

Part 1 Exam

Medical Council of Canada MCCQE

Version Demo

Total Demo Questions: 39

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Topic Break Down

Topic	No. of Questions
Topic 1, Assessment and diagnosis	184
Topic 2, Management	143
Topic 3, Communication	33
Topic 4, Professional behaviours	39
Total	399

QUESTION NO: 1

A 24-year-old woman with chronic anorexia nervosa presents to the Emergency Department with diarrhea, chest pain and palpitations. She is noted to have a BMI of 13, a heart rate of 48/min, significant orthostatic hypotension and a temperature of 35.9 °C. Her electrocardiogram shows frequent premature ventricular contractions. Her blood work indicates elevated liver transaminases and evidence of acute kidney injury from dehydration. She agrees to admission for medical stabilization only if she does not receive fluids either orally or intravenously, as they will cause her to gain weight and to feel bloated. Which one of the following is the best next step?

- A. Refuse to admit her unless she agrees to full treatment
- B. Obtain a psychiatric consultation
- C. Assess her capacity to consent for medical treatment
- D. Start intravenous fluids and physically restrain if necessary
- E. Ask her if she has a substitute decision-maker

ANSWER: C

Explanation:

“Assess her capacity to consent for medical treatment” is the best next step because this patient is refusing an essential component of urgent treatment despite severe physiological instability. Her marked malnutrition, bradycardia, hypothermia, orthostatic hypotension, ventricular ectopy, dehydration-associated acute kidney injury, and transaminitis indicate a high risk of rapid deterioration. Although a capable adult may refuse recommended care, capacity is decision-specific and must be evaluated when refusal may result from an impaired ability to understand or appreciate the consequences of that decision.

A capacity assessment should determine whether she can understand the relevant information about dehydration and fluid replacement, appreciate that these risks apply to her personally, reason about the available choices, and communicate a stable choice. Anorexia nervosa does not automatically establish incapacity; however, the illness’s overvalued beliefs about weight gain and distorted appraisal of medical danger can impair appreciation of the need for life-preserving treatment. If she lacks capacity, clinicians should provide necessary care through the applicable substitute decision-making and emergency-treatment framework while using the least restrictive approach possible. This approach appropriately protects autonomy when capacity is present while ensuring urgent treatment can proceed when it is absent. See the [Canadian Medical Protective Association guide to consent](#) and the [Medical Council of Canada Objectives](#).

QUESTION NO: 2

You are working in a busy family practice. Your colleague 's 48-year-old female patient presents with a 6-month history of fatigue and gastrointestinal symptoms. A recent colonoscopy was normal. Her chart indicates multiple investigations for similar symptoms over the past 2 years, all of which have been non-revealing. Your working diagnosis is somatic symptom disorder. Which one of the following is the most appropriate treatment?

- A. Cognitive behavioral therapy
- B. Citalopram 20 mg daily
- C. Risperidone 0.5 mg daily
- D. Exposure and response prevention therapy
- E. Amitriptyline 10 mg at bedtime

ANSWER: A

Explanation:

Cognitive behavioral therapy is the most appropriate treatment for somatic symptom disorder. This disorder involves distressing physical symptoms accompanied by excessive thoughts, anxiety, or health-related behaviours; symptoms are genuine and can substantially impair daily functioning even when repeated investigations do not identify a structural disease. Cognitive behavioral therapy helps the patient identify and modify unhelpful interpretations of bodily sensations, reduce

reassurance-seeking and repeated health-care use, develop coping skills, and restore functioning despite ongoing symptoms. It is best delivered within a supportive, validating therapeutic relationship that avoids implying symptoms are fabricated or “all in the patient’s head.” In family practice, management also includes planned, regular follow-up with one consistent clinician, attention to functional goals, and judicious investigation guided by new objective clinical findings rather than symptom persistence alone. Psychotherapy is therefore a central evidence-based intervention and can be used whether or not comorbid anxiety or depression is present. The Merck Manual describes cognitive behavioral therapy as an effective treatment for somatic symptom disorder, alongside supportive longitudinal care: [Merck Manual Professional Edition](#). A clinical review in *American Family Physician* likewise identifies cognitive behavioral therapy as an evidence-based treatment that can improve symptoms and functioning: [Somatic Symptom Disorder](#).

QUESTION NO: 3

A 58-year-old woman presents to your office with refractory bipolar I disorder. She is on the following medications: lithium carbonate, valproic acid, and olanzapine. She also takes acetaminophen for osteoarthritis and pantoprazole for gastroesophageal reflux. Lately, she has noticed she bruises very easily. Laboratory work displays a platelet count of $70 \times 10^9/L$ (normal 130–400). Which one of the following is most likely to induce this side effect?

- A. Olanzapine
- B. Lithium carbonate
- C. Pantoprazole
- D. Acetaminophen
- E. Valproic acid

ANSWER: E

Explanation:

Valproic acid is the most likely cause of this patient’s thrombocytopenia and easy bruising. Thrombocytopenia is a recognized, clinically important adverse effect of valproate therapy, and may occur through dose- or concentration-related effects on platelet production and possibly platelet function. A platelet count of $70 \times 10^9/L$ is sufficiently low to increase the likelihood of bruising and should prompt clinical reassessment, including evaluation for bleeding, repeat complete blood count testing, and consideration of valproate dose reduction or discontinuation according to the patient’s clinical circumstances and serum valproate concentration. Risk is greater with higher valproate doses or serum concentrations and is reported more often in older patients and women—features relevant to this 58-year-old patient. In bipolar disorder, monitoring for medication adverse effects is essential because valproate is commonly used long term and hematologic toxicity can develop during treatment. Product prescribing information specifically identifies dose-related thrombocytopenia and recommends monitoring blood counts and coagulation parameters. The clinical presentation therefore directly links the reduced platelet count and bruising to valproic acid exposure. See the [Health Canada product monograph for divalproex sodium](#) and [StatPearls: Valproic Acid](#) for adverse-effect and monitoring information.

QUESTION NO: 4

A 47-year-old man has been training for a marathon. After a long run, he develops mild pain and swelling in his left knee. Examination shows a mild joint effusion and a soft tissue mass in the popliteal fossa. The knee radiograph is normal. Which one of the following is the best method of confirming the diagnosis?

- A. Ultrasound.
- B. Arthroscopy.
- C. Arthrocentesis.
- D. Aspiration of the popliteal mass.
- E. Computed tomography.

ANSWER: A

Explanation:

Ultrasound is the best method of confirming the likely diagnosis of a Baker cyst (popliteal cyst). The combination of a knee effusion and a palpable, soft mass in the popliteal fossa is characteristic of distension of the gastrocnemius-semimembranosus bursa, which can communicate with the knee joint. In an active adult, increased intra-articular fluid after exertion or an underlying internal knee abnormality can make this cyst clinically apparent.

Ultrasound is a rapid, noninvasive, radiation-free examination that can demonstrate a fluid-filled structure in the characteristic location between the medial head of the gastrocnemius and semimembranosus tendons. It can establish that the mass is cystic, assess its size and complexity, and use Doppler imaging to distinguish it from vascular structures in the popliteal fossa. It may also identify features of rupture or fluid tracking into the calf when clinically relevant. This makes it an appropriate confirmatory investigation when the plain radiograph is normal and the examination suggests a popliteal cyst. Clinical reviews describe ultrasonography as a useful initial imaging modality for Baker cysts, with magnetic resonance imaging reserved when assessment of associated intra-articular pathology is needed. See [NCBI Bookshelf: Baker's Cyst](#) and [Merck Manual: Baker Cysts](#).

QUESTION NO: 5

A 35-year-old woman presents to your clinic with double vision and a gritty sensation in her eyes for the past several weeks. On examination, you notice her eyes are bulging. There is inflammation of her conjunctivae and swelling around her eyes. Which one of the following is the most likely diagnosis?

