosphonates
- Need to check on other salts: K and Mg. (Thiazides are not used.) Loop diuretics may promote Ca uptake by bones. Haemodialysis in renal failure
- *Reduce **GIT** resorption: corticosteroids because they decrease the 1.25 DH Vit D production

Paeds #3 Total mark 20 – a double question.

The surgeon at your hospital brings in his 3 year old son. The child fell and sustained a 10cm laceration to the lateral aspect of his upper thigh. He does not have any other injury.

You decide that you will use ketamine for procedural sedation and analgesia.

1. What information about his son do you need from the father? (/3)

Any of the below and other reasonable answers.

- (Age: the child is over 12 months old so no contraindication to ketamine)
- Recent history of illness – chest infection, LOC with this event
- Past medical history relevant: major organ disease: cardiac disease, hypertension, congenital respiratory or airway anomaly, underlying respiratory condition, poorly controlled seizure disorder, thyroid disease, porphyria
- Last ate – fasting with at least 4 hours.
- Allergies

2. His father asks for the potential adverse effects in patients. What would you tell him? (/6)

Any of the below and other reasonable answers.

- Main one: emergence phenomena: more common in adolescents
- Hypersalivation
- Laryngospasm – transient
- Apnoea – transient
- Emesis
- Movements: random purposeless movement

3. His father has read about the dissociative state associated with ketamine. He asks what that might look like in his son. What would you tell him? (/3)

- Trance like – eyes open but not responding to voice
- Catalepsy – increased muscle tone and posture is held
- Nystagmus – common

4. He asks what benefits there are for using ketamine. What would you tell him? (/4)

Any of the below and other reasonable answers.

- Analgesia – large laceration, limitation to dose per kg of lignocaine
- One painful injection versus multiple
- Amnesia is total
- Maintains airway reflexes
- Maintains CVS stability

He is now convinced.

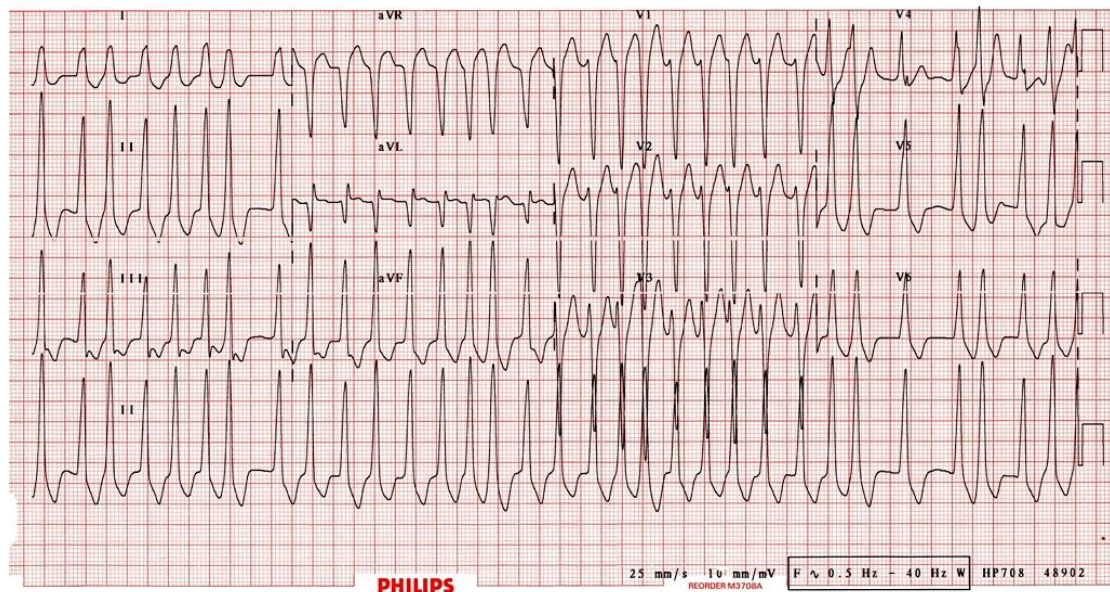
5. He thanks you but asks you what drugs and what doses you are going to use. (/4)

One mark for the drug and one for the dose – total 2 drugs and 2 doses.

- Ketamine 1-1.5mg/kg slowly over 1-2 mins (to prevent respiratory depression)
- Atropine 0.02mg/kg to reduce salivation (up to 0.6mg)
- (Midazolam is usually used for children over the age of 5 years)

A 35 year old man presents to the ED with palpitations for the last 3 hours. He says he has had this before. He cannot remember the cause of his palpitations. His BP is 115/70, RR 20/min, SaO2 98% RA, Temp 36C.

