MLA AKT Practice Paper Exam

Part 2

The MLA AKT Exam Board has put together a 200-item practice exam (2 x 100 item papers) to help medical students prepare for the UK Medical Licensing Assessment Applied Knowledge Test (MLA AKT). Blueprinted to the GMC Content Map this exam has been designed to reflect the style and type of question that students will encounter.

The practice exam comes with and without the answer options.

We hope students will find this a valuable resource.

Should you have any questions about the clinical content of the practice exam please speak to the Assessment Lead in your school in the first instance.

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1. A 64 year old woman develops postoperative ileus one day after an elective hemicolectomy. She has a history of polymyalgia rheumatica. She has taken prednisolone (10 mg once daily) for the past 6 months.

Which is the most appropriate management of her corticosteroid therapy?

A. Oral dexamethasone
B. Oral prednisolone at double normal dose
C. Oral prednisolone at normal dose
D. Parenteral hydrocortisone
E. Parenteral methylprednisolone

Correct Answer: D

Justification for correct answer: needs IV therapy and hydrocortisone is appropriate choice for corticosteroid replacement

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2. A 70 year old man has unintentional weight loss for 3 months. He has a palpable, non-tender gallbladder.

Investigations:
CT scan of thorax, abdomen and pelvis shows a 3.5 cm mass in the head of the pancreas causing biliary duct dilation but no evidence of distant metastases or vascular invasion

What is the most appropriate next step in management?

A. Endoscopic stenting of the common bile duct with palliative chemotherapy
B. Neoadjuvant chemoradiotherapy followed by surgery
C. Pancreatic enzyme replacement and nutritional support
D. Surgical resection with pancreaticoduodenectomy (Whipple procedure)
E. Total pancreatectomy with splenectomy

Correct Answer: D

Justification for correct answer: This patient presents with classic signs of a pancreatic head tumour — painless jaundice, weight loss, and a palpable gallbladder (Courvoisier sign). Imaging confirms a resectable tumour: confined to the pancreas, no major vascular involvement, and no metastases. For resectable pancreatic head cancer, the treatment of choice is surgical resection via the Whipple procedure, which offers the best chance of long-term survival.

Neoadjuvant chemoradiotherapy followed by surgery:

This is typically reserved for borderline resectable or locally advanced tumours, especially those with vascular involvement. This patient has resectable disease on imaging, so upfront surgery is appropriate.

Endoscopic stenting of the common bile duct with palliative chemotherapy:

This is used in unresectable or metastatic disease to relieve obstructive jaundice. The patient has potentially curable disease, so palliation is not appropriate at this stage.

Pancreatic enzyme replacement and nutritional support:

While supportive measures are important in advanced or post-operative care, they are not definitive management for resectable cancer.

Total pancreatectomy with splenectomy:

This is not routinely performed unless the tumour involves the entire pancreas or multiple regions. For a head-of-pancreas lesion, the Whipple procedure is the standard.

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3. A 69 year old man has recently returned to the ward following an emergency Hartmann's procedure for large bowel obstruction and develops rapidly increasing abdominal pain and distension. There is an abdominal tube drain with 300 mL of blood in the bag. His epidural is in situ (block recorded as T6 both sides in recovery). His temperature is 37.4°C, pulse 120 bpm, BP 90/65 mmHg, respiratory rate 35 breaths per minute and oxygen saturation 98% on 40% oxygen.

Senior help has been requested.

Which is the most appropriate next step in management?

A. 2 units of O negative blood
B. Call the acute pain team
C. CT scan of abdomen
D. IV 500 mL of 0.9% sodium chloride
E. IV morphine

Correct Answer: D

Justification for correct answer: Candidates should recognise unstable vital signs and initiate resuscitation while summoning senior help.

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4. An 80 year old woman is reviewed in the renal clinic. Over the past 2 years, she has developed non-tender, firm nodules on her fingers and elbows, some of which discharge chalky material. She has had several episodes of gout.

She has CKD stage 3 and type 2 diabetes mellitus. She takes lisinopril, insulin and atorvastatin. She currently has no painful or swollen joints.

Investigations:
Estimated GFR 38 mL/min/1.73 m² (>60)
HbA1c 72 mmol/mol (20–42)
Urate 0.52 mmol/L (0.14–0.34

She is starting low-dose allopurinol, with gradual dose titration planned.

Which is the most appropriate additional medication to prescribe?

A. Calcium acetate
B. Colchicine
C. Ibuprofen
D. Prednisolone
E. Probenecid

Correct Answer: B

Justification for correct answer: Colchicine is the preferred prophylaxis when starting allopurinol, with dosing adjusted for renal function. Ibuprofen is contraindicated because of her CKD, while prednisolone could worsen her poorly controlled diabetes.

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5. A 74 year old man is admitted to a hospice with increasing confusion and drowsiness over 2 days. He has treatment-resistant metastatic lung cancer. He reports marked thirst and has been passing urine frequently. He wishes to receive treatment for reversible complications.

His pulse is 104 bpm and BP 102/64 mmHg. His mucous membranes are dry. His capillary blood glucose is 5.6 mmol/L.

Investigations:
Adjusted calcium 3.4 mmol/L (2.2–2.6)
Creatinine 138 µmol/L (60–120)

Which is the most appropriate initial treatment?

A. Intramuscular glucagon
B. Intravenous 0.9% sodium chloride infusion
C. Oral dexamethasone
D. Subcutaneous haloperidol
E. Subcutaneous midazolam infusion

Correct Answer: B

Justification for correct answer: He has symptomatic hypercalcaemia with dehydration. Intravenous 0.9% sodium chloride restores circulating volume and promotes renal calcium excretion. Fluid administration should be tailored to his clinical status, with monitoring for fluid overload. Further calcium-lowering treatment will also be required.

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6. A 40 year old woman with multiple sclerosis develops acute retention of urine. Her bladder is catheterised. Four minutes later she becomes short of breath and lightheaded.

Her temperature is 37.4°C, pulse 126 bpm, BP 92/40 mmHg, respiratory rate 16 breaths per minute and oxygen saturation 93% breathing air. She is sweaty and agitated. Her breathing is laboured and she has an expiratory wheeze.

Which is the most likely diagnosis?

A. Anaphylaxis
B. Autonomic dysreflexia
C. Bladder perforation
D. Urinary sepsis
E. Vasovagal syncope

Correct Answer: A

Justification for correct answer: Either latex from the catheter, or chlorhexidine from the local anaesthetic/lubricant jelly, could have triggered an allergic reaction. B and E would not cause wheeze and C and D would take longer to show themselves.

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7. A 24 year old white woman is referred to the rheumatology clinic because her fingers have been changing colour in the cold for the past year. She also has recurrent mouth ulcers and pain in the small joints of her hands.

She has an erythematous rash across her nose and cheeks.

Which is the most appropriate antibody test to confirm the diagnosis?

A. Anticardiolipin
B. Anti-cyclic citrullinated peptide
C. Anti-double stranded DNA
D. Anti-neutrophil cytoplasmic
E. Anti-smooth muscle

Correct Answer: C

Justification for correct answer: The underlying diagnosis is SLE. 2019 EULAR criteria. ANA has to be positive to confirm the diagnosis but antids-DNA is more specific

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8. A 54 year old woman has surgery for a T2 N1 M0 left-sided breast cancer. Histology shows an invasive ductal cancer that is oestrogen receptor negative and HER-2 receptor positive. It is planned that she will have postoperative chemotherapy.

What additional treatment is the multidisciplinary team most likely to recommend?

A. Bevacizumab
B. Cetuximab
C. Ipilimumab
D. Rituximab
E. Trastuzumab

Correct Answer: E

Justification for correct answer: Trastuzumab is a landmark targeted therapy in cancer treatment against the HER2 receptor.

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9. A 54 year old woman has a hemicolectomy. After the procedure, a nurse runs through the 'sign out' element of the WHO surgical safety checklist. She asks, 'Have all intravenous lines been flushed?'

Why is this question asked?

A. To draw attention to postoperative fluid prescribing
B. To ensure that the patient will be well hydrated
C. To involve the anaesthetist in the 'sign out' in addition to the surgeon
D. To prevent the later injection of residual anaesthetic drugs
E. To show that the intravenous cannula is patent

Correct Answer: D

Justification for correct answer: NHS Improvement Patient Safety Alert April 2014 https://www.england.nhs.uk/2014/04/pat-safety-alert/ (6 incidents of respiratory or cardiac arrest reported to national database 2011-14). Re-issued 2017 after further incidents.

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10. A 78 year old man attends for a pre-operative assessment prior to an elective hernia repair. He has ischaemic heart disease and atrial fibrillation. He takes apixaban, aspirin, lisinopril, omeprazole and simvastatin.

Which medication should he be advised to stop prior to the procedure?

A. Apixaban
B. Aspirin
C. Lisinopril
D. Omeprazole
E. Simvastatin

Correct Answer: A

Justification for correct answer: Minor surgery can be performed while patients continue to take aspirin. However, a DOAC needs to be stopped 48 hours prior to the procedure. Patients are advised to take regular medications as normal prior to surgery.

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11. A 50 year old woman has her first screening mammogram, which shows a small area of microcalcification in the upper outer quadrant of her right breast. Histology from a core biopsy shows ductal carcinoma in situ. She has no risk factors for breast cancer.

Which is the most appropriate management?

A. No treatment now, rebiopsy in 6 months
B. Radiotherapy
C. Tamoxifen
D. Total mastectomy
E. Wide local excision of the lesion

Correct Answer: E

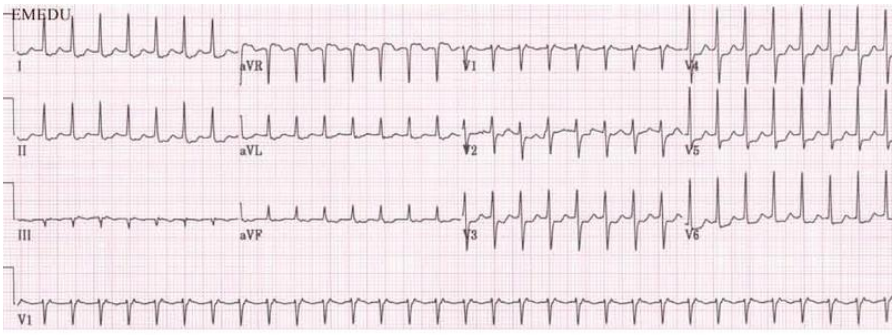
Justification for correct answer: -

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12. A 24 year old man has had palpitations for 1 hour. He has no chest pain or breathlessness. His temperature is 36.2ºC, pulse 160 bpm, BP 110/65 mmHg, respiratory rate 20 breaths per minute and oxygen saturation 94% breathing air.

