

**Weill Cornell Medical College**  
**Physician Assistant Program-**  
*A Surgical Focus*

**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
**CARDIOLOGY**

**1: ELECTROCARDIOGRAPHY, ARRHYTHMIAS AND CONDUCTION DISTURBANCES**

A. Goals

1. To prepare the student to recognize and treat common cardiologic conditions.
2. To formulate differential diagnoses for various cardiologic complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the heart and circulatory system.

B. Objectives

After completion of this component the student will be able to interpret a 12-lead electrocardiogram with regard to the following:

1. Basic leads and waves
  - Axial leads
  - Structure of the QRS complex
  - The QRS vector
  - The Axis
2. Precordial leads and Chamber Abnormalities
  - Precordial leads
  - The heart rate
  - Chamber Abnormalities
  - Right and left atrial abnormality
  - Right and left ventricular hypertrophy
3. Intraventricular Conduction Defects
  - Right bundle branch block
  - Left bundle branch block
  - Nonspecific Intraventricular Conduction Delay
  - Left anterior hemiblock
  - Left posterior hemiblock

4. SA and AV nodal conduction abnormalities
  - First degree AV block
  - Second degree AV block
    - Type I and II
    - 2:1 Second degree AV block
    - High grade second degree AV block
  - Third degree AV block
  - AV dissociation
  - Treatment of SA and AV nodal conduction abnormalities
  - Pharmacologic
  - Pacemaker
    - Transcutaneous
    - Transthoracic: VVI & DDD
  
5. Myocardial Infarction and Ischemia
  - Q waves
  - Current of injury
  - Ischemia
  - Time course of EKG changes in infarction
  - Anatomic localization of infarction
  - Non-Q wave MI
  
6. Arrhythmias
  - Reentrant arrhythmias
  - Atrial fibrillation
  - Epidemiology
  - Embolization and anticoagulation
  - Early vs. late cardioversion
  - Atrial flutter
  - PSVT
  - Wolff-Parkinson-White Syndrome
  - Ventricular tachycardia
  - Ventricular fibrillation
  - Ectopic arrhythmias
  - Wandering atrial pacemaker
  - Multifocal atrial tachycardia
  - Ectopic atrial rhythm
  - Junctional rhythm
  - Extrasystoles
  - Atrial extrasystole (APC)
  - Ventricular extrasystole (VPC)
  - Treatment of Arrhythmias
  - Pharmacologic
  - ICD

7. Miscellaneous:
  - Interpret a 12-lead electrocardiogram with regard to the following:
    - Medication and electrolyte effects
    - Digoxin
    - Hyperkalemia/hypokalemia
    - Calcium
    - Differential diagnosis of ST segment changes
    - Pericarditis
    - Benign early repolarization
    - Syncope
    - Differential diagnosis and assessment
    - EPS in diagnosis and management of arrhythmias and syncope
    - Tilt testing
8. Describe the cardiac conduction system and the electrical activity of the heart
9. Recognize, evaluate and treat a patient for an SVT (supraventricular tachyarrhythmia) including: Sinus Tachycardia, WPW (Wolff-Parkinson-White) MAT (multifocal atrial tachycardia)
10. Recognize, evaluate and treat ventricular tachycardia
11. Understand the indications for electrophysiologic testing for the evaluation of an arrhythmia
12. Understand the indications for pacemaker and AICD placement
13. Understand the epidemiology, signs and symptoms, electrocardiogram findings, evaluation and treatment for atrial fibrillation and atrial flutter
14. Understand the risk of stroke in atrial fibrillation and the risk and benefits of anticoagulation
15. Evaluate a patient for cardiogenic syncope
16. Be able to properly write a medical order for a 12 lead and 3 lead ECG, as well as a rhythm strip.

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**2: HEART FAILURE**

A. Goals:

1. To prepare the student to recognize and treat common cardiologic conditions.
2. To formulate differential diagnoses for various cardiologic complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the heart and circulatory system.

B. Objectives:

After completion of this component unit, the student will be able to:

1. Define Congestive Heart Failure
2. Stage heart failure according to the NYHA (New York Heart Association) Classification of heart failure
3. Describe the mechanisms of cardiac performance including:
  - Cardiac Output Stroke Volume
  - Ventricular End-Diastolic Volume
  - Myocardial Contractility
  - Preload and Afterload
4. Describe the pathophysiologic causes of heart failure including:
  - a. Myocardial diseases
  - b. Pericardial diseases
  - c. Valvular diseases
  - d. Conduction abnormalities (Arrhythmias)
  - e. Pulmonary diseases
  - f. Metabolic diseases, nutritional deficiencies, and alcohol
  - g. compensatory neurohormonal responses of the kidney, vascular system and heart
5. Understand the pharmacologic treatment of heart failure including the role of:
  - ACE Inhibitors
  - Diuretics
  - Vasodilators
  - Beta Blockers
  - Inotropic Agents
  - Antihypertensive Agents
  - Anticoagulation

6. Understand non-pharmacologic treatments for heart failure including
  - Angioplasty
  - Valve Replacement
  - Diet and exercise
  
7. Describe the predisposing risk factors, clinical presentation and appropriate diagnostic evaluation for each of the following types of heart failure:
  - a. Left sided heart failure
  - b. Right sided heart failure
  - c. Acute heart failure
  - d. Chronic heart failure
  - e. High Output Failure
  
8. Distinguish between systolic and diastolic dysfunction and offer appropriate treatment for each.
  
9. Evaluate and treat a patient for the following pericardial diseases
  - Pericarditis
  - Pericardial Effusion
  - Cardiac Tamponade
  
10. Define Cardiomyopathy and for each of the following types describe the etiology, signs and symptoms, diagnosis and management
  - Dilated Cardiomyopathy
  - Hypertrophic Cardiomyopathy
  - Restrictive Cardiomyopathy

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**3: ATHEROSCLEROTIC HEART DISEASE, CORONARY HEART DISEASE, ANGINA AND MYOCARDIAL INFARCTION**

A. Goals:

1. To prepare the student to recognize and treat common cardiologic conditions.
2. To formulate differential diagnoses for various cardiologic complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the heart and circulatory system.

B. Objective: After completion of this component the student will be able to:

1. Describe the classic symptoms of ischemic chest pain and develop a differential diagnosis of chest pain.
2. Define myocardial ischemia and describe the pathophysiology of ischemic heart disease including:
  - Plaque Development and Rupture
  - Blood Supply
  - Oxygen Demand
  - Thrombus formation
  - Coronary Spasm
3. Describe the risk factors for and prevention of atherosclerotic heart disease including :
  - Gender
  - Hypertension
  - Cholesterol and Triglycerides
  - Smoking
  - Diabetes
  - Hypercoaguable states
  - Family history

4. Describe the diagnostic evaluation of myocardial ischemia including
  - Physical Exam
  - Electrocardiogram Interpretation
  - Cardiac Biochemical Markers
  - Stress Testing
  - Echocardiogram
  - Cardiac Catheterization
  
5. Describe the acute management of myocardial infarct including
  - Aspirin
  - Morphine
  - Nitrates
  - Beta Blockers
  - Reperfusion and Revascularization Methods
  - Anticoagulation
  
6. Describe the long-term management and secondary prevention strategies after myocardial infarction including:
  - Cardiac Rehabilitation and exercise
  - Lifestyle changes
  - Diet and Cholesterol
  - Medications
  
7. Recognize the complications surrounding an acute myocardial infarct including
  - Heart Failure
  - Arrhythmias
  - Sudden Death
  - Post-infarct Angina
  - Pericarditis
  - Aneurysm and Thrombus Formation
  - Dressler's Syndrome
  
8. Recognize patients at risk for silent ischemia.
9. Define unstable angina and discuss the evaluation and treatment of the patient with unstable angina.

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**4: HYPERTENSION**

A. Goals

1. To prepare the student to recognize and treat common cardiologic conditions.
2. To formulate differential diagnoses for various cardiologic complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the heart and circulatory system.

B. Objectives:

After completion of this component, the student will be able to:

1. Understand the epidemiology of hypertension including its relationship to gender, race and lifestyle, and its prevalence in various ethnic populations
2. Understand the role of screening for hypertension in general and high risk populations
3. Understand the recommendations for treating hypertension based on JNC VI Guidelines
4. List the end-organ damage that can result from uncontrolled hypertension with regards the heart, central nervous system, eye, kidney and vascular system
5. Evaluate a patient for hypertensive crisis and understand the principles of the acute treatment
6. List the common causes of secondary hypertension and understand the indications for evaluating a patient for secondary hypertension
7. Understand and counsel a patient on lifestyle, diet and exercise modification in order to treat hypertension
8. List the classes of drugs used to treat hypertension, understand their mechanism of action and common side effects

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**5: VALVULAR HEART DISEASE**

A. Goals

1. To prepare the student to recognize and treat common cardiologic conditions.
2. To formulate differential diagnoses for various cardiologic complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the heart and circulatory system.

B. Objectives: After completion of this component the student will be able to:

1. Define the anatomy of the Aortic, Mitral, Tricuspid and Pulmonic Valves
2. Describe the etiology and pathophysiology, signs and symptoms, diagnostic evaluation and treatment options for each of the valvular disorders below
  - Aortic Stenosis
  - Aortic Regurgitation
  - Mitral Stenosis
  - Mitral Regurgitation
  - Pulmonic Stenosis
  - Pulmonic Regurgitation
  - Mitral Valve Prolapse
3. Recognize congenital heart disorders found in adults including:
  - Bicuspid Valves
  - Patent Ductus Arteriosus
  - Coarctation of the Aorta
  - Tetralogy of Fallot
  - Atrial Septal Defect
4. Understand the role of rheumatic fever as a risk factor for valve disease
5. Discuss indications for prophylaxis against bacterial endocarditis
6. Understand indications for valve replacement
7. Understand the risks and benefits of mechanical and porcine prosthetic valves
8. List common examples of benign flow murmurs.

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**6: CHOLESTEROL**

A. Goal

1. To prepare the student to recognize and treat common cardiologic conditions.
2. To formulate differential diagnoses for various cardiologic complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the heart and circulatory system.

B. Objectives: After completion of this component, the student will be able to:

1. Understand synthesis and transport of cholesterol, chylomicrons, VLDL, LDL and HDL
2. Understand genetic, familial, and lifestyle risk factors for hypercholesterolemia
3. Define the 6 Types of Lipoprotein Fractions in the Fredrickson nomenclature
4. Understand familial and secondary causes of hypercholesterolemia and hypertriglyceridemia
5. Understand the relationship of cholesterol to the development of atherosclerosis and the subsequent risk for coronary artery disease, cerebrovascular disease and peripheral vascular disease
6. Understand how to properly evaluate a patient for hypercholesterolemia
7. Understand the role of diet, exercise and lifestyle modification in managing cholesterol.
8. Based upon the STEP I and II diets, recommend the amount of cholesterol and fat that should be in a daily diet and give examples of saturated, mono-unsaturated, and poly-unsaturated fats
9. Using the NCEP Report, understand the treatment goals for managing cholesterol for the general population, diabetics and patients with coronary artery disease
10. For the following classification of drugs used to treat lipids, understand their mechanism of action, indication, and side effects
  - HMG-CoA Reductase Inhibitors (STATINS)
  - Bile Acid Sequestrants
  - Nicotinic Acid
  - Fibric Acids
  - Red Rice Yeast
  - Cholesterol Absorption Inhibitors (ie Ezetimibe)
  - Lipid regulating agents (i.e. Omega 3 esters)
11. Understand the role of the PA in a cardiology office. Discuss the role the PA can play in both invasive and non-invasive testing, as well as interventional cardiology.

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**GASTROENTEROLOGY**

**1: DISEASES OF THE ESOPHAGUS**

A. Goals

1. To prepare the student to recognize and treat common diseases of the gastrointestinal tract.
2. To develop a differential diagnosis for common complaints and clinical findings in gastroenterologic disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the gastrointestinal tract.

B. Objectives: After completion of this unit, the student will be able to:

1. Understand normal physiology of esophageal motility
2. Define and list common causes of odynophagia
3. Understand the pathophysiology, risk factors, and clinical symptoms of reflux esophagitis
4. Understand pharmacologic and lifestyle treatment strategies for reflux esophagitis
5. Understand complications of chronic reflux esophagitis including:
  - Esophageal strictures
  - Esophageal ulcerations
  - Barrett's esophagus
  - Bronchospastic Airway Disease
6. Define dysphagia and discuss the following dysmotility disorders that can cause it:
  - CVA, Myasthenia Gravis, Multiple Sclerosis, ALS, Parkinsonism
  - Scleroderma, Esophageal Spasm and Achalasia
7. Understand clinical features and risk factors for Mallory-Weiss syndrome
8. Understand clinical features and risk factors for Esophageal rupture (Boerhaave's Syndrome).
9. Compare and contrast different types of esophagitis

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**2: DISEASES OF THE STOMACH & DUODENUM**

**A. Goals**

1. To prepare the student to recognize and treat common diseases of the gastrointestinal tract.
2. To develop a differential diagnosis for common complaints and clinical findings in gastroenterologic disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the gastrointestinal tract.

**B. UNIT OBJECTIVES:** After completion of this unit, the student will be able to:

1. Describe the constellation of symptoms that are often referred to as dyspepsia and list common causes.
2. Understand the pathophysiology, etiology, symptoms, evaluation and treatment of acute and chronic gastritis.
3. Understand the epidemiology, pathophysiology and presentation of gastric and duodenal ulcers.
4. Understand the role, evaluation and treatment of H Pylori in relationship to Peptic Ulcer Disease (PUD) and Non-Ulcer Dyspepsia (functional dyspepsia)
5. Understand the role and evaluation of Excess Acid Secretion (Z-E Syndrome) in relationship to PUD.
6. Understand the mechanism of action and role of NSAIDS in PUD and Gastritis. List management options for patients that require anti-inflammatory agents.
7. Discuss different classes of pharmacological agents used for acid management.
8. Discuss diet and lifestyle management strategies for PUD and Non-ulcer dyspepsia.
9. Understand acute and chronic complications of peptic ulcer disease.
10. Be familiar with disorders of gastric emptying including: Pyloric Stenosis, Gastroparesis
11. Understand risk factors, clinical features, evaluation and treatment of gastric tumors including: Linitis plastica, Gastric Carcinoma, Lymphoma
12. For Food Poisoning and Gastroenteritis: list the common bacterial and viral pathogens and describe the associated risk factors, symptomatology and appropriate treatment interventions.
13. List noninfectious causes of persistent emesis

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**3: DISEASES OF THE LARGE AND SMALL INTESTINES**

A. Goals

1. To prepare the student to recognize and treat common diseases of the gastrointestinal tract.
2. To develop a differential diagnosis for common complaints and clinical findings in gastroenterologic disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the gastrointestinal tract.

