

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
ANESTHESIOLOGY
EDUCATIONAL OBJECTIVES
PGY 1 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: Resident will gain knowledge that relates to practical clinical exposure in learning in the areas of anesthesia selection, implementation and management, as well as utilization of various therapeutic modalities in anesthesiology and anesthesia related areas of expertise. The goals of this rotation are to increase the resident's fundamental knowledge base in anesthesiology, introduce the resident to basic anesthesia procedures, promote acquisition of anesthesia skills and management, and demonstrate necessary interactions between anesthesiologists and operating surgeons. Clinical education during the anesthesia rotation consists of 3 important components:

- a. Acquisition of a specific body of information.
- b. Acquisition of the various psychomotor skills associated with the practice of anesthesiology
- c. Acquisition of affect that relates specifically to the specialty of anesthesiology. The following are more specific objectives:
- d. discuss the rationale governing the use of local, regional, and general anesthesia, including explaining the following concepts:
 - i. *Primum non nocere* (above all, do no harm); careful cardiovascular, respiratory, and neurologic monitoring is a mainstay of safe anesthesia.
 - ii. No specific anesthetic is inherently safer than other; risk: benefit ratio must be considered in each case.
 - iii. Regional anesthesia may provide some advantages:
 1. decreased blood loss
 2. improved perioperative graft patency
 3. reduced incidence of the deep vein venous thrombosis (DVT)
 - iv. combined regional and general techniques can improve outcomes in certain subpopulations:
 1. significant cardiovascular disease and major abdominal or thoracic surgery
 2. severe pulmonary disease and major abdominal or thoracic surgery
 - v. preemptive analgesia such as the use of epidural catheter enhances perioperative comfort
- e. summarize the essential elements of the pre-anesthesia assessment, including:
 - i. targeted history and physical examination (review of systems with attention to cardiovascular and pulmonary disease)
 1. effects of chronic medications (such as Coumadin, insulin)
 2. effects in preoperative medications (such as Demerol, atropine)

3. effects of postoperative medications (such as antihypertensive, antiemetics)
- ii. anatomic and physiologic variables germane to anesthetic success:
 1. airway anatomy
 2. skeletal deformities
 3. neuromuscular disease (malignant hyperthermia [MH] history)
 4. aspiration risk (pregnancy, scleroderma, hiatal hernia)
- iii. assigned Anesthesia Society of American class and physical status:
 1. no organic disease
 2. mild to moderate systemic disease
 3. severe systemic disorders
 4. severe systemic disturbance; life-threatening
 5. patient is moribund with little chance of survival
- f. outline the major characteristics of the pharmacokinetics and pharmacodynamics anesthetic agents (local, volatile, opioid, sedative-hypnotic), including:
 - i. lipid solubility
 - ii. protein binding
 - iii. partition coefficients
- g. summarize the use and monitoring of drugs for sedation and analgesia to include:
 - i. minimum anesthetic monitoring (pulse oximetry, echocardiogram, blood pressure)
 - ii. advantages of schedule of postoperative analgesia over taking as needed (PRN)
 - iii. indication for patient-controlled anesthesia (PCA)
 - iv. importance of periodic assessment to determine:
 1. level of consciousness
 2. pulmonary status in sedated patients
- h. summarize the principles of administration for and compare the effectiveness of the following methods of anesthesia:
 - i. general
 - ii. spinal
 - iii. regional
 - iv. local
- i. describe the potential benefits of regional local anesthesia to include:
 - i. decreased respiratory depression
 - ii. diminished systemic effects (liver and renal toxicity)
 - iii. decreased direct cardiac depression
- j. outline the potential complications associated with the use of regional anesthesia, including:
 - i. spinal anesthetic (headache, cerebrospinal fluid leak [CSF], meningitis)
 - ii. regional nerve blocks (perineural hematomas)
- k. discuss indication for the use of muscle relaxants
- l. analyze anesthetic monitoring techniques to include:
 - i. Swan-Ganz catheters
 - ii. Arterial lines

- iii. transvenous pacemakers
- iv. end-tidal carbon dioxide monitoring
- v. temperature monitoring
- m. describe the techniques and potential complications of managing airway, including endotracheal nasotracheal intubation
- n. describe and explain the most common immediate postoperative anesthetic issues:
 - i. airway stability
 - ii. ventilation and oxygenation
 - iii. pain control
 - iv. nausea and vomiting
 - v. temperature regulation
 - vi. hemodynamic stability
- o. explain the potential physiologic sequelae of the various forms of anesthesia:
 - i. acute
 - ii. subacute
 - iii. chronic
- p. discuss the risk: benefit ratio of anesthesia and surgery with regard to specific disease:
 - i. common risk but mild to moderate morbidity (postoperative nausea, vomiting, sore throat)
 - ii. uncommon risks with major morbidity (malignant hyperthermia)
 - iii. specific disease states (myocardial-symptomatic and asymptomatic, pulmonary, neuromuscular)
- q. discuss the rationale for intraoperative and perioperative physiologic monitoring using:
 - i. transesophageal echocardiography
 - ii. electroencephalogram
 - iii. pulmonary artery catheters
- r. analyze therapeutic options for patients with chronic pain
- s. summarize the steps required in post operative evaluation of patients from a general anesthesia perspective

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

TECHNICAL SKILLS Resident will be responsible for obtaining acceptable skill levels in the following areas:

- a. manage airway in adults and children, employing appropriate:
 - i. physical maneuvers
 - ii. Oral/nasal support devices
 - iii. suctioning techniques to maintain clear airway
- b. perform nasal and oral intubation
- c. recognize and treat signs and symptoms of complications due to anesthetic agents such as:
 - i. cardiovascular collapse
 - ii. acute metabolic disturbances
 - iii. malignant hyperthermia
- d. perform preoperative assessment of patients
- e. recognize risk and possible side effects of drugs used for pain control
- f. write orders for preparation of patients for administration of anesthesia

- g. monitor patients under anesthesia, including use of peripheral and pulmonary artery catheters
- h. administer pre-and post-anesthesia care
- i. apply appropriate monitoring devices
- j. maintain vascular access in a child or an adult
- k. induce general anesthesia, and follow the patient into an out of the stages of general anesthesia
- l. perform spinal anesthetic in selected patients
- m. direct pre- and post-anesthesia care
- n. perform rigid and fiber-optic bronchoscopy
- o. perform emergency tracheostomy (with supervision)
- p. Management of cardiac dysrhythmias and cardiac arrest.
- q. Interpretation of pulmonary function studies relative to anesthesiology
- r. introduction and use of regional nerve blocks as well as their indications, Hunter-indications and applicability to the surgical procedure at hand
- s. interpretation of pulmonary function studies relative to anesthesiology
- t. understand principles related to the use of anesthetic agents
- u. Understand principles related to the medicolegal aspects of anesthesia (informed consent, recordkeeping, etc.)
- v. understand principles related to the psychological concerns of the patient preoperatively, intraoperatively and postoperatively
- w. Know the principles related to the acquisition of technical skills relative to the practice of anesthesiology (venipuncture, arterial lines, jugular lines, Swan-Ganz catheter insertion, conduction anesthesia techniques, nasotracheal, and orotracheal intubation.
- x. Know the principles related to fluid management and blood replacement intraoperatively
- y. know the pharmacology of anesthetic agents and drugs
- z. know the principles related to cardiopulmonary, renal and neurophysiology and their interaction with anesthetic agents

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with staff anesthesiologists and maintain confidentiality.
- b. Effectively and considerately communicate with team staff in a manner that promotes good coordination

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients.
- b. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- c. Identify patients fear associated with the disease states
- d. Identify and assist with the psychological stress of patients with chronic disability from diseases as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. exhibit self-directed learning

- b. demonstrate improvement in clinical management of patients by continually improving pertinent-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. work well with multidisciplinary teams, coordinating care and work with specialists in a team setting

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
SURGICAL CRITICAL CARE
EDUCATIONAL OBJECTIVES
PGY 1-4 LEVELS
9/07**

A: Medical/Surgical Knowledge: PGY 1-2

PGY 1-2

1. **General Critical Care Unit Objectives:** Demonstrate knowledge of the principles associated with the diagnosis and management of critically ill patients, including knowledge of simple and complex multiple organ system normality's and abnormalities. Demonstrate the ability to appropriately diagnose and treat patients with interrelated system disorders in intensive care unit.

2. **Competency - Based Knowledge Objectives:**
 - a. Administration
 - i. Define and describe the role of the surgeon in the critical care setting to include these aspects:
 1. Unit administration/management (surgeon as unit director):
 - a. triage of patients
 - b. economic concerns
 - c. data collection and computer usage
 - d. infection control and total quality measurement (TQM) issues
 - e. ethical concerns (consent, durable power of attorney, living wills)
 - f. local laws for referral to medical examiner
 2. management/consultation for specific surgical conditions
 3. coordination of multidisciplinary consultants relating and interpreting information between non- surgical consultants
 - ii. identify and outline criteria for admitting patients to the intensive care unit (ICU) to include:
 1. medical indications (related to specific diseases, e.g., pulmonary, cardiac, renal)
 2. surgical indications directly related to specific surgical illness
 - iii. identify and outline criteria for discharging patients from the ICU, to include:
 1. medical indications
 2. surgical indications
 3. patients unacceptable for ICU (e.g., futile care, do not necessitate [DNR] orders)

- iv. Identify and explain the considerations surgeons must make when working with consultants in managing critical care situations.
- v. Identify potential organ, tissue donor candidates, as well as hospital's specific procedure for contacting families for potential donation.
- vi. Describe the criteria for predicting preoperatively the patients need for critical care, including:
 - 1. pre-existing disease states (cardiac, pulmonary, or renal)
 - 2. operation-specific requirements for postoperative intensive care management.
- vii. Review and interpret the relationships of physicians, nurses and administrators in managing patients assigned to the ICU.
- viii. Discuss the value of an interdisciplinary approach to health care of the critical ill, elderly surgical patient. Include consideration of the groups-disciplines, working together:
 - 1. Surgery
 - 2. nursing staff
 - 3. family-friends as caregivers
 - 4. physical therapy
 - 5. medical consultants
 - 6. pharmacy
 - 7. religion
 - 8. social work
 - 9. hospital administration
- ix. identify new modes of intensive care therapeutics by completing the following activities:
 - 1. Predict and analyze the need for a new technology.
 - 2. Formulate a plan for the institution of new technologies or therapeutics.
 - 3. Critique and revise applicability of new technologies or therapeutics on a cost: benefit ratio.
- x. Summarize the following moral and ethical problems encountered in the ICU:
 - 1. the need for organ donation and the identification of potential donors
 - 2. decisions about whom to resuscitate and to what degree
 - 3. care of the mentally incapacitated or incompetent patient
 - 4. dealing with a difficult family and futility of care
- xi. identifying and interacting with alternate religious/cultural beliefs

PGY 3-4

PGY 1-2

3. **Management of Systemic Failures:**

- a. **CNS** –non-operative support of the patient with cerebral edema or spinal cord injury, or operation, including the use of osmotic diuretics, intra cranial monitoring, corticosteroids and determination of brain death.
- b. **Pulmonary-acute and chronic respiratory failure**, need for evaluation of patients in regard to ventilatory support; management of all aspects of ventilatory support; and application of monitoring parameters for patients on a ventilator (ABC's, arterial venous oxygen consumption, oxygen content, compliance); management of blunt and penetrating trauma to the chest.
- c. **Cardiac-causes of cardiac failure** and pre and post-operative evaluation of cardiac reserve and management of cardiac output (response to fluid challenge and inotropic agents); monitoring right and left ventricular function, oxygen consumption, CVP and PWP to evaluate cardiac failure and pulmonary edema in surgical patients.
 - i. Describe and compare the following cardiac function parameters:
 1. preload
 2. afterload
 3. myocardial contractility
 - ii. Define the information obtained from the use of the following invasive/non-invasive monitoring devices. Specify: 1) which information is directly/ indirectly measured or calculated, 2) the accuracy and 3)cost of obtaining the information, and 4) review the hemodynamic principles associated with the use of each device:
 1. arterial catheters
 2. central venous catheters
 3. Swan-Ganz catheters
 4. intracranial pressure monitors
 5. end-tidal CO2 monitors
 6. pulse oximetry
 7. peripheral nerve stimulators (for testing adequacy neuromuscular blockade)
 8. Foley catheters
 9. intestinal pH monitors
 10. bioelectric impedance
 - iii. outline the protocols for definition of patterns and management of hemodynamically unstable patients, and analyze the selection of appropriate therapy by completing these activities:

PGY 3-4

1. Predict improvements in hemodynamic status with manipulation of definable variables, including fluid and drug therapies.
2. Detect and revise therapies based on use of invasive/non-invasive monitoring devices.
3. Review cardiac function and hemodynamic monitoring from the following standpoints. Interpret changes in adequacy of values obtained from hemodynamic monitoring devices in:
 - a. patients with severe pulmonary insufficiency who have low compliance and high PEEP
 - b. patients with severe valvular insufficiency/stenosis
 - c. various shock phase (hypovolemia, septic, spinal, or cardiogenic)
 - d. high dose vasopressors
4. Summarize the effects of appropriate volume and drug therapies to manipulate the cardiovascular system in the following patients:
 - a. hypovolemic and hypotensive patient
 - b. hypotensive euvolemic patient
 - c. hypotensive hypervolemic patient
 - d. hypotensive oliguric patient
 - e. hypotensive, hypervolemic oliguric patient
 - f. hypovolemic oliguric patient
 - g. hypotensive, oliguric hypoxic patient
5. Discuss the significant patient characteristics in a geriatric population associated with increased risk of probable thromboembolic disease, including:
 - a. underlying congestive heart failure
 - b. prolonged immobility before surgery
 - c. paralysis
 - d. previous DVT
 - e. Hypercoagulable states (due to malignancy or coagulation factor deficiency)

PGY 1-2

- d. **Renal-causes of failure**-acute, high, oliguric and anuric states; monitoring, preventing, recognizing and treating renal failure when it occurs.
 1. Review acid-base and electrolyte abnormalities common in critically -ill patients.
 2. Identify, define and classify the major categories of acid-base disturbance (metabolic acidosis and/or alkalosis, respiratory acidosis and/or alkalosis) in the context of the patients altered physiology. Site common clinical scenarios for a day of the their appearance:
 - a. metabolic acidosis (hypovolemic shock, chloride excess resuscitation, occult ischemia)

- b. metabolic alkalosis (contraction alkalosis excessive diuretic use)
- c. respiratory acidosis
- d. respiratory alkalosis (early sign of sepsis vs. ventilator complication)

PGY 3-4

3. Discuss the identification and correction of complex acid-base problems such as a choice of intravenous fluids for electrolyte replacement in the:
 - a. hyperchloremic, and metabolically-acidotic patient
 - b. hypochloremic, metabolically-alkalotic patient
 - c. stuporous, dehydrated, hyponatremic patient
 - d. stuporous, dehydrated hypernatremic patient.
 - e. Patient with central diabetes insipidus
 - f. hyponatremic, volume overloaded patient with CO2 retention.
4. Discuss the physiologic principles and define specific management aspects associated with the following complex acid-base problems:
 - a. renal tubular acidosis (differentiated between Type I and II)
 - b. management of high output loss states from the gastrointestinal tract in a patient with poor cardiac function
 - c. management of volume excess states associated with eunatremia or hyponatremia

PGY 1-2 SHOCK

4. **Resuscitation in Shock-Knowledge of Pathophysiology, Types:** institution and application of the various monitoring methods available and resuscitation options.
 1. **SHOCK AND RESUSCITATION UNIT OBJECTIVES:** demonstrate an understanding of pathophysiology of shock, common surgical etiologies, and its categorizations. Demonstrate an understanding of the mechanisms and pathophysiology of cardiopulmonary arrest. Demonstrate ability to manage the treatment of shock and cardiopulmonary arrest.
 2. **COMPETENCY-BASED KNOWLEDGE OBJECTIVES:**
 - a. define shock, categorize it based upon type, explain the etiology and pathophysiology of each type of shock:
 - i. Cardiogenic
 - ii. Hypovolemia

- iii. Distributive (septic, anaphylactic, knowledge and, and adrenal insufficiency mediated)
 - iv. Obstructive (cardiac tamponade, tension pneumothorax, pulmonary embolus)
- b. Summarize the clinical presentation and hemodynamic parameters associated with each type of shock using clinical terms, such as heart rate, respiratory rate, and blood pressure and filling pressures.
- c. Propose an algorithm for diagnosing and initiating treatment for each shock type:
 - i. Cardiogenic
 - ii. Hypovolemia
 - iii. Distributive (septic, anaphylactic, neurogenic, and adrenal insufficiency mediated)
 - iv. Obstructive (cardiac tamponade, tension pneumothorax, or pulmonary embolism)
- d. Outline the signs and symptoms of acute airway obstruction and define the appropriate intervention in adult and pediatric patients.
- e. Describe the indications and potential complications of the following surgical interventions:
 - i. Bag mask ventilation, endotracheal intubation (oral and nasal)
 - ii. Cricothyrotomy
 - iii. thoracostomy tube
 - iv. central venous catheter
 - v. peripheral vein cutdown
 - vi. arterial line
 - vii. pulmonary artery catheter
 - viii. diagnostic peritoneal lavage (DPL)
 - ix. resuscitative thoracotomy
 - x. pericardiocentesis
 - xi. thoracentesis
 - xii. ultrasound
 - xiii. wound exploration
 - xiv. Review the importance of serial physical examinations, hemodynamic monitoring, and serial laboratory evaluations, including urine output and lactic acidosis, in accessing patient response to specific resuscitation treatment.
 - xv. Outline the clinical and laboratory indications for transfusions of the following blood products:
 - xvi. packed red cells
 - xvii. fresh frozen plasma
 - xviii. platelets
 - xix. cryoprecipitate
 - xx. whole blood
 - xxi. specific clotting factor concentrates (VII,IX,XII)
 - xxii. recombinant erythropoietin
- f. Analyze the potential complications for use of the above products.

- g. Older patients represent a special population, presenting key differences in emergency situations. Analyze and use examples to describe the significance of the following characteristics that are more frequent in the older patients:
 - i. vague, imprecise symptoms
 - ii. atypical disease presentation
 - iii. co-morbidity
 - iv. polypharmacy (multiple organ specific physician input)
 - v. possibility of cognitive impairment
 - vi. diagnostic tests with different normal values (age adjustments for normal values)
 - vii. likelihood of decreased functional reserve
 - viii. inadequate social support systems
- h. describe the role and indications (if any) for the following products in acute resuscitation:
 - i. Recombinant activated Protein C.
 - ii. Hespan and similar products
 - iii. Albumin
- i. Analyze and explain factors involved in blood pressure overestimates in the older patient (pseudohypertension, arteriosclerosis, arm size cuff discrepancies).

PGY 3-4

- j. Discuss the pathophysiology, including mechanism of arrest, for each other following situations:
 - i. acute myocardial infarction
 - ii. acute dysrhythmia
 - iii. congestive heart failure
 - iv. hypovolemic shock (blood loss, dehydration)
 - v. burns
 - vi. hemorrhagic shock (non-traumatic)
 - vii. septic shock
 - viii. anaphylactic shock (envenomation, drug-related)
 - ix. acute adrenal insufficiency
 - x. penetrating blunt trauma
 - 1. tension pneumothorax
 - 2. pericardial tamponade
 - 3. hemorrhagic shock
 - xi. hypothermia
 - xii. substance abuse
 - xiii. electrical injury
 - xiv. suffocation
 - xv. acute stroke
- k. Explain the indications for and the pharmacokinetics of each of the following drugs:
 - i. Lidocaine
 - ii. Digoxin
 - iii. Metoprolol
 - iv. Diltiazem
 - v. Pronestyl
 - vi. Amiodarone

- vii. Dopamine
 - viii. Dobutamine
 - ix. Vasopressin
 - x. Nitroglycerin
 - xi. Levophed
 - xii. Phenylephrine
 - xiii. Epinephrine
 - xiv. Adenosine
- l. Summarize the indication and appropriate technique for cardiac support, pressors and Circulatory Assist Devices (IABP, LVAD, and RVAD).
 - m. Outline the surgical house staff role on the "code team".
 - n. Explain the physiological impact of mechanically assisted ventilation on the cardiovascular/respiratory system
 - o. Analyze methods for initiating and maintaining ventilator/weaning support.
 - p. Review the importance of serial physical examinations, hemodynamic monitoring, and serial laboratory evaluations, including urine output and lactic acidosis, in assessing patient response to specific resuscitation treatment.
 - q. Analyze and explain factors involved in blood pressure overestimates in the older patient (pseudohypertension, arteriosclerosis, arm size cuff discrepancies).

PGY 1-2:

5. COMPETENCY-BASED PERFORMANCE OBJECTIVES

- a. Complete and pass Advance Cardiac Life Support (ACLS), Advanced Trauma Life Support (ATLS).
- b. Manage the unconscious patient (seizure).
- c. Serve on the code team and trauma team
- d. Recognize and manage airway obstruction
- e. Perform endotracheal and nasotracheal intubation
- f. Use disposable airway equipment, (e.g., bags, gloves) and transmissible infection precautions.
- g. Perform cricothyrotomy and tracheostomy
- h. Manage mechanical ventilatory equipment
- i. Manage flail chest (pneumothorax, hemothorax, obstructive shock phase).
- j. Manage carbon monoxide poisoning
- k. Diagnose cardiac arrest and rhythm disturbances
- l. Apply closed chest cardiac massage (CPR).
- m. Perform closed chest defibrillation
- n. Perform venous access procedures, including subclavian and jugular and femoral vein catheterization and saphenous vein cutdown.
- o. Determine the indications, dosage, and indications and method of administration of the following medications:
 - i. Morphine
 - ii. lidocaine and procainamide
 - iii. propranolol

- iv. atropine
- v. diltiazem
- vi. epinephrine and norepinephrine
- vii. dopamine and dobutamine
- viii. adenosine (Adenocard)
- ix. cardiac glycosides
- x. nitroglycerin and nitroprusside
- xi. furosemide, mannitol, bumex, Diamox
- xii. sodium bicarbonate
- xiii. calcium
- xiv. amiodarone
- xv. labetalol
- p. Estimate volume requirements in acute trauma, burns and hemorrhage; and institute replacement therapy.
- q. Control external blood loss
- r. Perform pulmonary artery catheterization, including determining catheter position by pressure wave recording and electrocardiogram (EKG).
- s. Manage cardiogenic and septic shock
- t. Use pneumatic antishock garments
- ii. **Fluid and electrolyte** abnormalities and acid-base disorders.
- iii. **Immune system-infection**, sepsis, immunoglobulins, hyperbaric oxygen; appropriate use of antibiotics.
- iv. **GI, diseases**: stress bleeding, management of fistulas, infection, obstruction, ileus, ischemic bowel disease, and pseudomembranous enterocolitis.
- v. **Endocrine**
 - 1. Knowledge of stress states, management of hyper or hypo endocrine function states in the critical ill.
 - 2. Describe and specify therapy for the following endocrine-related problems associated with critical care
 - a. hypothyroidism/hyperthyroidism
 - b. hyperparathyroidism/hypoparathyroidism (changes in calcium and magnesium values)
 - c. adrenocortical excess (Cushing's disease and syndrome)
 - d. adrenocortical deficiency states (Addison's disease)
- vi. **Metabolic**-energy and protein requirements; special proteins mixes, requirements for vitamins, minerals and trace minerals; nutritional support.
- vii. **Wound management**
- viii. **Multiple system failure**-recognition and management
- ix. **Pre-operative preparation** for surgery in high-risk patients.
- x. **Intra-operative-hemodynamic monitoring** (interpretation and use of data, fluid and blood replacement).

PGY 1-2

6. General Pathophysiology-Body as a Whole

- a. Describe the normal physiologic response to a variety of insults such as sepsis, trauma, or surgery by associating the adaptation of the following system from their pre-stress to post-stress states:
 - i. respiratory
 - ii. hemodynamic

- iii. renal
 - iv. metabolic
 - v. endocrine
- b. Describe prophylactic measures routinely used in critical care such as:
- i. Gastrointestinal (GI) bleeding prophylaxis, including neutralizing, inhibitory compounds, and surface agents.
 - ii. Prophylactic antibiotics (demonstrate differences between true prophylaxis, empiric and therapeutic uses)
 - iii. pulmonary morbidity prophylaxis (incentive spirometry)
 - iv. prophylaxis against venous thromboembolic events
 - v. aseptic technique
 - vi. universal precautions
 - vii. skin care protocols
 - viii. Guide wire catheter changes for workup of fever or change in clinical status.
- c. Outline that indications and methods for providing nutritional support by completing the following activities:
- i. Discuss indications, selection of formulations, cost, and route of administration of parental versus enteral forms of nutrition.
 - ii. Explain complications of parental and enteral feeding as well as select methods to avoid the complications.
 - iii. Interpret findings associated with abnormalities in levels of glucose, chloride, sodium, phosphate, magnesium, trace metals/elements, and vitamins in critical ill patient receiving enteral or parenteral feedings; prepare recommendations for elderly patients under the same conditions.
 - iv. Estimate protein calorie requirements for patients of varying degrees of illness, and be able to analyze adequacy of nutritional support using commonly obtainable laboratory values.
 - v. Outline the principles of postoperative fever with respect to causes, empiric diagnostic modalities, and specific therapy. How useful are these principles in considering the elderly patient?
 - vi. Distinguish between the major characteristics and septic shock and hypovolemic shock:
 - 1. summarize initial evaluation and presentation
 - 2. analyze therapeutic options
 - 3. revise therapeutic options based on clinical parameters obtained from monitoring devices
 - vii. Discuss management of the overall hospital course of the patient with altered physiologic states:
 - 1. preoperative considerations specific to their disease
 - 2. operative considerations specific to their disease
 - 3. postoperative considerations specific to their disease

PGY 3-4

- viii. Differentiate low cardiac output, hypotensive/hypertensive states in terms of preload, pump, or afterload.
- ix. Analysis and treatment of seizures or acute change in mental status, including the role of:
 - 1. ABC's (airway, breathing, circulation); draw electrolytes/blood-urea-nitrogen (BUN)/creatinine/glucose/calcium, magnesium.
 - 2. Glucose/thiamine intravenously
 - 3. Evaluate medication record for new drugs or interactions (Ativan, Versed, Phenobarbital, dilantin [not applicable in the acute event])
 - 4. Analysis and treatment of acute respiratory failure from changes in the airway, pump or lung.
- x. Review the management and diagram a plan for the care of the critical ill surgical patient with multiple medical problems such as:
 - 1. cardiac dysrhythmias
 - 2. Pulmonary insufficiency from airway, bellows (pump), or parenchymal problems.
 - 3. Acute/chronic renal failure with hemodynamic instability or need of specific fluid therapy (TPN), renal replacement therapy, high output GI fistulas.
 - 4. Diabetes mellitus and special problems in the realm of nutritional support.
 - 5. Hemodynamic instability in the face of acute/chronic renal or pulmonary insufficiency.
- xi. Decide, apply, and revise appropriate treatment interventions based upon analysis of changes in the patient's clinical and laboratory parameters:
 - 1. Adjustment of intravenous fluids with respect to expected stress response, including metabolic, hormonal, cardiovascular, and renal responses to replacement of fluid losses (describe association between high levels of stress hormones and alterations of glucose metabolism remembering: do not volume resuscitate patients with excessive amounts of glucose.)
 - 2. Efficacy of prophylactic measures for PE, stress ulceration and infection.
 - 3. Adequacy of nutritional support in the patient with multiple sites of protein losses (e.g., fistulas, drain sites, or metabolic stressors [infection, acute lung injury, hyperthermia, respiratory failure])
 - 4. Analysis and treatment of postoperative fever and methods of treatment.
 - 5. Events leading to and responsible for initiation of ventilatory support.