- A. Orbital pseudotumor
- B. Myasthenia gravis
- C. Allergic conjunctivitis
- D. Periorbital cellulitis
- E. Graves ophthalmopathy

ANSWER: E

Explanation:

Graves ophthalmopathy is the most likely diagnosis. This autoimmune orbital disease, also termed thyroid eye disease, commonly occurs with Graves disease but can develop independently of current thyroid hormone status. Autoantibody-mediated inflammation targets orbital fibroblasts and extraocular muscles, causing enlargement of the extraocular muscles and expansion of orbital soft tissue. The resulting increase in orbital volume produces proptosis (bulging eyes) and periorbital edema. Involvement of the extraocular muscles causes restrictive eye movements and diplopia, while exposure of the ocular surface and inflammatory changes can cause conjunctival injection, irritation, and a gritty sensation. The subacute progression over several weeks and the combined findings of bilateral-appearing proptosis, conjunctival inflammation, lid/orbital swelling, and diplopia are characteristic of this condition. Clinical evaluation should include assessment of visual acuity, colour vision, pupillary responses, ocular motility, corneal exposure, and signs of compressive optic neuropathy, as sight-threatening thyroid eye disease requires urgent ophthalmologic management. Smoking cessation is particularly important because smoking increases both the risk and severity of thyroid eye disease. See the [American Thyroid Association overview of thyroid eye disease](#) and the [NCBI Bookshelf review of thyroid eye disease](#).

QUESTION NO: 6

A 45-year-old woman presents to the emergency department after being involved in a motor vehicle collision. She reports severe right hip pain. On examination, the right hip is flexed and adducted. A radiograph shows a posterior dislocation. Which one of the following is the most appropriate management?

- A. Closed reduction under sedation.
- B. Open reduction under general anesthetic.

C. Gradual reduction with skeletal traction.

D. Total hip arthroplasty.

ANSWER: A

Explanation:

Closed reduction under sedation is the appropriate immediate management for a traumatic posterior hip dislocation. Posterior dislocations typically follow high-energy mechanisms such as a motor vehicle collision and classically produce a hip held in flexion and adduction, often with internal rotation. This is an orthopedic emergency because prolonged displacement can compromise blood flow to the femoral head and increase the risk of osteonecrosis. Reduction should therefore be performed urgently, ideally within 6 hours, using adequate analgesia and procedural sedation or anesthesia to provide muscle relaxation and permit a safe, controlled maneuver.

A documented neurovascular examination, including sciatic nerve function, should be completed before reduction when this does not delay care and repeated afterward. Following successful reduction, anteroposterior pelvic imaging should confirm a concentric reduction. Computed tomography is commonly obtained after reduction to assess for associated acetabular, femoral-head, or intra-articular fractures and to identify loose fragments that may alter definitive management. This prompt joint-preserving approach is consistent with emergency management of traumatic hip dislocation. See the [American Academy of Orthopaedic Surgeons overview of hip dislocation](#) and the [Merck Manual guidance on hip dislocations](#).

QUESTION NO: 7

A 20-year-old man is brought by a friend to the emergency department with an elevated temperature, generalized muscle rigidity, hypovolemia, a fluctuating level of consciousness, and impaired attention. The patient also may be responding to auditory hallucinations. The friend informs you that the patient overdosed with a prescribed medication. Which one of the following medications is most likely to cause these symptoms?

A. Lamotrigine

B. Amitriptyline

C. Risperidone

D. Lithium carbonate

E. Lorazepam

ANSWER: C

Explanation:

Risperidone is correct because this clinical picture is highly consistent with neuroleptic malignant syndrome, an uncommon but life-threatening adverse reaction associated with dopamine-blocking antipsychotic medications. The syndrome classically presents with marked hyperthermia, severe generalized “lead-pipe” muscle rigidity, altered mental status, and autonomic dysfunction. Autonomic disturbance may include diaphoresis, tachycardia, labile blood pressure, and volume depletion; together with impaired attention and a fluctuating level of consciousness, these findings explain the patient’s hypovolemia and delirium. Risperidone is a second-generation antipsychotic, but it still has sufficient dopamine receptor antagonism to precipitate neuroleptic malignant syndrome, particularly after excessive exposure or rapid dose escalation. Auditory hallucinations may reflect the underlying psychotic illness for which the drug was prescribed, while the acute fever, rigidity, and encephalopathy identify the dangerous medication reaction. Prompt recognition is essential because complications can include rhabdomyolysis, acute kidney injury, arrhythmias, respiratory failure, and death. Management begins with immediate discontinuation of the offending antipsychotic, aggressive supportive care including hydration and temperature control, and monitoring for muscle breakdown and renal injury. Further details are available from [StatPearls: Neuroleptic Malignant Syndrome](#) and the [risperidone prescribing information](#).

QUESTION NO: 8

A 66-year-old woman with metastatic breast cancer presents with hard, difficult-to-pass stools. She has been experiencing this issue since starting morphine to control her pain. Which one of the following is the best next step?

- A. Start docusate
- B. Prescribe senna
- C. Add a bulk-forming fiber supplement to her diet
- D. Lower her morphine dose
- E. Suggest increasing her physical activity

ANSWER: B

Explanation:

“Prescribe senna” is the best next step because this presentation is typical of opioid-induced constipation. Opioids reduce gastrointestinal propulsive motility, increase fluid absorption from the bowel, and increase anal sphincter tone; consequently, stools become dry, hard, and difficult to evacuate. This adverse effect is common, predictable, and generally persists for as long as opioid therapy continues, so it should be treated promptly without unnecessarily compromising analgesia.

A stimulant laxative such as senna increases colonic peristalsis and promotes bowel evacuation. In palliative care, stimulant laxatives are a standard first-line component of a bowel regimen for patients receiving regular opioids. Senna can be titrated according to stool frequency and consistency, with assessment for contributing factors such as dehydration, reduced intake, immobility, or fecal impaction. If symptoms remain inadequately controlled, an osmotic laxative may be added and, in refractory cases, an opioid-receptor antagonist acting peripherally can be considered when clinically appropriate.

Maintaining effective morphine analgesia while proactively managing its adverse effects is central to symptom-focused care in metastatic cancer. Guidance on constipation management in palliative care is available from the [BC Guidelines: Palliative Care—Pain and Symptom Management](#) and the [Cancer Care Ontario palliative-care resources](#).

QUESTION NO: 9

A 60-year-old man presents to the office with concerns regarding a pruritic rash, which he has had for several years. He reports a “crawling” sensation on his skin. He is concerned that this rash may be caused by a parasite he may have picked up while serving in the military overseas. On examination, you note multiple crusted lesions on his forearms, neck, chest, scalp, and thighs. There is a complete sparing of the skin on his back. He brought a bottle with fibrous material of different colours that he picked from his wounds. He is otherwise healthy and reports no other symptoms except some chronic fatigue and insomnia related to the itching. Which one of the following treatments is the most appropriate?

- A. Ivermectin
- B. Permethrin
- C. Doxycycline
- D. Fluconazole
- E. Butenafine
- F. Risperidone

ANSWER: F

Explanation:

Risperidone is the most appropriate treatment because this presentation is characteristic of delusional infestation (also called delusional parasitosis). The fixed belief that the skin is infected with a parasite, the reported crawling sensation (formication), and presentation of collected fibres or debris as proof of infestation (the “specimen sign”) are highly suggestive. The distribution also supports self-induced excoriations: lesions involve readily accessible areas, with sparing of the back, which is difficult for the patient to reach. Chronic itch, sleep disturbance, and fatigue may occur as consequences of the persistent belief and scratching.

Management starts with a respectful, non-confrontational therapeutic relationship, acknowledgment that the symptoms are distressing, and appropriate assessment to exclude genuine infestations or medical/substance-related causes of pruritus or formication. Once delusional infestation is diagnosed, a second-generation antipsychotic is the principal pharmacologic treatment. Risperidone is commonly used and has evidence of benefit in reducing the delusional belief and associated cutaneous behaviours. Coordination with dermatology and psychiatry can improve engagement and follow-up. More information on the clinical features and management of delusional infestation is available from [DermNet](#) and [NCBI Bookshelf](#).

QUESTION NO: 10

A 40-year-old woman presents to the Emergency Department with confusion and fever (38.5°C). She has a history of hypothyroidism managed with levothyroxine. Key findings include:

Blood pressure

114/78 mm Hg

Heart rate

85/min

Temperature

38.5°C

Hemoglobin

90 g/L 123-157 g/L

Platelet count

$25 \times 10^9/L$ 130-400 $\times 10^9/L$

Peripheral blood film

Schistocytes present

Creatinine

200 $\mu\text{mol/L}$ 50-90 $\mu\text{mol/L}$

A. Cirrhosis

B. Acute myelogenous leukemia

C. Human immunodeficiency virus

D. Idiopathic thrombocytopenic purpura

E. Thrombotic thrombocytopenic purpura

ANSWER: E

Explanation:

Thrombotic thrombocytopenic purpura is the best diagnosis because this presentation is a thrombotic microangiopathy: severe thrombocytopenia together with microangiopathic hemolytic anemia, evidenced by anemia and schistocytes on the peripheral smear. The associated confusion, fever, and acute kidney injury complete the classic clinical syndrome historically described as the TTP pentad. In immune-mediated TTP, acquired severe deficiency of ADAMTS13 permits unusually large von Willebrand factor multimers to promote widespread platelet-rich microthrombi. This causes platelet consumption, mechanical red-cell fragmentation, and organ ischemia, particularly affecting the brain and kidneys.

