

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

**BIOSTATISTICS**

**Course Description:**

This course introduces concepts of basic statistical methods used in health care research. Topics include population sampling, graphical presentation of data, frequency distributions, measures of central tendency and dispersion, one-sample and two-sample inference (hypothesis testing), interval estimation (confidence intervals), analysis of variance, chi-square test, applications of sample size and statistical power, correlation and linear regression, survival analysis and Cox multivariate regression

A. Goals

1. To introduce concepts of basic statistical methods used in health care research.
2. To utilize statistical software programs such as STATA to analyze data sets.
3. To use basic statistical concepts in practical applications such as study design and interpretation of published research.

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

1. Describe methods of population sampling and discuss the concepts of adequate sample size and statistical power
2. Design graphical presentations of statistical data
3. Determine frequency distributions, measures of central tendency and dispersion for a given data set
4. Determine one-sample and two-sample inference (hypothesis testing), interval estimation (confidence intervals), and analysis of variance
5. Use the chi-square test for appropriate data sets
6. Measure correlation/linear regression of data
7. Utilize a statistical software program (STATA) in the analysis of data
8. Apply the basic understanding of biostatistics to subsequent coursework and other clinical research-based endeavors
9. Discuss the role of Biostatistics in modern-day health research, patient safety, and health promotion. Understand how statistics impacts the daily practice of a PA.

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**EPIDEMIOLOGY**

**Course Description:**

This course introduces basic concepts of epidemiology and applies the scientific method to the study of disease in populations. Topics include description of the frequency and determinants of a disease in a defined population, evaluation of factors that may cause a disease, principles of epidemiologic surveillance, analysis of published clinical trials, cohort studies and case control studies and the role of epidemiology in public health policy.

A. Goals:

1. To introduce the Physician Assistant student to the fundamental concepts of epidemiology.
2. To apply those fundamentals in evaluating medical research, including the assessment of the validity of data.
3. To determine the significance of current research as it relates to the practice of evidence-based medicine.
4. To incorporate knowledge of statistical techniques into the interpretation of epidemiological, environmental, and health-care research.

B. Objectives:

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

1. Define Epidemiology and understand the differences amongst clinical research and basic science research.
2. Define Epidemic, Endemic and Pandemic
3. Describe the epidemiological method for studying a problem including the following:
  - a. description of the frequency and determinants of a disease in a defined population;
  - b. evaluation of factors that may cause a disease; and
  - c. experimental studies of the effects of modifying risk factors on the subsequent frequency of a disease.
4. Understand Epidemiologic approach to infectious diseases, including the modes of disease transmission.
5. Define the basic concepts of epidemiology including community diagnosis, analytical techniques, and evaluation or preventive methods, using examples of both acute and chronic diseases.
6. Apply the above epidemiological concepts and utilize statistical techniques for epidemiological, environmental, or health-care research.
7. Identify both professional and ethical considerations with regard to Epidemiology.
8. Interpret case-control, cohort, randomized trials and meta-analysis using a research and epidemiologic approach.
9. Understand the fundamentals and design of surveys and the interpretation of such.
10. Assess the validity and reliability of diagnostic and screening tests.

11. Demonstrate the process of prognosis development.
12. Understand principles of organizing and presenting epidemiologic data.
13. Understand determination of mortality and morbidity in addition to estimation of risk.
14. Describe how the practice of epidemiology affects the public health, and can assist in

the

prevention of disease.

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**Emergency Medicine**

**Course Description:**

This course further explores concepts introduced in medicine and in surgery lectures, with an emphasis on emergent care and life-threatening illness and injury. Common presenting complaints seen in emergency medicine settings, their diagnosis and treatment are addressed. It explores emergency medicine both as a field of study and as a medical specialty.

A. Goals:

1. To introduce the PA student to the practice and clinical problems of emergency medicine.
2. To explore topics and complaints seen frequently in the emergency department setting.
3. To complement other medicine coursework by featuring an emergency medicine approach to these problems.
4. To discuss the approach to the patient with various complaints, describe the appropriate use of diagnostic studies, and discuss management options, including patient disposition.

B. Objectives: Upon the completion of the Emergency Medicine course, the student should be able to:

1. Describe how the approach to a patient in the Emergency Department differs from hospitalized patients or patients seen in a health clinic or private office.
2. Discuss the mechanisms of thermoregulation, and explain the etiologies, manifestations, and management of hyperthermic and hypothermic states, including: heat stroke, heat exhaustion, heat cramps, hypothermia, and frostbite.
3. Discuss the approach to a patient with an acute neurological emergency, including, but not limited to: alteration in mental status, seizures and stroke syndromes. Explain the etiologies, presenting features, work-up, and management of these patients.
4. Describe the classifications, mechanisms, evaluation and management of head trauma.
5. Define sexual assault and describe the responsibilities of the Emergency Care Provider when completing a "rape kit".
6. Explain the management of patients presenting after a sexual assault.
7. Describe the evaluation and management of the patient with acute exacerbations of

8. Discuss the management of patients sustaining a mammalian bite, including wound care, use of antibiotics, tetanus and rabies post exposure prophylaxis and follow-up.
9. Describe the approach to the patient with diabetic emergencies, including hypoglycemia, diabetic ketoacidosis (DKA) and hyperosmolar nonketotic coma (HONKC).<sup>2</sup>
10. Describe the evaluation and management of patients with dental emergencies, including but not limited to; dental pain, oral infections, tooth fractures and avulsions.
11. Describe the pathophysiology, evaluation and management of patients presenting with allergic reactions including urticaria, angioedema and anaphylaxis.
12. Compare and contrast anaphylactic and anaphylactoid reactions.
13. Describe the approach to patients sustaining a drug overdose. List the substances and its antidote.
14. Describe the general management of toxicological emergencies.
15. Describe the evaluation, differential diagnosis, and management of the patient presenting with chest pain.
16. Differentiate between typical and atypical chest pain presentations of both cardiac and non-cardiac diseases.
17. Discuss the role that the PA plays in modern Emergency Department, Urgent-Care centers, and trauma teams. Understand the opportunities available to PA's in the pre-hospital setting.