- xii. Discuss the of pharmacotherapeutics of drugs used for support and treatment of the critical ill patient with emphasis on 1) mode of action, 2) physiologic effects, 3) spectrum of effects, 4) duration of action, 5) appropriate doses, 6) means of metabolism or excretion, 7) complications, and 8) cost:
1. vasopressors
 2. vasodilators
 3. inotropic agents
 4. bronchodilators
 5. antibiotics/antifungal agents
 - a. distinguish between empiric, therapeutic, and prophylactic
 - b. demonstrate knowledge of classes of active-infectives
 6. Antidysrhythmics
 7. Antihypertensives
 8. Predict applicability of different classes in a particular situation:
 - a. use of beta-blockers in hypertensive tachycardia patient
 - b. use of ACE inhibitors in hypertensive patients with congestive heart failure
 - c. use of calcium channel blockers in hypertensive patients with angina
 9. Describe the concept of the Systemic Inflammatory Response Syndrome (SIRS).
- xiii. Explain the concept of tissue oxygen supply and demand. Demonstrate the contributions from the following components:
1. calculate oxygen delivery
 2. calculate oxygen consumption
 3. Analyze the effect of cardiac output and varying preload, pump, and afterload to oxygen delivery.
 4. Explain the changes in tissue oxygen delivery and uptake related to pH, temperature, 2, 3-diphosphoglyceride (DPG).
- xiv. Discuss the evaluation and treatment of the following bleeding disorders:
1. The role of blood vessels, platelets, fibrin cascade, and degeneration in normal hemostasis.
 2. Disseminated intravascular coagulopathy (DIC), defining common causes and therapy.
 3. Thrombocytopenia as a failure of production, accelerated destruction, or dilution
 4. Hemophilia A
 5. Von Willebrand's disease
 6. Idiopathic thrombocytopenia purpura (ITP) and Thrombocytopenia purpura (TTP), as causes of thrombocytopenia (compare and contrast)
 7. Advanced liver disease

8. Heparin or Coumadin in appropriate application
9. The role of protein C., S., and Lupus circulating anticoagulant and their roles in bleeding disorders.
- xv. Outline unique problems of the following surgical subspecialties in critical care management:
 1. neurosurgery
 2. urology
 3. orthopedics
 4. pediatric surgery
 5. cardiac surgery
 6. thoracic surgery
 7. Burns
 8. trauma
- xvi. Discuss management of the overall hospital course of the patient with altered physiologic states:
 1. preoperative considerations specific to their disease
 2. operated considerations specific to their disease
 3. postoperative consideration specific to their disease

PGY 1-2

d. Airway-Respiration

- i. Describe the commonly used indications for initiation of ventilatory support, including:
 1. indications and commonly acceptable values for initiation of mechanical ventilation
 2. evaluation of airway
 3. evaluation adequacy of thoracic pump (muscle strength)
 4. evaluation of lung parenchyma characteristics (arterial blood gases and chest x-ray)
 5. Analysis of commonly used pulmonary values (e.g., tidal volume [VT], maximum ventilatory volume [MVV], compliance static and adynamic, functional residual capacity [FRC], PEEP, auto PEEP, airway pressure).
 6. Indications and commonly acceptable values for weaning from mechanical ventilation.
- ii. Review respiratory physiology, and describe the specific pathology involved in ventilation and perfusion deficits.
- iii. Discuss the association of airway obstruction with age, giving consideration to each of the following:
 1. repeated destruction of the balance of inflammatory mediators and humoral protection (elastase and antielastase, oxidant and antioxidant)
 2. neutrophil recruitment
 3. tissue repair, leading to inflammatory lung destruction
 4. Accumulated environmental oxidant injuries

PGY 3-4

- iv. Analyze and compare the principles of ventilatory mechanics, including modes of ventilation, triggering mechanisms, and possible uses.
- v. Describe the pathophysiology of acute lung injury (ALI , with spectrum of mild to severe A. L. I., also known as ARDS) in the management of the long-term ventilator-dependent patient to include:
 - 1. pneumonias (aspiration or nosocomial)
 - 2. acute renal failure
 - 3. cardiac failure
 - 4. systemic inflammatory response syndrome (SIRS, MODS-Multiple Organ Dysfunction Syndrome the most severe form known as MSOF-Multi-System Organ Failure)
 - 5. sepsis
 - 6. skin care problems
 - 7. physical therapy (maintenance of muscle mass and function, prevention of contractions)
 - 8. Psychological support for both family and patient.
- vi. Review management of the following complex respiratory problems:
 - 1. mechanically ventilated patient with:
 - a. areas of differing compliance
 - b. bronchopleural or bronchoesophageal fistula
 - c. borderline cardiac reserve (non-compliant left ventricle, recent myocardial infarction, valvular dysfunction)
- vii. Explain why otherwise healthy elders may be more vulnerable to poor outcomes from diseases affecting diffusion (producing lower oxygen levels, e.g. pneumonia, COPD). Consider these factors in explanation:
 - 1. heart rate
 - 2. ventilatory response to hypoxia
 - 3. ventilatory response to hypercapnia
- viii. Analyze the pros and cons of the use of the following drugs to improve respiratory function:
 - 1. bronchodilators (aerosols versus parenteral medications)
 - 2. membrane stabilizing agents (cromolyn sodium, steroids)
 - 3. diuretics
 - 4. venodilators
 - 5. analgesics and sedatives
 - 6. mucolytics

PGY 1-4

B. Patient Care And Technical Skills:

Resident will develop and refine skills needed to:

- a. Perform the initial ER evaluation and support
- b. Use appropriate diagnostic studies
- c. Measure compartment syndromes
- d. Place central lines, pulmonary artery catheters, endotracheal tubes (oral, nasal, tracheal), chest tubes, arterial lines.
- e. Perform upper intestinal endoscopy, tracheoscopy, bronchoscopy and intestinal sigmoidoscopy, cardiac output measurements
- f. Perform ICU rounds
- g. Observation and management of systems
- h. 24-hour management and monitoring of patient care.

C. Interpersonal and Communication Skills:

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with patients and their families.
- b. Perform a patient-centered medical interview:
- c. Engage patients in shared decision-making, and participate in family discussions.
- d. Communicate effectively with person on ventilator
- e. Communicate effectively with ICU nurses.
- f. Ask for organ donation after instructions from your preceptor and interact with the " Gift of Life" organization appropriately.

D. Professionalism:

- a. Demonstrate respect and compassion for all patients.
- b. Exhibit competency in working with patients regarding advanced directives, DNR status, futility and withholding/withdrawing therapy in concert with your preceptor's understanding and orders. (A resident is not to independently decide or write any "DNR" orders or " Do Not Resuscitate" orders-[only a staff physician can do this.])
- c. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- d. Assist with families of critically injured/ill patients and guidance of families toward or through difficult decisions.
- e. Communicate with multiple consultants.

E. Practice Based Learning and Improvement:

- a. Exhibit self-directed learning.
- b. Demonstrate improvement in clinical management of patients by continually improving critical care related knowledge and skills during the rotation.

F. System Based Practice:

- a. Demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources.

- b. Work well with multidisciplinary teams, coordinating care and effectively working with surgical intensivists and other providers in a team setting.
- c. Maintain appropriate 80 hours work limits with coordination with your preceptors.

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
COLORECTAL
EDUCATIONAL OBJECTIVES
PGY 4 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE:

MEDICAL/SURGICAL KNOWLEDGE: (Please see General Surgery goals and objectives) Resident will gain knowledge of diagnosis, management, treatment options (surgical/non-surgical), long term prognosis, complications, patient risk and cost considerations associated with:

- a. General concerns of the colorectal patient including fluid management, drug dosage, nutrition, blood replacement, metabolic management.
- b. Anal/rectal function to include normal physiologic functions of the colon, rectum and anus, and the disorders, which cause abnormal function. Ano-rectal diseases including hemorrhoids, anal fissure, anal rectal abscesses and fistula, pruritus ani, and condylomata acuminata.
- c. Tumors of the colon, rectum, and anus, including the diagnosis, staging, and treatment options for these diseases.
- d. Trauma: Diagnosis and treatment of colorectal injuries including foreign bodies.
- e. Dysfunctional problems of the colon and rectum to include rectal prolapse, volvulus of the cecum or sigmoid colon and megacolon secondary to laxative abuse.
- f. Chronic inflammatory bowel disease, including the diagnosis, non-surgical management, and surgical treatment for complications of ulcerative colitis and Crohn's disease.
- g. Infectious diseases involving the colon and rectum to include diagnosis and management of sexually transmitted diseases and acute infections

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

Resident will develop and refine skills needed to:

- a. Perform a complete colorectal examination, including historical factors of pertinence to colorectal diseases
- b. Perform anoscopy, rigid proctoscopy, and flexible colonoscopy.
- c. Develop advanced operative skills necessary to complete those procedures common to colorectal surgeons.
- d. The resident will be responsible for:

- i. Initial evaluation and follow-through of all patients admitted to the service
- ii. Pre- and post-operative patient care.
- iii. Participation in the operating room and endoscopy suite.
- iv. Participation in the office.
- v. Daily rounds with the attending surgeon.
- vi. All recommended and assigned readings.
- vii. Attend all surgical conferences.
- viii. Maintain in house call assignments for general surgery.

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with staff colo-rectal surgeons and maintain confidentiality.
- b. Effectively and considerately communicate with team staff in a manner that promotes good coordination
- c. Alleviate patient's fears regarding ano-rectal diseases.
- d. Alleviate the psychological stress of patients with chronic inflammatory disease as it affects their personal life, their family life, and their socioeconomic environment.
- e. Alleviate and have empathy in regards to patient's fear associated with the diagnosis of cancer and the ability to provide compassionate palliative care in the terminal stages of colorectal cancer.
- f. Help reduce the patient's fear of stomas and their impact on self image.

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients.
- b. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- c. Identify patients fear associated with the disease states
- d. Identify and assist with the psychological stress of patients with chronic disability from diseases as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. exhibit self-directed learning

- b. demonstrate improvement in clinical management of patients by continually improving pertinent-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. work well with multidisciplinary teams, coordinating care and work with specialists in a team setting

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
ENDOSCOPY
EDUCATIONAL OBJECTIVES
PGY 2 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: Resident will demonstrate knowledge of and the ability to use a variety of endoscopic instruments in the diagnosis and treatment of various diseases.

- a. Review normal anatomy and physiology of the gastrointestinal airway and mediastinum.
- b. Demonstrate a working knowledge of the anatomical landmarks in the following organs. Describe and contrast the normal and pathological appearance of the
 - i. Esophagus
 - ii. Stomach
 - iii. Duodenum
 - iv. Small bowel
 - v. Colon
 - vi. Airways
 - vii. Mediastinum
 - viii. Thorax
 - ix.
- c. Identify the common pathological conditions outlined below:
 - i. Esophagus
 1. Classes of esophagitis
 2. Barretts Esophagus
 3. Neoplasms
 4. Strictures
 - ii. Stomach
 1. Ulcers: benign and malignant
 2. Gastric varices
 3. Gastric polyps
 4. Erosive gastritis
 5. Gastric outlet obstruction
 6. Gastric Bezoars
 7. Marginal ulcer
 8. The postoperative stomach
 - iii. Duodenum
 1. Ulcers
 2. Polyps: benign and malignant
 3. Inflammatory conditions (Duodenal Crohns)
 4. Tumors of the Papilla of Vater
 - iv. Small bowel
 1. Indications for enteroclysis
 2. Illeal Crohns
 3. Angiodysplastic
 4. Leiomyoma

- v. Large bowel
 - 1. Polyps: benign and malignant; sessile and polypoid
 - 2. Diverticulosis
 - 3. Inflammatory conditions
 - a. Ulcerative colitis
 - b. Crohns Colitis
 - c. Pseudomembranous colitis
- d. Identify the various anatomical landmarks during endoscopy:
 - i. Stomach
 - 1. Cardia
 - 2. Fundus
 - 3. Body
 - 4. Incisura angularis
 - 5. Antrum
 - 6. Pylorus
 - e. Duodenum
 - i. Duodenal bulb
 - ii. Duodenal mucosa
 - iii. Papilla of Vater
 - f. Colon
 - i. Rectum
 - ii. Sigmoid
 - iii. Descending
 - iv. Splenic flexure
 - v. Transverse
 - vi. Hepatic flexure
 - vii. Ascending colon
 - viii. Ileocecal valve
 - ix. Cecum and appendiceal orifice

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

The Resident will develop and refine skills needed to:

- a. Observe flexible and rigid endoscopic procedures.
- b. Under supervision, manipulate the endoscope for routine endoscopic procedures.
- c. Observe and monitor appropriate anesthetic techniques used to sedate the patient.
- d. Prepare patients for various routine and elective endoscopic procedures.
- e. Under supervision, demonstrate proper cleansing and sterilization of endoscopic instruments.
- f. Participate in hands-on experience in rigid sigmoidoscopy in the operating room and in the endoscopic suite or clinic.
- g. Use the flexible sigmoidoscope under direct supervision, beginning with elective cases
- h. Assist in the performance of diagnostic and therapeutic:
 - i. Esophagoscopy (flexible)
 - ii. Esophagogastroduodenoscopy (EGD)
 - iii. Colonoscopy
- i. The resident will:

- i. Review surgical journals (eg. SAGES publications) and other medical and surgical sources of information regarding diagnostic and therapeutic uses of various endoscopes.
- ii. Outline the indications for performing diagnostic and therapeutic
 - 1. Colonoscopy
 - 2. Esophagogastroduodenoscopy (EGD)
 - 3. Proctosigmoidoscopy
 - 4. Be familiar with the routine operation of endoscopes and their support systems, including:
 - a. Ability to troubleshoot minor malfunctions
 - b. Knowing established procedures for cleaning, sterilization, and routine handling
- j. Summarize methodological issues in endoscopy to include:
 - i. Patient preparation
 - ii. Biopsy techniques
 - iii. Cytology techniques
 - iv. Specimen handling
 - v. Polypectomies
- k. Summarize the use of sedatives (conscious sedation) and analgesics during endoscopic procedures, including
 - i. Mode of onset
 - ii. Principles of monitoring
 - iii. Side effects
 - iv. Reversing agents
 - v. Monetary considerations
- l. Maintain in house call for general surgery
- m. . Attend all general surgery conferences and Journal Club

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with staff pathologists and maintain confidentiality.
- b. Effectively and considerately communicate with team staff in a manner that promotes good coordination

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients.
- b. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- c. Identify patients fear associated with the disease states
- d. Identify and assist with the psychological stress of patients with chronic disability from diseases as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. exhibit self-directed learning
- b. demonstrate improvement in clinical management of patients by continually improving pertinent-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. work well with multidisciplinary teams, coordinating care and work with specialists in a team setting

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
ENT
EDUCATIONAL OBJECTIVES
PGY 2 LEVEL
9-07**

- 1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES: MEDICAL/SURGICAL KNOWLEDGE:** The resident will gain knowledge of diagnosis, management, treatment options (surgical/non-surgical), long term prognosis, post-operative results, complications, patient risk and cost considerations associated with:
- a. Identify the anatomy and explain the physiology of the ear, nose, oral cavity, and throat.
 - b. Summarize the essential components of a focused history and physical exam of common otolaryngology problems.
 - c. Discuss the significance of the cornerstones of the physical examination, including:
 - i. visual inspection
 - ii. auscultation
 - iii. palpation
 - iv. percussion
 - d. Analyze the clinical management of the ear, nose, and throat (ENT) patients in the intensive care unit (ICU), including:
 - i. respiratory infection management
 - ii. airway management
 - iii. wound care
 - e. Describe and compare the pathophysiology of the following common ENT diseases:
 - i. sinusitis
 - ii. sialadenitis
 - iii. neck abscess
 - iv. epiglottitis
 - f. Describe and explain the pathophysiology of that presbycusis as it can be:
 - i. conductive
 - ii. metabolic and toxic
 - iii. neural
 - iv. cochlear
 - v. tumor-related
 - vi. age-dependent
 - g. Explain how physical examination differs for the delineation of conductive versus neurosensory hearing loss.
 - h. Explain the principal causes of simple epistaxis and describe his management.
 - i. Evaluate patients with facial trauma and developing treatment plans and the management of:
 - i. fractures
 - ii. lacerations
 - iii. hemotympanum
 - iv. epistaxis
 - j. Describe the indication for tracheostomy in adults and children.

- k. Discuss the indications for biopsy of lesions of the skin of the face, neck, and oral cavity.
- l. Compare the following procedures in evaluating ENT problems:
 - i. radiography
 - ii. contrast studies
 - iii. ultrasound
- m. Describe the indications for simple endoscopy and its diagnostic contributions such as:
 - i. nasopharyngoscopy
 - ii. direct laryngoscopy
 - iii. esophagoscopy
- n. Summarize the characteristics of the common neoplasms of the ear, nose, and throat, and describe appropriate surgical intervention.
- o. Outline diagnostic approaches to otolaryngologic neoplasia, including:
 - i. direct visualization
 - ii. indirect visualization
 - iii. use of radiography
 - iv. fine-needle biopsy
- p. Describe diagnostic and therapeutic procedures utilized in treating the following:
 - i. abscess
 - ii. neck mass
 - iii. oral ulcer
 - iv. salivary gland mass
- q. Describe and demonstrate methods for removing foreign bodies of the trachea, bronchus, and esophagus.
- r. Compare physical approaches using surgical flaps for repair of ENT defects and trauma of the, alar rim, and helix.
- s. Outline the diagnosis and repair of facial fractures of the mandible, nose, and frontal sinus.
- t. Summarize diagnostic and therapeutic considerations in management of cost to injury to the mouth, nasopharynx, tracheal, and esophagus.
- u. Discuss the management airway in patients with terminal carcinoma of the thyroid and trachea.
- v. Describe the signs and symptoms and discuss the health-care significance to elderly patients on the pathophysiology of:
 - i. Tinnitus
 - ii. vertigo
 - iii. cerumen impaction
 - iv. basilar artery arthrostenosis
- w. Define and discuss the 3-dimensional anatomy of the head and neck region with regard to:
 - i. interrelationships of anatomy
 - ii. facial planes
 - iii. path and course of cranial nerves
 - iv. major arterioles and venous structures
 - v. musculature of face and neck
 - vi. anatomy of larynx and cervical trachea
 - vii. location of cricothyroid membrane

- viii. cervical anatomy of nasopharynx, parents, esophagus (special emphasis on sinuses, eustachian tubes, middle and external ear structures)
- x. Identify the bones of the skull, face, and cervical spine. Explain relationship to major neurologic and neurovascular structures of the head and neck.
- y. Analyze predisposing factors for head and neck cancer.
- z. Differentiate between neoplastic and non-neoplastic neck masses.
- aa. Explain the tumor, nodes, and metastases (TNM) classification system for tumors of the head and neck.
- bb. Prepare a protocol for evaluating intraoral cancer.
- cc. Outline the principles associated with the repair of avulsion of the ear and nose.
- dd. Indicate how to examine a patient with severe facial laceration to rule out damage to the following:
 - i. lacrimal drainage system
 - ii. parotid gland and duct
 - iii. facial nerve
- ee. identify and delineate
 - i. pathophysiology of cranial nerve dysfunctions and injuries
 - ii. brachial plexus injuries
 - iii. anatomy/location of parotid and submandibular ductal drainage systems
- ff. Define and describe the Le Fort maxillary fracture classification system.
- gg. Defined and demonstrate knowledge of Angle's classification of dental occlusion.
- hh. Identify and delineate zones I, II, and III of penetrating injuries to the neck and their associated management.
- ii. Describe the roles of the following diagnostic modalities in evaluation of head and neck lesions and facial fracture:
 - i. plain x-rays
 - ii. CT scanning
 - iii. sialography
 - iv. isotope scans
 - v. ultrasound
 - vi. magnetic resonance imaging (MRI)
- jj. Describe the anatomy of the facial spaces of the neck.
- kk. Discuss indications for medical and modified radical neck dissection.
- ll. Distinguish between the following kinds of grafts in management of head and neck problems:
 - i. split-thickness grafts
 - ii. full-thickness skin grafts
 - iii. rotational flaps
 - iv. free flaps
- mm. describe the anatomy and advantages and disadvantages of regional flaps available for head and neck reconstruction
- nn. compare and contrast the use of the following local flaps:
 - i. advancement
 - ii. rotational
 - iii. pedicle
 - iv. z-plasty

- v. w-plasty
- vi. v-y advancement
- vii. rhomboid
- oo. Outline the advantages and disadvantages of irradiation, chemotherapy, and resection of neoplastic lesions of the:
 - i. tongue
 - ii. floor of mouth
 - iii. buccal mucosa
 - iv. retromolar trigone
 - v. alveolar ridge
 - vi. palate
- pp. Discuss the frequency of benign and malignant head and neck tumors in the pediatric population.
- qq. Outline the microbiology and treatment of deep neck abscesses.
- rr. Explain the techniques of scar revision, including:
 - i. primary excision
 - ii. z-plasty
 - iii. serial excision
 - iv. geometric broken line closure
 - v. use of cosmetics

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES: PATIENT CARE AND TECHNICAL SKILLS:

- a. Perform and record a focused ENT history and physical examination.
- b. Manage the emergent/elective airway; using visual inspection, radiographic evaluation, indirect invasive and non-invasive visualization techniques (direct speculum indirect mirror evaluations, and fiber-optic and rigid evaluations); with consideration for:
 - i. nose, nasal passages
 - ii. nasopharynx
 - iii. oropharynx
 - iv. larynx
 - v. trachea
- c. Be prepared to manage airway obstruction as the result of:
 - i. edema,
 - ii. secretion
 - iii. anaphylaxis
 - iv. foreign body
 - v. benign and malignant tumors (including, vascular malformations and infectious processes)
- d. Evaluate patients with facial trauma, including fractures, lacerations, hemotympanum and, epistaxis.
- e. Perform tracheostomy on adults under direct supervision.
- f. Perform biopsies of lesions of skin of face, neck, and oral cavity.
- g. Perform evaluation of the neck mass, and provide appropriate treatment.
- h. Correctly differentiate between the indications for and management of cricothyroidotomy and tracheostomy, demonstrating varying techniques and choice of instrumentation from the emergent airway management and ventilation in each.
- i. Contracted radiologic examination of sinuses.
- j. Perform simple endoscopy including:

- i. nasopharyngoscopy
 - ii. direct laryngoscopy
 - iii. esophagoscopy
- k. Evaluate head and neck tumor patients, and be prepared to perform the tumor biopsy.
- l. Perform tracheostomy on children with supervision.
- m. Evaluate radiologic studies of the head and neck, including computerized axial tomography (CAT) scanning.
- n. Evaluate and treat head and neck abscesses and other masses.
- o. Remove esophageal foreign bodies endoscopically.
- p. Perform diagnostic bronchoscopy.
- q. Describe Reconstruction of facial and neck defects with transposition and myocutaneous flaps. (Or be prepared to discuss with supervisor)
- r. Discuss facial fractures and management with appropriate consultation.
- s. Evaluate and treat caustic injury
- t. Manage airway in patients with terminal thyroid or tracheal carcinoma or describe steps for which can be taken in the face of this situation.
- u. Provide emergency airway management, including performance of:
 - i. intubation
 - ii. emergency cricothyrotomy
 - iii. emergency tracheostomy
- v. Administer treatment for sialadenitis
- w. Diagnose and evaluate infectious illness (viral, bacterial, fungal), acute and chronic, affecting:
 - i. CNS
 - ii. sinuses
 - iii. bones
 - iv. soft tissues of face
- x. Demonstrate a clear understanding of the pathophysiology of:
 - i. Ludwig's angina
 - ii. necrotizing fasciitis of the neck
 - iii. mucormycosis of sinus
 - iv. epiglottitis
- y. Perform biopsy of all intraoral lesions.
- z. Care for contaminated wounds, including animal bites of face and neck.
- aa. Assist with incisions for head and neck surgery, including:
 - i. radical neck dissection
 - ii. salivary gland surgery
 - iii. tracheostomy
 - iv. laryngeal/tracheal trauma
 - v. considerations for incisions are previously irradiated tissues
- bb. Formulate a plan for the management of unknown primary tumor of the head and neck.
- cc. Perform fine-needle biopsies
- dd. Perform simple operative incisions with supervision (tracheostomy, intubation, simple lesions of head and neck).
- ee. Assist with repair of avulsion of ear and nose.
- ff. Perform simple operative incisions with direct supervision.
- gg. Perform radical neck dissection under direct supervision
- hh. Manage postoperative complications, including nerve paralysis and cutaneous fistulas from the aerodigestive tract with supervision

- ii. Manage trauma of the upper airway.

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- i. establish rapport with patients and their families, especially under stressful circumstances
- ii. perform a patient-sided medical interview
- iii. engage patients in shared decision-making, and participate in family discussions
- iv. effectively and considerately communicate with team staff in a manner that promotes care coordination
- v. discuss patients fears regarding prognosis and outcome
- vi. began the process of requesting organ donation as appropriate

4. PROFESSIONALISM (ALL PGY levels)

- i. demonstrate respect and compassion for all patients
- ii. exhibit competency in working with patients regarding advanced directives, DNR status, futility, and withholding/withdrawing therapy
- iii. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- iv. Identify patients fear associated with the trauma diagnosis and provide compassion palliative care in the brain dead patients.
- v. Identify and assist with the psychological stress of patients with chronic disability from trauma as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- i. exhibit self-directed learning
- ii. demonstrate improvement in clinical management of patients by continually improving trauma-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- i. demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- ii. work well with multidisciplinary teams, coordinating care and work with specialists in a team setting
- iii. effectively plan care after discharge
- iv. contact a appropriate organ procurement organization regarding potential organ donation

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
GENERAL SURGERY
EDUCATIONAL OBJECTIVES
PGY 1-5 LEVEL
9/2007**

GENERAL SURGERY:

A: COMPETENCY-BASED KNOWLEDGE OBJECTIVES; MEDICAL/SURGICAL KNOWLEDGE: (ALL PG LEVELS)

Resident will gain knowledge of diagnosis, management, training, treatment options (surgical/nonsurgical), long-term prognosis, post operative effects, complications, patient risk and cost considerations of various conditions. Knowledge expectations are on a continuum from the first through the fifth year.

