

2024 Internal Medicine

In-Training Examination®

Educational Objectives

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2024 Internal Medicine In-Training Examination®

Content Area	Number of Items	Percentage of Total Items
Cardiology	35	13.5
Endocrinology	18	6.9
Gastroenterology	24	9.2
General Internal Medicine*	39	15
Geriatric Medicine	16	6.2
Hematology and Oncology	30	11.5
Infectious Diseases	23	8.8
Nephrology	16	6.2
Neurology	10	3.8
Pulmonary and Critical Care Medicine	26	10.0
Rheumatology	23	8.8
High Value Care (HVC)**	62	24
TOTAL	260	100

This content area includes, but is not limited to, adolescent medicine, allergy and immunology, complementary and alternative medicine, dermatology, ethics, genetics, literature interpretation, nutrition, ophthalmology, preventive care, psychiatry, sports medicine, statistics, and women's health. Items associated with the content area High Value Care (HVC) may appear in other content areas. These items are identified with a double asterisk.*

The following pages list examination educational objectives grouped by content area. One educational objective is provided for each item.

2024 Internal Medicine In-Training Examination®

Educational Objectives

Cardiology

- Diagnose acute pericarditis.
- Diagnose an arterial pseudoaneurysm.
- Diagnose an inferior posterior myocardial infarction.
- Diagnose aortic dissection.
- Diagnose complete heart block.
- Diagnose early repolarization.
- Diagnose Mobitz type 1 second-degree atrioventricular block.
- Diagnose patent ductus arteriosus.
- Diagnose prosthetic valve malfunction.
- Diagnose spontaneous coronary artery dissection.
- **Evaluate a patient for peripheral artery disease.
- Evaluate a patient with asymptomatic chronic ischemic heart disease after placement of a coronary stent.
- Evaluate pericardial tamponade.
- Manage a first-degree relative of a patient with hypertrophic cardiomyopathy.
- **Manage a malfunctioning implantable cardioverter-defibrillator.
- Manage anticoagulation and antiplatelets in acute coronary syndrome.
- Manage chronic venous insufficiency.
- **Manage LDL cholesterol in a patient with coronary artery disease.
- Manage risk for sudden cardiac death in a patient with hypertrophic cardiomyopathy.
- Manage tachycardia-induced cardiomyopathy.
- **Manage undifferentiated chest pain.
- Manage ventricular fibrillation.
- Select the most appropriate diagnostic test for a patient with chest pain and an abnormal ECG.
- Treat a large abdominal aortic aneurysm.
- **Treat a patient whose glomerular filtration rate has decreased since starting ACE inhibitor therapy.
- Treat acute limb ischemia.
- Treat atrial fibrillation.
- Treat chronic heart failure with reduced ejection fraction.

Treat diabetes in a patient with coronary artery disease.

**Treat heart failure by avoiding NSAIDs.

Treat heart failure with an SGLT2 inhibitor.

Treat patent foramen ovale.

Treat reperfusion arrhythmia following thrombolytic therapy.

Treat severe mitral regurgitation.

Treat Wolff-Parkinson-White syndrome.

Endocrinology

Diagnose adrenal insufficiency in traumatic brain injury.

**Diagnose anemia as the cause of a high serum A1c value.

Diagnose Cushing syndrome in a patient with an adrenal tumor.

**Diagnose drug-induced hypoglycemia.

Diagnose euglycemic diabetic ketoacidosis in a patient taking sodium-dependent glucose cotransporter inhibitors.

Diagnose Hashimoto thyroiditis.

Diagnose idiopathic hypogonadotropic hypogonadism.

Diagnose polycystic ovary syndrome.

Diagnose secondary hypothyroidism.

Evaluate causes of hypogonadotropic hypogonadism in a woman.

Screen for multiple endocrine neoplasia type 1.

Screen for pheochromocytoma in multiple endocrine neoplasia type 2.

Treat acute hypocalcemia.

Treat acute hyponatremia.

Treat diabetic ketoacidosis.