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## **PSYCHIATRY**

### **Course Description:**

This course introduces the student to the fundamentals of common behavioral abnormalities and their treatment as encountered in clinical practice. Topics include the professional-patient relationship, reactions to history taking and physical examination, stress and coping mechanisms, detection and treatment of psychiatric complications, and management of death and dying.

#### A. Goals

1. To introduce the student to the fundamentals of common behavioral abnormalities and their treatment as encountered in clinical practice.
2. To integrate basic science knowledge with clinical presentations and treatment.
3. To provide a strong base of information involving psychiatric problems commonly encountered in clinical practice.
4. To diagnose common psychiatric disorders, to become familiar with primary care management of psychiatric disorders and to recognize the need for appropriate and timely referral to a psychiatric specialist.

#### B. Objectives

After completing this course the student should be able to:

- Describe the difference between open-ended and direct questions
- List the components of a mental status examination
- State the basic strategies for interviewing disorganized, cognitively impaired, hostile / resistant, mistrustful, circumstantial / hypervolbal, unspontaneous / hypoverbal, and potentially assaultive patients
- Describe the importance of the screening process for organic illness in a patient with a suspected psychiatric diagnosis

- Formulate an appropriate differential diagnosis for dementia and discuss the epidemiology, clinical features, and course of the most common forms of dementia
- List common treatable causes of dementia, and summarize their clinical manifestations
- Summarize the medical evaluation and clinical management of a patient with dementia, including treatment of cognition and of non-cognitive symptoms (e.g. delusions, agitation)
- Define major depression and bipolar disorder
- List the symptoms of depression
- Outline a treatment plan for depression and bipolar disorders
- Compare endogenous and exogenous anxiety
- List the symptoms of and describe the management of anxiety
- Define psychosis
- Define schizophrenia and describe its epidemiologic presentation
- List three organic disorders which may present as psychiatric disorders
- Describe the following personality disorders: paranoid, schizoid, histrionic, narcissistic, antisocial, borderline, avoidant, dependent, compulsive and passive-aggressive
- Describe the physiologic and psychological components of substance abuse
- Define somatoform disorder
- Outline a treatment for somatization disorder
- Describe the clinical presentation of conversion disorder
- Describe primary and secondary gain in conversion disorder
- Outline a treatment for conversion disorder
- Describe the clinical presentation and treatment for hypochondriases
- Define factitious disorder
- List three other names for factitious disorder
- Discuss the clinical presentation of malingering
- List the diagnostic findings associated with anorexia nervosa
- List the personality types which are classically related to anorexia nervosa
- Outline a treatment plan for a patient who is diagnosed anorexic
- Define bulimia nervosa
- List the differential diagnosis for bulimia
- Define rumination, pica, and failure to thrive syndrome
- Define adjustment disorder and list the diagnostic criteria
- Describe the evaluation and treatment of a suicidal patient
- Describe the approach to a psychotic and violent patient
- List appropriate sources of referral for patients with mild, moderate and severe psychiatric illness
- Understand the basic methods of commonly employed structural and functional imaging techniques, and their advantages and limitations in the study of psychiatric illnesses
- Understand the objective criteria (such as DSM-IV) employed in diagnosing psychological symptoms.
- Recognize physical signs and symptoms that accompany classic psychiatric disorders, (e.g., motor retardation in melancholic depression, abnormalities of posture and movement in catatonia, tachycardia and shortness of breath in panic disorder)
- Describe the role of the PA in a psychiatry setting.
- Understand how psychiatry plays a role in the healthcare of all age groups and how the approach to patients changes throughout the lifespan.

- Understand how psychiatry plays in different social and cultural groups, and how the approach to patients changes based on their culture.
- Discuss the indications for psychiatric hospitalization, including the presenting problem and its acuity, risk of danger to patient or others, community resources, and family support

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**SURGICAL SPECIALTIES**

**Course Description:**

The sequence of surgery courses concludes with an introduction to specialized surgical practice. The disciplines of orthopedics, radiology and anesthesiology are also introduced. Students will be expected to synthesize information from the entire surgery course sequence in the comprehensive pre-, intra-, and post-operative management of the surgical patient.

This course will cover the following twenty topics:

1. Radiology
2. Suturing techniques/wound care III
3. An overview of anesthesia
4. Anesthesia II “Management of PONV”
5. Inhalational anesthetic
6. Neuromuscular blockade & reversal/local anesthesia & regional blocks
7. Post-anesthesia care & critical care sedation
8. Airway assessment & management
9. The OR environment II & sterile techniques
10. Introduction to orthopedics
11. Introduction to fracture management
12. Casting
13. Introduction to neurosurgery
14. Reconstructive surgery
15. Facial plastics
16. Transplantation
17. Introduction to pediatrics surgery
18. Vascular surgery
19. Thyroid
20. Introduction to cardiothoracic surgery

1. To comprehend principles and facts regarding surgical practice in specialized disciplines.
2. To develop the intellectual skills necessary to foster critical thinking in the assessment and management of surgical patients.
3. To foster an understanding of the interrelationship of specialty surgical practice, general surgery and medicine in the comprehensive care of the patient as a whole entity.
4. To formulate new or creative understanding within the domain of specialty surgery practice, drawing upon learning acquired through self-initiation from other resources.