This is his ECG:



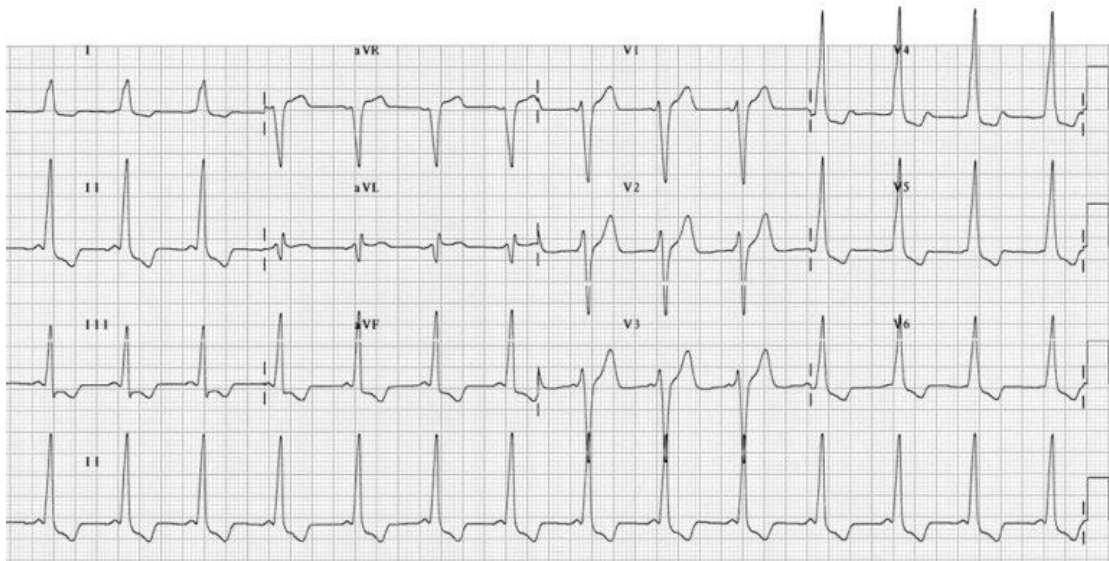
1. What is your interpretation of the ECG and give your reason(s)? (/3)

- Conclusion: *Rapid AF (Rhythm: irregularly irregular 140-220/min)
- with conduction with alternate pathways to the ventricles
- As he has *QRS of different widths. (QRS: variable – 0.08 to 0.16
 - Suggestive of *accessory pathways.
 - Accessory pathway has a different refractory period to the normal conduction - hence can conduct retrograde direction

2. What is your management of his palpitation and why? (/3)

- Rapid AF – need to slow his ventricular rate
 - 1. Vagal manoeuvres
 - 2. Choice of chemical control or cardioversion
 - Pharmacological control as he is not haemodynamically unstable.
 - Due to the varying QRS duration suggestive of orthodromic and antidromic conduction, cannot use any agent that blocks the AV node because of risk of conduction down the accessory pathway resulting in a very rapid rate – predisposing to VF
 - Hence use amiodarone 5mg/kg IV
 - Flecainide only if LV function is known to be normal
 - 3. Alternatively, use DC cardioversion under procedural sedation – 50J biphasic

- (4. Anticoagulation if there is a concern that he may return to AF OR that his assessment of when the palpitations started is unclear): choice of drugs: heparin or enoxaparin)



This is his post treatment ECG.

3. What is your interpretation of his ECG? Provide your rationale for this answer. (/2)

- WPW syndrome.
- SR, short PR interval, delta wave in anterior chest leads with T inversion.
- WPW type B

4. What is his disposition from the ED? Provide a rationale for your answer(/2)

- Admit under cardiology for workup
- *May need a AICD because sudden death from rapid v AF can lead to VF arrest. Common cause of sudden death in WPW.

NSW Fellowship trial 2019-1 Question 12

A previously well 16yo girl attends the ED with her concerned parents as she has developed worsening postural faintness over 3 weeks and cannot stand. She has no previous medical history but has 10kg weight loss and fatigue over the past 6 months. There are no infectious features.

Lying:	BP 102/71	HR 102	Standing:
BP 78/58	HR 123		
Venous Blood Gas:	pH	7.29	(7.32-7.43)
	pO ₂	43	(25-40)
	pCO ₂	28	(41-50)
	HCO ₃	11	(23-28)
	BE	-14	(-2-2)
	Lactate	1.3	(<2.0)
	BSL	2.4	(3.0-7.8)
	Hb	173	(120-160)
	Na	129	(135-145)
	Cl	116	(95-110)
	K	5.3	(3.4-5.0)
	Creatinine	140	(50-120)

a) Describe the acid-base state (3 marks).

