

MEDICAL KNOWLEDGE

Abdominal pain (reference simple case 9, 12)

1. Describe the pathophysiology of the principle types of abdominal pain: parietal, visceral, vascular, referred.
2. Determine when to consult a surgeon regarding abdominal pain.
3. Explain the indications and utility of hepatobiliary imaging studies including MRCP and ERCP.
4. List symptoms and signs indicative of an acute/surgical abdomen.
5. Generate a prioritized differential of the most important and likely causes of a patient's abdominal pain by recognizing specific history, physical exam, and laboratory findings that distinguish between the various conditions.
6. Recommend a basic management plan for diverticulitis.

Acid base disorders (reference lecture, simple case 26)

1. Identify the effect of normal metabolic processes on blood pH.
2. Discuss the normal homeostatic mechanisms which maintain pH in the normal range
3. Describe the principles of the Henderson-Hasselbach equation.
4. Describe the effect on pH of:
 - a. Metabolic acidosis
 - b. Metabolic alkalosis
 - c. Respiratory acidosis
 - d. Respiratory alkalosis
5. Discuss the renal and/or respiratory adaptation to the abnormalities listed in (4) above.
6. Discuss the pathophysiology of simple and mixed acid-base disorders.
7. Calculate the anion gap and explain its relevance to determining the cause of a metabolic acidosis.
8. Describe the pathophysiology of ethylene glycol toxicity.
9. List the differential of anion-gap metabolic acidosis.
10. Define, describe and discuss the pathophysiology of:
 - Simple and mixed acid-base disorders. (MK)
 - Respiratory acidosis and alkalosis. (MK)
 - Metabolic acidosis and alkalosis. (MK)
11. Discuss presenting symptoms and signs of the above disorders (MK)
12. Identify the most common causes of respiratory acidosis, respiratory alkalosis, metabolic acidosis, and metabolic alkalosis. (MK)
13. Discuss how altered mental status can contribute to electrolyte disorders. (MK)
14. Discuss tests to use in the evaluation of fluid, electrolyte, and acid-base disorders. (MK)
15. List and discuss indications for obtaining an ABG (MK)

Acute renal failure (reference case discussion, simple case 33)

1. Describe the pathophysiology of acute renal failure.
2. Describe the metabolic consequences of significant reductions in renal function.

3. Describe the indications for dialysis.
4. Describe principles of management of the patient with renal failure.
5. Compare and contrast the pathophysiology of major etiologies of acute renal failure including decreased renal perfusion (pre-renal), intrinsic renal disease, and acute renal obstruction (post renal).
6. Calculate fractional excretion of sodium and apply it to distinguish between pre-renal and intrinsic renal disease.
7. Develop appropriate initial management plan for acute renal failure including volume management, dietary recommendations, drug dosage alterations, electrolyte monitoring, and indications for dialysis.
8. Identify risk factors for contrast-induced nephropathy and recommend steps to prevent this complication.
9. Interpret a urinalysis, including microscopic examination for casts, red blood cells, white blood cells, and crystals.
10. Calculate the anion gap and generate a differential diagnosis for metabolic acidosis. (note overlap with acid base disorders)

Anemia (reference lecture, simple case 19)

1. Interpret reported values on a CBC report.
2. Be able to define, describe and discuss classification of anemia based on red cell size:
 - a. Microcytic
 - i. Iron deficiency
 - ii. Thalassemic disorders
 - iii. Sideroblastic anemia
 - iv. Lead toxicity/poisoning
 - v. Anemia of chronic disease
 - b. Normocytic
 - i. Acute blood loss
 - ii. Hemolysis
 - iii. Anemia of chronic disease (e.g. infection, inflammation, malignancy)
 - iv. Chronic renal insufficiency/erythropoietin deficiency
 - v. Bone marrow suppression (e.g. bone marrow invasion, aplastic anemia)
 - vi. Hypothyroidism
 - vii. Testosterone deficiency
 - viii. Early presentation of microcytic or macrocytic anemia (e.g. early iron deficiency anemia)
 - ix. Combined presentation of microcytic and macrocytic anemias.
 - c. Macrocytic
 - i. Ethanol abuse
 - ii. B12 deficiency
 - iii. Folate deficiency
 - iv. Drug-induced
 - v. Reticulocytosis
 - vi. Liver disease

- vii. Myelodysplastic syndromes
 - viii. Hypothyroidism
3. Discuss the potential usefulness of the white blood cell count and red blood cell count when attempting to determine the cause of anemia.
 4. Discuss the meaning and utility of various components of the hemogram (e.g., hemoglobin, hematocrit, mean corpuscular volume, and random distribution width).
 5. Classify anemia into hypoproliferative and hyperproliferative categories using the reticulocyte count/index.
 6. Use information regarding the diagnostic utility of the various tests for iron deficiency (e.g., serum iron, total iron binding capacity, transferrin saturation, ferritin) when selecting a lab evaluation for iron deficiency.
 7. Identify key historical and physical exam findings in the anemia patient.
 8. Recognize common morphologic changes on a peripheral blood smear.
 9. Develop a further evaluation and management plan for a patient with anemia.

Asthma (reference case discussion)

1. Discuss the etiology, pathophysiology, and pathology of asthma.
2. Discuss the epidemiology, risk factors, symptoms, signs, and typical clinical course of asthma.
3. Prioritize common causes of acute exacerbations of asthma, including:
 - a. Acute infectious bronchitis
 - b. Pneumonia
 - c. Pulmonary edema
 - d. Poor air quality (e.g. ozone, pollutants, tobacco smoke)
 - e. Occupational exposures
 - f. Medical noncompliance
4. Discuss the etiology, pathogenesis, evaluation and management hypoxemia and hypercapnia.
5. Identify allergic and non-allergic factors that may precipitate bronchospasm and exacerbate asthma, including:
 - a. Grass and tree pollen
 - b. Animal dander
 - c. Cockroaches
 - d. Dust mites
 - e. Allergic rhinitis/post-nasal drip
 - f. Acute/chronic infectious sinusitis
 - g. Acute infectious bronchitis
 - h. Pneumonia
 - i. Pulmonary edema
 - j. Exercise
 - k. Anxiety/stress
 - l. Poor air quality (e.g. ozone, pollutants, tobacco smoke)
 - m. Occupational exposures
 - n. Medical noncompliance

6. Discuss therapies for asthma, noting side effects, advantages, disadvantages, and side effects, for the following:
 - a. Beta-agonist bronchodilators
 - b. Anticholinergic bronchodilators
 - c. Leukotriene inhibitors
 - d. Mast cell stabilizers
 - e. Theophylline
 - f. Inhaled corticosteroids
 - g. Systemic corticosteroids
 - h. Antimicrobial agents
 - i. Supplemental oxygen
 - j. Immunotherapy
7. Identify the indications for and the efficacy of influenza and pneumococcal vaccines.

