INTERNAL MEDICINE CLERKSHIP

LEARNING OBJECTIVES

Abdominal Pain:

1. Identify characteristics and relevant review of systems that define abdominal pain including acuity, location, vomiting, and fever.
2. Assess past medical history for risk factors for abdominal pain including prior surgery, hernias, malignancy, and causative medications.
3. Assess for social risk factors including tobacco use and opioid use.
4. Identify key physical exam findings that may differentiate causes of abdominal pain including localized tenderness, peritoneal signs, and presence of distention.
5. Evaluate for extraintestinal manifestations of abdominal pain including findings on the skin exam, joint exam, and cardiac exam.
6. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Rule out not-to-miss diagnoses including complete blood count, plain films, and abdominal CT.
    b. Perform further testing in selected patients including liver function tests, ultrasound, MRI, and angiography.
    c. Follow recommended guidelines for abdominal CT imaging (e.g., American College of Radiology Appropriateness Criteria).
7. Develop and prioritize a differential diagnosis including common and non-to-miss diagnoses:
    a. Consider the not-to-miss diagnoses including the “Serious Six”: mesenteric ischemia, infection with peritonitis, viscous rupture with peritonitis, leaking AAA, aortic dissection, and inferior myocardial infarction.
    b. Use an anatomic approach (e.g., localization of pain by quadrants).
8. Describe a rational and evidence-based approach to treating a patient with abdominal pain:
    a. Identify indications for parental antibiotics and hospitalization.
    b. List indications for immediate surgical consultation including leaking AAA and peritonitis.

References:

Aquifer Case 9

Aquifer Case 12

Harrison’s Principles of Internal Medicine, 22e. Chapter 16: Abdominal Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292623084

Harrison’s Principles of Internal Medicine, 22e. Chapter 332: Approach to the Patient with Gastrointestinal Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295621354

Harrison’s Principles of Internal Medicine, 22e. Chapter 340: Mesenteric Vascular Insufficiency
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295622158

Harrison’s Principles of Internal Medicine, 22e. Chapter 342: Acute Appendicitis and Peritonitis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295622244

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 3: Abdominal Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249057775

Updated 4/6/26 MRE

Acid Base Disorders:

1. Identify characteristics and relevant review of systems that differentiate respiratory from metabolic disorders including hyperventilation, CNS depression, vomiting, and diarrhea.
2. Assess past medical history for risk factors and predisposing conditions including pulmonary disease and neuromuscular disease.
3. Assess for social risk factors including alcohol use.
4. Identify key physical exam findings that may suggest an underlying etiology including blood pressure, respiratory rate, and stigmata of cirrhosis.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine the primary, compensatory, and mixed respiratory and metabolic acid base disorders including blood gas and chemistry panel.
6. Develop and prioritize a differential diagnosis including common and non-to-miss diagnoses:
    a. Differentiate each of the major categories of acid base disorders including respiratory alkalosis, respiratory acidosis, metabolic alkalosis, and metabolic acidosis.
    b. Use the presence or absence of an anion gap to determine the etiology of acidosis.
7. Describe a rational and evidence-based approach to treating a patient with an acid base disorder:
    a. Describe the physiology of pulmonary and renal contributions to normal acid base balance.
    b. Describe the pathophysiology of each of the four cardinal acid base disorders and the expected compensatory mechanisms.

References:
Lecture: Acid-base disorders

Aquifer Case 26
Aquifer Case 33

Harrison's Principles of Internal Medicine, 22e. Chapter S1: Fluid and Electrolyte Imbalances and Acid-Base Disturbances: Case Examples
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292053878

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 4: Acid-Base Abnormality
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058035

Acute Coronary Syndrome:

1. Identify characteristics and relevant review of systems that would suggest acute coronary syndrome.
2. Assess for personal risk factors and predisposing conditions such as past coronary artery disease, hypertension, dyslipidemia, social risk factors including tobacco use
3. Assess for familial risk factors including premature coronary disease and cerebrovascular disease.
4. Identify key physical exam findings that may determine the presence and severity of disease including jugular venous distention, rales/crackles, and S4.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that help differentiate among unstable angina, non-ST-elevation myocardial infarction, and ST-elevation myocardial infarction, including cardiac enzymes, electrocardiogram, and cardiac catheterization.

6. Describe a rational and evidence-based approach to treating a patient with acute coronary syndrome:
    a. Describe use of reperfusion therapy including primary percutaneous coronary intervention and thrombolytic therapy.
    b. Describe use of medical therapy including anti-platelet therapy, beta-blockers, anticoagulation, lipid therapy, and ACE inhibitors.
7. Describe possible complications of acute coronary syndrome including:
    a. Ischemic complications.
    b. Mechanical complications.
    c. Arrhythmic complications.

References:
Case Discussion: Coronary Artery Disease

Aquifer Case 1

Harrison's Principles of Internal Medicine, 22e. Chapter 284: Ischemic Heart Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296165548#1215130838

Harrison's Principles of Internal Medicine, 22e. Chapter 286: ST-Segment Elevation Myocardial Infarction
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296165787

Harrison's Principles of Internal Medicine, 22e. Chapter 285: Non-ST-Segment Elevation Myocardial Infarction
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296165714

Harrison's Principles of Internal Medicine, 22e. Chapter 287: Percutaneous Coronary Interventions and Other Interventional Procedures
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296165950

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 9: Chest Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058825

Acute Pancreatitis:

1. Identify characteristics and relevant review of systems that may indicate acute pancreatitis including preceding episodes of biliary colic.
2. Assess for risk factors for acute pancreatitis including prior pancreatitis, cholelithiasis, hypertriglyceridemia, and causative medications.
3. Asses for social risk factors including alcohol use.
4. Identify key physical exam findings that may suggest an underlying etiology including liver disease and hypertriglyceridemia.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Determine severity including calcium levels.
    b. Determine cause including ALT and triglycerides level.
    c. Determine extent and presence of associated complications including use of ultrasound and CT.

    d. Estimate prognosis including use of BISAP, SIRS, and CRP.
6. Describe a rational and evidence-based approach to treating a patient with acute pancreatitis:
    a. List treatments that control symptoms including pain control.
    b. List treatments that reduce risk of complications including IV fluids and electrolyte monitoring.
7. Describe possible complications including pseudocyst development and chronic pancreatitis.

References:
Case Discussion: Acute Pancreatitis

Aquifer Case 9

Harrison's Principles of Internal Medicine, 22e. Chapter 359: Acute and Chronic Pancreatitis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296167757

Harrison's Principles of Internal Medicine, 22e. Chapter 358: Approach to the Patient with Pancreatic Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296167724

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 3-9: Acute Pancreatitis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249057895

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 3-14: Chronic Pancreatitis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249057945

Acute Kidney Injury:

1. Identify characteristics and relevant review of systems that may indicate a specific etiology of acute kidney injury including fevers and arthralgia.
2. Assess past medical history for risk factors and predisposing conditions including causative medications and toxin exposures.
3. Identify key physical exam findings that assess volume status (including orthostatic blood pressure measurement, jugular venous pressure, and presence of edema) and assess presence of uremic symptoms (including pericardial rub and asterixis).
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Identify presence of acute kidney injury including patients with rising serum creatinine or decrease urine output.
    b. Determine underlying etiology including urinalysis with microscopic evaluation, urine chemistries, chemistry panel, and renal ultrasound.
5. Develop and prioritize a differential diagnosis including common and non-to-miss diagnoses:
    a. Distinguish pre-renal, intra-renal, and post-renal causes:
        i. Describe pre-renal causes including ineffective circulating volume.
        ii. Describe intra-renal causes including glomerular, tubular, interstitial, and vascular etiologies.
        iii. Describe post-renal causes including ureteral obstruction and bladder outlet obstruction.
6. Describe a rational and evidence-based approach to treating a patient with acute kidney injury:
    a. Describe treatment of acute conditions including hyperkalemia and fluid deficit.

    b. Describe treatment based on etiology including relieving obstruction in bladder outlet obstruction and withdrawal of causative medications in active interstitial nephritis.
7. Describe the long-term renal prognosis for patients with acute kidney injury.
8. List clinical interventions that may prevent acute kidney injury in patients at increased risk including discontinuation of causative medications, prevention of hypotension, and judicious use of iodinated contrast.

References:

Case Discussion: Acute Kidney Injury

Aquifer Case 33

Harrison's Principles of Internal Medicine, 22e. Chapter 321: Acute Kidney Injury
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?sectionid=296166492&bookid=3541&Resultclick=2

Harrison's Principles of Internal Medicine, 22e. Chapter 328: Tubulointerstitial Diseases of the Kidney
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296167169

Harrison's Principles of Internal Medicine, 22e. Chapter 331: Urinary Tract Obstruction
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296167416

Harrison's Principles of Internal Medicine, 22e. Chapter 326: Glomerular Diseases
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296166906

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 28: Acute Kidney Injury
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249061576

Altered Mental Status:

1. Identify characteristics and relevant review of systems that define altered mental status including neurologic symptoms.
2. Assess past medical history for risk factors including previous history of altered mental status or seizures and causative medications.
3. Assess for social risk factors including alcohol and recreational drug use.
4. Identify key physical exam findings that determine characteristics (including a mental status exam) and assess for an underlying etiology (including focal neurologic findings).
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Assess metabolic functioning and presence of infection including basic metabolic panel and complete blood count.
    b. Determine need for further testing if diagnosis remains unclear including vitamin B12 level, RPR, and urine toxicology screen.
    c. Determine need for further testing to target signs and symptoms including electrocardiogram, chest x-ray, lumbar puncture, and electroencephalogram.
6. Develop and prioritize a differential diagnosis including common and non-to-miss diagnoses:
    a. Consider neurologic diagnoses including a cerebrovascular accident.
    b. Consider psychiatric diagnoses including mania and schizophrenia.

7. Describe a rational and evidence-based approach to treating a patient with altered mental status:
    a. Identify treatments for underlying illness including infection, drug toxicity, and fluid and electrolyte disturbances.
    b. List delirium precautions including reduce overstimulation, minimize restraint use, and improve sleep-wake cycle.
8. Describe possible complications of altered mental status including falls, aspiration, and decubitus ulcers.