B. Objectives: After completion of this unit, the student will be able to:

1. Be familiar with the clinical features and risk factors for intestinal obstruction
2. Understand the etiologies and evaluation of chronic diarrhea including: Osmotic, Secretory, and Malabsorptive diarrhea, and Dysmotility syndromes
3. Understand the pathogenesis, clinical features and treatment of various bacterial and viral causes of infectious diarrhea, including Clostridium Difficile
4. Understand the clinical features, epidemiology, risk factors, and evaluation of irritable bowel syndrome.
5. Understand treatment strategies including diet, lifestyle and medical therapy for diarrhea predominant and constipation predominant irritable bowel syndrome.
6. Understand causes, evaluation and treatment strategies for constipation not associated with irritable bowel syndrome.
7. Understand the epidemiology, pathophysiology, intestinal and extra-intestinal manifestations of Crohn's Disease and Ulcerative Colitis.
8. Understand the different classes of pharmacologic agents used in the treatment of Crohn's Disease and Ulcerative Colitis.
9. Define the indications for surgical intervention in Crohn's and Ulcerative Colitis
10. Understand the complications associated with longstanding IBD including: Colon Cancer, Biliary Cirrhosis, Renal Stones, Osteoporosis, Malnutrition, Fistulas and Adhesions.

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**4: GASTROINTESTINAL BLEEDING/COLORECTAL CANCER**

A. Goals

1. To prepare the student to recognize and treat common diseases of the gastrointestinal tract.
2. To develop a differential diagnosis for common complaints and clinical findings in gastroenterologic disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the gastrointestinal tract.

B. Objectives : After completion of this unit, the student will be able to:

1. Understand the presenting signs and symptoms of colon cancer
2. Understand the epidemiology, pathogenesis and associated environmental, familial and genetic risk factors for developing colorectal cancer
3. Understand staging, treatment, and prognosis of colon cancer
4. Describe the different types of intestinal polyps and their relationship to colon cancer
5. Understand screening recommendations for average risk and above risk individuals
6. Understand different methods of screening for the diagnosis of colon cancer:
7. Understand the epidemiology, pathophysiology, clinical features, evaluation and treatment of diverticulitis and diverticulosis
8. Define terminology used to describe GIB including; hematochezia, hematemesis, melena and bright red blood per rectum and list common causes of each
9. Define Lower and Upper Gastrointestinal bleeding and differentiate among the various etiologies of gastrointestinal bleeding
10. Identify risk factors for gastrointestinal bleeding and the associated clinical features, differential diagnosis, workup and treatment.

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**5: DISEASES OF THE PANCREAS & BILIARY TRACT**

**A. GOALS**

1. To prepare the student to recognize and treat common diseases of the gastrointestinal tract.
2. To develop a differential diagnosis for common complaints and clinical findings in gastroenterologic disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the gastrointestinal tract.

**B. Objectives:** After completion of this unit, the student will be able to:

1. Understand the etiology, risk factors, and clinical features of pancreatitis
2. Understand the clinical and diagnostic evaluation of pancreatitis and the application of Ranson's Criteria
3. Understand the management of acute pancreatitis
4. Understand the sequelae of recurrent and chronic pancreatitis including:
  - Malabsorption
  - Pseudocysts
  - Abscess
  - Diabetes
5. Understand the etiology and risk factors for the development of gallstones
6. Understand the clinical features and diagnostic evaluation of:  
Cholelithiasis, Cholecystitis, Choledocholithiasis
7. Understand the management of acute cholecystitis and choledocholithiasis

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**6: DISEASES OF THE LIVER**

A. Goals

1. To prepare the student to recognize and treat common diseases of the gastrointestinal tract.
2. To develop a differential diagnosis for common complaints and clinical findings in gastroenterologic disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the gastrointestinal tract.

B. Objectives: After completion of this unit, the student will be able to:

1. Understand the epidemiology, pathophysiology, clinical features, treatment and prognosis for:
  - Primary Biliary Cirrhosis
  - Sclerosing Cholangitis
2. Understand the pathophysiology of jaundice and discuss common causes including:
  - Crigler-Najjar Syndrome
  - Gilbert's syndrome
  - Dubin-Johnson
  - Hepatitis
  - Cholelithiasis
  - Cirrhosis
3. Understand the clinical and diagnostic features of acute hepatitis
4. Understand the epidemiology and pathophysiology of viral hepatitis, including the mechanism of action, and modes of transmission for Hepatitis A, B, C, D, E and G
5. Be able to chart the course of Hepatitis A, B, and C including: Prodrome phase, acute symptomatic infection, antibody response and recovery, chronic hepatitis
6. Understand the treatment options and prognosis for each type of viral hepatitis and risk factors for future infectivity, development of fulminant hepatitis, cirrhosis and hepatocellular carcinoma
7. Understand indications for vaccination against Hepatitis A and B and methods to reduce transmission and spread of Hepatitis A, B and C

8. Be familiar with nonviral causes of hepatitis and chronic liver disease including:
  - Drug Induced Hepatitis
  - Alcoholic Hepatitis
  - Non-alcoholic Steatorrheaic Hepatitis (NASH)
  - Primary Biliary Cirrhosis
  - Cardiac Cirrhosis
  - Wilson's Disease
  - Hemochromatosis
  - Alpha 1- antitrypsin Deficiency
  - Autoimmune disease
  - Toxins
  - Parasitic infections
9. Understand and describe the evaluation of cirrhosis including medical history, physical findings , and Child's Criteria.
10. Understand the complications of cirrhosis and methods of management for:
  - Encephalopathy
  - Variceal Bleeding
  - Ascites
  - Hepatorenal Syndrome
  - Portal Hypertension
11. Understand the dietary and pharmacological approach to the management of cirrhosis
12. Understand risk factors, treatment and prognosis for Primary Hepatocellular Carcinoma (Hepatoma) and be familiar with other tumors affecting the liver including: Liver Adenoma, Metastatic Tumors, Hemangioma
13. Be familiar with tumors of the gallbladder including Klatskin tumors and cholangiocarcinoma
14. Recognize the clinical features, diagnosis, treatment and prognosis of adenocarcinoma and islet cell tumors of the pancreas

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**1: Approach to the patient with respiratory disease**

A. Goals

1. To prepare the student to recognize and treat common pulmonary diseases.
2. To develop a differential diagnosis for common pulmonary diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the lung and respiratory system.

B Objectives: After completion of this component unit, the student will be able to:

1. Discuss the patient with pulmonary disease

Obtain Appropriate History and Related Review of Systems

Complete a thorough pulmonary examination

Integrate Anatomy, Physiology, Pathophysiology and Clinical Diagnosis

2. Recognize the following signs and symptoms of pulmonary disease and be able to use them to develop a differential diagnosis:

Cough

Wheezing

Orthopnea

Dyspnea

Hemoptysis

Chest Pain

Clubbing

Cyanosis

3. Discuss physiologic function in relation to pulmonary assessment, including the following concepts:

Pulmonary Function Testing

Measurement of Lung Volumes

Spirometric Measurements

Lung Capacity

Gas Exchange

Arterial Blood Gases

4. Contrast Obstructive Ventilatory Disorders with Restrictive Ventilatory Disorders
5. Identify the clinical manifestations of common respiratory diseases, including reversible airway disease (asthma), COPD, pneumonia, acute bronchitis, and viral upper respiratory Infections.
6. Educate patients regarding the health risks of tobacco use and smoking cessation programs.

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**2: Hyperreactive Airway Disease (Asthma)**

A. Goals

1. To prepare the student to recognize and treat common pulmonary diseases.
2. To develop a differential diagnosis for common pulmonary diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the lung and respiratory system.

B Objectives: After completion of this component unit, the student will be able to:

1. Understand the epidemiology of asthma, including risk factors and environmental triggers.
2. Understand the pathophysiology of reversible airway diseases including the following:

Immune mediated response (Ig E, eosinophil and neutrophil chemotactic factors)  
Smooth muscle contraction and hyperplasia  
Chemical mediators of Inflammation- prostaglandins, leukotrienes, arachidonic acid metabolism  
Histamine/Mast Cell  
Adrenergic stimulation  
Cholinergic stimulation  
Mucosal injury  
Bronchial secretions

3. Recognize the clinical features of an asthma attack.
4. Interpret pulmonary function tests for diagnosing asthma
5. Educate patients on reducing and controlling environmental triggers of asthma.
6. Contrast the different pharmacological agents used for treating asthma.
7. Understand how to evaluate and diagnose asthma.
8. Understand how to perform and monitor pulmonary peak flows
9. Understand how to instruct a patient on proper technique for inhaler use and peak flow monitoring.
10. Know how to guide therapeutic interventions based on patient symptoms and peak flow measurements.

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**3: Chronic Obstructive Pulmonary Disease (COPD)**

A. Goals

1. To prepare the student to recognize and treat common pulmonary diseases.
2. To develop a differential diagnosis for common pulmonary diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the lung and respiratory system.

B Objectives: After completion of this component unit, the student will be able to:

1. Understand the etiology and pathogenesis of Chronic Obstructive Pulmonary Disease, including the role of infection, smoking, and alpha-1 antitrypsin deficiency
2. Understand the clinical and diagnostic features of chronic and decompensated COPD including clinical presentation, chest x-ray, oxygen saturation, and pulmonary function test results
3. Be able to define chronic bronchitis and be familiar with its risk factors, diagnosis and treatment
4. Be able to recognize and treat bronchiectasis
5. Be able to compare and contrast asthma and COPD, as well as understand the relationship between the two
6. Understand and interpret pulmonary function tests and
7. Understand the mechanism of abnormal gas exchange in COPD
8. Understand the natural history and long-term sequelae of COPD (cor pulmonale, pulmonary hypertension, hypoxia, polycythemia)
9. Recognize the pathophysiology, clinical presentation and PFT/ABG findings of types of COPD including the classic 'pink puffer' and 'blue bloater' presentations.
10. Be familiar with environmental and pharmacologic treatment of COPD including: oxygen therapy, antibiotics, steroids, anticholinergic and sympathomimetic inhalers, theophylline, pulmonary rehabilitation
11. Recognize the risks of hypercapnea in COPD with and without oxygen therapy.

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**4: Infectious diseases of the respiratory system**

A. Goals

1. To prepare the student to recognize and treat common pulmonary diseases.
2. To develop a differential diagnosis for common pulmonary diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the lung and respiratory system.

B Objectives: After completion of this component unit, the student will be able to:

1. List the lung's basic defense mechanisms against infection
2. Be familiar with risk factors for pneumonia
3. Be familiar with the epidemiology and pathogenicity of influenza virus and pneumococcal pneumonia and vaccination policies to prevent their spread
4. Be familiar with the clinical features of a patient presenting with pneumonia, including indications for hospitalization and outpatient management
5. Be familiar with common bacterial causes of community acquired pneumonia (CAP) based on patient age and immune status and environmental exposure; choose appropriate antibiotic therapy
6. Understand risk factors for aspiration pneumonia, common pathogens and appropriate antibiotic selection
7. Recognize causes of nosocomial pneumonia and appropriate treatment
8. Describe complications of pneumonia including pleural effusions, empyema and abscess formation
9. Understand the epidemiology and pathogenesis of tuberculosis, including mode of transmission and persons at increased risk; be familiar with indications for screening for tuberculosis
10. Be able to recognize the signs and symptoms of primary pulmonary tuberculosis and extrapulmonary manifestations of tuberculosis
11. Be familiar with the diagnostic evaluation for tuberculosis including, administration and interpretation of Tuberculin Skin Testing (PPD), Chest X-ray findings, Sputum smear and culture for acid-fast bacilli
12. Describe the general principles of therapy for TB exposure, and multi-drug therapy for active tuberculosis
13. Be familiar with common fungal and protozoan pulmonary infections including host and environmental risk factors.

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Pulmonary Medicine

**5: Pulmonary Embolism and Fat Embolism**

A. Goals

1. To prepare the student to recognize and treat common pulmonary diseases.
2. To develop a differential diagnosis for common pulmonary diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the lung and respiratory system.

B Objectives: After completion of this component unit, the student will be able to:

1. Discuss the environmental, physiologic, and genetic risk factors for development of Deep Vein Thrombosis and Pulmonary Embolism
2. Discuss the pathophysiology of clot formation.
3. Discuss the diagnostic evaluation of Deep Vein Thrombosis and Pulmonary Embolism including:

ABG  
ECG  
D-Dimer  
Ultrasound  
ventilation-perfusion lung scans  
CT scan  
angiography

4. Describe the following treatment modalities for PE:

anticoagulation  
thrombolysis  
filter placement

5. Discuss methods of prevention of Deep Vein Thrombosis and Pulmonary Embolism, especially as it pertains to the perioperative period.

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Pulmonary Medicine

**6: Disease of the Diaphragm, Chestwall, Pleura, and Mediastinum**

A. Goals

1. To prepare the student to recognize and treat common pulmonary diseases.
2. To develop a differential diagnosis for common pulmonary diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the lung and respiratory system.

B Objectives: After completion of this component unit, the student will be able to:

1. Discuss disorders of diaphragmatic motion, include

Dysfunction  
Fatigue  
Unilateral Diaphragmatic Paralysis  
Hiccup  
Diaphragmatic Hernias

2. Describe abnormalities of the thoracic cage and their impact upon pulmonary function including:

Kyphoscoliosis  
Scoliosis  
Pectus Excavatum  
Thoracoplasty  
Flail Chest

3. Describe the anatomy and physiology of function of the pleura.
4. Be able to distinguish between exudative and transudative pleural effusions based upon pleural fluid analysis including but not limited to:

pH  
Glucose  
Amylase  
Protein  
LDH  
RBCs  
WBC differential  
Cholesterol  
Cytology

5. Discuss the differential diagnosis of a pleural effusion; contrast an exudative with a transudative pleural effusion.
6. Discuss evaluation and treatment of an empyema.
7. Differentiate between primary and secondary spontaneous pneumothorax, secondary and tension pneumothorax
8. List risk factors for development of a pneumothorax
9. Understand acute management, long-term treatment, monitoring and prevention strategies for pneumothorax
10. Be familiar with various primary and metastatic tumors of the anterior, middle and posterior mediastinum including evaluation and treatment

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Pulmonary Medicine

**7: Pulmonary Neoplasms**

A. Goals

1. To prepare the student to recognize and treat common pulmonary diseases.
2. To develop a differential diagnosis for common pulmonary diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the lung and respiratory system.