Atrial Fibrillation reference case discussion)

1. List and prioritize the common causes of atrial fibrillation.
2. Compare and contrast the differences between paroxysmal, persistent and chronic atrial fibrillation.
3. Identify the common etiologies of paroxysmal, persistent and chronic atrial fibrillation.
4. Describe the hemodynamic consequences of new onset atrial fibrillation.
5. Develop a framework for management focusing on the three main therapeutic goals: anticoagulation, rate control, and rhythm control.
6. Define the risk of stroke for the patient with persistent or paroxysmal atrial fibrillation.
7. Define the relative and absolute risk reduction of stroke for coumadin and aspirin.
8. Develop a plan for safe, elective cardioversion in a patient with a-fib of unknown or >48 hours duration.
9. Identify the different classes of antiarrhythmics and when they can and can't be used. Describe their advantages and disadvantages.
10. Compare and contrast the role of a rate control versus rhythm control strategy in a-fib.
11. Describe the roles of nonpharmacologic therapies such as ablation and device therapy.
12. Identify atrial fibrillation on an electrocardiogram.

Cardiac clinical correlation (reference lecture)

1. Be able to define, describe and discuss the mechanism of generation, clinical significance and best listening areas on the chest of the following sounds:
 - a. S1 & S2 – including etiologies for increased and decreased intensities
 - b. S2 splitting patterns-including normal, wide, fixed, paradoxical
 - c. S3 & S4
 - d. Ejection clicks-early and mid (including MVP)
 - e. Opening snap
2. Describe the grading system for heart murmurs (I-VI/VI).
3. Compare and contrast the location, pattern of radiation, timing, pitch, shape, quality and response to common physiologic maneuvers and any associated change in carotid waveform with the following murmurs:

- a. Aortic stenosis
- b. Mitral stenosis
- c. Aortic regurgitation
- d. Mitral regurgitation
- e. Hypertrophic cardiomyopathy
- f. Ventricular septal defect
- g. Atrial septal defect
- h. Mitral valve prolapse
- i. Pericardial rub

Chest pain (reference simple cases 1-4)

1. Organize and prioritize a differential diagnosis of acute chest pain based on specific historical and physical exam findings.
 - a. Symptoms and signs of chest pain due to gastrointestinal disorders such as:
 - i. Esophageal disease (GERD, esophagitis, esophageal dysmotility)
 - ii. Biliary disease (cholecystitis, cholangitis)
 - iii. Peptic ulcer disease
 - iv. Pancreatitis
 - b. Symptoms and signs of chest pain due to pulmonary disorders such as:
 - i. Pneumonia
 - ii. Spontaneous pneumothorax
 - iii. Pleurisy
 - iv. Pulmonary embolism
 - v. Pulmonary hypertension/cor pulmonale
 - c. Symptoms and signs of chest pain due to musculoskeletal causes such as:
 - i. Costochondritis
 - ii. Rib fracture
 - iii. Myofascial pain syndromes
 - iv. Muscular strain
 - v. Herpes zoster
 - d. Symptoms and signs of chest pain due to psychogenic causes such as:
 - i. Panic disorders
 - ii. Hyperventilation
 - iii. Somatoform disorders
 - e. Physiologic basis and/or scientific evidence supporting each type of treatment, intervention or procedure commonly used in the management of patients who present with chest pain
2. Define and discuss the pathogenesis, signs, and symptoms of the acute coronary syndromes.
3. List the cardiovascular risk factors and the primary and secondary prevention of ischemic heart disease (e.g. controlling hypertension and dyslipidemia, aggressive diabetes management, avoiding tobacco, and aspirin prophylaxis).
4. Develop an appropriate diagnostic and treatment plan—including recommended lifestyle modifications—for a patient presenting with acute coronary syndrome.
5. Identify the symptoms and signs of chest pain characteristics of angina pectoris.

6. Categorize the patients' symptoms as angina pectoris, atypical angina, or non-cardiac chest pain.
7. Order appropriate laboratory and diagnostic studies based on patient demographics and the most likely etiologies of chest pain.
8. Recommend primary and secondary prevention of ischemic heart disease through the reduction of cardiovascular risk factors.
9. Prescribe appropriate anti-anginal medications when indicated and identify potential adverse reactions.

Chronic obstructive pulmonary disease (reference case discussion, simple case 28)

1. Be able to describe and define the common clinical presentations and diagnostic criteria for emphysema.
2. Describe and define the etiology, pathophysiology, and pathology for COPD.
3. Describe and define the basic principles of bronchodilator, corticosteroid, oxygen, and antibiotic therapy.
4. Describe and define the role of influenza and pneumococcal vaccine in the care of patients with obstructive airways disease.
5. Describe the indications for, benefits of, and side effects of therapies for COPD including: beta agonists, anticholinergics, methylxanthines, and inhaled and systemic corticosteroids.
6. Recommend appropriate laboratory evaluation for suspected COPD exacerbation.
7. Describe the benefits of immunizing adults with COPD against influenza and pneumococcal infection.
8. Prioritize common causes of acute exacerbations of COPD (AECOPD), including:
 - a. Acute infectious bronchitis
 - b. Pneumonia
 - c. Pulmonary edema
 - d. Poor air quality (e.g. ozone, pollutants, tobacco smoke)
 - e. Occupational exposures
 - f. Medical noncompliance
9. Discuss the etiology, pathogenesis, evaluation and management hypoxemia and hypercapnia.
10. Discuss therapies for COPD, noting advantages, disadvantages, and side effects, for the following:
 - a. Beta-agonist bronchodilators
 - b. Anticholinergic bronchodilators
 - c. Leukotriene inhibitors
 - d. Mast cell stabilizers
 - e. Theophylline
 - f. Inhaled corticosteroids
 - g. Systemic corticosteroids
 - h. Antimicrobial agents
 - i. Supplemental oxygen
 - j. Immunotherapy

Congestive heart failure (reference case discussion, simple case 4)