NAGMA with partial compensation. Venous gas overestimates pCO₂ so respiratory compensation is substantial. Possible causes of NAGMA include bicarbonate loss, added chlorides or acid, renal tubular acidosis, addisons, carbonic anhydrase inhibitors.

b) List the 4 other main biochemical abnormalities and their significance. (4 marks)

1. BSL low suggests low cortisol or insulin like hormone activity.
2. Na low with likely dehydration given postural findings and high Hb. No medications or fluid loss in clinical scenario so likely renal loss: renal disease or hypoaldosterone.
3. K elevated more than expected for IC shift due to acidosis, from clinical scenario most likely causes are hypoaldosteronism or renal injury.
4. Cr elevated in context of postural findings and high Hb most likely pre-renal rather than renal disease.

c) What is the most likely diagnosis and why? (3 marks)

In this clinical scenario Addisons is most likely disease causing NAGMA + HypoNa + hyperK + dehydration + low BSL

End of the question here – 10 marks.

You are on an evening shift and called to the Short Stay ED Unit. An 89 year old man is shouting and appears agitated in his bed.

1. What is your initial approach? (2marks)

Accept reasonable answers such as:

- Ensure he is not at risk of injuring himself – falling from the bed, trauma to body from impact with bed rails
- Increase sensory cues – verbal reassurance, increase lighting

2. What are the likely causes of his behaviour? (4 marks)

Look for reversible causes of acute delirium. Answers acceptable are:

- Pain
- Urinary retention/Constipation
- Infection
- Alcohol withdrawal/ Anticholinergics / Drug interactions

3. He is becoming more verbally aggressive during your assessment. What medications can you use, providing doses and route? (4 marks)

Alternatives accepted taking into account local practice:

- Haloperidol 0.5mg up to 1mg, oral or IM
- Olanzapine 2.5-10mg, oral or IM
- (Risperidone 0.5mg – 1.0mg, oral)

You are working in the ED with another staff specialist (SS) whose behaviour is erratic. You can smell alcohol on his breath.

1. What actions would you take? (/4)

Answers accepted along these principles:

- a. Notify HOD*
- b. Empathetic chat with SS involved – ask if mental health issues, stressors, offer help/social work/D&A*
- c. Notify SS involved you are legally bound to report to AHPRA-they will follow up*
- d. Organise replacement for shift that day – patient safety and temporary stand down while investigation takes place and notification made*

2. In what clinical situations does mandatory reporting apply? (/2)

- a. Any situation where there is concern for patient safety,*
- b. reasonable belief for impairment or illegal actions by dr/medical student warrant reporting to AHPRA/medical board. It is a legal obligation.*

3. What constitutes notifiable conduct? (/4)

- a. There is concern that the practice is unsafe i.e. deviates from accepted standard*
- b. Sexual misconduct*
- c. Practicing whilst intoxicated (drugs or alcohol)*
- d. Mental health or physical impairment interfering with safe practice*

A 24 year old fell off her pushbike. She landed on her outstretched dominant right hand. She has pain in the wrist with no swelling.

On examination, you suspect she may have a scaphoid fracture.

1. What 2 examination findings would you look for to support your suspicion? (/2)

At least one of the *

- *Snuffbox tenderness when the wrist in ulnar deviation
- *Axial compression of the thumb causes pain in the snuffbox
- Tenderness over the scaphoid tubercle on the volar aspect of the wrist – wrist radially deviated
- Movements: pain at the end of thumb opposition
- Movements: pain with resisted supination

2. Her Xrays including a scaphoid view did not show a fracture. Indicate 2 other investigations you may select to look for a scaphoid fracture. Fill in the table below. (/6)

Investigation	Advantages	Disadvantages

Here are the options for marking.

Investigation	Advantages	Disadvantages
MRI	First choice. Sensitivity 100% Can pick up other fractures and ligamentous injuries.	Not readily available – ie access within a reasonable time and/or affordability. Both are usually associated.
CT	Sensitivity is not 100%. If clinical suspicion, then early CT is better than waiting for reXray in 10 days	May miss non-cortical fractures.
Bone scan	For delayed presentations. Delay 48 hrs and 72 hrs in the elderly	Requires isotope uptake by osteoblasts, hence not useful in the hyperacute phase. Delay for 3-5 days.
Repeat Xray 7-10 day	Lower radiation – may be an important aspect in children.	Greater duration of immobilisation

3. Her CT shows a scaphoid fracture at the waist.

Name 2 indications for surgical intervention? (/2)

Accept any of the following as all are valid.

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- Proximal and waist fractures are high risk for AVN
- Displacement of more than 1mm
- If associated with scapholunate or capitolunate involvement – as seen as displacement of altered alignment
- Other criteria: non-displaced fractures in occupations that are dependent on fine hand movements. All proximal scaphoid fractures regardless of displacement.

Examiner's comment on this question:

The generic answers are not awarded a mark. For example: radiation exposure, availability with no explanation what that means.

A mother runs into your ED with her 3 year old.

Her mother found her in the bath.

On arrival, she is unresponsive, RR 8/min and no peripheral pulse was felt.