B Objectives: After completion of this component unit, the student will be able to:

1. Discuss the differential diagnosis of a solitary pulmonary nodule, including primary neoplasms, metastatic diseases and nonmalignant causes
2. Discuss the evaluation of a single pulmonary nodule
3. Provide the clinical signs and symptoms, epidemiology, tumor staging, treatment options and prognosis for the following:
  - Small Cell Lung Cancer (Oat Cell)
  - Non-small Cell Lung Cancer (NSCLC)
    - Large Cell
    - Adenocarcinoma
    - Squamous
4. Be familiar with systemic complications of pulmonary tumors, including paraneoplastic syndromes, ectopic hormone production, Horner's syndrome, and patterns of metastatic disease
5. Be familiar with risk factors, diagnosis and treatment of mesothelioma
6. Recognize the correlation of tobacco use with pulmonary neoplasms, and describe common smoking cessation techniques.

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**FUNDAMENTALS OF PRIMARY CARE & CLINICAL MEDICINE**  
Pulmonary Medicine

**8: Interstitial Lung Disease, Sarcoidosis, Bronchiectasis, Cystic Fibrosis**

A. Goals

1. To prepare the student to recognize and treat common pulmonary diseases.
2. To develop a differential diagnosis for common pulmonary diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the lung and respiratory system.

B Objectives: After completion of this component unit, the student will be able to:

1. Describe the risk factors that leads to interstitial lung disease, including: occupational exposure, physical, chemical and aspiration injuries, antigen or toxic exposure, immune and inflammatory process, and fibrosis.
2. Describe the pathophysiology of interstitial disease including changes in lung volume and compliance, gas exchange, small airway changes, impaired diffusion
3. Understand the clinical manifestations, diagnostic evaluation, and treatment of ILD
4. Be able to discuss interstitial diseases with known and unknown etiologic agents:

Inhalation Induced: Silicosis, Pneumoconiosis, Asbestosis  
Drug-Induced  
Radiation Induced  
Idiopathic Pulmonary Fibrosis

5. Discuss associated Rheumatic and Autoimmune Disorders affecting the lungs, including

Rheumatoid Arthritis  
Wegener's  
Goodpasture's

6. Discuss the epidemiology, pathogenesis, physical findings, differential diagnosis, diagnostic evaluation and treatment of sarcoidosis
7. Recognize the extra-pulmonary manifestations of sarcoidosis
8. Briefly discuss thermal, altitude and barometric lung injuries, including:

Smoke Inhalation  
Carbon Monoxide Poisoning  
High Altitude Sickness  
Barometric related diving injuries

9. Understand the pathogenesis, clinical manifestations, diagnosis and treatment of :

Bronchiectasis  
Bronchial Obstruction

10. Discuss the pathogenesis, clinical manifestations, clinical course and prognosis of cystic fibrosis

11. Describe complications associated with cystic fibrosis

Genitourinary  
Intestinal  
Liver  
Pancreas  
Pulmonary

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**FUNDAMENTALS OF PRIMARY CARE & CLINICAL MEDICINE**  
Pulmonary Medicine

**9: Mechanism of Respiratory Failure, Sleep Apnea, and Pulmonary Hypertension**

A. Goals

1. To prepare the student to recognize and treat common pulmonary diseases.
2. To develop a differential diagnosis for common pulmonary diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the lung and respiratory system.

B Objective: After completion of this component unit, the student will be able to:

1. Describe the mechanisms of disease that lead to:  

Hypoxic Respiratory Failure  
Hypercapnic Respiratory Failure
2. Discuss the pathogenesis, pathophysiology and risk factors of Adult Respiratory Distress Syndrome (ARDS) and understand its treatment and prognosis
3. Be familiar with BIPAP/CPAP including indications for its use
4. Be familiar with the basic principles of mechanical ventilation, including indications for intubation and the associated risks and benefits
5. Understand the etiology and pathogenesis of pulmonary hypertension along with its treatment options and long-term sequelae
6. Be familiar with the various causes of sleep apnea syndromes, the pathophysiology of sleep apnea including pulmonary and extra-pulmonary effects and treatment options including medical, surgical and lifestyle modification

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**Fundamentals of Primary Care & Clinical Medicine**  
**NEUROLOGY**

**1: Headache**

A. Goals

1. To prepare the student to recognize and treat common neurological disorders.
2. To develop a differential diagnosis for common neurological complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in neurological disease.

B. Objectives: At the end of this unit students should be able to:

1. Compare and contrast primary and secondary headache disorders including but not limited to: tension headaches, cluster headaches, subarachnoid hemorrhage, temporal arteritis, benign intracranial hypertension.
2. List the classic signs, symptoms and presentation for the following types of headaches:
  - Migraine (classic and common)
  - Ice-Pick
  - Tension
  - Cluster
  - Sinus
  - Glaucoma
  - Temporal Arteritis
  - Intracranial bleed
  - Post-traumatic
  - Space occupying lesion
  - Infectious ( meningitis )
3. Explain the role of the neurologic examination, lumbar puncture, CT scan and MRI in the evaluation of headaches
4. Understand how to prevent and treat tension headaches
5. Understand the epidemiology, pathophysiology and prevention of migraine headaches
6. List the different classes of pharmacologic agents used to treat an acute migraine
7. List the indications and treatment options for prophylactic treatment against recurrent migraine attacks
8. Describe the etiology, pathophysiology, evaluation and treatment of the following causes of facial pain:
  - Trigeminal Neuralgia
  - Postherpetic Neuralgia
  - Temporal arteritis

9. Evaluate patients for a space occupying lesion when presenting with headache and/or other neurologic symptoms :

Primary Neurologic Tumors

Acoustic neuroma

glioblastoma multiforme

meningioma

pituitary tumors

Metastatic Cancers: Breast, lung, lymphoma, leptomeningeal

Infectious Causes: Abscess, HIV related opportunistic infections,

Echinococcus, Cryptococcus

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**Fundamentals of Primary Care & Clinical Medicine**  
**NEUROLOGY**

**2: TIA/Stroke**

A. Goals

1. To prepare the student to recognize and treat common neurological disorders.
2. To develop a differential diagnosis for common neurological complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in neurological disease.

B. Objectives: At the end of this unit students should be able to:

1. Understand the following characteristics of hemorrhagic and ischemic strokes
  - Epidemiology
  - Risk Factors
  - Presentation
  - Treatment
2. Describe the clinical presentation of the following ischemic processes:
  - lacunar infarcts
  - amaurosis fugax
  - middle cerebral artery occlusion
  - anterior cerebral artery occlusion
  - posterior cerebral artery occlusion
  - cerebellar artery occlusion
3. Describe the relationship between atrial fibrillation and stroke
4. Describe pharmacologic and nonpharmacologic strategies for primary and secondary prevention of stroke
5. Describe the diagnostic evaluation and management of an acute stroke, including imaging studies and pharmacologic treatment
6. Describe the acute and long-term medical management of ischemic stroke
7. Describe long-term prognosis and post-stroke care for stroke victims
8. Define and discuss the following aspects of a transient ischemic attack (TIA):
  - Risk factors
  - Clinical Presentation
  - Diagnostic evaluation
  - Treatment
  - Relationship to CVA

9. List the etiology, signs and symptoms for each type of intracranial hemorrhage:
  - intracerebral hemorrhage
  - subarachnoid hemorrhage
  - arteriovenous malformations
  - berry aneurysms
10. Define coma and persistent vegetative state and list potential causes
11. Describe the assessment and prognosis of a comatose patient using the Glasgow Coma Scale

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**Fundamentals of Primary Care & Clinical Medicine**  
**NEUROLOGY**

**3: Seizures**

A. Goals

1. To prepare the student to recognize and treat common neurological disorders.
2. To develop a differential diagnosis for common neurological complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in neurological disease.

**B. Objectives:** At the end of this unit students should be able to:

1. Describe the pathophysiology, risk factors and diagnostic evaluation of epilepsy
2. List the pharmacologic treatments for epilepsy
3. Describe the clinical features of a generalized tonic-clonic seizure (GTC) including the post-ictal phase
4. Discuss pharmacologic and nonpharmacologic prophylaxis for generalized tonic-clonic seizures
5. Describe the clinical features for each of the following types of seizures:
  - Partial Simple Seizures
  - Partial Complex Seizures
  - Absence (petit mal) Seizures
  - Pseudo seizures
6. Understand the evaluation and treatment of solitary and alcohol related seizures
7. Describe the acute management of a patient in status epilepticus

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**Fundamentals of Primary Care & Clinical Medicine**  
**NEUROLOGY**

**4: Multiple Sclerosis/ Myasthenia Gravis/ Parkinson's /ALS/ Huntington's Disease/ Tourette's Syndrome**

A. Goals

1. To prepare the student to recognize and treat common neurological disorders.
2. To develop a differential diagnosis for common neurological complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in neurological disease.

B. Objectives: At the end of this unit students should be able to:

1. Understand the pathophysiology and epidemiology of Multiple Sclerosis.
2. Understand the clinical presentation, diagnostic evaluation and clinical course of multiple sclerosis and describe the treatment, and prognosis.
3. Understand the pathophysiology, clinical features and diagnosis of Parkinson's disease.
4. List the different therapeutic regimens available for treating Parkinson's. Understand their mechanism of action and common side effects.
5. Describe the presentation of a patient with Myasthenia Gravis and describe the clinical course, treatment, and prognosis
6. Describe the presentation of a patient with Amyotrophic Lateral Sclerosis and describe the clinical course, treatment, and prognosis
7. Evaluate and manage a patient for complaints of tremor: list the differential diagnosis, clinical exam and diagnostic evaluation, and treatment.
8. Recognize the signs and symptoms of Huntington's disease, understand the genetic defect and the natural history of the disease and treatment.
9. Recognize the signs and symptoms of Gilles de la Tourette's Syndrome, understand the psychosocial impact of the illness and understand available treatment options.

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**Fundamentals of Primary Care & Clinical Medicine**  
**NEUROLOGY**

**5: Peripheral Neuropathy**

A. Goals

1. To prepare the student to recognize and treat common neurological disorders.
2. To develop a differential diagnosis for common neurological complaints.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in neurological disease.

B. Objectives: At the end of this unit students should be able to:

1. List common sensory and motor symptoms of a neuropathy
2. Evaluate the following conditions and list common causes of:
  - Hyperreflexia
  - Hyporeflexia
  - Myopathy
  - Tremor
  - Ataxia
3. Understand the role of diagnostic imaging, nerve conduction studies and laboratory work in the evaluation of a neuropathy:
4. List pharmacologic treatments for neuropathic pain
5. List diseases that can cause each of the following types of peripheral polyneuropathies
  - Inherited
  - Metabolic
  - Infectious
  - Paraneoplastic/paraproteinemia
  - Toxins/Heavy Metals
6. Evaluate and treat the following mononeuropathies:
  - Carpal tunnel syndrome
  - Radial nerve palsy
  - Meralgia paresthetica
  - Sciatica
7. Evaluate and treat Bell's Palsy

8. Describe the mechanism of disease, clinical features, diagnostic evaluation and treatment for the following neuromuscular disorders:
  - Myasthenia Gravis
  - Eaton-Lambert
  - Botulism
  
9. Describe peripheral neuropathies commonly associated with diabetes and alcoholism

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**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
Renal

**1: Introduction/ Evaluation and Management of Acute and Chronic Renal Failure**

A. Goals

1. To prepare the student to recognize and treat common renal diseases.
2. To develop a differential diagnosis for common renal diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the kidney.

B. Objectives: After completion of this unit, the student will be able to:

1. Understand how to evaluate a patient for renal insufficiency
2. Understand basic diagnostic tests used in the evaluation of renal failure including: urinalysis, creatinine clearance, GFR, FeNa, 24hr protein collection, urine electrolytes and osmolality, renal sonogram, SPEP, UPEP
3. Understand the indications and role of renal biopsy in identifying renal disease
4. Define and give examples of pre-renal, post-renal and intrinsic renal failure
5. Recognize the effects of medications on renal function including anti-inflammatory agents and understand how to adjust medications that undergo renal excretion
6. Understand the impact of systemic disease on renal function including diabetes and hypertension
7. Be familiar with the clinical symptoms and systemic effects of uremia
8. Understand basic management of chronic renal failure with regard to blood pressure control, nutrition, diabetic control, and medications

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**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
Renal

**2: Glomerular and Tubular Renal Disease**

A. Goals

1. To prepare the student to recognize and treat common renal diseases.
2. To develop a differential diagnosis for common renal diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the kidney.

B. Objectives: After completion of this unit, the student will be able to:

1. Recognize the clinical presentation and defining characteristics of acute glomerulonephritis
2. Be familiar with common causes of acute glomerulonephritis, including pathophysiology, treatment and prognosis of the following:
  - Poststreptococcal Glomerulonephritis
  - Berger's Disease (IgA Nephropathy)
  - Rapidly Progressive Glomerulonephritis (RPGN)
  - Henoch-Schonlein Purpura
  - Wengener's Granulomatosis
  - Goodpasture's Syndrome
3. Be familiar with systemic causes of nephrotic syndrome and understand the clinical presentation, evaluation and management
4. Understand the pathophysiology of diabetic nephropathy as well as prevention and management strategies
5. Understand Lupus Nephritis including evaluation, treatment and prognosis
6. Vascular causes of glomerular disease including uncontrolled hypertension, renovascular hypertension, fibromuscular dysplasia, atherosclerotic and cholesterol emboli
7. Recognize common causes of acute tubular necrosis (ATN) and be able to evaluate and treat appropriately

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**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
**Renal**

**3: Dialysis**

A. Goals

1. To prepare the student to recognize and treat common renal diseases.
2. To develop a differential diagnosis for common renal diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in diseases of the kidney.

B. Objectives: After completion of this unit, the student will be able to:

1. Understand the epidemiology of ESRD including socioeconomic factors, race and underlying disease state
2. Understand the indications for dialysis in acute and chronic renal failure
3. Understand the basic principles of dialysis including definition, purpose, and methods of solute transfer
4. Be familiar with the different methods of performing dialysis including hemodialysis(HD), continuous ambulatory peritoneal dialysis (CAPD), and continuous arteriovenous hemofiltration (CAVH)
5. Understand the indications for choosing each type of dialysis, including the advantages and disadvantages of each method
6. Understand the implications for drug dosing and clearance, dietary modification and fluid management in patients on dialysis
7. Recognize and treat catheter related infections in hemodialysis and peritonitis in CAPD
8. Recognize problems from inadequate dialysis such as uremic symptoms, coagulopathies, hypertension, electrolyte abnormalities, and volume overload
9. Understand and manage the systemic effects of chronic renal failure in particular: calcium and phosphorus balance, renal osteodystrophy, hypertension, anemia , acidemia and hyperkalemia

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**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
Rheumatology

**1: Introduction to Rheumatology**

A. Goals

1. To prepare the student to recognize and treat common rheumatologic diseases.
2. To develop a differential diagnosis for common rheumatologic diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in rheumatologic disorders.