1. Be able to describe and define the terms preload, contractility, and afterload and how these are affected in the heart with systolic dysfunction.
2. Be able to define, describe and discuss compensatory mechanisms of heart failure including cardiac remodeling and activation of endogenous neurohormonal systems and cytokine systems including adrenergic nervous system, renin angiotensin-aldosterone system, endothelin, tumor necrosis factor, and vasopeptides.
3. Interpret neck vein findings for jugular venous distention and abdominal jugular reflux.
4. Identify and translate auscultatory findings of the heart including rate, rhythm, S3/S4 and murmurs in a patient with heart failure.
5. Compare the differing etiologies and signs of left-sided vs right-sided heart failure.
6. Utilize the staging system for heart failure.
7. Be able to define, describe and discuss types of processes and most common disease entities that cause HF (i.e., ischemic, valvular, hypertrophic, infiltrative, inflammatory, etc)
8. Identify and explain the factors leading to symptomatic exacerbation of HF, including ischemia, arrhythmias, anemia, hypertension, thyroid disorders, non-compliance with medications and dietary restrictions, and use of nonsteroidal anti-inflammatory drugs.
9. Interpret B-type natriuretic peptide results.
10. Be able to define, describe and discuss the staging system for heart failure:
 - a. Stage A: high risk for HF but no structural heart disease is present
 - b. Stage B: structural heart disease is present but never any symptoms
 - c. Stage C: past or current symptoms associated with structural heart disease
 - d. Stage D: end-stage disease with requirements for specialized treatment
11. Assign a risk and prognosis to patients in NYHA Class I<II<III<IV without vasodilator or beta blocker therapy.
12. Be able to define, describe and discuss the types of processes that cause systolic vs. diastolic dysfunction.
13. Compare the differing etiologies and signs of left-sided vs. right-sided heart failure.
14. Be able to define, describe and discuss the importance of age, gender and ethnicity on the prevalence and prognosis of HF.
15. Be able to define, describe and discuss physiological basis and scientific evidence supporting each type of treatment, intervention or procedure commonly used in the management of patients who present with HF.
16. Outline a treatment plan for patients with compensated or decompensated CHF including pharmacologic management: diuretics, digoxin, vasodilators and beta blockers assign a risk reduction.

Coronary artery disease (reference case discussion and simple cases 1-4)

1. Be able to define, describe and discuss the primary and secondary prevention of ischemic heart disease through the reduction of cardiovascular risk factors (e.g. controlling hypertension and dyslipidemia, aggressive diabetes management, avoiding tobacco, and aspirin prophylaxis). (note overlap with chest pain objectives)
2. Identify risk factors for the development of coronary heart disease:

- a. Age and gender
 - b. Family history of sudden death or premature CAD
 - c. Personal history of peripheral vascular or cerebrovascular disease
 - d. Smoking
 - e. Lipid abnormalities (includes dietary history of saturated fat and cholesterol)
 - f. Diabetes mellitus
 - g. Hypertension
 - h. Obesity
 - i. Sedentary lifestyle
 - j. Cocaine use
 - k. Estrogen use
 - l. Chronic inflammation
3. Factors that may be responsible for provoking or exacerbating symptoms of ischemic chest pain by:
 - a. Increasing myocardial oxygen demand
 - b. Tachycardia or tachyarrhythmia
 - c. Hypertension
 - d. Increased wall stress (aortic stenosis, cardiomyopathy)
 - e. Hyperthyroidism
 - f. Decreasing myocardial oxygen supply
 - g. Anemia
 - h. Hypoxemia
 4. Be able to define, describe and discuss the basic principles of the role of genetics in CAD.
 5. Be able to define, describe and discuss the pathogenesis, signs and symptoms of the acute coronary syndromes:
 - a. Unstable angina
 - b. Non-ST-elevation myocardial infarction (NSTEMI)
 - c. ST-elevation myocardial infarction (STEMI)
 6. Be able to define, describe and discuss the atypical presentations of cardiac ischemia/infarction
 7. Be able to define, describe and discuss the typical clinical course of the acute coronary syndromes.
 8. Be able to define, describe and discuss the ECG findings and macromolecular markers (myoglobin, CK-MB, troponin-I, troponin-T) of acute ischemia/MI.
 9. Be able to define, describe and discuss the utility of echocardiography in acute MI.
 10. Be able to define, describe and discuss the importance of monitoring for and immediate treatment of ventricular fibrillation in acute MI.
 11. Be able to define, describe and discuss the therapeutic options for acute MI and how they may differ for NSTEMI and STEMI, including:
 - a. Aspirin
 - b. Morphine
 - c. Nitroglycerine
 - d. Oxygen
 - e. Heparin
 - f. Antiplatelet agents (glycoprotein IIb/IIIa inhibitors)

- g. Beta-blockers
 - h. ACE-I/ARB
 - i. HMG-CoA reductase inhibitors
 - j. Thrombolytic agents
 - k. Emergent cardiac catheterization with percutaneous coronary intervention
12. Be able to define, describe and discuss the pathogenesis, signs and symptoms of the complications of acute MI, including arrhythmias, reduced ventricular function, cardiogenic shock, pericarditis, papillary muscle dysfunction/rupture, acute valvular dysfunction, and cardiac free wall rupture.
 13. Symptoms and signs of chest pain that may be due to an acute coronary syndrome such as unstable angina or acute myocardial infarction.
 14. Symptoms and signs of chest pain that are characteristic of angina pectoris.
 15. Symptoms and signs of chest pain due to other cardiac causes such as:
 - a. Atypical or variant angina (coronary vasospasm, Prinzmetal angina)
 - b. Cocaine-induced chest pain
 - c. Pericarditis
 - d. Aortic dissection
 - e. Valvular heart disease (aortic stenosis, mitral valve prolapse)
 - f. Non-ischemic cardiomyopathy
 - g. Syndrome X

Diabetes (reference case discussion)