This question has been taken out of the overall mark for the trial due to questions 3. The re-worded question is as below:

1. What is your immediate response? (/1)

Call for resuscitation team and start BLS recognising that cardiac arrest is imminent. Essentially, requires a team approach for concurrent actions.

- Resuscitation room and team immediately
- Start Chest compression
- Airway management

Her cardiac monitor shows sinus bradycardia with occasional sinus arrest. Your airway team is attending to her airway and breathing.

2. How would you manage her circulation? (/5)

- Essentially this is a non-perfusing rhythm in this case
- Seek and Treat reversible causes:
 1. Give volume: 20ml/kg
 2. Rewarm if hypothermic – rewarm up to 34C.
 3. Treat hypoglycaemia
 4. Treat K abnormalities
 5. Look for trauma with covert haemorrhage. Look for NAI

3 Her mother asks whether her daughter will survive. What are the clinical prognostic factors for survival in near-drowning?(/4)

This question has been taken out of the overall mark for the trial due to this questions. The question will now be replaced by: What are the prognostic factors for an adverse outcome. (/4)

Any of the following:

- 1. Immersion time > 10 mins***
- 2. Rectal temp < 30C***
- 3. No initial resuscitation at scene ie delayed BLS***
- 4. CPR continued to be required on arrival at hospital***
- 5. No respiratory efforts after 40 mins of resuscitation***

Examiner's comments:

Poorly worded question 3



13 yo boy presents with intense pain in his leg after swimming in the ocean.
His parents brought him straight to ED.

1. Describe the abnormality in this image (2 marks)

Leg – multiple tentacle marks covering a large area – no visible tentacles seen in this photo.
Extensive tentacle marks

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

Chironex fleckeri - Box jelly fish (1 mark) envenomation (1 mark)

Examiner's comment: geographical location may alter the answer to this question. In Coogee, this may be a photo of blue bottle sting.

3. List 1 other possible differential diagnosis? (1 marks)

Irukandji Jelly fish envenomation

Examiner's comment: see above

During your assessment, he became unresponsive and you could not feel a pulse.

4. What is your immediate action? (/1)

Commence CPR: 30/2 at rate of 100/min.

5. What are 4 other important aspects to his immediate management? Include doses and endpoints where applicable.(/4)

- Continue resuscitation as per ALS guidelines
- Remove tentacles initially can be done with Vinegar for at least 30seconds and removing the tentacles – pick off.
- Box jellyfish antivenom 2 vials IV over 5 minutes: can repeat up to 6 vials
- MgSO₄ 50% 0.1 ml/kg as push
 - Don't forget the analgesia!

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A 31 year old man is brought in by ambulance with dyspnoea.
He has a history of asthma.
His vital signs are:

RR 38/min SaO₂ 96% on Hudson mask at 8L/min
HR 140
BP 140/78
Temp 36C

GCS – scored as 14 E4, V4 confused, M6

His VBG:
pH 7.33
pCO₂ 39.4
HCO₃ 20.3
Lactate 4.3

Q1. You decide to use Non Invasive Ventilation. What management options would you use with the aim of avoiding intubation and invasive ventilation? Fill in the table below. (/6)

Management options	<u>Intervention</u>	<u>Rationale</u>
First line interventions		
Second line interventions		
Third line interventions		

Accepted answers for First line, Second line and 3rd line interventions. For the mark, you don't need all of the answers below or the extent of the explanations.

Examiner's comments:

Examiner's comments: a number of candidates focused on NIV only rather than answering the question. Also, use the boxes provided.

4 candidates thought it was a discussion about NIV for asthma. Any reasonable combination under each of the management boxes has been accepted.

First line – humidified oxygen – HFNP, Titrate to 90-92%

Nebulised B2 agonist bronchodilators

Nebulised anticholinergic: no harm and suspected benefits.

Steroids – IV hydrocortisone – synergistic with bronchodilators. Increases responsiveness of SM to B2 agonist. Decreases mucus secretion.

IV fluids – lactate is high. In anticipation of circulatory collapse

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2nd line – IV salbutamol for refractory bronchospasm. Lots of side effects. For extremis where the only absorption is through the mucosa or IV. Start this when patient is not responding to nebulised dryg.

No bolus doses.

Not more than 10microgram/min

SE: lactic acidosis and hypoK

Nebulised adrenaline: no different to salbutamol in efficacy and salbutamol has less SE

Mg SO4: controversial. IV – give 2G iv then repeat up to 2 times.

3rd line – Ketamine: no strong evidence

Volatile anaesthetics

ECMO

Q2. He has a respiratory arrest. You have successfully intubated him. How would you ventilate him? (/4)

Any reasonable combination of the answers below are accepted but essential to illustrates the particular strategies required for asthma.