B. Objectives: At the end of this unit students should be able to:

1. List the different types of joints there are in the body and give an example of each type
2. Understand the role of synovium, synovial fluid, and cartilage in joint mechanics
3. Understand the pathophysiology of tendonitis and give a common example
4. Understand the pathophysiologic process of inflammation and list the common signs and symptoms
5. Understand how to use the following markers of inflammation for the evaluation of autoimmune diseases:
  - ESR
  - CRP
  - RF
  - ANA
  - TNF
  - Ig A
6. List the different classes of drugs used to treat rheumatic diseases. Understand the mechanism of action and common side effects and give an example from each class.
7. Understand the diagnostic approach and differential diagnosis of a single inflamed joint
8. Analyze a synovial fluid aspiration
9. Understand the diagnostic evaluation for a polyarticular inflammatory arthritis
10. Evaluate a patient for Fibromyalgia
11. Understand the epidemiology and symptomatology associated with fibromyalgia
12. Understand the pharmacologic and rehabilitative approach to treating fibromyalgia
13. List the clinical symptoms of Reflex Sympathetic Dystrophy and describe the associated vasomotor and bone changes

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Rheumatology

**2: Vasculitic Syndromes:**

A. Goals

1. To prepare the student to recognize and treat common rheumatologic diseases.
2. To develop a differential diagnosis for common rheumatologic diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in rheumatologic disorders.

B. Objectives: At the end of this unit students should be able to:

1. Describe the clinical features of Raynaud's Phenomenon. Understand the epidemiology, pathophysiology and management of the disorder and list autoimmune disorders commonly associated with it.
2. List the signs and symptoms of Temporal Arteritis (TA) and Polymyalgia Rheumatica (PMR). Understand the epidemiology, pathophysiology, Diagnosis and treatment of the two diseases and the relationship between them.
3. Understand the epidemiology, signs and symptoms, diagnostic criteria and treatment for the following vasculitic syndromes:
  - Churg-Strauss
  - Wegener's Granulomatosis
  - Goodpasture's
4. Diagnose cryoglobulinemia and list infectious and autoimmune processes that are associated with it

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Rheumatology

**3: Seronegative Spondylarthropathies:**

A. Goals

1. To prepare the student to recognize and treat common rheumatologic diseases.
2. To develop a differential diagnosis for common rheumatologic diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in rheumatologic disorders.

B. Objectives: At the end of this unit students should be able to:

1. Define seronegative arthropathy and list the common diagnostic laboratory findings
2. Recognize the common clinical signs and symptoms of Ankylosing Spondylitis; include the common skeletal and extra-skeletal manifestations
3. Describe the roentogram changes of the spine in Ankylosing Spondylitis
4. Discuss the management and prognosis of Ankylosing Spondylitis
5. Recognize the clinical signs and symptoms of Reiter's Syndrome
6. Understand the differential diagnosis and diagnostic evaluation of Reiter's Syndrome
7. Understand the relationship of infection to Reiter's Syndrome
8. Understand treatment and prognosis of Reiter's Syndrome
9. Describe the clinical presentation of psoriatic arthritis including associated changes in skin, nails and bone changes seen on roentogram
10. List the common laboratory abnormalities in psoriatic arthritis
11. Understand management and treatment of psoriatic arthritis
12. Describe the clinical signs and symptoms of enteropathic arthritis
13. List the gastrointestinal disorders associated with enteropathic arthritis
14. Describe treatment and prognosis of enteropathic arthritis

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**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
Rheumatology

**4: ARTHRITIS AND CRYSTAL DISEASE**

A. Goals

1. To prepare the student to recognize and treat common rheumatologic diseases.
2. To develop a differential diagnosis for common rheumatologic diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in rheumatologic disorders.

B. Objectives: At the end of this unit students should be able to:

1. Compare and contrast osteoarthritis and rheumatoid arthritis for the following features:
  - Epidemiology
  - Pathophysiology
  - Joint involvement
  - Roentogram changes
  - Laboratory findings
2. Understand a stepwise pharmacologic approach to the treatment of OA
3. List the non-articular organ involvement and signs of rheumatoid arthritis
4. Recognize the relationship between rheumatoid arthritis and Felty's syndrome
5. Recognize the risk for atlo-axial subluxation and its associated symptoms
6. List the different types of pharmacologic treatments used in rheumatoid arthritis and understand their mechanism of action and side effects
7. Understand the role of physical therapy and exercise in the management of OA and RA
8. Understand the diagnostic evaluation of a monoarticular arthritis
9. Understand the pathophysiology and predisposing risk factors for developing gout
10. Recognize the clinical signs and symptoms of an acute gout attack; list the differential diagnosis of gout arthropathy and describe the approach to evaluation
11. Recognize the joint and periarticular changes of chronic or tophaceous gout
12. Understand treatment and prevention strategies for gout attacks including pharmacologic and nonpharmacologic management
13. List the clinical and diagnostic features of calcium pyrophosphate disease (CPPD or pseudogout)
14. Identify the common pathogens that cause septic joint and discuss treatment

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**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
Rheumatology

**5: Autoimmune Diseases**

A. Goals

1. To prepare the student to recognize and treat common rheumatologic diseases.
2. To develop a differential diagnosis for common rheumatologic diseases.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic and preventive measures and complications involved in rheumatologic disorders.

B. Objectives: At the end of this unit students should be able to:

1. Understand the epidemiology and pathophysiology of systemic lupus erythematosus (SLE)
2. List the diagnostic criteria for SLE including the use of serum markers
3. Understand the antiphospholipid antibody syndrome and its sequelae
4. Understand the different types of renal impairment in SLE
5. Recognize the common types of drugs used to treat SLE
6. Describe the symptoms of drug induced lupus and list its common causes
7. List the components of CREST syndrome
8. Understand the epidemiology of scleroderma (systemic sclerosis) and serologic markers of this disease
9. Describe the dermatologic changes that occur in scleroderma
10. List the clinical signs and organ involvement seen in diffuse sclerosis.
11. Describe treatment strategies for scleroderma
12. Compare and contrast the following features of polymyositis and dermatomyositis: epidemiology and pathophysiology, clinical characteristic and laboratory findings, associated organ involvement and paraneoplastic syndromes, treatment and prognosis
13. Recognize the clinical presentation of Sjogren's syndrome; formulate a diagnostic approach including common signs and symptoms and use of the Schirmer test
14. List other autoimmune diseases that are associated with Sjogren's syndrome
15. Discuss approaches to treatment of Sjogren's syndrome

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**MICROBIOLOGY**

**Course Description:**

The course familiarizes the student with the basic information needed to understand the role of microbiology in clinical medicine. The course consists of didactics lectures. Lectures are supplemented with demonstration materials from the Laboratory of Microbiology whenever feasible. The core course includes Bacteriology, Mycology, Virology, Parasitology, and

A. Goals

1. To provide students with an understanding of basic microbiology and common clinical disease states related to microbiology.
2. To recognize normal flora and common pathogens.
3. To understand biologic and environmental factors, which impact on development of disease and clinical interventions.

B. Objectives: After the completion of this course the student should be able to:

1. List two identifying properties for each of the following:
  - Fungi
  - Protozoa
  - Bacteria
  - Algae
  - Viruses
2. List physical attributes commonly used to describe bacteria.
3. List factors that influence enzyme activity.
4. Give an example of two types of microbial respiration and explain the difference between them.
5. Define sterilization and disinfection and give four examples.
6. Define normal flora and give five examples.
7. Differentiate between endotoxins and exotoxins and give an example of each.
8. List stages of infection.
9. Explain gram staining.
10. List examples of and describe infections caused by Staphylococcus.
11. Explain the difference between the beta hemolytic strep groups.
12. Describe post streptococcal disease.
13. Describe Neisseria infections and describe the clinical symptoms.
14. List infections caused by gram negative rods involving the respiratory tract and the gastrointestinal tract.
15. List organisms which cause urinary tract infections.
16. Describe types of clostridia infection.
17. Name the organisms which cause syphilis and Lyme disease.
18. List disease caused by Chlamydia trachoma's.
19. Describe the clinical presentation of typhus

20. Describe other diseases caused by Rickettsia.
21. Explain the difference between bactericidal and bacteriostatic.
22. Describe the mechanism by which bacteria become resistant to antibiotics.
23. Give an example of antibiotic combination therapy and explain why this is necessary.
24. Explain the difference between bacteremia and septicemia.
25. List organisms often involved in septicemia.
26. Define clean wounds and dirty wounds.
27. List organisms commonly involved in wound infections.
28. Give an example of a wound infection situation not requiring antibiotics.
29. Explain acid fast staining.
30. Describe the transmission of M. Tuberculosis and M. Leprae.
31. Describe other diseases caused by Mycobacteria.
32. Explain the difference between yeast, fungi, and bacteria.
33. Describe what a virus is, how it is constructed and how it multiplies.<sup>3</sup>
34. List common vaccine preventable viral diseases.
35. Describe transmission of and clinical course of Herpes and Hepatitis.
36. Describe common viral infections which do not require medical intervention.
37. Define passive immunity, active immunity, cellular immunity and humoral immunity.
38. Describe the pathway of antibody synthesis.
39. Describe the role of HIV in immunodeficiency.
40. Describe the mechanism of immediate and delayed hypersensitivity.
41. List categories of parasitic disease and give an example of each.
42. Describe the transmission, clinical symptoms, prevention and treatment of common parasitic diseases.

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**Obstetrics and Gynecology**

**Course Description:**

This course introduces the student to the fundamentals of prenatal care and childbirth as well as common obstetrical and gynecologic problems encountered in clinical practice. Particular emphasis will be placed on this field as a primary care specialty.

This course is divided into two areas which covers the following topics:

- GYN: 1. The Obstetric and GYN history and physical examination
- 2. Vaginitis, Vaginosis and Sexually Transmitted Disease
- 3. Pelvic Inflammation Disease; Management of Abnormal PAP Smear
- 4. Contraception, Infertility and Termination of Preganancy; Benign Adenexal Masses
- 5. Dysmenorrhea, Endometriosis and Premenstrual Syndrome
- 6. Abnormal Vaginal Bleeding and Leomyomata Uteri
- 7. Pelvic Floor Relaxation and Urinary Incontinence; Menopause Hormone Replacement Therapy
- 8. GYN Oncology
  
- OB: 1. Reproductive Physiology Through the Life Cycle; the Physiology of Pregnancy
- 2. Prenatal Care of the Essentially Normal Pregnancy
- 3. First Trimester Bleeding and Ectopic Pregnancy
- 4. Disorder Associated with Pregnancy
- 5. Course and Conduct of Normal Labor and Delivery
- 6. Complications of Normal labor and Delivery Postpartum care

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**Gynecology**

**1. The Obstetric and Gynecologic History and Physical Examination and the Menstrual Cycle**

A. Objectives: After completion of this unit, the student will be able to:

1. Discuss the approach to the gynecologic patient, including:
  - Appropriate history
  - Appropriate physical examination
  
2. Describe the anatomy of the female reproductive system, including:
  - Abdominal anatomy and landmarks
  - The bony pelvis
  - The uterus
  - The ovaries and fallopian tubes
  - The vagina
  - The cervix
  - The vulva
  - The perineum
  - The pelvic floor musculature
  - The innervation of the female pelvis
  
3. Discuss the function and interaction of the following hormones and the menstrual cycle
  - FSH
  - LH
  - GnRH
  - Estrogen
  - Progesterone
  
4. Discuss the physiology of conception
5. Explain the phases of the sexual response cycle in the female and related disorders
  - Normal sexual response
  - Female sexual dysfunction
  
6. Discuss domestic violence, including general approach to the patient, evaluation and referral.

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**Gynecology**

**2: Vaginitis, Vaginosis and Sexually Transmitted Disease**

A. Objectives: After completion of this unit, the student will be able to:

1. Discuss the diagnosis, clinical presentation, diagnostic evaluation, and treatment of
  - Candidiasis
  - Trichomoniasis
  - Bacterial Vaginosis
  
2. Discuss the diagnosis, clinical presentation, diagnostic evaluation, and treatment of
  - Gonorrhea
  - Chlamydia
  - Syphilis
  - Herpes simplex virus
  - Human papilloma virus
  - Chancroid
  - Lymphogranuloma venereum

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**Gynecology**

**3: Pelvic Inflammatory Disease; Management of the Abnormal**

**Papanicolaou Smear**

- A. Objectives: After completion of this unit, the student will be able to:
1. Discuss the pathophysiology, epidemiology, signs and symptoms of pelvic inflammatory disease
  2. Discuss the relevant physical findings and relevant laboratory data used to assess the patient with suspected pelvic inflammatory disease
  3. Discuss the most common differential diagnoses considered in the patient with possible pelvic inflammatory disease
  4. Discuss the inpatient and outpatient management of the patient with pelvic inflammatory disease
  5. Discuss the short-term and long-term sequelae of pelvic inflammatory disease
  6. Discuss the indications and technique of the Papanicolaou smear
  7. Discuss the Bethesda system of grading abnormalities of cervical cytology
  8. Discuss the significance of:
    - Reactive changes
    - Atypical squamous cells of undetermined significance
    - Atypical glandular cells of undetermined significance
    - Low-grade squamous intraepithelial lesion
    - High-grade squamous intraepithelial lesion
    - Human papilloma viruses of low, intermediate, and high oncogenic potential
  9. Discuss the purpose of and indications for colposcopy
  10. Discuss the techniques of and indications for:
    - Endocervical curettage
    - Punch biopsy
    - Cryosurgery
    - Loop electrode excision procedure (LEEP)
    - Cone biopsy