1. Define and discuss diagnostic criteria for impaired fasting glucose and impaired glucose tolerance. *(MK)*
2. Define and discuss diagnostic criteria for type I and type II diabetes mellitus, based on a history, physical examination, and laboratory testing. *(MK)*
3. Define and discuss pathophysiology, risk factors, and epidemiology of type I and type II diabetes mellitus. *(MK)*
4. Define and discuss the basic principles of the role of genetics in diabetes mellitus. *(MK)*
5. Define and discuss presenting symptoms and signs of type I and type II diabetes mellitus. *(MK)*
6. Define and discuss presenting symptoms and signs of diabetic ketoacidosis (DKA) and nonketotic hyperglycemic (NKH). *(MK)*
7. Describe pathophysiology for the abnormal laboratory values in DKA and NKH including plasma sodium, potassium, and bicarbonate. *(MK)*
8. Identify precipitants of DKA and NKH. *(MK)*
9. Identify major causes of morbidity and mortality in diabetes mellitus (coronary artery disease, peripheral vascular disease, hypoglycemia, DKA, NKH coma, retinopathy, neuropathy—peripheral and autonomic, nephropathy, foot disorders, infections). *(MK)*
10. Identify laboratory tests needed to screen, diagnose, and follow diabetic patients including: glucose, electrolytes, blood urea nitrogen/creatinine, fasting lipid profile, HgA1c, urine microalbumin/creatinine ratio, urine dipstick for protein. *(MK)*
11. Compare and contrast non-pharmacologic and pharmacologic drugs and side effects noting advantages and disadvantages of treatment of diabetes mellitus to maintain acceptable levels of glycemic control, prevent target organ disease, and other associated complications. *(MK)*

12. Identify the specific components of the American Diabetes Association (ADA) dietary recommendations for type I and type II diabetes mellitus. (MK)
13. Identify basic management of diabetic ketoacidosis and nonketotic hyperglycemic states, including the similarities and differences in fluid and electrolyte replacement. (MK)
14. Describe basic management of blood glucoses in the hospitalized patient.
15. The fundamental aspects of the American Diabetes Association (ADA) clinical practice recommendations and how they encourage high quality diabetes care. (MK, PLI, SBP)
16. Basic management of hypertension and hyperlipidemia in the diabetic patient. (MK)

Deep vein thrombosis/pulmonary embolism (reference case discussion, simple case 30)

1. Define, describe and discuss risk factors for developing DVT, including:
 - a. Prior history of DVT/PE
 - b. Immobility/hospitalization
 - c. Increasing age
 - d. Obesity
 - e. Trauma
 - f. Smoking
 - g. Surgery
 - h. Cancer
 - i. Acute MI
 - j. Stroke and neurologic trauma
 - k. Coagulopathy
 - l. Pregnancy
 - m. Oral estrogens
2. Define, describe and discuss genetic considerations predisposing to venous thrombosis
3. Define, describe and discuss the symptoms and signs of DVT and PE
4. Discuss the diagnostic evaluation of DVT and PE; apply the conclusions of the PIOPED study.
5. Generate a prioritized differential diagnosis of DVT/PE based on specific physical findings using pre-test probability tools.
6. Describe the indications for and utility of various diagnostic tests and describe their interpretation including but not limited to spiral CT, V/Q, lower extremity dopplers, d-dimer.
7. Define, describe and discuss the differential diagnosis of DVT including the many causes of unilateral leg pain and swelling:
 - a. Venous stasis and the postphlebotic syndrome
 - b. Lymphedema
 - c. Cellulitis
 - d. Superficial thrombophlebitis
 - e. Ruptured popliteal cyst
 - f. Musculoskeletal injury
 - g. Arterial occlusive disorders
8. Define, describe and discuss the differential diagnosis of PE including the many causes of chest pain and dyspnea:

- a. MI/unstable angina
 - b. Congestive heart failure
 - c. Pericarditis
 - d. Pneumonia/bronchitis/COPD exacerbation
 - e. Asthma
 - f. Pulmonary hypertension
 - g. Pneumothorax
 - h. Musculoskeletal pain (e.g. rib fracture, costochondritis)
9. Define, describe, discuss, and develop an appropriate management plan for DVT/PE including, but not limited to the following:
 - a. Unfractionated heparin
 - b. Low-molecular-weight heparin
 - c. Warfarin
 - d. Thrombolytics
 10. Define, describe and discuss the risks, benefits and indications for inferior vena cava filters
 11. Define, describe and discuss the long-term sequelae of DVT and PE
 12. Define, describe and discuss methods of DVT/PE prophylaxis, their indications and efficacy, including:
 - a. Ambulation
 - b. Graded compression stockings
 - c. Pneumatic compression devices
 - d. Unfractionated heparin
 - e. Low-molecular-weight heparin
 - f. Warfarin

Dyspnea (reference simple case)

1. List the major pathologic states which cause dyspnea.
2. Describe the common causes of tachypnea.

Fever (reference simple case 35)

1. Define the criteria for fever of unknown origin (FUO).
2. Compare and contrast etiologies of fever in normal hosts and in special populations (e.g. patients with human immunodeficiency virus {HIV}, recent travel or immigration, intravenous drug use).
3. Obtain and present an age-appropriate patient history that helps differentiate among likely etiologies for fever.
4. Prioritize certain diagnostic and laboratory tests for fever.
5. Develop an appropriate treatment plan for patient with FUO.

Gastrointestinal bleed (reference case discussion, simple case 10)

1. Define hematemesis, melena and hematochezia.

2. Define, describe, discuss, and prioritize the common causes for and symptoms of upper and lower GI blood loss, including:
 - a. Esophagitis/esophageal erosions
 - b. Mallory Weiss tear
 - c. Peptic and duodenal ulcer disease
 - d. Esophageal/gastric varices
 - e. Erosive gastritis
 - f. Arteriovenous malformations
 - g. Gastrointestinal tumors, benign and malignant
 - h. Diverticulosis
 - i. Ischemic colitis
 - j. Hemorrhoids
 - k. Anal fissures
3. Recommend laboratory and diagnostic tests to evaluate GI bleeding, which include (when appropriate): stool and gastric fluid tests for occult blood, CBC, PT/PTT, and colonoscopy.
4. Define, describe and discuss the distinguishing features of upper versus lower GI bleeding
5. Define, describe and discuss the indications for inpatient versus outpatient evaluation and treatment.
6. Define, describe and discuss the principles of stabilization and treatment of acute massive GI blood loss.
7. Develop an appropriate evaluation and treatment plan for patients with a GI bleed that includes:
 - a. Protecting the airway
 - b. Establishing adequate venous access
 - c. Administering crystalloid fluid resuscitation
 - d. Ordering blood and blood product transfusion
 - e. Determining when to obtain consultation from a gastroenterologist for upper endoscopy
8. Define, describe and discuss the role of contributing factors in GI bleeding such as H. pylori infection; NSAIDs, alcohol, cigarette use, coagulopathies; and chronic liver disease.
9. Recognize the initial management of the patient with gastrointestinal bleeding is the same regardless of the etiology. Lifesaving measures such as repletion of intravascular volume and airway protection are critical in every patient with GI bleeding.
10. Recognize melena (usually indicating an upper GI source) is the most frequent cause of major GI bleeding, but all black stools are not melena.
11. Recognize hematochezia is usually a manifestation of lower GI bleeding but can be a manifestation of severe upper GI bleeding.
12. Recognize the most common cause of major upper GI bleeding is the peptic disorders. Diverticulosis is a common cause of major lower GI bleeding.
13. Recognize that endoscopy is the initial diagnostic test and therapeutic modality of choice in upper GI bleeding and has predictive value of rebleeding.
14. Recognize that colonoscopy (after cessation of bleeding and colonic cleansing) is the test of choice in lower GI bleeding.