Ventilation set-up

1. FIO2: 1.0 then reduce and aim for SaO2 92% and above
2. Modality: Volume control
3. minimal PEEP
4. RR 6/min,
5. Tidal volume 6ml/kg,
6. Peak inspiratory flow 120L/min
7. I:E ratio: 1:4
8. Plateau pressure < 30mmHg to prevent hyperinflation

pH	6.84	(7.35-7.45)
pCO ₂	8.7	(35-45mmHg)
pO ₂	80	(95-100mmHg)
HCO ₃	1.4	(22-24 mmol/L)

Na	126	(135-145mmol/L)
K	5.5	(3.5-4.5 mmol/L)
Cl	98	(95-110mmol/L)
Urea	20	(2.9-7.1 mmol/L)
Creatinine	150	(45-90 mmol/L)
Lactate	4.1	< 2.0mmol/L
Glucose	54	3.5-6.0

A 58 year old presents with the above results. He is a Diabetic who started insulin 5 years ago. He is confused and combative.

HR 140/min. BP 100/80. RR 32/min. SaO₂ 95%. Estimated weight – 70kg

1. What reservations do you have of intubating him on arrival? (/2)

accept answers pointing to factors leading to risk of cardiac arrest

- Severe acidosis
- Hypovolaemia – usually about 200ml/kg water deficit
- Both is likely to lead to cardiac arrest from added intrathoracic pressure – reduces venous return

-

2. What are the complications from his condition? (/3)

Any 3 of the following.

- Hyperosmolality: cerebral oedema from fluid shifts or if hyperglycaemia is reduced too rapidly, venous thrombosis and thrombo-embolic events. Stroke, venous sinus thrombosis
- Hypovolaemia from osmotic diuresis: shock, MI, cardiac arrest, organ failure
- Metabolic acidosis from hypoperfusion and renal failure: lactic acidosis,

3 Outline your strategy for managing his hypovolaemia. Indicate the volume, rate and type of fluid and titration point(s) in your answer. (/5)

A reasonable answer would demonstrate an understanding of the magnitude of the total water deficit, using N Saline initially, titration is to the osmolality aiming to drop between 4-8 mOsm/kg per hour

- Volume loss : 200ml/kg total water deficit

Rate:

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- first hour: Fluid type :Nsaline (corrected Na is $126 + 54/4 = 139.5$) at 20ml/kg first hour. Use N/2 if corrected Na is $> 150\text{mmol/L}$
- Check the osmolality – aim to drop between 4-8mOsm/kg per hour
- 2nd hour: N saline at half the rate = 10ml/kg
- Check the osmolality – aim to drop between 4-8mOsm/kg per hour
- 3rd hours: N saline if Na remains low. 10ml/kg
- Check the osmolality – aim to drop between 4-8mOsm/kg per hour
- 4th hour: As above if remains low.
- Once glucose falls below 15mmol/L, start 5% dextrose 200 ml/hr
- Titrate the fluid according to osmolality drop until the osmolality is within the normal range
- Total deficit can be replaced over 24-48 hours

4. What electrolyte deficits exist? Include the magnitude of the deficit in your answer. (/6)

Electrolytes:

- expected Na deficit – 10mmol/kg
- expected K deficit – 10mmol/kg
- Chloride – 5 mmol/kg
- PO₄ – 1-2 mmol/kg
- Mg – 1mmol/kg
- Ca – 1mmol/kg

5 When do you need to start insulin in this man? (/1)

- you may not need to until the BSL stops falling

6 What dose of insulin would you use? (/1)

- 0.05units/kg/hr

7. Name 2 potential causes of his condition? (/2)

- Infection
- Non- compliance
- MI
- Stroke: haemorrhagic or thrombotic
- Drugs: steroids, diuretics, lithium , illicit substances

A 65 year old man presents to your ED by ambulance from a hostel after an unwitnessed fall on the road. He is on warfarin. He becomes combative in your ED. He has a BP of 170/95, HR of 105/min and his RR is difficult to record as he is extremely agitated. He has a 5cm laceration over his forehead and profuse epistaxis.

You decide to intubate him for a number of reasons and this cervical Xray is obtained after intubation.



1. What is the abnormality on the xray and its implications? (/2)

Answer must include *

Lateral cervical Xray showing fracture of the* posterior arch of C1. (An AP/dens view will be useful to determine whether there is associated fracture and dislocation/subluxation.)

- Implications: Neurosurgical definitive management will be required.
neurological assessment – formal assessment of his PNS is required.

2. Complete the table below in relation to his management. (/8)

Issue	Management	Rationale
Epistaxis		
Cervical fracture		
Anticoagulation		
Social issue		

Answers below are the principles sought in the management and rationale columns above.

Epistaxis

- His epistaxis must be controlled by local pressure through nasal packing or cauterization if required. He is on warfarin and bleeding control may require more aggressive measure. Consider early involvement of ENT team. Early determination of INR is crucial. FFP and vitamin K may both needs consideration subsequent to the INR result. Cross-matching of blood is also necessary.