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**Gynecology**

**4: Contraception, Infertility, and Termination of Pregnancy; Benign  
Adnexal Masses**

A. Objectives: After completion of this unit, the student will be able to:

1. Discuss the indications, contraindications, mechanism of action, reversibility, rate of failure, and relative cost of the following methods of contraception:
  - Combined oral contraceptives
  - Progestin-only oral contraceptives
  - Depot medroxyprogesterone acetate (Depo-Provera)
  - Implantable norgestrel-releasing silastic rods (Norplant)
  - Copper-T intrauterine device (Paragard)
  - Progesterone-releasing intrauterine device (Progestasert)
  - Diaphragm and cervical cap
  - Condoms (male and female)
  - Foam, suppositories and the sponge
  - Planned abstinence
  - Withdrawal
  - Abstinence
  - Male and female sterilization
2. Discuss the methods, indications and potential complications of termination of pregnancy in the first second trimesters
3. Discuss the common causes of infertility in females and males and the basic methods of diagnosis of the causes of infertility
4. Discuss the pathophysiology, differential diagnoses, relevant physical findings, diagnostic studies, and management of benign adnexal masses

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**Gynecology**

**5: Dysmenorrhea, Endometriosis, and Premenstrual Syndrome**

A. Objectives: After completion of this unit, the student will be able to:

1. Describe dysmenorrhea, including the
  - Pathophysiology
  - Evaluation
  - Treatment of:
    - Primary dysmenorrhea
    - Secondary dysmenorrhea
2. Describe the theories of the pathophysiology of endometriosis, its signs and symptoms, the relevant findings on physical examination, methods of diagnosis, and treatment options
3. Discuss premenstrual syndrome, including
  - Etiology
  - Symptoms
  - Diagnosis
  - Treatment

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*Gynecology*

**6: Abnormal Vaginal Bleeding and Leiomyomata Uteri**

A. Objectives: After completion of this unit, the student will be able to:

1. Differentiate primary and secondary amenorrhea; identify likely causes of each type and identify appropriate diagnostic studies and treatments
2. Describe hyperprolactinemia, including
  - Presenting symptoms
  - Relevant diagnostic studies
  - Management
3. Describe abnormal uterine bleeding in the non pregnant female, including:
  - Oligomenorrhea
  - Polymenorrhea
  - Hypermenorrhea
  - Menorrhagia
  - Metrorrhagia
  - Menometrorrhagia
  - Chronic anovulation
4. Discuss other causes of abnormal uterine bleeding, including the following etiologies:
  - Iatrogenic
  - Systemic
5. Discuss the use of:
  - Diagnostic and laboratory procedures relevant to the evaluation of the patient with abnormal uterine bleeding
6. Discuss the management of
  - Oligomenorrhea
  - Polymenorrhea
  - Hypermenorrhea
  - Menorrhagia
  - Metrorrhagia
  - Menometrorrhagia
  - Chronic anovulation
7. Discuss the pathophysiology, symptoms, relevant physical findings and diagnostic studies of leiomyomata uteri, including:
  - Submucous myomas
  - Intramural myomas
  - Subserosal myomas
  - Pedunculated myomas

8. Discuss the indications and relevant treatment options for leiomyomata uteri including;
  - Watchful waiting
  - Myomectomy
  - Hysteroscopic resection
  - Hysterectomy (both total and supracervical)
  - Hormonal therapies

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**Gynecology**

**7: Pelvic Floor Relaxation and Urinary Incontinence; Menopause and  
Hormone Replacement Therapy**

- A. Objectives: After completion of this unit, the student will be able to:
1. Discuss the pathophysiology, risk factors, history, relevant physical examination, and surgical and non surgical management of:
    - Cystocele
    - Rectocele
    - Enterocele
    - Uterine prolapse
    - Vaginal prolapse
  2. Discuss the pathophysiology, relevant physical examination, relevant studies, and medical and surgical treatment of:
    - Genuine stress urinary incontinence
    - Detrusor instability
    - Urge incontinence
    - Mixed incontinence
  3. Discuss the physiology and associated symptoms, signs and laboratory findings relevant to menopause:
    - Vasomotor instability
    - Atrophic changes of the vagina and vulva
    - Nervous system changes
    - Cardiovascular changes
  4. Discuss the treatment options for relief of symptoms of menopause, including hormone replacement therapies

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**Gynecology**

**8: Gynecologic Oncology, Part 1**

- A. Objectives: After completion of this unit, the student will be able to:
1. Describe the pathophysiology, epidemiology, signs and symptoms, relevant physical findings, relevant laboratory and imaging studies, surgical procedures, staging techniques, modified FIGO (International Federation of Gynecologic Oncology) staging and treatment options for:
    - Endometrial cancer
    - Cervical cancer
    - Vaginal cancer

**9: Gynecologic Oncology, Part 2**

- A. Objectives: After completion of this unit, the student will be able to:
1. Describe the pathophysiology, epidemiology, signs and symptoms, relevant physical findings, relevant laboratory and imaging studies, surgical procedures, staging techniques, modified FIGO (International Federation of Gynecologic Oncology) staging and treatment options for:
    - Ovarian cancer
    - Vulvar cancer
    - Gestational trophoblastic disease

**Weill Cornell Medical College  
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**Obstetrics**

**1: Reproductive Physiology Through the Life Cycle; the Physiology of Pregnancy**

A. Objectives: After completion of this unit, the student will be able to:

1. Describe the hormonally induced effects on the upper and lower female genital tracts from the neonatal period through menopause
2. Describe the transformation zone of the cervix
3. Describe the physiologic changes of pregnancy affecting the:
  - Cardiovascular system
  - Respiratory system
  - Gastrointestinal system
  - Endocrine glands and kidneys
  - Musculoskeletal system
  - Skin
  - Reproductive system
  - Hematologic system
4. Describe the changes in nutritional needs during pregnancy
5. Describe in general terms the development of the fetus through the gestational period

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**Obstetrics**

**2: Prenatal Care of the Essentially Normal Pregnancy**

A. Objectives: After completion of this unit, the student will be able to:

1. Discuss the methods of diagnosis of pregnancy, including:
  - Detection of human chorionic gonadotrophin via blood or urine
  - Positive fetal movements palpated by a practitioner
  - Positive fetal heart tones auscultated by a practitioner
  - Positive imaging of the fetus through ultrasound
2. Discuss the symptoms of pregnancy, including fatigue, breast tenderness, nausea, and vomiting
3. Calculate the gestational age and estimated date of confinement using Naegle's rule and a pregnancy wheel
4. Discuss the pertinent obstetric history and physical examination at the first prenatal visit
5. Discuss relevant laboratory and imaging tests obtained throughout prenatal care, including:
  - Complete blood count
  - Hemoglobin electrophoresis
  - Rh status and blood type
  - Hepatitis B screen
  - PPD
  - Urinalysis and urine culture
  - RPR or VDRL
  - HIV counseling
  - Gonorrhea and chlamydia testing, if indicated
  - Maternal serum  $\alpha$ -fetoprotein
  - Glucose challenge test at first visit if at risk and at 24-28 weeks if not at risk of gestational
  - Diabetes mellitus
  - Ultrasound for dating, if indicated, and for anatomy scan, if indicated
  - Group B strep culture if indicated
6. Discuss the course of subsequent prenatal visits:
  - Frequency
  - Patient monitoring
  - Weight
  - Blood pressure
  - Fundal height
  - Fetal heart rate
  - Edema
  - Fetal size and position

7. Discuss patient education for the obstetrical patient
  - Nutrition
  - Weight gain
  - Common complaints
  - Potential teratogens, including tobacco and alcohol
8. Discuss the role for genetic counseling in pregnancy

**3: First Trimester Bleeding and Ectopic Pregnancy**

- A. Objectives: After completion of this unit, the student will be able to:
1. Discuss early pregnancy risks, clinical presentations, differential diagnosis and management of
    - Spontaneous abortion
    - Threatened abortion
    - Inevitable abortion
    - Incomplete abortion
    - Completed abortion
    - Missed abortion
    - Septic abortion
  2. Discuss the pathophysiology, incidence, anatomic location, risk factors, signs and symptoms, relevant physical examination, relevant laboratory and imaging studies and management of and ectopic pregnancy

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**Obstetrics**

**4: Disorders Associated With Pregnancy**

A. Objectives: After completion of this unit, the student will be able to:

1. Discuss the pathogenesis, pathologic factors clinical findings and complications of multiple pregnancy
2. Discuss the risk factors associated with hyperemesis gravidarum, its associated differential diagnoses, and its management
3. Discuss the etiology of gestational diabetes and the risks of maternal pregestational and gestational diabetes to the fetus and mother  
Discuss management of the gestational or pregestational diabetic pregnant female
4. Discuss the theories of pathophysiology of pregnancy-induced hypertension and pre-eclampsia, including risk factors, signs, symptoms, definitions, and ancillary laboratory studies; define pregnancy-induced hypertension, pre-eclampsia, severe pre-eclampsia, HELLP syndrome, superimposed pre-eclampsia, eclampsia
5. Discuss the significance of placenta praevia, placenta accreta, placenta increta, and placenta percreta, the risks to the mother and fetus, risk factors associated with these conditions, symptoms, diagnostic imaging studies used, and management of the patient with any of these conditions
6. Discuss the pathophysiology of asymptomatic bacteriuria and of pyelonephritis, relevant symptoms, signs, findings on physical exam, laboratory tests, and management

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**Obstetrics**

**5: Course and Conduct of Normal Labor and Delivery**

A. Objectives: After completion of this unit, the student will be able to:

1. Discuss the stages of labor, including
  - Fetal Presentation
  - Position
  - Lie
  - Factors of labor: “the pelvis, the powers, and the passenger”
  - Mechanisms of labor
    - Presentation
    - Engagement
    - Flexion
    - Descent
    - Internal rotation
    - Extension
  - Management of labor
    - Examination and Procedures
    - Second stage of labor
    - Third stage of labor
2. Discuss aids to normal delivery, including types and repair of episiotomy and induction of labor
3. Discuss the various forms of obstetrical anesthesia and analgesia administered during labor and delivery
4. Describe the cardinal movements for vertex presentation in normal spontaneous vaginal delivery
5. Briefly discuss criteria for a reactive fetal non stress test; discuss the components of a biophysical profile
6. Discuss the incidence and types of breech deliveries and criteria for vaginal delivery of breech presentation
7. Discuss the patient management of premature rupture of membranes
8. Define and discuss postdates pregnancy, its etiology, potential morbidity and management

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**Obstetrics**

**6: Complications of Normal Labor and Delivery Postpartum care and Complications**

A. Objectives: After completion of this unit, the student will be able to:

1. Discuss abnormal third trimester bleeding, including placenta praevia and abruptio placentae
2. Discuss the following abnormal and serious complications of labor and delivery:
  - Preterm labor
  - Cord prolapse
  - Shoulder dystocia
  - Footling or double footling breech presentation
  - Uncertain fetal status
  - Intrauterine fetal demise or stillbirth
  - Uterine rupture or dehiscence of the uterine scar
  - Chorioamnionitis
3. Discuss the immediate and subsequent management of the postpartum patient
  - Uterine involution
  - Lochia
  - Breast changes
  - Deep vein thrombosis
4. Discuss the diagnosis, differential diagnosis and management of
  - Postpartum hemorrhage
  - Postpartum endometritis
  - Postpartum mastitis
  - Postpartum depression

**Weill Medical College**  
**Physician Assistant Program-**  
*A Surgical Focus*

**GENERAL SURGERY**

**Course Description:**

The Student develops a broader knowledge of clinical problems common to general surgery practice. Indications and contraindication for surgery are presented along with a pertinent discussion of surgical techniques. The student is introduced to operating room protocol, asepsis and scrubbing, gowning and gloving, instrumentation, suturing and knot tying.

This course covers 21 topics:

- |   |                           |
|---|---------------------------|
| 1. Esophagus                              | 11. Abdominal Wall/hernia |
| 2. Stomach                                | 12. Spleen                |
| 3. Duodenum                               | 13. Trauma                |
| 4. Small Bowel                            | 14. Intro to burns        |
| 5. Colon                                  | 15. Breast                |
| 6. Appendix                               | 16. Pancreas I            |
| 7. Annus and Rectum                       | 17. Pancreas II           |
| 8. Hepatobiliary I – Liver                | 18. Occult Blood Testing  |
| 9. Hepatobiliary II – Portal hypertension | 19. Shock                 |
| 10. Hepatobiliary III – Biliary Tree      | 20. Arterial Blood Gas    |
| 21. Paracentesis and Peritoneal Lavage    |                           |

**A. Goals:**

1. Through lectures and assigned reading, the student will be able to comprehend principles and facts regarding the clinical manifestations, pathophysiology and surgical treatment of common disease states.
2. Through the integration and employment of principles presented through lecture, and discussion, students can develop the intellectual skills necessary to foster critical thinking in the assessment and management of surgical patients.
3. Through lecture and discussion, students can integrate previous and current learning to foster the understanding of the interrelationship of medicine and surgery to promote the well-being of the patient as a whole.
4. Formulate new or creative understanding within the domain of general surgical practice, drawing upon learning acquired through self-initiation from other resources.

Other general goals include recognition and management of the natural history of untreated surgical disease, the diagnosis of surgical problems (emergent and elective), resuscitation of the surgical patient, indications for surgical intervention, identification of the Proper and Appropriate Surgical Intervention, Informed Consent, Surgical Anatomy Immediate postoperative care, Normal physiologic progress after specific operations Postoperative Complications, Clinical Follow-up, & expected outcomes.

**Weill Medical College**  
**Physician Assistant Program-**  
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**GENERAL SURGERY**

**1: THE ESOPHAGUS**

A. Goals:

1. To educate the student regarding hiatal hernia and reflux esophagitis including pathogenesis, clinical presentation, diagnosis & treatment.
2. To educate the student on esophageal motility disorders including achalasia & esophageal diverticula.
3. To educate the student regarding the diagnosis and management of patients with esophageal neoplasms

B. Objectives: At the end of this unit the student should be able to:

1. Describe esophageal hiatal hernia with respect to its anatomic type.
2. Describe the anatomic & physiological factors predisposing to reflux esophagitis.
3. Describe the signs & symptoms of reflux esophagitis & list the diagnostic options employed to confirm its diagnosis.
4. List the indications for surgical management of esophageal reflux and be familiar with the initial medical management of esophageal reflux.
5. List the common esophageal diverticula, their location, symptoms, and pathology.
6. Describe & recognize the radiological findings that characterize motility disorders of the esophagus, including utilization of manometry.
7. List the clinical findings, work up, and treatment of esophageal tumors.
8. Describe the history of a malignant lesion of the esophagus & list treatment options, in order of their preference.
9. List the most common types of benign esophageal neoplasms & briefly compare them to malignant neoplasms.
10. Describe the etiology & presentation of perforation of the esophagus and the pertinent physical assessment findings.