1. Body as a whole (core of basic surgical knowledge)

- a. Wound healing
- b. Hemostasis and bleeding diastasis
- c. Tumor kinetics (biology of tumor growth, therapeutic regimens to include chemotherapy, radiotherapy, immunotherapy, surgery).
- d. Shock and hemodynamic alterations-**Critical Care**
- e. Surgical infections and management with use of antibiotics, ancillary modes and surgical intervention.
- f. Respiratory physiology-management and use of ventilators, working knowledge of pulmonary function testing, respiratory function, surgical approach to respiratory problems (tracheostomy, cricothyrotomy, nasotracheal and endotracheal intubation, bronchoscopy).
- g. Anesthesiology
- h. GI physiology-as it relates to surgical disease.
- i. GU physiology-assessment of renal function and renal physiology.
- j. Surgical endocrinology-as it applies to the response to stress and injury, and management of endocrinopathy as it involves surgical patients.
- k. Surgical nutrition
- l. metabolic response to injury
- m. Burns-familiarity with the principles of, pathophysiology and management.
- n. Applied surgical anatomy-familiarity with regional anatomy including thoraco-abdominal, and neck, pelvis and extremities.
- o. Applied surgical pathology-gross and microscopic pathology and autopsy techniques.

2. Diseases of the head and neck (see ENT goals and objectives)

3. Diseases of the vascular system-(see vascular goals and objectives)

4. Diseases of the abdomen

- a. **COMPETENCY-BASED KNOWLEDGE OBJECTIVES:
MEDICAL/SURGICAL KNOWLEDGE:
PGY 1-2**

- i. describe the biological development of the peritoneal cavity and positioning of the abdominal viscera
- ii. diagram the anatomy of the abdomen including its viscera and anatomic spaces:

1. musculoskeletal envelope (focus on the anterior abdominal wall)
 2. lesser sac
 3. subphrenic spaces
 4. Morrison's pouch
 5. foramen of Winslow
 6. pouch of Douglas
 7. true pelvis
 8. lateral gutters
 9. contents of the retroperitoneum
 10. major lymph node groups and their drainage
- iii. Explain the mechanism of referred pain in
1. ruptured spleen
 2. biliary colic
 3. basilar pneumonia
 4. renal colic
 5. pancreatitis
 6. inguinal hernia
- iv. Discuss the following causes of paralytic ileus:
1. post operative electrolyte imbalance
 2. retroperitoneal pathology
 3. trauma
- v. Extraperitoneal disease (central nervous system, lung)
- vi. Identify the anatomic location of the following intra-abdominal abscesses; name disease processes (i.e.) associated with each:
1. left subphrenic space
 2. right subphrenic phase
 3. subhepatic space
 4. lesser sac
 5. interloop
 6. pelvis
 7. left paracolic bladder
 8. right paracolic bladder
 9. psoas muscle
- vii. Differentiate between conditions favoring percutaneous drainage vs. operative drainage for each of the abscesses in No. e. Describe the safest and most effective approach using each technique.
- viii. Describe the anatomy, clinical presentation, and complications of non-operative management for these hernias:
1. direct, indirect, inguinal, and femoral
 2. sliding hiatal
 3. paraesophageal
 4. ventral
 5. umbilical
 6. spigelian
 7. paraduodenal
 8. obturator
 9. lumbar
 10. parastomal
 11. diaphragmatic

- a. (1) posterolateral (Bochdalek)
 - b. (2) anterior (Morgagni)
 - c. (3) Traumatic
- ix. explain absorption and secretory functions of the peritoneal surfaces and diaphragm
- x. describe the anatomy of the omentum and its role in responding to inflammatory processes
- xi. assess the following signs associated with the acute abdomen and describe their pathophysiology:
 - 1. referred pain
 - 2. rebound tenderness
 - 3. guarding
 - 4. rigidity
- xii. specify characteristics of the history, physical examination findings, and mechanism of visceral and somatic pain for the following processes:
 - 1. acute appendicitis
 - 2. bowel obstruction
 - 3. perforated ulcer
 - 4. ureteral colic
 - 5. diffuse peritonitis
- xiii. Name the hernia types that are most common in elderly and explain how they may become problematic.
- xiv. Defining a Richter's hernia and describe his clinical presentation.
- xv. Defining a sliding hernia and describe his repair.
- xvi. Differentiate between *incarceration* and *strangulation*.

PGY 3-4

- xvii. Surgical outcome is dependent on coexisting disease. Describe changes in the following organ systems that result from the aging process:
 - 1. heart
 - 2. lung
 - 3. kidney
 - 4. brain
 - 5. hemopoietic system
- xviii. List possible differences in the presentation and examination of the elderly patient with the following causes of acute abdomen:
 - 1. gastric/duodenal ulcer
 - 2. cholecystitis
 - 3. perforated viscus (ulcer, diverticulitis, appendicitis)
- xix. Discuss the differences in a physiologic response to stress in the geriatric patient
- xx. Illustrate use of the following diagnostic studies in the workup of each process in No. xii and iii. Above:
 - 1. blood chemistries (white blood count, hematocrit)
 - 2. urinalysis
 - 3. plain x-rays
 - 4. contrast gastrointestinal (GI) studies
 - 5. ultrasound
 - 6. computed axial tomography (CAT)

7. biliary studies
8. renal studies
- xxi. when considering the possibility of wound complications:
 1. What are the risk factors of abdominal wound infection?
 2. What are the contributing factors for abdominal wound dehiscence and evisceration?
 3. What are the usual clinical presentations?
 4. What is the incidence of wound infection in surgeries involving biliary tree, upper GI tract, and colon?
 5. List wound complications that are more problematic in the elderly.
- xxii. Differentiate between the following intestinal fistulas and organs towards the most often communicate:
 1. esophageal
 2. gastric
 3. enteric (including duodenal)
 4. colonic
- xxiii. Explain the formation of fistulas in each of the following these eight processes or factors:
 1. operative complications (bowel injury with abscess formation)
 2. inflammatory bowel disease
 3. foreign body or prosthetic material
 4. malignancy
- xxiv. Explain the role of a fistulogram and diagnosis of intra-abdominal fistulas and abscesses
- xxv. List of factors that prevent healing of a fistula
- xxvi. Summarize the conditions favoring operative versus non-operative treatment for fistulas listed in # vi.

PGY 5

- xxvii. Summarize the surgical procedures available for repair of the hernias listed in No.viii.
- xxviii. Outline uses of prosthetic material and management of infection for incisional or recurrent hernias involving prosthetic material.
- xxix. Construct a plan for the diagnosis and surgical repair of the following congenital abdominal wall defects:
 1. Gastroschisis
 2. Omphalocele
 3. Prune belly
- xxx. Discuss the management of umbilical hernia in infants
- xxxi. Describe the indication for contralateral exploration and repair of an inguinal hernia in infants
- xxxii. Explain operative approaches (incisions) for each of the following, including laparoscopic:
 1. abdominal cavity: liver/biliary tract, spleen, small bowel, pelvis
 2. retroperitoneal organs: kidneys, adrenal glands, abdominal aorta
 3. thoraco abdominal aorta
 4. pericardial sac

- xxxiii. Outline the techniques for wound closure (including kind of suture material) police and the incisions name in No. xxxii. Immediately above.
- xxxiv. Describe the use and method of placement of retention sutures
- xxxv. a rationale for and mechanics of techniques of peritoneal dialysis in:
 - 1. renal failure
 - 2. management of peritoneal infections are pancreatitis
- xxxvi. Assess the treatment of secondary peritoneal infections due to peritoneal dialysis catheters.
- xxxvii. Describe their pathophysiology and treatment of ascites in:
 - 1. malignancy
 - 2. hepatic disease: cirrhosis, Budd-Chiari syndrome
 - 3. chylous leak
 - 4. pancreatic leak
 - 5. cardiac disease
 - 6. renal disease
 - 7. bile leak
- xxxviii. Explain indications for use and complications and peritoneo-venous shunts.
- xxxix. Describe the etiology, manifestations, and treatment of:
 - 1. desmoid tumors
 - 2. rectus sheath hematoma
 - 3. retroperitoneal fibrosis
 - 4. Describe that are common retroperitoneal tumors. (What are the clinical presentation, treatment, and prognosis?)

**b. COMPETENCY-BASED PERFORMANCE OBJECTIVES: PATIENT CARE AND TECHNICAL SKILLS:
PGY 1-2**

- i. Perform, record, and REPORT complete patient evaluation and assessment.
- ii. Evaluate and diagnosis of acute abdomen.
- iii. Assist with hernia repairs in the inguinal region or umbilical lesions, demonstrating a basic understanding of the anatomy and surgical repair.
- iv. Discuss the differences between a tension and tension free inguinal herniorrhaphy and use of meshes.
- v. Know the basic and be able to perform inguinal herniorrhaphies using the following techniques if indicated:
 - 1. Bassini
 - 2. McVay
 - 3. Halsted
- vi. Interpret the following in coordination with attending radiologist and staff:
 - 1. acute abdominal series (identify free air, small bowel obstruction, ileus, chronic pseudo- obstruction, volvulus; the presence of ascites, atelectasis vs. pneumonia)
 - 2. upper GI series
 - 3. barium enema (identify neoplasm, signs of ischemia)
 - 4. abdominal ultrasound and CT scans

PGY 3-4

- vii. Evaluate and Institute management of abdominal wound problems, including:
 - 1. infection
 - 2. evisceration
 - 3. fasciitis
 - 4. dehiscence
- viii. Coordinate pre-and post-operative care of the patient with the acute abdomen
 - 1. Institute drainage for, abdominal wall fistula and protection of surrounding structures, especially skin
- ix. Assist in closure of abdominal incisions; exhibit competency in suture technique.

PGY 5

- x. Open and close abdominal incisions of all varieties.
- xi. Treat wound complications such as infections and evisceration, Use retention sutures appropriately.
- xii. Assist with thoraco abdominal and retroperitoneal exposures for access to kidneys, aorta, and iliac arteries.
- xiii. Perform laparotomy for acute abdomen, demonstrating a systematic approach for determination of the etiology of the process and appropriate measures for its management (EG, acute appendicitis, small bowel obstruction, perforated peptic ulcer [5th year resident should be able to guide more junior residents through the case]).
- xiv. Perform more complex laparotomies involving diffuse peritonitis in the septic patient (e.g., a gangrenous was severely inflamed gallbladder or perforated diverticulitis requiring resection).
- xv. Coach a junior resident through the repair a simple hernia (indirect hernia or umbilical). The chief resident should be able to perform repair of any of the hernias mentioned earlier in the text).
- xvi. Provide appropriate surgical drainage for any intra-abdominal abscess.
- xvii. Serve as effective surgical team leader.

5. Diseases of the Alimentary Tract and Digestive System

a. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE:

PGY 1-2

- i. Define the basic scientific principles of the alimentary tract and digestive system disease to include:
 - 1. anatomy, embryology, and biochemistry at the gastrointestinal (GI) tract
 - 2. histology of the alimentary tract, including differentiation of cell types
 - 3. anatomy and alimentary tract with esophagus to anus with emphasis on systemic blood supply, portal venous drainage, neuro-endocrine axis, and lymphatic drainage

4. Abdominal anatomy, explain its relationship to lower thorax, retroperitoneum, and pelvic floor.
5. Mucosal transport, including mechanism of absorption of nutrients and water
6. sites of electrolyte and acid-base regulation
- ii. GI physiology
 1. physiology of deglutition and phases of digestion
 2. neuroendocrine control of GI secretion and motility
 3. regional controls and mucosal secretion and absorption (neuro and hormonal)
 4. enterohepatic circulation
 5. neuromuscular control of defecation
 6. rates of mucosal turnover
 7. nutritional needs of surgical patients
- iii. normal bacterial flora and their concentration in the upper and lower GI tract
- iv. Immunologic properties of the GI tract and how this barrier is affected by: trauma, sepsis, burns, medication, and chronic disease.
- v. Principles of intestinal healing
 1. normal GI tissue integrity and strength
 2. effects of suturing and stapling techniques of the gut
- vi. Explain and give examples of the following aspects of gastrointestinal diseases:
 1. infections inside and outside the GI tract from esophagus to anus, including the peritoneum
 2. embryologic abnormalities of the GI tract, including:
 - a. strictures
 - b. stenosis
 - c. webs
 - d. atresias
 - e. duplications
 - f. malrotations
- vii. congenital and acquired abnormalities of gut motility
- viii. neoplasia of the GI tract
- ix. ulceration of the proximal GI tract
- x. causes of GI obstruction
- xi. causes of paralytic ileus
- xii. causes of GI hemorrhage
- xiii. causes of GI perforation
- xiv. causes of abdominal abscess formation or secondary peritonitis
- xv. short gut and malabsorptive conditions
- xvi. acute and chronic mesenteric ischemia
- xvii. portal hypertension and venous thrombosis
- xviii. inflammatory bowel disease
- xix. causes of an acute abdomen
- xx. management of intestinal ostomies
- xxi. traumatic injury to abdominal viscera
- xxii. outline the essential characteristics of routine and highly specialized diagnostic evaluation of the alimentary tract, including:
 1. history
 - a. pain

- b. nausea/emesis
- c. bowel function
- d. prior episodes
- e. past surgical history
- 2. physical examination:
 - a. inspection
 - b. auscultation
 - c. percussion
 - d. palpation
- 3. radiologic examination, including:
 - a. barium swallow
 - b. upper GI series with small bowel follow-through
 - c. enteroclysis
 - d. ultrasound
 - e. transesophageal echo
 - f. computerized tomography
 - g. magnetic resonance imaging
 - h. barium enema
 - i. angiograms nuclear scans for bleeding or to evaluate for Meckel's diverticulum
 - j. PET scan
- 4. fiber-optic endoscopy
- 5. rigid anoscopy and sigmoidoscopy
- 6. tests of GI function including:
 - a. manometry
 - b. pH measurement
 - c. gastric analysis (basal and stimulated)
 - d. radioisotope clearance studies
 - i. technetium 99
 - ii. technetium HIDA (hepatic 2, 6-dimethyl iminodiacetic acid) dynamic biliary imaging
 - iii. hormonal determinations
 - iv. absorption

PGY 3-4

- xxiii. Discuss some of the more common diseases of the esophagus in the elderly, to include:
 - 1. motility disorders
 - 2. diverticular disease
 - 3. esophageal injuries
 - 4. inflammatory disease
 - 5. gastroesophageal reflux
 - 6. tumors (benign and malignant)
- xxiv. Summarize current medical management and the potential limitations; explain the role of surgical intervention when management fails in the following:
 - 1. peptic ulcer disease
 - 2. esophageal varices
 - 3. upper and lower GI bleeding
 - 4. gastroparesis

5. inflammatory bowel disease
6. diverticulitis

PGY 5 level

- xxv. Specify the pathophysiology of multisystem problems of the alimentary tract and digestive system, including neurohumoral and hormonal interactions.
 1. Explain a physiologic rationale for the following gastrointestinal operations:
 - a. vagotomy
 - b. pyloroplasty
 - c. gastric resection for ulcer disease
 - d. small bowel resection with anastomosis
 - e. ostomy formation
 - f. resection of GI tract segments with nodes for tumors
 - g. bypass of GI segments for resectable tumors
 - h. drainage of pancreatic cyst (internal vs. external)
 - i. drainage of abdominal retroperitoneal abscesses (percutaneous vs. operative)
- xxvi. Detail the standard intraoperative techniques and alternatives associated with each of the above operations
- xxvii. Explain the indications and contraindications for diagnostic and therapeutic endoscopy of the alimentary tract
- xxviii. Assess alternatives to surgical intervention and management of complex diseases of the alimentary tract and digestive system such as:
 1. short gut syndrome
 2. achalasia
 3. Barrett's esophagus
 4. intestinal polyposis
 5. inflammatory bowel disease
 6. seropositive status for H. pylori
 7. multifocal atrophic gastritis in the elderly
- xxix. Discuss surgical ramifications on the following statement: "the expectation of more frequent vague gastrointestinal complaints by the elderly patient may delay presentation was significant illness and diagnoses".
- xxx. Summarize the preoperative, intraoperative, and post-operative management of complex diseases of the alimentary tract and digestive system, including:
 1. re-operated abdomen
 2. failed peptic ulcer and reflux operation
 3. high upper GI fistulas
 4. inflammatory bowel disease was strictures, pouches, ostomies, and perineal fistulas
 5. re-current colon malignancy
 6. carcinomatosis

b. COMPETENCY-BASED PERFORMANCE OBJECTIVES: PATIENT CARE AND TECHNICAL SKILLS:

PGY 1-2

- i. Evaluate emergency department or many patients who present with problems referable to the GI tract
- ii. Serve as assistant to the primary surgeon during operations of the esophagus, stomach, small intestine, colon and anal rectum.
- iii. Perform less complicated surgical procedures such as:
 1. gastrostomy
 2. medical diverticulectomy
 3. appendectomy both laparoscopic and open
 4. hemorrhoidectomy
 5. anal fissurectomy and fistulectomy
 6. incision and drainage of perirectal abscess
- iv. Accept responsibility for (under the guidance of the chief resident and attending surgeon) the post-operative management of:
 1. nasogastric tubes
 2. intestinal tubes
 3. intra-abdominal drains
 4. intestinal fistulas
 5. abdominal incisions (simple and complicated)
- v. Evaluate and manage nutritional needs (enteral and parental) of surgical patients until normal GI function returns.
- vi. Provide follow-up care to the surgical patients in the outpatient clinic or surgical office.

PGY 3-4

- vii. Perform initial consultation in patients with problems on the GI tract; develop differential diagnoses and initiate treatment plan
- viii. Assist the chief resident and attending staff with complex digestive system cases
- ix. Develop diagnostic and therapeutic endoscopy skills such as:
 1. diagnostic Esophagogastroduodenoscopy
 2. endoscopic control of GI bleeding
 3. percutaneous endoscopic gastroscopy
 4. dilatation of intestinal strictures
 5. assist with endoscopic retrograde cholangiopancreatography (ERCP)
 6. diagnostic colonoscopy
 7. polypectomy
- x. Select and interpret appropriate pre-and post-operative diagnostic studies
- xi. Assist junior residents and diagnoses, surgical management, and follow-up care of patients with diseases of the alimentary tract and digestive system

PGY 5

- xii. Coordinate intervention and multiple specialties that may be involved in management of complex GI problems such as:

1. variceal hemorrhage
 2. biliary obstruction
 3. chronic varices
 4. inflammatory bowel disease
 5. chronic abdominal pain
 6. chronic constipation
 7. localized and advanced malignancies
- xiii. Perform appropriately operative laparotomy for a variety of gastrointestinal problems
- xiv. Supervise post-operative care of GI and digestive tract surgical patients

6. Diseases of the Breast: We do not have a specific breast rotation and therefore we have assigned a basic competency based Goal and objectives for breast which will be achieved while rotating through our general surgery rotations. The basic goal are:

**a. Competency-Based Knowledge Objectives: Breast
PGY 1-2-3**

- i. Describe the anatomy of the breast.
- ii. Explain the hormonal regulation of the breast.
- iii. Summarize the incidence, epidemiology, and risk factors associated with breast cancer.
- iv. Distinguish between these common entities in the differential diagnosis of breast masses:
 1. Fibroadenomas
 2. Cysts-gross and fibrocystic disease and risk factors.
 3. Abscesses
 4. fat necrosis
 5. cancer
 6. sclerosing adenosis
- v. Explain the general indications, uses, and limitations of mammography. Defining important impact of screening mammography.
- vi. Discuss the principles and historic context of the basic options available for the treatment of breast cancer such as:
 1. radical mastectomy
 2. modified mastectomy
 3. Patey mastectomy
 4. lumpectomy and axillary dissection
- vii. Outline the genetic and environmental factors associated with carcinoma of the breast.
- viii. Describe the following pathological types of breast cancer, including the biology, natural history, and prognosis of each:
 1. Infiltrating ductal carcinoma
 2. Ductal carcinoma in situ (DCIS)
 3. Infiltrating lobular carcinoma
 4. Lobular carcinoma in situ (LSIS)
 5. Other

- ix. Describe the presentation, natural history, pathology, and treatment of the following benign breast diseases:
 - 1. Lactational Breast Abscess
 - 2. Chronic Recurring Subareolar Abscess
 - 3. Intraductal Papilloma
 - 4. Atypical Epithelial Hyperplasia
 - 5. Fibroadenoma
 - 6. Sclerosing Adenosis
- x. Explain the steps in the clinical decision tree that are involved in the work-up of a breast mass.
- xi. Discuss the role of mammography, needle aspiration, fine needle biopsy, open biopsy, and mammographic needle localization and biopsy.
- xii. Explain the mechanics and potential values of the stereotactic needle biopsy
- xiii. Outline the diagnostic work-up in the differential diagnoses of various forms of nipple discharge.
- xiv. Explain use of tumor size, nodes, and metastases (TNM) staging and treatment of breast cancer.
- xv. Summarize a rationale for using a team approach to facilitate the complex discussions and explanation of options for the newly diagnosed breast cancer patient prior to definitive treatment (e.g., oncologists, surgeon, plastic surgeon, and radiation therapist).
- xvi. Explain the role of reduction and augmentation mammoplasty.
- xvii. Discuss several causes of gynecomastia and outline an appropriate workup.
- xviii. Discuss indications for Mammosite insertion, technical aspects, complications and indications for.
 - 1. Discuss technique of Sentinel Lymph Node Biopsy (SLNB), complications, and indications.

PGY 4-5:

- xix. Describe the characteristics, diagnoses, and therapy of less common lesions of the breast such as:
 - 1. inflammatory carcinoma
 - 2. Paget's disease
 - 3. Lactiferous duct fistula
 - 4. Mondor's disease
 - 5. Cystosarcoma Phylloides
 - 6. bilateral breast carcinoma
 - 7. male breast carcinoma
- xx. Understand the methodologies and results of landmark breast cancer trials: B-04, B-06, B-17, B-24 (NSABP)
- xxi. Be able to discuss the natural history of treated and untreated breast cancer and survival patterns both historically and modern day.
- xxii. Summarize the role of adjuvant chemotherapy and radiation therapy in the treatment of primary breast cancer.
- xxiii. Outline the importance of estrogen and progesterone receptors in the prognosis and treatment of breast cancer.
- xxiv. Describe the basic issues in the staging and treatment of metastatic breast cancer, including the role of :

1. chemotherapy
 2. radiation therapy
 3. hormonal therapy
- xxv. Summarize the physiologic changes associated with pregnancy, including breast problems peculiar to pregnancy. Theorize appropriate management of breast cancer diagnosed during pregnancy.
- xxvi. Summarize the major considerations for post-mastectomy breast reconstruction.
- xxvii. Formulate plans for basic patient care, including pre-, intra-, and post-operative care.
- xxviii. Identify and analyzed data addressing controversial areas of breast disease, such as:
1. current concepts in the management of cancer
 2. Cancer prevention techniques, such as tamoxifen and raloxifene.
 3. Role of various adjuvant therapy programs
 4. biological behavior of lesions such as lobular carcinoma in situ (LCIS)
 5. benefits and frequency of screening mammograms
 6. Relationship of mammographic parenchymal pattern to the risk of subsequent malignancy.
- xxix. Review and evaluate the following areas of research in breast disease:
1. role of breast cancer susceptibility genes
 2. monoclonal antibodies
 3. Other breast markers, including Her-2/neu, Cathepsin D, and flow cytometry with chromosomal analysis.
- xxx. The role of sentinel lymph node biopsy for breast cancer
1. sensitivity and specificity
 2. indication and contraindications
 3. technique
 4. treatment plan based on findings

b. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

PGY 1-2

- i. Take an appropriate history to evaluate breast patients to include:
 1. pertinent risk factors
 2. previous history of breast problems
 3. current breast symptoms
- ii. Demonstrate an increasing level of skill in the physical examination of the breast, including recognition of the range of variation in the normal breast.
- iii. Perform simple procedures such as:
 1. diagnostic fine-needle aspiration of cysts
 2. drainage of simple breast abscesses
 3. core biopsy of breast masses
 4. open biopsy of superficial masses
- iv. Identify common lesions such as fibroadenomas, cysts, mastitis and cancer.

- v. Interpret signs suspicious for malignancy on mammogram such as stellate masses or suspicious micro calcifications.
- vi. Perform open breast biopsies and other operative procedures such as simple mastectomy and excision of intraductal papillomas under direct supervision.
- vii. Demonstrate the ability to satisfactorily orient the surgical specimen for pathologic examination.
- viii. Determined the indications and special requirements for tissue processing for estrogen and progesterone receptors.
- ix. Educate patients to perform breast self-examination.
- x. Demonstrate familiarity with male breast problems, including gynecomastia and male breast cancer:
 - 1. discuss risk factors
 - 2. outline appropriate work-up and management

PGY 3-4-5:

- xi. Independently evaluate a new breast patient by a thorough history and physical examination, ordering appropriate and cost-effective tests such as mammogram, ultrasound, or fine needle aspiration (FNA) or stereotactic breast biopsy (SBB).
- xii. Formulate a diagnostic work-up and treatment plan for most common breast problems, including the common types of breast carcinomas.
- xiii. Consult and interact with members of the professional cancer team in explaining options to the newly diagnosed breast cancer patient.
- xiv. Perform, under direct vision, more advanced procedures on the breast such as:
 - 1. radical mastectomy
 - 2. modified mastectomy
 - 3. lumpectomy and axillary dissection
 - 4. sentinel lymph node biopsy
 - 5. excision of lactiferous duct fistula
 - 6. needle-localized breast biopsy
 - 7. simple mastectomy for gynecomastia
 - 8. try to witness and or assist plastic surgeon for breast reconstruction via Trans- rectus -abdominal- mastoplasty (TRAM)
 - 9. Mammosite insertion
- xv. Acquire basic experience with breast reconstruction and cosmetic surgical techniques.
- xvi. Evaluate the physical status of patients who report for evaluation of augmentation and reduction mammoplasty.
- xvii. Prescribe various types of adjuvant therapy such as:
 - 1. chemotherapy
 - 2. hormonal therapy
 - 3. radiation therapy
 - 4. Mammosite
- xviii. Manage unusual breast diseases such as:
 - 1. inflammatory carcinoma
 - 2. Paget's disease
 - 3. lactiferous duct fistula

4. Mondor's disease
 5. bilateral breast cancer
 6. male breast cancer
 7. Cystosarcoma Phylloides
- xix. Describe the evolving role of bone marrow transplantation in the management of selected breast cancer patients.
 - xx. Outline an appropriate follow-up schedule for patients who have undergone:
 1. treatment of breast cancer with curative intent
 2. treatment of DCIS
 3. Biopsy which revealed fibroadenoma, benign epithelial hyperplasia or fibrocystic disease with atypia.

BREAST DISEASE IN THE ELDERLY PATIENT: COMPETENCY-BASED KNOWLEDGE OBJECTIVES: the resident should be able to:
PGY 5

- xxi. Articulate currently accepted guidelines for breast cancer screening in the elderly patient.
- xxii. Describe the demographics of breast cancer in the elderly
- xxiii. Describe currently accepted surgical treatment.
- xxiv. Discuss the use of adjuvant chemotherapy.
- xxv. Describe the barriers that prevent adequate treatment in some elderly women.
- xxvi. Discuss appropriate modification of cancer therapy in the frail elderly woman.
- xxvii. Discuss a diagnostic evaluation of the elderly male with a breast lump.
- xxviii. Discuss the treatment of male breast cancer.
- xxix. Discuss the role of hormonal therapy in older patients.