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**1: Radiology (Overview of radiology)**

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

1. Define, compare and contrast the following:  
Radiograph                      Mammography  
Ultrasound  
Cat Scan  
Nuclear studies  
MRI  
Angiography

**a. Radiograph**

Chest X-ray

1. Describe the systematic approach to reading Chest X-rays
2. Describe the presentation of fluid, consolidation, and air.
3. Recognize pneumonia, Tb, pneumothorax, pleural effusion, emphysema, pulmonary edema, and CHF.
4. Identify a well defined pulmonary carcinoma on CXR.
5. Identify changes in heart and mediastinal size.
6. Identify the location, type, and function of tubes, i.e. Central line, Swan, NG Tube, etc.

Abdominal X-ray

1. Identify normal anatomy
2. List the available views when ordering an AXR.
3. Identify the following: Intestinal obstruction, Free air, ileus.
4. Compare and contrast GI contrast studies, including: Upper GI series, UGIS with small bowel follow through, and barium enema.

Orthopedics :

1. Recognize moderate fractures and dislocations on plain film
2. List the indications for spinal x-ray
3. Describe how bone differs from fat or air.

b. *Nuclear Imaging:*

1. Describe the different types of nuclear scans available
2. List indications for nuclear scanning
3. Understand how abnormalities manifest on nuclear scanning
4. Recognize bone tumors
5. Explain how V-Q scan is performed, indications for its use
6. Describe normal and abnormal findings in common nuclear scans

c. *Ultrasound:*

1. Describe how ultrasound works
2. List indications for ultrasound
3. List indications for duplex/doppler ultrasound

d. *CT Scan & MRI :*

1. Recognize normal anatomy of the head, neck, and torso
2. Recognize moderate intracranial hemorrhage on CT scan
3. Correlate plain radiographs with CT & MRI findings.
4. Compare and contrast MRI & CT, and know the indications for one over the other.

e. *Breast Studies & Interventional Radiology:*

1. Know the indications for mammography
2. Describe the rating system for mammography
3. Explain what normal and abnormal findings are on mammography
4. Understand how ultrasound and FNA can be employed to augment an initial mammogram study
5. Describe common procedures performed in interventional radiology, as well as their indications and contraindications.

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**2: Suturing Techniques / Wound Care III**

- A. Goal: To introduce the concepts of wound closure, sutures, indications & contraindications, and knot tying.
- B. Objectives: At the end of this unit the student should be able to:
1. Discuss the indications / contraindications for wound closure
  2. List the types of sutures including which are absorbable and non-absorbable
  3. Perform and two handed tie, simple instrument tie, as well as mattress & running.
  4. List other options for Primary wound closure, including staples “steri-strips” & octylcyanoacrylate
  5. Describe the four qualities of the ideal solution
  6. Describe the correct sequence for wound care & repair
  7. Discuss the indications, technique, and medications employed during local anesthesia.

**3: An Overview of Anesthesia**

- A. Goal: To introduce the PA-S to the role of anesthesia in modern healthcare.
- B. Objectives: At the end of this unit the student should be able to:
1. Define anesthesia
  2. Know the five main points of anesthesia, and define each.
  3. Compare and contrast ASA classifications
  4. Describe how airways are classified
  5. Describe a Mapleson circuit and Circle system
  6. Briefly describe "Induction" sequence, and the different types of anesthetic medications employed.

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**4: Anesthesia II "Management of PONV"**

A. Goal:

1. To familiarize the student with the etiology and management of this common surgical problem.

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

1. Describe how PONV may impact on patient management and recovery.
2. Describe patient, anesthetic, and surgical factors that contribute to PONV.
3. List factors that have a stimulatory effect on the CTZ
4. List agents that have a negative effect on the CTZ
5. Describe the classifications of antiemetics, their indications & dosages.

**5: Inhalational Anesthetics**

A. Goal:

1. To apply previous knowledge of respiratory anatomy & physiology, pulmonary and cardiology medicine segments, pharmacology, and acid/base balance to the use of inhalational anaesthetics.

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

1. Define the phases of general anesthesia.
2. Describe the assessment of anesthetic depth when an inhalational anesthetic is employed.
3. Explain what is meant by "balanced anesthesia"
4. List the indications and actions of common general anesthetics.
5. Discuss Malignant Hyperthermia
6. Define MAC
7. Describe how a patient undergoing anesthesia is monitored.
8. List common invasive monitoring techniques.

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**6: Neuromuscular Blockade & Reversal/ Local Anesthesia & Regional Blocks**

A. Goal:

1. To apply previous knowledge of anatomy & physiology, neurology, and pharmacology to the use of muscle relaxants and local and regional anesthesia.

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

1. List the common regional anesthetic procedures. Understand their indications and contraindications, risks & benefits.
2. Define neuromuscular transmission and peripheral nerve stimulation.
3. List common neuromuscular blocking agents. Know their indications, contraindications, method of administration, and length of action.
4. Understand the indication for epidural anesthesia

**7: Post- Anesthesia Care & Critical Care Sedation**

A. Goal:

1. To apply previous knowledge of anatomy & physiology, clinical medicine, and pharmacology to post-anesthesia care and sedation in the critical care setting.

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

**Post-Anesthesia**

1. Describe the criteria employed to release a patient from the Recovery Room.
2. List important respiratory issues in the post-operative period.
3. Describe the treatment for important post-anesthesia conditions (hypotension, arrhythmia, etc.)
4. Explain the concept of pain management and post-anesthesia recovery.