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**GENERAL SURGERY**

**2: THE STOMACH**

A. Goals:

1. To review the anatomy of the stomach.
2. To educate the student on mechanisms of hydrochloric acid secretion.
3. To educate the student on the symptoms, diagnosis, and treatment of peptic ulcer disease.
4. To review gastric ulcer disease.
5. To educate the student on post-gastrectomy syndromes.
6. To educate the student on the PA-S on malignancies of the stomach.
7. To review gastritis, stress, and gastric polyps.

B. Objectives: At the end of this unit the student should be able to:

1. Discuss the significance of atomic location of a gastric ulcer.
2. Discuss the diagnostic value of upper GI contrast radiography, endoscopy, gastric analysis, serum gastrin levels, and secretion stimulation tests in patients with suspected peptic ulcers disease.
3. Discuss the etiology, treatment and complications of peptic ulcer disease.
4. Discuss commonly recognized side effects associated with ulcer surgery, including treatment of those problems.
5. List common stomach problems, and discuss their treatment, diagnosis, and prognosis.
6. Discuss the surgical options in gastric neoplasms.
7. Define Zollinger-Ellison Syndrome and its etiology, essentials of diagnosis, and presentation.
8. Describe the common indications and technique of acid-reduction surgery.
9. Explain the process of acid secretion, and factors/substances that influence its production. Understand which surgical operations alter our bodies acid secretion.
10. Discuss the following hormones and include the major stimuli for secretion, site of secretion and its actions: Secretin, Gastrin, Cholecystokinin, Gastric Inhibitory Peptide.
11. Discuss how laproscopic surgery has changed our approach to alimentary canal surgery.

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**GENERAL SURGERY**

**3: DUODENUM**

A. Goals:

1. To review the anatomy and physiology of the duodenum.
2. To educate the student on symptoms, diagnosis, and treatment of peptic ulcers.
3. To review duodenal disease.
4. To educate the student on post-gastrectomy syndromes.
5. To educate the student on the superior mesenteric artery obstruction of the duodenum.

B. Objectives: At the end of this unit the student should be able to:

1. Discuss the significance of anatomic location of a gastric ulcer.
2. Discuss the diagnosis of duodenal pathology.
3. Discuss the etiology, treatment, and complications of duodenal ulcer disease.
4. Discuss the commonly recognized side effects associated with ulcer surgery, including treatment of those problems.
5. Describe malignant & benign duodenal tumors.
6. Discuss SMA obstruction of the duodenum.
7. Discuss the indications and contraindications, as well as appropriate use of common medications employed in surgical disease of the GI system  
antacids, antimicrobial agents, H-Receptor blockers, Proton Pump  
2 Inhibitors, anti-emetics, anti-diarrheals, & laxatives

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**GENERAL SURGERY**

**4: SMALL BOWEL**

A. Goals:

1. To review the anatomy & physiology of the SI.
2. To educate the student on Meckel's Diverticulum.
3. To introduce diseases of the SI including neoplastic disease.
4. To educate the student on Small Bowel Obstruction (SBO)
5. To educate the student regarding Crohn's Disease of the SI.

B. Objectives: At the end of this unit the student should be able to:

1. Describe the various clinical presentations as well as treatment of a patient with Meckel's Diverticulum.
2. Discuss the etiology, presentation & surgical options in a patient with SI tumors.
3. List the primary etiologies, signs and symptoms of SBO. Contrast them with paralytic ileus.
4. Commit to memory the treatment of SBO. Include fluids & electrolytes, intestinal intubations, resuscitation, antibiotic treatment and surgical management.
5. Describe the clinical presentations of a patient with Crohn's disease.
6. Differentiate the presentation of Crohn's disease with that of ulcerative colitis.
7. List the complications, including extraintestinal complications, which often warrant surgical attention. (Crohn's)
8. Outline a diagnostic approach to a patient with Crohn's disease.
9. Describe the general operative scheme of GI surgery.
10. Outline the modern approach to post-op ileus

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**Physician Assistant Program-**  
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**GENERAL SURGERY**

**5: THE COLON**

A. Goals:

1. To review the anatomy and physiology of the colon.
2. To educate the student on the diagnosis of diverticular disease.
3. To introduce polyposis & carcinoma of the colon.
4. To educate the student on the diagnostic evaluation of the colon.

B. Objectives: At the end of this unit the student should be able to:

1. Describe the anatomy of the colon, including the arterial, venous, & lymphatic systems.
2. Describe the clinical findings of diverticular disease differentiating the presentation of diverticulitis with diverticulosis.
3. Discuss the common complications of diverticular disease & their appropriate surgical management.
4. List the differential diagnosis, initial management, and diagnostic studies in a patient complaining of lower left quadrant pain.
5. Identify the etiology, presentation, and treatment of colonic CA.
6. Discuss the appropriate lab endoscopic and radiologic studies needed for the diagnosis of carcinoma of the colon.
7. List the clinical presentation & diagnostic aids for evaluating large bowel obstruction.
8. Outline a plan for diagnostic studies, preoperative management and treatment of: volvulus, intussusception, fecal impaction, and obstructing colon CA.

**6: THE APPENDIX**

A. Goals:

1. To review the anatomy of the appendix.
2. To discuss the acute appendix.
3. To become familiar with appendiceal tumors.

B. Objectives: At the end of this unit the student should be able to:

1. Describe the anatomy of the appendix
2. Discuss the needed physical exam in a patient with suspected appendiceal pathology.
3. List the etiology, diagnosis, signs & symptoms, lab values, complications, and prognosis of the acute appendix.
4. Describe the basic surgical procedure in acute appendicitis.
5. Discuss malignant tumors of the appendix.
6. Describe the differential diagnosis of acute appendicitis.

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**GENERAL SURGERY**

**7: ANUS AND RECTUM**

A. Goals:

1. To review the anatomy and physiology of the anus and rectum
2. To educate the student on the diagnostic modalities employed in that area.
3. To educate the student on anorectal CA.
4. To discuss hemorrhoids.
5. To discuss perianal infection & fissure-in-ano.

B. Objectives: At the end of this unit the student should be able to:

1. Draw the arterial supply and venous drainage of the anorectal area.
2. Identify the signs and symptoms of anorectal CA.
3. Discuss the anatomic classification of hemorrhoids including four grades encountered clinically.
4. Differentiate between internal & external hemorrhoids.
5. Discuss the etiology/predisposing factors of hemorrhoidal disease.
6. Know the role of anal crypts & perianal infection. Describe the various types of perianal infection.
7. Outline the management of fissures-in-ano.
8. Discuss the signs and symptoms, diagnosis, and treatment of Anorectal abscesses & pilonidal disease.
9. List the etiology, signs & symptoms, and treatment of pruritus ani.

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**GENERAL SURGERY**

**8: HEPATOBILIARY I - THE LIVER**

A. Goals:

1. To educate the student on: Tumors of the liver, including the clinical manifestations, diagnosis & treatment of both metastatic & benign tumors, and types of liver abscesses.

B. Objectives: At the end of this unit the student should be able to:

1. Describe the segmental anatomy of the liver.
2. Describe the arterial & venous supply of the liver.
3. List the diagnostic methods that differentiate liver abscesses, neoplasms & cysts.
4. Describe the symptoms & signs associated with a liver abscess.
5. Describe the treatment options for liver abscesses, neoplasms, & cysts.
6. List the three primary types of primary liver cancer. Know their signs & symptoms and treatment.
7. Describe the morphologic changes in the cirrhotic liver
8. List the risk factors for the development of liver cancer

**9: HEPATOBILIARY II - PORTAL HYPERTENSION**

A. Goals:

1. The etiology of portal HTN.
2. The complications of portal HTN, including variceal hemorrhage, ascities, and portal systemic encephalopathy.

B. Objectives: At the end of this unit the student should be able to:

1. Define portal HTN
2. Be able to classify the etiology of portal HTN.
3. Outline the treatment methods for variceal hemorrhage, including noninterventional, interventional, and surgical.
4. Describe the etiology and manifestations of Budd-Chiari Syndrome.
5. Know the evaluation & treatment of nonbleeding varices.
6. Describe the etiology of ascites in hepatic disease as well as medical & surgical treatment.
7. Describe the prevention of hepatic encephalopathy in a patient with portal HTN

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**GENERAL SURGERY**

**10 : HEPATOBILIARY III - THE BILIARY TREE**

A. Goals: To educate the student on:

1. The anatomy & physiology of the biliary tract.
2. Gallbladder disease.
3. The diagnostic evaluation of the biliary tract.
4. The clinical presentation of biliary tract diseases.
5. Gallbladder cancer.

B. Objectives: At the end of this unit the student should be able to:

1. Draw the relationship of the liver, left & right hepatic ducts, gallbladder, cystic duct, common bile duct & the ampulla of Vater.
2. Describe the clinical manifestations and management of choledocholithiasis.
3. Outline a diagnostic and management plan for a patient with acute RUQ pain.
4. List the common types of gallstones.
5. Outline the medical & surgical management of patients with acute cholecystitis and suppurative cholangitis.
6. Describe the major complications of acute cholecystitis.
7. Know the clinical findings, differential diagnosis, and complications of biliary colic.
8. Discuss the etiology, signs & symptoms, and management of gallbladder carcinomas and bile duct tumors.
9. Define:
  - Murphy's sign
  - Courvoisier's sign
  - Charcot's triad
  - Reynold's pentad

**Weill Medical College**  
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**GENERAL SURGERY**

**11: Abdominal Wall & Hernia**

A. Goals:

1. To review the anatomy, including surface relationships
2. To review the layers of the abdominal wall
3. To discuss common abdominal incisions
4. To discuss hernias
5. To educate the student regarding groin hernias, including indirect inguinal, direct inguinal, and femoral hernias
6. To introduce the student to surgical repair of hernias
7. To introduce umbilical hernias

B. Objectives: At the end of this unit the student should be able to:

1. Differentiate between reducible and nonreducible hernias
2. Define: indirect inguinal, direct inguinal, Femoral hernia, pantaloon hernia, Richter's hernia, Spigelian Hernia, incarcerated inguinal hernia, strangulated hernia, sliding hernia
3. Draw Hesselbach's triangle, describe its borders and importance in hernia diagnosis.
4. List the factors that predispose the development of inguinal hernias
5. Know the frequency of indirect, direct, and femoral hernias by age and sex
6. Describe the clinical findings found in indirect & direct hernias
7. Outline the five principals of management of patients with hernias, include surgical repair and their indications.
8. Discuss the use of prosthetic material in surgical repair
9. Define the seven etiologic factors for incisional hernias.

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**GENERAL SURGERY**

**12: THE SPLEEN**

A. Goals:

1. To review the anatomy & physiology of the spleen
2. To introduce diagnostic modalities employed when evaluating the spleen
3. To educate the PA-S on the indications for splenectomy
4. To educate the student on splenic trauma (penetrating & blunt splenic injury, operative trauma, and spontaneous rupture)
5. To educate the student on the disorders of splenic function.
6. To educate the student on complications & consequences of splenectomy

B. Objectives: At the end of this unit the student should be able to:

1. Describe the function of the spleen.
2. Discuss the common causes of splenic rupture.
3. Outline the PE and laboratory/diagnostic studies employed when assessing the spleen.
4. List hematological abnormalities correctable by splenectomy. List the indications for surgery in each situation.
5. List the conditions associated with splenectomy
6. Know potential adverse consequences associated with splenectomy. Discuss the methods to reduce these risks.
7. List the vaccinations require before total splenectomy.

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**GENERAL SURGERY**

**13: TRAUMA**

A. Goals: To educate the student on:

1. The initial assessment of the trauma/emergency patient.
2. Airway management including the recognition and treatment of airway obstruction and respiratory distress/arrest.
3. Blunt & penetrating chest trauma.
4. Blunt & penetrating abdominal trauma.
5. Traumatic head & spinal cord injuries.
6. Trauma to the extremities
7. The initial stabilization, management, and treatment of traumatic insults.

B. Objectives: At the end of this unit the student should be able to:

1. List examples of how to decrease the incidence of trauma y changing people's behavior.
2. Know how to gather an emergency H&P (i.e. primary & secondary survey)
3. Describe the signs & symptoms and treatment of an upper airway obstruction.
4. Describe the risks associated with airway stabilization in the traumatized patient.
5. Outline the options and techniques that may be employed to secure an airway in a traumatized patient. Include stabilization in the traumatized patient.
6. List 6 thoracic injuries that are immediately life threatening & should be identified in the primary survey.
7. List 6 thoracic injuries that are potentially life threatening.
8. List three common thoracic injuries that are not life threatening but warrant skilled treatment.
  
9. Outline pathophysiologic events that lead to decreased levels of consciousness, including unique anatomic & physiological features of head/spinal trauma.
10. List the three parameters assessed by the Glasgow Coma Scale & describe how it is employed during the urgent evaluation.
11. List the test and assessment results that should be referred to a neurologist.
12. Describe the signs & symptoms, diagnosis, & treatment of arterial injury.
13. Compare life threatening & non life threatening extremities injuries
14. Memorize the *main* indications for exploration of the abdomen after blunt trauma
15. Know which wounds of the neck warrant prompt surgical exploration

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**GENERAL SURGERY**

**14. INTRO TO BURNS**

A. Goals:

1. To educate the student on the degrees of thermal injury.
2. To become familiar with the assessment and diagnosis of burns.
3. To educate the student on the assessment of burns using the rule of nines and other techniques.
4. To introduce the student on inhalation injuries, chemical, and electrical burns.

B. Objectives: At the end of this unit the student should be able to:

1. Describe the surface burn depth & size in a patient with a burn injury
2. Outline the significant factors when applying the ABC's to burn patients.
3. Outline the initial stabilization and resuscitation strategy of a burned patient including a list of injuries that are often associated with thermal insults.
4. Learn the initial assessment, stabilization, and the resuscitation of patients who have sustained major burns
5. Learn the management of patients having sustained burns of special areas such as airway, face, hands
6. Learn the indications for and perform the debridement and skin grafting necessary to cover the various burn surface areas
7. learn the selection process for the triage of patients slated for transfer to a Regional Burn Center .

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**GENERAL SURGERY**

**15 : BREAST**

A. Goals:

1. To review the anatomy & physiology of the breast
2. To review the physical assessment of the breast
3. To educate the student on benign breast masses
4. To educate the student on malignant breast masses
5. To introduce the diagnosis and treatment of breast disease
6. To introduce the prognosis of breast CA

B. Objectives: At the end of this unit the student should be able to:

1. Describe the exam of the breast, including common signs of breast disease
2. List the common risk factors for breast disease
3. List criteria for mammographic screenings
4. Describe the management of a solitary breast mass.
5. Describe major treatment options for breast CA, including conservative vs. radical surgical techniques, & treatment strategies for local recurrence in metastatic breast cancer.
6. Describe the rationale for chemotherapy vs. radiation & hormonal therapy in the treatment of advanced breast CA.
7. Discuss the components of palliative treatment of breast CA
8. Discuss the etiology of CA of the male breast
9. List the components of follow up care after breast surgery.