References:
Case Discussion: Altered Mental Status

Aquifer Case 25
Aquifer Case 26

Harrison's Principles of Internal Medicine, 22e. Chapter 31: Dementia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?sectionid=292623643&bookid=3541#296707913

Harrison's Principles of Internal Medicine, 22e. Chapter 29: Confusion and Delirium
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?sectionid=292623561&bookid=3541&Resultclick=2

Harrison's Principles of Internal Medicine, 22e. Chapter 442: Alzheimer's Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?sectionid=295696466&bookid=3541&Resultclick=2

Harrison's Principles of Internal Medicine, 22e. Chapter 30: Coma
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?sectionid=292623590&bookid=3541&Resultclick=2

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 11: Delirium or Dementia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059100

Anemia:

1. Identify characteristics and relevant review of systems that may suggest anemia including blood loss, fatigue, dyspnea, and chest pain.
2. Assess past medical history for ongoing risk factors including chronic renal or liver disease, malignancies, and autoimmune disorders.
3. Assess for social risk factors including travel history and alcohol use.
4. Assess for familial risk factors including heritable conditions such as sickle cell disease.
5. Identify key physical exam findings that assess for underlying disease (including lymphadenopathy and splenomegaly) and evaluate for associated cytopenias or coagulopathies (including petechiae, gum bleeding, and ecchymoses).
6. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Identify anemia chronicity including review of previous labs.
    b. Determine underlying etiology including complete blood count with differential, smear, and reticulocyte production index.

7. Develop and prioritize a differential diagnosis including common and non-to-miss diagnoses and use a pathophysiologic framework of acute blood loss (e.g., underproduction of red blood cells, increased destruction of red blood cells, and sequestration of red blood cells).
8. Describe a rational and evidence-based approach to treating a patient with anemia:
    a. Describe urgent treatment if needed including blood transfusion and embolization.
    b. Describe treatment based on underlying etiology including replacement for deficiencies.

References:
Lecture: Anemia

Aquifer Case 19

Harrison's Principles of Internal Medicine, 22e. Chapter 66: Anemia and Polycythemia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293140487

Harrison's Principles of Internal Medicine, 22e. Chapter 102: Iron Deficiency and Other Hypoproliferative Anemias
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293334848

Harrison's Principles of Internal Medicine, 22e. Chapter 103: Disorders of Hemoglobin
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293334912

Harrison's Principles of Internal Medicine, 22e. Chapter 104: Megaloblastic Anemias
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293335049

Harrison's Principles of Internal Medicine, 22e. Chapter 105: Hemolytic Anemias
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295692236

Harrison's Principles of Internal Medicine, 22e. Chapter 106: Anemia Due to Acute Blood Loss
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293335228

Harrison's Principles of Internal Medicine, 22e. Chapter 107: Bone Marrow Failure Syndromes Including Aplastic Anemia and Myelodysplasia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294352914

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 6: Anemia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058425

Back Pain:

1. Identify characteristics and relevant review of systems that define back pain including acuity, injury, fever, and neurologic dysfunction.
2. Assess past medical history for risk factors including malignancy, immune compromise, and osteoporosis.
3. Asses for social risk factors including intravenous drug use.
4. Identify key physical exam findings that suggest not-to-miss diagnoses (including saddle anesthesia and weakness) and differentiate causes (including findings on neurologic exam and straight leg raise).

5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Perform tests in selected patients including complete blood count, inflammatory markers, and MRI.
    b. Follow recommended guidelines for spinal imaging (e.g., American College of Radiology Appropriateness Criteria).
6. Develop and prioritize a differential diagnosis including more common, less common, and non-to-miss diagnoses:
    a. Consider common diagnoses including nonspecific low back pain and lumbar strain.
    b. Consider less common diagnoses including ankylosing spondylitis, vertebral compression fracture, and intervertebral disc herniation.
    c. Consider the not-to-miss diagnoses including infections, abdominal aortic aneurysm, and malignancy.
7. Describe a rational and evidence-based approach to treating a patient with back pain:
    a. Identify treatment for non-specific low back pain including progressive mobilization, physical therapy, and non-steroidal anti-inflammatory agents.
    b. Identify indications for immediate surgical consultation including cauda equina syndrome, presence of epidural abscess, and progressive neurologic deficit.

References:
Lecture: Rheumatologic Diseases and Tests

Aquifer Case 34

Harrison's Principles of Internal Medicine, 22e. Chapter 18: Low Back Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293139495

Harrison's Principles of Internal Medicine, 22e. Chapter 19: Neck Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292623180

Harrison's Principles of Internal Medicine, 22e. Chapter 374: The Spondyloarthritis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294616475

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 7: Low Back Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058579

Cancer Screening:

1. Identify characteristics and relevant review of systems that may suggest breast, cervical, colon, lung, and prostate cancer.
2. Assess past medical history to determine risk factors including prior HPV vaccination.
3. Assess for familial risk factors including family history of breast, colon, or prostate cancer.
4. Describe a rational and evidence-based approach to screening:
    a. Compare the guidelines from different organizations (e.g., United States Preventive Services Task Force and American College of Physicians).
    b. Explain basic principles of screening to patients including risks and benefits, recommended frequency, and duration.
    c. Use risk factors for breast, cervical, colon, lung, and prostate cancer to determine screening recommendations.

5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks and costs of screening for breast, cervical, colon, lung, and prostate cancer.

References:
Lecture: Health Maintenance

Aquifer Case 13
Aquifer Case 14

Harrison's Principles of Internal Medicine, 22e. Chapter 2: Promoting Good Health
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=291971590

Harrison's Principles of Internal Medicine, 22e. Chapter 6: Screening and Prevention of Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=291971714

Harrison's Principles of Internal Medicine, 22e. Chapter 75: Prevention and Early Detection of Cancer
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294355826

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 2: Healthy Patient
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249057720

Chest Pain:

1. Identify characteristics and relevant review of systems that define chest pain including dyspnea, gastrointestinal reflux disease, and constitutional symptoms.
2. Assess past medical history for risk factors and predisposing conditions including prior history of coronary artery disease, diabetes, and venous thrombotic events.
3. Assess for social risk factors including tobacco, cannabis, and alcohol use.
4. Identify key physical exam findings that differentiate causes of chest pain including findings on the posterior pharynx exam, chest wall exam, and peripheral pulses.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine the presence of not-to-miss diagnoses in appropriate cases (including electrocardiogram and troponin) and evaluate the presence of other diagnoses in appropriate cases (including chest x-ray and d-dimer).
6. Develop and prioritize a differential diagnosis including common and non-to-miss diagnoses:
    a. Use decision tools to determine likelihood of a diagnosis (e.g., Modified Wells score and HEART score).
    b. Use an anatomic approach to the diagnosis (e.g., skin to organ evaluation).
    c. Consider not-to-miss diagnoses including Who's my PAPPA: Pericarditis, Acute coronary syndromes, Pneumothorax, Pulmonary Embolism, and Aortic aneurysm.
7. Describe a rational and evidence-based approach to treating a patient with chest pain and list treatments based on etiology (including aspirin and statin for acute coronary syndrome).

References:
Case Discussion: Coronary Artery Disease
Case Discussion: Venous Thromboembolic Disease

Aquifer Case 1
Aquifer Case 2

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Harrison's Principles of Internal Medicine, 22e. Chapter 15: Chest Discomfort
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292623035

Harrison's Principles of Internal Medicine, 22e. Chapter 281: Pericardial Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293335923

Harrison's Principles of Internal Medicine, 22e. Chapter 291: Diseases of the Aorta
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294354285

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 9: Chest Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058825

Chronic Kidney Disease:

1. Identify symptoms that may help determine the status of chronic kidney disease including anorexia and fatigue.
2. Assess for ongoing risk factors that contribute to chronic kidney disease including diabetes, hypertension, coronary artery disease, and nephrotoxic medications.
3. Assess factors that may affect fluid and electrolyte balance including sodium, potassium, and water intake.
4. Identify key physical exam findings that may contribute to ongoing risk including elevated blood pressure.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that may help determine stage of chronic kidney disease (including GFR and albuminuria) and assess for associated complications (including metabolic acidosis, hyperkalemia, and anemia).
6. Describe a rational and evidence-based approach to treating a patient with chronic kidney disease:
    a. List factors that slow progression including smoking cessation and blood pressure control.
    b. Describe avoidance of nephrotoxic agents including intravenous contrast, gadolinium, and NSAIDS.
    c. Describe when renal replacement therapy or transplantation is indicated including presence of uremic symptoms.
7. Describe the expected course of chronic kidney disease including possible complications.
8. Describe the metabolic consequences of chronic kidney disease including anemia, renal osteodystrophy, metabolic acidosis, and hyperkalemia.

<u>References:</u>
Lecture: Chronic Kidney Disease

Aquifer Case 23

Harrison's Principles of Internal Medicine, 22e. Chapter 322: Chronic Kidney Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296166630

Harrison's Principles of Internal Medicine, 22e. Chapter 323: Dialysis in the Treatment of Kidney Failure
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295149954

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Harrison's Principles of Internal Medicine, 22e. Chapter 325: Kidney Transplantation
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3095&sectionid=265426163

Harrison's Principles of Internal Medicine, 22e. Chapter 328: Tubulointerstitial Diseases of the Kidney
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296167169

Chronic Obstructive Pulmonary Disease:

1. Identify characteristics and relevant review of systems that characterize COPD including progressive shortness of breath, chronic cough, and sputum production.
2. Assess for risk factors that contribute to COPD including smoke exposure, indoor air pollution, and occupational exposure.
3. Assess for risk factors in family history that contribute to COPD including alpha-1 antitrypsin deficiency.
4. Identify key physical exam findings to assess severity of COPD including air flow, pursed lip breathing, and wheezing.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that help establish diagnosis and severity (including spirometry, pulmonary function studies, and arterial blood gas) and assess for alternate and concomitant disorders (including chest radiography).
6. Describe a rational and evidence-based approach to treating a patient with COPD:
    a. List treatment that improves mortality including oxygen in hypoxemic patients.
    b. List treatment that improves symptoms, functional status, and reduces exacerbations including bronchodilators, inhaled anti-inflammatory drugs, and pulmonary rehabilitation.
    c. List treatment of acute exacerbations including bronchodilators, corticosteroids, and antibiotics.
    d. List treatment that improves lung function including lung reduction surgery.
7. Describe possible respiratory and cardiac complications including chronic respiratory failure and cor pulmonale.
8. Identify factors that slow the decline of respiratory function including oxygen therapy and smoking cessation.