7. ENDOCRINE SURGERY: We do not have a specific Endocrine rotation and therefore we have assigned a basic competency based Goal and objectives for Endocrine which will be achieved while rotating through our general surgery rotations. Note: endocrine surgery differs from many other areas of surgery in that there are not simple " junior level" cases and more complicated" senior level" cases. Most endocrine surgery cases are considered" senior level," primarily because the cases are infrequent and it takes three or four years before the resident has enough cases to be familiar with a variety of clinical presentations. Within endocrine surgery there are diseases which are relatively common and others which, although they are interesting, are exceptionally rare. Detailed knowledge of those later diseases should not be the province of the resident who should focus only on the more common entities. Operations such as transplant surgery, complicated pancreatic surgeries, and other surgeries requiring extremely advanced surgical skill and expertise cannot be routinely allocated to the resident to perform exclusively as chief surgeon.

a. COMPETENCY-BASED KNOWLEDGE OBJECTIVES: UNIT OBJECTIVES:
PGY 1-2

- i. Demonstrate knowledge of endocrine anatomy and physiology, both normal and pathological.

- ii. Demonstrate the ability to apply this knowledge to surgical care of patients.
- iii. Describe the normal anatomy, histology, physiology, and pertinent biochemistry of the following organs:
 - 1. thyroid gland
 - 2. parathyroid gland
 - 3. hypothalamus
 - 4. pituitary gland
 - 5. endocrine pancreas
 - 6. adrenal glands
 - 7. gastrointestinal tract as endocrine organ
 - 8. gonads as endocrine organs
- iv. Discuss fully the secretion and the a new control thereof of the following:
 - 1. thyroxine and thyroid stimulating hormone (TSH)
 - 2. parathyroid hormone (PTH)
 - 3. adrenocorticotropin hormone (ACTH)/cortisol)
 - 4. insulin/glucagon
 - 5. catecholamines (epinephrine, norepinephrine, dopamine)
 - 6. gastrin/secretin/cholecystokinin (CCK)
 - 7. serotonin/histamine
 - 8. estrogen/progesterone/testosterone (and their releasing factors)
 - 9. oxytocin/vasopressin
 - 10. growth hormone (GH)
 - 11. melanocyte stimulating hormone (MSH)
 - 12. prolactin
 - 13. motilin/gastric inhibitory peptide(GIP)/enteroglucagon/ vasoactive intestinal peptide (VIP)
 - 14. somatostatin
- v. Summarize the following aspects of endocrine pathology:
 - 1. the criteria for the diagnosis of malignancy
 - 2. chromosomal abnormalities as screening/diagnostic tool
 - 3. the unique characteristics about the clinical epidemiology of patients with sporadic versus familial disease
 - 4. Define and differentiate multiple endocrine neoplasia (MEN) type I, MEN II, and familial non-MEN syndromes
 - 5. fine-needle aspiration biopsy
 - 6. DNA ploidy
- vi. Explain the integrated concept of clinical neuroendocrinology, the cells and organs of the amine precursor uptake decarboxylase (APUD) system, and the known clinical endocrine syndromes.

PGY 3-4

- vii. Outline the approach to surgical management of diseases of the endocrine systems:
 - 1. Is the treatment of each disease primarily surgical or medical?
 - 2. Is surgical treatment different for benign versus malignant disease?

3. Is surgical treatment curative or palliative?
 4. Is surgical treatment directed at the target organ or primary organ?
 5. What role does lesion localization play in endocrine disorders?
- viii. Discuss the pathophysiology, clinical presentation, workup, and treatment of the following diseases:
1. a solitary thyroid nodule
 2. in multinodular thyroid gland
 3. thyrotoxicosis
 4. primary, secondary, and tertiary hyperparathyroidism
 5. insulinoma/gluconoma/vipoma
 6. Zollinger-Ellison Syndrome (ZES)
 7. gastrointestinal stromal tumors (GIST)
 8. gastrointestinal carcinoid tumors
 9. endogenous hypercortisolism (Cushing's syndrome versus Cushing's disease; secondary to pituitary, adrenal, and ectopic causes)
 10. pheochromocytoma
 11. primary hyperaldosteronism
 12. incidentally discovered adrenal mass
 13. galactorrhea
 14. gigantism/dwarfism
- ix. Discuss the preoperative preparation/management of the following:
1. hypercalcemia crisis
 2. thyroid " storm"
 3. Graves' disease/Hashimoto's disease
 4. pheochromocytoma
 5. hyperaldosteronism
 6. endogenous hypercortisolism
 7. insulinoma/gastrinoma
 8. carcinoid syndrome
 9. adrenal insufficiency crisis
- x. Outline the differential diagnosis of :
1. hypercalcemia
 2. hypoglycemia
 3. hypergastrinemia
 4. elevated serum thyroxine level
 5. elevated ACTH levels
 6. a decreased sensitive thyroid stimulating hormone (TSH) level
- xi. Discuss corticosteroid administration for elderly patients with diseases more common in that population. Explain the following disease entities as they relate to problems in the elderly patient:
1. Cushing's syndrome
 2. exogenous hypercortisolism
 3. high intake of self-administered " arthritis pills"
 4. chronic alcohol abuse

PGY 5

- xii. Discuss the surgical approaches to:
1. the left adrenal gland,

2. the right adrenal gland
 3. the anterior pituitary gland
 4. the head of the pancreas
 5. the body/tail of the pancreas
 6. the inferior parathyroid gland
 7. the superior parathyroid glands
 8. a retrosternal goiter.
- xiii. Identify and discuss areas of endocrine surgery in which patient management is controversial and areas in which change is taking place, including:
1. Zollinger-Ellison syndrome
 2. thyrotoxicosis
 3. genetic screening for neuro endocrine syndromes
 4. minimally if invasive parathyroidectomy
 5. breast cancer gene screening/insurance and worker issues
 6. Colon polyposis syndromes **both** familial and nonfamilial
- xiv. Summarize the physiologic alterations of the neuro endocrine system that occur with normal aging. Include explanation of these alterations that can occur with advancing age:
1. plasma noradrenalin concentrations increase
 2. steady decrease in aldosterone secretion
 3. plasma renin activity declines
 4. plasma cortisol levels significantly increase
- xv. Summarize significant issues in the management of anesthesia in endocrine surgery, including:
1. airway management during neck surgery
 2. cardiovascular manipulation during thyroid and pheochromocytoma operations
 3. special attention to electrolyte management
 4. preparation of patients for pheochromocytoma surgery
 5. preparation and treatment of malignant hyperthermia. (Both surgical and pre-operative)
- xvi. Critique the role of the following developments in the surgical management of endocrine problems:
1. localizing modalities (e.g., metaiodobenzylguanine [MIBG], sestamibi, selective venous sampling, intra operative tumor localization, rapid parathyroid hormone [PTH] assays)
 2. diagnostic assays (e.g., sensitive TSH, C-peptide, fine needle aspiration) and a who I gone diseases in the

b. COMPETENCY-BASED PERFORMANCE OBJECTIVES: PATIENT CARE AND TECHNICAL SKILLS: PGY 1-2

- i. Complete a preliminary evaluation of patients suspected of having endocrine disease to include:
 1. focused history
 2. family history
 3. physical examination
- ii. Appropriate relevant diagnostic studies
- iii. Participate in the pre-and post-operative care of patients undergoing endocrine surgery.

- iv. Observe endocrine surgery cases
- v. Perform a detailed evaluation of patient's suspected endocrine disease.
- vi. Manage pre-and post-operative care of patients with endocrine disease, under supervision
- vii. Observe and assist surgery of the thyroid, parathyroid and adrenal glands, as well as those of the pancreas.

PGY 3-4-5:

- viii. Develop a comprehensive plan to the surgical management of endocrine disease.
- ix. Perform or assist in the performance of adrenal, pancreas, thyroid, and parathyroid surgery.
- x. Evaluate patients with complex endocrine disease and present a differential diagnosis. (Since we are not a referral center for endocrine disease surgery this may have to be a discussion with preceptors and open to presentation at Grand Rounds)
- xi. Perform surgery on adrenals, pancreas, thyroid and parathyroid.
- xii. Independently or in discussion with preceptor discuss or manage the diagnosis, pre-and post-operative care, and surgery for a variety of endocrine surgery cases as they are available or open to discussion in order for you to prepare yourself for the boards both oral and written.
- xiii. Understand indications for minimally invasive parathyroidectomy even though it is not yet available at this institution

A: COMPETENCY-BASED KNOWLEDGE OBJECTIVES: MEDICAL KNOWLEDGE: All LEVELS (See Body as a whole)

B: COMPETENCY-BASED PERFORMANCE OBJECTIVES: PATIENT CARE AND TECHNICAL SKILLS: One can expect to learn the listed skills and assume responsibility for managing patients with these problems under close supervision of chief resident and attending staff. Residents will learn to/do:

PGY 1

- i. Refine basic elements of history and physical skills
- ii. Pre- and post-operative care
- iii. Basic use of surgical instruments
- iv. The following operative procedures:
 - 1. minor outpatient surgical procedures
 - 2. inguinal/femoral herniorrhaphy
 - 3. breast biopsy
 - 4. appendectomy laparoscopic and open
 - 5. other

PGY 2

- v. Will assume greater responsibility and technical skills involved in:

6. directing resuscitative efforts in the management, and critical ill patients
7. initial evaluation of surgical problems
8. consultation on emergency and in-hospital patients
9. teaching students and interns
10. management decisions
11. the following procedures:
 - a. cholecystectomy
 - b. exploratory laparotomies
 - c. small bowel anastomosis/hand sewed and mechanical
 - d. colonoscopy
 - e. sentinel node biopsy,
 - f. mastectomies
 - g. other procedures depending upon the acquisition of appropriate skills and close supervision of preceptor.

PGY 3-4

- vi. Will assume greater responsibility and advanced technical skills with regard to:
 12. teaching of medical students and junior residents
 13. organization of conferences
 14. supervising junior residents and off service residents
 15. Assist the chief residents in managing more acutely ill patients and being more readily available to manage the service during their absences or while they are at conferences.
 16. Direct resuscitative efforts in trauma in critically ill surgical patients
 17. the following procedures:
 - a. common duct exploration
 - b. trauma (splenectomy, splenorrhaphy, management of more complex intra-abdominal organ injury)
 - c. thyroid surgery, parathyroid surgery and adrenal surgery (endocrine)
 - d. mastectomies
 - e. Colon surgery
 - f. flexible endoscopy (EGD, colonoscopy, bronchoscopy, choledochoscopy)
 - g. other

PGY 5

Will assume primary responsibility for complex technical skills required for the management of:

18. complex surgical problems involving all areas of the body
19. daily patient care
20. Manage S. S. S. clinic alternating every six months with different primary Synergy Attendings and supervising the Chief Run Clinic and supervising junior residents.

21. Alternate administrative responsibilities Q. six months- assigning resident call schedules, off service call schedules, approving resident vacation requests, attend board review conference and report weekly/monthly to Synergy Staff any clinic problems, arrange for guest basic science lectures and choose appropriate topics.
 22. Attend Steering Committee Meeting once a month to discuss issues involving the business of training residents and other issues.
 23. Organize teaching conferences and rounds
 24. The following procedures should include:
 - a. esophageal and gastric procedure
 - b. pancreatic resection and other operations
 - c. peripheral-vascular operations including endovascular procedures
 - d. radical head and neck operations as they may occur at the discretion and notice from our ENT colleagues
 - e. unusual pediatric operations or at the request of our pediatric surgeon/s
 - f. pulmonary and mediastinal procedures as well as thoracic procedures
 - g. major trauma procedures
 - h. major cancer procedures.
 - i. major other procedures at the request of community and staff surgeons
- vii. **All Residents:** will attend outpatient clinics each week according to S. S. S. assignments. One of the “**objectives**” of these clinics is to have resident’s learn how to do a pre-operative workup of common surgical problems, how to perform minor office procedures and learn the business/management of office practice including proper billing procedures as noted during yearly resident orientation beginning as PGY 1 and yearly lectures from our billing department and other guest speakers as are available. The proper billing/coding mechanics will be taught and exemplified by Synergy staff during outpatient clinics on a perpetual basis and upon more detailed request by residents. Expectations are on a continuum from the PGY 1 through PGY 5 years.

C: INTERPERSONAL AND COMMUNICATION SKILLS

- i. **PGY 1** residents will attend all orientation activities during their initial introduction to Synergy Medical Education Alliance program. In addition, they will attend and become certified in ATLS and ACLS training sessions.
- ii. **PGY 1-2-3:** residents will develop and refine individual style when communicating with patients. They will strive to create ethically sound relationships with patients, the physician team and supporting hospital personnel. They will create effective written communications through accurate, complete, legible notes. Residents are encouraged to print their names and pager numbers and state the time when making

these progress notes/consults/ and operative procedures on every patient. Residents will exhibit listening skills appropriate to patient-centered interviewing and communication. Residents will recognize verbal and nonverbal cues from patients. Residents will be able to communicate with patients concerning end-of-life decisions. Residents will participate in Synergies “**satisfaction questionnaires**” and will receive feedback during their years of rotating through our ambulatory clinic.

- iii. **PGY 4-5:** residents will also exhibit team leadership skills and effective communication skills in the management of junior residents and off service residents. They are expected to assist junior peers, medical students, and other hospital personnel to form professional relationships with support staff. Residents will respond to feedback in an appropriate manner and make necessary behavioral changes as needed. Residents should additionally be able to successively negotiate nearly all "difficult" patient encounters with minimal direction. PGY 4-5 residents will function as team leaders with decreasing reliance upon attending physicians but maintain close communication with Community and Synergy staff surgeons as team members.
- iv. **All residents:** will attend Grand Rounds, M&M's and staff/guest lectures and Tue. A.M. Schwartz club conferences as well as journal club presentations.
- v. All residents: will conduct a yearly research presentation at J.E. Manning paper Day and a select few will be asked to prepare their papers for submission and possible eventual publication in a peer-review journal when feasible.

D. PROFESSIONALISM (ALL PG LEVELS)

All residents: will demonstrate integrity, accountability, respect, compassion, patient advocacy, and dedication to patient care that supersedes self-interest. Residents will demonstrate a commitment to excellence and continuous professional development. They will be punctual and prepared for teaching sessions including Schwartz Club. Residents will demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information and informed consent. Residents are expected to show sensitivity and responsiveness to patient's culture, age, gender, and disabilities.

E. PRACTICE-BASED LEARNING AND IMPROVEMENT

- i. **All residents:** will use Synergy library resources to critically appraise medical literature and apply this evidence to patient care. They should be able to use computers, desk-top and lap-top computers and Internet electronic references to support patient care and self- education. They will model these behaviors to assist medical students in their own acquisition of knowledge through technology.
- ii. **PGY 1-2:** residents will consistently seek out and analyze data on practice experience, identify areas for improvement in knowledge of

patient care performance and make appropriate adjustments. This is a quality improvement (QI) issue and is reflected by reviewing patient's charts and analyzing for data requested by program director.

- iii. **PGY 3-5:** residents will additionally model independent learning and development of the junior residents.

F. SYSTEMS BASED PRACTICE

- i. **PGY 1:** residents will be sensitive to health care costs while striving to provide quality care. They will begin to effectively coordinate care with other healthcare professionals as required for patient needs.
- ii. **PGY 2-3:** residents, in addition to the above, will consistently understand and adopt available clinical practice guidelines and recognize the limitations of the guidelines. They will work with patient care providers, discharge coordinators and social workers to coordinate and improve patient care and outcomes.
- iii. **PGY 4-5:** residents, in addition will enlist social and other out-of-hospital resources to assist patients with therapeutic plans for early and long-lasting health issues. PGY 4-5 residents are expected to model cost-effective therapy.

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
GYNECOLOGY
EDUCATIONAL OBJECTIVES
PGY 2 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES

MEDICAL/SURGICAL KNOWLEDGE: Resident will gain knowledge of diagnosis, management, treatment, treatment options (surgical/ non-surgical), long term prognosis, post-operative effects, complications, patient risk and cost considerations associated with:

- a. General concerns of the gynecologic patient: fluid management, drug dosage, nutrition, blood replacement, metabolic management.
- b. Tumors - benign and malignant ovarian tumors, cervical carcinoma, and endometrial carcinoma.
- c. Congenital abnormalities of the female genital tract.
- d. Acquired disorders - endometriosis, infertility, ectopic pregnancy.
- e. Infection - acute abdomen, pelvic inflammatory disease.
- f. Special considerations of gynecologic patient in trauma – rape
- g. Special considerations in the pregnant patient - hematoma, medications, distortion of normal anatomy by pregnant uterus.
- h. Understand types and treatments of female urinary incontinence including pelvic anatomy.-- **other objectives including:**
- i. Describe the components of a complete gynecological assessment, including an accurate history and physical examination. Note how the examination findings would likely differ from postmenopausal woman without estrogen replacement therapy
- j. outline the anatomical relationships of the pelvic organs and lower intra-abdominal organs
- k. explain the physiology in endocrinology relating to endometrial function (e.g., hypothalamic pituitary ovarian axis and menstrual function)
- l. discuss the physiology and pathophysiology of gynecologic conditions and disease, including:
 1. intrauterine pregnancy
 2. benign disease of the ovaries (e.g., cyst and complications of torsion and bleeding)
 3. ectopic pregnancy
 4. carcinoma of ovary, uterus, cervix uteri, vagina, and vulva
 5. advanced uterine prolapse any postmenopausal woman
 6. benign uterine leiomyoma in any postmenopausal woman
- m. outline the differential diagnosis for pelvic pathology such as:
 1. salpingitis versus appendicitis
 2. Mittelschmerz versus bleeding ovarian cyst
 3. Fibroid uterus versus either intra-abdominal masses
- n. discuss the differential diagnosis of a pelvic mass to include considering:
 1. cysts
 1. benign ovarian cysts (functional, neoplastic)
 2. malignant ovarian cysts

2. tumors
 1. benign solid tumors (uterus, tubes, ovaries)
 2. malignant solid tumors (primary or metastatic)
3. masses of infectious origin (tubo-ovarian abscess)
- o. summarize the categories of information provided by the following types of studies:
 1. imaging (ultrasound, computed axial tomography, magnetic resonance imaging)
 2. cytology of ascitic fluid
 3. intravenous pyelography and cystoscopy
 4. gastrointestinal contrast studies and sigmoidoscopy
- p. explain the bases of preferred treatment for the following conditions:
 1. uterine bleeding
 2. ectopic pregnancy
 3. ovarian cysts with bleeding, enlargement or torsion
 4. endometriosis
 5. carcinoma of the ovary, uterus, vagina, and vulva
 6. fibroids; fibroids in a 70-year-old woman
 7. normal pregnancy has complications requiring cesarean section
- q. discuss the significance of postmenopausal vaginal bleeding, including:
 1. etiology
 2. evaluation
 3. diagnostic studies
 4. alleviation of symptoms
 5. treatment alternatives
- r. identify and discuss pelvic support defects in elderly woman, including:
 1. restoration of normal genital tract anatomy
 1. bladder neck
 2. anterior vaginal wall
 3. apex of vagina
 4. vaginal length
 5. posterior vaginal wall
 6. perineal body
 2. options to surgery
 3. associated risks and benefits
 1. quality of life decisions
 2. healthy life-style
- s. describe the indications for hysterectomy
- t. explain the appropriate surgical approach to radical groin dissection and vulvectomy for carcinoma
- u. describe the surgical and pathological staging of ovarian and uterine neoplasia
- v. summarize the principles of the following surgical procedures:
 1. hysterectomy
 2. salpingectomy
 3. oophorectomy
 4. vulvectomy
 5. laparoscopy
 6. radical groin dissection
- w. explain the principles of chemotherapy and radiotherapy in the management of gynecologic malignancies

- x. discuss the management of an ovarian mass unsuspected at laparotomy by considering:
 1. biopsy versus oophorectomy
 2. surgical staging (peritoneal washings, contralateral ovarian biopsy, omentectomy)
 3. consultation (family, gynecologists)
- y. adenocarcinoma of the endometrium is the most common invasive gynecological malignancy in the United States describe:
 1. mean age at diagnosis
 2. most common presenting complaint (90% of cases)
 3. high-risk factors

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES: Resident will develop and refine skills needed to :

- a. perform pelvic examinations, only initially under direct supervision:
 1. part of every woman's general physical examination
 2. significant for patient to be evaluated for abdominal or pelvic symptoms
 3. critical for patients who must undergo abdominal or pelvic surgery
 4. evaluation of traumatically-injured female
- b. participate as part of the surgical team performing multiple gynecological surgery procedures:
 1. perform as surgical assistant during earliest training stages
 2. perform surgical procedures when experienced and under supervision:
 1. pelvic laparoscopy
 2. oophorectomy
 3. salpingectomy
 4. hysterectomy
- c. formulate differential diagnosis of pelvic infection and masses to consider:
 1. common infections (endometritis, salpingitis, tubo-ovarian abscess)
 2. common organisms (gonococcus, Chlamydia, anaerobic bacteria)
 3. differentiating findings on pelvic and abdominal examination (mass, tenderness, signs of peritoneal irritation, ultrasound imaging, fever, leukocytosis)
- d. identify all normal pelvic structures visually and to palpation during laparotomy
- e. managed general physical problems of the pregnant patient (appendicitis, cholecystitis, breast mass, intestinal obstruction)
- f. diagnose ectopic pregnancy and perform a salpingostomy under direct supervision
- g. perform an emergent hysterectomy under supervision
- h. assist in a radical groin dissection (if presented) and assist in the performance of related gynecological surgery for carcinoma such as:
 1. pelvic and inguinal lymph node dissection
 2. bowel resection
 3. cystectomy
 4. pelvic exenteration with urinary and/or bladder diversion to
- i. Perform a consult in a timely and thorough manner on a woman.
- j. Perform a thorough history and physical on a woman.

- k. Obtain vascular access in the gynecologic or obstetric patient - IVs, arterial lines, central lines.
- l. Make operating room a safe environment for the pregnant patient (x-ray shielding, etc.)
- m. Resident will be responsible for:
 - n. Initial evaluation and follow-through of all patients admitted to the service.
 - o. Pre and post-operative patient care.
 - p. Participation in the operating room.
 - q. Patient visits in gynecologic clinic, if established
 - r. Daily rounds with the attending surgeon.
 - s. Read and be prepared to discuss issues in all recommended/assigned readings.
 - t. Maintain in house call for general surgery.
 - u. Attend all general surgery conferences and Journal Club.

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with patients and their families, especially under stressful circumstances
- b. Perform a patient-sided medical interview
- c. Engage patients in shared decision-making, and participate in family discussions
- d. Effectively and considerately communicate with team staff in a manner that promotes care coordination
- e. Discuss patients fears regarding prognosis and outcome
- f. Begin the process of requesting organ donation as appropriate
- g. Demonstrate an understanding of parents and children's fears relative to surgery.
- h. Become competent to deal with disabled children and their parents

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients
- b. Exhibit competency in working with patients regarding advanced directives, DNR status, futility, and withholding/withdrawing therapy
- c. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- d. Identify patients fear associated with the major disease diagnosis and provide compassion palliative care in the dying patient.
- e. Identify and assist with the psychological stress of patients with chronic disability from disease as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. Exhibit self-directed learning
- b. Demonstrate improvement in clinical management of patients by continually improving disease-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. Demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. Work well with multidisciplinary teams, coordinating care and work with specialists in a team setting
- c. Effectively plan care after discharge

**The SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
NEUROSURGERY
EDUCATIONAL OBJECTIVES
PGY 2 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: Resident will gain knowledge of diagnosis, management, treatment options (surgical/non-surgical), long term prognosis, post-operative effects, complications, patient risk and cost considerations associated with:

- a. Tumors - brain, spinal cord and peripheral nerves and be able to apply this knowledge in recognizing location of tumor by physical signs and symptoms.
- b. Degenerative - focus on spinal cord and degenerative disc disease, peripheral nerve surgery, carpal tunnel, familiarity with Alzheimer's disease.
- c. Vascular - aneurysms, AV malformation of the cerebral system, carotid artery disease.
- d. Trauma - closed head injuries, open head injuries, spinal injuries and peripheral nerve injuries.
- e. Associated knowledge - anti-convulsive therapy, pain control (rhizotomies and other available options), determination of brain death, and understanding of the protocols necessary for harvesting donor organs
- f. Know specific anatomy of spinal column and brain.
- g. Know specific motor and sensory pathways.
- h. Demonstrate knowledge of and skills in neurological examination of patients with neurological and neurosurgical disease or injuring so that:
 - i. an accurate history can be taken
 - ii. a sufficient physical examination can be performed
 - iii. logical conclusions can be drawn regarding location and nature of neuropathology
- i. apply basic knowledge of the following neuroradiological methods in terms of deciding, after conducting the neurological history and examination, which diagnostic tests or interventions would provide the least risk and most useful information for subsequent interpretation:
 - i. plain skull and spine radiographs
 - ii. computed axial tomography CAT scan: head and spine
 - iii. cerebral arteriography
 - iv. myelography
 - v. magnetic resonance imaging
- j. demonstrate an understanding of the management of head injuries to include:
 - i. selection, prioritizing, and performance of resuscitation efforts
 - ii. analyzing components and results of baseline neurological examination to determine and evaluate changes in patient neurological status
 - iii. treatment of a scalp wound
 - iv. initial treatment of compound depressed skull fractures
 - v. management of increased intracranial pressure

- vi. recognition of Cerebral Herniation Syndromes
- vii. initiation, management, and interpretations of intracranial pressure monitoring
- viii. recognition and initial management of post-traumatic intracranial hemorrhage
- k. apply knowledge of cervical and thoracolumbar spine injuries, including:
 - i. means of stabilization of spine (tongs, halo)
 - ii. recognition of neurological deficit from cord and/or root injury at various levels
 - iii. pathophysiological responses in quadriplegic or paraplegia patients
- l. demonstrate the ability to access and many diseases of the cervical and lumbar discs according to:
 - i. anatomical structures involved: disc (cartilage), annulus (ligament), joint capsule, pedicle, nerve root, foramen
 - ii. conservative management: traction, rest, physical therapy, analgesic medications
 - iii. selection and usefulness of radiological modalities: plain spine films, CAT, MRI, myelography
 - iv. indications for surgical management: intractable radicular pain, neurological deficit
- m. demonstrate the ability to describe and diagnosed intracranial and intraspinal mass lesions (neoplasm, abscess, hematoma) utilizing:
 - i. signs and symptoms of intracranial and intraspinal mass lesions
 - ii. classification of intracranial and intraspinal tumors
 - iii. pathophysiology of intracranial and intraspinal abscesses
 - iv. pathophysiology of spontaneous intracranial and intraspinal hemorrhage
 - v. pathophysiology of hydrocephalus
- n. summarize several factors to consider when making critical decisions about treatment options for the elderly neurosurgical patients, to include:
 - i. patient views
 - ii. quality of life issues
 - iii. acceptable risk
- o. Appraise the value of MRI in the diagnosis of brain abscess or other intracranial pathology in the elderly. Discuss acceptable treatment for such abscesses
- p. demonstrate an understanding of important non-surgical problems and postoperative complications related to neurosurgery, including:
 - i. closed head injury: problems related to coma, brain swelling, increased intracranial pressure (ICP), ICP monitoring
 - ii. spinal cord injury: problems related to paralysis, sensory deficit, roto bed, tongs, halo
 - iii. airway and respiratory problems secondary to coma or high cord injury: arterial blood gases, respirator, endotracheal tube, tracheostomy,
 - iv. vascular problems: hypo- and hypertension, cerebral circulation, cerebral ischemia
 - v. bladder problems: secondary to brain, cord, or cauda pathology
 - vi. metabolic problems: hypopituitary, hypoadrenal, hyponatremia, water intoxication

- q. clarify and explain the challenge in making an accurate diagnosis for the elderly patient who exhibit signs of:
 - i. alterations of consciousness
 - ii. personality changes
 - iii. focal neurologic deficits to cerebrovascular disease
 - iv. Senile dementia-suggest diagnostic tools for making a differential diagnosis.
- r. Discuss ethical and socio-economic issues relating to neurosurgery (e.g., brain death, mental incompetence, dysphasia, compensation neuroses, and intractable or chronic pain).
- s. Demonstrate an understanding of the importance of early referral of head and spinal cord injury patients to other rehabilitation services; recognize the potential impact of the services long-term prognosis.