Cervical immobilisation/definitive care:

- Cervical immobilization was used during the intubation. Cervical immobilization will need to be continued. Sand –bag with taping or philadelphia collar will both be better than a hard cervical collar. Neurosurgical / spinal team should be involved in the planning of the definitive care

Anticoagulation:

- Full reversal of his anticoagulation must be considered. The reason for the anticoagulation must be balanced against his risk of bleeding. An epidural haematoma will be a concern. However thromboembolism if he is in AF will also be an issue

Social issues

- social worker assistance to contact his family/next of kin
- interpreter may be required for the family
- full assessment of his pre-morbid state through history and past medical records

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Total marks – (9 marks)

A 75 year old man is brought into your ED by his daughter. She is concerned that his behaviour has changed over the last 1-2 weeks. She lives close by and visits her father 3 times a week. He lives alone and is normally independent in his self-care.

You are concerned that he may have one of the following.

Fill in the table below to demonstrate how you differentiate between the above differential diagnoses. (/9)

	Dementia	Delirium	Depression
Historical features			
1. Onset	Gradual	Abrupt - days	Gradual - weeks
2. Course	Progressive altered behaviour	<i>Fluctuates with periods of lucidity. Worse at night.</i>	Fluctuates and worse on waking and improves during the day
3. Sleep	Nocturnal confusion. Disturbed.	Nocturnal confusion. Disturbed.	Early waking.
Examination findings			
1. Alertness	Normal	<i>Inattention</i>	Normal
2. Orientation & Awareness	Usually not orientated to time place	Usually impaired, may have periods of lucidity. <i>Altered LOC.</i>	Normal with selective disorientation
3. Memory	Poor ST.	Poor ST.	Poor ST. Good Long term.
4. Perception	No hallucinations	<i>Disorganised thinking.</i> Has hallucinations.	Normal, may have delusions if severe.
5. Emotions	Shallow, labile, irritable.	Irritable, tearful, may be aggressive	Flat, sad
6. Precipitant(s)	Intercurrent illness causing exacerbation	Intercurrent illness as the cause Medication interactions	Past history of depression

A 52 year old with known chronic liver disease secondary to alcohol presents with a reduced level of consciousness to your ED. She is not intoxicated. Her sister says she has been increasingly drowsy over the last 24 hours.

1. You decide she has hepatic encephalopathy. What 4 precipitants would you look for? (/4)

Accept any of the following and examiner's notes in italics.

. Hypoglycaemia

GIT bleeds

Sepsis – SBPeritonitis

Dehydration/ acute renal failure

Hepatotoxins – *just medications is not enough, Alcohol intoxication rather than withdrawal– accept as it is a hepatotoxin*

Accept infection – any source, once ie 4 unique causes

Accept disease progression and development of liver cancer

Accept portal vein thrombosis

Accept non compliance with medications and actually naming a CLD specific treatment - eg lactulose. Accept recent change to medications - diuretics

Non compliance of normal meds – not specific enough

Constipation – on its own is not a cause of encephalopathy

Trauma – not specific, not accept intracranial bleeding

Not accept bleeding- needs to be specific

Not accept urinary retention

Decompensated liver failure – encephalopathy is part of this but not the cause of it

Short-hand – need to expand this eg SBP

Additional details for the above headings (for candidates)

Causes of encephalopathy in preexisting CLD

- Drugs – paracetamol, idiosyncratic, illicit, herbal/alternative (amanita mushroom), halothane
- Alcohol
- Viruses – HAV, HBV +/-D, HCV, HEV, CMV, EBV, HSV
- Extras – acute fatty liver of pregnancy, HELLP, toxins, ischaemic necrosis, vascular, metabolic, autoimmune, Wilson's disease, Budd-Chiari, post hepatic surgery, idiopathic
- Sepsis

2. What medications can be used to minimise a deterioration in her conscious state? Indicate a rationale in your answer? (/6)

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<u>Medication</u>	<u>Rationale</u>
<u>Lactulose</u>	reduce the nitrogen load absorbed from the gut.
<u>Rifaximin</u>	Use a poorly absorbed broad spectrum oral antibiotic to reduce gut flora
<u>Mannitol</u>	<u>Osmotic diuresis</u>

Examiner's comments below:

Thiamine accept if reasons are given that relates to reduced LOC

Most answers has lactulose

Accept Ceftriaxone as some sites practices this – empirical treatment

Low protein diet is not a medication

Terlipressin to reduce portal hypertension

Accept glucose for treatment of hypoglycaemia

Neostigmine is wrong drug

Furosemide - ??it will worsen renal function

Accept albumin

Not accept vit K – not relevant to conscious state

Wouldn't use diazepam in CLD

General:

Need to be clearer in explaining what lactulose does.

Read the question.

Wide range of answers accepted especially if the rationale is consistent with the medications.

Need to be specific in the answer.