Although ADAMTS13 activity testing supports confirmation, management must not wait for the result when clinical suspicion is high. TTP is immediately life-threatening and requires urgent therapeutic plasma exchange, typically with corticosteroids; caplacizumab and immunosuppressive therapy may also be used in immune TTP according to specialist-directed care.

Prompt recognition is therefore central to MCCQE-style emergency decision-making. The International Society on Thrombosis and Haemostasis guideline emphasizes starting treatment rapidly in patients with a high pretest probability of immune TTP: [ISTH guidelines for the diagnosis of thrombotic thrombocytopenic purpura](#). A clinical overview is also available from [Merck Manual Professional](#).

QUESTION NO: 11

A 19-year-old woman presents to the office. She is a new mother. She shares that she does not intend to vaccinate her son. Which one of the following is the best next step?

- A. Explore with the patient her rationale for not vaccinating her child.
- B. Provide education on the risks and benefits of vaccination.
- C. Contact child protection services.
- D. Tell the patient you cannot follow her in your practice but will refer her to a colleague.
- E. Ask to speak with the patient 's parents.

ANSWER: A

Explanation:

“Explore with the patient her rationale for not vaccinating her child.” is the best next step because an effective response to vaccine hesitancy begins with a respectful, nonjudgmental discussion of the parent’s concerns, values, prior experiences, and specific sources of uncertainty. Open-ended questions allow the clinician to identify whether the concern relates to safety, effectiveness, the number of vaccines, mistrust, access, or misinformation. This approach establishes rapport and permits subsequent counselling to be tailored to the parent’s actual questions rather than making assumptions. It also supports informed, shared decision-making while maintaining the clinician’s responsibility to make a clear evidence-based recommendation for routine childhood immunization. The Canadian Immunization Guide emphasizes that providers should listen to concerns, answer questions clearly, and communicate vaccine recommendations in a respectful manner. The Public Health Agency of Canada also identifies health care providers as trusted sources of vaccine information and supports addressing questions through empathetic, individualized discussion. Beginning by eliciting the mother’s rationale is therefore the appropriate clinical communication step and creates the best opportunity to preserve trust and promote her child’s preventive care. See the [Canadian Immunization Guide: Communicating effectively about immunization](#) and the [Public Health Agency of Canada childhood vaccination information](#).

QUESTION NO: 12

A 6-year-old boy is brought to the Emergency Department with a 2-day history of a limp. On examination, he looks well, has a temperature of 38 °C and is able to weight-bear. His hip examination reveals mild decreased range of motion. Radiographs of his hip and pelvis show no abnormality. His C-reactive protein level is 8 mg/L (< 6). Which one of the following is the most likely diagnosis?

- A. Septic arthritis
- B. Osteomyelitis
- C. Transient synovitis
- D. Trochanteric bursitis
- E. Juvenile rheumatoid arthritis

ANSWER: C

Explanation:

Transient synovitis is the most likely diagnosis. It is a common, benign, self-limited cause of acute hip pain or limp in children, particularly between ages 3 and 10 years. Typical findings include a child who appears generally well, has a mild

limp, can usually bear weight, and has mildly restricted hip movement due to an effusion. Plain radiographs are commonly normal because the disorder affects the synovium rather than bone structure. Inflammatory markers may be normal or only mildly elevated, as in this child's CRP of 8 mg/L.

The clinical picture also has a low predicted probability of septic arthritis using commonly applied Kocher/Caird features: he is weight-bearing, has only a low-grade temperature, and has a CRP well below the CRP threshold of 20 mg/L that increases concern for septic arthritis. Although careful follow-up and reassessment are important if symptoms worsen or fail to resolve, the current presentation is most consistent with transient synovitis. The Canadian Paediatric Society discusses transient synovitis as an important noninfectious cause of an atraumatic limp and emphasizes prompt assessment for features suggesting invasive infection: <https://cps.ca/en/documents/position/acute-osteoarticular-infections>. A concise clinical review is also available from the Royal Children's Hospital guideline on the limping child:

https://www.rch.org.au/clinicalguide/guideline_index/Child_with_limp/.

QUESTION NO: 13

You are seeing a 78-year-old man for follow-up of metastatic cholangiocarcinoma diagnosed 8 months ago and currently being treated with thermotherapy. He has just completed his 2nd cycle and reports frequently feeling hopeless, worthless, and helpless, with no sense of a positive future. He states he is turning away invitations to socialize with family and friends. He feels like sleeping all the time and reports no appetite. Which one of the following is the most likely diagnosis?

- A. Normal grief reaction
- B. Major depressive episode
- C. Side effects of chemotherapy
- D. Brain metastasis
- E. Hepatic encephalopathy

ANSWER: B

Explanation:

Major depressive episode is the most likely diagnosis. This patient describes a pervasive depressive cognitive state, including hopelessness, worthlessness, helplessness, and an inability to envisage a positive future. He also has marked social withdrawal, increased sleep, and reduced appetite. Together, these features are consistent with a clinically significant depressive syndrome rather than understandable sadness alone in the setting of advanced cancer. In medically ill patients, neurovegetative symptoms such as sleep and appetite changes can overlap with symptoms of cancer or its treatment. However, depressive cognitions—particularly worthlessness, hopelessness, and helplessness—are highly informative and support major depression when accompanied by loss of interest or withdrawal and functional impairment. Depression is common in people living with cancer and should be actively identified because it substantially affects quality of life, treatment engagement, symptom burden, and potentially safety. Assessment should include confirmation of symptom duration and number, functional impact, suicidal thoughts or intent, prior mood episodes, medications, and relevant medical contributors. The American Psychiatric Association's diagnostic overview of depressive disorders is available at <https://www.psychiatry.org/patients-families/depression/what-is-depression>. The Canadian Cancer Society also addresses emotional support and depression in cancer care at <https://cancer.ca/en/living-with-cancer/coping-with-changes/emotions>.

QUESTION NO: 14

A 32-year-old primigravid woman is receiving magnesium sulfate for tocolysis. Her pregnancy is at 26 weeks ' gestation. You suspect magnesium sulfate toxicity. Which one of the following is the first sign of magnesium sulfate toxicity?

- A. Absent patellar reflexes
- B. Tachycardia
- C. Hypotension
- D. Tachypnea
- E. Oliguria

ANSWER: A

Explanation:

Absent patellar reflexes is the earliest clinically detectable sign of magnesium sulfate toxicity. Magnesium depresses neuromuscular transmission in a dose-dependent manner; therefore, deep tendon reflexes, particularly the patellar reflex, diminish and then disappear as serum magnesium rises. This finding occurs before more dangerous manifestations such as respiratory depression, paralysis, conduction abnormalities, or cardiac arrest. For a patient receiving an intravenous magnesium infusion, regular bedside assessment of patellar reflexes, respiratory rate, level of consciousness, and urine output is essential. Reduced urine output is important because magnesium is cleared primarily by the kidneys, and impaired clearance can cause accumulation, but loss of reflexes is the key early physical sign indicating toxicity. If toxicity is suspected, the infusion should be stopped promptly, the patient's respiratory and cardiovascular status assessed, and intravenous calcium gluconate made available as the antidote for clinically significant magnesium toxicity. The Society of Obstetricians and Gynaecologists of Canada notes that monitoring during magnesium sulfate therapy includes deep tendon reflexes and respiratory status: [SOGC Clinical Practice Guideline](#). General pharmacologic monitoring and toxicity information is also summarized in [StatPearls: Magnesium Sulfate](#).

QUESTION NO: 15

A 32-year-old woman presents to the office with questions related to the mRNA vaccines that are approved for COVID-19. She is a health care worker. She gave birth to a healthy child 2 months ago. Before being immunized, which one of the following is the most important detail to elicit from the patient's history?

- A. Previous anaphylactic reaction to vaccine components.
- B. Presently breastfeeding.
- C. Current immunosuppression.
- D. Work in a medical unit caring for patients with COVID-19.