15. Recognize that mortality and morbidity from GI bleeding has not changed significantly over the past 50 years in the U.S.

HIV (reference case discussion, simple case 20)

1. Define, describe and discuss symptoms and signs of acute HIV seroconversion.
2. Define, describe and discuss CDC AIDS case definition
3. Define, describe and discuss Specific tests for HIV (e.g. HIV ELISA, confirmatory western blot, quantitative PCR) and their operating characteristics
4. Define, describe and discuss relationship of CD4 lymphocyte count to opportunistic infections as well as relationship between CD4 lymphocyte count and viral load to overall disease progression.
5. Define, describe and discuss the basic principles of highly active antiretroviral therapy (HAART), including the different classes of antiviral medications and their use, as well as common side effects and drug-drug interactions.
6. Define, describe and discuss basics of post-exposure prophylaxis.
7. Define, describe and discuss the marked importance of antiretroviral medication adherence and the potential consequences of erratic or poor adherence.
8. Define, describe and discuss vaccination recommendation for patients infected with HIV.
9. Define, describe and discuss indications for and utility and risks of prophylaxis of HIV-related opportunistic infections.
10. Define, describe and discuss pathogenesis, symptoms, signs, typical clinical course, and management of HIV-related opportunistic infections with a recognition of which are most common:
 - a. Pneumocystis jiroveci
 - b. Candidiasis (oral, esophageal, vaginal)
 - c. Cryptococcus neoformans
 - d. Cryptosporidium parvum
 - e. Cytomegalovirus infection (gastrointestinal, neurologic, retinal)
 - f. Varicella-zoster virus
 - g. Isospora belli
 - h. Microsporidiosis
 - i. Mycobacterium avium complex
 - j. Mycobacterium tuberculosis
 - k. Toxoplasma gondii
11. Define, describe and discuss symptoms and signs of the following HIV-related malignancies:
 - a. Kaposi's sarcoma
 - b. Non-Hodgkin's lymphoma
 - c. Cervical carcinoma
12. Define, describe and discuss common skin and oral manifestations of HIV infection and AIDS:
 - a. Molluscum contagiosum
 - b. Cryptococcus neoformans
 - c. Viral warts
 - d. Lipodystrophy

- e. Herpes zoster
 - f. Seborrhic dermatitis
 - g. Buccal candidiasis
 - h. Oral hairy leukoplakia
13. Distinguish between common etiologies of fever of unknown origin (FUO) in immunocompetent patients and those infected with the human immunodeficiency virus (HIV)
 14. List appropriate diagnostic tests for HIV-positive patient presenting with fever.

Hyponatremia (reference lecture)

1. Define, describe and discuss the presenting symptoms and signs of the above disorders.
2. Define, describe and discuss the importance of total body water distribution and its relationship to hyponatremia.
3. Discuss the approach to a patient with hyponatremia including pseudohyponatremia associated with hyperlipidemia or paraproteinemias
4. Discuss hyponatremia associated with hyperglycemia or mannitol administration
5. Define, describe and discuss the concept of free water clearance by the kidney
6. Define, describe and discuss the pathophysiology of:
 - a. Hypo- and hypernatremia
7. Define, describe and discuss the differential diagnosis of hyponatremia in the setting of volume depletion, euvolemia, and hypervolemia associated with:
 - a. Over-hydration – CHF, nephrotic syndrome or cirrhosis with ascites
 - b. Dehydration –
 - i. High urinary sodium – Addison’s disease, diuretic use, salt-losing nephropathies
 - ii. Low urinary sodium – extra-renal sodium and water loss
 - c. Euhydration – SIADH, hypothyroidism, psychogenic water drinking, sick cell syndrome
8. Define, describe and discuss the risks of too rapid or delayed therapy for hyponatremia.
9. Define, describe and discuss the types of fluid preparations to use in the treatment of fluid and electrolyte disorders.

Infectious Disease Basics (reference lecture, simple case 21, 24)

1. Define the concepts of bacteriostatic, bacteriocidal, MIC and MBC
2. Define the classes of antibiotics and know some specific antibiotics within each class
3. Define the classes of organisms that are commonly associated with the following organ systems: HEENT, pulmonary, cardiac, abdomen, lymph node, skin, bone, genitourinary
4. List reasons why a particular antibiotic regimen may fail
5. Define the concept of antibiotic synergy
6. Identify infectious diseases that are potentially life threatening
7. Define, describe and discuss the epidemiology, pathophysiology, microbiology, symptoms, signs, typical clinical course, and preventive strategies for the most common nosocomial infections, including:

- a. Urinary tract infection
 - b. Pneumonia
 - c. Surgical site infection
 - d. Intravascular device-related bloodstream infections
 - e. Skin infections
 - f. Health care associated diarrhea
8. Define, describe and discuss the general clinical risk factors for nosocomial infection, including:
 - a. Immunocompromise
 - b. Immunosuppressive drugs
 - c. Extremes of age
 - d. Compromise of the skin and mucosal surfaces secondary to
 - i. Drugs
 - ii. Irradiation
 - iii. Trauma
 - iv. Invasive diagnostic and therapeutic procedures
 - v. Invasive indwelling devices (e.g. intravenous catheter, bladder catheter, endotracheal tube, etc.)
 9. Define, describe and discuss empiric antibiotic therapy for the most common nosocomial infections
 10. Define, describe and discuss the major routes of nosocomial infection transmission, including:
 - a. Contact
 - b. Droplet
 - c. Airborne
 - d. Common vehicle
 11. Define, describe and discuss the epidemiology, pathophysiology, microbiology, symptoms, signs, typical clinical course, and preventive strategies for colonization or infection with the following organisms:
 - a. Vancomycin-resistant enterococci
 - b. Clostridium difficile
 - c. Methicillin-resistant Staphylococcus aureus (MRSA)
 - d. Multidrug-resistant Gram-negative bacteria
 12. Describe clinical presentation of sepsis syndromes
 13. Recommend appropriate empiric therapy based on an understanding of urinary tract infection pathogenesis and resistance patterns.
 14. Interpret a urinalysis.
 15. Develop appropriate treatment plan for patients with fever including the selection of an initial, empiric treatment regimen for patients with life-threatening sepsis.
 16. Demonstrate knowledge of cerebrospinal fluid analysis and its interpretation.