**Critical Care**

1. Discuss the indications for sedation of critically ill patients.
2. Review the common medications that are employed in this setting for sedation.
3. Describe the physiologic benefits to sedation (Anxiolysis, improved

4. Describe disadvantages to critical care sedation (cost, length of intubation)

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**8: Airway Assessment & Management**

A. Goal:

1. To apply previous knowledge of respiratory anatomy & physiology, pulmonary and cardiology medicine segments, and pharmacology to airway management in surgical settings.

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

*Intro:*

1. Discuss the role of Anesthesia in the Pre-, Intra-, and post-operative setting.
2. Understand preoperative conditions that pose anesthetic risk for the patient.
3. Briefly introduce the types of anesthesia that are employed in the operative environment (general, MAC, regional, spinal, & local)

*Airway:*

1. Describe the anatomy of the airway.
2. List and discuss basic (i.e. oral airways) and advanced (endotracheal intubation) airway management tools. Explain their indications and contraindications.

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**9: THE OR ENVIRONMENT II & STERILE TECHNIQUES**

A. Goal

1. The goal of unit is to familiarize students with the physical environment of the operating room and with standard protocol and procedures associated with surgery.

**LECTURE Outline**

1. Introduction
2. Department overview
3. OR etiquette
4. Members of the surgical team
5. Principles of asepsis and infection control
6. Patient and staff safety
7. Surgical “counts”
8. Surgical instruments
9. Electrosurgical safety
10. Methods of hemostasis
11. Sutures
12. Positioning, draping and skin prep
13. Endoscopic surgery
14. Scrub gown and glove procedure
15. Tour of OR and observe surgery

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

1. Describe the basic operating room environment
2. Demonstrate aseptic technique
3. Demonstrate the ability to scrub, gown and glove correctly
4. Identify and name common surgical instruments
5. Explain the need for correct positioning and safety in using the electrocautery
6. Demonstrate skin prep and draping and explain the principles involved
7. Describe three methods of hemostasis
8. Explain the difference between suture types
9. Observe surgery in accordance with proper OR procedure

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**10: INTRODUCTION TO ORTHOPEDICS**

This section introduces students to the fundamentals of musculoskeletal disease . The focus will primarily be on out patient orthopedic injuries/emergencies as well as common surgical procedures. Lab practice in orthopedic exam, casting & splinting is included.

A. Goal:

1. The goal of this course is to provide the students with a basic understanding of orthopedic injuries and conditions requiring orthopedic interventions. Students should become comfortable with the orthopedic physical exam, as well as casting procedures.

**LECTURE TOPICS**

1. Mechanism of injury
2. Basic physical exam of shoulder, wrist, elbow, hand, hip, knee, foot and ankle
3. Stress fractures
4. Pathologic fracture
5. Management of acute fractures
6. Open vs. closed fractures
7. Sprains and strains
8. Dislocations
9. Tendonitis
10. Bursitis
11. Ruptures tendon
12. Carpal Tunnel Syndrome
13. Low back pain, acute and chronic
14. Aspiration and coricosteroid injection
15. Trauma and orthopedic emergencies
16. Orthopedic surgery
17. Total joints
18. Ligament reconstructions
19. Open reduction and internal fixation
20. Arthroscopy
21. Cervical Spine disease
22. Common hand injuries
23. Spinal disease

## B. Objectives

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

1. Describe the role of the Surgical PA on an orthopedic service
2. Given a description of a fall, identify the most likely resulting injury
3. Describe the effect of osteoporosis on fractures and identify the bones most commonly involved
4. Define stress fracture
5. Describe the evaluation, diagnosis and treatment of an acute fracture of the humerus, radius, tibia, fibula, femur, fingers, and toes
6. Describe the management of an open fracture
7. Describe the evaluation, diagnosis and treatment of an ankle sprain, knee sprain
8. Differentiate between a sprain and state the anatomy involved in each
9. Explain the pathology involved in tennis elbow and shin splints
10. List two common sites for the development of bursitis, state the treatment
11. Describe the presenting symptoms of carpal tunnel syndrome and the early management involved
12. Describe the physical findings associated with an effusion of the knee
13. Describe the work up for acute onset and chronic low back pain
14. Describe the physical findings with herniated lumbar disk
15. List three most common orthopedic emergencies requiring immediate surgery
16. Describe the common treatment for C-spine injuries
17. State the most common fracture in children, adolescence, adults and the elderly
18. List indications and contraindications for total joint surgery
19. List surgeries for common sports injuries
20. Define and describe ORIF
21. Describe the fractures requiring ORIF
22. Describe the indications and complications associated with arthroscopies

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**11: INTRODUCTION TO FRACTURE MANAGEMENT**

A. Goals:

1. To integrate the students anatomical knowledge and Physical Diagnosis skills of the musculoskeletal system with a preclinical lecture on orthopedics.
2. To evaluate and manage common fractures and/or dislocations as well as sprains & strains

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

1. Define Varus, Valgus, & Alignment
2. Describe the various types of fractures (Greenstick, comminuted, etc)
3. Discuss the classification of spinal injuries
4. Describe an 'open book' fracture of the pelvis
5. Discuss the diagnosis and treatment of clavicular Fracture
6. Know different types of fractures affecting the humerus
7. Know the presentation and management of shoulder dislocations
8. Discuss Fracture of the forearm
9. Compare a Colles Fracture to a Smith Fracture
10. Discuss the diagnosis and treatment of a femoral Fracture
11. Know the presentation of a hip Fracture, compare it to a hip dislocation.
12. Know the diagnosis and treatment of ankle injuries.
13. Perform a comprehensive orthopedic evaluation of the following regions:
  - \*Spine           \*Pelvis
  - \*Shoulder       \*Humerus
  - \*Elbow           \*Ribs
  - \*Radius/Ulna   \*Wrist/Carpals
  - \*Patella         \*Ankle/Tarsals
  - \*Digits          \*Clavicle

**12: CASTING**

A. Goal: To introduce the PA-S to the hands on concepts of fracture management.

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

1. Explain the objectives of fracture management.
2. Describe the proper technique for the application & removal of plaster splints & casts.
3. List the indications, contraindications & complications associated with the application of plaster splints & casts.
4. Describe the use of a sling & swath, hairpin splint, Sugar Tong splint, gutter splints, and basic posterior splinting of the upper & lower extremities.
5. Memorize the six indications for operative treatment of fractures.