Investigations:
ECG (see image)

Vagal manoeuvres have no effect on his heart rate.



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Which is the most appropriate initial treatment?

A. Adenosine
B. Amiodarone hydrochloride
C. Atropine sulfate
D. Digoxin
E. Metoprolol

Correct Answer: A

Justification for correct answer: ALS tachyarrythmia algorithm, not shocked so does not require cardioversion. Still up to date with current Resus guidelines 2025

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13. A 74 year old woman has 5 days of vomiting and diarrhoea, associated with progressive generalised weakness and fatigue.

Her temperature is 37.1°C, pulse 92 bpm, BP 108/68 mmHg, respiratory rate 16 breaths per minute and oxygen saturation 98% breathing air.

Investigations:
Sodium 148 mmol/L (135–146)
Potassium 2.6 mmol/L (3.5–5.3)
Urea 9.5 mmol/L (2.5–7.8)
Creatinine 89 µmol/L (60–120)

ECG: sinus rhythm with prominent U waves

What is the most appropriate treatment?

A. IV potassium chloride in 0.9% sodium chloride
B. IV potassium chloride in 5% glucose
C. IV sodium lactate (Hartmann's solution)
D. Oral potassium chloride with potassium bicarbonate
E. Oral rehydration solution

Correct Answer: A

Justification for correct answer: Severe symptomatic hypokalaemia requires IV potassium replacement. It should be given in sodium chloride, not glucose, because of the possible risk of exacerbating hypokalaemia by driving potassium into cells.

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14. A 20 year old man has a reduced conscious level and is not responding to questions. He was involved in a head-on road traffic collision and on arrival at hospital he was talking to the paramedics.

His pulse is 110 bpm, BP 105/70 mmHg and oxygen saturation 89% on 6 L/min oxygen. On painful stimulus, he groans and localises to pain but does not open his eyes. His pupils are 4 mm in diameter and reactive to light. There are no signs of facial trauma.

Which is the most appropriate airway intervention?

A. Cuffed tracheal tube
B. Laryngeal mask airway
C. Nasopharyngeal airway
D. Oropharyngeal airway
E. Tracheostomy

Correct Answer: A

Justification for correct answer: This is because the patient is comatose and unable to protect his airway. The first principle of resuscitation is Airway and oxygenation. (His GCS is 8)

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15. A 61 year old man attends the medical admissions unit with 2 days of confusion. Whilst there, he has a tonic–clonic seizure that is treated with lorazepam.

His temperature is 38.2°C.

Investigations:
Random plasma glucose 5.4 mmol/L

CT scan of head: low density area in the left medial temporal lobe

Cerebrospinal fluid:
Total protein 0.62 g/L (0.15–0.45)
Glucose 4.3 mmol/L (2.2–4.4)
Cell count 22 /µL (<5)
Lymphocyte count 90% (60–70)
Gram stain negative

Which is the most appropriate management?

A. Intravenous aciclovir
B. Intravenous amphotericin B
C. Intravenous ceftriaxone
D. Oral amoxicillin
E. Oral ganciclovir

Correct Answer: A

Justification for correct answer: Confusion and seizure in a previously well adult with focal findings on CT in temporal lobe. CSF more suggestive of viral encephalitis than bacterial infection.

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16. A 58 year old man has gradual bilateral hearing loss for 2 years. He has no systemic symptoms.

Both external auditory canals are normal and both eardrums have a light reflex with normal appearances. Weber's test is heard equally in both ears and Rinne's test in both ears is positive.

Which is the most likely diagnosis?

A. Cholesteatoma
B. Conductive deafness
C. Labyrinthitis
D. Meniere's disease
E. Presbycusis

Correct Answer: E

Justification for correct answer: This is a classical picture of presbyacusis. Conductive deafness would have Webers test towards the affected side and Rinnes test would be negative on the affected side. Usually there would be examination findings on otoscopy. Meniere's disease would have a history of systemic features: Cholesteatoma would have abnormal examination findings of the tympanum on the affected side and conductive hearing loss. Labyrinthitis has systemic features such as vertigo.

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17. A 54 year old woman has episodes of dizziness for 3 months. She feels that her surroundings spin around her and that she will fall. Moving her head or turning in bed often triggers her symptoms. She sometimes feels sick during attacks. She has nystagmus on sudden head movement. Her hearing is normal.

Which is the most likely diagnosis?

A. Benign paroxysmal positional vertigo
B. Cerebello-pontine angle tumour
C. Ménière's disease
D. Vertebrobasilar insufficiency
E. Viral labyrinthitis

Correct Answer: A

Justification for correct answer: BPPV causes these symptoms without hearing impairment, is episodic and typically triggered by head movement. Vertebrobasilar insufficiency is usually accompanied by other neurological symptoms but not nausea. Meniere's includes hearing deficit, viral labyrinthitis is usually short-lived, a tumour would not be expected to cause episodic symptoms dependent on head movement.

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18. A 68 year old woman has had increasing fatigue, night sweats and a feeling of fullness after small meals for 6 months. She has lost 5 kg in weight.

She is pale. Her spleen is palpable 10 cm below the left costal margin. There is no lymphadenopathy.

Investigations:
Haemoglobin 89 g/L (115–150)
White cell count 16.8 × 10^9/L (4.0–11.0)
Platelets 128 × 10^9/L (150–400)

Blood film: numerous tear-drop red cells, nucleated red cells and immature granulocytes.

Which is the most likely diagnosis?

A. Acute myeloid leukaemia
B. Aplastic anaemia
C. Chronic myeloid leukaemia
D. Myelodysplastic syndrome
E. Primary myelofibrosis

Correct Answer: E

Justification for correct answer: Marked splenomegaly, constitutional symptoms and a leukoerythroblastic blood film with tear-drop red cells strongly suggest primary myelofibrosis. Bone marrow fibrosis disrupts normal blood cell production, with extramedullary haemopoiesis contributing to splenic enlargement.

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19. A 41 year old man has had 4 weeks of sneezing, nasal discharge, itchy eyes and inflamed nasal mucosa. He has a history of severe eczema and asthma.

Investigations:
Haemoglobin 146 g/L (130–175)
White cell count 7.6 × 10^9/L (4.0–11.0)
Platelets 204 × 10^9/L (150–400)
Neutrophils 4.6 × 10^9/L (2.0–7.5)
Eosinophils 1.8 × 10^9/L (0–0.4)

Which is the most likely cause of his eosinophilia?

A. Atopy
B. Chronic myeloid leukaemia
C. Eosinophilic granulomatosis with polyangiitis
D. Lymphoma
E. Systemic mastocytosis

Correct Answer: A

Justification for correct answer: Allergic rhinitis, eczema and asthma are manifestations of atopy, which commonly causes mild eosinophilia.

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20. A 65 year old woman is admitted having collapsed with loss of consciousness while shopping. She has a metallic aortic valve and takes warfarin.

She has a pulse rate 76 bpm, BP of 156/80 mmHg, respiratory rate 16 breaths per minute and oxygen saturation 96% on air. Her Glasgow coma score is 12 (eyes 3/4, verbal 4/5, motor 5/6). She has bruising around the right eye.

Investigations:
Prothrombin time 42 seconds (10–12)
International normalised ratio 3.3 (1.0)
Activated partial thromboplastin time 32 seconds (22–41)
Fibrinogen 3.4 g/L (1.5–4.0)

CT scan of head: intracerebral haematoma in the left fronto-parietal region

She is given vitamin K intravenously.

Which is the next most appropriate additional treatment?

A. Intravenous mannitol
B. Intravenous prothrombin complex concentrate
C. Intravenous tranexamic acid
D. Oral nimodipine
E. Repeat intravenous vitamin K in 12 hours

Correct Answer: B

Justification for correct answer: Warfarin-associated intracerebral haemorrhage requires immediate reversal with four-factor prothrombin complex concentrate alongside intravenous vitamin K. The concentrate rapidly replaces clotting factors, while vitamin K provides sustained reversal over subsequent hours. The mechanical valve does not outweigh the need to reverse anticoagulation in this life-threatening bleed.

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21. A 63 year old man has had 6 months of right hip pain that is slowly worsening. He had systemic vasculitis diagnosed 12 months ago. He is taking prednisolone and mycophenolate mofetil.

Movement of the right hip is reduced in all directions.

Investigations:
Creatinine 140 µmol/L (60–120)
CRP 8 mg/L (< 5)

X-ray of his hips and pelvis: (see image).



Which is the most likely diagnosis?

A. Avascular necrosis
B. Metastatic malignancy
C. Renal osteodystrophy
D. Subchondral fracture
E. Tuberculosis

Correct Answer: A

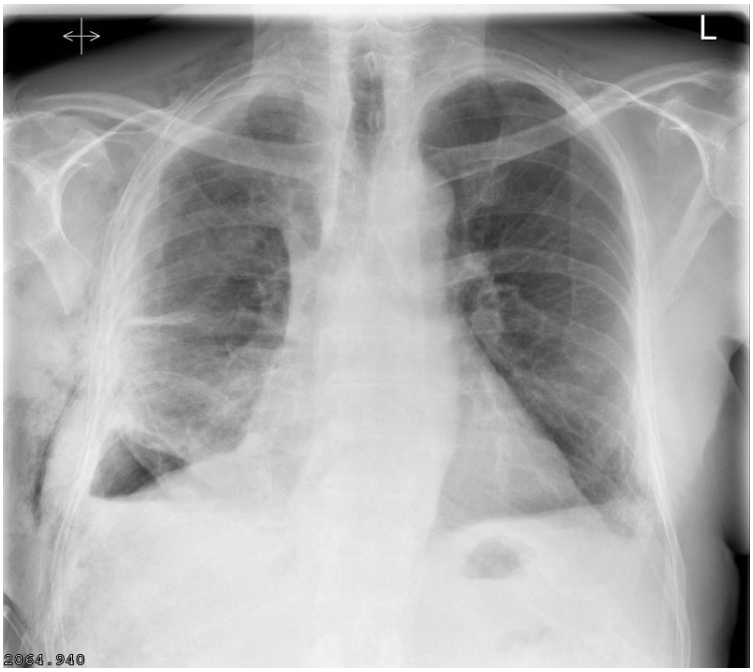
Justification for correct answer: The patient has avascular necrosis secondary to corticosteroids. Perthes' disease would have a similar radiographic appearance but would only be seen in children.