References:

Case Discussion: Chronic Obstructive Pulmonary Disease

Aquifer Case 28

Harrison's Principles of Internal Medicine, 22e. Chapter 303: Chronic Obstructive Pulmonary Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294616324#1215111716

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 33-8: Chronic Obstructive Pulmonary Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249062564

Cirrhosis:

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1. Identify characteristics and relevant review of system that would suggest cirrhosis including abdominal distention, jaundice, confusion, and gastrointestinal bleeding.
2. Assess for risk factors and predisposing conditions including blood transfusions, obesity, autoimmune disease, and causative medications.
3. Assess for social risk factors including alcohol use disorder and intravenous drug use.
4. Assess for familial risk factors including hemochromatosis, alpha-1 antitrypsin deficiency, and Wilsons disease.
5. Identify key physical exam findings that help determine the extent of disease (including ascites, jaundice, spice angiomata, and palmar erythema) and determine the presence of complications (including altered mental status and abdominal distention).
6. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that:
    a. Assess etiology of disease including viral hepatitis serologies, genetic assay for hemochromatosis, and anti-smooth muscle antibody.
    b. Assess severity of disease including MELD score, fibro-scan (transient elastography), and liver biopsy.
    c. Assess presence of complications including peritoneal fluid analysis and esophagogastroduodenoscopy (EGD).
7. Describe a rational and evidence-based approach to treating a patient with cirrhosis:
    a. Describe treatment of complications including hepatic encephalopathy, ascites, spontaneous bacterial peritonitis, and varices.
    b. Describe how to prevent decompensation including avoidance of NSAIDS and ace inhibitors.
8. Identify appropriate scoring systems to estimate prognosis including MELD score and Child-Pugh score.
9. Describe possible complications including esophageal varices and hepatocellular carcinoma.

References:

Lecture: Cirrhosis

Aquifer Case 11
Aquifer Case 36

Harrison's Principles of Internal Medicine, 22e. Chapter 52: Jaundice
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293067712

Harrison's Principles of Internal Medicine, 22e. Chapter 332: Approach to the Patient with Liver Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295621354

Harrison's Principles of Internal Medicine, 22e. Chapter 353: Alcohol-Associated Liver Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295623105

Harrison's Principles of Internal Medicine, 22e. Chapter 354: Metabolic Dysfunction-Associated Steatotic Liver Disease and Steatohepatitis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295623131

Harrison's Principles of Internal Medicine, 22e. Chapter 350: Acute Viral Hepatitis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295695386

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Harrison's Principles of Internal Medicine, 22e. Chapter 352: Chronic Hepatitis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295622860

Harrison's Principles of Internal Medicine, 22e. Chapter 355: Cirrhosis and Its Complications
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295695569

Harrison's Principles of Internal Medicine, 22e. Chapter 356: Liver Transplantation
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295695714

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 26: Jaundice and Abnormal Liver Enzymes
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249061203

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 17-6: Cirrhosis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060039

Congestive Heart Failure:

1. Identify characteristics and relevant review of systems that determine the presence of decompensation and precipitants of congestive heart failure including dyspnea, orthopnea, and paroxysmal nocturnal dyspnea.
2. Assess for risk factors and predisposing conditions including coronary artery disease, pulmonary hypertension, and medication nonadherence.
3. Assess for social risk factors and causes for decompensation including tobacco use and dietary or fluid indiscretion.
4. Identify key physical exam findings that help determine the presence of decompensation and differentiate right from left sided heart failure (including rales/crackles, presence of S3, and peripheral edema).
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine severity (including N-terminal pro-B-type natriuretic peptide) and determine underlying etiology (including electrocardiogram and echocardiography).
6. Describe a rational and evidence-based approach to treating a patient with congestive heart failure:
    a. Describe initial treatment modalities including diuretics, ACE inhibitors/ACE receptor blockers, and beta-blockers.
    b. Describe indications for hospitalization based on history or exam.
7. Describe possible complications of congestive heart failure including sudden cardiac death.
8. Describe factors that affect prognosis including demographics, hospitalization, and heart failure etiology.

<u>References:</u>
Case Discussion: Congestive Heart Failure

Aquifer Case 4

Harrison's Principles of Internal Medicine, 22e. Chapter 264: Heart Failure: Pathophysiology and Diagnosis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296165244#1215130529

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Harrison's Principles of Internal Medicine, 22e. Chapter 265: Heart Failure: Management
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293140153

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 13: Diarrhea
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059329

Constipation:

1. Identify characteristics and relevant review of systems that define constipation including Rome IV criteria, dietary history, and alarm symptoms.
2. Assess past medical history for risk factors and predisposing conditions including history of prior abdominal surgery, diseases associated with secondary constipation, and causative medications.
3. Assess for social risk factors including physical or sexual abuse.
4. Identify key physical exam findings that mays suggest an underlying etiology (including a rectal exam) and may determine the presence of complications (including an abdominal exam).
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine cause (including a basic metabolic profile and thyroid studies) and evaluate for alarm symptoms (including colonoscopy and abdominal computed tomography).
6. Develop and prioritize a differential diagnosis including common diagnoses (including irritable bowel syndrome and medication-associated constipation) and non-to-miss diagnoses (including bowel obstruction).
7. Describe a rational and evidence-based approach to treating a patient with constipation:
    a. Identify clinical features that indicate need for additional testing including constitutional symptoms.
    b. Describe non-pharmacologic therapies including dietary modification and biofeedback.
    c. Describe pharmacological therapies including bulking agents, osmotic and stimulant laxatives, and prokinetics.

References:
Lecture: Constipation and Diarrhea

Harrison's Principles of Internal Medicine, 22e. Chapter 49: Diarrhea and Constipation
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293067526

Harrison's Principles of Internal Medicine, 22e. Chapter 338: Irritable Bowel Syndrome
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295622072

Harrison's Principles of Internal Medicine, 22e. Chapter 341: Acute Intestinal Obstruction
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295622188

Coronary Artery Disease:

1. Identify characteristics and relevant review of systems that determine the status of coronary artery disease including angina and anginal equivalents.
2. Assess for risk factors for coronary artery disease including hypertension and diabetes.
3. Assess for social risk factors including tobacco use.

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4. Identify key physical exam findings that assess for ongoing risk factors including elevated blood pressure and assess for signs of end organ damage including presence of heart failure.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing including those that determine the presence of ongoing risk factors like elevated cholesterol.
6. Describe a rational and evidence-based approach to treating a patient with coronary artery disease:
    a. Describe long-term treatment including anti-anginal, anti-platelet, and atherosclerotic disease treatment.
    b. Describe prevention and risk factor modification including management of medical conditions and health habits.
7. Describe possible complications including acute coronary syndrome and heart failure.

References:
Case Discussion: Coronary Artery Disease

Aquifer Case 1
Aquifer Case 2

Harrison's Principles of Internal Medicine, 22e. Chapter 284: Ischemic Heart Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296165548

Harrison's Principles of Internal Medicine, 22e. Chapter 285: Non-ST-Segment Elevation Acute Coronary Syndrome
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296165714

Harrison's Principles of Internal Medicine, 22e. Chapter 286: ST-Segment Elevation Myocardial Infarction
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296165787

Harrison's Principles of Internal Medicine, 22e. Chapter 287: Percutaneous Coronary Interventions and Other Interventional Procedures
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296165950

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 9: Chest Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058825

Cough:

1. Identify characteristics and relevant review of systems that define cough including upper respiratory symptoms, lower respiratory symptoms, GERD symptoms, and constitutional symptoms.
2. Assess past medical history for risk factors and predisposing conditions including causative medications, asthma, COPD, GERD, and allergies.
3. Assess for social risk factors including tobacco and environmental and occupational exposures.
4. Identify key physical exam findings that may:
    a. Determine level of respiratory distress including respiratory rate.
    b. Assess for signs of pulmonary consolidation and obstruction including wheezes, rhonchi, and rales.

    c. Determine presence of upper respiratory findings including post-nasal drip and bacterial sinusitis.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine need for a chest x-ray in certain cases (including prolonged cough) and need for lung function tests when considering certain diagnoses (including asthma).
6. Develop and prioritize a differential diagnosis including common diagnoses and non-to-miss diagnoses, and use the timing of the cough (e.g. acute, subacute, and chronic) to guide this differential.
7. Describe a rational and evidence-based approach to treating a patient with cough:
    a. Identify the necessity for urgent treatments including bronchodilators, antibiotics, and diuretics.
    b. Identify empiric treatments including upper airway cough syndrome treatment and proton pump inhibitors.
8. Describe cessation counseling for users of tobacco and other nicotine delivery systems.

References:
Case Discussion: Cough

Aquifer Case 22
Aquifer Case 27

Harrison's Principles of Internal Medicine, 22e. Chapter 40: Cough
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292624207

Harrison's Principles of Internal Medicine, 22e. Chapter 297: Diagnostic Procedures in Respiratory Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294354507

Harrison's Principles of Internal Medicine, 22e. Chapter 298: Asthma
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294354591

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 10: Cough and Congestion
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058959

Dementia:

1. Identify characteristics and relevant review of systems that would suggest dementia including behavior changes and time course.
2. Assess for risk factors and predisposing conditions including prior vascular disease.
3. Assess for social risk factors including substance abuse and sexual history.
4. Identify key physical exam finding including use of tools to assess cognition (including MoCA and SLUMS) and screen for neurologic abnormalities.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine underlying cause (including CT, MRI, and lumbar puncture) and assess for other conditions with similar presentations (including TSH and B12 levels).
6. Describe a rational and evidence-based approach to treating a patient with dementia:

    a. Describe treatments that potentially slow progression including cholinesterase inhibitors and NMDA receptor agonists.
    b. Describe treatments to prevent injuries including home safety assessment.
    c. Describe treatments to control behavior including antipsychotics.
7. Describe possible complications including eating problems and incontinence.