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**13: Introduction to Neurosurgery** (two lectures)

A. Goal:

1. To introduce the PA-S to the scope of neurosurgical practice as well as common neurologic pathologies warranting surgical intervention.

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

1. Define "Level of Consciousness", including alert, stuporous, & coma.
2. Review the neurological exam.
3. Define normal intracranial pressure
4. Describe how increased ICP affects perfusion, & list the signs & symptoms.
5. Know the pharmacologic & surgical management options of increased ICP.
6. Compare & contrast CT vs. NM scanning with respect to CNS imaging.
7. Describe the four types of skull fractures & their management.
8. Memorize the most frequent causes of subarachnoid hemorrhage.
9. Compare & contrast Concussions vs. cerebral contusions.
10. Describe the etiology, signs & symptoms, imaging, and treatment of epidural hematoma.
11. Know the three types of subdural hematoma as well the signs & symptoms and management.
12. Know the five essential components to diagnosis brain tumors & describe their general vs. focal signs & symptoms.
13. Know the signs & symptoms of intracranial hemorrhage, as well as the basic imaging studies and medical/surgical treatment.

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**14: Reconstructive Surgery**

A. Goals.

1. to review the basic principals of plastic surgery
2. to introduce grafts & flaps
3. to review the principals of wound care

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

1. Describe the role of Plastic Surgery in today's surgical arena
2. Describe the 4 types of grafts
3. Know the advantages of thin split, thick split, and full thickness grafts
4. Describe the management of the graft recipient site and donor site
5. Define a flap.
6. Describe the different types of flaps
7. Discuss the role of wound irrigation & debridement.
8. List which sutures will dissolve & which are permanent

**15: Facial Plastics**

A. Goals: To introduce:

1. cleft palate deformities
2. Psychological assessment of Surgical Candidates
3. Nasal Plastics
4. Blepharoplasty
5. Facelifts

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

1. Discuss the different types of cleft palate deformities
2. Know the indications for surgical treatment of cleft palate deformities
3. Define Plastic Surgery
4. Discuss the goals of operation for a Facelift
5. Discuss after care/follow up of a facelift
6. Discuss Sequelae/ complications from a facelift
7. Discuss functional nasal disorders (deviated septum) and the role of rhinoplasty.
8. Know the surgical goals and outcomes of rhinoplasty.
9. Know the follow up care for rhinoplasty
10. Discuss the major complications of rhinoplasty.
11. Discuss the goals, complications, and sequale of blepharoplasty.

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**16: TRANSPLANTATION**

A., Goals:

1. To give the PA-S a broad overview of transplant surgery
2. To educate the PA-S on the criteria for organ donation
3. To introduce organ preservation
4. To discuss immunologic events of transplantation
5. To introduce types of organ/tissue transplantation

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

1. List organs & tissues that are currently being transplanted
2. Give basic graft survival statistics for organs from living, related, and cadaver donors.
3. Describe the criteria for describing death for the purpose of tissue donation.
4. Describe the forms of immunosuppression for transplantation
5. Define the four types of rejection.
6. Know the preservation method for thoracic/abdominal organs
7. Describe the typical candidate for liver transplant
8. Know the immunologic matching for kidney, liver, pancreas, heart, lung, & bone.
9. Know the short & long term follow up for renal transplant patients

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**17: Introduction to Pediatric Surgery (two lectures)**

A. Goals: To familiarize the student with the following:

1. The unique needs to the pediatric surgical patient.
2. Causes of GI obstruction in the pediatric patient
3. Solid Tumors of Childhood
4. Congenital Hernias & abdominal wall defects.
5. Surgically correctable causes of respiratory distress.

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

1. Discuss the special needs of this surgical population (temperature regulation, fluids, nutrition, etc.) Include how medication/anesthesia may alter these needs.
2. Discuss the etiology, presentation, and treatment (briefly) of GI obstruction (pyloric stenosis, duodenal obstruction, intestinal atresia, malrotation, meconium ileus, intussusception, Hirschsprungs, etc.) Be especially familiar with pyloric stenosis and intussusception.
3. List & discuss the two most common solid tumors of childhood, including etiology.
4. Know the causes, diagnosis , and treatment (briefly) of surgically correctable causes of respiratory distress: (choanal atresia, TE fistula, Congenital diaphragmatic hernia, etc.)
5. List the etiology & clinical presentation of inguinal hernia.
6. Be familiar with the presentation and objective findings of a patient with esophageal atresia.
7. Describe the initial management of the pediatric trauma patient.