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22. A 67 year old man with mesothelioma attends the oncology clinic 2 weeks after the insertion of a semi-permanent chest drain for recurrent pleural effusions. His breathing improved following the procedure. Over the past 10 days, he has had increasing discomfort over his right chest and neck.

His temperature is 36.5°C, pulse 80 bpm, BP 132/84 mmHg and oxygen saturation is 94% breathing air. He has crepitations over his neck and right side anterior chest wall.

A chest X-ray is obtained (see image).



Which is the most likely cause of his chest and neck discomfort?

A. Empyema
B. Pneumonia
C. Pneumothorax
D. Progressive mesothelioma
E. Subcutaneous emphysema

Correct Answer: E

Justification for correct answer: Palpable crepitus over the chest wall and neck indicates air within the subcutaneous tissues, supported by the subcutaneous air visible on the chest X-ray. This can complicate pleural drainage. The findings do not establish the precise source of the air leak.

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23. A 43 year old woman has a family history of breast and ovarian cancer, and is found to have a BRCA1 mutation. She reports no symptoms and she has no medical problems. She has completed her family. Her lifetime risk of developing ovarian cancer is estimated to be 40%.

Which is the most appropriate strategy for prevention of ovarian cancer?

A. Bilateral salpingo-oophorectomy
B. MR imaging of pelvis every 2 years
C. Oral contraceptive pill
D. Serum CA125 every 4 months
E. Transvaginal ultrasonography every 4 months

Correct Answer: A

Justification for correct answer: Reference: UKCTOCS study - no evidence to support ca125 or uss as screening modalities. OCP can reduce risk of ovarian cancer, but cannot be used for her since her risk of breast cancer is about 80%

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24. A 70 year old woman has worsening right upper quadrant pain. She has metastatic colorectal cancer and has lost 8 kg in weight in 3 months. Her performance status is 3.

Investigations:
Alkaline phosphatase (ALP) 400 IU/L (25–115)
Albumin 28 g/L (35–50)
Alanine aminotransferase (ALT) 350 IU/L (10–50)
Aspartate aminotransferase (AST) 453 IU/L (10–40)
Bilirubin (total) 48 µmol/L (<21)
Gamma glutamyl transferase (γGT) 882 IU/L (9–40)

CT scan of abdomen: multiple liver metastases

What is the most appropriate management?

A. Best supportive care
B. Hepatology referral
C. Palliative chemotherapy
D. Palliative radiotherapy
E. Urgent ERCP

Correct Answer: A

Justification for correct answer: Poor performance status (PS 3) and progressive metastatic disease suggest focus should shift to symptom control and quality of life. Significant liver dysfunction would preclude chemotherapy even in presence of fitness. ERCP would be inappropriate given extent of disease and frailty (no mention of obstruction of bile duct)

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25. A 43 year old man has 2 days of diarrhoea, opening his bowels 10 times per day, but with no blood. He is being treated with immunotherapy (pembrolizumab) for metastatic malignant melanoma. His family are not unwell and he has no recent foreign travel.

His temperature is 37.1°C, pulse 110 bpm, BP 100/60 mmHg, respiratory rate 15 breaths per minute and oxygen saturation 98% breathing air. Examination reveals dehydration and a diffusely tender abdomen.

Which is the most likely diagnosis?

A. Bacterial colitis
B. Colonic metastases of melanoma
C. Immune-mediated colitis
D. Irritable bowel syndrome
E. Viral colitis

Correct Answer: C

Justification for correct answer: Immunotherapy agents are increasingly common in Oncology and students should be able to identify the common, potentially life-threatening side effects including colitis as this can be missed.

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26. A 65 year old woman has acute right thigh pain and inability to bear weight on the right leg following a fall. She has non-small cell lung cancer and is receiving chemotherapy.

She has tenderness and swelling in the right thigh, with deformity and bruising.

Investigations:
Alkaline phosphatase (ALP) 231 IU/L (25–115)
Calcium (adjusted) 2.7 mmol/L (2.2–2.6)

X-ray right femur: transverse midshaft femoral fracture with pathological changes suggestive of metastatic involvement

She is given analgesia.

Which is the most appropriate next step in management?

A. Femoral intramedullary nail
B. IV pamidronate disodium
C. Radiotherapy
D. Right hemiarthroplasty
E. SC denosumab

Correct Answer: A

Justification for correct answer: A femoral intramedullary nail is the most appropriate choice for immediate stabilisation of the fracture. Intramedullary nailing provides internal support, allows for early weight-bearing, and helps manage pain effectively.

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27. A 25 year old woman has had increasing fatigue and easy bruising for 3 weeks. She is struggling to concentrate in lectures.

She is pale and has scattered bruises and petechiae on her limbs

Investigations:
Haemoglobin 68 g/L (115–150)
White cell count 28 × 10^9/L (4.0–11.0)
Platelets 80 × 10^9/L (150–400)
Neutrophils 1.5 × 10^9/L (2.0–7.5)

Blood film: numerous circulating blast cells, some containing Auer rods.

Which is the most likely diagnosis?

A. Acute lymphoblastic leukaemia
B. Acute myeloid leukaemia
C. Chronic lymphocytic leukaemia
D. Chronic myeloid leukaemia
E. Myelodysplasia syndrome

Correct Answer: B

Justification for correct answer: Numerous circulating blasts with Auer rods indicate acute myeloid leukaemia. Bone marrow failure explains the anaemia, thrombocytopenia and neutropenia despite the elevated total white cell count.

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28. A 23 year old woman now has acute pain after sustaining a twisting injury to her right knee during a game of hockey. She reports an episode of her knee locking in position.

She has a small effusion in the right knee, with medial joint line tenderness. She cannot fully straighten the knee.

Which is the most likely diagnosis?

A. Anterior cruciate ligament rupture
B. Lateral collateral ligament sprain
C. Lateral meniscus tear
D. Medial collateral ligament sprain
E. Medial meniscus tear

Correct Answer: E

Justification for correct answer: Clinical picture best fits medial cartilage injury.

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29. A 36 year old woman has had pain in her hand for 4 weeks. She is 35 weeks pregnant.

The pain radiates from her wrist to the index and middle fingers and is accompanied by numbness and tingling. Tinel's test is negative.

Which is the single most likely diagnosis?

A. Carpal tunnel syndrome
B. Lateral epicondylitis
C. Multiple sclerosis
D. Thoracic outlet syndrome
E. Ulnar nerve entrapment

Correct Answer: A

Justification for correct answer: This presentation is most consistent with carpal tunnel syndrome (CTS) because the sensory symptoms follow the median nerve distribution, begin around the wrist, and occur in late pregnancy, which is a recognised precipitant of CTS. A negative Tinel's test does not exclude the diagnosis.

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30. A 52 year old woman has progressive swelling of her legs over the past 2 weeks. She has a history of disseminated renal cancer.

She has pitting oedema to her groins and dilated veins over her lower abdomen.

Which is the most likely cause of her leg swelling?

A. Hypoalbuminaemia
B. Inferior vena cava occlusion
C. Lymphatic obstruction
D. Portal vein occlusion
E. Right heart failure

Correct Answer: B

Justification for correct answer: This is not a typical presentation for the other listed distractors, but would fit with IVC obstruction.

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31. A 77 year old man with metastatic prostate cancer is receiving palliative care. He has not passed stool for 5 days despite taking lactulose twice daily. He takes regular modified-release morphine.

He describes rectal fullness and an urge to defaecate but cannot pass stool. He continues to pass flatus and has no vomiting.

His abdomen is distended without guarding. Digital rectal examination reveals firm stool filling the rectum, with no palpable mass.

What is the most appropriate treatment to provide immediate relief?

A. Add oral ispaghula husk
B. Add oral macrogol
C. Add oral senna
D. Insert a glycerol suppository
E. Switch lactulose to oral senna

Correct Answer: D

Justification for correct answer: A glycerol suppository acts locally to facilitate evacuation of firm stool in the rectum. His regular laxative regimen should subsequently be reviewed, including adding a stimulant laxative for ongoing opioid-related constipation.

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32. A 22 year old woman has lumps in both breasts for 3 months. They are sometimes painful, particularly before menstruation.

There are approximately nine small lumps in each breast, which are tender to palpation. The largest is 1 cm in diameter. There are no nipple changes, and she has no axillary lymphadenopathy.

Which is the most likely diagnosis?

A. Breast cancer
B. Duct ectasia
C. Fat necrosis
D. Fibroadenomas
E. Fibrocystic disease

Correct Answer: E

Justification for correct answer: Age <30y makes breast cancer very unlikely. Relationship to menstrual cycle and multiple tender cysts are typical of fibrocystic disease.

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33. A 30 year old woman has 1 year of episodes when all her fingers become cold and blue, followed by redness and pain. The attacks have been worse in winter. Her symptoms have not responded to non-pharmacological interventions.

Examination of her hands is normal.

Investigations:
Antinuclear antibodies (ANA) positive 1:160

Which is the most appropriate treatment?

A. Aspirin
B. Hydroxychloroquine sulfate
C. Losartan potassium
D. Nifedipine
E. Sildenafil

Correct Answer: D

Justification for correct answer: These are characteristic features of Raynaud phenomenon. Calcium channel blockers are first line treatment. A positive ANA is not uncommon in the general population so does not make the diagnosis of secondary Raynaud phenomenon.

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34. A 37 year old woman had an open cholecystectomy 2 days ago. She has type 1 diabetes mellitus and usually takes insulin aspart (NovoRapid®) 1 unit per 10 grams of carbohydrate at each meal and insulin degludec (long-acting) 24 units subcutaneously before bed. Her insulin degludec has been continued alongside a variable rate intravenous Actrapid® insulin infusion, which is currently at 3 units per hour.

She is ready to start eating. She has just had 6 units of NovoRapid® insulin subcutaneously with breakfast.

How long after giving the subcutaneous NovoRapid ® should the variable rate insulin infusion be stopped?

A. 30 minutes
B. 2 hours
C. 3 hours
D. 4 hours
E. Immediately

Correct Answer: A

Justification for correct answer: Joint British Diabetes Society Inpatient/Variable Rate Insulin Infusion guidelines. As she has just been given the subcutaneous quick acting analogue insulin (Novorapid®) this will take 15-30 minutes reach appropriate levels in the circulation due to a slight delay in absorption from the subcutaneous injection site. For a quick acting insulin analogue the overlap of the IV insulin infusion with the SC Novorapid® insulin should be 30 minutes. This helps avoid the risk of significant hyperglycaemia and development of ketonaemia. For an intermediate acting insulin the overlap should be 4 hours.

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35. A 47 year old man is brought to the emergency department after being found confused at home beside empty packets of amitriptyline.