ANSWER: A

Explanation:

Previous anaphylactic reaction to vaccine components is the key history to obtain before administering an mRNA COVID-19 vaccine because a severe immediate allergic reaction to a vaccine ingredient is a contraindication to receiving that product. The original mRNA COVID-19 vaccine formulations contained polyethylene glycol (PEG), an excipient that can rarely trigger serious allergic reactions. A history should therefore establish whether the patient has had anaphylaxis after a previous COVID-19 vaccine dose or after exposure to a known component of the proposed vaccine, and should clarify the nature and timing of any reported reaction. This information directly determines whether vaccination can proceed in the usual setting, whether a different product should be considered, or whether allergy assessment is needed. Canadian guidance emphasizes screening for contraindications and precautions before each dose, with particular attention to severe allergy to a prior dose or a vaccine component. This is especially important because vaccination programs must be able to prevent and promptly manage the rare event of anaphylaxis. See the Public Health Agency of Canada's [Canadian Immunization Guide: early vaccine reactions including anaphylaxis](#) and NACI's [COVID-19 immunization guidance](#).

QUESTION NO: 16

A 76-year-old man is brought to the emergency department in an unresponsive state. He has a history of chronic kidney disease with a baseline serum creatinine level of 300 $\mu\text{mol/L}$ (49–93) and a history of dilated cardiomyopathy with an ejection fraction of 30%. On assessment, he has no pulse or blood pressure. Cardiac monitor demonstrates a wide complex tachycardia. Which one of the following recently started medications is the most likely cause of this arrhythmia?

- A. Spironolactone
- B. Hydrochlorothiazide
- C. Metoprolol
- D. Clopidogrel

ANSWER: A

Explanation:

Spironolactone is the most likely precipitant because it antagonizes aldosterone in the distal nephron, reducing renal potassium excretion. This patient has advanced chronic kidney disease, substantially limiting his capacity to excrete a potassium load, and has heart failure, a setting in which spironolactone is commonly prescribed but requires careful potassium and renal-function monitoring. These factors make clinically significant drug-induced hyperkalemia particularly likely after the medication is started.

Severe hyperkalemia disrupts myocardial membrane excitability and conduction. Electrocardiographic abnormalities may progress from peaked T waves and PR prolongation to loss of P waves, QRS widening, sine-wave morphology, ventricular tachyarrhythmia, ventricular fibrillation, or cardiac arrest. Therefore, a pulseless wide-complex tachycardia in this clinical context should prompt immediate consideration of life-threatening hyperkalemia. The spironolactone prescribing information specifically warns that hyperkalemia risk is increased by impaired renal function and directs potassium monitoring after initiation or dose adjustment. See the [FDA spironolactone prescribing information](#) and the [National Kidney Foundation clinical-practice guideline resources](#).

QUESTION NO: 17

A 15-year-old boy is brought to the Emergency Department by his parents because he fainted at home earlier in the day. They are recent immigrants, and there is a language barrier. Which one of the following is the best option for facilitating a thorough history-taking?

- A. An available laboratory technician who can act as an interpreter.
- B. A relative of the patient who can act as an interpreter.
- C. A volunteer from the community who can act as an interpreter.
- D. A virtual or in-person interpreter service.
- E. Using simple language and speaking slowly.

ANSWER: D

Explanation:

A virtual or in-person interpreter service. is the best approach because a trained medical interpreter enables accurate, complete, and confidential communication between the physician, the adolescent, and his family. In an emergency assessment of syncope, the history may need to explore potentially sensitive or high-risk details, including exertional symptoms, palpitations, medication or substance exposure, eating behaviours, and sexual health. A qualified interpreter can convey questions and responses faithfully without independently filtering, adding to, or omitting clinical information. This supports safe diagnostic decision-making and meaningful communication about investigations and treatment.

Professional interpretation is particularly important for adolescents. The clinician should arrange time to speak privately with the patient when appropriate, using the interpreter, to preserve confidentiality and facilitate disclosure. Interpreter services may be delivered in person or remotely by telephone or video, depending on local availability and urgency. The Canadian Medical Protective Association advises physicians to use trained interpreters whenever possible and to avoid relying on family members for interpretation, particularly for sensitive discussions. The Canadian Medical Association also identifies language access as an important element of equitable, patient-centred care. See the [CMPA guidance on using interpreters in medical practice](#) and the [Canadian Medical Association policy on health equity](#).

QUESTION NO: 18

A 35-year-old woman presents to your clinic for follow-up regarding her persistent primary immune thrombocytopenic purpura. She was admitted to hospital with a relapse and received treatment with dexamethasone, intravenous immunoglobulin, and rituximab. She was recently discharged from hospital with a platelet count of $55 \times 10^9/L$ (130–360), and

also continues to take 10 mg of prednisone once daily. She is scheduled for a splenectomy in 4 weeks. Which one of the following is the best next step in preparation for the patient's surgical procedure?

- A. Arrange for preoperative vaccination
- B. Start calcium and vitamin D supplementation
- C. Prescribe daily azithromycin 1 week preoperatively
- D. Stop prednisone 2 weeks preoperatively
- E. Transfuse 5 units of platelets 1 week preoperatively

ANSWER: A

Explanation:

Arrange for preoperative vaccination is the best next step because splenectomy creates lifelong risk of severe, rapidly progressive infection from encapsulated bacteria. The spleen is important for clearing opsonized organisms from the bloodstream and generating an effective immune response to organisms such as *Streptococcus pneumoniae*, *Neisseria meningitidis*, and *Haemophilus influenzae* type b. For a planned elective splenectomy, indicated vaccines should be administered at least 2 weeks before surgery whenever feasible, allowing time for an immune response before splenic function is removed. With surgery scheduled in 4 weeks, this is the appropriate opportunity to complete the pre-splenectomy immunization plan. This generally includes age- and history-appropriate pneumococcal, meningococcal, and Hib vaccines, as well as annual influenza vaccination. Recent rituximab and ongoing corticosteroid therapy can blunt vaccine responses, so vaccination planning should be individualized and documented; however, the imminent loss of splenic function makes prompt preoperative vaccination especially important. The Canadian Immunization Guide specifically identifies anatomic or functional asplenia as a condition requiring additional immunization considerations. See the [Canadian Immunization Guide: Immunocompromised persons](#) and the [ASH guideline for immune thrombocytopenia](#).

QUESTION NO: 19

A 45-year-old man presents to your family practice for follow-up because he has had repeated transient ischemic attacks and had been advised not to drive. During the interview, you find out that he is still driving. He explains that he only drives to the grocery store and his wife, who also has a driver's license, is always a passenger with him. He insists he can drive. You think that he should no longer be driving a car. Which one of the following is the best next step?

- A. Communicate your concerns to the motor vehicle licensing authority.
- B. Discuss this further with him.
- C. Physically take away his license.
- D. Refuse to treat him further unless he stops driving.
- E. Consult a neurologist to assess whether the patient is fit to drive.

ANSWER: A

Explanation:

Communicate your concerns to the motor vehicle licensing authority. This patient has recurrent transient ischemic attacks, has already been advised not to drive, and is knowingly continuing to operate a vehicle. The immediate issue is therefore protection of the patient and public from a foreseeable risk of sudden neurologic impairment while driving. A passenger who holds a licence does not make the patient medically fit to drive, because the passenger cannot reliably prevent or control an acute event occurring while the patient is operating the vehicle.

Physicians should assess medical fitness to drive, clearly advise patients of restrictions, document the discussion, and follow the applicable provincial or territorial reporting process when a patient is unsafe to drive. Reporting requirements differ by jurisdiction, but Canadian driver-fitness guidance recognizes recurrent cerebrovascular events as potentially incompatible with safe driving and emphasizes that licensing authorities—not treating physicians—make licensing determinations. In this scenario, continued driving despite advice establishes an urgent concern requiring communication with the licensing authority rather than relying solely on further counselling. The Canadian Medical Association's [Driver's Guide: Determining](#)

QUESTION NO: 20

A 78-year-old man presents to the Emergency Department with chest pain. His electrocardiogram and blood work confirm an acute myocardial infarction. He is admitted to the Intensive Care Unit. Three days later, he develops right-sided abdominal pain. An ultrasonogram reveals an inflamed gallbladder with no evidence of stones. He does not improve after 48 hours of antibiotics. Which one of the following is the best next step?