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**SURGICAL SPECIALTIES**

**18: VASCULAR SURGERY**

A. Goals: To introduce the student to the following concepts:

1. atherosclerosis
2. aneurysms
3. peripheral arterial occlusive disease
4. renal vascular occlusive disease
5. peripheral venous disease
6. A-V malformations
7. Thoracic outlet syndrome
8. Vascular trauma

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

1. List the risk factors leading to the development of atherosclerosis.
2. List preventive measures employed to combat atherosclerosis.
3. Know the cause, presentation, and treatment of abdominal aneurysms
4. Know the differential diagnosis of an abdominal aneurysm
5. Compare thoracic, abd, femoral, and popliteal aneurysms (presentation & treatment.)
6. Describe the significance of claudication & its workup.
7. List criteria to differentiate between venous, arterial diabetic, and infectious ulcers of the leg.
8. Describe the causes, presentation, & etiology of acute arterial occlusion.
9. Differentiate embolic occlusion from thrombotic occlusion.
10. Identify the etiology, presentation, usual sites, and treatment of deep venous thrombosis.
11. Know the factors that lead to an increased incidence of venous thrombosis and pulmonary emboli in the surgical patient.
12. Outline the management of venous ulcer disease.
13. Know the etiology & management of varicose veins
14. Identify the noninvasive and invasive diagnostic techniques that may be employed when performing a LE venous work up.
15. Briefly discuss the presentation & management of arterial injury.

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**SURGICAL SPECIALTIES**

**19: Thyroid**

A. Goals:

1. To review the anatomy, physiology and physical assessment of the thyroid and parathyroid.
2. To consider the surgical management of diseases of the thyroid and parathyroid including:
  1. hyperthyroidism
  2. thyroid cancer (CA)
  3. the significance of a solitary thyroid nodule
  4. parathyroid disease
  5. Multiple Endocrine Neoplasia

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

1. Describe the nervous and arterial supply of the thyroid
2. Review the steps involved in examining the thyroid.
3. List the major symptoms, differential diagnosis, and treatment of hyperparathyroidism
4. Know which nerve is most at risk to be injured during a thyroidectomy
5. Know the signs and symptoms, risk factors & treatment of thyroid CA-
6. List different types of thyroid CA as well as their origin.
7. Discuss surgical treatment of hyperparathyroidism
8. Review the three types of hyperparathyroidism and discuss their treatment.
9. Describe the detailed workup of a thyroid nodule.

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**SURGICAL SPECIALTIES**

**20: INTRODUCTION TO CARDIOTHORACIC SURGERY**

A, Goals:

1. To introduce surgical concepts in treating disease of the thoracic wall, pleura, mediastinum, & lung
2. To introduce acquired disease of the heart which may warrant surgical intervention.
3. To describe the role of the Surgical PA on a cardithoracic service.

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

1. Describe the signs & symptoms of pneumothorax, as well as its treatment.
2. Know the signs and symptoms of SVC Syndrome.
3. Know the indications for surgery in Tuberculosis
4. Describe the indications for coronary artery bypass.
5. Be aware of the surgical technique in CABG.
6. Describe the employment of the saphenous vein, radial artery, and others in revascularization.
7. Compare & contrast Mechanical heart valves with bioprosthetic valves and discuss any specific indications for their use.
8. Review cardiac anatomy, physiology, and pathology relevant to cardiac surgery
9. Discuss invasive and non-invasive diagnostic techniques, such as electrocardiography, radiology, angiography, ultrasonography and radionuclear scanning
10. Compare and contrast EVH to classic open harvest
11. Discuss the types of conduits available.
12. Understand pre- and post-operative care, including treatment of cardiac failure, cardiac arrhythmias and management of cardioactive drugs
13. Describe the surgical management of lung cancer.
14. Compare and contrast the indications for chest needle decompression and chest tube placement.

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**Fundamentals of Primary Care & Clinical Medicine**  
**ALLERGIC AND IMMUNOLOGIC DISEASES**

A. Goals

1. To prepare the student to recognize and treat common allergic conditions.
2. To differentiate allergic conditions from infectious illness.
3. To understand of the pathophysiology involved in allergic reactions and their treatment.

**LECTURE TOPICS**

- Allergic Rhinitis
- Contact Dermatitis
- Urticaria and angioedema
- Food allergies
- Drug allergy
- Desensitization
- Anaphylaxis
- AIDS
- Chemotherapy and immunology
- Autoimmune disorders

B. OBJECTIVES

After completing this course the student should be able to:

1. List the signs, symptoms and treatment of allergic rhinitis
2. Compare seasonal and perennial allergic rhinitis, list common allergens for each
3. Explain the process of skin testing - Define urticaria and angioedema and differentiate between them
4. List the medications used to treat urticaria and describe the duration of treatment
5. State the most common food allergy in small children, and in adults
5. List common drugs sometimes associated with drug allergies
6. Explain the process of desensitization for allergies
7. Describe the clinical presentation and treatment of anaphylaxis
8. Briefly describe the immunodeficiency associated with to AIDS, chemotherapy, and autoimmune disorders
9. Describe the testing process for drug sensitivities.
10. Compare and contrast the role of the main immunoglobulins in the body.
11. Describe the typical patient that require a stand-by 'epi-pen'.

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

**1: Diabetes Mellitus**

A. Goals

1. To prepare the student to recognize and treat common endocrine diseases.
2. To develop a differential diagnosis of the signs and symptoms of endocrine disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in endocrine diseases.

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

1. Discuss the epidemiology, pathophysiology, diagnostic criteria and treatment of Type 1 and Type II Diabetes Mellitus
2. Discuss the symptoms of hyper- and hypoglycemia
3. Discuss the nonpharmacologic management of Type 1 and Type 2 DM including:
  - Screening and prevention of end-organ disease
  - General health maintenance recommendations
  - Glycemic control and monitoring
  - Diet and exercise
4. Understand the epidemiology and pathophysiology of specific end organ disease including:
  - Neuropathy
  - Diabetic Foot Disease
  - Coronary Heart Disease
  - Hypertension
  - Eye Disease
5. Understand the risk factors, pathophysiology and treatment of
  - DKA
  - Nonketotic Hyperglycemic Hyperosmolar Coma
6. Understand signs, symptoms, etiology and evaluation of hypoglycemia in the nondiabetic patient.