Immuno tests (reference lecture)

1. Define, describe and discuss indications for performing an arthrocentesis and the results of synovial fluid analysis.

2. Define, describe and discuss the common signs and symptoms of and diagnostic approach to:
 - a. Rheumatoid arthritis
 - b. Spondyloarthropathies (reactive arthritis/Reiter's syndrome, ankylosing spondylitis, psoriatic arthritis)
 - c. Systemic lupus erythematosus
 - d. Systemic sclerosis
 - e. Raynaud's syndrome/phenomenon
 - f. Sjogren's syndrome
 - g. Temporal arteritis and polymyalgia rheumatica
 - h. Other systemic vasculitides
 - i. Polymyositis and dermatomyositis
 - j. Fibromyalgia
3. Laboratory interpretation: Be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
 - a. CBC with differential
 - b. Synovial fluid analysis (Gram stain, culture, crystal exam, cell count with differential, and glucose)
 - c. Uric acid
 - d. ESR
 - e. Rheumatoid factor
 - f. Antinuclear antibody test (ANA) and anti-DNA test
4. Define the indications for and interpret (with consultation) the results of:
 - a. Plain radiographs of the shoulder, elbow, wrist, hand, hip, knee, ankle, and foot

Liver disease (reference case discussion, simple case 11, 36)

1. Develop an approach to the patient with clinical jaundice.
2. Recognize the five serologic types of hepatitis (A,B,C,D and E), their primary mode of transmission, that only B, C and D can culminate in chronic hepatitis, and that liver biopsy is essential in establishing the diagnosis of chronic disease.
3. Recognize the source of infection is unknown in one-third of HBV patients and one-half HVC patients.
4. Recognize that active and passive immunization is available for hepatitis A and B only.
5. Recognize that treatment of chronic B and C disease is available with interferon and several oral agents.
6. Recognize some of the of the indications for hepatic transplantation.
7. Define, describe and discuss the symptoms, signs and complications of portal hypertension.
8. Define, describe and discuss the pathophysiology and common causes of ascites.
9. Complete an abdominal exam, including evaluation for presence of ascites.

10. Define, describe and discuss the pathophysiologic manifestations, symptoms, signs and complications of alcohol-induced liver disease.
11. Define, describe and discuss the pathophysiologic manifestations, symptoms, and signs of spontaneous bacterial peritonitis.
12. Define, describe and discuss the basic pathophysiology, symptoms, signs, typical clinical course, and precipitants of hepatic encephalopathy.
13. Define, describe and discuss the basic pathophysiology, symptoms, signs and typical clinical course of the hepatorenal syndrome.
14. Understand the indications for paracentesis and how to analyze the ascitic fluid using the serum to ascites albumin gradient (SAAG).
15. Define, describe and discuss the analysis of ascitic fluid and its use in the diagnostic evaluation of liver disease.
16. Define, describe and discuss genetic considerations in liver disease (i.e. hemochromatosis, Wilson's disease, alpha-1 antitrypsin deficiency, Gilbert's syndrome)
17. Define, describe and discuss the epidemiology, pathophysiology, symptoms, signs, and typical clinical course of cholelithiasis and cholecystitis.
18. Define, describe and discuss the clinical syndrome of "ascending cholangitis" including its common causes and typical clinical course.
19. Understand pathophysiology of conjugated and unconjugated hyperbilirubinemia.
20. Describe the common types of liver diseases and their risk factors (including inherited and acquired).
21. Discuss the CAGE screening tool for alcohol abuse.
22. Know when to order laboratory tests for evaluation of liver disease and when a liver biopsy might be indicated.

Liver function test interpretation (reference lecture)

1. Define, describe and discuss the biochemical/physiologic/mechanistic approach to hyperbilirubinemia, including:
 - a. Increased production
 - b. Decreased hepatocyte uptake
 - c. Decreased conjugation
 - d. Decreased excretion from the hepatocyte
 - e. Decreased small duct transport (intrahepatic cholestasis)
 - f. Decreased large duct transport (extrahepatic cholestasis, obstructive jaundice)
2. Define, describe and discuss the biochemistry and common causes of unconjugated and conjugated hyperbilirubinemia (note overlap with liver disease)
3. Define, describe and discuss the use of serum markers of liver injury (e.g. AST, ALT, GGT, alk phos) and function (e.g. bilirubin, ALB, PT/INR) in the diagnostic evaluation of hepatobiliary disease
4. Define, describe and discuss the clinical significance of asymptomatic, isolated elevation of AST/ALT, GGT, and/or alk phos
5. Define, describe and discuss the common pathologic patterns of liver disease and their common causes, including:
 - a. Steatosis (fatty liver)

- b. Hepatitis
 - c. Cirrhosis
 - d. Infiltrative
 - e. Intrahepatic cholestasis
 - f. Extrahepatic cholestasis (obstructive jaundice)
6. Define, describe and discuss the epidemiology, symptoms, signs, typical clinical course, and prevention of viral hepatitis
 7. Define, describe and discuss the distinctions between acute and chronic hepatitis
 8. Define, describe and discuss the common causes and clinical significance of hepatic steatosis and steatohepatitis
 9. Define, describe and discuss the epidemiology, symptoms, signs, and typical clinical course of autoimmune liver diseases such as autoimmune hepatitis, primary biliary cirrhosis, and primary sclerosing cholangitis.
 10. Define, describe and discuss common causes of drug-induced liver injury.
 11. Define, describe and discuss genetic considerations in liver disease (i.e. hemochromatosis, Wilson's disease, alpha-1 antitrypsin deficiency, Gilbert's syndrome)
 12. Define, describe and discuss the epidemiology, pathophysiology, symptoms, signs, and typical clinical course of cholelithiasis and cholecystitis.
 13. Define, describe and discuss the clinical syndrome of "ascending cholangitis" including its common causes and typical clinical course.
 14. Define, describe and discuss the indications for and utility of hepatobiliary imaging studies, including:
 - a. Ultrasound
 - b. Nuclear medicine studies
 - c. CT
 - d. MRI
 - e. Magnetic resonance cholangiopancreatography (MRCP)
 - f. Endoscopic retrograde cholangiopancreatography (ERCP)