His temperature is 36.8°C, pulse 128 bpm, BP 94/60 mmHg, respiratory rate 24 breaths per minute and oxygen saturation is 97% breathing air. He has dilated pupils and dry mucous membranes. His capillary blood glucose is 5.0 mmol/L.

Investigations:
ECG: sinus tachycardia with a QRS duration of 140 ms

What is the primary mechanism responsible for the cardiac abnormalities?

A. Blockade of fast sodium channels
B. Competitive antagonism at muscarinic acetylcholine receptors
C. Excess β-adrenergic receptor stimulation
D. Increased intracellular calcium release from the sarcoplasmic reticulum
E. Inhibition of potassium channels

Correct Answer: A

Justification for correct answer: Tricyclic antidepressants cause use-dependent blockade of fast sodium channels in the myocardium, leading to QRS widening, arrhythmias, and hypotension.

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36. A 28 year old man has rheumatoid arthritis. His renal and hepatic function are normal.

He is advised to take methotrexate.

Which additional drug should be prescribed to minimise adverse effects?

A. Alendronic acid
B. Ascorbic acid
C. Folic acid
D. Lansoprazole
E. Naproxen

Correct Answer: C

Justification for correct answer: Methotrexate is a competitive folate antagonist and blocks conversion of folate into its active co-enzyme forms necessary for protein synthesis.

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37. A 28 year old woman attends the breast clinic. She is currently breast feeding her six week old baby.

Examination confirms a fluctuant tender area extending from the areolar complex to the superolateral quadrant of her right breast.

Which is the most likely causative organism?

A. Candida albicans
B. Corynebacterium ulcerans
C. Group B streptococcus
D. Klebsiella pneumoniae
E. Staphylococcus aureus

Correct Answer: E

Justification for correct answer: Staph aureus is the most common cause of post partum mastitis

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38. A 6 year old boy has had a severe sore throat and fever for 2 days. He has no cough or runny nose. He has a documented penicillin allergy causing anaphylaxis.

His temperature is 38.6ºC. His tonsils are markedly inflamed and covered with white exudate. He has tender anterior cervical lymph nodes. There is no stridor, drooling or trismus.

Which is the most appropriate antimicrobial treatment?

A. Ciprofloxacin
B. Clarithromycin
C. Co-amoxiclav
D. Metronidazole
E. No antimicrobial indicated

Correct Answer: B

Justification for correct answer: Fever, tonsillar exudate, marked tonsillar inflammation, presentation within 3 days and absence of cough or coryza give a FeverPAIN score of 5, indicating a higher likelihood of streptococcal infection. The stem establishes that an immediate antibiotic prescription is indicated.

Clarithromycin is an appropriate alternative to penicillin in a child with a history of penicillin-induced anaphylaxis. Co-amoxiclav contains amoxicillin and must be avoided. Ciprofloxacin and metronidazole are not recommended treatments for uncomplicated streptococcal tonsillitis. Paracetamol is appropriate for pain and fever but would not replace the indicated antibiotic

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39. An 80 year old woman is admitted to the surgical ward with suspected bowel obstruction. She has a history of treated heart failure, hypertension and atrial fibrillation.

Her temperature is 36.9°C, pulse 78 bpm and BP 148/84 mmHg. There is no peripheral oedema. She weighs 55 kg.

Investigations:
Sodium 142 mmol/L (135–146)
Potassium 4.2 mmol/L (3.5–5.3)
Urea 6.2 mmol/L (2.5–7.8)
Creatinine 78 µmol/L (60–120)

Following surgical review, she is to remain nil by mouth.

Which is the most appropriate volume of IV fluid to prescribe over the next 24 h?

A. 1 L
B. 1.5 L
C. 2 L
D. 2.5 L
E. 3 L

Correct Answer: B

Justification for correct answer: Observations suggest she is euvolaemic therefore needs maintenance fluids but not replacement fluids. Would aim for maintenance fluid 25-30 mls/kg/d in view of age and history of heart failure (therefore between 1375 and 1650 mls/24 hours)
NICE guideline CG174: Iv fluid therapy in adults in hospital (May 2017)

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40. A 24 year old woman presents after a deliberate mixed overdose. She has nausea, vomiting and ringing in her ears.

Investigations:
Sodium 144 mmol/L (135–146)
Potassium 4.1 mmol/L (3.5–5.3)
Chloride 102 mmol/L (95–106)

Arterial blood gas breathing air:
pH 7.38 (7.35–7.45)
PaO_2 15 kPa (11–15)
$PaCO_2$ 3.4 kPa (4.6–6.4)
Bicarbonate 15 mmol/L (22–30)

Which medication is most likely to have caused these findings?

A. Amitriptyline hydrochloride
B. Aspirin
C. Codeine phosphate
D. Paracetamol
E. Sertraline

Correct Answer: B

Justification for correct answer: Tinnitus, nausea and vomiting suggest salicylate poisoning. The blood gas shows a raised anion gap metabolic acidosis with an additional respiratory alkalosis, producing a near-normal pH.

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41. A 43 year old woman has 4 months of recurrent episodes of sudden onset dizziness lasting from 20 minutes to several hours. These episodes occur approximately twice per month. Each episode is often preceded by a sensation of fullness in her right ear and accompanied by tinnitus.

On Rinne testing air conduction is better than bone conduction bilaterally and Weber test lateralises to the left.

What is the most likely finding on audiometry?

A. Bilateral high frequency sensorineural hearing loss
B. Left-sided conductive hearing loss
C. Left-sided high frequency sensorineural hearing loss
D. Right-sided conductive hearing loss
E. Right-sided low frequency sensorineural hearing loss

Correct Answer: E

Justification for correct answer: The clinical picture is consistent with Meniere's disease. This typically has unilateral low-frequency sensorineural hearing loss in the early stages. Given the examination findings this would be in the right ear at this stage.

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42. A 57 year old man has 7 days of worsening numbness and tingling in his feet, now affecting his thighs. He has reduced sensation when wiping himself after defaecation. He had sciatica last year. He has type 2 diabetes mellitus and takes metformin. He was given the influenza vaccine 3 weeks ago.

His legs have normal tone and strength. Ankle reflexes are absent and plantar responses are flexor. There is bilaterally reduced pinprick sensation over his feet and the posterior calves and thighs.

What is the most likely diagnosis?

A. Cauda equina syndrome
B. Diabetic radiculopathy
C. Guillain–Barré syndrome
D. Post-vaccination transverse myelitis
E. Thoracic spinal cord compression

Correct Answer: A

Justification for correct answer: Cauda equina syndrome is most likely because this is a lower motor neurone problem (absent ankle jerks, flexor plantar responses) with sensory loss involving the lower sacral dermatomes (feet, posterior calf, posterior thigh and symptoms of perineal numbness). It is not a cord compression or a transverse myelitis because these would be upper motor neurone. The symptoms are too rapid for diabetic radiculopathy and too localised for Guillain–Barré syndrome.

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43. An 80 year old woman slips on ice and falls on to her outstretched hand. She has a painful left wrist with deformity of her left forearm. An X-ray is taken (see image).



Which is the most likely diagnosis?

A. Distal radial fracture
B. Epiphyseal plate fracture
C. Greenstick fracture
D. Radial head dislocation
E. Scaphoid fracture

Correct Answer: A

Justification for correct answer: Classic history and radiographic appearances of Colles

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44. A 72 year old man has severe pain and swelling of the right knee associated with fever and malaise. There is no history of trauma. He has a 20 year history of diabetes and hypertension.

His temperature is 38.1°C, pulse 105 bpm, BP 152/78 mmHg. He is unable to weight bear. The knee is warm, swollen and red. There is pain on active and passive movement.

Which is the most likely diagnosis?

A. Gout
B. Haemarthrosis
C. Pseudogout
D. Reactive arthritis
E. Septic arthritis

Correct Answer: E

Justification for correct answer: Septic arthritis is the main differential diagnosis for anyone presenting with a single, painful swollen joint.

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45. A 20 year old man with type 1 diabetes mellitus collapses on the surgical ward. He has not eaten for 24 hours. He is receiving intravenous antibiotics and fluids for suspected appendicitis.

He is unconscious. His capillary blood glucose is 1.9 mmol/L.

Which is the most appropriate management?

A. 50 mL of 5% glucose intravenously
B. 100 mL of 20% glucose intravenously
C. 100 mL of orange juice orally
D. Buccal GlucoGel®
E. Glucagon 1 mg intramuscularly

Correct Answer: B

Justification for correct answer: JBDS hypoglycaemia guidelines 2018. Patient has reduced conscious level therefore oral options not appropriate. 50 mls of 5% glucose is not enough glucose. Glucagon not appropriate as need to have carbohydrates to replace liver glycogen shortly after glucagon dosing.

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46. A 58 year old woman attends the emergency department with profound weakness, diarrhoea and reduced urine output. She received her first cycle of chemotherapy for breast cancer 8 days ago. She takes dexamethasone for chemotherapy-related nausea and has no drug allergies.

Her temperature is 36.4°C, pulse 116 bpm, BP 94/58 mmHg, respiratory rate 24 breaths per minute and oxygen saturation 97% breathing air. Her chest is clear and her abdomen is soft and non-tender. There is no erythema or tenderness around her central venous catheter.

Investigations:
Haemoglobin 108 g/L (115–150)
White cell count 0.8 × 10^9/L (4.0–11.0)
Neutrophils 0.2 × 10^9/L (2.0–7.5)
Platelets 94 × 10^9/L (150–400)
Creatinine 112 µmol/L (60–120); baseline 65 µmol/L
Lactate 3.4 mmol/L (0.5–2.0)

Blood cultures have been taken and intravenous crystalloid resuscitation has started.

Which is the most appropriate initial empirical antibiotic treatment?

A. Intravenous ceftriaxone
B. Intravenous co-amoxiclav
C. Intravenous piperacillin–tazobactam
D. Intravenous vancomycin
E. Oral ciprofloxacin and co-amoxiclav

Correct Answer: C

Justification for correct answer: Severe neutropenia with physiological instability indicates suspected neutropenic sepsis, even without fever. Piperacillin–tazobactam provides broad-spectrum cover, including against Pseudomonas. Ceftriaxone and co-amoxiclav lack reliable antipseudomonal activity, vancomycin alone provides inadequate coverage, and oral treatment is inappropriate in an unstable patient.

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47. A 56 year old man has diffuse bone pain. He has prostate cancer with bone metastases in his pelvis, femur and ribs. His pain is severe and is affecting his ability to complete activities of daily living.