Treat latent autoimmune diabetes in adults.

Treat pituitary apoplexy.

Treat secondary adrenal insufficiency due to chronic glucocorticoid use.

Gastroenterology

**Counsel a patient with liver disease on alcohol use.

Diagnose acalculous cholecystitis.

Diagnose centrally mediated abdominal pain syndrome.

Diagnose chronic mesenteric ischemia.

Diagnose hepatic venous outflow obstruction (Budd-Chiari syndrome).

Diagnose pancreatic cancer.

Evaluate a patient for celiac disease.

Evaluate an elevated alkaline phosphatase level.

Evaluate persistently elevated aminotransferase levels.

Evaluate results of hepatitis B serology tests.

Identify prognostic factors of acute liver failure.

Manage asymptomatic gallstones.

Manage Barrett esophagus with high-grade dysplasia.

**Manage feeding in acute pancreatitis.

**Manage gastroesophageal reflux disease.

**Provide surveillance after removal of a colon polyp with high-grade dysplasia.

**Screen for colorectal cancer in a patient with family history of colon cancer.

**Treat acute colonic pseudo-obstruction.

**Treat dumping syndrome.

Treat fecal incontinence associated with bile acid malabsorption.

**Treat idiopathic gastroparesis.

Treat irritable bowel syndrome with predominant constipation.

Treat microscopic colitis.

Treat opioid-induced constipation refractory to laxatives.

General Internal Medicine

- Diagnose hereditary angioedema.
- Diagnose patellofemoral pain syndrome.
- Diagnose retinal detachment.
- Diagnose sexual dysfunction secondary to medications.
- Diagnose subconjunctival hemorrhage.
- **Diagnose vasovagal syncope as cause of clonic movements.
- Evaluate abnormal uterine bleeding in a woman of reproductive age.
- **Evaluate for an acute full-thickness rotator cuff tear.
- **Evaluate potential causes of sleep disordered behavior.
- Evaluate risk factors for osteoporosis.
- **Identify importance of atherosclerotic cardiovascular disease risk calculation.
- **Manage a palpable breast mass in a woman under 30 years of age.
- Manage alcohol withdrawal in a patient with underlying cirrhosis.
- Manage allergic conjunctivitis.
- **Manage an adult patient who lacks immunity against mumps.
- Manage erectile dysfunction in a patient with coronary artery disease.
- **Manage greater trochanteric pain syndrome.
- Manage intimate partner violence with a patient-centered approach to care.
- **Manage nutritional needs of critically ill patients.
- Manage opioid overdose.
- Manage refeeding syndrome in a patient with malnutrition.
- **Perform pre-participation evaluation in an adolescent patient.
- **Prevent adverse drug events with medication reconciliation at discharge.
- Prevent micturition syncope.
- **Recognize indications for diagnostic imaging in back pain.
- **Recommend appropriate herpes zoster vaccination.
- **Recommend lifestyle modification to prevent type 2 diabetes mellitus.
- Respect patient autonomy to refuse care in a patient with mild cognitive impairment.
- **Screen adolescent patient for high-risk behavior.

**Screen for intimate partner violence.

**Screen for lung cancer with low-dose CT.

**Treat a hymenoptera sting injury.

**Treat acute low back pain.

Treat acute suppurative parotitis.

Treat herpes zoster infection in a patient with rheumatoid arthritis.

Treat lower urinary tract symptoms secondary to benign prostatic hyperplasia.

Treat obesity with pharmacologic therapy.

Treat premenstrual dysphoric disorder.

Understand the concept of positive predictive value.

Geriatric Medicine

Avoid use of physical and chemical restraints in an elderly patient with dementia and behavioral disturbance.

**Deprescribe in an older adult.

Diagnose medication adverse effect as a cause of driving impairment.

**Follow current recommendations for primary prevention of coronary artery disease and stroke in adults older than 65 years.

Identify elder mistreatment.