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**GENERAL SURGERY**

**16: The Pancreas I (Pancreatitis & Pseudocyst).**

A. Goals:

1. To review the anatomy & physiology of the pancreas
2. To educate the PA-S on acute and chronic pancreatitis
3. To educate the student on the complications of pancreatitis, including abscess and pseudocyst formation.

B. Objectives: At the end of this unit the student should be able to:

1. List the common etiologies of pancreatitis
2. Describe the clinical presentation of a patient with acute pancreatitis, and the indications for surgical intervention.
3. List the steps of medical intervention for pancreatitis
4. Recite Ranson's criteria and its clinical application.
5. Discuss the major complications of acute pancreatitis. Be aware of GI involvement, intraperitoneal bleeding and colonic involvement.
6. Understand the mechanism of pseudocyst formation.
7. Discuss the natural history of an untreated pancreatic pseudocyst, as well as the available treatment options.
8. Discuss the etiology, signs & symptoms, and management of chronic pancreatitis.
9. Discuss the role of T-Tube drainage of CBD or cholecystostomy in managing acute pancreatic disease

**17: The Pancreas II (Surgical Care & Pancreatic Cancer)**

A. Goals:

1. To educate the student on surgical management of the pancreas (including indications, contraindications, and basic technique).
2. To introduce the types of pancreatic cancers, as well as their recognition in clinical practice and management.

B. Objectives: At the end of this unit the student should be able to:

1. List the major types of pancreatic neoplasms.
2. Describe the signs & symptoms of pancreatic cancers
3. Discuss the surgical management of pancreatic cancer.
4. Describe surgical management of the pancreas, and the indications for procedures (based on condition and failure of medical therapy).

*Acute pancreatic disease:*

Debridement/drainage (abscess/necrotizing pancreatitis)

*Chronic Pancreatic Disease:*

Longitudinal pancreaticojejunostomy

Role of 95% distal Pancreatectomy

Whipple procedure

Pseudocyst

External Drainage

Internal Drainage

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**GENERAL SURGERY**

**18: Occult Blood Testing**

A. Goal:

1. To introduce the student to stool occult blood testing

B. Objectives: At the end of this unit the student should be able to:

1. Describe the parts of the guaiac card.
2. Describe the technique to properly apply stool & developer
3. Describe the interpretation of the test
4. Identify the differences in testing methods between FOBT & gastric lavage sampling

**19: SHOCK**

A. Goal:

1. To educate the PA-S on the etiology, physiology, diagnosis and treatment of hypovolemic shock, septic shock, cardiogenic shock, and neurogenic shock.

B. Objectives: At the end of this unit the student should be able to:

1. Define shock, as well as its subtypes.
2. List three causes for each type of shock.
3. Describe the significant physical findings of a patient afflicted with each type of shock.
4. Contrast how the types of shock affect the major organ systems.
5. Name & describe how central venous monitoring plays a role in the diagnosis and treatment of shock. The student should review the objectives on central venous access.
6. Know the general principals of managing each type of shock.

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**GENERAL SURGERY**

**20: Arterial Blood Gases**

- A. Goal: To Familiarize the student with the acquisition of arterial blood.
- B. Objectives: At the end of this unit the student should be able to:
1. List the contraindications & complications of arterial puncture.
  2. List the equipment required for arterial puncture.
  3. Describe why it is important to place an arterial sample on ice.
  4. Perform the Allen's Test.
  5. List the sites often employed in arterial puncture.
  6. State how long to apply pressure to a puncture site.

**Unit 21: Paracentesis & Peritoneal Lavage.**

- A. goals:
1. To introduce the concepts of paracentesis & peritoneal lavage
  2. To become familiar with technique, indications, contraindications, & complications of paracentesis and peritoneal lavage.
- B. Objectives: At the end of this unit the student should be able to:
1. Discuss the indications, contraindications, & complications of paracentesis and peritoneal lavage.
  2. Discuss the technique of each procedure
  3. Identify normal and abnormal results.

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**Pathology**

**Course Description:**

This course in pathology introduces the student to the natural history, etiology, pathogenesis (gross and microscopic and clinical findings associated with disease states. Instruction is presented mainly in lecture format with the use of visual aids. Emphasis is placed on disorders commonly encountered in surgical patients.

This course will cover the specific learning objectives listed below:

A. Goals:

1. To introduce the student to the basis of disease.
2. To address the basic reactions of cells and tissues to abnormal stimuli that underlie all diseases.
3. To evaluate the specific responses of an organ system (cardiovascular, pulmonary, nervous, gastrointestinal, etc.) to specific disease processes
4. To provide the student with an understanding of processes occurring at the molecular, cellular and organ level, which are manifested in patients as disease symptoms, and provide a rational foundation of clinical intervention.

B. Objectives:

Upon completion of this course the student should develop an understanding and be able to describe the four aspects of a disease process which form the core of pathology:

- A. etiology - its cause
- B. pathogenesis - the mechanism of its development
- C. morphologic changes - the structural alterations induced in the cells and organs
- D. clinical significance - the functional consequences of the morphological changes

**Specific Learning Objectives:**

Upon completion of this course the student should be able to:

- List the morphologic features of reversible and irreversible cell injury
- Differentiate between the processes of necrosis and apoptosis
- Define hyperplasia, hypertrophy, metaplasia, dysplasia and neoplasia
- Differentiate between benign and malignant neoplasms and give examples of each
- List three potentially carcinogenic viruses
- List three histologic features of malignancy
- Describe the mediators and cell types involved in acute and chronic inflammation
- Give an example of a situation resulting in decreased coagulation and increased coagulation
- Describe the mechanism of pulmonary embolism formation
- Describe the risk factors for the development of atherosclerosis
- Describe the formation of granulomas

- List three common (non-malignant) diseases affecting the lungs and describe the etiology of each
- List the common risk factors for lung cancer
- Describe the processes resulting in myocardial infarction
- List two infectious diseases affecting the heart and their sequelae
- Describe the clinical findings in nephrotic syndrome and glomerulonephritis
- List three common breast tumors and their prognosis
- Give two examples of lymphomas and describe the prognosis of each
- Describe the process of cerebral herniation
- List two brain tumors and describe the onset of symptoms for each
- List three STDs and describe the clinical presentations for each
- Describe the prognosis of cervical cancer if left untreated
- Describe the types and prognosis of testicular cancers
- Describe the clinical presentation, workup, and treatment for prostate cancer
- Describe the morphologic changes in peptic ulcer disease
- Differentiate between Crohn's Disease and Ulcerative Colitis
- Describe the differences in transmission and clinical findings of Hepatitis A, B, & C
- Describe the morphologic changes in the cirrhotic liver
- List the risk factors for the development of liver cancer
- Describe the evaluation of a thyroid nodule
- List the risk factors for developing thyroid cancer
- Give one example each of a cause of hyperthyroidism and hypothyroidism
- Describe the function of the parathyroid
- Differentiate between Cushing's Syndrome and Addison's Disease
- Demonstrate a fundamental understanding of the Human Immunodeficiency Virus and its related diseases
- Demonstrate a basic understanding of Forensic Medicine including cause and manner of death

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**PEDIATRICS**

**Course Description:**

This course introduces the student to a broad base of pediatrics including growth and development, well baby care, commonly encountered childhood diseases and their treatments as seen in clinical practice.

This course will cover 20 topics:

- |                                |                                  |
|--------------------------------|----------------------------------|
| 1. Developmental issues        | 11. Genetic syndromes            |
| 2. Neonatal Problem            | 12. Child Abuse                  |
| 3. Pediatric Infections        | 13. Surgical Emergencies         |
| 4. Common childhood rashes     | 14. Congenital and Heart Disease |
| 5. Hematologic abnormalities   | 15. Allergies                    |
| 6. Cancers                     | 16. Renal Disorders              |
| 7. Psychiatric Issues          | 17. Pediatric Emergencies        |
| 8. AIDS                        | 18. Seizure Disorder             |
| 9. Rheumatologic Diseases      | 19. Headache                     |
| 10. Hydrocephalus and VP shunt | 20. Personality Development      |

**A. Goals:**

1. Through lectures and assigned reading, the student will be able to comprehend principles and facts regarding the clinical manifestations, pathophysiology and treatment of disease states relevant to the pediatric population.
2. Through the integration and employment of principles presented through lecture, and discussion, students can develop the intellectual skills necessary to foster critical thinking in the assessment and management of pediatric patients.
3. Through lecture and discussion, students can integrate previous and current learning to foster the understanding of medicine's interrelationship of specific clinical manifestations and the patient's well being as a whole entity.
4. Formulate new or creative understanding within the domain of pediatric practice, drawing upon learning acquired through self-initiation from other resources.

**B. Objectives:**

1. Through self-directed learning, students will develop an attitude of active, continuing education essential to practice in pediatrics;
2. Through class participation and discussion, students will be exposed to broader interpretation and understanding of the pediatric specialty;
3. Through completion of assigned reading, the students will be able to describe the most common disease states in children and adolescents; especially those conditions commonly seen in primary care practice;
4. Through evaluative learning assessment, students will demonstrate their level of competency and determine their eligibility for continuation in this physician assistant program.

**Weill Cornell Medical College  
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**PEDIATRICS**

**1. Developmental Issues in Children**

- Describe the differences in neonatal, pediatric, adolescent and adult physical examination
- List the most common developmental disorders of the newborn
- List the most common acquired disorders of the newborn
- Briefly describe the nutritional needs and feeding of infants
- List the schedule of well baby visits and describe the focus of each visit including growth, development and immunization schedules
- List the common developmental milestones and provide an approximate timeline of their appearance

**2. Common Neonatal Problems**

- Define neonatal and perinatal periods
- Describe the transition from fetal to neonatal life, with specific attention to the cardiovascular and pulmonary systems
- Describe the management of the pre-term infant and multiple births
- Discuss meconium aspiration syndrome and its management
- List risk factors for perinatal asphyxia
- List the diagnosis and therapeutic steps in the management of neonatal jaundice
- List the goals of the delivery room assessment and management of the newborn including use of the APGAR score
- Describe post-delivery management of the newborn, specifically fluids, electrolytes and nutritional requirements

**3. Common Pediatric Infections**

- Describe general principles of antimicrobial therapy in the pediatric population
- Identify important aspects of the history, physical exam, and laboratory workup in the pediatric patient with suspected infections
- Describe the presentation, evaluation and treatment of otitis media and pharyngitis
- Describe the presentation, evaluation and treatment of croup, bronchiolitis, asthma and pneumonia

**4. Common Childhood Rashes**

- Observe a rash for important characteristics such as morphology, arrangement and distribution of lesions
- Describe the common presentation of impetigo and erysipelas
- Describe the presentation, evaluation and treatment of the classic viral exanthemas of childhood

## **5. Common Hematologic Abnormalities in Children**

- Describe the work-up of anemia in a pediatric patient and the management of possible findings
- Discuss the clinical presentation and management of sickle cell disease in children
- Describe the common hemophilias including diagnosis and management

## **6. Common Childhood Cancers**

- Describe the clinical presentation, management and prognosis of the following cancers in children:

Leukemia (especially ALL and AML)]  
Hodgkin and Non-Hodgkin Lymphoma  
Neuroblastoma  
Rhabdomyosarcoma  
Osteosarcoma and Ewing Sarcoma

## **7. Common Childhood and Adolescent Psychiatric Issues**

- List the criteria involved in the diagnosis of Attention Deficit Hyperactivity Disorder
- Briefly describe the concept of psychosocial assessment of children and families
- Briefly describe the pediatric presentation of depression and anxiety disorders
- Describe anorexia nervosa and bulimia nervosa

## **8. Childhood AIDS**

- At the end of this unit the student should be able to:
- Describe the presentation, evaluation and treatment of AIDS in the pediatric patient
- Discuss current recommendations for antiviral therapy in the pediatric population
- List other causes of immune deficiency in children

## **9. Childhood Rheumatologic Diseases**

- At the end of this unit the student should be able to:
- Differentiate between “growing pains” and musculoskeletal symptoms requiring further workup and treatment
- List the most common rheumatic disease in children
- Discuss juvenile rheumatoid arthritis and its clinical presentation, diagnosis and treatment
- Discuss spondyloarthropathies in the pediatric patient
- Discuss the diagnosis and treatment of systemic lupus erythematosus in the pediatric population

## **10. Hydrocephalus and VP Shunts**

- At the end of this unit the student should be able to:
- Describe the common clinical presentation of hydrocephalus and its workup and medical management
- List the most common ventricular shunting procedures used in the treatment of hydrocephalus, including indications, contraindications, and complications.