His current medicines are:
Codeine phosphate 30 mg four times a day
Ibuprofen 400 mg three times a day
Macrogol 3350 with potassium chloride, sodium bicarbonate and sodium chloride (Movicol®) one sachet twice daily
Omeprazole 20 mg once daily
Paracetamol 1 g four times a day

Which is the most appropriate next step in his pain management?

A. Add pregabalin
B. Increase codeine phosphate
C. Stop codeine phosphate and start morphine sulfate
D. Stop codeine phosphate and start tramadol hydrochloride
E. Stop ibuprofen and start naproxen

Correct Answer: C

Justification for correct answer: This question asks the students to recognise that the patient needs to move from Step 2 to step 3 on the pain ladder. He is appropriately taking paracetamol, a weak opioid and a NSAID with no benefit. Adding a neuropathic agent is unlikely to help with bone pain.

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48. A 25 year old man presents to his GP with a painful right ear and itching 2 days after a swimming holiday. He feels otherwise well and has no hearing loss or discharge.

There is mild erythema of the right ear canal and tenderness when the tragus is pressed. The canal is patent, with no swelling or debris. The tympanic membrane is intact and normal. He has no fever.

The GP prescribes simple analgesia and advises him to keep the ear dry.

Which is the most appropriate additional treatment?

A. Acetic acid ear drops
B. Antibiotic and steroid ear drops
C. Oral antibiotics
D. Sodium bicarbonate ear drops
E. Warm olive oil ear drops

Correct Answer: B

Justification for correct answer: This is mild, uncomplicated acute otitis externa. Acetic acid ear drops acidify the ear canal and inhibit microbial growth. Antibiotic and steroid drops are more appropriate when inflammation is more marked or initial treatment is unsuccessful. Oral antibiotics are not indicated without infection extending beyond the ear canal. Sodium bicarbonate and olive oil are used to soften wax.

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49. A 27 year old woman has severe shortness of breath 1 hour postoperatively. She was admitted 6 hours earlier with isolated lower limb injuries from a motorcycle collision. She underwent surgery to stabilise lower limb fractures and received 4 units of red cells and 2 units of plasma.

Her temperature is 38.1°C, pulse 158 bpm, BP 108/88 mmHg, respiratory rate 28 breaths per minute and oxygen saturation 88% breathing high-flow oxygen.

Chest X-ray: bilateral pulmonary infiltrates

Which is the most likely cause for her deterioration?

A. Acute lung injury
B. Anaphylaxis
C. Aspiration pneumonitis
D. Pulmonary embolism
E. Sepsis

Correct Answer: A

Justification for correct answer: The clinical picture is most suggestive of transfusion-related acute lung injury. Anaphylaxis is a differential but there are no oromucosal or skin changes, or wheeze, and the impairment of gas exchange is pronounced relative to other features. It would be early for pulmonary embolism and this is less likely to cause multifocal pulmonary infiltrates. Likewise, it would be unusual for overwhelming sepsis to present so early, and with such profound impairment of gas exchange.

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50. A 16 year old girl presents to the emergency department after falling and briefly losing consciousness at a party. She had consumed a large amount of alcohol before the fall and cannot remember recent events.

Two hours after the injury, her pulse is 68 bpm, BP 110/80 mmHg and oxygen saturation 98% breathing air. Her GCS score is 13/15 (E3 V4 M6). Her pupils are equal and reactive, with no focal neurological deficit. Her capillary blood glucose is 6.0 mmol/L.

She has a scalp wound with no ongoing bleeding.

Which is the most appropriate next step in management?

A. Admit and observe for 24 hours
B. CT scan of head within 1 hour
C. Discharge with head injury instructions
D. Refer to neurosurgeon
E. X-ray of skull

Correct Answer: B

Justification for correct answer: In a patient aged 16 or over, a GCS score below 15 at 2 hours after a head injury requires a CT head scan within 1 hour of identifying this risk factor. Reduced consciousness must not be attributed to alcohol until significant traumatic brain injury has been excluded. Observation alone would delay the required investigation.

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51. A 3 year old girl has an abnormal gait, toe-walking with her right foot.

When her right hip is fully flexed, there is limited abduction compared with the left hip joint.

Imaging confirms developmental dysplasia of the right hip.

What is the most appropriate management?

A. Observation
B. Pavlik harness
C. Physiotherapy
D. Sequential casting
E. Surgical reduction and tenotomy

Correct Answer: E

Justification for correct answer: https://patient.info/doctor/paediatrics/developmental-dysplasia-of-the-hip-pro?utm_source=gpoptin

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52. A 56 year old woman has two episodes of vaginal bleeding in 3 months. Her periods stopped 3 years ago. She does not have any postcoital bleeding, pain or discharge.

Abdominal and pelvic examination is normal, other than mild atrophic vaginitis.

Which is the most appropriate next step in management?

A. Arrange for abdominal ultrasonography
B. Refer urgently to gynaecology
C. Screen for sexually transmitted infections
D. Start hormone replacement therapy
E. Take a cervical smear

Correct Answer: B

Justification for correct answer: An abdominal ultrasound may not be that helpful and may delay diagnosis. A pelvic ultrasound may be done but any patient with bleeding 1 yr after periods have stopped needs urgent referral (2 week wait). The gynaecologists will likely do a pelvic ultrasound and biopsy in the clinic.
The cervical screening programme does not accept smears outside of the routine screening – though this patient may have a smear sent from Gynae clinic.
An STI screen may be carried indicated but urgent Gynae referral is the next and most important step.
Mild atrophic vaginitis may be the cause - in which case topical HRT might help – but endometrial cancer must be ruled out first. It is not appropriate to start hormone treatment with unexplained abnormal bleeding.

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53. A 13 year old boy develops severe left-sided testicular pain of acute onset over 3 hours, associated with lower abdominal pain and vomiting. There is no history of trauma.

His temperature is 37.8°C, pulse 116 bpm, BP 112/76 mmHg and oxygen saturation 99% breathing air. He has generalised lower abdominal tenderness, but no guarding. The left testis is very tender and swollen. There is no scrotal transillumination.

Which is the most appropriate next step in management?

A. Admit for observation
B. Arrange CT of pelvis
C. Start doxycycline and discharge
D. Start ibuprofen and discharge
E. Urgent surgical exploration

Correct Answer: E

Justification for correct answer: Surgical emergency

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54. A 23 year old man wakes one morning distressed, with his head and neck twisted to one side. He has schizophrenia and takes risperidone.

What is the most appropriate treatment to relieve his symptoms?

A. Haloperidol
B. Levetiracetam
C. Lorazepam
D. Olanzapine
E. Procyclidine

Correct Answer: E

Justification for correct answer: Acute dystonia is 'reversed' by procyclidine.

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55. A 45 year old man has been having palpitations, sweating, nightmares and feeling very anxious for 6 weeks. This started after he had an injury at work, and had a deep laceration to the leg from a loose piece of machinery on the factory track. The wound is now healing well, but he repeatedly thinks about the accident. He is unable to concentrate on his job quality assuring small metal parts on the factory conveyor belt, and requests medication to relieve his symptoms and allow him to continue working.

He has no other health conditions.

Which is the most appropriate response to this request?

A. Offer advice on sleep hygiene
B. Prescribe diazepam
C. Prescribe zopiclone
D. Eye movement desensitising and reprocessing (EMDR)
E. Refer for trauma-focused cognitive behaviour therapy (CBT)

Correct Answer: E

Justification for correct answer:
https://www.nice.org.uk/guidance/ng116/chapter/Recommendations#management-of-ptsd-in-children-young-people-and-adults
after 1 month likely PTSD , trauma-focused CBT 1st line Rx. He is working with machinery on a factory track so should avoid sedating medications.

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56. A 28 year old woman undergoes a diagnostic laparoscopy for chronic pelvic pain. Dark brown spots are seen in the rectouterine pouch with a dark brown cyst in the right ovary.

Which is the most likely diagnosis?

A. Adenomyosis
B. Dermoid cyst of right ovary
C. Endometriosis
D. Pelvic inflammatory disease
E. Polyendocrine metabolic ovarian syndrome (polycystic ovary syndrome)

Correct Answer: C

Justification for correct answer: Deposits of endometriosis are seen as small chocolate chip spots or gun powder burns on the peritoneal reflections and that of ovary can develop chocolate cysts (endometriomas).

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57. A 34 year old woman has a thin, watery, greenish-yellow vaginal discharge. This has been associated with some itchy discomfort and dyspareunia.

Which is the most likely diagnosis?

A. Bacterial vaginosis
B. Candidiasis
C. Gonorrhoea
D. Herpes
E. Trichomoniasis

Correct Answer: E

Justification for correct answer: Typical history of common cause of vaginal discharge, bacterial vaginosis tends to have thicker discharge and candida tends to be whitish.

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58. A 38 year old woman seeks advice for contraception. She has four children. Her last two pregnancies resulted from her forgetting to take her combined oral contraceptive pill. She also has troublesome heavy periods.

Which is the most appropriate contraceptive to recommend?

A. Copper intrauterine contraceptive device
B. Depot progestogen injection
C. Laparoscopic sterilisation
D. Progestogen-only intrauterine system
E. Progestogen-only pill

Correct Answer: D

Justification for correct answer: the progesterone-only intrauterine system is the only method of contraception listed that will help with painful periods and provide long lasting contraception

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59. A 24 year old man has 3 weeks of a painful penis.

His foreskin is easily retractable. On the glans, there are multiple painful shallow ulcers that are tender to touch. He has tender palpable lymph nodes in his groin.

What is the most likely diagnosis?

A. Candidal balanitis
B. Genital herpes
C. Lichen sclerosus
D. Penile squamous carcinoma
E. Syphilis

Correct Answer: B

Justification for correct answer: Clustered multiple lesions indicates herpes. The foreskin is not tender, so this is not balanitis. Tender lymph nodes suggest an infective cause.

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60. A 32 year old woman requests a termination of pregnancy. She is 14 weeks pregnant. She states that due to her religious belief, this has been a very difficult decision for her. She states that she is not ready to have children and worries that it may worsen her depression and anxiety. Her husband does not yet know of the pregnancy but is keen to start a family.

She denies abuse in the relationship, and states that her husband is otherwise supportive and they are happy.

Which is the most appropriate action?

A. Inform her husband about the pregnancy
B. Organise the termination of pregnancy
C. Recommend that she returns in 1 week for further discussion
D. Suggest that she discusses this with her religious faith leader
E. Suggest that she re-attends with her husband

Correct Answer: B

Justification for correct answer: It's the patient's decision and not the husband's. She has clearly come to a decision.