References:
Case Discussion: Altered Mental Status

Aquifer Case 18

Harrison's Principles of Internal Medicine, 22e. Chapter 31: Dementia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292623643

Harrison's Principles of Internal Medicine, 22e. Chapter 442: Alzheimer's Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295696466

Harrison's Principles of Internal Medicine, 22e. Chapter 443: Frontotemporal Dementia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295696552

Harrison's Principles of Internal Medicine, 22e. Chapter 444: Vascular Dementia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295696579

Harrison's Principles of Internal Medicine, 22e. Chapter 445: Dementia with Lewy Bodies
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295696605

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 11: Delirium or Dementia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059100

Depression:

1. Identify characteristics and relevant review of systems that determine symptoms of major depression including SIGECAPS questions and suicidal ideation.
2. Identify characteristics and relevant review of systems that may suggest another diagnosis including bipolar disorder and anxiety disorders.
3. Assess for risk factors including uncontrolled obstructive sleep apnea, hypothyroidism, and associated medications.
4. Assess for social risk factors including alcohol and other substance use, domestic violence, and social isolation.
5. Identify key physical exam findings that may suggest an underlying etiology (including thyroid exam abnormalities and findings of Cushing's syndrome) and findings that may be associated with neurologic disorders (including findings suggestive of dementia or Parkinson's disease).
6. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine underlying causes for depression including hypothyroidism and anemia.
7. Describe a rational and evidence-based approach to treating a patient with depression:
    a. Describe treatment to control symptoms including psychotherapy, SSRIs, and SNRIS.
    b. Describe when to refer to a psychiatrist including for worsening symptoms, suicidal ideation, and complex medication management.

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8. Describe the expected course of depression including onset to symptom control with medication, typical duration of therapy, and frequency of medical visits.

References:
Lecture: Health Maintenance

Aquifer Case 5

Harrison's Principles of Internal Medicine, 22e. Chapter 463: Psychiatric Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296171886

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 18-2: Anxiety
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060138

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 18-3: Depression and Anxiety
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060148

Diabetes Mellitus:

1. Identify characteristics and relevant review of systems that suggest diabetes mellitus including polyuria, visual changes, and sensory loss.
2. Assess for familial risk factors including genetic predisposition.
3. Identify key physical exam findings that suggest complications of diabetes including findings on the fundoscopic exam, blood pressure, and diabetic foot exam.
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that assess likelihood and presence of complications including HgbA1c, basic metabolic panel, and urine microalbumin/creatinine ratio.
5. Describe a rational and evidence-based approach to treating a patient with diabetes mellitus:
    a. Describe factors that control symptoms and prevent complications including lifestyle and dietary modifications and medications.
    b. Describe how to monitor therapy and assess for complications including HgbA1c monitoring, retinal screening, and adherence assessment.
    c. Describe how to manage common comorbidities including hypertension, hyperlipidemia, and obesity.
6. Describe acute and chronic complications including hyperosmolar state, diabetic ketoacidosis, and macrovascular and microvascular complications.
7. Describe appropriate screening for diabetes including who to screen, recommended tests, and intervals for testing.

References:
Case Discussion: Diabetes Mellitus

Aquifer Case 7
Aquifer Case 8

Harrison's Principles of Internal Medicine, 22e. Chapter 415: Diabetes Mellitus: Diagnosis, Classification, and Pathophysiology
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296169323

Harrison's Principles of Internal Medicine, 22e. Chapter 416: Diabetes Mellitus: Management and Therapies
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296169425

Harrison's Principles of Internal Medicine, 22e. Chapter 417: Diabetes Mellitus: Complications
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296169594

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 12: Diabetes
https://accessmedicine-mhmedical-com.archer.luc.edu/book.aspx?bookID=2715#228239119

Diarrhea:

1. Identify characteristics and relevant review of systems that define diarrhea including acuity, prior episodes, and presence of blood.
2. Assess past medical history for risk factors and predisposing conditions including immune compromised state, bowel surgery, and causative medications.
3. Assess for familial risk factors including inherited conditions (e.g. inflammatory bowel disease and colon cancer).
4. Assess for social risk factors including dietary lactose or gluten consumption.
5. Identify key physical exam findings that evaluate for an underlying etiology including abdominal tenderness and rectal exam.
6. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine severity in select cases (including complete blood count, creatinine, and electrolytes) and determine cause in select cases (including C diff toxin NAAT, occult blood, and fecal calprotectin).
7. Develop and prioritize a differential diagnosis including common diagnoses and non-to-miss diagnoses:
    a. Consider causes of acute diarrhea including viral infection and bacterial infection.
    b. Consider causes of chronic diarrhea including irritable bowel syndrome and inflammatory bowel disease.
8. Describe a rational and evidence-based approach to treating a patient with diarrhea:
    a. Describe methods to treat and prevent complications including aggressive intravenous fluids and replacement of serum electrolytes.
    b. Describe treatment of specific etiologies including C diff colitis, infectious colitis, and irritable bowel syndrome.

<u>References:</u>
Lecture: Constipation and Diarrhea

Aquifer Case 10

Harrison's Principles of Internal Medicine, 22e. Chapter 49: Diarrhea and Constipation
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293067526

Harrison's Principles of Internal Medicine, 22e. Chapter 338: Irritable Bowel Syndrome
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295622072

Harrison's Principles of Internal Medicine, 22e. Chapter 336: Disorders of Absorption
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295621647

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Harrison's Principles of Internal Medicine, 22e. Chapter 337: Inflammatory Bowel Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295621825

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 13: Diarrhea
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059329

Dyslipidemias:

1. Identify characteristics and relevant review of systems that assess for secondary causes of dyslipidemias (including symptoms of hypothyroidism).
2. Identify relevant past medical history to determine associated risks of vascular disease including diabetes and causative medications.
3. Assess for social risk factors including tobacco use, diet, and exercise.
4. Assess for familial risk factors, particularly inherited causes of dyslipidemias (including familial combined hyperlipidemia).
5. Identify key physical exam findings that determine associated systemic effects including xanthomas, decreased peripheral pulses, and arterial bruits.
6. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine the extent of hyperlipidemia (including fasting lipid panel) and determine the secondary causes of lipid abnormalities (including fasting glucose and TSH level).
7. Describe a rational and evidence-based approach to treating a patient with dyslipidemia:
    a. Use risk calculators to decide on medical treatment including 10-year and lifetime ASCVD/mortality calculators.
    b. Counsel patients on lifestyle modification including diet, exercise, and weight loss.
    c. Describe treatment goals including LDL levels.
    d. Describe frequency and type of lab monitoring including yearly LDL testing and liver enzyme monitoring.
8. Describe a rational and evidence-based approach to screening and use patient characteristics to determine when to begin screening and frequency of screening.

References:
Lecture: Hypertension and Dyslipidemia

Aquifer Case 8
Aquifer Case 16

Harrison's Principles of Internal Medicine, 22e. Chapter 419: Disorders of Lipoprotein Metabolism
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295624998

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 2-7: Cholesterol Screening
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249057753

Dyspnea:

1. Identify characteristics and relevant review of systems that define dyspnea including acuity, cough, and chest pain.
2. Assess past medical history for risk factors and predisposing conditions including coronary artery disease and immunosuppression.

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3. Assess for social risk factors including tobacco use and occupational exposures.
4. Identify key physical exam findings that determine severity of illness (including vital signs and work of breathing) and determine etiology (including abnormal lung sounds, S3 gallop, and JVD).
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that assess for not-to-miss diagnoses (including chest x-ray, electrocardiogram, and d-dimer) and determine etiology in selected patients (including chest computerized tomography, pulmonary function tests, and echocardiography).
6. Develop and prioritize a differential diagnosis including common diagnoses and non-to-miss diagnoses:
    a. Consider the most common causes of dyspnea including obstructive lung disease, pneumonia, heart failure, venous thromboembolic disease.
    b. Consider not-to-miss diagnoses, if appropriate including ACTASAP: Arrhythmia, coronary syndrome, tamponade, airway obstruction, stenosis (aortic, mitral), anaphylaxis, and pneumothorax.
7. Describe a rational and evidence-based approach to treating a patient with dyspnea and list treatments based on etiology including diuretics for heart failure and bronchodilators for obstructive lung disease.

References:
Case discussion: COPD
Case discussion: Congestive Heart Failure
Case discussion: Coronary Artery Disease
Case discussion: Venous Thromboembolic Disease

Aquifer Case 4
Aquifer Case 22
Aquifer Case 28
Aquifer Case 29

Harrison's Principles of Internal Medicine, 22e. Chapter 39: Dyspnea
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292624184

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 15: Dyspnea
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059747

Edema:

1. Identify characteristics and relevant review of systems that define edema including acuity, shortness of breath, and abdominal swelling.
2. Assess past medical history for risk factors and predisposing conditions including heart disease, liver disease, kidney disease, and causative medications.
3. Assess for social risk factors including dietary contributors like high salt intake.
4. Identify key physical exam findings that determine characteristics of edema (including unilateral or bilateral edema and presence of pitting or nonpitting edema).
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine underlying etiology including serum creatinine, serum albumin, and echocardiography.

6. Develop and prioritize a differential diagnosis including common diagnoses (chronic venous disease and medication related edema) and non-to-miss diagnoses (including heart failure, renal disease, and cirrhosis).
7. Describe a rational and evidence-based approach to treating a patient with edema and describe treatment based on etiology (including diuretics for heart failure).

References:
Case Discussion: Congestive Heart Failure
Case Discussion: Venous Thromboembolic Disease

Lecture: Cirrhosis
Lecture: Chronic Kidney Disease

Aquifer Case 4
Aquifer Case 30

Harrison's Principles of Internal Medicine, 22e. Chapter 43: Edema
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294822148

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 17: Edema
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059971

Fatigue:

1. Identify characteristics and relevant review of systems that define fatigue including acuity, constitutional symptoms, and psychiatric symptoms.
2. Assess past medical history for risk factors and predisposing conditions including causative medications, chronic medical problems, and psychiatric disorders.
3. Identify key physical exam findings that suggest an underlying etiology including conjunctival pallor, thyroid enlargement or nodules, and lymphadenopathy.
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that assess for cause and are recommended in most patients (including complete blood count with differential, basic metabolic panel, and thyroid stimulating hormone) and that assess for cause but are only recommended in selected patients (including HIV test, sleep study, and c-reactive protein).
5. Develop and prioritize a differential diagnosis including common diagnoses and non-to-miss diagnoses:
    a. Consider common diagnoses including psychiatric disorders, sleep disorders, and medication side effects.
    b. Consider not-to-miss diagnoses including anemia, malignancy, and undiagnosed chronic illness.
    c. Determine the likelihood of depression and anxiety using structured questionnaires including PHQ-2/PHQ-9 and GAD-2/GAD-9 scales.
    d. Determine the likelihood of sleep apnea using a structured tool including the Epworth Sleepiness Scale and STOP-BANG score.
6. Describe a rational and evidence-based approach to treating a patient with fatigue and describe treatment based on etiology including medications for depression or CPAP for sleep apnea.