**Identify medications as a cause of worsening urinary incontinence in an older adult.

**Manage asymptomatic bacteriuria.

**Prevent delirium in a hospitalized patient at high risk.

Reduce risk for falls in an older adult.

Treat bullous pemphigoid in an older patient.

Treat cachexia in an older patient.

Treat partial response to selective serotonin receptor inhibitor therapy for depression.

Treat postoperative delirium.

Treat pressure ulcer.

Treat urgency urinary incontinence.

Use appropriate functional assessment tool to determine care needs.

Hematology and Oncology

**Counsel average-risk patient regarding screening for ovarian cancer.

Diagnose acute intermittent porphyria.

Diagnose essential thrombocythemia in an older patient.

Diagnose myelodysplastic syndrome.

Diagnose polycythemia vera.

Diagnose postradiation hypothyroidism.

Diagnose pure red cell aplasia in a patient with a mediastinal mass.

Diagnose superior vena cava syndrome.

Evaluate a neck mass.

Evaluate a patient with sideroblastic anemia.

Evaluate a testicular mass.

**Evaluate for inherited risk factors in a patient with venous thromboembolism.

**Evaluate incidentally found thyroid nodule.

Evaluate new central nervous system symptoms in a patient with a history of lung cancer.

**Evaluate risk factors for complications in a patient taking an aromatase inhibitor.

**Evaluate suspected pseudothrombocytopenia.

Identify appropriate testing for symptoms concerning for carcinoid syndrome.

Identify medications associated with hemolysis in glucose-6-phosphate dehydrogenase deficiency.

Identify risk factors for head and neck cancer.

Manage a patient with stage I rectal cancer.

Manage anemia.

**Manage immune thrombocytopenia without bleeding.

**Manage surveillance in a patient with colorectal cancer.

**Monitor a patient with chronic lymphocytic leukemia.

Recommend the appropriate diagnostic evaluation of squamous cell carcinoma of unknown primary.

Reduce risk for delayed hemolytic transfusion reaction in a patient with sickle cell disease.

**Screen for hereditary hemochromatosis.

Treat hypercalcemia of malignancy.

Treat iron deficiency anemia in a patient with heart failure with reduced ejection fraction.

Treat sickle cell disease with hydroxyurea.

Infectious Diseases

- Diagnose bacillary angiomatosis.
- Diagnose disseminated gonococcal infection.
- Diagnose Giardia lamblia.
- Diagnose histoplasmosis in a patient taking a tumor necrosis factor-a inhibitor.
- Diagnose mild HIV-associated neurocognitive disorder.
- Diagnose Naegleria fowleri infection.
- Diagnose recurrent lower-leg streptococcal cellulitis.
- Diagnose rickettsialpox.
- Diagnose the cause of thrombotic thrombocytopenic purpura–hemolytic uremic syndrome.
- Diagnose varicella pneumonia in an immunocompromised host.
- Identify *Pseudomonas aeruginosa* as the most common cause of malignant otitis externa.
- Manage a potential exposure to rabies.
- **Manage asymptomatic bacteriuria.
- **Manage candiduria in a patient with an indwelling urinary catheter.
- Manage pre-exposure prophylaxis in a patient at high risk for HIV infection.
- Manage preseptal cellulitis.
- **Manage travelers diarrhea.
- **Prevent varicella zoster infection.
 - Treat *Clostridioides difficile*–associated colitis.
- **Treat enterococcal endocarditis in a patient with chronic kidney disease.
- Treat molluscum contagiosum.
- Treat recurrent genital herpes infection.
- Treat syphilis in a pregnant patient who is allergic to penicillin.