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES TECHNICAL SKILLS:

Resident will develop and refine skills needed to

- a. Perform a complete neurological exam.
- b. Appropriately use diagnostic tools (EEG, angiography, CT, LP, EMG, X-ray, bone scan, myelogram, radioisotope brain scan, ICP monitor, Glasgow Coma Scale).
- c. Learn special operative techniques requiring the use of bone and neurosurgical instruments (burr holes, turning a flap, use of cottonoid and delicate technique on brain tissue, intra-cranial bleeding).
- d. Immobilize the C-spine, place tongs, learn when and how to place patients on Stryker frames.
- e. Residents will be responsible for Initial evaluation of all patients admitted to the service.
- f. Perform all neurological exams assigned to the service.
- g. Pre- and post-operative patient care responsibility under the supervision of the neurosurgeon
- h. Participation in the operating room on neurosurgical cases
- i. perform neurological history and examination of patients at various levels of consciousness
- j. write admission, radiological, and preoperative orders under the direction of the supervising attending
- k. utilize appropriate diagnostic modalities and review preoperative diagnostic studies under the direction of the attending neurosurgeon
- l. assist during neurosurgical procedures, gaining exposure to and hands-on experience with:
 - i. bone work: craniotomy, laminectomy
 - ii. neurosurgical hemostasis
 - iii. protection of neural tissues
 - iv. removal of specific lesions: tumor, abscess, hematoma, disc
 - v. vascular repair: carotid endarterectomy, assist with clipping of aneurysm
 - vi. problems related to cerebrospinal fluid circulation:
 - 1. hydrocephalus
 - vii. repair/replacement of dura and bone
- m. perform limited neurosurgical procedures under direction such as:

- i. diagnostic lumbar puncture
- ii. insertion of ICP monitor
- iii. repair of scalp lacerations
- iv. burr hole for sub-dural hematoma
- v. elevation of simple depressed skull fracture
- vi. application and management of skeletal traction by tongs or halo
- n. formulate appropriate postoperative care, including:
 - i. address potential complications
 - ii. provide information/instructions to patient and family
 - iii. prepare a discharge plan
 - iv. Plan an adequate post hospital care.
- o. Maintain general surgery in house call assignments
- p. Arrange for office experience and teaching rounds with attending.
- q. Attend all general surgery conferences and Journal Club

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS) Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with patients and their families, especially under stressful circumstances
- b. Perform a patient-sided medical interview
- c. Engage patients in shared decision-making, and participate in family discussions
- d. Effectively and considerately communicate with team staff in a manner that promotes care coordination
- e. Discuss patients fears regarding prognosis and outcome
- f. Began the process of requesting organ donation as appropriate

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients
- b. Exhibit competency in working with patients regarding advanced directives, DNR status, futility, and withholding/withdrawing therapy
- c. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- d. Identify patients fear associated with the trauma diagnosis and provide compassion palliative care in the brain dead patients.
- e. Identify and assist with the psychological stress of patients with chronic disability from trauma as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. Exhibit self-directed learning
- b. Demonstrate improvement in clinical management of patients by continually improving trauma-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. Demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. Work well with multidisciplinary teams, coordinating care and work with specialists in a team setting
- c. Effectively plan care after discharge
- d. Contact an appropriate organ procurement organization regarding potential organ donation

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
ORTHOPEDIC SURGERY
EDUCATIONAL OBJECTIVES
PGY 4 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE:

- MEDICAL/SURGICAL KNOWLEDGE:** Resident will gain knowledge of diagnosis, management, treatment options (surgical/non-surgical), long term prognosis, complications, patient risk and cost considerations associated with:
- a. describe the gross anatomical structures of the skeletal system
 - b. explain the physiology and biochemistry of bone growth and maturation
 - c. analyze the function of any specific bones of the body
 - d. analyze the orthopedic role in evaluation of the following:
 - i. musculoskeletal trauma
 - ii. inflammatory, infectious, and metabolic disorders (rheumatoid arthritis, systemic lupus erythematosus, pyogenic arthritis, osteomyelitis, osteomalacia, hypothyroidism)
 - iii. musculoskeletal tumors
 - iv. degenerative conditions (osteoarthritis, traumatic arthritis, osteoporosis)
 - e. outline a protocol for the assessment of the skeletal system using appropriate skills of history taking and physical examination
 - f. discuss the use of radiographic imaging such as magnetic resonance imaging (MRI), computerized axial tomography (CAT), radionucleotide, arteriography, and plain films in evaluation and management of the following orthopedic pathology:
 - i. musculoskeletal tumors
 - ii. isolated extremity injury
 - iii. spinal injury or fracture
 - iv. pelvic trauma
 - v. vascular injury
 - vi. urologic injury
 - g. identify considerations for patient care patients with acute trauma to the musculoskeletal system, including accurate assessment and documentation of the neurovascular status of all extremities
 - h. discuss specific areas of concern in considering total hip replacement for the elderly patient, including:
 - i. comorbid conditions
 - ii. thromboembolic disease
 - iii. urinary retention
 - iv. bleeding dyscrasias
 - v. occult infections
 - i. explain the fundamental principles of management of orthopedic trauma, including:
 - i. compartment pressure problems and use of fasciotomy
 - ii. indications and limitations of closed reduction and casting
 - iii. indications for open reduction and internal fixation of fractures
 - iv. indications and methods for application of skeletal traction
 - v. principles of early mobilization and rehabilitation

- vi. diagnosis and management of fat embolism
- j. explain the management of open fractures, including:
 - i. timing
 - ii. stabilization priorities
 - iii. irrigation and debridement
 - iv. early fixation
 - v. mobilization
- k. discuss the role of arthroscopy in the evaluation and therapy of orthopedic pathology (specifically for the knee)
- l. determine the management of selected congenital and developmental musculoskeletal skeletal defects and fractures in children to include:
 - i. epiphyseal fractures: Salter-Harris classification
 - ii. supracondylar elbow fractures in children
 - 1. risk of Volkmann's ischemic contracture
 - 2. role of the vascular surgeon in evaluation and treatment
 - iii. supracondylar femur fracture (adjacent role of the vascular surgeon)
 - iv. cervical spine congenital deformity versus pseudosubluxation in a young child
 - v. developmental hip dislocation
 - vi. Talipes equinovarus (clubfoot)
- m. discuss common causes of deterioration in the elderly that most frequently lead to the need for total knee replacement. Include: frequency of occurrence, associated medications, pain and degeneration, and quality of life decisions for:
 - i. osteoarthritis
 - ii. rheumatoid arthritis
 - iii. post-traumatic arthritis
 - iv. osteonecrosis of femoral condyles
- n. describe contraindications to knee replacement in the elderly patient with advanced arthritis of the knee
- o. explain the management of the following times the disease is affecting the musculoskeletal system:
 - i. inflammatory disease is (rheumatoid arthritis, systemic lupus erythematosus, psoriatic arthritis, Reiter's syndrome)
 - ii. infectious diseases (septic arthritis, osteomyelitis)
 - iii. metabolic disease is (osteomalacia, hyperparathyroidism, hyperthyroidism)
- p. describe the following fracture classifications:
 - i. Maligne
 - ii. Pelvic
- q. diagram gross and x-ray characteristics of histological and pathological conditions of the musculoskeletal system, including:
 - i. osteoporosis
 - ii. metastatic disease in the skeleton
 - iii. primary tumors
 - iv. trauma
- r. analyze the following statement by considering: etiology, disease, medications, and environmental factors: "as many as 50% of those elderly who are hospitalized after any fall die within one year".
- s. Outline and management of musculoskeletal tumors, including:

- i. evaluation and staging: Enneking classification
 - ii. selection and performance of appropriate biopsy such as:
 - 1. open-versus fine-needle aspiration
 - 2. frozen section versus permanent section
 - iii. adjuvant therapy options
 - 1. chemotherapy
 - 2. radiation
- t. explain the management of nerve injury associated with musculoskeletal trauma and other pathology, including:
 - i. response of nerve tissue to injury
 - ii. evaluation of nerve injury
 - iii. transmission of impulses in various points in the peripheral nervous system
 - iv. operative repair options
- u. analyze the principal concepts of pain causation and perception
- v. demonstrate the evaluation of back and leg pain using a standard algorithm
- w. fractures in elderly population typically occur as a result of low-energy impacts. Discusses significance of frequency and outcome of the following disease entities/abnormalities:
 - i. osteoporosis (including gender)
 - ii. Paget's disease
 - iii. Infection
 - iv. Malignancy
 - v. marrow dysplasias
 - vi. osteomalacia
 - vii. metabolic derangements (hyperthyroidism, hyperparathyroidism)
 - viii. elder abuse and neglect
- x. compare indications and contraindications for joint aspiration
- y. analyze the indications for and surgical approaches to amputation in the following situations:
 - i. trauma
 - ii. ischemia
 - iii. infection
 - iv. tumors
 - v. prosthesis
- z. summarize the role in joint replacement and management of orthopedic pathology
- aa. summarize the characteristics of infection/sepsis secondary to prosthetic implants or orthopedic hardware; discuss treatment strategies
- bb. explain the importance and timing of physical therapy in the care of post operative orthopedic repairs
- cc. access to role of orthopedic surgery and management of mass casualty situations
- dd. describe a surgical technique utilizing a " clean air" environment covering these broad aspects of control:
 - i. needs assessment regarding procedure
 - ii. consideration of laminar systems
 - iii. use of ultraviolet light
 - iv. operating room traffic
 - v. soft tissue handling

- vi. use of prophylactic antibiotics

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

Resident will develop and refine skills needed to:

- a. perform any record he focused history and physical examination of orthopedic disorders, including:
 - i. trauma
 - ii. congenital malformations
 - iii. degenerative diseases
 - iv. inflammatory processes
 - v. neoplasia
- b. request and interpret appropriate diagnostic imaging and laboratory studies of orthopedic pathology:
 - i. preoperative laboratory evaluation has needed for safe surgical intervention
 - ii. plain films analysis (specifically cervical spine and major skeleton films)
 - iii. CT scans for spinal fracture, pelvis, and extremity injury
 - iv. MRI spine and knee
- c. perform immobilization of cervical spine
- d. triage patients with musculoskeletal injuries any mass casualty situations
- e. participate in the management of orthopedic trauma to extremities, including such procedures as:
 - i. splinting closed fractures
 - ii. closed reduction of fractures
 - iii. reducing dislocations
 - iv. applying traction
 - v. applying casts
 - vi. degrading and irrigating open extremity fractures
 - vii. open reduction and internal fixation of extremity fractures
- f. monitor compartment pressure in orthopedic trauma and began appropriate therapy, including the performance of fasciotomy, if indicated
- g. monitor trauma patient for indications of fat embolism syndrome and began appropriate therapy
- h. perform joint aspiration in appropriate situations
- i. participate in diagnostic and therapeutic arthroscopy procedures such as:
 - i. partial meniscectomy (knee)
 - ii. arthroscopy of shoulder (diagnostic)
- j. participate in the management of amputation:
 - i. determine amputation level
 - ii. perform lower extremity amputation in appropriate cases
 - iii. direct rehabilitation of an amputee in appropriate cases
- k. participate in a management of musculoskeletal tumors, including:
 - i. planning and performing an incisional biopsy of a soft tissue tumor
 - ii. performing preoperative evaluation and staging of soft tissue tumors
 - iii. assisting in the planning and resection of soft tissue tumors and considerations for limb salvage
- l. assist in prosthetic joint replacement
- m. participate in a management of congenital, developmental, and other musculoskeletal deficiencies in children such as:

- i. cerebral palsy
- ii. Myelomeningocele
- iii. muscular dystrophy
- iv. developmental hip/dislocation
- v. Talipes equinovarus
- n. Perform thorough orthopedic exam - especially ankle, knee, back and shoulder.
- o. Interpret x-rays.
- p. Cast and wrap extremities
- q. Feel comfortable working with bone intraoperatively.
- r. Become familiar with orthopedic instruments
- s. Insert K-wires.
- t. Use and apply various splints and traction modes (Balance Traction).
- u. Use bonding agents.
- v. Perform basic operative technique.
- w. Attend all general surgery conferences and Journal Club.
- x. Perform work-ups, pre and post-operative care, and assist in operative procedures.
- y. Maintain all in house general surgery call as required.

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. establish rapport with patients and their families, especially under stressful circumstances
- b. perform a patient-sided medical interview
- c. engage patients in shared decision-making, and participate in family discussions
- d. effectively and considerately communicate with team staff in a manner that promotes care coordination
- e. discuss patients fears regarding prognosis and outcome
- f. began the process of requesting organ donation as appropriate
- g. Discuss with empathy disease states with the elderly and their long term prognosis.

4. PROFESSIONALISM (ALL PGY levels)

- a. demonstrate respect and compassion for all patients
- b. exhibit competency in working with patients regarding advanced directives, DNR status, futility, and withholding/withdrawing therapy
- c. understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- d. Identify patients fear associated with the trauma diagnosis and provide compassion palliative care in the brain dead patients.
- e. Identify and assist with the psychological stress of patients with chronic disability from trauma as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. exhibit self-directed learning
- b. demonstrate improvement in clinical management of patients by continually improving trauma-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. work well with multidisciplinary teams, coordinating care and work with specialists in a team setting
- c. effectively plan care after discharge
- d. contact a appropriate organ procurement organization regarding potential organ donation

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
SURGICAL PATHOLOGY
EDUCATIONAL OBJECTIVES
PGY 1 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: Resident will gain knowledge of, and experience with:

- a. describe appropriate containers for storing blood and other body fluids during laboratory transport to sites where common serum chemistry studies are to be performed
- b. discuss the relative sensitivity, specificity, accuracy of common laboratory studies
- c. demonstrate competency in interpreting:
 - i. abnormal urinalysis
 - ii. abnormal thyroid function studies
 - iii. steroid suppression test
- d. outline the standard components of a coagulation profile, including the common clinical conditions associated with their abnormalities
- e. identify significant components for each of the following:
 - i. a complete blood count
 - ii. the meaning of a "left shift"
 - iii. common clinical conditions causing elevations in each component
- f. analyze causes of artificially abnormal laboratory values, including:
 - i. specimen hemolysis
 - ii. impact of hyperglycemia
 - iii. impact of hypoalbuminemia
- g. identify potential adverse effects of repeated phlebotomies, and discuss potential remedies for the following concerns:
 - i. patient pain
 - ii. anemia
 - iii. thrombophlebitis
 - iv. arterial thrombosis
 - v. patient and hospital cost
- h. discuss the typical presentation of microbiologic data, and the importance of the following:
 - i. specimen identification and timing of sample
 - ii. organism identification
 - iii. drug sensitivity profile
 - iv. minimum inhibitory concentration (MIC)
 - v. beta-lactam resistance
 - vi. resistance
 - vii. colonization
 - viii. contaminated specimen
- i. Explain the importance of laboratory quality control into the hospital and outpatient setting. Clarify the meaning of role reference laboratory.
- j. Participate in:
 - i. Autopsy and gross pathology findings.

- k. discuss indications, contraindications, and limitations of the following biopsy techniques
 - i. fine-needle aspiration (FNA)
 - ii. stereotactic biopsy
 - iii. core biopsy
 - iv. incisional biopsy
 - v. excisional biopsy
- l. explain the methods of handling and transporting tissue obtained by the methods listed above
- m. describe the role of needle aspiration in the diagnosis and management of:
 - i. breast pathology
 - ii. ovarian pathology
 - iii. thoracic and abdominal fluid collections
- n. discuss principles and indications for the following methods of tissue preparation:
 - i. hematoxylin and eosin stains
 - ii. immunohistocytology
 - iii. specific stains (enolase, argentaffin)
- o. discuss the use and interpretation of genetic analysis of neoplastic tissue, including:
 - i. ploidy status
 - ii. mitotic activity
 - iii. cell-cycle phase
 - iv.
 - v. Microscopic surgical pathology.
 - vi. Hematology
 - vii. Clinical chemistry
 - viii. Microbiology
 - ix. Serology
 - x. Blood bank
 - xi. Be familiar with special stains and markers used to identify certain tissue, etc.

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

- a. Identify indications for routine preoperative laboratory studies, recognize clinically significant abnormalities, and provide appropriate management.
- b. Manage a post operative course of patients using relevant laboratory studies, (including their indication, relevance to clinical condition, and continued need).
- c. Manage the anticoagulation status of patients using heparin and Coumadin, while considering the patients prothrombin time (PT) and partial thromboplastin time (PTT)
- d. With the assistance of medical consultation, investigate and diagnose a new coagulation defect in a surgical patient. (If a patient presents itself)
- e. Modify patients infectious disease treatment plan using data from a microbiology report
- f. Perform FNA, core, incisional, and excisional biopsies; and discuss the results and implications of each with the attending surgeon, and the pathologist, and then the patient

- g. Review and discuss the details of the surgical pathology report with the attending surgeon
- h. Discuss intraoperative gross findings, and guide differential diagnosis formulation with the surgical pathologists and surgical team if an appropriate occasion occurs
- i. Review intraoperative frozen section and postoperative permanent section histology with the pathologist and surgical team if the occasion arises.
- j. Participate in autopsies performed for deaths following acquired disease and trauma
- k. Participate in multidisciplinary conference including surgeon, pathologist, radiologist, and oncologist by discussing pertinent patient history, operative findings, pathophysiology and proposed treatment plans.
- l. Residents will also be expected to develop and refine skills needed to:
 - i. Prepare gross surgical specimens.
 - ii. Diagnose gross and microscopic surgical specimens.
 - iii. Develop library skills.
 - iv. Fine needle aspiration (FNA) technique
 - v. Be able to interact with faculty and staff in a laboratory setting.
 - vi. Daily prepare gross surgical specimens with staff supervision.
 - vii. Daily review microscopic surgical slides with staff supervision.
- m. Other duties include:
 - i. Attend the Department of Surgery weekly conferences and Journal Club.
 - ii. Discuss Case presentations in tumor conference.
 - iii. Maintain in house call for general surgery.
 - iv. Maintain assigned readings as pertains to pathology

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with staff pathologists and maintain confidentiality.
- b. Effectively and considerately communicate with team staff in a manner that promotes good coordination

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients.
- b. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- c. Identify patients fear associated with the disease states
- d. Identify and assist with the psychological stress of patients with chronic disability from diseases as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. Exhibit self-directed learning
- b. Demonstrate improvement in clinical management of patients by continually improving pertinent-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. Demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. Work well with multidisciplinary teams, coordinating care and work with specialists in a team setting

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
PEDIATRIC SURGERY
EDUCATIONAL OBJECTIVES
PGY 3 LEVEL
9/07**

**1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:
MEDICAL/SURGICAL KNOWLEDGE OBJECTIVES:**

- a. Describe the development of the newborn throughout childhood in terms of the following criteria:
 - i. Weight, length, and head size
 - ii. Nutritional requirements (e.g., oral, enteral, and parenteral)
 - iii. Hematologic indices
 - iv. Water balance
 - v. Hormonal influences on development

- b. Summarize the normal embryologic development, including anatomic and physiologic variation of the following organ systems:
 - i. Integument
 - ii. Central nervous system
 - iii. Respiratory
 - iv. Cardiovascular
 - v. Alimentary
 - vi. Genitourinary
 - vii. Gynecology
 - viii. Musculoskeletal

- c. Classify congenital malformations of the newborn by type, origin, and the need for surgical intervention
 - i. Gastrointestinal: esophageal atresia, pyloric stenosis, malrotation and duodenal intestinal atresia, necrotizing enterocolitis, meconium ileus, Hirschsprung's disease, imperforate anus
 - ii. Cardiovascular: obstructive lesions, patent ductus arteriosus (PDA), cyanotic and acyanotic defects
 - iii. Pulmonary: diaphragmatic hernia, sequestration, cystic defects, lobar emphysema
 - iv. Abdominal wall defects: umbilical and inguinal hernias, omphalocele, gastroschisis
 - v. Genitourinary: polycystic kidneys, exstrophy of the bladder, undescended testis, torsion of the testis, obstructive uropathy
 - vi. Inborn and genetic errors: Trisomy 18, Down's Syndrome
 - vii. Branchial cleft, thyroglossal duct cyst, thyroid disorders
 - viii. Cystic hygroma

- ix. Craniofacial deformities
- d. Summarize the basic approach to the diagnosis and management of more common surgical problems of infancy and childhood, such as:
- i. Pyloric stenosis
 - ii. Intestinal obstruction
 - iii. Perforated appendicitis
 - iv. Necrotizing enterocolitis
 - v. Inguinal hernia
 - vi. The battered child
 - vii. GERD
- e. Identify the technical aspects of the following procedures:
- i. Excision of skin and subcutaneous lesions
 - ii. Incision and drainage of abscesses
 - iii. Node biopsy
 - iv. Chest tube placement
 - v. Oral intubation
 - vi. Venous cutdown, arterial access
 - vii. Gastrostomy
 - viii. Herniorrhaphy
 - ix. Circumcision
- f. Describe the fundamental considerations in the pre- and post-operative care of infants and children in the cases listed above
- g. Explain the principles of diagnosis and treatment for common causes of gastrointestinal hemorrhage in the neonate, infant, child, and adolescent.
- h. Explain the approach to surgical management, (i.e., diagnosis, perioperative care, surgical therapy, and post-operative follow-up) of more complex surgical procedures for infants and children, such as:
- i. Large skin grafts and musculocutaneous flaps
 - ii. Thyroidectomy
 - iii. Thoracotomy for biopsy, for pulmonary resection, for vascular cardiac repair

- iv. Peripheral arterial repair
 - v. Creation of A-V shunt
 - vi. Flexible endoscopy
 - vii. Antireflux procedure
 - viii. Bowel resection
 - ix. Repair of hepatic, biliary, and pancreatic injury
 - x. Splenectomy
 - xi. Diaphragmatic hernia
- i. Analyze the pathophysiology, diagnosis, and management options in the treatment of short-gut syndrome.
 - j. Demonstrate an understanding of the special psychological, social, and educational issues confronting selected pediatric trauma/postoperative patients.

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

- a. Evaluate surgical conditions in the population through a comprehensive history, physical examination, and appropriate diagnostic studies. Perform a consultation in a thorough and timely manner.
- b. Participate in the management of simple surgical problems in the pediatric population, including:
 - i. Integument
 - 1. Excision of skin and subcutaneous lesions
 - 2. Skin grafts-minor
 - 3. Incision and drainage of abscessed
 - 4. Breast biopsy
- c. Head and Neck
 - 1. Excision of dermoid cysts and small skin lesions
 - 2. Node biopsy
- d. Thoracic
 - 1. Chest tube placement
 - 2. Subcutaneous mastectomy for gynecomastia
 - 3. Lung biopsy
- e. Cardiovascular

1. Central catheter placement
 2. Venous cutdown
 3. Arterial line placement
 4. Patent ductus arteriosus ligation
- f. Alimentary
1. Gastrostomy
 2. Pyloromyotomy
 3. Rectal biopsy
 4. Appendectomy
 5. Herniorrhaphy (umbilical and inguinal)
- g. Genitourinary
1. Circumcision
 2. Orchiopexy
 3. Torsion of testis or appendages
 4. Wilm's tumor
 5. Neuroblastoma
- h. Participate in pre-operative, operative, and post-operative care of more complex problems in pediatric surgery such as:
1. Integument
 2. Pedicle graft
 3. Large skin grafts for burns
- i. Develop a working relationship with members of the pediatric intensive care unit in managing postoperative pediatric patients.
- j. Evaluate pediatric patients for problems requiring more complex surgical intervention.
1. Subcutaneous mastectomy
 2. Abdominal wall defects
- k. Head and Neck
1. Branchial cleft and thyroglossal duct cysts
 2. Cystic hygroma

3. Thyroidectomy
4. Esophageal atresia and tracheoesophageal fistula

I. Thoracic

1. Laryngoscopy, bronchoscopy, esophagoscopy
2. Tracheostomy
3. Thoracotomy for biopsy, lung resection
4. Diaphragm repair

m. Cardiovascular

1. Peripheral arterial repair
2. Resection of small vascular cutaneous lesions such as (A-V malformation, hemangioma, or lymphangioma)
3. Creation of A-V shunt

n. Alimentary

1. Flexible endoscopy
2. Antireflux procedures
3. Ladd procedure for malrotation
4. Bowel resection for necrotizing enterocolitis, inflammatory bowel disease, intussusception, Intestinal atresia, intestinal duplications
5. Colostomy
6. Closure of enterostomy
7. Hodgkin's staging
8. Biopsy of tumor (open or endoscopic)
9. Laparotomy for trauma
10. Splenectomy, splenic repair
11. Laparotomy for abscess, adhesive obstruction
12. Repair of hepatic injury
13. Cholecystectomy (open or laparoscopic)
14. Meconium syndromes
15. Omphalomesenteric duct anomalies

16. Anorectal malformations

17. Hirschsprung's disease and reconstruction options

18. Liver tumors

o. Neurogenic

1. Neuroblastoma

2. Meningomyelocele

p. Genitourinary

1. Wilm' s tumor

2. Undescended testicle

3. Polycystic kidney

4. Ambiguous genitalia

q. Musculoskeletal

1. Rhabdomyosarcoma

2. Teratomas

r. Initial evaluation and follow-up of all patients admitted to the service

s. Pre and post-operative patient care.

t. Participation in the operating room.

u. Patient visits in pediatric surgery clinic, both pre and post-operatively, when possible.

v. Daily formalized rounds with the attending surgeon.

w. Maintain in house call assignments for general surgery on alternate basis alternating between pediatrics and general surgery at the discretion of pediatric preceptor.

x. All recommended/assigned readings, including literature searches.

y. Attend all general surgery conferences and Journal Club.

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS) Resident will gain knowledge and skill in psychosocial issues concerning:

a. establish rapport with patients and their families, especially under stressful circumstances

b. Perform a patient-sided medical interview

c. Engage patients in shared decision-making, and participate in family discussions

- d. Effectively and considerately communicate with team staff in a manner that promotes care coordination
- e. Discuss patients fears regarding prognosis and outcome
- f. Began the process of requesting organ donation as appropriate
- g. Demonstrate an understanding of parents and children's fears relative to surgery.
- h. Become competent to deal with disabled children and their parents.

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients
- b. Exhibit competency in working with patients regarding advanced directives, DNR status, futility, and withholding/withdrawing therapy
- c. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- d. Identify patients fear associated with the major disease diagnosis and provide compassion palliative care in the dying patient.
- e. Identify and assist with the psychological stress of patients with chronic disability from trauma or disease as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. Exhibit self-directed learning
- b. Demonstrate improvement in clinical management of patients by continually improving disease-related knowledge and skills during the rotation.