References:

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Lecture: Fatigue and Unintentional Weight Loss

Aquifer Case 5

Harrison's Principles of Internal Medicine, 22e. Chapter 25: Fatigue
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292623331

Harrison's Principles of Internal Medicine, 22e. Chapter 33: Sleep Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293947401

Harrison's Principles of Internal Medicine, 22e. Chapter 461: Myalgic Encephalitis/Chronic Fatigue Syndrome
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?sectionid=295697454&bookid=3541&Resultclick=2

Harrison's Principles of Internal Medicine, 22e. Chapter 308: Sleep Apnea
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3095&sectionid=265457102

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 18: Fatigue
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060114

Fever:

1. Identify characteristics and relevant review of systems that define fever including duration and associated constitutional symptoms.
2. Assess past medical history for risk factors and predisposing conditions including recent invasive procedures, immunocompromised state, and causative medications.
3. Assess for familial risk factors including inherited conditions (e.g. inflammatory bowel disease and colon cancer).
4. Assess for social risk factors including travel and intravenous drug use.
5. Identify key physical exam findings that evaluate for an underlying etiology including abdominal tenderness, murmurs, and oropharyngeal erythema.
6. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine cause and are recommended in most patients (including complete blood count, urinalysis, and blood cultures) and determine cause but are recommended in selected patients (including HIV test, ANA, CT scans, and echocardiogram).
7. Develop and prioritize a differential diagnosis including common diagnoses (e.g. influenza, pneumonia, pharyngitis) and non-to-miss diagnoses and fever-related emergencies (including neutropenic fever, sepsis, and septic shock).
8. Describe a rational and evidence-based approach to treating a patient with fever:
    a. Utilize risk scores when appropriate including SOFA/qSOFA.
    b. Identify treatments based on etiology including broad-spectrum antibiotics for sepsis/septic shock and neutropenic fever.

<u>References:</u>
Case Discussion: Fever

Lecture: Common Infections

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Aquifer Case 20
Aquifer Case 21
Aquifer Case 29
Aquifer Case 35

Harrison's Principles of Internal Medicine, 22e. Chapter 20: Fever
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293066206

Harrison's Principles of Internal Medicine, 22e. Chapter 21: Fever and Rash
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294820065

Harrison's Principles of Internal Medicine, 22e. Chapter 315: Sepsis and Septic Shock
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295694664

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 25: Hypotension
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249061107

Gastrointestinal Bleed:

1. Identify characteristics and relevant review of systems that differentiate between suspected upper and lower sources of bleeding including hematemesis, coffee-ground emesis, melena, hematochezia, previous vomiting, and retching.
2. Assess past medical history for risk factors and predisposing conditions including peptic or duodenal ulcer disease, cirrhosis, coagulopathy, and causative medications.
3. Identify key physical exam findings that:
    a. Differentiate between overt, occult, and obscure gastrointestinal bleeding including stool examination and nasogastric aspirate.
    b. Determine hemodynamic stability including orthostatic vitals to assess intravascular volume.
    c. Assess for additional signs and symptoms associated with gastrointestinal bleeding including pallor, abdominal pain, signs of chronic liver disease including jaundice, ascites, and telangectasias.
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Evaluate degree of blood loss and bleeding susceptibility including complete blood count, INR, PTT, and comprehensive metabolic panel.
    b. Describe how to prepare for potential transfusion including type and crossmatching.
    c. Evaluate underlying etiology including Helicobacter pylori testing.
5. Develop and prioritize a differential diagnosis including common diagnoses and non-to-miss diagnoses:
    a. Consider not-to-miss diagnoses including esophageal variceal hemorrhage.
    b. Use a categorical approach to diagnosis including vascular, inflammatory, neoplastic, traumatic, and iatrogenic causes.
    c. Use an anatomic approach to further refine the diagnosis including upper etiologies (e.g. peptic ulcer disease, variceal hemorrhage, and Mallory-Weiss tear) and lower etiologies (e.g. diverticular disease, angiodysplasia or angiectasia, and neoplasms).
6. Describe a rational and evidence-based approach to treating a patient with gastrointestinal bleed:

a. Describe when urgent treatment modalities are needed including immediate intravenous access, IV fluids, proton pump inhibitors, octreotide, antibiotics, transfusions, and gastroenterology consultation.
b. List indications for imaging and or potential procedural interventions including esophagogastroduodenoscopy, colonoscopy, and CT angiography.
c. Describe an appropriate transfusion threshold for patients with blood loss.

References:
Case Discussion: Gastrointestinal Bleed

Aquifer Case 10
Aquifer Case 21

Harrison's Principles of Internal Medicine, 22e. Chapter 51: Gastrointestinal Bleeding
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293067678

Harrison's Principles of Internal Medicine, 22e. Chapter 334: Diseases of the Esophagus
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295695032

Harrison's Principles of Internal Medicine, 22e. Chapter 335: Peptic Ulcer Disease and Related Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296167454

Harrison's Principles of Internal Medicine, 22e. Chapter 339: Diverticular Disease and Common Anorectal Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295695163

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 19: GI Bleeding
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060193

Gastrointestinal Reflux Disease:

1. Identify characteristics and relevant review of systems that determine typical, atypical, and alarm characteristics of gastrointestinal reflux disease including heartburn, chest pain, and dysphagia.
2. Assess for risk factors for gastrointestinal reflux disease including obesity and pregnancy.
3. Assess for social risk factors including alcohol and tobacco use.
4. Identify key physical exam findings that may suggest an underlying etiology or complication including pulmonary rales and enamel decay.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing including upper endoscopy and esophageal pH monitoring and use testing to determine presence of alternative diagnoses or complications.
6. Describe a rational and evidence-based approach to treating a patient with gastrointestinal reflux disease:
    a. Describe the role of non-pharmacological treatment including weight loss, meal timing, and avoiding trigger foods.
    b. Describe pharmacologic therapy options including proton pump inhibitors.
    c. Describe indications for surgical management including laparoscopic fundoplication.
7. Describe possible complications including esophageal adenocarcinoma and stricture.

References:

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Case Discussion: Cough

Harrison's Principles of Internal Medicine, 22e. Chapter 48: Nausea, Vomiting, and Indigestion
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293066990

Harrison's Principles of Internal Medicine, 22e. Chapter 334: Diseases of the Esophagus
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295695032

Harrison's Principles of Internal Medicine, 22e. Chapter 335: Peptic Ulcer Disease and Related Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296167454

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 9-7: Gastroesophageal Reflux Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058912

Headache:

1. Identify characteristics and relevant review of systems that define headache including acuity, neurologic symptoms, and constitutional symptoms.
2. Assess past medical history for risk factors and predisposing conditions including causative medications and history of malignancy.
3. Identify key physical exam findings that suggest an underlying etiology including papilledema, fever, and neurologic deficits.
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine underlying etiology including CT without contrast, MRI, and ESR.
5. Develop and prioritize a differential diagnosis including common diagnoses and non-to-miss diagnoses:
    a. Consider common diagnoses including migraine and tension headaches.
    b. Consider not-to-miss diagnoses including subarachnoid hemorrhage, hypertensive emergency, and meningitis.
    c. Consider causes of new-onset headache including intracranial hemorrhage and giant cell arteritis.
    d. Consider causes of chronic headache including tension headache and analgesic overuse.
6. Describe a rational and evidence-based approach to treating a patient with headache and identify treatments based on etiology including abortive and prophylactic therapy for migraine or cluster headache and restrict non-prescription medications for withdrawal headaches.

References:
Case Discussion: Headache

Aquifer Case 24

Harrison's Principles of Internal Medicine, 22e. Chapter 17: Headache
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292623128

Harrison's Principles of Internal Medicine, 22e. Chapter 438: Intracerebral Hemorrhage
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295696405

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Harrison's Principles of Internal Medicine, 22e. Chapter 441: Migraine and Other Primary Headache Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296170774

Harrison's Principles of Internal Medicine, 22e. Chapter 375: The Vasculitis Syndromes
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294355419

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 20: Headache
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060333

Hypertension:

1. Identify characteristics and relevant review of systems that suggest uncontrolled hypertension including headaches and visual changes.
2. Assess past medical history for exacerbating factors or diseases associated with secondary hypertension including sleep apnea or renal disease.
3. Assess for social risk factors including tobacco, drug, and alcohol use.
4. Classify blood pressure measurement according to current definitions (e.g., Stage 1 or 2 hypertension).
5. Compare home and in clinic blood pressure readings.
6. Identify key physical exam findings that may suggest end organ effects of hypertension including extra heart sounds and reduced peripheral pauses.
7. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that:
    a. Assess for end organ damage including serum creatinine and urinalysis.
    b. Assess for comorbidities including lipid panel and fasting glucose.
    c. Evaluation for secondary causes of hypertension including performing a sleep study.
8. Describe a rational and evidence-based approach to treating a patient with hypertension:
    a. Determine a patient specific blood pressure goal.
    b. Identify urgent treatment (including need for IV medications).
    c. Identify effective lifestyle changes including weight loss and dietary modifications.
    d. Identify how to select initial medication(s) based on patient characteristics and comorbidities (e.g., presence of diabetes).
9. Describe possible complications of untreated hypertension including cerebrovascular and cardiovascular disease.