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

**2: Hypothalamus and Pituitary Disorders**

A. Goals

1. To prepare the student to recognize and treat common endocrine diseases.
2. To develop a differential diagnosis of the signs and symptoms of endocrine disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in endocrine diseases.

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

1. Describe role of neuroendocrine regulation and feedback mechanisms involving the hypothalamus -pituitary-and end-organ axis including the following:  
TRH, TSH, GnRH, CRH, GHRh, Prolactin Inhibitory Factor and Prolactin Releasing Factor, FSH, LH
2. Describe the role of the pineal gland and melatonin production
3. Recognize and be able to evaluate causes of hypopituitarism including:  
Congenital diseases  
Metastatic and infiltrative diseases  
Craniopharyngioma  
Pituitary Apoplexy  
Sheehan's Syndrome  
Radiation effects  
Empty Sella Syndrome
4. Understand the clinical manifestations, evaluation and treatment of pituitary adenomas including:  
Prolactinoma  
Corticotroph (ACTH)-adenoma  
GH-tumor
5. Understand the signs, symptoms diagnostic evaluation and treatment of central and nephrogenic diabetes insipidus
6. Recognize the clinical presentation of SIADH and be able to differentiate between central DI and nephrogenic DI.
7. Understand the role of oxytocin
8. Describe the MEN 1 and 2 syndromes.

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**ENDOCRINE**

**3: Thyroid Disease**

A. Goals

1. To prepare the student to recognize and treat common endocrine diseases.
2. To develop a differential diagnosis of the signs and symptoms of endocrine disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in endocrine diseases.

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

1. Understand the anatomy and physiology of the thyroid gland including synthesis and storage of thyroid hormone and the regulation of thyroid function.
2. Be able to interpret thyroid function tests and recognize the following conditions: hypothyroidism, hyperthyroidism, sick euthyroidism.
3. Understand the role diagnostic studies including
  - Ultrasound
  - RAIU
  - FNA and biopsy
4. Understand the etiology, epidemiology, clinical features, evaluation and therapeutic options for hyperthyroidism including:
  - Grave's disease
  - DeQuervain's (subacute) Thyroiditis
  - Chronic thyroiditis
  - Toxic Multinodular Goiter
  - Thyroid Storm
5. Understand the etiology, epidemiology, clinical features, evaluation and treatment of hypothyroidism, including:
  - Hashimoto's Thyroiditis
  - Iodine Deficiency
6. Understand the complications of untreated hypothyroidism and hyperthyroidism including
  - Grave's ophthalmoplegia, osteoporosis, dyslipidemia, atherosclerotic heart disease and myxedema coma
7. Be able to recognize and understand the clinical entity of sick euthyroid.
8. Be able to evaluate a thyroid nodule.
9. Understand the epidemiology, diagnosis, treatment and prognosis of thyroid tumors including follicular, papillary, anaplastic and medullary thyroid carcinomas.

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**ENDOCRINE**

**4: Parathyroid and Metabolic Bone Disease**

A. Goals

1. To prepare the student to recognize and treat common endocrine diseases.
2. To develop a differential diagnosis of the signs and symptoms of endocrine disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in endocrine diseases.

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

1. Understand the effects of parathyroid hormone (PTH) on bone, kidney, liver and gut for maintaining calcium homeostasis.
2. Understand the regulation and feedback control of PTH secretion.
3. Be able to distinguish between primary, secondary, and tertiary hyperparathyroidism .
4. Understand signs, symptoms, causes and treatment of hypercalcemia .
5. Understand signs, symptoms, causes and treatment of hypocalcemia.
6. Understand parathyroid hormone related hypercalcemia of malignancy.
7. Understand the factors that influence cortical and trabecular bone homeostasis, growth and breakdown including PTH, vitamin D, calcium levels, calcitonin, thyroid disorders, estrogen/testosterone, glucocorticoids, and infiltrative and metastatic disease.
8. Understand the epidemiology, pathophysiology, risk factors, and presentation of osteoporosis.
9. Describe diagnostic measures and treatment options for osteoporosis.
10. Describe the pathophysiology, clinical presentation, diagnostic evaluation and treatment of Paget's Disease.

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**ENDOCRINE**

**5: Adrenal Gland**

A. Goals

1. To prepare the student to recognize and treat common endocrine diseases.
2. To develop a differential diagnosis of the signs and symptoms of endocrine disease.
3. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in endocrine diseases.

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

1. Discuss the adrenal gland, including:
  - Anatomy and Physiology
  - Histology
  - Hormone Production
  - Hormone Classification
  - Hormone Function
  - Assessment of Adrenal Function
2. Discuss disorders of adrenocortical function, including:
  - Cushing's Disease and syndrome
  - Addison's disease (adrenocortical insufficiency)
  - Adrenal Androgen Excess Syndromes
  - 21-Hydroxylase Deficiency
  - Conn's Syndrome
3. Understand the systemic effects of acute and chronic exogenous corticosteroid therapy.
4. Recognize and evaluate a patient for adrenal insufficiency secondary to the withdrawal of exogenous steroids.
5. Describe the clinical presentation, evaluation, management and treatment of a pheochromocytoma.
6. Describe the evaluation of incidental adrenal masses.

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

**1: INTRODUCTION TO GERIATRICS**

A. Goals

1. To prepare the student to recognize and treat diseases common in the elderly.
2. To recognize the unique needs of an aging patient population and differentiate normal aging from disease processes.
3. To develop a differential diagnosis for common complaints and clinical findings in the geriatric patient population.
4. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the elderly.