Careful with furosemide and use of benzodiazepines – need to explain clearly and read the question.

A 80 year old is brought in by ambulance from the local RSL on Anzac Day. He got up from a bar stool and felt dizzy. He was helped by staff to a chair. He did not fall.

On arrival:

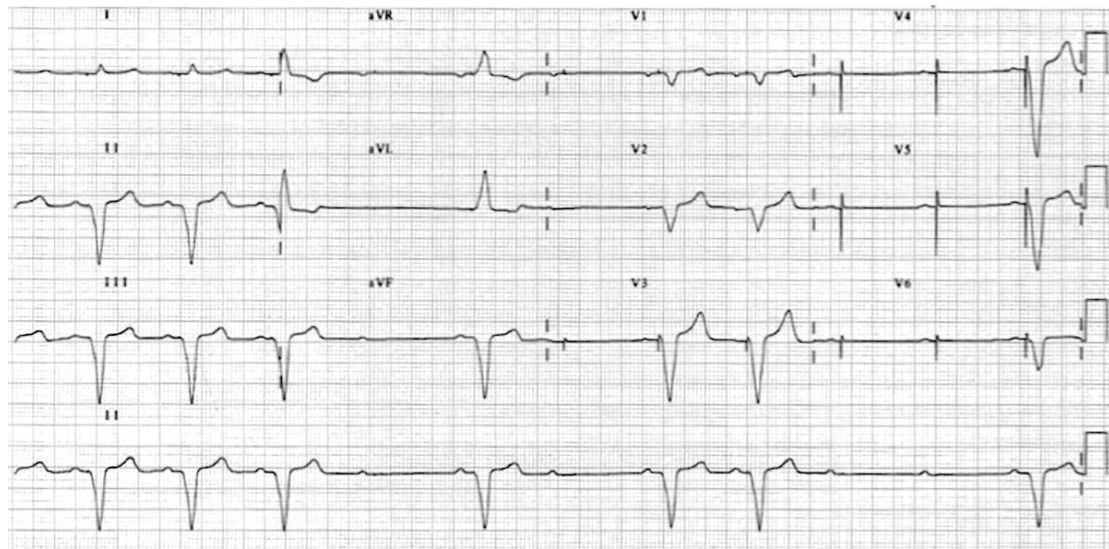
Alert.

BP 170/95

RR 18/min. SaO2 95% RA

Temp 37C

An ECG is taken on arrival.



1. What does the ECG show? (/3)

Accept any 3 below.

- Patient has a Pacemaker that is faulty
- Atrial sensing is intermittent only – some P waves are not followed by a spike and also not followed by a QRS ie isolated P waves
- Ventricular capture is intermittent – some P waves are followed by a spike but no QRS follows
- Underlying rhythm is most likely CHB as there are P waves with no ventricular capture in the rhythm strip

2. There are no beds in the ED. What resources do you need to manage his condition in the ED? Provide a rationale for your answer. (/2)

- He needs a monitored bed, IV access and transthoracic PM in readiness
- For a complete PM failure and reversion to his underlying rhythm which is most likely complete heart block.

3. What are the potential causes of the pacing failure in this patient? (/3)

Any 3 of the following is accepted if reasonably explained.

- NB There are spikes so the generator must be working. There is a sensing problem and a capturing problem
- Problems at the interface between the pacing leads and the myocardium
- Leads may be dislodged from the myocardium: including the twiddler's syndrome
- Leads may be broken
- The device has been dislodged
- The myocardium where the leads insert has infarcted

4. How would you investigate for the cause? (/2)

- CXR – look for the position of the pacemaker and the location of the leads
 - Also to check that the leads are not broken
- Pacemaker tech to review and adjust the threshold for sensing and capturing

An 85 year old woman with a history of CCF and dementia is brought by ambulance from her Aged Care Facility (ACF) in pulmonary oedema. In her records from the ACF, is a signed, dated and witnessed Advance Care Directive (ACD) which states that she would refuse CPR.

Her son and daughter are not aware of the ACD and they say they do not agree to it and would like it torn up.

1. What are the components of a valid advance care directive? (/6)

- a. Dated
- b. Currency
- c. Signed
- d. Patient must have had capacity at time of writing
- e. Written without coercion
- f. Specific with respect to limitations of care

2. Are you obliged to adhere to the ACD? Explain the reasons for your answer. (/2)

- a. *Yes.*
- b. *It is a legally binding document.*

3. Her children say that the document is not witnessed. Does that make it invalid? Provide a rationale with your answer.(/2)

No. Does not need to be witnessed. May even be oral in certain jurisdictions



A 16 year old presents with a painful left shoulder.
He fell at home 2 days ago. He has been having increasing left shoulder pain.