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. Demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources.
- b. Work well with multidisciplinary teams, coordinating care and work with specialists in a team setting.
- c. Effectively plan care after discharge.
- d. Contact a appropriate organ procurement organization regarding potential organ donation.

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
PLASTICS/BURN SURGERY
EDUCATIONAL OBJECTIVES
PGY 3 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: The resident will gain knowledge of diagnosis, management, treatment, treatment options (surgical/non-surgical), long-term prognosis, postoperative effects, complications, patient risk and cost consideration of various conditions. Knowledge expectations are on a continuum throughout the entire rotation. The resident will:

- a. Outline the components of a comprehensive focused history and physical examination pertinent to the evaluation and correction of congenital or acquired defects under the realm of plastic and reconstructive surgery.
- b. Discuss and compared scan and connective tissue according to:
 - i. Anatomy
 - ii. normal physiology and biochemistry
 - iii. pathophysiology of benign and malignant skin disorders
 - iv. unique pathophysiology of connective tissue disorders
- c. Explain the basic techniques for surgical repair of superficial incisions and lacerations of the hand, neck, trunk, and extremities to include the following considerations:
 - i. skin
 - ii. subcutaneous tissue
 - iii. superficial muscle and fascia
 - iv. splints
 - v. dressings
 - vi. suturing and knot tying
- d. Describe the physiology of various techniques of skin and composite tissue transplantation with particular regard to components tissue circulation:
 - i. skin grafts (split- versus full- thickness)
 - ii. bone (cartilage grafts)
 - iii. composite grafts
 - iv. skin flaps
 - v. muscle flaps
 - vi. myocutaneous flaps
 - vii. bone flaps
 - viii. osteocutaneous flaps
 - ix. myo-osseous flaps
 - x. vascularized versus nonvascularized flaps
- e. Categorize the pathophysiology of thermal, chemical, and electrical burns, including consideration of:
 - i. systemic pathophysiology
 - ii. local pathophysiology
 - iii. cardiac depression
 - iv. pulmonary compromise
- f. Outline the components of a comprehensive examination of the nasal-, oral-, and hyo-pharynx to include:

- i. normal anatomy
 - ii. common congenital anomalies
 - iii. evolution of neoplastic disease
- g. Explain the assessment of facial skeletal trauma according to the following systems:
 - i. Le Fort I, II and III classification and maxillary fractures
 - ii. nasoethmoidal disruption classification
 - iii. zygomatic, orbit, and mandibular fractures
 - iv. disruption classification
- h. Define the tumor, node and metastases (TNM) classification system as used for neoplasms of skin, soft tissue and head and neck.
- i. Discuss epidemiology, risk factors, treatment, and prevention of cutaneous malignancies in geriatric patient, including:
 - i. skin cancer rates (basal cell carcinoma (BCC), squamous cell carcinoma (SCC))
 - ii. average age at onset for BCC/SCC
 - iii. etiology of BCC/SCC
 - iv. usual mode of treatment for BCC/SCC (Mohs technique, radiation, chemotherapy)
 - v. prevention using chemopreventive medications (isoretinoin, beta-carotene)
- j. Explain the methods for performing incisional and excisional biopsy of skin and oral cavity
- k. Demonstrate a systematic examination of the hand to assess motor and sensory function, including:
 - i. intrinsic tendon and muscle function
 - ii. extrinsic tendon and muscle function
 - iii. median nerve
 - iv. ulnar nerve
 - v. radial nerve
 - vi. circulation
- l. Describe the physiology of local and general anesthetics in these categories:
 - i. narcotics
 - ii. sedatives
 - iii. analgesics
 - 1. local anesthesia
 - 2. general anesthetics
- m. Outline appropriate diagnostic studies needed to supplement the physical examination of developing a treatment plan for:
 - i. surgery of the hand
 - ii. facial fractures
 - iii. congenital structural anomalies of the head/neck and hand/trunk
- n. Summarize the evaluation of patients with head and neck cancer, and develop a treatment plan according to the following criteria:
 - i. location of lesion
 - ii. size of primary lesion
 - iii. presence of metastatic disease
- o. Discuss the use of the reconstructive ladder (including skin grafts, local flaps, and regional and free microvascular flaps) in the definitive management of traumatic or excised wounds

- p. Explain considerations in geriatric patient undergoing major reconstructive operation, to include the implications of:
 - i. decreased functional physiologic reserve
 - ii. multiple medical problems
 - iii. slower wound healing (consider significance of: age, and concomitant illnesses, medications)
 - iv. preoperative evaluation procedures
 - v. invasive operative monitoring
 - vi. intensive postoperative monitoring
- q. Discuss the surgical treatment of:
 - i. common hand injuries and tumors
 - ii. surgical repair of facial trauma, soft tissue, and bony defects
 - iii. resection and reconstruction of the simple, soft tissue defects following resection of neoplasms of the head and neck
 - iv. resection of skin and soft tissue neoplasms requiring complex reconstruction
 - v. reconstruction of the breast of congenital and acquired defects
 - vi. management of the burned hand and face
- r. Analyze treatment options for the competency care of the burn patient, including:
 - i. excision of burn
 - ii. homografting
 - iii. Xenografting
 - iv. Autografting
 - v. tissue engineering and prefabrication
- s. Assess basic kinds of research and plastic and reconstructive surgery to include:
 - i. current hypothesis dealing with:
 - 1. craniofacial growth and development
 - 2. perfusion of skin and muscle
 - 3. skin, bone, and cartilage grafts
 - 4. tumor biology
 - 5. reconstructive hand surgery
 - 6. bone reconstruction
 - 7. tissue transplantation
 - ii. avenues for new investigation
- t. Summarize currently accepted surgical techniques for treating the following:
 - i. correction of congenital lesions of the hand/neck and hand/trunk
 - ii. craniofacial anomalies, including cleft lip and palate
 - iii. breast reconstruction after mastectomy
 - iv. reconstruction and ablative head and neck surgery
 - v. aesthetic rejuvenation of the face and body

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

- a. Complete a comprehensive physical examination and clinical data history, including pertinent diagnostic laboratory and radiographic findings
- b. Evaluate entry simple and intermediate abrasions and burns of the face, trunk and extremities
- c. Perform simple incisional biopsy and excise small lesions on the skin and subcutaneous tissue of the trunk or extremities

- d. Participate in the perioperative evaluation and management of congenital or acquired defects (traumatic and surgical)
- e. Apply any remove dressings of the head, neck, and, trunk, and extremities, including:
 - i. occlusive
 - ii. non-occlusive
 - iii. wet to dry
 - iv. casts
 - v. alginate
 - vi. colloidal
- f. Debride and suture major non-facial wounds and burns
- g. Participate in the acute resuscitation, evaluation, initial treatment of a burned patient
- h. Harvest and apply split-thickness skin grafts
- i. Perform simple, localized skin flaps for wound average
- j. Participate in the evaluation and formulation of treatment plans for:
 - i. hand injuries
 - ii. facial fractures
 - iii. head and neck cancer
 - iv. congenital anomalies
 - v. breast deformities
 - vi. burn patients
- k. Under the direction, plastic surgeon, assist in planning and performance of complex reconstruction operations
- l. Harvest and apply full-thickness skin grafts and local flaps
- m. Reconstructive defects with random flaps, composite flaps and grafts
- n. Act as first assistant and attending-supervised surgeon for major resectional and reconstructive surgery of the hand, neck, breast, trunk and extremities
- o. Raise muscle and skin-muscle flaps under direct supervision
- p. Perform major excision and burns, a sternotomy, and skin grafting if available patient presents itself
- q. Assess and act as first assistant and attending-supervised surgeon for the following:
 - i. complex soft tissue injury
 - ii. fractures regarding operative and non-operative reduction
 - iii. nerve and tendon surgery
 - iv. vascular injuries
- r. Act as first assistant or attending supervised surgeon for:
 - i. reconstruction and reparative surgery of the hand
 - ii. surgical repair of facial trauma
 - iii. resection of neoplasms of the head and neck
 - iv. resection of major skin and soft tissue neoplasms requiring complex reconstruction
 - v. surgical repair of cranial maxillofacial congenital defects
 - vi. reconstruction of the breast
 - vii. complex wound reconstruction using both local, regional and free microvascular flaps
- s. Develop skills in the management of disease modalities detailed above. This includes advancing responsibility for the care of patients, advancing technical skill in the management of plastic surgical

and reconstructive operative procedures, and major involvement in the preoperative and postoperative management of plastic surgical cases.

- t. Harvest and apply skin graft.
- u. Manage wound debridement (burn and non-burn).
- v. Excise skin lesions and perform primary closure.
- w. Close simple lacerations.
- x. Participate in inpatient and outpatient plastic surgery cases
- y. Participate in Outpatient plastic and hand surgery office experience.
- z. Attend all surgical education conferences and Journal Club.
- aa. Use appropriate general surgery textbooks and utilize other preceptors experiences which are useful for instruction.
- bb. Resident will gain knowledge and skill in psychosocial issues including:
 - i. Physician/patient interaction - including patient's cosmetic and functional concerns in relation to realistic surgical outcomes
 - ii. Appropriate documentation - including pre-operative discussion of surgical risks and unfavorable results and post-operative care and rehabilitation and therapy.
 - iii. Occupational and economic concerns - including exposure to Workmen's Compensation cases.
 - iv. Rehabilitation - including therapy and work restrictions
 - v. Medical-legal considerations - including second opinions, independent medical examinations and depositions.
- cc. Resident will be responsible for and maintain general surgery in house call assignments.

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with patients and their families, especially under stressful circumstances
- b. Perform a patient-sided medical interview
- c. Engage patients in shared decision-making, and participate in family discussions
- d. Effectively and considerately communicate with team staff in a manner that promotes care coordination
- e. Discuss patients fears regarding prognosis and outcome
- f. Began the process of requesting organ donation as appropriate
- g. Discuss with empathy disease states with the elderly and their long term prognosis.

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients
- b. Exhibit competency in working with patients regarding advanced directives, DNR status, futility, and withholding/withdrawing therapy
- c. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- d. Identify patients fear associated with the trauma diagnosis and provide compassion palliative care in the brain dead patients.
- e. Identify and assist with the psychological stress of patients with chronic disability from trauma as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. Exhibit self-directed learning
- b. Demonstrate improvement in clinical management of patients by continually improving trauma-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. Demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. Work well with multidisciplinary teams, coordinating care and work with specialists in a team setting
- c. Effectively plan care after discharge
- d. Contact a appropriate organ procurement organization regarding potential organ donation

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
RADIOLOGY
EDUCATIONAL OBJECTIVES
PGY 1 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: Resident will demonstrate the appropriate, efficient, and economic use of radiologic resources for clinical management of surgical procedures.

- a. Demonstrate basic knowledge regarding the indications, contraindications, and possible adverse effects of diagnostic radiologic techniques.
- b. Demonstrate knowledge and application of the use of radioisotopes and ionizing radiation in the surgical management of disease.
- c. Demonstrate a working understanding of the potential role of interventional radiology in the management of vascular and non-vascular disease.
- d. Utilize radiologic consultation to enhance the diagnostic evaluation of complex surgical patients.

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

- a. Review basic radiology texts, and demonstrate a working knowledge of radiographic interpretation.
- b. Select the radiographic studies necessary to confirm diagnosis of surgical emergencies.
- c. Formulate a therapeutic plan based on variable imaging outcomes, paying particular attention to:
 - i. Atypical manifestation of common disease versus recognition of a truly rare entity
 - ii. Realistic limitations of the radiologic study
 - iii. Discrepancies in clinical and radiographic findings
- d. Identify the potential applications and limitations of the following tools utilized to diagnose surgical lesions
 - i. CAT scan
 - ii. Ultrasound
 - iii. X-rays
- e. Given a specific clinical condition, analyze the most efficacious imaging modality.
- f. Define a diagnostic plan for the abnormal breast mass:
 - i. Visualized or occult on mammography
 - ii. Palpable versus non-palpable
 - iii. Cystic or solid
 - iv. Summarize the component of an acute abdominal series in the evaluation of a potentially acute surgical abdomen. Be prepared to interpret common intra-abdominal pathology as manifested on plain radiographs.
- g. Maintain in house general surgery call.
- h. Attend all general surgery conferences
- i. Attend all radiology lectures and selected readings as per attending.

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS) Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with staff radiologists and maintain confidentiality.

- b. Effectively and considerately communicate with radiology staff in a manner that promotes good coordination
- c. Maintain timeliness since a schedule has been provided you by the radiological staff
- d. It would be helpful for communication purposes if everyone could review the basic cross-sectional anatomy before rotation in the department of radiology.

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients.
- b. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- c. Identify patients fear associated with the disease states
- d. Identify and assist with the psychological stress of patients with chronic disability from diseases as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. Exhibit self-directed learning
- b. Demonstrate improvement in clinical management of patients by continually improving pertinent-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. Demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. Work well with multidisciplinary teams, coordinating care and work with specialists in a team setting.

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
S. S. S. CLINIC AND AMBULATORY SURGERY
EDUCATIONAL OBJECTIVES
PGY 1-5 LEVEL
9/2007**

PGY 1-5 LEVEL

1. Body as a whole (core of basic surgical knowledge) (see General Surgery Goals)
2. Diseases of the alimentary tract/abdomen (SEE GENERAL SURGERY)
3. Diseases of the head and neck (SEE ENT)
4. Diseases of the vascular system-(SEE VASCULAR G&O)
5. Diseases of the breast (SEE GENERAL SURGERY)
6. Diseases of the endocrine system (SEE GENERAL SURGERY)

PGY 1-5 LEVEL

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: (ALL PGY LEVELS): Resident will gain knowledge of diagnosis, management, treatment, treatment options (surgical/non-surgical), long term prognosis, post-operative effects, complications, patient risk and cost considerations of various conditions.

Knowledge expectations are on a continuum from the first through the fifth year.

- a. Body as a whole (core of basic surgical knowledge)
- b. Wound healing
- c. Hemostasis and bleeding diathesis
- d. Tumor kinetics (biology of tumor growth, therapeutic regimens to include chemotherapy, radiotherapy, immunotherapy, surgery).
- e. Shock and hemodynamic alterations - CRITICAL CARE
- f. Surgical infections and their management with use of antibiotics, ancillary modes and surgical intervention.
- g. Respiratory physiology - management and use of ventilators, working knowledge of pulmonary function testing, respiratory function, surgical approach to respiratory problems (tracheostomy, cricothyrotomy, nasotracheal and endotracheal intubation, bronchoscopy).
- h. Anesthesiology
- i. GI physiology - as it relates to surgical diseases.
- j. GU physiology - assessment of renal function and renal physiology.
- k. Surgical endocrinology - as it applies to the response to stress and injury, and the management of endocrinopathy as it involves surgical patients.
- l. Surgical nutrition
- m. Metabolic response to injury
- n. Burns - familiarity with the principles of, pathophysiology and management.
- o. Applied surgical anatomy - familiarity with regional anatomy including thoraco-abdominal, head and neck, pelvis and extremities.
- p. Applied surgical pathology - gross and microscopic pathology and autopsy techniques.

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

PATIENT CARE AND TECHNICAL SKILLS: SSS AMBULATORY CLINIC

- a. **PGY 1:** One can expect to learn the listed skills and assume responsibility for managing patients with these problems under close supervision of chief resident and attending staff.
 1. Refinements of history physical skills
 2. Pre- and post-operative care
 3. Basic use surgical instruments
 4. The following operative procedures:
 - a. minor outpatient surgical procedures
 - b. inguinal/femoral herniorrhaphy
 - c. breast biopsy
 - d. appendectomy laparoscopic and open
 - e. other
- b. **PGY 2:** Will assume greater responsibility and technical skills involved in:
 - i. directing resuscitative efforts in the management, and critical ill patients
 - ii. initial evaluation of surgical problems
 - iii. consultation on emergency and in-hospital patients
 - iv. teaching students and interns
 - v. management decisions
 - vi. the following procedures:
 1. cholecystectomy
 2. exploratory laparotomies
 3. small bowel anastomosis/hand sewed and mechanical
 - a. colonoscopy
 - b. sentinel node biopsy, mastectomies
 - c. other procedures depending upon the acquisition of appropriate skills and close supervision of preceptor.
- c. **PGY 3 and PGY 4:** will assume greater responsibility and advanced technical skills with regard to:
 - i. teaching of medical students and junior residents
 - ii. organization of conferences
 - iii. supervising junior residents and off service residents
 - iv. assist the chief residents in managing more acutely ill patients and being more readily available to manage the service during their absences or while they are at conferences.
 - v. Direct resuscitative efforts in trauma in critically ill surgical patients
 - vi. the following procedures:
 1. common duct exploration
 2. trauma (splenectomy, splenorrhaphy, management of more complex intra-abdominal organ injury)
 3. thyroid surgery, parathyroid surgery and adrenal surgery (endocrine)
 4. mastectomies
 5. colon surgery
 6. flexible endoscopy (EGD, colonoscopy, bronchoscopy, choledochoscopy)
 7. other

- d. **PGY 5:** will assume primary responsibility for complex technical skills required for the management of:
 - i. complex surgical problems involving all areas of the body
 - ii. daily patient care
 - iii. Manage S. S. S. clinic alternating every six months with different primary Synergy Attendings and supervising the Chief Run Clinic and supervising junior residents.
 - iv. Alternate administrative responsibilities Q. six months-assigning resident call schedules, off service call schedules, approving resident vacation requests, attend board review conference and report weekly/monthly to Synergy Staff any clinic problems, arrange for guest basic science lectures and choose appropriate topics.
 - v. Attend Steering Committee Meeting Q. Month to discuss issues involving the business of training residents and other issues.
 - vi. Organize teaching conferences and rounds
 - vii. the following procedures should include:
 - 1. esophageal and gastric procedure
 - 2. pancreatic resection and other operations
 - 3. peripheral-vascular operations including endovascular procedures
 - 4. radical head and neck operations as they may occur at the discretion and notice from our ENT colleagues
 - 5. unusual pediatric operations or at the request of our pediatric/s surgeon
 - 6. pulmonary and mediastinal procedures as well as thoracic procedures
 - 7. major trauma procedures
 - 8. Major cancer procedures.
 - 9. Major other procedures at the request of community and staff surgeons.
- e. **All Residents:** will attend outpatient clinics each week according to S. S. S. assignments. One of the “**objectives**” of these clinics is to have resident’s to learn how to do a pre-operative workup of common surgical problems, how to perform minor office procedures and learn the business/management of office practice including proper billing procedures as noted during yearly resident orientation beginning as PGY 1 and yearly lectures from our billing department and other guest speakers as are available. The proper billing/coding mechanics will be taught and exemplified by Synergy staff during outpatient clinics on a perpetual basis and upon more detailed request by residents. Expectations are on a continuum from the PGY 1 through PGY 5 years.

3. INTERPERSONAL AND COMMUNICATION SKILLS

- a. **PGY 1** residents will attend all orientation activities during their initial introduction to Synergy Medical Education Alliance program. In addition, they will attend and become certified in the ATLS and ACLS training sessions.
- b. **PGY 1-2-3:** residents will develop and refine individual style when communicating with patients. They will strive to create ethically sound relationships with patients, the physician team and supporting hospital

personnel. They will create effective written communications through accurate, complete, legible notes. Residents are encouraged to print their names and pager numbers and state the time when making these progress notes/consults/ and operative procedures on every patient.

Residents will exhibit listening skills appropriate to patient-centered interviewing and communication. Residents will recognize verbal and nonverbal cues from patients. Residents will be able to communicate with patients concerning end-of-life decisions. Residents will participate in Synergies “**satisfaction questionnaires**” and will receive feedback during their years of rotating through our ambulatory clinic.

- c. **PGY 4-5:** residents will also exhibit team leadership skills and effective communication skills in the management of junior residents and off service residents. They are expected to assist junior peers, medical students, and other hospital personnel to form professional relationships with support staff. Residents will respond to feedback in an appropriate manner and make necessary behavioral changes as needed. Residents should additionally be able to successively negotiate nearly all "difficult" patient encounters with minimal direction. PGY 4-5 residents will function as team leaders with decreasing reliance upon attending physicians but maintain close communication with Community and Synergy staff surgeons as team members.
- d. **All residents:** will attend Grand Rounds, M&M's and staff-guest lectures and Tue. A.M. Schwartz club conferences as well as journal club presentations.
- e. **All residents:** will conduct a yearly research presentation at J.E. Manning paper Day and a select few will be asked to prepare their papers for submission and possible eventual publication in a peer- review journal when feasible.

4. PROFESSIONALISM (ALL PG LEVELS)

- a. **All residents:** will demonstrate integrity, accountability, respect, compassion, patient advocacy, and dedication to patient care that supersedes self-interest. Residents will demonstrate a commitment to excellence and continuous professional development. They will be punctual and prepared for teaching sessions including Schwartz Club. Residents will demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information and informed consent. Residents are expected to show sensitivity and responsiveness to patient's culture, age, gender, and disabilities.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT

- a. **All residents:** will use Synergy library resources to critically appraise medical literature and apply this evidence to patient care. They should be able to use computers, desk-top and lap-top computers and Internet electronic references to support patient care and self- education. They will model these behaviors to assist medical students in their own acquisition of knowledge through technology.
- b. **PGY 1-2:** residents will consistently seek out and analyze data on practice experience, identify areas for improvement in knowledge of patient care performance and mean appropriate adjustments. This is a

quality improvement (QI) issue and is reflected by reviewing patient's charts and analyzing for data requested by program director.

- c. **PGY 3-5:** residents will additionally model independent learning and development of the junior residents.

6. SYSTEMS BASED PRACTISE

- a. **PGY 1:** residents will be sensitive to health care costs while striving to provide quality care. They will begin to effectively coordinated care with other healthcare professionals as required for patient needs.
- b. **PGY 2-3:** residents, in addition to the above, will consistently understand and adopt available clinical practice guidelines and recognize the limitations of the guidelines. They will work with patient care providers, discharge coordinator and social workers to coordinate and improve patient care and outcomes.
- c. **PGY 4-5:** residents, in addition will enlist social and other out- of- hospital resources to assist patients with therapeutic plans for early and long-lasting health issues. PGY 4-5 residents are expected to model cost-effective therapy.

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
THORACIC-CARDIOVASCULAR SURGERY
EDUCATIONAL OBJECTIVES
PGY 4 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: The resident will gain knowledge of diagnosis, management, treatment options (surgical/non surgical), long term prognosis, post-operative course and complications, patient risk and cost considerations associated with:

- a. Lungs - CA of the lung, congenital blebs, chronic infections, benign lung lesions, fungal diseases, granulomas, hamartomas, pulmonary sequestration
- b. Chest wall and pleural diseases
- c. Interpretation of Chest x-rays and Chest CT
- d. Cardiac
- e. coronary artery disease
- f. valvular problems - familiarity with normal pressures and different prostheses
- g. congenital heart disease - common abnormalities
- h. pericardium – trauma, cyst, effusion
- i. common tumors
- j. trauma to the heart and
- k. Mediastinal – masses
- l. Esophagus - perforation, tumors, benign stricture, trauma, foreign bodies, diverticulum
- m. Thoracic aneurysms
resident will also be responsible for the following:
- n. describe thoracic anatomy and physiology, including anatomic and functional relationships:
 - i. chest wall (including spine)
 - ii. accessory muscles of respiration
 - iii. diaphragm (including subjacent abdominal organs)
 - iv. mediastinum
 - v. trachea, segmental and subsegmental bronchi
 - vi. esophagus
 - vii. heart and pericardium
 - viii. great vessels and their immediate branches
 - ix. peripheral nerves (vagus, sympathetic, intercostals, phrenic, recurrent laryngeal)
 - x. thoracic duct
- o. summarize and discuss the immunological development of:
 - i. upper airway
 - ii. lower airway
 - iii. lungs
 - iv. esophagus
 - v. heart and great vessels

- vi. mediastinal contents
- vii. mediastinal drainage of esophagus and lungs
- p. review and analyze the basic principles and critical factors involved in:
 - i. ventilation
 - ii. perfusion
 - iii. control of respiration
 - iv. lung function test
 - v. respiratory failure
 - vi. oxygen therapy
 - vii. function of the disease long (obstructive, restrictive, and vascular)
- q. summarize the modalities listed below, stating their indications and limitations in thoracic surgical procedures:
 - i. endoscopy/thoracoscopy
 - ii. standard and positional x-rays
 - iii. arteriography
 - iv. ultrasonography
 - v. computed axial tomography (CAT), magnetic resonance imaging (MRI), and positron emission tomographic (PET)
 - vi. nuclear medicine
 - vii. ventilatory methods
 - viii. tracheostomy
 - ix. intubation and ventilatory support
 - x. central lines
 - xi. pacemaker/defibrillators
 - xii. chest tubes
 - xiii. stents
- r. discuss the following conditions, then choose and justify the appropriate diagnostic and therapeutic modalities:
 - i. pneumothorax
 - ii. hydrothorax and hemothorax
 - iii. combinations of I and ii
 - iv. pulmonary infiltrates or masses
 - v. abnormal cardiac silhouettes
 - vi. congenital anomalies
 - vii. pleural effusions
 - viii. fractures (clavicles, sternum, ribs, scapula, and spine)
 - ix. mediastinal masses
 - x. infectious processes
 - xi. neoplastic processes (esophageal, pulmonary, extrapulmonary)
 - xii. reaction processes (esophageal)
- s. explain the various types of anesthetic agents and equipment used in thoracic surgery
- t. discuss and justify the indication for the following procedures:
 - i. needle aspiration
 - ii. chest tube placement
 - iii. mediastinoscopy
 - iv. thoracoscopy
 - v. median sternotomy
 - vi. thoracotomy
 - vii. bilateral thoracotomy
 - viii. Heller myotomy

- ix. Thal patch
- x. Stent use
- u. evaluate the patient as a candidate for thoracic surgery and discuss:
 - i. operative risk
 - ii. diagnostic test important in accessing probable outcome
 - iii. potential complications
 - iv. operation choices
 - v. informed consent
 - vi. advanced directives
 - vii. living wills
 - viii. power of attorney
- v. review the basic physiology of the thorax and its variances, and explain methods of assessing the following:
 - i. pulmonary physiology
 - ii. esophageal physiology
 - iii. cardiovascular hemodynamics
 - iv. effect of metabolism and nutritional changes on thoracic physiology
 - v. potential effects of a compromised immune system
- w. explain the mechanics and applications of pulmonary function studies in evaluating patients for thoracic surgery
- x. recommend when to use such diagnostic and therapeutic procedures as:
 - i. bronchoscopy and esophagoscopy (flexible and rigid)
 - ii. thoracoscopy/VATS
 - iii. emergency room thoracotomy
 - iv. aortic cross clamping
 - v. standard thoracotomy and median sternotomy (Chamberlain and book procedures)
 - vi. pericardial window/pericardiocentesis
 - vii. lung biopsy/fine-needle aspiration (FNA)
 - viii. pulmonary resection
 - ix. lung volume reduction operations
 - x. mediastinoscopy
 - xi. dilatation
 - xii. manometry
 - xiii. pH monitoring
 - xiv. wave form analysis
- y. demonstrate an understanding of the mechanics of ventilatory support and the clinical application of mechanical ventilation by completing the following activities:
 - i. contrast types of ventilators
 - ii. specified indications for ventilators
 - iii. demonstrate management of ventilators
 - iv. explain weaning
 - v. evaluate weaning parameters
 - vi. analyze complex ventilation problems
- z. identify indications for the following therapeutic modalities; and then justify/critique their use:
 - i. extracorporeal membrane oxygenation
 - ii. high frequency jet ventilation
 - iii. laser (used endoscopically)
 - iv. endoscopic thoracic procedures