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

1. Discuss the physiological changes associated with normal aging including
  - Sensory changes -vision, hearing, and taste
  - Cardiovascular changes
  - Endocrinological changes
  - Immunological changes
  - function in the elderly and dosing of medications
2. Define ADL and IADLs and their significance in the management of the geriatric patient
3. Describe the presenting symptoms of hypothyroid disease and compare with common psychological disorders
4. Briefly describe the impact of the Medicare System on health care delivery to geriatrics in the US
5. Utilize resources in the community including
  - Information and referral Services
  - Case Management or Care Coordination
  - Multipurpose Senior Centers
  - Day Care/Day Health Care Programs

- In-Home Care
- Senior Housing

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

**2: COMMON PROBLEMS IN GERIATRICS**

A. Goals

1. To prepare the student to recognize and treat diseases common in the elderly.
2. To recognize the unique needs of an aging patient population and differentiate normal aging from disease processes.
3. To develop a differential diagnosis for common complaints and clinical findings in the geriatric patient population.
4. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the elderly.

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

1. Define polypharmacy and describe common problems associated with its practice
2. List four common treatable causes for urinary incontinence
3. List common sexual issues concerning the geriatric population and suggest possible treatments or interventions
4. List vaccinations recommended for the geriatric population
5. List five interventions to reduce falls in the home or residence
6. Describe the importance of social support for the elderly
7. List five screening methods for cancer appropriate for the geriatric population
8. List common medications and interactions that may cause side effects
9. Describe the clinical presentation and scope of depression in the elderly
10. List four sources of support and health care services for the elderly

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

**3: DEMENTIA/ ALTERED MENTAL STATUS IN THE ELDERLY**

A. Goals

1. To prepare the student to recognize and treat diseases common in the elderly.
2. To recognize the unique needs of an aging patient population and differentiate normal aging from disease processes.
3. To develop a differential diagnosis for common complaints and clinical findings in the geriatric patient population.
4. To understand the epidemiology, pathophysiology, clinical findings, therapeutic measures and complications involved in diseases of the elderly.

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

1. Compare and contrast dementia vs. delirium
2. List treatable causes of dementia
3. List untreatable causes of dementia
4. List the steps in differential diagnosis and workup of a demented patient
5. Compare and contrast the diagnoses of Alzheimer's vs. multi-infarct dementia

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**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
Infectious Disease

**1: HIV/ AIDS**

A. Goals

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

B. Objectives: After completing this unit the student should be able to:

1. Describe the HIV virus in terms of its viral life cycle and its interaction with a human host
2. Describe the natural history of HIV infection from primary infection to AIDS-defining symptoms of immunodeficiency
3. List the aspects of the history and physical examination most pertinent to the HIV-positive patient
4. Describe the treatment of opportunistic infections seen in HIV disease including:
  - Pneumocystis carinii pneumonia
  - Cytomegalovirus
  - Mycobacterium avium
  - Candidiasis
  - Toxoplasmosis
5. Explain the use of various laboratory studies used in the diagnosis and monitoring of HIV patients
6. Describe currently accepted therapies for the HIV positive patient
7. Educate patients regarding risk reduction for HIV transmission

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**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
Infectious Disease

**2: Common Bacterial and Viral Infections**

A. Goals

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

B. Objectives: After completing this unit the student should be able to:

1. Identify antibiotics suitable for a patient with an allergy to penicillin
2. Describe two clinical situations/ conditions that result in an increased risk of infection
3. Describe common bacteria with regard to their morphology, Gram stain characteristics, and aerobic/anaerobic classification
4. List three factors that increase the transmission of TB
5. Explain the use of PPD in the evaluation of patients exposed to TB
6. List common skin/ soft tissue infection caused by group A strep, Staph, anaerobes; and gram-negative bacteria; discuss complications and sequelae of the infections
7. Describe the causative organisms, clinical presentation, diagnosis and treatment (including vaccination if available) for the following conditions:

Herpes Simplex virus	Impetigo
Varicella Zoster virus	Pneumonia
Epstein-Barr virus	Meningitis
Cytomegalovirus	Encephalitis
Measles	Endocarditis
Mumps	Gastroenteritis/infectious diarrhea
Poliomyelitis	Pertussis
Rubella	Toxic shock syndrome
Rabies	Gas gangrene
Dengue	Tetanus
Legionnaire's Disease	Botulism
Respiratory syncytial virus	Anthrax
Influenza	Cellulitis
Parvovirus "fifth disease"	Diphtheria

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**FUNDAMENTALS OF PRIMARY CARE AND CLINICAL MEDICINE**  
Infectious Disease

**3: Rickettsial, Spirochetal, Protozoan and Helminthic infection**

A. Goals

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

B. Objectives: After completing this unit the student should be able to:

1. Describe the clinical presentation and treatment of Lyme disease
2. Provide patient education regarding the prevention of Lyme disease
3. Compare and contrast common types of Tick-borne diseases including Lyme, Babesia, Bartonella, Rocky Mountain Spotted Fever & Ehrlichiosis.
4. Identify the common infections that cause infectious diarrhea
5. List three common parasitic infections and describe the treatment of each
6. Describe the causative organisms, clinical presentation, diagnosis and treatment for the following conditions:
  - Q fever
  - Typhus
  - Kawasaki syndrome
  - Syphilis
  - Amebiasis
  - Giardiasis
  - Malaria
  - Toxoplasmosis
  - Tapeworm
  - Enterobiasis (pinworm)
  - Trichinosis
7. The PA student should be able to discuss the rational approach to antibiotic selection.
8. Discuss the role of the PA in an infectious disease practice.