References:
Lecture: Hypertension and Dyslipidemias

Aquifer Case 6
Aquifer Case 8

Harrison's Principles of Internal Medicine, 22e. Chapter 288: Hypertension
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294354164

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 23: Hypertension
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060752

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Hyperthyroidism:

1. Identify characteristics and relevant review of systems that determine the status of hyperthyroidism including weight loss, palpitations, and heat intolerance.
2. Assess past medical history for risk factors and associated conditions including atrial fibrillation and osteoporosis.
3. Identify key physical exam findings that may suggest an underlying etiology including exophthalmos and thyroid nodules.
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Determine degree of hyperthyroidism including TSH, free T4, and T3.
    b. Determine underlying etiology (including use of radioactive iodine uptake scan).
5. Describe a rational and evidence-based approach to treating a patient with hyperthyroidism:
    a. List appropriate initial treatments based on underlying etiology including radioiodine ablation, thiourea drugs, and surgery.
    b. State how to control symptoms with medications including beta-blockers and thiourea drugs.
6. Describe possible complications of hyperthyroidism including ocular and cardiac complications.

References:
Case Discussion: Hypothyroidism and Hyperthyroidism

Harrison's Principles of Internal Medicine, 22e. Chapter 396: Hyperthyroidism and Other Causes of Thyrotoxicosis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295623762

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 32-12: Hyperthyroidism
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249062426

Hypothyroidism:

1. Identify characteristics and relevant review of systems that determine that status of hypothyroidism including constipation, cold intolerance, and menstrual irregularities.
2. Assess past medical history for risk factors and predisposing conditions including autoimmune disease, infiltrative diseases, and neck irradiation.
3. Assess for familial risk factors for predisposition to thyroid disease.
4. Identify key physical exam findings that may suggest an underlying etiology including thyroid enlargement.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Determine degree of hypothyroidism including TSH and free T4.
    b. Determine an underlying etiology including thyroid peroxidase (TPO) antibodies.
    c. Distinguish a patient with true hypothyroidism from an euthyroid patient with acute illness and abnormal thyroid tests.
6. Describe a rational and evidence-based approach to treating a patient with hypothyroidism:
    a. Treat all hypothyroid patients with levothyroxine (T4).
    b. State patient characteristics and comorbidities that factor into levothyroxine dose including age and coronary artery disease.

    c. Identify TSH monitoring frequency including at levothyroxine initiation and during maintenance.
7. Describe appropriate screening for hypothyroidism including identifying patients at risk for hypothyroidism (including patients with enlarged thyroid glands, autoimmune disease, and head and neck irradiation) and describe screening frequency for patients at risk.

References:
Case Discussion: Hypothyroidism and Hyperthyroidism

Harrison's Principles of Internal Medicine, 22e. Chapter 395: Hypothyroidism
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294822084

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 18-4: Hypothyroidism
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060151

Hyponatremia:

1. Identify characteristics and relevant review of systems that define hyponatremia including altered mental status, seizures, and diarrhea.
2. Assess past medical history for risk factors and predisposing conditions including lung cancer, CNS disease, heart failure, and causative medications.
3. Identify key physical exam findings that determine severity (including mental status and seizure activity) and suggest an underlying etiology (including hypotension, jugular venous distention, and ascites).
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that assess for cause including corrected serum sodium, serum osmolality, and urine osmolality.
5. Develop and prioritize a differential diagnosis including common diagnoses (e.g. diarrhea, cirrhosis, and SIADH) and not-to-miss diagnoses including lung cancer.
6. Describe a rational and evidence-based approach to treating a patient with hyponatremia:
    a. Describe treatments that control hyponatremia including intravenous fluids (normal saline and hypertonic saline), water restriction, and solute supplementation.
    b. Describe treatments that prevent complications including rate of sodium correction.
7. Describe possible complications of hyponatremia including osmotic demyelination syndrome due to rapid correction.

References:
Lecture: Hyponatremia

Aquifer Case 7
Aquifer Case 25

Harrison's Principles of Internal Medicine, 22e. Chapter 56: Fluid and Electrolyte Disturbances
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296172920

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 24: Hyponatremia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060873

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Joint Pain:

1. Identify characteristics and relevant review of systems that define joint pain including acuity, joints involved, and fever.
2. Assess past medical history for risk factors and predisposing conditions including antecedent trauma, concomitant rheumatologic disease, and psoriasis.
3. Assess for social risk factors including unprotected sex and occupational history.
4. Identify key physical exam findings that determine type and extend of joint involvement (e.g. affected joints, erythema, effusion, and range of motion) and assess for underlying etiology (e.g. fever and rash).
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Perform tests in selected patients including inflammatory markers, synovial fluid analysis, and plain or advanced imaging.
    b. Identify the need for urgent arthrocentesis including the presence of effusion.
    c. Use lab tests judiciously and rely on history and physical exam or imaging.
6. Develop and prioritize a differential diagnosis including common diagnoses and not-to-miss diagnoses including septic arthritis and use an acuity and pattern-based approach (e.g. acute monoarticular arthritis and chronic symmetrical polyarthritis).
7. Describe a rational and evidence-based approach to treating a patient with joint pain:
    a. Identify need for urgent treatment including joint aspiration, parental antibiotics, and hospitalization.
    b. Identify indications for surgical consultation.
    c. Describe treatment based on etiology including acetaminophen for osteoarthritis and disease modifying antirheumatic drugs for rheumatoid arthritis.

<u>References:</u>

Lecture: Rheumatologic Diseases and Tests

Aquifer Case 32

Harrison's Principles of Internal Medicine, 22e. Chapter 382: Approach to Articular and Musculoskeletal Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294616679

Harrison's Principles of Internal Medicine, 22e. Chapter 383: Osteoarthritis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296168478

Harrison's Principles of Internal Medicine, 21e. Chapter 372: Gout and Other Crystal-Associated Arthropathies
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3095&sectionid=265439158

Harrison's Principles of Internal Medicine, 22e. Chapter 384: Arthritis Associated with Systemic Disease and Other Arthritides
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294821913

Harrison's Principles of Internal Medicine, 22e. Chapter 370: Rheumatoid Arthritis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294355163

Harrison's Principles of Internal Medicine, 22e. Chapter 135: Infectious Arthritis

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https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295148676

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 27: Joint Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249061365

Knee pain:

1. Identify characteristics and relevant review of systems that define knee pain including acuity, fever, and other joint involvement.
2. Assess past medical history for risk factors and predisposing conditions including gout, osteoarthritis, and causative medications.
3. Assess for familial risk factors including heritable conditions such as hemochromatosis.
4. Identify key physical exam findings that determine presence of an underlying etiology including presence of effusion and Lachman test.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing and use testing to determine a cause in selected cases (e.g. synovial fluid analysis and plain films).
6. Develop and prioritize a differential diagnosis including common causes (e.g. osteoarthritis and crystalline disorders), common causes of peri-articular pain (e.g. bursitis and iliotibial band syndrome), and not-to-miss diagnoses (e.g. fracture and septic arthritis).
7. Describe a rational and evidence-based approach to treating a patient with knee pain and treat based on etiology (e.g. rest/ice/compression/elevation for acute knee injury and intravenous antibiotics for septic arthritis).

References:

Lecture: Rheumatologic Diseases and Tests

Aquifer Case 31

Harrison's Principles of Internal Medicine, 22e. Chapter 387: Periarticular Disorders of the Extremities
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296168596

Harrison's Principles of Internal Medicine, 22e. Chapter 383: Osteoarthritis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296168478

Harrison's Principles of Internal Medicine, 22e. Chapter 384: Gout and Other Crystal-Associated Arthropathies
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294821913

Harrison's Principles of Internal Medicine, 21e. Chapter 386: Arthritis Associated with Systemic Disease and Other Arthritides
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294821990

Harrison's Principles of Internal Medicine, 22e. Chapter 135: Infectious Arthritis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295148676

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 27: Joint Pain
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249061365

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Nosocomial Infections:

1. Identify characteristics and relevant review of systems that define nosocomial infections including fever, diarrhea, and cough.
2. Assess past medical history for risk factors and predisposing conditions including catheters, recent invasive procedures, and causative medications.
3. Identify key physical exam findings that determine the source of infection (including fever, altered mental status, and rash) and assess for risk factors for predisposing conditions (including indwelling bladder catheters and intravascular catheters).
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine the location of infection (including blood cultures, chest radiography, and Clostridium dificile toxin assay) and test for non-infectious diagnoses that mimic infection in select cases (including myocardial infarction and pulmonary embolus).
5. Develop and prioritize a differential diagnosis including common infectious diagnoses (e.g., urinary tract infection, pneumonia, and Clostridium dificile colitis), non-infectious causes that mimic infection (e.g., myocardial infarction, pulmonary embolism, and medication-induced causes), and not-to-miss diagnoses.
6. Describe a rational and evidence-based approach to treating a patient with a nosocomial infection:
    a. Identify when urgent treatments are needed including systemic infection requiring antibiotics.
    b. Describe how to use cultures and sensitivity to focus treatment.
7. Describe possible complications including endocarditis and septic thrombophlebitis.
8. Describe the prevention of nosocomial infections including handwashing, intravascular catheter management, and antibiotic stewardship.

<u>References:</u>
Lecture: Common Infections
Lecture: Constipation and Diarrhea

Aquifer Case 24

Harrison's Principles of Internal Medicine, 22e. Chapter 147: Infections Acquired in Health Care Facilities
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294614611

Harrison's Principles of Internal Medicine, 22e. Chapter 133: Infective Endocarditis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294818724

Harrison's Principles of Internal Medicine, 22e. Chapter 139: Clostridium difficile Infection, Including Pseudomembranous Colitis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294614205

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 13-4: C difficile Infection
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059402

Obesity:

1. Identify characteristics and relevant review of systems that define obesity including prior efforts to achieve weight loss, physical activity patterns, and eating patterns.