- A. Broaden antibiotic therapy
- B. Arrange for endoscopic retrograde cholangiopancreatography
- C. Send for laparoscopic cholecystectomy
- D. Arrange for percutaneous cholecystostomy
- E. Send for hepatobiliary iminodiacetic acid (HIDA) scan

ANSWER: D

Explanation:

Arrange for percutaneous cholecystostomy. This patient has acute acalculous cholecystitis: gallbladder inflammation without stones arising during critical illness after an acute myocardial infarction. Critical illness promotes gallbladder stasis and ischemia, and acalculous cholecystitis can progress rapidly to necrosis or perforation. He has already received initial antimicrobial treatment without clinical improvement, so prompt source control is required. Because he is elderly, remains in the intensive care setting, and has had a very recent myocardial infarction, operative cholecystectomy entails substantial perioperative cardiac risk. Image-guided percutaneous cholecystostomy provides gallbladder decompression and drainage with lower physiologic stress than immediate surgery. Bile can also be cultured to guide subsequent antimicrobial therapy. In high-risk or unstable patients, this is an appropriate definitive temporizing intervention; cholecystectomy may be reconsidered after recovery if clinically indicated. The Tokyo Guidelines identify percutaneous transhepatic gallbladder drainage as the principal alternative to surgery for surgically high-risk patients with acute cholecystitis. The clinical setting and failure to respond to antibiotics make drainage, rather than further diagnostic testing, the key next management step. See the [Tokyo Guidelines 2018 management flowchart for acute cholecystitis](#) and the [Merck Manual overview of acute cholecystitis](#).

QUESTION NO: 21

A 36-year-old woman presents to the office with a 2-month history of multiple asymptomatic bumps on her vulva. She is not currently sexually active but has had 2 male sexual partners in the past, with the most recent relationship ending 1 year ago. On examination, she appears to have genital warts. She has not received the human papillomavirus (HPV) vaccine and is not interested in any treatment that is not absolutely necessary. Which of the following is the best next step?

- A. Excisional biopsy.
- B. Papanicolaou test.
- C. HPV vaccine.
- D. Cryotherapy.
- E. Contact tracing.

ANSWER: C

Explanation:

HPV vaccine. is the best next step because HPV vaccination remains potentially beneficial for an unvaccinated adult aged 27 to 45 years after an individualized discussion of likely benefit. Vaccination is preventive: it does not clear existing visible

warts or treat an established HPV infection, but it can protect against vaccine-covered HPV types to which she has not previously been exposed. A history of genital warts therefore does not preclude vaccination. Although she is not currently sexually active, future sexual partnerships could create a risk of acquiring additional HPV types, and her limited number of prior partners supports the possibility of meaningful residual protection. The discussion should clarify that benefit is generally lower after sexual debut than before exposure, but the vaccine has a favourable safety profile and may still prevent future HPV-associated disease. Management of uncomplicated external genital warts can be deferred when lesions are asymptomatic and the patient does not want treatment; treatment is primarily directed at removing visible lesions rather than eliminating the virus. Canadian guidance supports considering HPV vaccination in adults aged 27 years and older who are not adequately vaccinated through shared decision-making. See the [Canadian Immunization Guide: HPV vaccine](#) and the [NACI HPV vaccine recommendations](#).

QUESTION NO: 22

A previously well 2-year-old girl is brought to the Emergency Department with difficulty breathing that has been gradually worsening over the last 24 hours. Her parents say she has a sore throat. On examination, you note that she appears ill. She has stridor and is in moderate respiratory distress, drooling and emitting a muffled voice. Vital signs are as follows: respiratory rate 34/min, heart rate 160/min, temperature 40.2°C.

Which one of the following is the most likely diagnosis?

- A. Croup.
- B. Airway foreign body.
- C. Laryngomalacia.
- D. Acute viral bronchiolitis.
- E. Retropharyngeal abscess.
- F. Epiglottitis.

ANSWER: F

Explanation:

Epiglottitis is the most likely diagnosis. This child has the classic acute, life-threatening presentation of supraglottic inflammation: high fever, toxic appearance, severe sore throat, drooling due to painful or impaired swallowing, muffled voice, inspiratory stridor, and progressive respiratory distress. Epiglottitis can evolve rapidly over hours and should be treated as an airway emergency. Although widespread *Haemophilus influenzae* type b vaccination has substantially reduced its incidence, epiglottitis remains possible in young children and may also result from other bacterial pathogens.

The immediate priority is to avoid upsetting the child and to maintain her preferred position while arranging urgent, controlled airway management by clinicians experienced in pediatric difficult airways, with anesthesiology and otolaryngology support. Examination of the pharynx with a tongue depressor, attempts to obtain throat cultures, and unnecessary procedures should be avoided until the airway is secured because they can precipitate complete obstruction. Once the airway is protected, intravenous antimicrobial treatment directed at likely bacterial causes is indicated. The Centers for Disease Control and Prevention describes invasive Hib disease and the protective role of Hib vaccination: [CDC: Haemophilus influenzae disease](#). Further clinical guidance is available in the [Merck Manual Professional: Epiglottitis](#).

QUESTION NO: 23

A 3-week-old boy is brought by his parents to your clinic for a well-child visit. The newborn was born at term after an uncomplicated pregnancy. He is exclusively breastfed and is thriving. Physical examination findings are normal except for jaundice. Total bilirubin is 172 µmol/L (≤100), and conjugated bilirubin is 4 µmol/L (≥5). Results of a complete blood count and reticulocyte count are within the normal range. The results of a direct antiglobulin (Coombs) test were negative. Which one of the following, if any, is the most appropriate investigation?

- A. Liver enzymes and serum albumin.
- B. Hepatobiliary ultrasonography.

- C. Urine culture.
- D. Test for galactosemia.
- E. No investigation required.

ANSWER: E

Explanation:

No investigation required. This thriving, term, exclusively breastfed infant has persistent isolated unconjugated hyperbilirubinemia at 3 weeks of age, a pattern consistent with breast-milk jaundice. His conjugated bilirubin concentration is not elevated, so there is no biochemical evidence of neonatal cholestasis. In addition, the normal complete blood count and reticulocyte count, together with a negative direct antiglobulin test, do not suggest clinically important hemolysis. He has no reported illness, poor feeding, inadequate weight gain, hepatosplenomegaly, pale stools, or dark urine to indicate an underlying pathologic process requiring targeted testing. Breast-milk jaundice commonly becomes apparent after the first week of life, may persist for several weeks, and occurs in otherwise well infants who continue to feed and grow normally. Management is continued breastfeeding, clinical observation, and routine follow-up, with reassessment if the infant becomes unwell or develops signs suggesting conjugated hyperbilirubinemia or another disease process. The Canadian Paediatric Society notes that prolonged jaundice requires attention to the direct fraction; this has already been assessed and is reassuring in this case. See the [Canadian Paediatric Society guideline on hyperbilirubinemia](#) and the [NICE guideline on neonatal jaundice](#).

QUESTION NO: 24

A 69-year-old man taking warfarin for atrial fibrillation is brought to the Emergency Department after developing sudden headache, vomiting, and right-sided weakness. Computed tomography of the head shows a large intracerebral hemorrhage. His international normalized ratio is 3.4. Which one of the following is the most appropriate immediate treatment?

- A. Administer four-factor prothrombin complex concentrate and intravenous vitamin K.
- B. Withhold warfarin and repeat the international normalized ratio in 24 hours.
- C. Administer platelet transfusion.
- D. Administer subcutaneous vitamin K alone.
- E. Begin therapeutic low-molecular-weight heparin.

ANSWER: A

Explanation:

Administer four-factor prothrombin complex concentrate and intravenous vitamin K. This patient has warfarin-associated intracerebral hemorrhage, a life-threatening bleed requiring immediate reversal of anticoagulation. Four-factor prothrombin complex concentrate rapidly replaces vitamin K-dependent clotting factors, while intravenous vitamin K provides sustained reversal as the infused factors are cleared.

Fresh frozen plasma is slower to administer and requires a larger volume; it may be used when prothrombin complex concentrate is unavailable. Platelet transfusion does not reverse warfarin anticoagulation, and simply withholding warfarin is insufficient in the setting of acute intracranial bleeding.

QUESTION NO: 25

You are called to attend an 18-year-old woman, gravida 2, para 1, aborta 0, who is in precipitous labour. She did not realize she was pregnant and has not had any prenatal care. After the delivery, you examine the newborn boy; he is vigorous, and it appears that he was born at full term. Physical examination findings of the newborn are normal. Review of the prenatal record from the mother's last pregnancy shows the following:

HIV: Negative

Hepatitis B surface antibody: Positive

Hepatitis C: Negative

Syphilis serology: Negative

The mother's previous child was placed in foster care. The mother is withdrawn and uncommunicative after delivery. Which one of the following is the best next step?