1. The Xrays have already been taken at Triage. Describe the abnormalities seen.

(/3)

- AP view: increased distance between the glenoid and the head of the humerus
- AP view: the axis of the humeral head is in the same as the axis of the humeral shaft – light bulb sign – posterior dislocation of the shoulder joint
- Axillary view: Humeral head lies posterior to the glenoid

2. What are the likely mechanisms of the injury? (/2)

- Fall on the outstretched hand with internal rotation of the arm.
 - The force is transmitted to the humeral head
- Seizures

- the muscles involved in external rotation is stronger than those for internal rotation, hence the humerus is externally rotated and posteriorly dislocated (Lat dorsi, Subscapularis and teres major, pectoralis major) are stronger then internal rotators: teres minor and infraspinatus

Q3. What clinical features are suggestive of this diagnosis? (/2)

Any 2 reasonable answer including but restricted to the list below

- Reduced shoulder movement – cannot abduct or externally rotate
- Position of the shoulder is : held in internal rotation and adduction
- Can feel the humeral head in the posterior position
- Can feel the coracoid process

4. What is the management of this patient? (/3)

Any reasonable answer is accepted, as there are a number of ways to reduce the dislocation.

- *Closed reduction can be attempted acutely (less than 6 weeks)
 - Keep the arm in the position it is held – internally rotated and adducted
 - *Apply traction in this direction
 - Followed by pushing on the medial aspect of the humerus – to move the humeral head from the glenoid fossa
 - Followed by extending the arm
 - Immobilise – in neutral position. Often doesn't dislocate again
- Closed reduction is usually possible if the antero-medial impact fracture involves less than 25% of the articular surface
- Alternative is to reduction under GA

A 45 year old woman was successfully intubated by your Registrar for multifocal pneumonia. Shortly afterwards, several antibiotics were started. While looking at the monitor, you noticed the fall in her BP from 140/70 to 80/40mmHg. Her SaO2 falls from 98% to 90%

1. What are the likely causes? (/3)

- Barotrauma: pneumothorax
- Progression of severe sepsis
- Anaphylaxis to one of the antibiotics

Her HR increases rises from 110 to 180/min. Her ETCO2 falls from 38 to 20mmHg. The peak airway pressure increases to 30.

2. What is the most likely mechanism causing this? (/1)

- Bronchospasm as part of an anaphylactic reaction

3. Outline your management (/6)

Acceptable answers:

- Stop the antibiotics
- Oxygenation: FiO2 1.0
- Adrenaline: IV, titrate to response. Methods are:
 - a. 1mg in 10ml. Then 1 ml into another 10 ml. 10mcg/ml – titrate to effect.
 - B. Make up an adrenaline infusion with 4mg in 50ml = 80mcg/ml, start at 5ml/hr = 400mcg/hr. Titrate to effect.
- Fluids: Nsaline – 20ml/kg bolus
- Neb adrenaline for bronchospasm
- Ensure no complications from treatment
 - barotrauma from high peak pressures – reduce the RR to accommodate the bronchospasm
 - Remove patient from the ventilator
- Treat the hypoK from use of adrenaline

A 10 month old child is brought in by her mother. She was being carried to her cot when her mother noted that she stiffened and turned her head to her right and let out a cry. This was followed by a period of floppiness that lasted about 5 mins. The child is normally well and not on medications.

On arrival, she is responding to you and her mother.

HR 110/min. BP 80/45, Temp 39C.

Her mother is distraught.

1. What is the most likely diagnosis? (/1)

- Febrile convulsion

2. This condition has 2 types and distinguishing between the two is important. What are the differences? (/4)

Diagnosis; Simple Febrile convulsions	Diagnosis: Complex febrile convulsion
Generalised tonic clonic	Focal features or focal seizure
Duration less than 15 mins	Duration > 15 mins
No repeat within the same illness	Recurr within the same illness
Complete recovery	Incomplete recovery within the 1 hour

On examination, she looks well. However, she has symptoms suggestive of an upper respiratory tract infection. Her catch urine microscopy is not suggestive of a urinary tract infection.

3. What factors would determine whether you would do any further investigations on her? (/2)

Acceptable answers are:

- Looks well or not
- Immunisation status – she is 10 months old, if she is up to date with her immunisation, you may not investigate if she looks well
- (she is not on medications)

She is well and you decide not to do any investigations. You have explained the discharge plan to her mother. Her mother asks you about potential long term issues with this diagnosis.

4. What information would you tell her? (/3)

Acceptable answers are:

- Recurrence rate: Age at first onset. Up to 1 year old – 50% recurrence. Subsequent onset up to 2 years – 30%
- Risk of afebrile convulsions – neurodevelopmental problems, atypical features (focal or prolonged.
- Risk %: If one risk factor 2 % If > 1 RF – 10%. If no risk factor – same as general population – 1%
- No need for long term anticonvulsants
- Antipyretics do not prevent febrile convulsions

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- Educate mother on management at home
- Tell mum that children usually grow out of it
- Tell mum there is no risk from brain damage