- v. alveolar (pulmonary) lavage
- vi. autotransfusion
- vii. cell savor
- viii. aortic balloon assist
- aa. analyze changes in thoracic anatomy and physiology resulting from the following:
 - i. abdominal operations
 - ii. mediastinoscopy
 - iii. thoracotomies
 - iv. sternotomies
 - v. thoracoscopy
 - vi. thoracoplasties
 - vii. spine operations
 - viii. neck operations
 - ix. general anesthesia
 - x. epidural anesthesia
- bb. illustrate the various types of incisions used in thoracic surgery for:
 - i. apical resections
 - ii. pneumonectomy
 - iii. esophagectomy
 - iv. mediastinal procedures
 - v. tracheal/bronchial procedures
 - vi. esophageal stenosis and diverticula
 - vii. thoracoplasty
 - viii. diaphragmatic operations
- cc. discuss the general diagnostic and operative approaches to treating lung and penetrating trauma to the thorax and its contents:
 - i. neck
 - ii. esophagus
 - iii. nerves
 - iv. mediastinum
 - v. bony thorax
 - vi. diaphragm
 - vii. vessels
 - viii. trachea/lungs
 - ix. heart
- dd. integrate the pathophysiology and surgical management of the following:
 - i. aortic aneurysms
 - ii. aortic dissections
 - iii. trauma to heart and great vessels
 - iv. occlusive disease
- ee. evaluate infiltrates, infectious processes neoplastic processes in the thorax, and recommend appropriate management
- ff. discuss analysts thoracic tumor types, staging for each, including descriptions of nodal draining sites and levels
- gg. summarize the cause and appropriate management of cardiac arrhythmias, including:
 - i. pharmacotherapeutics
 - ii. cardioversion
 - iii. pacemakers
 - iv. defibrillators

- hh. describe the diagnosis and discuss therapy processed surgical complications as :
 - i. fistulas: bronchopleural, pleurocutaneous, tracheoesophageal (TE), arteriovenous (AV) and thoracic duct
 - ii. esophageal leak/stenosis/obstruction
 - iii. loculated pneumothorax
 - iv. postoperative bleeding
 - v. empyema
 - vi. air leaks
 - vii. bronchial obstructions
 - viii. end-stage COPD/pulmonary fibrosis
- ii. identify indications for and be prepared to interpret results of the following diagnostic modalities:
 - i. plain and positional chest x-rays
 - ii. gastrointestinal contrast studies
 - iii. CAT, MRI, and PET scans
 - iv. Bronchograms
 - v. pulmonary function studies
 - vi. ventilator-perfusion studies
 - vii. nuclear medicine studies
 - viii. ultrasound
 - ix. split pulmonary functions
- jj. specify and justify the diagnostic or therapeutic indications for the use of the following modalities:
 - i. rigid and flexible bronchoscopy
 - ii. esophagoscopy
 - iii. mediastinoscopy (cervical and parasternal)
 - iv. thoracoscopy/VATS
 - v. laser
 - vi. stents
 - vii. lung transplant
- kk. access and recommend surgical procedures involved in:
 - i. tracheal, bronchial, and esophageal obstructing lesions
 - ii. thoracoplasty
 - iii. esophageal resection/reconstruction
 - iv. anti-reflux procedures
 - v. sleeve resection of the trachea/bronchus for tumor
 - vi. chest wall reconstruction using myocutaneous flaps and/or synthetic materials
- ll. select and specify diagnostic and therapeutic maneuvers to manage problem areas following thoracic surgery:
 - i. cardiovascular and pulmonary medical complications
 - ii. renal failure
 - iii. liver failure
 - iv. diabetes mellitus
 - v. malnutrition
 - vi. metabolic dysfunction
 - vii. immune system suppression
- mm. discuss quality assurance, cost-cutting mages, and patient-care pathways as they relate to thoracic surgery

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

Resident will develop and refine skills needed to:

- a. Perform thoracotomies, lung resections and biopsies
- b. Perform VATS for various problems
- c. Perform chest wall excision for appropriate indications
- d. Perform decortication
- e. Perform operations on the esophagus through the chest
- f. Perform excision of mediastinal tumors
- g. Assist on cardiac procedures
- h. Resident will be responsible for:
 - i. Pre-operative evaluation, assist in the operation and assist in the post-operative care for all patients he/she operates on.
 - ii. Prepare and present interesting thoracic and cardiovascular cases.
 - iii. Attend outpatient clinic
 - iv. Attend all general surgery conferences and Journal Club.
 - v. Maintain in house call for general surgery
- i. resident will evaluate thoracic pathophysiology; order and interpret appropriate tests
- j. diagnose and provide initial management of fracture of ribs, clavicle, sternum, scapula, and spine
- k. evaluate patients for thoracic surgery with regard to risk factors, candidacy for surgical resection, pulmonary function studies, and possible postoperative disability
- l. manage general thoracic perioperative procedures
- m. use, set, and regulate mechanical ventilators
- n. observe and then:
 - i. insert chest tubes
 - ii. perform thoracentesis
 - iii. insert central venous access lines
 - iv. execute simple endoscopic procedures
 - v. perform tracheostomies
 - vi. in situ nasal-oro-pharyngeal/tracheal anesthesia for endoscopic procedures
- o. use data obtained from diagnostic and therapeutic procedures to access and plan treatment for thoracic pathology
- p. perform bronchoscopy, esophagoscopy, nasotracheal, an orotracheal intubation, including double lumen tubes
- q. manage empyemas surgically
- r. insert Swan-Ganz catheter and perform cardiovascular monitoring calculations for:
 - i. pressures
 - ii. cardiac output
 - iii. systemic vascular resistance
- s. perform and/or supervise all thoracic diagnostic and therapeutic endoscopic procedures
- t. resected ribs, treat empyema cavities, perform pleural and lung biopsies
- u. manage thoracic trauma
- v. many thoracic aortic aneurysms and dissections
- w. direct complex ventilator-dependent patient management

- x. perform lung resections, rib resection, mediastinoscopy, and mediastinotomies
- y. provide surgical management of neoplasms of the thorax and its contents
- z. provide medical and surgical management of infectious processes in the thorax
- aa. manage cardiac arrhythmias
- bb. perform and/or supervise pacemakers/defibrillator selection and placement
- cc. manage all pharmacotherapeutic associated with thoracic surgery
- dd. treat medical conditions associated with thoracic surgical procedures
- ee. perform mediastinoscopy
- ff. place esophageal and bronchial stents

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with cardiac/thoracic staff and maintain confidentiality.
- b. Effectively and considerately communicate with team staff in a manner that promotes good coordination of activities.

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients.
- b. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- c. Identify patients fear associated with the disease states
- d. Identify and assist with the psychological stress of patients with chronic disability from diseases as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. exhibit self-directed learning
- b. demonstrate improvement in clinical management of patients by continually improving pertinent-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. work well with multidisciplinary teams, coordinating care and work with specialists in a team setting

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
TRANSPLANTATION
EDUCATIONAL OBJECTIVES
PGY 2 LEVEL
9/07**

The following educational objectives were obtained from the University of Michigan Transplantation Department.

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: At the completion of the Transplantation rotation the resident should be able to answer the following questions:

- a. Liver Failure/Portal Hypertension
- b. When is liver transplantation indicated?
- c. When is it contraindicated?
- d. How do you evaluate someone with known portal hypertension that has massive upper gastrointestinal bleeding?
- e. What are the medical options?
- f. Is angiography an option?
- g. What are the surgical options?
- h. What is the difference between the surgical options?
- i. What are the complications of surgical treatment of portal hypertension?
- j. Coagulopathy
 - i. What are the indications for transfusion of packed red blood cells?
 - ii. Fresh frozen plasma?
 - iii. Platelets?
 - iv. Cryoprecipitate?
- k. Which factors are sensitive to Coumadin?
- l. How do you correct the coagulopathy associated with Coumadin therapy prior to an elective surgical procedure?
- m. How does heparin work?
- n. How do you reverse the heparin effect?
- o. Renal Failure
 - i. What are the complications of chronic renal failure?
 - ii. How do you prevent renal osteodystrophy?
 - iii. How do you treat it surgically?
 - iv.
- p. What are the additional problems associated with renal failure in children?
- q. Organ Donation
 - i. What are the contraindications to organ donation?
 - ii. Why are organ donors unstable?
 - iii. Why do they have very high urine output?
 - iv. Why might they have a coagulopathy?
 - v. How is organ procurement performed?
 - vi. What is the "shelf life" of solid organs?
 - vii. What are the principles of organ preservation?
- r. Transplant Immunology
 - i. What cytokines are involved in rejection?
 - ii. What is a crossmatch?
 - iii. What is a mixed lymphocyte culture?

- s. Immunosuppression
 - i. What is meant by double, triple and quadruple immunosuppression?
 - ii. What is the goal behind induction immunosuppression?
- t. Transplant Infectious Disease
 - i. What is cytomegalovirus infection?
 - ii. Who is at risk of developing it?
 - iii. What are the symptoms?
 - iv. How is it diagnosed?
 - v. How is it treated?
 - vi. Can it be prevented?
 - vii. What are the specialized infections in transplant patients:
 - 1. Yeast, aspergillosis, Pneumocystis carinii, Epstein Barr associated lymphoproliferation?
 - 2. How are they diagnosed and treated?
- u. Kidney Transplantation
 - i. How is a kidney transplant performed?
 - ii. Where are the vascular anastomoses performed?
 - iii. What are the options if the kidney has multiple vessels?
 - iv. Where is the ureter connected?
 - v. When should the native kidneys be removed?
- v. Liver Transplantation
 - i. How is a liver transplant performed?
 - ii. What is veno-venous bypass?

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES:

(See general surgery)

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with staff surgeons/fellows and other residents and maintain confidentiality.
- b. Effectively and considerately communicate with team staff in a manner that promotes good coordination

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients.
- b. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- c. Identify patients fear associated with the disease states
- d. Identify and assist with the psychological stress of patients with chronic disability from diseases as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. exhibit self-directed learning
- b. demonstrate improvement in clinical management of patients by continually improving pertinent-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. work well with multidisciplinary teams, coordinating care and work with specialists in a team setting

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
TRAUMA SURGERY
EDUCATIONAL OBJECTIVES
PGY 1-4 LEVELS
9/07**

A. GENERAL TRAUMA: COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

- i. **All PGY levels:** demonstrate an understanding of the pathophysiologic effect of blunt and penetrating trauma. Demonstrated the ability to effectively manage the surgical care of a patient with complex multisystem injuries. Demonstrate knowledge of, and the ability to, and manage a variety of health-care services for trauma patients such as pre-hospital transportation, emergency department care, in-hospital care and rehabilitation.

- ii. **PGY 1-2:**
 1. Describe the anatomy, and physiology of all body systems affected by trauma, including the initial functional evaluation of the:
 - a. central nervous system
 - b. cardiovascular system
 - c. pulmonary system
 - d. gastrointestinal system
 - e. genitourinary system
 - f. extremity function
 - g. nutritional status
 2. Review of the anatomy, physiology, and morphology applicable to general management of trauma patients, including:
 - a. central nervous system
 - b. musculoskeletal system
 - c. hand/forearm
 - d. ear, nose, and throat (ENT)
 - e. ophthalmology
 3. Outline the basic techniques of evaluation and resuscitation of trauma patients using the American College of Surgeons (ACS) Advanced Trauma Life Support) (ATLS) protocol.
 4. Specify trauma services needed for initial evaluation and resuscitation in the hospital setting.
 5. Categorize appropriate pre-hospital emergency medicine system levels of care.
 6. Discussed wound care management in the emergency department and other settings. Outlined management of the following drains and tubes: nasogastric tube (NGT), urinary bladder catheter, chest tube (CT), central venous line (CVL), arterial line (AL).
 7. Explaining characteristics of basic surgical skill, including:
 - a. sterile technique

- b. incisions
 - c. wound closures
 - d. knot tying
 - e. handling of tissues
 - f. selection/use of operating instruments
 - g. universal precautions
8. Discussed the management of trauma involving the musculoskeletal system, including the need for casts, splints, and traction.
 9. Summarize basic critical care management principles.
 10. Analyze pharmacological support for trauma, resuscitation, intensive care unit patients.
 11. Identify the management principles for a trauma patient in the intensive care unit.
 12. Outline the factors associated with rehabilitation as they apply initial and early patient care.
 13. Discussed the indications for, and provision of, personal support for elderly patients sustaining trauma.
 14. Outlined the indications for such basic surgical procedures as:
 - a. Laparotomy
 - b. debridement and injured tissues
 - c. ultrasound
 - d. medical antishock trousers (MAST)
 - e. traction splints (HARE)
 - f. splinting
 - g. diagnostic peritoneal lavage (DPL)
 - h. thoracotomy/thoracostomy
 - i. hemorrhage control
 15. Discussed the primary causes/mechanisms of injury in the following list that contribute to making trauma to the 5th leading cause of death in those aged 65 and older:
 - a. falls
 - b. motor vehicle crashes
 - c. pedestrian injuries
 - d. burns
 - e. domestic abuse

iii. PGY 3-4

1. Explain trauma preventive measures, both medical and legal (e.g., they use of helmets and seat belts).
2. Decide and explain to mechanics/ballistics associated with various wounding agents.
3. Discussed the management of associated medical conditions seen in the trauma patients such as diabetes, chronic obstructive pulmonary disease (COPD), hypertension, coronary artery disease (CAD), and HIV.
4. Identify the indications for emergency operative procedures such as burr holes, cricothyrotomy, insertion of cardiopulmonary assist devices, and resuscitative thoracotomy.
5. Formulate a plan for rehabilitation to return a trauma patient to full functional line

6. Define abdominal compartment syndrome (ACS). Describe how to measure intra-abdominal pressures and develop a treatment plan to treat abdominal compartment syndrome. i.e. VAC therapy.
7. Define "Damage Control Surgery". Describe the sequence of damage control surgery in the treatment of the traumatized patient.
8. Analyze the transfer of a patient to an appropriate facility utilizing air medical services.
9. Discuss the availability and use of institutional and community support services for trauma patients such as social work, home health-care, and vocational rehabilitation (physical and occupational therapy).
10. Discussed the management of a trauma service, including the training of its members in emergency medical services, emergency department, operating room, intensive care, and rehabilitation.
11. Outlined economic impact of the following aspects of patient care:
 - a. vocational rehabilitation
 - b. nursing homes
 - c. insurance
 - d. diagnostic related groups (DRGs) associated with management of trauma
 - e. billing and coding
 - f. manage care
12. Epidemiology and elderly patient trauma. Residents will know the:
 - a. demographics of the elderly population in the total population of the United States
 - b. leading cause of injury death in elderly population
 - c. other major causes of injury death in elderly population
 - d. risk factors for trauma in older people
 - e. increase in injury mortality in elderly people compared to younger cohorts
 - f. the cost of trauma care for elderly patients
13. Pathophysiology of elderly trauma patients. Residents will be prepared to explain the:
 - a. need for obtaining an accurate medical history
 - b. impact of co morbidities on outcomes
 - c. effects of various common medications on the elderly trauma patient
 - d. concept of cerebral atrophy and possible delays in diagnosis of closed head injury (CH I)
 - e. for outcomes in severe CH I in elderly patients
 - f. decreased pulmonary reserve in elderly people and the need for aggressive pulmonary care
 - g. decreased cardiovascular reserve in the need for early and aggressive monitoring of the elderly trauma patient

- h. decreased renal function and the need for adjusting medication doses and volume resuscitation in regards to this
 - i. loss of bone mass in elderly people and the risk of severe injury with only minor impacts
 - j. high incidence of complications in the elderly trauma patients
 - k. need for a thorough evaluation of the context of the injury in the pre-morbid condition of the patient
14. rehabilitation for elderly trauma patients

B. GENERAL TRAUMA COMPETENCY-BASED PERFORMANCE OBJECTIVES:

i. PGY 1-2:

1. Complete an ACS ATLS course as a provider.
2. Participate in trauma evaluation, resuscitation, operative management and intensive care (ICU) supervision of a multiply-injured patient.
3. Evaluate the patient to determine quality of emergency medical service (EMS) care.
4. Insert a variety of tubes:
 - a. Endotracheal
 - b. Thoracostomy
 - c. Intravenous
 - d. intra-arterial
 - e. diagnostic peritoneal lavage (DPL)
 - f. urinary bladder catheter
 - g. nasogastric tube
5. Apply and remove all types of dressings and splints, including vacuum Pac dressing (VAC).
6. Make and close a variety of incisions and tie knots using sterile technique.
7. Evaluate critical care parameters and make decisions, under direct supervision, regarding change in care.
8. Direct the evaluation of an acutely-injured patient to include resuscitation and the decision for operation.
9. Assess nutritional needs and institute necessary nutritional support.
10. Formulate rehabilitation plans for trauma patients.
11. Monitor the trauma patient in the intensive care unit, suggesting changes in management as indicated.
12. Manage pharmacologic treatment plans for patients during resuscitation and in the critical care unit.
13. Performed basic surgical procedures such as:
 - a. Laparotomy
 - b. wound debridement (Use of Versajet)
 - c. application of traction devices for both head and extremities

ii. PGY 3-4:

1. Coordinate EMS activities for initial trauma management to include instructional programs.

2. Manage penetrating wounds through understanding the injury potential of wounding mechanisms.
3. Provide management for pre-existing disease states in injured patients with appropriate consultation.
4. Perform all operative and management procedures for trauma to the chest, abdomen, extremities, and head with direct supervision.
5. Supervise central line placement, cricothyrotomy, CT, DPL, and ultrasound by junior house staff.
6. Direct rehabilitation plans with appropriate consultation.
7. Organize hospital resources to provide services for trauma patients and direct patient flow in emergency department, the operating room, and intensive care unit.
8. Provide appropriate referrals for vocational rehabilitation, nursing homes services and physical rehabilitation.
9. Triage multiple trauma victims.
10. Practice of principles of damage control surgery in severely-injured patients.
11. Demonstrate an understanding of epidemiology and pathophysiology of injury in elderly patients.
12. Demonstrate an ability to utilize these concepts for improved assessment and management of the elderly trauma patient.

C. **BURN MANAGEMENT OBJECTIVES:** demonstrate an understanding of the concepts of burn injury and pathophysiology. Demonstrate an ability to apply these concepts to the evaluation, resuscitation, clinical management, and rehabilitation of the burn patient. Since we only manage burn injury patients of 20% or less we should still be able to stabilize those high degree burn injury patients who present to our emergency room trauma service and be acutely aware of the management of these severely burned patients. We should be able to demonstrate these concepts in the evaluation, resuscitation, clinical management, and rehabilitation of the burn patient.

i. **All residents: COMPETENCY-BASED KNOWLEDGE OBJECTIVES:**

1. Review the epidemiology, prevention, and socioeconomic and psychologic effects of burns.
2. Describe the histologic and functional anatomy of the skin, adnexa, and subcutaneous tissues.
3. Outline the physics and dynamics of thermal injury and progression of tissue damage.
4. Access the appearance of the burn wound in relation to its depth, bacteriologic condition, healing potential, and requirement for intervention.
5. Review the criterion for adequate evaluation of the burn patient, including historical aspects of the type of burn and subjective physical findings.
6. Discuss an initial treatment plan for stabilization and fluid resuscitation and burn patient based on the above evaluation.
7. Describe the clinical factors necessitating immediate intervention to preserve life, limb, and function of the body.

8. Outline the principles of burn shock, immunologic alterations, and bacteriologic pathology of burned skin.
9. Define "Rule of Nines" as it relates to total body surface area of the burn patient.
10. Describe the relationship between burned depth and the degree of the burn.
11. Review the basic principles and controversies concerning the management of the burn wound, and describe a clinical plan for its care.
12. Analyze principles of systemic and local antibacterial agents in the burn wound.
13. Explain the special circumstances created by electrical, chemical, and inhalation burn injury and apply their relation to the management of these patients.
14. Describe the pathology and management and inhalation injury, noting its relation to mortality, morbidity and time course of patient recovery.
15. Explain the etiology and treatment of carbon monoxide poisoning including possible role of HBO therapy.
16. Discuss the physics and pathology of electrical burn and its relation to associated organ injury including:
 - a. Current
 - b. entrance and exit wounds
 - c. deep tissue involvement
 - d. neurological injury
 - e. vascular problems
 - f. Rhabdomyolysis
17. Review the indications for and contributions of physical and occupational therapy.
18. Describe the anatomy of the hand in relation to specialized requirements and management and rehabilitation of the burned hand.
19. Describe the indications, techniques for harvest, application, immobilization, and care of split-and full-thickness skin grafts.
20. Explain the principles of wound contracture and report desirable and harmful effects of contracture on:
 - a. initial management of the burn victim
 - b. closure of the burn wound
 - c. rehabilitation of the burn patient
21. Describe and explain the following terms:
 - a. compartment syndromes
 - b. burn eschar contraction
 - c. fasciotomy and escharotomy incisions and techniques
22. Summarize the treatment of chemical burns to include pathology, sources, decontamination and management.
23. Review and analyze the special circumstances, management, and rehabilitation of burns in the pediatric patient.
24. Describe the indications for, and basic techniques of, plastic and reconstructive intervention in the burn wound to alleviate:
 - a. scar contracture
 - b. underlying joint contracture

- c. hypertrophic scar
- 25. summarize the activities of specialized burn team or unit in the overall management of the burn patient to include the following: **(theoretical since we do not possess such a burn team")**
 - a. physical therapy
 - b. occupational therapy
 - c. psychological counseling
 - d. recreational therapy
 - e. burn nursing
 - f. cosmetics

**ii. COMPETENCY-BASED PERFORMANCE OBJECTIVES:
PGY 1-5**

1. Provide emergency burn patient evaluation and monitoring
2. Determine the level of care and need for transfer to a burn facility
3. Estimate the depth & percent body surface area of burns.
4. Implement fluid resuscitation protocol for children and adults.
5. Select and apply appropriate dressings and topical antibacterials.
6. Manage systemic effects of the burn wound in critically injured surgical patient, considering:
 - a. Sepsis
 - b. gastrointestinal effects
 - c. immunologic problems
 - d. cardio-respiratory effects
 - e. abdominal compartment syndrome
7. Manage carbon monoxide poisoning
 - a. consider indications for and use of HBO therapy
8. Manage treatment of inhalation injury:
 - a. flexible laryngotracheoscopy
 - b. ventilator management
 - c. possible HBO (hyperbaric oxygen) therapy
9. Manage wound therapy, including:
 - a. Eschar formation and slough
 - b. Re-epithelialization
 - c. tangential and fascial excision
 - d. debridement of deep tissues
 - e. skin graft harvest and application
 - f. use of alternate skin graft products such as Alloderm, and Apligraf
10. Evaluate electrical burns, including:
 - a. entrance and exit wound
 - b. cardiac, vascular, neurologic, and ophthalmologic effects
 - c. deep tissue destruction
 - d. Rhabdomyolysis
11. Institute treatment of chemical burns, including:
 - a. identification of types and sources
 - b. management by dilution or neutralization

- c. treatment of systemic effects of local chemicals
 - d. protection of one's own self in treating such chemical burns
 - 12. Manage eschar contracture and edema control:
 - a. techniques of an escharotomy
 - b. techniques of fasciotomy
 - 13. Manage the treatment of the burned child, including initial therapy, systemic support, and special care needs with input from the pediatric intensive care team including, child abuse.
 - 14. Direct clinical management and supervision of the burn/OR team.
- iii. **PGY 3-4 UNIT OBJECTIVES:** In addition to the above, residents will demonstrate an understanding of the epidemiology and pathophysiology of burn injury in the elderly patient. Demonstrate ability to apply these concepts to the evaluation and therapeutic management of the elderly burn patient.
- iv. **COMPETENCY-BASED KNOWLEDGE OBJECTIVES:**
1. Describe the age-related changes in the anatomy and functional characteristics of the skin and adnexa.
 2. Define the extent and Depth of Thermal Injury as a Percent Body Surface Injured, and Use Specific Anatomical Terms to Describe the Depth of Injury.
 3. Discuss the fluid resuscitation and clinical stabilization of the elderly burn patient as a function of the above description of the burn wound.
 4. Define and describe fluid shifts and physiologic derangements associated with the burn injury as a function of age.
 5. Describe the management of the burn wound including the use of topical antimicrobial agents, biologic dressings, and skin grafts in the elderly burn patient.
 - a. Review the special problems of electrical, chemical, in drug-related injury to the skin.
 - b. Describe the morbidity and mortality rates in elderly burn patients in the impact of inhalation injury on these rates.
 - c. Review the epidemiology and socioeconomic factors associated with burn injuries in the elderly patient
 6. Describe the prevention of burn injuries in elderly patients.
 7. Describe the physiologic changes and limitations that occur as aging increases.
 8. Describe the role of the multidisciplinary team in the support and rehabilitation of the elderly burn patient.
 9. Describe the techniques and indications for skin grafting using split and full thickness graft from elderly and atrophic skin.
 10. Outlined the factors in withholding or withdrawing care in geriatric burn patients

D. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS) Resident will gain knowledge and skill in psychosocial issues concerning:

- i. Establish rapport with patients and their families, especially under stressful circumstances
- ii. Perform a patient-sided medical interview
- iii. Engage patients in shared decision-making, and participate in family discussions
- iv. Effectively and considerately communicate with team staff in a manner that promotes care coordination
- v. Discuss patients fears regarding prognosis and outcome
- vi. Begin the process of requesting organ donation as appropriate

E. PROFESSIONALISM (ALL PGY levels)

- i. Demonstrate respect and compassion for all patients
- ii. Exhibit competency in working with patients regarding advanced directives, DNR status, futility, and withholding/withdrawing therapy
- iii. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- iv. Identify patients fear associated with the trauma diagnosis and provide compassion palliative care in the brain dead patients.
- v. Identify and assist with the psychological stress of patients with chronic disability from trauma as it affects their personal life, their family life, and their socioeconomic environment.