- A. Administer hepatitis B vaccine to the newborn
- B. Initiate feeding with donor breast milk
- C. Collect urine from the newborn for a drug screen
- D. Recommend immediate skin-to-skin care

ANSWER: A

Explanation:

Administer hepatitis B vaccine to the newborn is the best next step because this infant's current perinatal hepatitis B exposure status is unknown. The available hepatitis B result is from a prior pregnancy and reports hepatitis B surface antibody, which indicates past immunity at that time; it is not a current maternal hepatitis B surface antigen result and cannot exclude active infection in the present pregnancy. No prenatal care means that the essential current pregnancy infectious-disease screening, including hepatitis B surface antigen testing, has not occurred.

For an infant born to a mother with unknown hepatitis B surface antigen status, maternal testing should be obtained urgently and neonatal hepatitis B immunization should not be delayed. Timely post-exposure prophylaxis is highly effective at preventing chronic hepatitis B infection, a condition acquired most efficiently at birth and associated with substantial long-term risks of cirrhosis and hepatocellular carcinoma. If maternal testing subsequently demonstrates hepatitis B surface antigen positivity, hepatitis B immune globulin is also indicated as soon as possible according to neonatal prophylaxis guidance. The Canadian Immunization Guide outlines management of infants whose birthing parent has positive or unknown hepatitis B surface antigen status: [Canadian Immunization Guide: Hepatitis B vaccine](#). See also the Canadian Paediatric Society guidance on prevention of perinatal hepatitis B transmission: [CPS statement](#).

QUESTION NO: 26

A 34-year-old man sustained a blunt testicular trauma 2 hours ago. On physical examination, the patient has a 1.5-cm tall scrotal hematoma. You cannot palpate the testicle. Which one of the following is the best initial management?

- A. Observe for 24 hours and discharge if stable
- B. Plan surgical exploration
- C. Order ultrasonography of the scrotum
- D. Order a technetium 99m pertechnetate scan
- E. Discharge with analgesics

ANSWER: C

Explanation:

Order ultrasonography of the scrotum is the appropriate initial management. Blunt scrotal trauma may cause testicular contusion, intratesticular hematoma, hematocele, torsion, or testicular rupture. In this situation, clinical examination cannot adequately define the integrity of the testis because the hematoma prevents palpation. Prompt high-resolution scrotal ultrasonography with Doppler assessment is therefore needed to evaluate testicular contour, echotexture, perfusion, and the presence and extent of a hematocele or hematoma. Findings such as loss of the normal testicular contour, heterogeneous parenchyma, or disruption of the tunica albuginea indicate suspected rupture and prompt urgent urologic surgical exploration. Ultrasound also documents blood flow, which is important because traumatic torsion or vascular compromise requires time-sensitive intervention. Imaging should be obtained urgently rather than delayed, since early identification and

repair of testicular rupture improves the likelihood of testicular salvage. The American Urological Association recommends scrotal ultrasonography for patients with blunt scrotal trauma when testicular rupture is suspected, with exploration for confirmed or strongly suspected rupture. See the [American Urological Association Urotrauma Guideline](#) and the [European Association of Urology guideline on genital trauma](#).

QUESTION NO: 27

A 30-year-old man comes to the office and asks you to write him a note for his employer that recommends a stress leave. He says he feels entitled to a rest. He comes across as irritable and impulsive. He appears to show little regard for the law and admits to recently embezzling \$5,000 from his employer. He justifies his actions and shows no remorse. He has a history of attention-deficit/hyperactivity disorder as a child. Which one of the following is the most likely diagnosis?

- A. Bipolar II disorder.
- B. Klinefelter syndrome.
- C. Antisocial personality disorder.
- D. Borderline personality disorder.
- E. Narcissistic personality disorder.

ANSWER: C

Explanation:

Antisocial personality disorder is the most likely diagnosis because the presentation shows a pervasive pattern of disregard for, and violation of, the rights of others. Embezzling money from an employer reflects deceitfulness and unlawful behaviour, while his impulsivity, irritability, self-serving justification, and absence of remorse are characteristic features. His request for a stress leave is framed as entitlement rather than as distress accompanied by insight or concern about consequences. In clinical assessment, this diagnosis requires that the individual be at least 18 years old and have a longstanding pattern of antisocial traits; diagnostic criteria also require evidence of conduct disorder with onset before age 15. A childhood history of attention-deficit/hyperactivity disorder may coexist with, and is associated with increased risk of, disruptive behaviour disorders, so collateral history about early conduct symptoms would be important in practice. Nevertheless, among the listed diagnoses, the described adult pattern of criminal conduct, exploitation, impulsivity, and lack of remorse most directly supports antisocial personality disorder. The American Psychiatric Association describes personality disorders as enduring patterns of inner experience and behaviour that are inflexible, pervasive, and associated with impairment or distress. See the [Merck Manual overview of antisocial personality disorder](#) and the [American Psychiatric Association DSM information](#).

QUESTION NO: 28

A 2-month-old infant is brought by his parents to your clinic with concerns regarding his frequent crying spells. He has been crying for more than 3 hours daily for many weeks. The infant has reached all age-specific developmental milestones. Which one of the following is the most important to share with the parents regarding this situation?

- A. This is a self-limited condition
- B. Resolution of the crying spells is expected between ages 6 and 12 months
- C. Investigations are required to confirm a diagnosis
- D. Most infants respond well to low-dose sedative medications
- E. There is an increased risk for dependent personality traits in adulthood

ANSWER: A

Explanation:

This is a self-limited condition. The history is characteristic of infantile colic: prolonged, recurrent crying in an otherwise healthy infant during the first months of life, with normal development and no features suggesting illness. Colic commonly

peaks at approximately 6 weeks of age and generally improves substantially by 3 to 4 months, although the exact timing varies among infants. The most important clinical intervention is therefore compassionate reassurance: parents should understand that the crying is not caused by poor parenting and that it will resolve with time. Supportive counselling should also acknowledge the considerable caregiver stress associated with persistent crying. Clinicians should review practical soothing strategies, encourage caregivers to take breaks and seek help when overwhelmed, and specifically discuss safe responses to frustration, including never shaking an infant. A focused history and physical examination remain appropriate to ensure there are no warning signs of an alternative cause of crying, but in a thriving infant with a typical presentation, the central message is the benign, temporary natural course. This approach is consistent with the Canadian Paediatric Society's guidance on colic and with evidence-based primary-care recommendations. See the [Canadian Paediatric Society statement on infantile colic](#) and the [American Family Physician review of infantile colic](#).

QUESTION NO: 29

You are counselling the wife of a 75-year-old man admitted under your care after a fall. The patient is confused, disoriented, barely sleeps at night and has complex visual hallucinations of animals running through his room. Given his state, which one of the following is the best advice for the wife?

- A. She should visit him as little as possible since this can lead to heightened agitation
- B. She should avoid giving him information since he is unable to understand
- C. She should confront him with the fact that what he sees and feels is not real
- D. She should not take it personally if he says hurtful things
- E. She should tell him that she will not come back to visit him if he remains aggressive

ANSWER: D

Explanation:

"She should not take it personally if he says hurtful things" is the best advice because this presentation is characteristic of delirium: an acute disturbance in attention and awareness with disorientation, sleep-wake disruption, perceptual disturbance, and potentially agitated or aggressive behaviour. Delirium is caused by an acute medical, medication-related, or environmental precipitant; it is not a reliable reflection of the patient's usual personality, feelings, or relationship with his wife. Explaining this to family members is an important component of care, helping them understand that distressing comments, fearfulness, or hallucination-related behaviour arise from the altered mental state. Family support remains valuable: a familiar, calm presence can reduce distress and can assist with gentle reorientation by reminding the patient where he is, who is present, and that he is safe. Communication should be simple, reassuring, and non-confrontational, with attention to the patient's comfort and safety. Caregiver counselling also reduces unnecessary guilt and emotional harm while enabling the wife to remain a supportive partner in the delirium-management plan. Guidance on involving and supporting family during delirium is consistent with the [NICE guideline on delirium](#) and the Canadian Coalition for Seniors' Mental Health [delirium resources](#).

QUESTION NO: 30

An 18-year-old woman comes to the office because of fatigue. She tells you she is struggling in her first year of university. She mentions that she spends much of her time rewriting her notes and filing and organizing her study materials. She is doing all the work in her group assignments because she feels others cannot do the work to a high enough standard. She has abandoned all enjoyable activities and seems to be constantly working and worrying about her grades. Which one of the following is the most likely diagnosis?

- A. Major depressive disorder.
- B. Obsessive-compulsive disorder.
- C. Generalized anxiety disorder.
- D. Obsessive-compulsive personality disorder.