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61. A 25 year old woman has had fresh vaginal bleeding for 2 days. The bleeding is more than just spotting, but lighter than her usual period. There have been no clots and there is no pain. She has just missed her second menstrual period; she usually has 28-day cycles. A home pregnancy test was positive last week.

Her abdomen is soft and non-tender. Her uterus is equivalent to approximately 8–9 weeks' size, the cervical os is closed and there is slight fresh vaginal bleeding.

Which is the most likely diagnosis?

A. Complete miscarriage
B. Incomplete miscarriage
C. Inevitable miscarriage
D. Missed miscarriage
E. Threatened miscarriage

Correct Answer: E

Justification for correct answer: Threatened miscarriage is diagnosed when there is vaginal bleeding in first trimester but the cervical os is still closed.
Complete miscarriage is diagnosed when the pregnancy has been lost and there is no evidence of retained products of conception on ultrasound.
Incomplete miscarriage is diagnosed when most of the pregnancy has been lost but there are still some retained products of conception in the uterus.
Inevitable miscarriage is diagnosed when there is vaginal bleeding in first trimester and the cervical os is open.
Missed miscarriage is diagnosed when the fetus has died but the body has not recognised the loss of the pregnancy. It is usually asymptomatic.

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62. A two year old boy has a fever and a rash. He attends a nursery and had a chickenpox contact 5 days ago. For 2 days he has had a fever, been miserable and had a runny nose. One day ago, he developed a pink rash that has moved from his face down to his trunk. His family refused all childhood vaccinations.

He has several white spots in his mouth and conjunctivitis. He has a pink rash that is made up of clusters of pink lesions that are raised, 2–5 mm in diameter and blanch under pressure. The rash is over his face and his trunk.

Which is the most likely diagnosis?

A. Diphtheria
B. Kawasaki disease
C. Measles
D. Rubella
E. Varicella

Correct Answer: C

Justification for correct answer: The incubation period of chickenpox is 10-21 days and there are no vesicles on examination. The fever is two short for Kawasaki disease The missed vaccines make him vulnerable to measles.

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63. A 31 year old woman and her 34 year old husband have 3 years of primary subfertility. Her menstrual cycle occur every 32–35 days. Otherwise, she has no significant medical history. Her husband is fit and well, and semen analysis demonstrates no abnormalities.

Which is the most appropriate investigation?

A. Early follicular phase luteinising hormone and FSH
B. Early follicular phase oestradiol
C. Early follicular phase progesterone
D. Mid luteal phase oestradiol
E. Mid luteal phase progesterone

Correct Answer: E

Justification for correct answer: progesterone should be measured mid luteal as an assessment for ovulation in a person with a menstrual cycle of 35 days or less

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64. A 40 year old woman has a hysterectomy and bilateral salpingo-oophorectomy for endometriosis. Small deposits of endometriosis remain on the pelvic sidewall.

She receives counselling about surgical menopause and wishes to start hormone replacement therapy. She has no contraindications to HRT.

Which is the most appropriate HRT regimen?

A. Continuous combined HRT
B. Cyclical combined HRT
C. Oestrogen-only HRT
D. Oestrogen and testosterone HRT
E. Progestogen and testosterone HRT

Correct Answer: A

Justification for correct answer: Continuous combined HRT is preferred after surgery for endometriosis, even when the uterus has been removed. The progestogen component reduces stimulation of residual endometriotic tissue by oestrogen. Oestrogen-only HRT may increase the risk of reactivation and is generally avoided in this setting.

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65. A 39 year old woman at 37 weeks' gestation visits her GP, worried about reduced fetal movements for 24 hours. She feels extremely tired. This is the second time in this pregnancy that she has presented with these symptoms. She has previously delivered a baby at 39 weeks with a birth weight of 2 kg.

She has a symphysis-fundal height of 36 cm. The fetal heart rate is 127 bpm. Urinalysis is normal.

Which is the most appropriate next step in management?

A. Refer to community midwife
B. Refer to the maternity assessment unit
C. Request a full blood count
D. Request outpatient ultrasonography
E. Review in 1 week

Correct Answer: B

Justification for correct answer: Even though the fetal heart rate is heard - the woman still requires assessment same day with a history of reduced fetal movements.

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66. A 2 year old boy has develops a barking cough after 3 days of coryzal symptoms. His parents report noisy breathing when he cries. He is drinking adequately.

His temperature is 38.0°C, pulse 125 bpm, respiratory rate 28 breaths per minute and oxygen saturation 98% breathing air. He is alert and comfortable at rest. There is inspiratory stridor when he becomes upset, but none at rest. There is no chest recession, drooling or difficulty swallowing.

Which is the most appropriate treatment?

A. Nebulised adrenaline
B. Nebulised ribavirin
C. Nebulised salbutamol
D. Oral amoxicillin
E. Oral dexamethasone

Correct Answer: E

Justification for correct answer: A barking cough and stridor following a coryzal illness indicate croup. Stridor only when upset, without recession or distress at rest, indicates mild disease. Oral dexamethasone reduces upper airway inflammation. Nebulised adrenaline is reserved for more severe croup with significant airway obstruction. Salbutamol treats lower airway bronchospasm, while antibiotics and ribavirin are not indicated.

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67. A 7 year old girl presents to her GP with bedwetting for the past 2 weeks. She is slightly sore when passing urine and has occasionally wet herself during the day. Her mother also reports that she started at a new school 6 weeks ago and is finding it difficult to adjust to the new class.

Physical examination is normal.

Which is the most appropriate next step?

A. Recommend bell and pad alarm
B. Refer for psychological support
C. Refer to paediatrician
D. Restrict daily intake of fluid
E. Urinalysis

Correct Answer: E

Justification for correct answer: The most likely diagnosis is urinary tract Infection.

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68. A 5 year old boy attends the Emergency Department with 2 days of fever and cough. He is eating and drinking normally. He has no allergies.

His temperature is 37.4°C, pulse 110 bpm (80–120), respiratory rate 22 breaths per minute (20–25) and oxygen saturation 99% breathing air. He has no respiratory distress, but coarse crepitations are audible in the right upper zone, with good air entry throughout both lung fields.

Which is the most appropriate antibiotic treatment?

A. IV co-amoxiclav
B. IV piperacillin–tazobactam
C. No antibiotic
D. Oral amoxicillin
E. Oral doxycycline

Correct Answer: D

Justification for correct answer: This is the presentation of a simple community acquired pneumonia. Oral amoxicillin is an appropriate treatment as there is no reason the patient needs admission for IV therapy. Tetracyclines should be avoided in children <8 years of age.

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69. A newborn baby boy has worsening grunting at 90 minutes of age. The midwives report that this started 30 minutes ago. He was born by elective caesarean section at 38 weeks gestation and weighed 3.5 kg. There was prolonged rupture of membranes for 32 hours. Maternal vaginal swabs were negative during pregnancy.

His temperature is 37.9°C (36.0–37.9), heart rate 155 bpm (110–150), respiratory rate 55 breaths per minute (30–50) and oxygen saturation 91% breathing air.

Investigations:
Capillary blood gas breathing air
pH 7.12 (7.35–7.45)
PCO_2 9.6 kPa (4.6–6.4)
Bicarbonate 23 mmol/L (22–30)

Which is the most appropriate immediate management?

A. Chest X-ray
B. Continuous positive airway pressure
C. Exchange transfusion
D. Intravenous antibiotics
E. Lumbar puncture

Correct Answer: B

Justification for correct answer: Hypoxic grunting neonate. Whilst other options may be performed, airway needs to be sorted first.

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70. A three year old boy is brought to his GP because he is not yet using words and rarely responds to his name. He does not point to share his interests or bring toys to show his parents. He prefers to play alone, repeatedly lining up toy cars, and becomes very distressed if their order is changed.

He started walking at 14 months and can run, climb stairs and feed himself with a spoon. His parents report frequent hand flapping when excited and marked distress with changes to his usual routine. There has been no loss of previously acquired skills.

Formal hearing assessment is normal.

Which is the most likely diagnosis?

A. Attention deficit hyperactivity disorder
B. Autism spectrum disorder
C. Global developmental delay
D. Neglect
E. Sensorineural hearing loss

Correct Answer: B

Justification for correct answer: Impaired social communication and shared attention, together with repetitive behaviours and resistance to change, strongly suggest autism spectrum disorder. Language delay alone would not establish the diagnosis. His relatively preserved motor and self-care skills make global developmental delay less likely, and normal hearing assessment argues against hearing loss.

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71. A 7 month old boy has vomiting for the past 6 hours and is unable to keep feeds down. He has had episodes of pallor while flexing his knees into his chest. He started weaning 1 month ago and tried cucumber for the first time today.

His temperature is 36.8°C, pulse 144 bpm, BP 80/54 mmHg, respiratory rate 36 breaths per minute (30–40) and oxygen saturation 99% breathing air. He looks pale and lethargic but is alert.

Capillary blood gas:
pH 7.39 (7.35–7.45)
PCO_2 5.3 kPa (4.6–6.4)
Bicarbonate 23 mmol/L (22–30)

Lactate 5.6 mmol/L (1–2)

Urinalysis: negative

Which is the most appropriate diagnostic investigation?

A. Electroencephalography
B. Specific IgE
C. Stool virology
D. Ultrasonography of abdomen
E. Urine microscopy and culture

Correct Answer: D

Justification for correct answer: Need to consider intussusception in this child. He has a brief history of vomiting, no fever, pulling knees into his chest (which is classical) and a raised lactate. Abdominal USS is the most appropriate first investigation for intussusception in this case. Cucumber allergy is extremely rare. While NICE recommends children less than 1 year have a microscopy if considering a UTI (can't just exclude on a dip), the clinical picture fits better with intussusception. The history is too short for infantile spasms and the child has no diarrhoea (so can't send off a stool virology sample).

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72. A 35 year old woman is feeling anxious and irritable with poor concentration and a sense of feeling detached. She was attacked 5 days ago on her way home from work. She keeps thinking about the attack and her sleep is poor. She is still able to enjoy socialising and has been attending work as normal.

What is the most likely diagnosis?

A. Acute stress reaction
B. Adjustment disorder
C. Generalised anxiety disorder
D. Panic disorder
E. PTSD

Correct Answer: A

Justification for correct answer: https://www.nice.org.uk/guidance/ng222 - stepped care
https://cks.nice.org.uk/topics/post-traumatic-stress-disorder/diagnosis/diagnosis/

PTSD- longer lasting and persistence of wide range pervasive symptoms from DSMV criteria . cf acute stress reaction which settles over time

not reaching threshold depression / GAD and no panic - DSMV criteria. able to enjoy events- not pervasive low mood (depression) GAD is not situational or triggered by a specific event but becomes a generalised state.