## **11. Common Genetic Syndromes**

- At the end of this unit the student should be able to:
- Discuss Mendelian inheritance patterns including autosomal and x-linked inheritance, penetrance, dominant and recessive phenotypes
- Describe the most common genetic disorders including Down syndrome, trisomy 18, trisomy 13, Turner syndrome, Klinefelter syndrome, fragile X syndrome
- Create a pedigree that accurately reflects a patient's family history
- Discuss genetic counseling and patient education regarding genetic syndromes

## **12. Child Abuse**

- At the end of the unit the student should be able to:
- Recognize clinical findings that indicate intentional injury
- Compare and contrast child abuse, child neglect, and the sexual abuse of children
- Understand the role of the PA and other providers in the mandatory reporting of child abuse in New York State and other jurisdictions

## **13. Surgical Emergencies in Children**

- At the end of this unit the student should be able to:
- Describe the presentation, evaluation and management of acute appendicitis
- Describe the presentation, evaluation, and treatment of umbilical and inguinal hernias
- Describe the presentation, evaluation and treatment of pyloric stenosis and intussusception

## **14. Congenital and Pediatric Heart Disease**

- At the end of this unit the student should be able to:  
Describe the presentation, evaluation and treatment of patent Ductus Arteriosus, Tetralogy of
- Fallot, Ventricular Septal Defect and other congenial heart defects
- Describe the presentation, evaluation and treatment of rheumatic heart disease

## **15. Allergic Disorders in Children**

- At the end of this unit the student should be able to:
- List the most common food allergies in infants and children
- Describe the general treatment of allergies in children

## **16. Pediatric Renal Disorders**

- At the end of this unit the student should be able to:
- List the common congenital anomalies of the urogenital tract
- List the common presenting signs of renal disease
- Describe the presentation, evaluation, and treatment of cystitis and pyelonephritis
- List abnormal findings in a urinalysis that indicates renal disease

## **17. Common Pediatric Emergencies**

- At the end of this unit the student should be able to:

Manage the emergent presentation of the following in the pediatric population;

Initial Burn Management

Wound Management

Fractures and Soft Tissue Musculoskeletal injuries

Adolescent Pain Syndromes

GU Emergencies

Concussions

Common Ingestions

Fever Without a Source

Dehydration

Foreign Bodies

## **18. Childhood Seizure Disorders**

- At the end of this unit the student should be able to:
- Differentiate partial from generalized seizures
- Describe the diagnosis and treatment of epilepsy in children
- Discuss febrile seizures in the pediatric population including management and risk of long-term sequelae

## **19. Pediatric Headache Syndromes**

- At the end of this unit the student should be able to:
- Describe the need for workup and treatment of headaches in children
- List the most common causes of headache in children and their management

## **20. Personality Development**

- To gain an appreciation for the unique needs of patients at different stages of the human lifespan.
- To utilize those personality traits unique to a patient's stage of life in maximizing health and wellness.
- To anticipate problems in patient compliance, education, follow-up and patient's self-image of health and wellness for each stage of personality development.
- Discuss basic theories of personality development.
- Delineate the stages of cognitive, physical and personality development Throughout the human lifespan.
- Discuss the unique aspects of caring for patients at various stages of life including:

infancy and childhood

adolescence

youth

early, middle and late adulthood

**Weill Cornell Medical College**  
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**A Surgical Focus**  
**PHARMACOLOGY**

**Course Description:**

The course in pharmacology introduces the student to therapeutic drugs, their chemistries, actions and uses. Emphasis is placed on the practical application and evaluation of drug actions on the functions of various organ systems of the human body including but not limited to the autonomic nervous system and cardiovascular systems. Studies of antibiotics as well as other important topics are also covered.

A. Goals:

1. To understand the basic principles of pharmacology and to develop skills in how to apply those principles effectively in the daily care of patients.
2. To foster an organized and systematic approach to understanding drugs and drug therapy.
3. To compare and contrast characteristics of individual drugs and classes of drugs.

B. Objectives:

Upon completion of this course, for each of the following classes of drugs the student will be able to discuss each of the classes of drugs below with regard to:

1. Route of administration, absorption, distribution, and elimination
2. Dose-response curves; drug receptors, agonist/antagonist, relative potency, ceiling effect
3. Pharmacokinetics; plateau principle, half-life, repeated drug administrations, dosing intervals;
4. Adverse reactions;
5. Pharmacogenetics: teratogenicity;
6. Special populations: geriatrics, pediatrics, pregnant and lactating patients, immune suppressed patients.
7. Its main therapeutic properties;
8. The kinetic properties and pharmacological actions that are common to the representative drugs in the class;
9. Unique features about single drugs, including but not limited to characteristic metabolism and half-life;
10. Major adverse reactions;
11. Characteristic drug interactions within the class and with other classes;
12. Representative brand and generic versions of the drug and describe the differences between them;
13. Any teratogenicity or other issue associated with pregnancy and lactation seen in any drug classes or associated with specific drugs in those classes.

The classes of drugs to be studied in this unit will include but not be limited to:

1. drugs affecting the central nervous system:

- a. sedative and hypnotic drugs
- b. antiepileptic drugs
- c. anxiolytic drugs
- d. special topics: “responsible use of anxiolytic and sedative hypnotic drugs”, “alcohol abuse”

2. drugs for inflammation and pain:

- a. steroids anti-inflammatory drugs
- b. non-steroidal anti-inflammatory drugs
- c. opioid drugs
- d. special topics: “management of pain”

3. drugs affecting the autonomic nervous system:

- a. agonists and antagonists of the cholinergic, muscarinic, nicotinic, and alpha and beta adrenergic receptors

4. drugs affecting the cardiovascular system:

- a. glycosides
- b. anti-arrhythmic drugs  
++
- c. CaChannel blockers
- d. Nitrates
- e. ACE inhibitors
- f. Angiotensin II receptor antagonists
- g. Diuretics
- h. Special topics: “management of hypertension”

5. drugs affecting the hematopoietic system:

- a. anticoagulant drugs
- b. thrombolytic agents
- c. anti-hyperlipidemic agents

6. psychoactive drugs:

- a. anti-psychotics
- b. anti-depressants
- c. anti-Parkinsonian

7. drugs of abuse

8. anti-histamines

- a. H-Receptor blockers 1
- b. H-Receptor blockers 2
- c. Special topics: “treatment of respiratory disease”, “treatment of nausea and vomiting”

9. drugs affecting the GI tract
  - a. antacids
  - b. prostaglandins
  - c. Inhibitors of Proton Pump
  - d. anti-diarrheals
  - e. laxatives
  - f. Special topics: "treatment of peptic ulcers"
  
10. drugs affecting the endocrine system
  - a. oral contraceptives
  - b. hypoglycemic agents (oral and insulin)
  - c. oxytocic and tocolytic drugs
  - d. thyroid supplementary drugs
  
11. drugs used in chemotherapy
  - a. anti-microbial agents
  - b. anti-viral agents
  - c. anti-fungal agents
  - d. anti-parasitic agents
  - e. anti-protozoal agents
  - f. anti-helminthic agents
  - g. anti-neoplastic agents
  - h. Special topics: "Responsible use of chemotherapeutic drugs"

**Additional Pharmacology Objectives:**

Upon completion of this course, students will be able to:

- critically evaluate new drugs;
- demonstrate familiarity with drug references and an ability to obtain drug information;
- adverse responses and interactions associated with over-the-counter drug information (including popular natural products);
- write a prescription for both in and out-patients
- list drugs that are commonly purchased over the Internet
- understand how complimentary medicine has affected the way that pharmacologic medications are utilized.

**Weill Cornell Medical College  
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**A Surgical Focus**

*Physical Diagnosis II*

**Course Description:**

Physiology is a one-semester course designed to provide the physician assistant student with a basic understanding of the mechanisms by which the body functions. The course uses a systems approach to the human body in health and disease. Clinical correlations will be made to apply physiologic concepts to the practice of clinical medicine.

The course is divided into eight sections:

1. The physical examination of the abdomen
2. The physical examination of the breast and axilla
3. The physical examination of the peripheral vascular system
4. The physical examination of the male genitalia
5. The physical examination of the female genitalia
6. The physical examination of the anus and rectum
7. The physical examination of the musculoskeletal system
8. The physical examination of the neurologic system

**1. The physical examination of the Abdomen**

A. Goals:

1. To review the surface and internal anatomy of the abdomen;
2. To understand the implications of congenital and acquired anatomical lesions leading to the development of hernias in the abdominal wall;
3. To discuss the regions of the abdomen with respect to imaginary lines, topography, and relationship to underlying structures;
4. To learn proper techniques employed in the examination of the abdomen;

B. Objectives: After attending lecture, completing the readings and assignments, and practicing the skills learned, the physician assistant student should be able to:

1. Diagram the division of the abdomen and list their contents;
2. List the correct sequence of employing the techniques of physical examination;
3. Describe and demonstrate the significance of abdominal inspection and expected observations;
4. Describe and demonstrate the significance of abdominal auscultation and the proper use of both diaphragm and bell;
5. Describe and demonstrate the significance of percussion and its use in evaluating the four quadrants and the intraabdominal viscera;
6. Describe and demonstrate the techniques of both light and deep palpation and their use in evaluating the four quadrants and the abdominal viscera;
7. Describe and demonstrate the special techniques employed during the physical examination of the abdomen, including but not limited to the examination of hernias, aneurysms, ascites, organomegaly;
8. Prepare a written report of the examination of the abdomen using the proper format.

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Physical Diagnosis II

**2. The physical examination of the Breast and Axilla:**

A. Goals:

1. To review the anatomy of breast, axilla, lymph nodes, and anterior chest wall;
2. To introduce the common complaints associated with breast disease;
3. To review the importance of breast examination (self and by practitioner) in reducing the morbidity and mortality of breast disease;
4. To compare and contrast the difference between examination of the breast in males and females;
5. To learn the proper techniques employed in the examination of the breast and axilla

B. Objectives: After attending the lecture, completing the readings and assignments, and practicing the skills learned, the physician assistant student should be able to:

1. Describe the correct timing in the menstrual cycle for breast examination and describe the alteration in findings at different times during the cycle;
2. Describe and demonstrate the proper positioning of the patient for the breast examination;
3. Describe the correct techniques for inspection of the breast and the expected and abnormal findings, including but not limited to peau d'orange, dimpling, bloody / purulent nipple discharge, asymmetry, nipple inversion;
4. Describe and demonstrate the correct technique for palpation of the breast and the possible findings and implication of the findings;
5. List the differences between the digital and bimanual palpation of the breast with respect to technique and purpose;
6. Describe and demonstrate the teaching of the self-breast examination;
7. Prepare a written report of the examination of the breast using the proper format.

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Physical Diagnosis II

**3. The physical examination of the Peripheral Vascular System**

A. Goals:

1. To review the anatomy of the peripheral vascular system;
2. To learn the common presentations of peripheral vascular disease
3. To learn the proper techniques employed in the examination of the peripheral vascular system.

B. Objectives: After attending lecture, completing the readings and assignments, and practicing the skills learned, the physician assistant student should be able to:

1. Describe and demonstrate the proper techniques of examination employed in the examination of the peripheral vascular system;
2. Describe and demonstrate the palpation of all of the peripheral pulses and gradation and description of findings;
3. Describe and demonstrate the evaluation for and gradation of edema of the dependant areas and extremities;
4. Describe and demonstrate the special techniques used for evaluation of common peripheral vascular complaints including but not limited to the Allen test, manual compression test, Trandelenberg test, Homan's sign;
5. Prepare a written report of the examination of the peripheral vascular system using the proper format.

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**Physical Diagnosis II**

**4. The physical examination of the Male Genitalia**

A. Goals:

1. To review the normal anatomy of the male genitalia;
2. To review the different stages in the maturation of the genitalia;
3. To review the common pathophysiological conditions affecting the male genitalia;
4. To review the common hernias, their pathophysiology and their sequelae;
5. To learn the proper techniques employed in the examination of the male reproductive system;

B. Objectives: After attending lecture, completing the readings and assignments, and practicing the skills learned, the physician assistant student should be able to:

1. Describe and demonstrate (on designated models or simulators) the inspection and palpation of the penis, scrotum and scrotal contents;
2. Describe and demonstrate (on designated models or simulators) the special techniques employed in the thorough evaluation of the scrotal contents and any abnormality therein;
3. Describe and demonstrate the teaching of a testicular self-examination;
4. Prepare a written report of the examination of the male reproductive system using the proper format.

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**Physical Diagnosis II**

**5. The physical examination of the Female Genitalia**

A. Goals:

1. Review the anatomy of the female external and internal genitalia and the physiological changes that can be observed in them;
2. Review the different stages in the maturation of the female genitalia;
3. Review the common pathophysiological conditions affecting the female genitalia;
4. Learn the steps involved in the physical examination of the female reproductive system;

B. Objectives: After attending lecture, completing the readings and assignments, and practicing the skills learned, the physician assistant student should be able to:

1. List and describe the proper use of the equipment necessary for a complete gynecological examination;
2. Describe the proper positioning of the patient for pelvic examination;
3. Describe and demonstrate ( on designated models and simulators) the inspection of the external female genitalia;
4. Describe and demonstrate (on designated models and simulators) the speculum, bimanual abdomino-pelvic and recto-vaginal examinations. List the structures that are examined during each part of the examination;
5. Describe the proper technique for obtaining a Papanicolaou smear ( cytological evaluation of cervical cells) and appropriate cultures;
6. List the significance of abnormal findings including but not limited to vaginal discharge, cervical motion tenderness, uterine mass or enlargement, adnexal mass and / or tenderness;
7. Prepare a written report of the examination of the female reproductive system using the proper format.

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**Physical Diagnosis II**

**6. The physical examination of the Anus and Rectum**

**A. Goals:**

1. To review the anatomy of the anus and rectum, including the surrounding structures associated with the male and female reproductive tracts;
2. To understand the steps involved in the physical examination of the anus and rectum;
3. To differentiate between the structures palpable during routine digital rectal examination of males and females;
4. To learn the proper techniques employed in the examination of the anus and rectum.

**B. Objectives: After attending lecture, completing the readings and assignments, and practicing the skills learned, the physician assistant student should be able to:**

1. Describe and demonstrate (on designated models and simulators) the proper positioning of both males and females for the anorectal examination and the benefits and drawbacks of each;
2. Describe and demonstrate (on designated models and simulators) the inspection and palpation of the anus and expected observations;
3. Describe and demonstrate (on designated models and simulators) the proper examination of the prostate gland;
4. List the significance of abnormal findings including but not limited to anorectal masses, tenderness, discharge, positive fecal occult blood;
5. Prepare a written report of the examination of the abdomen using the proper format.

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**Physical Diagnosis II**

**7. The physical examination of the Musculoskeletal System**

**A. Goals:**

1. To review the anatomy and physiology of muscles, bones, joints, tendons and ligaments;
2. To review the common pathophysiological conditions affecting the musculoskeletal system;
3. To learn the proper techniques employed in the physical examination of the musculoskeletal system;

**B. Objectives: After attending lecture, completing the readings and assignments, and practicing the skills learned, the physician assistant student should be able to:**

1. Describe the proper technique involved in the physical assessment of the musculoskeletal system, including but not limited to the assessment of active and passive range of motion, muscle strength, trauma;
2. Describe the techniques involved in the assessment of posture and deviations from the norm;
3. List and describe the significance of the common findings associated with joint pathology;
4. Prepare a written report of the examination of the musculoskeletal system using the proper format.



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**8. The physical examination of the Neurologic System**

A. Goals:

1. To review the pertinent anatomy and physiology of the components of the neurologic systems, including but not limited to the brain, spinal cord, motor & sensory pathways, and cranial nerves.
2. To review the common pathophysiological conditions affecting the nervous system.
3. To introduce the basic skills on the examination on the nervous system.

B. Objectives:

1. Describe the proper technique involved in the physical exam of the nervous system including but not limited to evaluating cranial nerves, sensorineural system, motor function, cerebellar function and deep tendon reflexes;
2. Describe the evaluation of the comatose patient and the significance of common findings;
3. List and describe the common finding associated with neurologic disorders;
4. Prepare a written report of the examination of one nervous system using the proper format.