ANSWER: D

Explanation:

Obsessive-compulsive personality disorder is the most likely diagnosis. The vignette describes a pervasive pattern of excessive perfectionism, preoccupation with order and organization, overdevotion to work at the expense of leisure activities, and reluctance to delegate tasks unless others meet the person's exact standards. These traits are causing functional impairment: her studying has become inefficient and exhausting, she has stopped enjoyable activities, and collaboration in group work is affected. The focus is not simply on achieving good grades but on rigid control of how tasks must be completed. This pattern is characteristic of obsessive-compulsive personality disorder, in which perfectionism can interfere with task completion and productivity. Personality disorders represent enduring, inflexible patterns that begin by early adulthood and are associated with distress or impaired functioning; an 18-year-old can therefore meet criteria when the pattern is established and clinically impairing. The Medical Council of Canada's psychiatric objectives include recognizing personality disorders and their associated maladaptive traits. Diagnostic descriptions of obsessive-compulsive personality disorder similarly emphasize perfectionism, orderliness, control, excessive work devotion, and difficulty delegating. See the [Medical Council of Canada Objectives](#) and the [Merck Manual Professional description of obsessive-compulsive personality disorder](#).

QUESTION NO: 31

A 73-year-old woman is seen in the office 2 weeks after a coronary bypass surgical procedure. The site of saphenous vein removal in the left thigh shows an area of tenderness and a 3 × 5 cm palpable mass. The skin is intact. Her temperature is 37.7 °C, hemoglobin is 110 g/L (125–167), and white blood cell count is $8 \times 10^9/L$ (4–10). Which one of the following is the most likely diagnosis?

- A. Acute venous bleeding
- B. Femoral artery aneurysm
- C. Thrombophlebitis
- D. Wound hematoma
- E. Wound abscess

ANSWER: D

Explanation:

Wound hematoma is the most likely diagnosis. A hematoma is a localized collection of blood within tissue that can occur after an operation because of bleeding from small vessels in the surgical bed. It commonly presents as a palpable, tender swelling near an incision or tissue-harvest site. In this case, the mass is located precisely at the recent saphenous-vein harvest site, and the mildly reduced hemoglobin supports recent blood loss into the tissues. The intact skin, normal leukocyte count, and absence of clinically significant fever or systemic illness support a noninfectious postoperative collection. At two weeks, a hematoma may be organized and persist as a firm or tender mass rather than causing ongoing external bleeding. Clinical assessment should include examination for enlargement, skin compromise, drainage, neurovascular symptoms, and anticoagulant use; ultrasound can help characterize an uncertain postoperative fluid collection. Management is generally observation when the collection is stable and uncomplicated, with evacuation considered for a large, expanding, painful, infected, or wound-threatening hematoma. Postoperative wound hematoma is a recognized surgical complication, as summarized in [StatPearls: Postoperative Wound Infections](#) and discussed in the [Medical Council of Canada Objectives](#) under assessment of postoperative complications.

QUESTION NO: 32

A 24-year-old man with type 1 diabetes presents with vomiting, abdominal pain, and increasing lethargy. His blood glucose level is 28 mmol/L, arterial pH is 7.18, serum bicarbonate level is 10 mmol/L, and serum ketone level is elevated. His potassium level is 2.9 mmol/L. Intravenous normal saline has been started. Which one of the following is the most appropriate next step?

- A. Begin intravenous regular insulin immediately.

- B. Administer intravenous potassium replacement before insulin.
- C. Administer intravenous sodium bicarbonate.
- D. Administer intravenous dextrose.
- E. Restrict intravenous fluids until the potassium level normalizes.

ANSWER: B

Explanation:

Intravenous potassium replacement before insulin is the most appropriate next step. This patient has diabetic ketoacidosis with significant hypokalemia. Although total body potassium is depleted in most patients with diabetic ketoacidosis, serum potassium may initially appear normal or elevated because of insulin deficiency and acidosis. A potassium level below 3.3 mmol/L indicates severe depletion.

Insulin will shift potassium into cells and can precipitate life-threatening arrhythmias or respiratory muscle weakness if started before potassium is corrected. Insulin should therefore be withheld temporarily while potassium is replaced, with close cardiac and biochemical monitoring. Sodium bicarbonate is not routinely indicated at this pH, and dextrose is added later when glucose falls during insulin treatment.

QUESTION NO: 33

A 24-year-old nulligravid woman presents to the office with an absence of menstruation since discontinuing her oral contraceptives 8 months ago. She previously had a regular menstrual cycle when taking oral contraceptives for the past 10 years but stopped because of headaches, which have only gotten worse since. She also noticed mild breast discharge for the past several months. Which one of the following examination findings is most likely?

- A. Nodular breast irregularities
- B. Low BMI
- C. Abnormal visual field testing results
- D. Presence of severe hirsutism

ANSWER: C

Explanation:

Abnormal visual field testing results are most likely because this presentation strongly suggests hyperprolactinemia caused by a pituitary prolactinoma. Elevated prolactin suppresses hypothalamic gonadotropin-releasing hormone secretion, resulting in reduced luteinizing hormone and follicle-stimulating hormone secretion, anovulation, and secondary amenorrhea. It also accounts for the nonpuerperal galactorrhea. Oral contraceptives can produce withdrawal bleeding that obscures underlying anovulation, so the amenorrhea becomes evident after they are stopped.

The progressive headaches raise concern that the prolactinoma is large enough to extend beyond the sella turcica. Superior expansion of a pituitary macroadenoma may compress the optic chiasm, where nasal retinal fibres cross. This classically produces loss of the temporal visual fields in both eyes (bitemporal hemianopia), detectable on formal confrontation or perimetry testing. In addition to pregnancy testing and serum prolactin measurement, pituitary magnetic resonance imaging and visual-field assessment are important when symptoms suggest mass effect. The Endocrine Society guideline addresses the evaluation of symptomatic hyperprolactinemia and prolactinomas: <https://www.endocrine.org/clinical-practice-guidelines/hyperprolactinemia>. A clinical overview of pituitary tumours and visual-field effects is available from [Merck Manual Professional](#).

QUESTION NO: 34

You are travelling on a transatlantic flight. Halfway through the flight, an older passenger (≥ 65 years) begins to have chest pain and shortness of breath. An announcement is made over the intercom asking for help from any physicians or medical personnel. Which one of the following is the best next step?

- A. Remain silent to avoid any liability that may be incurred by offering help.
- B. Give advice to the flight attendants on how to proceed but do not offer any direct assistance.
- C. Offer assistance and document the encounter in your own records afterwards.
- D. Offer assistance only after the patient and the airline agree to release you from any liability.

ANSWER: C

Explanation:

“Offer assistance and document the encounter in your own records afterwards” is the best next step. Chest pain with dyspnea in an older passenger may represent a time-sensitive cardiopulmonary emergency, and a physician should identify themselves to the cabin crew and provide assistance within their level of competence. The physician should work with the crew, use the aircraft’s available emergency equipment and medical kit, obtain relevant history and vital signs where feasible, and support communication with the airline’s ground-based medical advisory service. This may help determine whether urgent interventions or diversion are required.

Although the precise legal framework can vary with the aircraft’s registration, location, and applicable jurisdiction, Good Samaritan protections generally aim to protect a person who voluntarily provides emergency assistance in good faith, provided that care is not grossly negligent. The Ontario [Good Samaritan Act, 2001](#) illustrates this principle. Clear contemporaneous documentation is important: record the patient’s presenting symptoms, assessment, care given, consultations or directions received, response, and transfer of responsibility to emergency personnel. Such documentation supports continuity of care and provides an accurate factual record. The Canadian Medical Association’s [Code of Ethics and Professionalism](#) also emphasizes responding to patients’ health needs and acting in their best interests.

QUESTION NO: 35

A mother brings her previously healthy 4-month-old girl for evaluation due to fussiness for 3 weeks. The infant becomes irritable and cries with occasional body arching 1-2 hours after feeding, frequently spits up after feeds, has developed feeding aversion, and shows slowing weight gain. She has been on cow 's milk-based formula since birth. Stools are normal, and physical examination is unremarkable. Which one of the following is the most likely diagnosis?

- A. Celiac disease.
- B. Hypertrophic pyloric stenosis.
- C. Intermittent intussusception.
- D. Peptic ulcer.
- E. Gastroesophageal reflux disease.