F. PRACTICE BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- i. Exhibit self-directed learning
- ii. Demonstrate improvement in clinical management of patients by continually improving trauma-related knowledge and skills during the rotation

G. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- i. Demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- ii. Work well with multidisciplinary teams, coordinating care and work with specialists in a team setting
- iii. Effectively plan care after discharge
- iv. Contact a appropriate organ procurement organization regarding potential organ donation

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
UROLOGY
EDUCATIONAL OBJECTIVES
PGY 3 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: Resident will gain knowledge of diagnosis, management, treatment, treatment options (surgical/non-surgical), long term prognosis, post-operative effects, complications, patient risk and cost considerations associated with:

- a. describe the normal anatomy and physiology and genitourinary system to include the following structures:
 - i. kidneys
 - ii. ureters
 - iii. bladder
 - iv. prostate seminal vesicles and vas deferens
 - v. urethra (male and female)
 - vi. male genitalia to include erectile function and testicular function
 - vii. basic adrenal anatomy and function
- b. summarizing basic science and genitourinary disease to include the following:
 - i. anatomy, physiology, biology, biochemistry, microbiology, immunology, and embryology of the genitourinary system
 - ii. pathophysiology of urinary tract disease
 - iii. endocrine function of kidney
 - iv. regulation of water, electrolytes, and acid-base balance
- c. discuss the components of a focused genitourinary history and physical examination to include:
 - i. history
 1. pain
 - a. renal
 - b. testicle
 - c. prostatic
 - d. penile
 - e. testicular
 2. hematuria
 - a. painful, painless
 - b. initial, terminal, total
 - c. presence of clots
 3. lower urinary
 - a. irritated
 - b. obstructive
 4. incontinence (stress, urge)
 5. sexual dysfunction
 - ii. physical examination
 1. kidneys
 - a. flank masses
 - b. peritoneal signs

- c. signs of nerve root irritability
 - 2. bladder
 - 3. penis
 - 4. scrotum and contents
 - 5. rectal examination (to include prostate)
 - 6. pelvic examination in female
- d. explain the following clinical science study factors/variables as they relate to genitourinary disease:
 - i. renal physiology
 - ii. fluid management
 - iii. antibiotic management
 - iv. renal calculus disease
 - v. urologic oncology
 - vi. bacteriology
 - vii. pediatric urology
 - viii. anatomy
 - ix. embryology of genitourinary tract
 - x. female urology
 - xi. urologic,
- e. describe the pathologic anatomy and pathophysiology of noncomplex genital urinary diseases such as:
 - i. tumors (renal, ureteral, bladder, testicular, adrenal)
 - ii. calculus (renal, ureteral, bladder)
 - iii. trauma (testes, upper and lower urinary tract)
 - iv. renal infections
 - v. carcinoma of prostate
 - vi. benign prostatic hyperplasia and bladder outlet obstruction
 - vii. hypospadias
 - viii. cryptorchidism and varicocele
 - ix. incontinence (stress, overflow, neurogenic, urgency)
 - x. testes torsion
 - xi. impotence and Peyronie's disease
 - xii. urethral stricture disease
 - xiii. priapism
- f. explain the tumor, nodes, and metastases (TNM.) classification of tumors of the kidney, bladder, prostate, and testes
- g. summarizing the indications for routine diagnostic procedures in urology such as:
 - i. cystoscopy (ureteral catheterization)
 - ii. bladder catheterization
 - iii. intravenous pyelogram
 - iv. cystogram (retrograde ureteral pyelogram)
 - v. CAT and ultrasound and on the GU tract
 - vi. urography in trauma
 - vii. indications for using MRI
 - viii. retrograde urethrograms
 - ix. transrectal ultrasound
- h. discuss the nature and indication for routine therapeutic procedures in genitourinary disease such as:
 - i. bladder catheterization
 - ii. passage of Coudet tips and filiform catheters

- iii. meatotomy if necessary for catheterization
- iv. suprapubic punch cystostomy
- v. dorsal slit for phimosis
- i. Analyze the etiology of urinary incontinence in the elderly. Consider the following:
 - i. factors that may be associated with aging
 - 1. bladder capacity
 - 2. amount of residual urine
 - 3. frequency of involuntary bladder contractions
 - 4. incidence of impaired mobility
 - 5. CNS disorder
 - 6. congestive heart failure
 - 7. medications
 - ii. female elderly
 - 1. decline in bladder outlet
 - 2. decline in urethral resistance pressure
 - a. influence of estrogen
 - b. pelvic structures associated with childbirth
 - c. surgeries
 - 3. male elderly
 - a. prostatic enlargement
 - i. obstructed urethra (overflow incontinence)
 - ii. detrusor motor instability (urge incontinence)
- j. describe the rationale for transurethral prostate resection and other endoscopic urologic procedures
- k. describe cancer of the prostate, citing disease rates that make it the:
 - i. most commonly diagnosed malignancy in men
 - ii. second leading cause of cancer death in men
- l. summarize the appropriate therapy for simple (non-complex) urologic disease
- m. outline the essential components of a clear and appropriate request for urologic consultations
- n. describe the embryology of the GU tract to include a discussion of the following:
 - i. congenital abnormalities
 - ii. other urological disease in pediatric patient such as:
 - 1. hypospadias
 - 2. ureteral pelvic junction (UPJ) with hydronephrosis
 - 3. reflux
 - 4. polycystic kidney
 - 5. prune-belly syndrome
 - 6. urethral valves with hydronephrosis
 - 7. cryptorchidism
 - 8. hydrocele
 - iii. describe the types of incisions and exposure required for genitourinary surgery, including those for:
 - 1. nephrectomy
 - 2. radical nephrectomy
 - 3. ureterolithotomy
 - 4. radical cystectomy

5. radical rectopubic prostatectomy
 6. perineal prostatectomy
 7. Orchiectomy
 8. radical Orchiectomy
- o. summarize the characteristics of the following complex genital urinary problems/procedures in the surgical management:
 - i. penile implants
 - ii. radical surgery
 - iii. laser surgery
 - iv. endoscopic urology
 - v. congenital abnormalities
 - vi. pediatric urology
 - vii. urologic oncology
 - viii. calculus disease
 - ix. complex urologic infections
 - x. renal function and bladder physiology
 - xi. urologic trauma, including iatrogenic
 - xii. lithotripsy
 - xiii. geriatric urology
 - p. discuss treatment options in the management of ureteral injuries to include:
 - i. ureteral ureterostomy
 - ii. neoureterocystostomy
 - iii. psoas hitch
 - iv. percutaneous drainage
 - v. emergent nephrectomy
 - q. summarize considerations for appropriate treatment of incidentally detected carcinoma of the prostate, found on simple prostatectomy, when these conditions exist:
 - i. low-grade lesion with combined Gleason score < 5
 - ii. transurethral resection (TUR) shows lesion occupying 5% or less of tissue resected
 - iii. lesion is considered clinical stage A-1
 - r. other knowledge base should include:
 - i. Tumors - renal, ureteral, prostate, bladder and testicular, benign, malignant and cystic natures.
 - ii. Vascular problems - hemangiomas, malformations of the bladder, varicoceles of the spermatic cord, torsion of testicle.
 - iii. Trauma - urethra, bladder, ureters and kidneys; post-irradiation changes of the bladder, ureter and/or urethra.
 - iv. Congenital - vesicoureteral reflux, hypospadias.
 - v. Metabolic - stones, renal failure, intrinsic disease, infection.
 - vi. Incontinence
 - vii. Obstructive uropathy and post-operative urinary retention

2. COMPETENCY-BASED PERFORMANCE OBJECTIVES;

Resident will develop and refine skills needed to:

- a. complete and record a focused urological history and physical examination
- b. perform an examination and provide a differential diagnosis of the acute scrotum

- c. manager for regulation water, electrolytes, and acid/base balance
- d. Work up a prostatic mass on a routine rectal examination, including processing necessary radiologic and laboratory studies.
- e. Plan and initiate appropriate therapy for urological disorders such as:
 - i. hematuria work up
 - ii. obstructive uropathy work-up
 - iii. simple infections
 - iv. resistant infections
 - v. initiate therapy for: calculus disease, renal neoplasm, transitional cell neoplasm
 - vi. maintain a working knowledge of carcinoma of the prostate
- f. monitor the inpatient and outpatient management of genitourinary disease
- g. right clear and appropriate request for urological consultation
- h. perform a bladder catheterization (including passage of Coude tips)
- i. perform a urologic evaluation, diagnostic studies, and treatment in a trauma setting
- j. interpret CAT and ultrasound results in genitourinary diseases
- k. perform cystoscopy and urethral catheterization
- l. perform scrotal surgery for hydrocele, torsion, or varicocele
- m. request intravenous pyelography (IVP), CAT, and ultrasound genitourinary procedures in appropriate cases
- n. perform an interpret urethrograms in a trauma setting
- o. perform an interpret cystograms in a trauma setting
- p. perform cystoscopy, punch and open
- q. perform nephrectomies for disease or trauma
- r. observe and assist in suprapubic prostatectomy with close supervision
- s. manage all aspects of genitourinary trauma, including initial care at site, urethrograms, cystograms, catheterizations and cystostomy
- t. manage urologic emergencies such as torsion of testicle, scrotal masses, and urinary retention
- u. Manage complex intra-abdominal and pelvic general surgery that involves the genitourinary system.

- v. Manage urinary tract obstruction.

- w. Perform thorough GU exam.

- x. Perform urologic tests (urinalysis, IVPs, cystometrograms, cystograms, and retrograde urethrograms).

- y. Become familiar with passing urethral catheters (Foley & Coude); filiforms and followers, suprapubic tubes.

- z. Perform minor urological surgical procedures and assist in major urologic procedures.

- aa. Resident will gain knowledge and skill in psychosocial issues concerning:
 - i. Sexual dysfunction
- bb. Major trauma

- cc. Orchiectomy and hormonal reaction
- dd. Resident will be responsible for: Pre and post-operative care - including work-ups.
- ee. Seeing patients in emergency room and out-patient clinics.
- ff. Attending conferences
- gg. All recommended/assigned readings
- hh. Participating in the surgical procedures.
- ii. Maintain general surgery in house call.

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with staff urologists and maintain confidentiality.
- b. Effectively and considerately communicate with team staff in a manner that promotes good coordination

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients.
- b. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- c. Identify patients fear associated with the disease states
- d. Identify and assist with the psychological stress of patients with chronic disability from diseases as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. exhibit self-directed learning
- b. demonstrate improvement in clinical management of patients by continually improving pertinent-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. work well with multidisciplinary teams, coordinating care and work with specialists in a team setting

**SYNERGY MEDICAL EDUCATION ALLIANCE
DEPARTMENT OF GENERAL SURGERY
VASCULAR SURGERY
EDUCATIONAL OBJECTIVES
PGY 2 & 4 LEVEL
9/07**

1. COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

MEDICAL/SURGICAL KNOWLEDGE: The resident will gain knowledge of diagnosis, management, treatment options (surgical and non-surgical), long term prognosis, post operative results, complications, patient risk and cost considerations associated with:

PGY 2

- a. Cerebrovascular disease
 - i. symptomatic and asymptomatic carotid disease
 - ii. vertebrobasilar disease
 - iii. carotid body tumors
- b. Upper extremity occlusive disease
 - i. thoracic outlet syndrome
 - ii. vasospastic disease
 - iii. embolic
- c. Aneurysm disease
 - i. dissection versus rupture
 - ii. thoracoabdominal and suprarenal aneurysms
 - iii. ruptured versus elective aneurysm AAA repairs
 - iv. management of small abdominal aortic aneurysms
 - v. . inflammatory aneurysms
 - vi. infected grafts and mycotic aneurysms
 - vii. aorto-fem, aorto-iliac, and endarterectomy
 - viii. splanchnic aneurysms
 - ix. iliac, femoral and popliteal aneurysms
 - x. Understanding of endo graft indications and complications
- d. Aortoiliac occlusive disease
 - i. transluminal angioplasty
 - ii. reconstructive procedures
 - iii. extra anatomic reconstruction indications and techniques, ie:
axillary-bi-fem bypass,
 - iv. Lariche syndrome
- e. Lower extremity occlusive disease, chronic
 - i. medical management
 - ii. autogenous venous bypass
 - 1. above knee, below knee
 - 2. in-situ, reversed
 - iii. artificial material bypass
 - iv. transluminal angioplasty
 - v. popliteal entrapment syndrome
 - vi. adventitial cystic disease
- f. Lower extremity occlusive disease, acute
 - i. embolic occlusion

- ii. thrombosis
- iii. hypercoagulable states
- iv. fibrinolytic therapy
- v. balloon catheter embolectomy
- g. Vascular trauma
 - i. . penetrating injuries
 - 1. aorta and arch vessels
 - 2. . extremity vessels
 - ii. . blunt trauma
 - 1. associated with fractures of extremities
 - 2. thoracic aorta
 - iii. cold injury
 - iv. drug abuse related
 - v. compartment syndrome
- h. Mesenteric vascular disease
 - i. Renovascular
 - ii. chronic splanchnic occlusive disease
- i. Portal hypertension
 - i. Child's classification
 - ii. medical and pharmacologic management
 - iii. sclerotherapy
 - iv. . selective and non-selective shunts
- j. Angioaccess
 - i. methods access
 - ii. techniques of arterio-venous shunts/fistula
- k. Venous disease
 - i. . varicose veins
 - ii. management of deep venous thrombosis
 - iii. venous thrombectomy
 - iv. post phlebitic syndrome
 - v. venous stasis change and ulceration
 - vi. effort thrombosis
 - vii. medical and surgical treatment of acute PE
 - viii. venocaval interruption, filter, plication.
 - ix. Lymphatic system
 - 1. lymphedema
 - a. acquired
 - b. primary
 - c. anatomy of lymphatic system and lymphatic return
 - d. acquire lymphatic disease
- l. describe human arterial and venous anatomy
- m. describe basic arterial and venous hemodynamics
- n. discussed anatomy, pathology and pathophysiology of the arterial wall
- o. review and describe basic clinical manifestations of the following vascular disorders:
 - i. obstructive arterial disease
 - ii. aneurysmal arterial disease
 - iii. thromboembolic disease-arterial and venous
 - iv. chronic venous insufficiency and chronic obstruction
 - v. portal hypertension
 - vi. congenital vascular disease

- p. access the patient vascular system using appropriate skills and history-taking and clinical examination
- q. describe the relationship of the following disorders/practices to arteriosclerotic vascular disease:
 - i. diabetes mellitus
 - ii. hypertension
 - iii. renal failure
 - iv. congestive heart failure
 - v. hyperlipidemia
 - vi. smoking
- r. describe life-threatening signs of vascular disease and indicate when immediate intervention is required
- s. differentiate between the following diagnostic tools available for accessing vascular disease and explain the relative contribution of each:
 - i. angiography
 - ii. computed axial tomographic scanning (CAT)
 - iii. magnetic resonance imaging (MRI) and magnetic resonance angiography (MRA)
 - iv. duplex scanning (ultrasonography)
- t. analyze and be prepared to explain that following concept: vascular disease, and specifically arterial disease may be diffuse and clinically silent, but it still represents a major threat to the patient
- u. summarize the etiology and therapeutic options of specific categories of vascular disease:
 - i. venous disease
 - 1. varicose vein disease
 - 2. post-phlebitic syndrome
 - 3. thromboembolic disease
 - 4. pulmonary embolism
 - 5. portal hypertension
 - ii. lymphatic disease
 - 1. anatomy of lymphatic system and lymphatic return
 - 2. congenital lymphatic anomalies
 - 3. acquired lymphatic disease
 - 4. operative procedures for correction of lymphatic disease
 - iii. arterial disease
 - 1. arteriosclerosis and its related disorders
 - 2. aortic and other vascular aneurysms
 - 3. inflammatory vascular disease
 - 4. arteriosclerotic vascular disease
 - 5. arterial embolic disease
 - 6. arteriovenous fistulas or malformations
 - 7. extracranial cerebrovascular disease
 - 8. neurovascular compression syndromes (thoracic outlet syndrome)
 - 9. visceral ischemic syndromes
 - 10. renovascular hypertension
 - 11. degenerative arterial disease
 - 12. trauma
 - 13. interactions of cardiovascular pulmonary systems
 - iv. pathophysiology of peripheral vascular disease

1. arterial stenosis
2. aneurysmal disease
3. arteriovenous fistulas (local and cardiac hemodynamic effects)
4. venous thrombosis
- v. interaction of cardiovascular and pulmonary systems
- vi. miscellaneous
 1. tumors
 2. sympathetic nervous system
 3. congenital vascular syndromes
- v. outlined principles of non-invasive laboratory diagnosis; include a description of the role and limitations of the vascular laboratory
- w. discuss basic principles of Doppler ultrasound in preparation for performing bedside arterial and venous Doppler testing
- x. outline principles and care for ischemic limbs
- y. describe the natural history and medically-treated vascular disease in the following categories:
 - i. carotid arterial stenosis
 - ii. abdominal aortic aneurysm
 - iii. chronic, femoral artery occlusion
- z. summarize principles for the preoperative assessment and post-operative care of patients undergoing major vascular surgical procedures
- aa. outline to fundamental elements of nonoperative care of the vascular patients, including the role of risk assessment and preventive measures
- bb. indicate the role of anticoagulant agents, including antiplatelet agents, in the management of patients with vascular disease
- cc. analyze the role of the endothelium in arteriosclerosis, thrombosis, and, thrombolysis
- dd. describe the hemodynamics and pathophysiology of:
 - i. claudication
 - ii. transient ischemic attack (TIAs)
 - iii. stroke
 - iv. mesenteric angina
 - v. angina pectoris
 - vi. renovascular hypertension
 - vii. arterial venous (AV) fistula
- ee. explain the concept of critical arterial stenosis
- ff. differentiate between acute arterial and acute deep venous occlusion
- gg. discuss the principles angiography to include the following considerations:
 - i. indications and complications (including contrast-induced renal failure)
 - ii. principles and techniques of intraoperative angiography
 - iii. principles and techniques of emergency room angiography
- hh. discuss the principles of and contraindications for anticoagulation and thrombolytic therapy
- ii. describe the surgically correctable causes of hypertension and their diagnostic modalities
- jj. explain to risk: reward ratios of surgical care for patients with vascular disease
- kk. discuss the mechanics of action and the therapeutic role of the pharmacologic types of agents:

- i. vasopressors
 - ii. vasodilators
 - iii. adrenergic blocking agents
 - iv. antiplatelet agents
 - v. thrombolytics
- ll. illustrate the general principles of vascular surgical technique including:
 - i. vascular control and suturing
 - ii. endarterectomy
 - iii. angioplasty
 - iv. bypass grafting
- mm. determine a plan for assessment of operative risk in these categories:
 - i. cardiac
 - ii. pulmonary
 - iii. renal
 - iv. metabolic
 - v. levels of anesthetic risk
- nn. discuss clotting factors and how they interact (coagulation cascade)
- oo. discuss the role of the following factors in maintaining homeostasis in the coagulation pathways:
 - i. protein S.
 - ii. protein C.
 - iii. platelets
 - iv. platelet granules
 - v. endothelial cell
 - vi. antithrombin III
- pp. describe the use of adjunctive measurements and management of platelets with vascular disease such as:
 - i. antibiotics
 - ii. anticoagulants
 - iii. thrombolytic agents
 - iv. antiplatelet agents
- qq. review the cost associated with providing surgical care for patients with vascular disorders.

PGY 4

- rr. identify and describe vascular anatomy and regional anatomy related to vascular disease
- ss. discuss the body range of vascular illnesses, including congenital vascular disease and disease of the venous and lymphatic systems
- tt. physiologic and organic manifestations of vascular disease, such as renovascular hypertension, portal hypertension, and renal failure
- uu. differentiate between different operative approaches to the vascular system to include:
 - i. incisions and exposure
 - ii. handling of vascular tissues
 - iii. principles of vascular bypass grafting
 - iv. emergency vascular surgery
 - v. reoperative vascular surgery

- vi. principles of endarterectomy
- vv. illustrate the operative exposure of the major vessels, including:
 - i. aortic arch
 - ii. proximal subclavian
 - iii. carotid artery
 - iv. descending thoracic aorta
 - v. suprarenal aorta
 - vi. infrarenal aorta
 - vii. femoral artery
 - viii. popliteal artery
- ww. outline indications for operations for claudication, abdominal aortic aneurysm, carotid stenosis, and amputation
- xx. describe the indications for balloon angioplasty and vascular stent placement with its risk and complications including **endo-vascular stents**
- yy. describe the pathogenesis and complications of aneurysmal disease
- zz. summarize the etiology, microbiology, and treatment of diabetic foot infection
- aaa. categorize the prevention and management of operative and postoperative complications, including graft infections, ischemic bowel, graft thrombosis, and extremity ischemia
- bbb. outline the manifestation of failing peripheral vascular grafts, contrasting angioplasty with reconstruction and amputation
- ccc. discuss the principles of reoperative vascular surgery
- ddd. outline procedures for managing vascular surgical emergencies such as acute tissue ischemia a major hemorrhage (traumatic or ruptured aneurysm)
- eee. summarize the characteristics of congenital arterial, venous, and lymphatic diseases
- fff. analyze options for treatment of patients with chronic venous insufficiency and venous ulceration
- ggg. discuss alternative operative procedures and management of portal hypertension
- hhh. summarize the surgical techniques available for managing following vascular disorders:
 - i. abdominal aortic bypass or aneurysmectomy
 - ii. carotid stenosis
 - iii. femoral-popliteal occlusion
 - iv. tibial artery occlusion
- iii. analyze the management of complex vascular problems considering the following factors:
 - i. morbidity and mortality
 - ii. advanced surgical techniques
 - 1. endoscopy
 - 2. microvascular techniques
 - 3. endovascular stenting
- jjj. review critical factors for decision-making in vascular surgery:
 - i. risk: reward ratio
 - ii. morbidity and mortality probability
 - iii. preoperative and postoperative assessment
 - iv. non-invasive laboratories, duplex scanning

- v. role of advanced radiologic techniques: angioplasty, CT scan, MRI/MRI imaging
- kkk. apply the decision-making process in analyzing complex vascular diseases, including the following:
 - i. cerebrovascular problems
 - ii. mesenteric vascular disease
 - iii. renovascular disease
 - iv. aneurysmal disease
 - v. lower extremity arterial occlusion
 - vi. venous disease
- III. outline the management of prosthetic graft infections, including:
 - i. diagnosis
 - ii. use of alternate routes for revascularization
 - iii. use of alternative graft materials
 - iv. summarize complications of common major vascular procedures such as:
 - v. carotid endarterectomy
 - vi. aortic reconstruction
 - vii. lower extremity vascular reconstruction

2. COMPETENCY-BASED PERFORMANCE OBJECTIVE: Resident will develop and refine skills necessary to:

a. Junior Resident: PGY 2

- i. Take an appropriate vascular history and identify the risk factors which might influence the patient's ability to tolerate the operation or achieve success with the planned vascular procedure
- ii. Perform a complete vascular exam with evaluation of pulses, bruits, check for aneurysms, and handheld doppler exam of arterial and/or venous system as needed.
- iii. Discuss treatment options, risks and potential complications with patients having vascular disease problems.
- iv. Assist in the performance of vascular operations.
- v. Manage the post-operative care of vascular patients, identify and manage all complications.
- vi. Interpret arteriograms and noninvasive vascular studies.
- vii. Evaluate patients for vascular disease
- viii. demonstrate skilled in basic surgical techniques, including:
 - 1. knot tying
 - 2. exposure and retraction
 - 3. knowledge of instrumentation
 - 4. incisions
 - 5. closure of incisions
 - 6. handling of graft material
- ix. participate in surgery for varicose vein disease, including:
 - 1. ligation and stripping
 - 2. management of venous stasis ulcers
 - 3. management of venous thrombosis
- x. participate in amputations with specific attention to:
 - 1. demarcated levels
 - 2. control of toxicity

- 3. use of oxygen saturation Ticom measurements
- xi. demonstrate proficiency in venous access procedures
- xii. demonstrate ability to perform arterial access arterial-venous access, including:
 - 1. incisions
 - 2. closure of incisions
- xiii. obtained vascular control of disease or traumatically occluded blood vessels using:
 - 1. vascular clamp
 - 2. vessel loop
 - 3. balloon occlusion
- xiv. participate in thromboendarterectomy and thrombectomy
- xv. demonstrate appropriate vascular suture techniques
- xvi. evaluate and manage sympathectomy procedures
- xvii. perform the preoperative assessment and post-operative care of patients undergoing major vascular surgical procedures

b. Senior Resident: PGY 4

- i. demonstrate appropriate incisions and exposure of:
 - 1. abdominal aorta and its major branches
 - 2. portal venous system
 - 3. peripheral arterial system
 - 4. carotid arterial system
 - 5. arteriovenous fistula
- ii. obtain vascular control of major vessels
 - 1. aorta
 - 2. vena cava
- iii. participate in endarterectomy and bypass grafting
- iv. demonstrate ability to manage graft and suture materials
- v. perform selective operative procedures were selected parts of the following operative procedures under supervision:
 - 1. aortic aneurysm repair
 - 2. carotid endarterectomy
 - 3. aorto-iliac occlusive disease
 - 4. femoropopliteal occlusive disease
 - 5. know the operative procedures for correction of portal hypertension
 - 6. peripheral vascular trauma
- vi. discuss and demonstrate the role of adjunctive measures in operative procedures including angioscopic, and thrombolytic therapy
- vii. selecting use proper advanced techniques for managing patients with a variety of vascular disorders such as:
 - 1. ruptured aortic aneurysm
 - 2. central vascular trauma
 - 3. supra- renal aortic aneurysm
 - 4. renovascular hypertension
 - 5. femoral tibial bypasses
- viii. perform alternative methods of bypass grafting such as:
 - 1. extra-anatomic bypass, principles and techniques
 - 2. indirect revascularization

3. *in situ* techniques
4. sequential and composite techniques
- ix. many prosthetic graft infections to include:
 1. diagnosis
 2. selection of alternative routes for revascularization
 3. selection of appropriate graft materials
 4. timing
- x. manage complications of common major vascular procedures such as:
 1. carotid endarterectomy
 2. aortic reconstruction
 3. lower extremity vascular reconstruction
- xi. Mastery of all junior resident technical skills.
- xii. Assist and perform major surgical procedures such as vascular bypass, carotid endarterectomy, aortic surgery (including endografts), and others based on resident's demonstrated level of skill.
- xiii. Perioperative management of complex vascular patients.

c. Residents will gain skills and knowledge in psychosocial issues concerning:

- i. Dealing with patients fears regarding loss of life or limb.
- ii. The "grey" areas of indications for vascular surgery such as claudication or asymptomatic bruits.
- iii. Patients with self destructive behavior such as smoking, elevated cholesterol, or non-compliant diabetes.
- iv. Helping the adjustment of patients requiring amputation.
- v. Maintain general surgery in house schedule.
- vi. Do preoperative evaluation of all scheduled patients and emergent operations as well as post operative care.
- vii. Be on time for scheduled and emergent operations.
- viii. Participate in scheduled conferences presenting or discussing cases as required.
- ix. Be familiar with pertinent literature and anatomy/physiology with regard to all cases scrubbed on.

3. INTERPERSONAL AND COMMUNICATION SKILLS (ALL PGY LEVELS)

Resident will gain knowledge and skill in psychosocial issues concerning:

- a. Establish rapport with staff for vascular surgeons and maintain confidentiality.
- b. Effectively and considerately communicate with team staff in a manner that promotes good coordination

4. PROFESSIONALISM (ALL PGY levels)

- a. Demonstrate respect and compassion for all patients.
- b. Understand and compassionately respond to issues of culture, age, sex, sexual orientation, and disability for all patients and their families.
- c. Identify patients fear associated with the disease states
- d. Identify and assist with the psychological stress of patients with chronic disability from diseases as it affects their personal life, their family life, and their socioeconomic environment.

5. PRACTICE-BASED LEARNING AND IMPROVEMENT (ALL PGY LEVELS)

- a. exhibit self-directed learning
- b. demonstrate improvement in clinical management of patients by continually improving pertinent-related knowledge and skills during the rotation

6. SYSTEMS BASED PRACTICE (ALL PGY LEVELS)

- a. demonstrate understanding of medical delivery systems as they relate to both inpatient and outpatient resources
- b. work well with multidisciplinary teams, coordinating care and work with specialists in a team setting