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73. A 23 year old man has 1 month of episodes of blurred vision. These occur when he is revising for exams. During these episodes, his vision becomes blurry, he has a throbbing headache, his heart races and he feels really worried that he might die. The symptoms settle within 15 minutes, but he then worries about the time that this is wasting. He has had six episodes.

Physical examination is normal.

Which is the most likely cause of his presentation?

A. Cardiac arrhythmia
B. Complex partial seizures
C. Panic disorder
D. Social phobia
E. Somatisation

Correct Answer: C

Justification for correct answer: Panic disorder: recurrent, discrete episodes of panic with symptoms of autonomic arousal. A time of great anxiety such as exams increases risk. Presence of symptoms in multiple body symptoms makes organic cause very unlikely.

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74. A 72 year old man has a fractured neck of femur following a fall at home. He has been drinking one 70 cL bottle of whisky per day for at least the last 5 years. He has not had an alcoholic drink in the last 24 hours. His BMI is 17 kg/m^2. He is prescribed analgesia and vitamin supplementation.

Which is the most appropriate additional medication to prescribe?

A. Chlordiazepoxide
B. Gabapentin
C. Haloperidol
D. Lamotrigine
E. Mirtazapine

Correct Answer: A

Justification for correct answer: The use of long acting benzodiazepines to reduce the risk of seizures is common practice. Alcohol through gaba raises seizure threshold, when this is withdrawn the seizure threshold falls.
The use of benzodiazepines such as chlordiazepoxide again raises the seizure threshold.

Gabapentin and lamotrigine could be helpful for alcohol withdrawal but are not used for this in routine practice.

Mirtazapine and haloperidol would be unhelpful.

https://www.uptodate.com/contents/management-of-moderate-and-severe-alcohol-withdrawal-syndromes

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75. A 28 year old woman has end-stage renal disease and requires haemodialysis. She refuses treatment because she has an intense fear of needles. She feels highly anxious, experiences palpitations and shortness of breath, and faints at the sight of a needle. She has previously avoided vaccinations and blood tests.

Which is the best treatment for her psychological condition?

A. Cognitive therapy
B. Diazepam
C. Fluoxetine
D. Mindfulness
E. Systematic desensitisation

Correct Answer: E

Justification for correct answer: This woman has a needle phobia (psychological anxiety, vasovagal response and avoidance). Systematic desensitisation is a form of behavioural therapy and is the most effective treatment for needle phobia. Diazepam can be used to lessen the anxiety but does not treat the underlying condition.

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76. A 32 year old man has repetitive and unpleasant thoughts that are making him unhappy and anxious. He recognises that these are his own, but is unable to ignore them.

Which is the most likely diagnosis?

A. Anankastic personality disorder
B. Delusional disorder
C. Generalised anxiety disorder
D. Mixed anxiety and depressive disorder
E. Obsessive compulsive disorder

Correct Answer: E

Justification for correct answer: Obsessional thoughts. Must be OCD. Not anankastic PD, as he does not like the symptoms.

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77. All of the residents over 40 years of age living in a small town had their risk factors for dementia (e.g. cholesterol, BP, smoking status) measured and have been followed up for more than 20 years to look at outcomes (e.g. cognitive impairment, independent living).

Which type of study does this describe?

A. Case–control study
B. Ecological study
C. Prospective cohort study
D. Qualitative study
E. Retrospective cohort study

Correct Answer: C

Justification for correct answer: This is a classical description of a prospective cohort study.

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78. A 55 year old man is brought to the Emergency Department with a generalised convulsion. He was treated for bowel cancer with liver metastases 6 months earlier. He is given analgesia.

MR scan of brain shows four metastases in his right cerebral cortex, with surrounding cerebral oedema and midline shift. He is treated with dexamethasone, levetiracetam and omeprazole.

Which is the most appropriate advice regarding driving?

A. He should not drive until established on anti-seizure medication
B. He should not drive until he has completed definitive therapy
C. He should not drive until permitted by the Driver and Vehicle Licensing Agency
D. He will not be permitted to drive again
E. There is no restriction on driving

Correct Answer: C

Justification for correct answer: Patients with a new diagnosis of brain metastases must be informed that they cannot drive and must report their condition to DVLA. If metastases are successfully treated, DVLA will restore permission to drive after 1 – 2 years. This is a key safety duty of the ED staff if they make the diagnosis.

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79. A 28 year old woman who is 20 weeks pregnant (G1P0) attends the GP surgery with increased swelling, tightness and redness of her left leg from the groin to the foot.

Her left leg is swollen compared with the right. It feels warmer and there is erythema. Compression ultrasonography confirms an iliofemoral DVT.

Which is the most appropriate management?

A. Direct oral anticoagulant (apixaban)
B. Low molecular weight heparin (tinzaparin sodium)
C. Platelet aggregation inhibitor (ticagrelor)
D. Unfractionated heparin
E. Vitamin K antagonist (warfarin sodium)

Correct Answer: B

Justification for correct answer: LMWH is the drug of choice in pregnancy. Use of DOAC and VKA not recommended in pregnancy. Ticagrelor is not an oral anticoagulant.

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80. A 28 year old woman attends for cervical screening. She has no abnormal vaginal bleeding or discharge. Her cervix appears normal on speculum examination. Her screening sample tests positive for high-risk human papillomavirus (HPV). Cytological examination of the same sample shows high-grade dyskaryosis.

Which is the most appropriate next step?

A. Cervical cone biopsy
B. Colposcopy
C. Repeat HPV testing in 12 months
D. Repeat cervical cytology in 3 months
E. Ultrasound scan of pelvis

Correct Answer: B

Justification for correct answer: High-grade dyskaryosis requires prompt colposcopy to assess the cervix and guide biopsy or treatment. A normal appearance on routine speculum examination does not exclude significant cervical abnormalities. Repeat screening would delay appropriate assessment.

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81. A 24 year old woman has severe right-sided abdominal pain of sudden onset. She is 32 weeks pregnant. Her first child was delivered by lower-segment Caesarean section. She has no vaginal loss.

Her temperature is 37.2°C, pulse 100 bpm and BP 105/65 mmHg. On palpation, the uterus is tender. Urinalysis is negative.

Which is the most likely cause of her presentation?

A. Appendicitis
B. Chorioamnionitis
C. Placenta praevia
D. Placental abruption
E. Uterine rupture

Correct Answer: D

Justification for correct answer: Placental Abruption is the only correct answer as placenta praevia requires vaginal bleeding, uterine rupture is extremely rare not in labour, choriamniotis usually implies ruptured membranes and a raised temp and appendicitis the uterus shouldn't be tender and her temp is normal. There is no vaginal loss, low BP and raised pulse rate.

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82. A 40 year woman, currently 36 weeks into her second pregnancy, attends the antenatal clinic to discuss her options for mode of delivery. She has gestational diabetes and placenta praevia. In her first pregnancy, she was delivered by a caesarean section. Her BMI is 35 kg/m^2.

Which of her risk factors is the strongest contra-indication to a vaginal delivery?

A. BMI
B. Gestational diabetes
C. Maternal age
D. Placenta praevia
E. Previous caesarean section

Correct Answer: D

Justification for correct answer: Placenta praevia is a contra-indication to vaginal delivery.

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83. A 25 year old man has 1 week of urethral discharge and dysuria. He takes no regular medication. He has no regular partner.

Chlamydia is suspected.

Which is the most appropriate next step?

A. Azithromycin
B. Doxycycline
C. First-catch urine
D. Serum chlamydial antibodies
E. Urethral swab

Correct Answer: C

Justification for correct answer: First-catch urine is the recommended investigation for Chlamydia, and is preferred to treating without testing.

Urethral swab would be the next best, but is more invasive.

This is taken from the CKS guidelines on chlamydia.

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84. A 6 week old boy presents to the emergency department with progressively worsening, forceful vomiting after feeds for 1 week. The vomit contains milk but no bile. He remains hungry after vomiting.

He appears mildly dehydrated. A small, firm, olive-shaped mass is palpable in the epigastrium. A venous blood gas sample is taken.

Which biochemical pattern is most characteristic of the likely diagnosis?

A. Hyperchloraemic hyperkalaemic metabolic acidosis
B. Hyperchloraemic hypokalaemia respiratory acidosis
C. Hypochloraemic hyperkalaemic metabolic acidosis
D. Hypochloraemic hypokalaemic metabolic alkalosis
E. Hypochloraemia hypokalaemic respiratory alkalosis

Correct Answer: D

Justification for correct answer: The presentation suggests hypertrophic pyloric stenosis. Persistent vomiting causes loss of gastric hydrochloric acid, producing hypochloraemic metabolic alkalosis. Volume depletion promotes renal potassium loss, contributing to hypokalaemia

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85. A 62 year old woman has been feeling unwell for 24 hours. She has a history of depression and her medication was changed from sertraline to venlafaxine 2 days ago.

She is sweaty. Her temperature is 37.8°C, pulse 116 bpm and BP 175/92 mmHg. She has confusion, agitation and very brisk reflexes.

Which is the most likely diagnosis?

A. Acute dystonic reaction
B. Hyponatraemia
C. Neuroleptic malignant syndrome
D. Serotonin syndrome
E. Tardive dyskinesia

Correct Answer: D

Justification for correct answer: This is a classic case of Serotonin syndrome in a patient switched from an SSRI (Sertraline) to an SNRI (Venlafaxine). Serotonin syndrome is characterised by brisk tendon reflexes, muscular rigidity and autonomic instability (e.g. labile B.P and sinus tachycardia).

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86. A three year old boy has an unsteady gait. He was born by forceps delivery. He has had delay in reaching his gross motor developmental milestones.

He is clumsy, un-coordinated and has a tendency to stagger when walking.

Which part of the brain is most likely to have been damaged?

A. Brain stem
B. Cerebellum
C. Frontal lobes
D. Occipital lobes
E. Sensory cortex

Correct Answer: B

Justification for correct answer: This is because dysfunction of cerebellum is the cause of Ataxic cerebral palsy.

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87. A 10 year old boy injures his left arm when he falls off a trampoline. He is exquisitely tender over the midshaft of the ulna, where there is associated swelling.

Investigations:
X-ray left forearm: Displaced fracture of the midshaft of the left ulna.

Which is the most likely associated injury?

A. Distal radio-ulnar joint disruption
B. Distal radius fracture
C. Olecranon fracture
D. Radial head dislocation
E. Ulnar styloid fracture

Correct Answer: D

Justification for correct answer: The injury as diagnosed should lead to a suspicion of a Monteggia fracture-dislocation. Students should be aware that the forearm bones act as a ring, so a fracture in one place is likely to be associated with disruption elsewhere.