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2. Assess complications in the history including a review of sleep patterns, presence of leg swelling, and joint pain.
3. Assess past medical history for risk factors and predisposing conditions including eating disorders/disordered eating patterns, body image disturbance, and causative medications.
4. Assess past medical history for weight-related comorbidities including obstructive sleep apnea, hypertension, and non-alcoholic fatty liver disease.
5. Assess for familial risk factors including a family history of overweight or obesity.
6. Assess for social risk factors including a sedentary job and lower socioeconomic status.
7. Identify key physical exam findings that suggest an underlying etiology (including central obesity, striae, and hirsutism) and evaluate for findings that suggest complications including hypertension and venous stasis.
8. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that:
    a. Determine etiology in select patients including thyroid studies, complete blood count, and cortisol level.
    b. Assess for complications, recommended in most patients, including fasting glucose and fasting lipid panel.
    c. Assess for complications, recommend in selected patients, including polysomnography, pulmonary function studies, and liver biopsy.
9. Describe a rational and evidence-based approach to treating a patient with obesity:
    a. Describe methods that help patients identify eating and activity habits including behavioral counseling, self-monitoring, and goal-oriented approaches to weight loss.
    b. Describe modified eating habits including restricted diet, meal replacements, and intermittent fasting.
    c. Describe methods to modify physical activity including a prescription for dedicated exercise.
    d. Describe how to utilize anti-obesity pharmacotherapy or surgical intervention.
    e. Describe how to manage weight-related comorbidities including avoiding medications associated with weight gain.

References:
Lecture: Health Maintenance

Aquifer Case 16

Harrison's Principles of Internal Medicine, 22e. Chapter 413: Pathophysiology of Obesity
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295624914

Harrison's Principles of Internal Medicine, 22e. Chapter 414: Evaluation and Management of Obesity
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296169245

Harrison's Principles of Internal Medicine, 22e. Chapter 420: The Metabolic Syndrome
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296169781

Osteoporosis:

1. Identify characteristics and relevant review of systems that may indicate osteoporosis including impaired mobility and falls.

2. Assess past medical history for risk factors and predisposing conditions including menopause, hyperthyroidism, and malabsorption.
3. Assess for social risk factors including excessive alcohol use, physical activity, and dietary calcium and vitamin D intake.
4. Identify key physical exam findings that may suggest an underlying etiology including exophthalmos, cushingoid appearance, and thin hair.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Tests for secondary causes, recommended in selected patients, including calcium, thyroid-stimulating hormone, and serum 25-hydroxyvitamin D level.
    b. Assess for progression of disease including dual-energy x-ray absorption (DEXA) scan.
6. Describe a rational and evidence-based approach to treating a patient with osteoporosis:
    a. Identify patients at risk for osteopenia and osteoporosis requiring screening and further evaluation (including age, risk factors, and fracture risk profile).
    b. Use appropriate formal clinical risk assessment tools including Fracture Risk Assessment Tool (FRAX).
7. Describe possible complications including kyphosis and loss of height.

References:
Lecture: Health Maintenance

Aquifer Case 13

Harrison's Principles of Internal Medicine, 22e. Chapter 423: Osteoporosis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296170171

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 7-8: Osteoporotic Compression Fracture
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058666

Pneumonia:

1. Identify characteristics and relevant review of systems that may indicate pneumonia including whether cough is productive and presence of constitutional symptoms.
2. Assess for comorbidities that increase risk of complicated infection including immunocompromised state, exposure history, or vaccination status.
3. Assess for social factors that increase risk of pneumonia including smoking, vaping, alcohol use, and opioid use.
4. Identify key physical exam findings that determine severity of illness (including vital signs and mental status), assess for comorbidities (including dental exam), and locate consolidation (including crackles and dullness to percussion).
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Determine type of organism (including urinary antigens, blood cultures, and influenza testing).
    b. Determine severity of illness including cbc and procalcitonin.
    c. Determine location of pneumonia including chest x-ray.
6. Describe a rational and evidence-based approach to treating a patient with pneumonia:
    a. Describe initial triaging decisions including Pneumonia Severity Index or CURB-65.
    b. List appropriate antimicrobial therapy.

    c. Describe the need to isolate patient for infection control including likelihood of Mycobacteria or influenza.
7. Describe possible complications including infectious complications (e.g., complicated pleural effusion) and non-infectious complications (e.g., acute coronary conditions and respiratory failure).
8. Describe prevention strategies including proper vaccination.

References:

Case Discussion: Pneumonia

Aquifer Case 20
Aquifer Case 22
Aquifer Case 29

Harrison's Principles of Internal Medicine, 22e. Chapter 131: Pneumonia
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294613915

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 10: Cough and Congestion
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058959

Skin and Soft Tissue Infections:

1. Identify characteristics and relevant review of systems that define skin and soft tissue infections including timing, associated pain and fevers, and recent skin barrier disruption.
2. Assess past medical history for risk factors and predisposing conditions including diabetes, intravenous drug use, and peripheral arterial disease.
3. Identify key physical exam findings that determine severity (including erythema, fluctuance/purulence, and crepitus) and assess for findings suggesting an alternate etiology (including calf pain, edema, and hemosiderin deposition).
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine cause in select patients (including blood cultures) and determine severity in select cases (including complete blood count, lactate, and CT scan).
5. Develop and prioritize a differential diagnosis including common diagnoses (including cellulitis and abscess), not-to-miss diagnoses (including necrotizing fasciitis and streptococcal toxic shock syndrome), and commonly confused diagnoses (including arterial insufficiency, venous stasis, and deep venous thrombosis).
6. Describe a rational and evidence-based approach to treating a patient with skin and soft tissue infections:
    a. Identify empiric antibiotic therapy based on risk factors including diabetes, MRSA risk factors, and water exposure.
    b. Identify the need for parental antibiotics and hospitalization.
    c. Describe indications for surgical consultation including suspected necrotizing fasciitis and abscess.
7. Describe possible complications of skin and soft tissue infections including failure to respond to first-line antibiotics.

References:

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Lecture: Common Infections

Harrison's Principles of Internal Medicine, 22e. Chapter 134: Infections of the Skin, Muscles, and Soft Tissues
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294614144

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 17-5: Cellulitis & Erysipelas
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249060028

Skin Lesions:

1. Identify characteristics and relevant review of systems that define skin lesions including location, duration, progression, exposures, and systemic symptoms.
2. Assess past medical history for risk factors and predisposing conditions including rheumatologic disease, infection, and recent medications.
3. Assess for social risk factors including occupational exposures.
4. Identify key physical exam findings:
    a. Describe skin lesions by standard nomenclature (e.g. macule, papule, vesicle) and additional characteristics (e.g. location and color).
    b. Distinguish primary from secondary lesions (e.g. lichenification and scar).
    c. Describe potentially malignant lesions using the ABCDE mnemonic.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that determine cause in most patients (e.g. skin biopsy) and that determine cause in selected patients (e.g. bacterial culture, potassium hydroxide preparation, and Tzanck smear).
6. Develop and prioritize a differential diagnosis including common diagnoses (e.g. contact dermatitis, eczema, and herpes zoster), not-to-miss diagnoses (e.g. Stevens-Johnson syndrome, toxic epidermal necrolysis, and melanoma), and other diagnoses that suggest system disease (e.g. inflammatory bowel disease and lupus).

References:

Lecture: Rheumatologic Diseases and Tests

Aquifer Case 17

Harrison's Principles of Internal Medicine, 22e. Chapter 59: Approach to the Patient with a Skin Disorder
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293068004

Harrison's Principles of Internal Medicine, 22e. Chapter 60: Eczema, Psoriasis, Cutaneous Infections, Acne, and Other Common Skin Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293068042

Harrison's Principles of Internal Medicine, 22e. Chapter 61: Skin Manifestations of Internal Disease
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293068139

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 29: Rash
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249061735

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Substance Use

1. Use a framework to screen for substance use disorder including AUDIT or AUDIT-C and CAGE.
2. Identify characteristics and relevant review of systems that may indicate degree of substance use including substances used, frequency, amount, and method of use.
3. Differentiate substance use from overlapping disorders including psychiatric disorders.
4. Assess past medical history for risk factors and predisposing conditions including trauma exposure and psychiatric disorders.
5. Assess for social risk factors including poor or absent social support.
6. Assess for familial risk factors including family history of substance use disorder.
7. Identify key physical exam findings:
    a. Evaluate for type or method of a specific substance use including evidence of track marks, frostbite or burns, and nystagmus.
    b. Evaluate for complications including stigmata of endocarditis, ascites, and encephalopathy.
    c. Evaluate for intoxication including decreased respiratory rate and pinpoint pupils in opioid intoxication; slurred speech and nystagmus in alcohol intoxication; and CNS depression and normal vital signs in benzodiazepine intoxication.
    d. Evaluate for withdrawal syndromes including CNS arousal in opioid withdrawal; agitation, hallucinations, and seizures in alcohol withdrawal; and agitation, psychosis, and seizures in benzodiazepine withdrawal.
8. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Determine type of method of substance use including evaluation of urine and blood testing, anion and osmole gaps, and hyponatremia.
    b. Determine presence of complications including results of blood cultures, HIV testing, and hepatitis serologies.
    c. Differentiate substance use from overlapping disorders including metabolic encephalopathy and electrolyte abnormalities.
9. Describe a rational and evidence-based approach to treating a patient with substance use disorder:
    a. Describe treatments for acute intoxication including gastric lavage, specific antidotes (naloxone, flumazenil), and dialysis.
    b. Describe treatments for acute withdrawal syndromes including benzodiazepines for sedative and alcohol withdrawal, symptom targeted treatment, and buprenorphine for opioid withdrawal.
    c. Describe treatments to decrease the risk for relapse in alcohol and opioid use disorder including naloxone, buprenorphine, and acamprosate.
10. Describe possible complications of alcohol use disorder including immediate complications (e.g., pancreatitis and Wernicke encephalopathy) and long-term complications (e.g., Korsakoff syndrome and cirrhosis).