Nephrology

- Diagnose acute kidney injury due to multiple myeloma.
- Diagnose acute peritonitis in a patient receiving peritoneal dialysis.
- Diagnose alcoholic ketoacidosis.
- Diagnose amyloidosis.
- Diagnose hypophosphatemia.
- Diagnose iatrogenic hypercalcemia.
- Diagnose membranous nephropathy.
- Diagnose preeclampsia.
- Diagnose prerenal acute kidney injury in a patient with chronic kidney disease secondary to type 2 diabetes mellitus.
- Diagnose primary adrenal insufficiency–associated hyponatremia.
- Diagnose the cause of hypokalemia.
- Evaluate for primary aldosteronism in a patient with resistant hypertension.
- Manage secondary hypertension.
- Treat hepatorenal syndrome in the setting of spontaneous bacterial peritonitis.
- Treat hypovolemic hyponatremia.
- Treat interstitial nephritis due to NSAIDs.

Neurology

- **Determine need for seizure prophylaxis in patient with primary brain tumor.
- Diagnose amyotrophic lateral sclerosis.
- Diagnose corticobasal degeneration in a patient with alien-limb syndrome.
- Diagnose iron deficiency as the cause of restless leg syndrome.
- Diagnose subarachnoid hemorrhage.
- Evaluate a first seizure.
- Manage new-onset optic neuritis.
- Treat acute ischemic stroke and avoid alteplase in a patient with previous stroke.
- Treat cluster headaches.
- Treat myasthenia gravis.

Pulmonary and Critical Care Medicine

- Diagnose acute respiratory distress syndrome.
- Diagnose community-acquired pneumonia.
- Diagnose exacerbation of idiopathic pulmonary fibrosis.
- Diagnose fat embolism syndrome.
- Diagnose obesity hypoventilation syndrome.
- Diagnose opioid-associated acute hypoventilation as a cause of acute respiratory acidemia.
- Diagnose serotonin syndrome.
- Evaluate for pulmonary rehabilitation in a patient with COPD who is deconditioned.
- **Identify the appropriate nutritional approach for a critically ill patient.
- **Manage a parapneumonic effusion.
- **Manage a transition to comfort care in the ICU.
- Manage anaphylactic shock when intramuscular epinephrine is insufficient.
- Manage asymptomatic pulmonary sarcoidosis.
- Manage hypercarbic respiratory failure in a patient with contraindications to noninvasive ventilation.
- Manage hypertensive crisis in the setting of intracranial hemorrhage.
- **Manage primary spontaneous pneumothorax.
- **Manage pulmonary embolism in a patient at high risk for recurrence.
- Provide fluid management for a patient with acute respiratory distress syndrome.
- Recognize risk factors for ICU-acquired weakness.
- Rule out the diagnosis of pulmonary embolism in a patient with pleuritic chest pain.
- **Screen for EVALI (e-cigarette, or vaping, product use–associated lung injury).
- Treat acute respiratory distress syndrome using appropriate ventilation.
- Treat exercise-induced asthma in a serious athlete.
- Treat exertional dyspnea in a patient with COPD.
- Treat nontuberculous mycobacterial infection.
- Treat β -blocker overdose.

Rheumatology

- Diagnose adult-onset Still disease.
- Diagnose anterior uveitis.
- Diagnose calcium pyrophosphate deposition disease using synovial fluid analysis.
- Diagnose dermatomyositis.
- Diagnose enteropathic arthritis.
- Diagnose hypermobility spectrum disorder.
- Diagnose interstitial lung disease associated with systemic sclerosis.
- Diagnose limited cutaneous systemic sclerosis.
- Diagnose non-Hodgkin lymphoma in a patient with Sjögren syndrome.
- Diagnose osteoarthritis of the knees.
- Diagnose osteoarthritis.
- Diagnose persistent inflammatory polyarthritis after chikungunya virus infection.
- Diagnose reactive arthritis.
- Diagnose rheumatoid arthritis.
- Evaluate a patient for rheumatic fever.
- Identify parvovirus as cause of symmetric polyarthritis.
- Manage lupus nephritis.
- **Treat asymptomatic hyperuricemia.
- Treat giant cell arteritis.
- Treat gouty arthritis.
- **Treat osteoarthritis.
- Treat tinea corporis in a patient receiving immunosuppressive therapy.
- Treat uncomplicated Raynaud phenomenon.