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88. A 35 year old man has schizophrenia. He attends the Emergency Department in distress because voices are telling him to harm his parents. He describes two voices, one male and one female, which talk directly to him and command him to do things which he actively tries to resist.

Which term best describes what he is hearing?

A. Pseudo-hallucinations
B. Second person auditory hallucinations
C. Third person auditory hallucinations
D. Thought echo
E. Thought insertion

Correct Answer: B

Justification for correct answer: Second person auditory hallucinations are the external perception of a voice (or noise) speaking to the person directly, they can be persecutory, highly critical, complimentary or issue commands (command hallucinations). Third person auditory hallucinations are where the patient hears a voice or voices speaking about them in the third person. Thought echo is where the patient hears their own thoughts spoken aloud. Thought insertion is where the patient believes thoughts are being inserted into their head by an external agency.

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89. A 12 year old girl has had worsening pain in her right upper thigh for 10 days. Over the past 48 hours, she has developed fever and become unable to bear weight.

Her temperature is 38.4º C and pulse 110 bpm. There is focal tenderness over the proximal femur. Gentle passive rotation of the hip causes little discomfort

Investigations:
White cell count 24.5 × 10^9/L (3.8–10.0)
Neutrophils 20.5 × 10^9/L (2.0–7.5)
CRP 106 mg/L (<5)

X-ray of right femur: periosteal reaction in the proximal femur metaphysis, with no fracture.

Ultrasound scan of right hip: no joint effusion.

Which is the most likely diagnosis?

A. Osteomyelitis
B. Perthes' disease
C. Septic arthritis
D. Slipped upper femoral epiphysis
E. Transient synovitis

Correct Answer: A

Justification for correct answer: Fever, markedly raised inflammatory markers, focal bony tenderness and a metaphyseal periosteal reaction indicate osteomyelitis. Relatively preserved passive hip movement and absence of an effusion favour bone infection over septic arthritis.

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90. A 6 week old baby has poor feeding. She is bottle fed every 4–5 hours. Recently, she has been struggling to finish her feed. Her parents report that she seems more tired, sweaty and breathless during feeding. She has had poor weight gain over the past 3 weeks. She was born at term, and the pregnancy and antenatal scans were normal.

Her temperature is 36.8°C, pulse 160 bpm (110–150), respiratory rate 60 breaths per minute (30–50) and oxygen saturation 96% in air. She has a pansystolic murmur over her left sternal edge, radiating over the praecordium.

Which is the most likely diagnosis?

A. Coarctation of the aorta
B. Patent ductus arteriosus
C. Patent foramen ovale
D. Pulmonary stenosis
E. Ventricular septal defect

Correct Answer: E

Justification for correct answer: This is a classical presentation of heart failure due to VSD. In coarctation of the aorta and patent ductus arteriosus, if there is a murmur it will be continuous. Pulmonary stenosis results in an ejection systolic murmur and patent foramen ovale does not lead to a murmur.

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91. A 20 year old man had a 2 week episode when he believed his neighbours in the flat above him were trying to kill him by pumping poisonous gas into his flat. He remembered that he could smell the gas, but no one else had noticed any such smell. He also reported being able to hear his neighbour's voice repeatedly taunting him. He has no previous mental health issues and denies any illicit substance use. His symptoms have now resolved.

Which is the most likely diagnosis?

A. Acute and transient psychotic episode
B. Delusional disorder
C. Manic episode
D. Paranoid schizophrenia
E. Schizotypal disorder

Correct Answer: A

Justification for correct answer: This patient's symptoms are not of sufficient duration to indicate delusional disorder or paranoid schizophrenia. There are no mood features suggestive of a manic episode.

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92. A 69 year old woman becomes aggressive 2 days after being admitted to hospital with a fractured femur. She thinks that she is in a prison and can hear voices of prison guards talking to each other about how they want to hurt her. Her symptoms are worse at night and she sleeps mostly during the day. Her mood is labile: at times sad and tearful, at times angry and aggressive. On admission, she was calm with no apparent psychiatric symptoms and was cognitively intact. She has no history of psychiatric problems. She refuses to be examined.

Which is the most likely diagnosis?

A. Bipolar disorder
B. Delirium
C. Dementia
D. Depressive episode with psychotic symptoms
E. Paranoid schizophrenia

Correct Answer: B

Justification for correct answer: Acute onset, fluctuation over the day, sleep–wake cycle disturbance, new perceptual disturbance and disorientation collectively point to delirium. The presence of major precipitating factors—hospitalisation and a fractured femur also support this diagnosis. NICE specifically identifies age ≥65 and current hip fracture as risk factors for delirium.

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93. A 13 month old boy unexpectedly banged his head. Shortly afterwards, he fell to the ground and became pale and floppy. His eyes rolled back. His mother picked him up and blew on his face. He recovered within 1 minute but was miserable for half an hour after this episode. He is now bright, alert and playing happily. He has no other history of note and is developing normally.

His temperature is 37.3°C, pulse 130 bpm (110-160), BP 88/40 mmHg (85-95/40-50), respiratory rate 32 breaths per minute (20-40) and oxygen saturation 99% breathing air. Cardiovascular and neurological examination are normal.

Which is the most likely diagnosis?

A. Febrile seizure
B. Hypertrophic obstructive cardiomyopathy
C. Reflex anoxic seizure
D. Supraventricular tachycardia
E. Tonic seizure

Correct Answer: C

Justification for correct answer: This is a typical presentation of reflex anoxic seizure following a minor head injury. There is no mention of fever (A). It is unlikely to be SVT or HOCM (D) because there is a clear trigger (head injury). Tonic seizures are unusual and usually have a clonic component (E). Further information at the STARs website. http://www.stars.org.uk/

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94. A 22 year old man is admitted by ambulance after collapsing in a lecture theatre. He lives in a student hall of residence but has spent the past 3 days at his girlfriend's shared flat. He has two younger brothers aged 5 and 10 years.

He has fever, headache, confusion and a non-blanching rash. A blood culture sample grows Neisseria meningitidis.

Who should receive antibiotic prophylaxis?

A. All of the residents of his girlfriend's flat
B. All of the students in his hall of residence
C. All of the students in the lecture theatre
D. His girlfriend only
E. The ambulance crew

Correct Answer: A

Justification for correct answer: close household contacts should receive prophylaxis.

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95. A 47 year old man is brought to the Emergency Department following a seizure.

His temperature is 37.6ºC, pulse 92 bpm, BP 124/86 mmHg, respiratory rate 18 breaths per minute and oxygen saturation 97% breathing air. His GCS score is 14 (E4 V4 M6). He is too agitated for a full neurological examination but appears to be moving all four limbs.

Investigations:
CT scan of head: hypodensity in the left temporal lobe

He attempts to leave the department, stating that he needs to pick up his children. The doctor is unable to persuade him to stay.

Which is the most appropriate next step?

A. Alert the adult safeguarding/social services team
B. Allow him to leave after completing a self-discharge form
C. Complete a capacity assessment
D. Refer to psychiatry
E. Sedate him with intramuscular haloperidol

Correct Answer: C

Justification for correct answer: It is very likely that he does not have capacity, as this is a presentation of encephalitis. The first step is to establish that, which is usually done by the assessing doctor. He may require completion of Deprivation of Liberty Safeguard (not by psychiatry) and sedation, but he should not be allowed to leave. The adult safeguarding team would not normally be involved in these scenarios.

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96. A 23 year old man has painful ulcers on his genitals for 1 week (see image). The lesions became pustular and spread to his torso, arms and legs. He had unprotected sexual intercourse with a new male partner 2 weeks ago.



What is the most likely organism?

A. Herpes simplex
B. Mpox (Monkeypox) virus
C. Neisseria gonorrhoeae
D. Treponema pallidum
E. Varicella zoster

Correct Answer: B

Justification for correct answer: Typical presentation of monkeypox - 95% of cases in UK are MSM.

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97. A 22 year old woman presents to the Emergency Department after a paracetamol overdose. She has had multiple suicide attempts since the age of 14 years. The trigger in this case was a break-up with her boyfriend. She reports that she has daily mood swings from depression to intense anger, to feeling extremely happy. She often cuts her wrists to alleviate dysphoria. When under stress, she experiences feelings of unreality, sometimes hearing a voice telling her to kill herself.

Which is the most likely diagnosis?

A. Bipolar affective disorder
B. Illicit substance abuse
C. Personality disorder
D. Recurrent depressive episodes
E. Schizophrenia

Correct Answer: C

Justification for correct answer: The case presents with individual symptoms suggestive of all of the above options. However, the combined pattern is typical for personality disorder.

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98. In a clinical trial to lower cardiovascular risk following myocardial infarction, patients are randomised either to receive usual care plus a new drug (Group A) or usual care only (Group B). At the beginning of the study, there are 100 patients in each group. After 5 years, 15/100 patients in Group A have died and 20/100 patients in Group B have died.

Which is the number of patients who must be treated for 5 years with the new drug to prevent one death?

A. 4
B. 5
C. 10
D. 20
E. 50

Correct Answer: D

Justification for correct answer: NNT = 1/(Pa-Pb)

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99. A 56 year old woman has had low mood, loss of interest in gardening, early morning waking and poor appetite for 2 months. She has lost 6 kg.

For the past 2 weeks, she has insisted that she has bankrupted her family and that her husband will be imprisoned because of her mistakes. She remains convinced despite evidence that their finances are secure. She has no history of elevated mood or psychotic symptoms.

She speaks slowly and says that her family would be better off without her. She is fully orientated with normal attention.

What is the most likely diagnosis?

A. Bipolar affective disorder, current depressive episode
B. Delusional disorder
C. Depressive episode with psychotic symptoms
D. Schizoaffective disorder
E. Schizophrenia

Correct Answer: C

Justification for correct answer: A sustained depressive syndrome is accompanied by mood-congruent delusions of financial ruin and punishment. There is no history of mania or psychosis outside the depressive episode.

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100. A 27 year old woman is referred to the gynaecology clinic with repeated postcoital bleeding. She is taking the combined oral contraceptive pill and has regular bleeds with no intermenstrual bleeding or other symptoms. She is up to date with her cervical smears.

Which is the most likely cause of her bleeding?

A. Cervical atrophy
B. Cervical cancer
C. Cervical ectropion
D. Cervical polyp
E. Chlamydial infection

Correct Answer: C

Justification for correct answer: The vast majority of PCB is caused by cervical ectropion particularly on the COCP. Other demonstrable pathology is rare.

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