References:
Case Discussion: Fever

Aquifer Case 5
Aquifer Case 9
Aquifer Case 11
Aquifer Case 26

Updated 4/6/26 MRE

Harrison's Principles of Internal Medicine, 22e. Chapter 464: Alcohol and Alcohol Use Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295697524

Harrison's Principles of Internal Medicine, 22e. Chapter 467: Opioid-Related Disorders
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295697722

Harrison's Principles of Internal Medicine, 22e. Chapter 468: Cocaine, Other Psychostimulants, and Hallucinogens
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295697771

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 11-3: Alcohol Withdrawal
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059137

Syncope:

1. Identify characteristics and relevant review of systems that define syncope including position at onset, prodromal symptoms, and situational triggers.
2. Assess past medical history for risk factors and predisposing conditions including coronary artery disease and structural heart disease.
3. Identify key physical exam findings that suggest an underlying etiology including orthostatic vital signs, S3, and jugular venous distention.
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that identify an underlying cause in most patients (including blood glucose and electrocardiogram) and identify an underlying cause in selected patients (including an echocardiogram).
5. Develop and prioritize a differential diagnosis including common diagnoses and not-to-miss diagnoses:
    a. Discriminate syncope from other cause of transient loss of consciousness including hypoglycemia and seizure.
    b. Determine probability of cardiac syncope using a validated risk prediction model (e.g. EGSYS score).
    c. Consider causes according to underlying mechanism including orthostatic hypotension, reflex syncope, and cardiac syncope.
    d. Consider common diagnoses including orthostatic hypotension and reflex syncope.
    e. Consider not-to-miss diagnoses including ventricular tachycardia, pulmonary embolism, and shock.
6. Describe a rational and evidence-based approach to treating a patient with syncope and treat based on etiology including anticoagulation or thrombolysis in pulmonary embolism.

<u>References:</u>

Aquifer Case 3

Harrison's Principles of Internal Medicine, 23e. Chapter 22: Syncope
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292623240

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 31: Transient Loss of Consciousness
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249062052

Updated 4/6/26 MRE

Tobacco Use:

1. Use a framework to assess tobacco use including Fagerstron Test for Nicotine Dependence and address smoking cessation including the 5A's (Ask, Advise, Assess, Assist, Arrange).
2. Identify characteristics and relevant review of systems that may indicate degree of nicotine dependence including age of onset of smoking and number of cigarettes per day.
3. Assess for triggers for tobacco use including meals and alcohol.
4. Assess for readiness to quit including willingness to quit smoking in the next 30 days.
5. Assess key historical features in patients using vaping products including assessment for inhalation of potentially toxic substances like THC and flavorings.
6. Describe a rational and evidence-based approach to treating a patient who is ready to quit smoking:
    a. Describe how to encourage cessation including offering brief advice to quit smoking.
    b. Describe how to assist patients ready to quit including helping develop a quit plan and social support plan.
    c. Describe effective medical therapies to treat nicotine withdrawal including nicotine replacement, varenicline, and bupropion.
    d. Describe how behavioral counseling is an important adjunct to medical therapy including telephone quit line support and specialty clinic evaluation.
    e. Describe when to schedule follow up to monitor response and development of problems associated with quitting including weight gain and depression.
    f. For tobacco smokers interested in using e-cigarettes for smoking cessation, describe that evidence-based therapies are recommended instead.
7. Describe a rational and evidence-based approach to treating a patient who is not ready to quit smoking:
    a. Describe how to use motivational interviewing techniques to encourage cessation.
    b. Describe how to recommend protecting household members from exposure to secondhand smoke.

<u>References:</u>
Lecture: Health Maintenance

Aquifer Case 15

Harrison's Principles of Internal Medicine, 22e. Chapter 465: Nicotine Addiction
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295697615

Unintentional Weight Loss:

1. Identify characteristics and relevant review of systems that define unintentional weight loss including anorexia, time course, degree of weight loss, and fever.
2. Assess past medical history for risk factors and predisposing conditions including history of malignancy and tuberculosis.
3. Assess for social risk factors including tobacco use, social isolation, and socioeconomic status.
4. Identify key physical exam findings that characterize weight loss (including body mass index, cachexia, and sarcopenia) and findings that suggest an underlying etiology (including fever and masses).
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:

    a. Use testing to determine cause in most patients (including complete blood count, chemistry panel, TSH, age-appropriate cancer screening).
    b. Use testing to determine cause in select patients (including inflammatory markers, advanced imaging, HIV, and hepatitis C).
6. Develop and prioritize a differential diagnosis including common diagnoses (e.g. loss of taste/smell, social isolation, and thyroid disease) and not-to-miss diagnoses (e.g. malignancy and HIV).
7. Describe a rational and evidence-based approach to treating a patient with unintentional weight loss:
    a. Describe treatment based on etiology including antivirals for HIV and medication for depression.
    b. Identify appropriate indications for, and risks of, enteral or parenteral feeding, caloric supplements, and pharmacologic adjuncts for stimulation/weight gain.

References:
Lecture: Fatigue and Unintentional Weight Loss

Aquifer Case 20

Harrison's Principles of Internal Medicine, 22e. Chapter 50: Unintentional Weight Loss
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=293067655

Harrison's Principles of Internal Medicine, 22e. Chapter 345: Malnutrition and Nutritional Assessment
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295695349

Harrison's Principles of Internal Medicine, 21e. Chapter 346: Enteral and Parenteral Nutrition
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=295622466

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 32: Unintentional Weight Loss
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249062270

Upper Respiratory Infections:

1. Identify characteristics and relevant review of systems that may suggest an upper respiratory infection including fever, rhinorrhea, nasal congestion, cough, and odynophagia.
2. Assess past medical history for exacerbating factors or disease including seasonal allergies, COPD, and immunosuppression.
3. Assess for social risk factors and predisposing conditions including tobacco use, sick contacts, and travel.
4. Identify key physical exam findings:
    a. Determine upper respiratory characteristics including findings on conjunctival, nasal, oral, lymph node, and sinus exams.
    b. Determine lower respiratory characteristics including findings on pulmonary exam.
    c. Determine presence of commonly confused diagnoses including bacterial sinusitis and Streptococcal pharyngitis.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Determine underlying etiology including influenza PCR and viral panel.
    b. Determine underlying severity including chest x-ray and complete blood count.

    c. Determine presence of commonly confused diagnoses including rapid antigen detection test for Streptococcus.
6. Describe a rational and evidence-based approach to treating a patient with an upper respiratory infection and list specific factors that dictate when to treat (including presence of associated bacterial infection or acute influenza).
7. Describe possible complications including acute otitis media, sinusitis, and lower respiratory tract infection.
8. Describe the prevention of upper respiratory infections including hand washing and annual influenza vaccination.

References:
Case Discussion: Cough and URI

Aquifer Case 15

Harrison's Principles of Internal Medicine, 22e. Chapter 37: Upper Respiratory Symptoms, Including Earache, Sinus Symptoms, and Sore Throat
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=292624037

Harrison's Principles of Internal Medicine, 22e. Chapter 204: Common Viral Respiratory Infections, other than COVID-19
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294819759

Harrison's Principles of Internal Medicine, 22e. Chapter 205: SARS-CoV-2 and COVID-19
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294819863

Harrison's Principles of Internal Medicine, 22e. Chapter 206: Influenza
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294819909

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 10: Cough and Congestion
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249058959

Urinary Tract Infection:

1. Identify characteristics and relevant review of systems that may suggest a urinary tract infection including dysuria, hematuria, fevers, and chills.
2. Assess past medical history for risk factors including pregnancy, urinary tract abnormalities, neurogenic bladder, urinary catheter, and urologic instrumentation.
3. Identify key physical exam findings that may suggest an underlying etiology or complication including costovertebral angle tenderness, vaginal or penile discharge, and prostatic hypertrophy.
4. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing:
    a. Use tests to establish a diagnosis in selected patients including urinalysis and urine culture.
    b. Assess for complications in selected patients including use of complete blood count, blood cultures, and imaging.
5. Describe a rational and evidence-based approach to treating a patient with a urinary tract infection:

    a. Describe when antimicrobial therapy is needed and incorporate factors influencing antimicrobial choice including risk factors for multidrug-resistant organisms and prior therapy.
    b. Describe whether UTI complications exist including presence of sepsis, obstruction, relapsing infection, and describe appropriate treatment (including use of IV antibiotics or further imaging).
    c. Describe behavioral changes and pharmacological treatments to reduce recurrent cystitis based on risk factors including sufficient fluid intake, postcoital voiding, and contraception modification.
6. Describe possible complications of a urinary tract infection including sepsis and abscess.

References:
Lecture: Common Infections

Aquifer Case 14
Aquifer Case 21

Harrison's Principles of Internal Medicine, 22e. Chapter 140: Urinary Tract Infections, Pyelonephritis, and Prostatitis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294614246

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Part 16: Dysuria
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059883

Venous Thromboembolic Disease

1. Identify characteristics and relevant review of systems that may suggest a venous thromboembolism including leg pain and swelling, chest pain, and shortness of breath.
2. Assess past medical history for risk factors and predisposing conditions including prior VTE, bleeding or clotting disorders, and causative medications.
3. Assess for familial risk factors including family history of bleeding or clotting disorders.
4. Identify key physical exam findings that:
    a. Determine severity of disease including tachycardia and hypotension.
    b. Assess for findings that may suggest an underlying etiology including leg pain or swelling and findings of venous insufficiency.
    c. Determine presence of right heart failure including elevated jugular venous pressure.
5. Identify and interpret key laboratory and imaging tests and list indications, benefits, test characteristics, risks, and costs of testing that assess extent of thrombosis (including compression ultrasonography and CT angiogram) and assess severity of illness (including ABG and echocardiogram).
6. Describe a rational and evidence-based approach to treating a patient with venous thromboembolic disease:
    a. Use a validated clinical risk score to establish pre-test probability for DVT or PE (including Wells score and Revised Geneva Score).
    b. Describe treatment for thrombosis including direct-acting oral anticoagulant medications, low molecular weight heparin, and thrombolysis.
    c. Describe treatment for hemodynamic instability including oxygenation and fluid resuscitation.

7. Describe possible acute complications including hemodynamic instability and chronic complications including post-thrombotic syndrome, venous ulcerations, and pulmonary hypertension.

References:

Case Discussion: Venous Thromboembolic Disease

Aquifer Case 30

Harrison's Principles of Internal Medicine, 22e. Chapter 290: Deep Venous Thrombosis and Pulmonary Thromboembolism
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=296166046

Harrison's Principles of Internal Medicine, 22e. Chapter 122: Arterial and Venous Thrombosis
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=3541&sectionid=294353026

Symptom to Diagnosis: An Evidence-Based Guide, 4e. Chapter 15-11: Pulmonary Embolism
https://accessmedicine-mhmedical-com.archer.luc.edu/content.aspx?bookid=2715&sectionid=249059853