Lung cancer/pulmonary nodule (reference case discussion)

1. Define, describe and discuss the risk factors for lung cancer.
2. Define, describe, and discuss characteristics of a pulmonary nodule(s) on CXR or CT that makes it more or less likely to be malignant.
3. Define, describe and discuss the general approach to the evaluation and management of a solitary pulmonary nodule including FNA, bronchoscopy, CT-guided biopsy, PET scan, open lung biopsy, lobectomy.
4. Define, describe and discuss paraneoplastic syndromes related to primary lung cancer.
5. Define, describe and discuss the TNM staging system for lung cancer.
6. Define, describe and discuss general treatment options for lung cancer.
7. Define, describe and discuss minimal pulmonary function requirements for lung cancer resection.
8. Define, describe and discuss the general prognosis for patients with various stages of lung cancer.

Mental status changes (reference case discussion, simple case 25, 26)

1. Define or describe mental status changes and the syndromes of dementia and delirium (acute confusional state) as well as psychiatric illnesses that may present as changes in mental status.
2. Define or describe the major points of differentiation between dementia, delirium, and depression on history, physical examination, and mental status testing.
3. Define or describe the differential diagnosis for dementia, the major causes of dementing illnesses, and the work up for dementia.
4. Define or describe the major causes for delirium (acute confusional states) and the diagnostic evaluation of the delirious patient.
5. Define or describe that mental status changes are a common pathway of a variety of illnesses in older patients and that older people should not be assumed to be demented when they present with mental status changes.
6. Define or describe that mental status changes are a common event in the care of patients with HIV related illness.
7. Recognize the risk factors for developing altered mental status, including:
 - a. Dementia. (MK)
 - b. Advanced age. (MK)
 - c. Substance abuse. (MK)
 - d. Comorbid physical problems such as sleep deprivation, immobility, dehydration, pain, and sensory impairment. (MK)
 - e. ICU admission. (MK)
8. Develop a management plan for the most common causes of altered mental status.
9. Discuss the pathophysiology, symptoms, and signs of the most common and most serious causes of altered mental status, including:
 - a. Metabolic causes (e.g. hyper/hyponatremia, hyper/hypoglycemia, hypercalcemia, hyper/hypothyroidism, hypoxia/hypercapnea, B12 deficiency, hepatic encephalopathy, uremic encephalopathy, drug/alcohol intoxication/withdrawal, and Wernicke's encephalopathy).
 - b. Structural lesions (e.g. primary or metastatic tumor, intracranial hemorrhage, subdural hematoma).
 - c. Vascular (e.g. cerebrovascular accident, transient ischemic attack, cerebral vasculitis)
 - d. Infectious etiologies (e.g. encephalitis, meningitis, urosepsis, endocarditis, pneumonia, cellulites).
 - e. Seizures/ post-ictal state. (MK)
 - f. Hypertensive encephalopathy. (MK)
 - g. Low perfusion states (e.g. arrhythmias, MI, shock, acute blood loss, severe dehydration). (MK)
 - h. Miscellaneous causes (e.g. fecal impaction, postoperative state, sleep deprivation, urinary retention). (MK)
10. Recognize the importance of thoroughly reviewing prescription medications over-the-counter drugs, and supplements and inquiring about substance abuse. (MK)
11. The diagnostic evaluation of altered mental status. (MK)
12. Identify indications, contraindications, and complications of lumbar puncture. (MK)

13. Identify nonpharmacologic measures to reduce agitation and aggression, including:
 - a. Avoiding the use of physical restraints whenever possible. *(MK)*
 - b. Using reorientation techniques. *(MK)*
 - c. Assuring the patient has their devices to correct sensory deficits. *(MK)*
 - d. Promoting normal sleep and day/night awareness. *(MK)*
 - e. Preventing dehydration and electrolyte disturbances. *(MK)*
 - f. Avoiding medications which may worsen delirium whenever possible (e.g. anticholinergics, benzodiazepines, etc.). *(MK)*
14. Identify the risks of using physical restraints. *(MK)*
15. Define and describe the risk and benefits of using low-dose high potency antipsychotics for delirium associated agitation and aggression. *(MK)*

Pneumonia (reference case discussion, simple case 22)

1. Define, describe and discuss the epidemiology, pathophysiology, symptoms, signs, and typical clinical course of community-acquired, nosocomial, and aspiration pneumonia and pneumonia in the immunocompromised host.
2. Define, describe and discuss the conceptualization of “typical” and “atypical” pneumonia and its limitations.
3. Define, describe and discuss common pneumonia pathogens (viral, bacterial, mycobacterial, and fungal) in immunocompetent and immunocompromised hosts.
4. Define, describe and discuss identify patients who are at risk for impaired immunity.
5. Define, describe and discuss indications for hospitalization and ICU admission of patient with pneumonia.
6. Define, describe and discuss the antimicrobial treatments (e.g. antiviral, antibacterial, antimycobacterial, and antifungal) for community-acquired, nosocomial, and aspiration pneumonia, and pneumonia in the immunocompromised host.
7. Define, describe and discuss the implications of antimicrobial resistance.
8. Define, describe and discuss the pathogenesis, symptoms, and signs of the complications of acute bacterial pneumonia including: bacteremia, sepsis, parapneumonic effusion, empyema, meningitis, and metastatic microabscesses.
9. Define, describe and discuss the indications for and efficacy of influenza and pneumococcal vaccinations.
10. Define, describe and discuss the indications and procedures for respiratory isolation.
11. Define, describe and discuss the Centers for Medicine and Medicaid Services (CMS) and the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) quality measures for community-acquired pneumonia treatment.
12. Recognize bronchial breath sounds, rales (crackles), rhonchi and wheezes, signs of pulmonary consolidation, and pleural effusion on physical exam.
13. Recommend when to order diagnostic laboratory tests—including complete blood counts, sputum gram stain and culture, blood cultures, and arterial blood gases—how to interpret those tests, and how to recommend treatment based on these interpretations.