ANSWER: E

Explanation:

Gastroesophageal reflux disease is the most likely diagnosis. Gastroesophageal reflux is common in young infants because of developmental immaturity of the antireflux barrier, and it often presents with effortless post-feed regurgitation. It becomes gastroesophageal reflux disease when reflux is associated with troublesome symptoms or complications. In this infant, frequent spit-ups are accompanied by postprandial crying and irritability, arching, feeding aversion, and faltering weight gain. This combination supports clinically significant reflux affecting feeding and growth rather than uncomplicated physiologic reflux alone. The timing after feeds is also consistent with reflux of gastric contents into the esophagus. A normal examination does not exclude this diagnosis; many infants with reflux disease do not have distinctive physical findings. Clinical assessment should include attention to growth trajectory, feeding history, hydration, and alarm features that could indicate an alternate disorder. Initial management generally emphasizes feeding and supportive strategies, with further evaluation or targeted treatment considered when symptoms are persistent, growth is affected, or red flags are present. The

Canadian Paediatric Society discusses the distinction between common infant reflux and reflux disease, including poor weight gain and feeding refusal as concerning features: [Canadian Paediatric Society guidance](#). Comparable pediatric guidance is available from [NASPGHAN/ESPGHAN pediatric reflux resources](#).

QUESTION NO: 36

A 15-year-old boy is brought to the office by his father because he is having headaches. When alone, the boy appears withdrawn and admits to suicidal ideation. He shares that he is gay but does not want to tell his parents. He says that he faked the headaches so that one of his parents would make an appointment for him. Which one of the following is the best next step?

- A. Start an antidepressant medication.
- B. Encourage the patient to disclose his sexual orientation to his parents.
- C. Suggest that the patient join a group at school for peer support.
- D. Refer the patient for an immediate mental health assessment.

ANSWER: D

Explanation:

"Refer the patient for an immediate mental health assessment" is the best next step because suicidal ideation in an adolescent requires prompt, structured assessment of acute safety. The clinician should immediately determine the presence of suicidal intent, a plan, access to lethal means, prior attempts, substance use, psychiatric symptoms, protective factors, and whether the patient can be safely supervised. Depending on this assessment, urgent psychiatric evaluation, emergency department transfer, crisis intervention, safety planning, and possible hospitalization may be necessary. Confidentiality is important when caring for adolescents, particularly regarding sexual orientation, but it has limits where there is a significant risk of self-harm. The clinician should explain these limits sensitively, involve the youth as much as possible in decisions about disclosure, and take the least intrusive steps needed to maintain safety. His concerns about sexual orientation may be an important contributor to distress and should be addressed affirmatively once immediate risk is managed, with access to appropriate mental-health and community supports. Canadian Paediatric Society guidance emphasizes that a positive suicide-risk screen requires a timely, comprehensive risk assessment and appropriate safety interventions. See the [Canadian Paediatric Society statement on suicidal ideation and behaviour](#) and the [Government of Canada suicide prevention framework](#).

QUESTION NO: 37

A 71-year-old man with stable chronic low back pain on hydromorphone (8 mg twice daily) presents upset, requesting an early refill. He reports his granddaughter has been stealing his medication and pressuring him for refills. Which one of the following is the best next step?

- A. Call the police and report the patient's granddaughter.
- B. Provide an early refill of hydromorphone.
- C. Begin tapering the hydromorphone.
- D. Increase the dispensed quantity of the patient's hydromorphone.
- E. Arrange for daily dispensing of hydromorphone.

ANSWER: E

Explanation:

Arrange for daily dispensing of hydromorphone. The patient reports an immediate and credible loss-of-control risk involving a household member who is allegedly taking and coercing access to a controlled opioid. Daily, or otherwise tightly supervised, pharmacy dispensing preserves continuity of analgesia for the patient while substantially reducing the amount of

hydromorphone available for theft, diversion, or coercive use at any one time. It also creates frequent opportunities for reassessment of pain control, function, adverse effects, medication adherence, and the patient's safety at home. This is a proportionate harm-reduction response: it addresses the urgent medication-security problem without abruptly withholding an established opioid from a patient who may be physically dependent and whose chronic pain treatment has been stable. The dispensing plan should be coordinated with the pharmacist, documented clearly, and accompanied by assessment of safety supports and use of the provincial prescription-monitoring system where available. The Canadian guideline for opioid therapy emphasizes ongoing monitoring and mitigation of opioid-related harms during treatment; structured dispensing is consistent with individualized risk-management when diversion is a concern. See the [2017 Canadian guideline for opioids for chronic non-cancer pain](#) and Health Canada's [controlled substances and opioid-harms resources](#).

QUESTION NO: 38

A 16-year-old girl is brought to the Emergency Department with a 12-hour history of worsening right lower quadrant abdominal pain and nausea. She is in no distress and vital signs are normal. Her abdomen is soft but locally tender in the right iliac fossa, and bowel sounds are active. White blood cell count is $7.6 \times 10^9/L$ (4–10), C-reactive protein is 2.3 mg/L (< 10) and serum beta human chorionic gonadotropin is undetectable. Ultrasound reveals a small amount of fluid in the pelvis, and the appendix is not clearly apparent. Which one of the following is the best next management step?

- A. Enhanced computed tomography scan of the abdomen and pelvis.
- B. Laparoscopic appendectomy.
- C. Serial radiography of the abdomen.
- D. Intravenous ceftriaxone and metronidazole.
- E. Monitoring and reassessment in 12 hours.

ANSWER: E

Explanation:

Monitoring and reassessment in 12 hours is appropriate because this patient is clinically stable and has an equivocal presentation for appendicitis. Her localized right iliac fossa tenderness and nausea warrant continued diagnostic vigilance, but normal vital signs, a normal leukocyte count, and a low C-reactive protein reduce the likelihood of established complicated appendicitis at this point. A nondiagnostic ultrasound, particularly when the appendix is not visualized, does not establish or exclude appendicitis. The small volume of pelvic free fluid may also be physiologic in an adolescent girl, especially in the absence of more convincing inflammatory findings.

Observation with repeat assessment allows the clinician to identify evolution of the illness through serial abdominal examinations, repeat vital signs, and reassessment of symptoms and inflammatory markers if needed. Appendicitis often declares itself over time, while patients whose symptoms improve may avoid unnecessary radiation exposure or intervention. During observation, the patient should receive clear safety-net instructions and prompt reassessment sooner if pain intensifies, peritoneal signs develop, fever occurs, vomiting persists, or clinical status changes. This approach reflects the use of clinical risk stratification after an equivocal ultrasound in children and adolescents, as described by the [American College of Radiology Appropriateness Criteria for suspected appendicitis in children](#) and consistent with the [Choosing Wisely Canada pediatric surgery recommendations](#).

QUESTION NO: 39

You are covering for your colleague who is on vacation this week. You receive the results from an ultrasonography that had been ordered for a 32-year-old woman, gravida 2, para 1, aborta 0. The ultrasonography-estimated fetal weight is below the fifth percentile for 30 weeks' gestation; gestational age was confirmed by an earlier ultrasonogram. The amniotic fluid volume is within normal range. Her first child's birth weight was 2800 g at full term. Which one of the following is the best next step?

- A. Reassure the patient that the fetus is probably at the lower range of normal weight
- B. Plan a follow-up appointment as soon as your colleague is back from vacation
- C. Ask the patient to present to the obstetrics ward for further fetal assessment

D. Discuss the benefits of acetylsalicylic acid

E. Schedule an urgent uterine artery Doppler ultrasonography

ANSWER: C

Explanation:

“Ask the patient to present to the obstetrics ward for further fetal assessment” is the best next step. An estimated fetal weight below the fifth percentile with a reliably established gestational age is concerning for fetal growth restriction and warrants prompt obstetric assessment, even when amniotic fluid volume is normal. This finding may represent a constitutionally small fetus, but it can also reflect placental insufficiency and is associated with increased risk of fetal compromise, preterm birth, and stillbirth. The prior infant’s birth weight does not safely establish that the current fetus is simply small for familial reasons.

Further assessment should establish fetal well-being and characterize the severity of growth restriction. This commonly includes a detailed obstetric evaluation, maternal blood-pressure and preeclampsia assessment, fetal surveillance as clinically indicated, and Doppler velocimetry—particularly umbilical artery Doppler—to assess placental circulation. Results guide the appropriate surveillance frequency, need for maternal-fetal medicine involvement, and timing of delivery. Because the patient is already 30 weeks’ gestation and the estimated weight is markedly low, this assessment should not wait for the usual clinician’s return. Guidance on diagnosis and surveillance of fetal growth restriction is available from the [Society of Obstetricians and Gynaecologists of Canada](#) and the [International Society of Ultrasound in Obstetrics and Gynecology](#).