Pulmonary tests (reference lecture, simple case 28)

1. Distinguish between the various mechanisms of hypoxia
2. Describe how to calculate the A-a gradient
3. Describe and discuss the interplay between oxygen content, delivery and extraction
4. Identify the principles determining one's CO₂
5. Describe the concept of Dead Space Ventilation
6. Interpret PFT's recognizing obstruction, restriction, and diffusion impairments
7. Accurately interpret arterial blood gas.
8. Interpret PFT results and use them to recommend appropriate therapy.
9. List major pathologic states causing dyspnea.
10. Relate the utility of supplemental oxygen and the potential dangers of overly aggressive oxygen supplementation.
11. Recognize the various oxygen delivery devices

Renal tests (reference lecture, simple case 23)

1. Understand and be able to explain the pathophysiology of hyperkalemia, hypocalcemia, and hyperphosphatemia in the setting of chronic kidney disease.
2. Define, describe and discuss the distinction between the three major pathophysiologic etiologies for acute renal failure (ARF) based on urinalysis, urine studies, and radiological imaging:
 - a. Decreased renal perfusion (prerenal)
 - b. Intrinsic renal disease (renal)
 - c. Acute renal obstruction (postrenal)
3. Define, describe and discuss the pathophysiology of the major etiologies of "prerenal" ARF, including:
 - a. Hypovolemia
 - b. Decreased cardiac output
 - c. Systemic vasodilation
 - d. Renal vasoconstriction
4. Define, describe and discuss the pathophysiology of the major etiologies of intrinsic "renal" ARF, including:
 - a. Vascular lesions
 - b. Glomerular lesions
 - c. Interstitial nephritis
 - d. Intra-tubule deposition/obstruction
 - e. Acute tubular necrosis (ATN)
5. Define, describe and discuss the pathophysiology of the major etiologies of "postrenal" ARF, including:
 - a. Urethral (e.g. tumors, calculi, clot, sloughed papillae, retroperitoneal fibrosis, lymphadenopathy)
 - b. Bladder neck (e.g. tumors, calculi, prostatic hypertrophy or carcinoma, neurogenic)
 - c. Urethral (e.g. stricture, tumors, obstructed indwelling catheters)
6. Define, describe and discuss the most common etiologies of chronic kidney disease (CKD) based on:
 - a. DM

- b. Hypertension
 - c. Glomerulonephritis
 - d. Polycystic kidney disease
 - e. Autoimmune diseases (e.g. systemic lupus erythematosus)
 - f. The staging scheme for CKD
7. Define, describe and discuss the significance for proteinuria in CKD
 8. Define, describe and discuss the pathophysiology of anemia in CKD.

Rheumatological diseases (reference lecture, simple case 32)

1. Define, describe and discuss a systematic approach to joint pain based on an understanding of pathophysiology to classify potential causes.
2. Define, describe and discuss the effect of the time course of symptoms on the potential causes of joint pain (acute vs. subacute vs. chronic).
3. Define, describe and discuss the difference between and pathophysiology of arthralgia vs. arthritis and mechanical vs. inflammatory joint pain.
4. Define, describe and discuss the distinguishing features of intra-articular and periarticular complaints (joint pain vs. bursitis and tendonitis).
5. Define, describe and discuss the effect of the features of joint involvement on the potential causes of joint pain (monoarticular vs. oligoarticular vs. polyarticular, symmetric vs. asymmetric, axial and/or appendicular, small vs. large joints, additive vs. migratory vs. intermittent).
6. Define, describe and discuss the indications for performing an arthrocentesis and the results of synovial fluid analysis
7. Define, describe and discuss the pathophysiology and common signs and symptoms of:
 - a. Osteoarthritis
 - b. Crystalline arthropathies
 - c. Septic arthritis
8. Define, describe and discuss indications for and effectiveness of intra-articular steroid injections.
9. Define, describe and discuss treatment options for gout (e.g. colchicine, NSAIDs, steroids, uricosurics, xanthine oxidase inhibitors).
10. Define, describe and discuss the basic pathophysiology of autoimmunity and autoimmune diseases.
11. Define, describe and discuss typical clinical scenarios when systemic rheumatologic disorders should be considered:
 - a. Diffuse aches and pains
 - b. Generalized weakness/fatigue
 - c. Myalgias with or without weakness
 - d. Arthritis with systemic signs (e.g. fever, weight loss)
 - e. Arthritis with disorders of other systems (e.g. rash, cardiopulmonary symptoms, gastrointestinal symptoms, eye disease, renal disease, neurologic symptoms)
12. Recognize the approach to patients with possible rheumatologic disease.

13. Discuss and describe the typical clinical and laboratory findings of rheumatoid arthritis, systemic lupus erythematosus (SLE), dermatomyositis, and systemic vasculitis.
14. Compare and contrast the various causes of inflammatory polyarthritis.
15. Define, describe and discuss the common signs and symptoms of and diagnostic approach to:
 - a. Rheumatoid arthritis
 - b. Spondyloarthropathies (reactive arthritis/Reiter's syndrome, ankylosing spondylitis, psoriatic arthritis)
 - c. Systemic lupus erythematosus
 - d. Systemic sclerosis
 - e. Raynaud's syndrome/phenomenon
 - f. Sjogren's syndrome
 - g. Temporal arteritis and polymyalgia rheumatica
 - h. Other systemic vasculitides
 - i. Polymyositis and dermatomyositis
 - j. Fibromyalgia

Substance Abuse (reference simple case 9)

1. Take a substance abuse history and provide counseling in a non-judgmental manner.
2. Recognize the clinical presentations of substance abuse and recommend treatment.
3. Apply diagnostic criteria for alcohol abuse, dependence, and addiction.
4. Recommend basic prevention and treatment for alcohol withdrawal.
5. Identify the presenting signs and symptoms of intoxication and overdose of common substances of abuse.
6. Understand how homelessness can influence patient's access to illicit substances and interfere with ability to enable effective treatment.

Syncope (reference simple case 3)

1. List the common causes of syncope.
2. Recognize the important aspects of the history and physical exam in a patient with syncope.
3. Explain the approach to the evaluation and treatment of a patient with syncope.
4. Explain how atrial fibrillation, aortic stenosis and mitral stenosis may lead to syncope.
5. Identify atrial fibrillation on an electrocardiogram.(note overlap with atrial fib case)