

1. PEM Fellow Rotations in Pediatric Emergency Medicine

First Year Goals

Year I is spent as a direct care provider with very little time spent supervising trainees. During Year I the PEM Fellows are exposed to a wide variety of ill and injured pediatric patients so that they may become familiar with the diagnosis and management of the breadth of PEM patients. Ample exposure to important PEM procedures is provided.

Fellows gain experience in specific PEM related topics through rotations in Anesthesia, Pediatric Critical Care, and Toxicology. The Emergency Medicine and Trauma month at the University of New Mexico Hospital (UNMH) Adult ED and Level One trauma center offers exposure to adult patients and the opportunity to perform invasive procedures more frequently. All patients seen in by the Year I Fellow are supervised by attending faculty.

Second Year Goals

In Year II the PEM Fellow begins the transition from caring for patients directly to becoming the supervising physician in charge of the entire ED. The Fellow will continue to devote time to caring directly for patients but will also begin Parallel Shifts where he or she will gradually assume the responsibilities of the Attending Peds ED physician. These Parallel Shifts are designed to provide the Year II Fellow with experience supervising, handling referral and transport calls and running the ED under the direct supervision and assistance of a PEM Attending. The Parallel Shifts are designed to prepare the Fellow for Year III when they will act as the Attending physician in the ED.

It is expected that the Year II Fellow will take on more teaching responsibilities and dedicate more time to their research projects as the total amount of clinical time decreases as compared to Year I.

Third Year Goals

In Year III, the Fellow will become proficient in running a Pediatric ED which includes the care of emergency patients at the primary facility which is a regional pediatric referral center, Level One Pediatric Trauma Center, taking referral calls and offering telephone advice, managing the transport of critically ill patients, appropriately obtaining and interpreting subspecialty consults and maintaining an effective working relationship and communication with the charge nurse, nursing and ancillary staff as well as subspecialty residents, residents, medical students and other trainees. Year III clinical responsibilities offer the Fellow the opportunity to enjoy significant autonomy in working up and managing PEM patients with back-up or on-site readily available.

During Year III, the Fellow should complete the research requirements of the program and gain further experience in teaching, education and administrative roles of the academic PEM physician.

Progression of objectives from year to year are *italicized* for reference.

First Year Objectives:

After completing this rotation, the fellow will demonstrate the ability to:

Patient Care

1. Perform an appropriate history and physical exam.
2. Assess patients with urgent conditions:
 - a. Recognize respiratory failure.

- b. Manage the acute airway, including knowledge about and use of appropriate equipment and drugs.
 - c. Manage the airway in a child with a tracheostomy tube.
 - d. Recognize shock.
 - e. Formulate a diagnosis quickly, with particular attention to diagnoses that require immediate airway intervention (e.g. depressed mental status, foreign body obstruction).
 - f. Describe indications for admission to a critical care unit.
 - g. Outline plan for stabilization, including relevant physiology, tests and therapies.
3. Generate differential diagnoses for common PEM problems.
- a. General: septic or ill appearance, unexplained crying, fever, hypothermia, Acute Life Threatening Event, sudden death, weight loss, psychological disturbance, dehydration, alleged or suspected child abuse or neglect
 - b. Allergy: acute allergic reactions
 - c. Respiratory: respiratory effort (increased or decreased), poor air movement, tachypnea, dyspnea, apnea, stridor, wheezing, crackles
 - d. Cardiology: arrhythmia, bradycardia, tachycardia, cardiopulmonary arrest, hypertension, hypotension, quality of pulses, skin perfusion, chest pain
 - e. Neurology: altered mental status, coma, encephalopathy, dizziness, weakness, paresthesias, status epilepticus, neck stiffness
 - f. Gastroenterology: abdominal distention, peritoneal signs, acute hemorrhage, vomiting, diarrhea, constipation, foreign body ingestion, jaundice, difficulty swallowing
 - g. Hematology/Oncology: bleeding, bruising, purpura, petechiae, neutropenia, anemia, thrombocytopenia, lymphadenopathy, hepatosplenomegaly, acute illness or fever in a neutropenic child with cancer
 - h. Nephrology: hematuria, oliguria, anuria, polyuria, edema, dysuria, hypertension
 - i. Urology: groin or scrotal mass or pain
 - j. Dermatology: skin rash, hair loss
 - k. Ophthalmology: red eye, abnormal pupils or eye movements, eye pain, visual disturbance
 - l. Otolaryngology: dizziness, nosebleed, sore throat, painful swallowing, earache, ear discharge, new hearing loss
 - m. Endocrinology: polydipsia, polyuria, known diabetic with acute symptoms, thyroid enlargement
 - n. Gynecology: vaginal discharge, vaginal bleeding, amenorrhea, breast masses
 - o. Musculoskeletal: extremity pain, limp, arthralgia, joint swelling, back pain, neck pain
 - p. Psychiatry: depression, suicidal or homicidal ideation, anxiety, aggressiveness
 - q. Trauma: lacerations, burns, fractures
4. Describe principles of the team approach to the management of a child with multi-system trauma.
5. Explain the indications for and interpretation of the following diagnostic tests:
- a. Arterial/Venous Blood Gas
 - b. Coagulation studies (PT, PTT, fibrinogen, FSP, D-dimers)
 - c. Complete Blood Count
 - d. Blood chemistries including renal function tests
 - e. Serologic Tests for Infection (hepatitis, mononucleosis)
 - f. Bacterial, viral and fungal cultures including rapid screening tests
 - g. Urinalysis
 - h. Pregnancy Testing

- i. Cerebrospinal Fluid Analysis including studies for viruses and fungi
 - j. Drug Levels and Toxicological Studies
 - k. Chest Radiographs
 - l. Abdominal/Pelvic Radiographs
 - m. Cervical Spine Films
 - n. Head CT
 - o. Chest/Abdominal CT
 - p. MRI
 - q. EKG
 - r. Echocardiography
6. Describe the indications and appropriate techniques, and perform the following procedures *under direct supervision by attending with presence in room*:
 - a. Airway Management
 - i. Endotracheal Intubation
 - ii. Cricothyrotomy
 - iii. Bag-Valve-Mask-Ventilation
 - iv. Rapid Sequence Induction
 - v. Tracheostomy Tube Replacement
 - b. Cardio-Pulmonary
 - i. Thoracentesis
 - ii. Thoracostomy Tube Placement
 - iii. Cardioversion/Defibrillation
 - iv. Conversion of SVT
 - v. Intraosseous Access and Fluid Administration
 - vi. Pericardiocentesis
 - vii. Central Venous Catherization
 - viii. UVC Line Placement
 - ix. Cardiac Pacing – External
 - x. Arterial Line Placement
 - c. Abdominal
 - i. Gastric Lavage
 - ii. Gastrostomy Tube Replacement
 - d. Special Procedures
 - i. Lumbar Puncture
 - ii. Laceration Repair
 - iii. Foreign Body Removal
 - iv. Procedural Sedation
 - v. Incision and Drainage of Abscesses
 - vi. Nasal Packing
 - vii. Regional Nerve Blocks
 - viii. Slit Lamp Examination
 - ix. Intracranial Pressure Monitor
 - e. Orthopedic
 - i. Closed Reduction and Splinting
 - ii. Arthrocentesis
 - iii. Dislocation Reduction
 7. Explain the indications for admission to the hospital ward, critical care unit, neonatal intensive care unit or transfer to another facility.
 8. List important principles in the prioritizing care of multiple patients.
 9. Identify different methods to adjust pace to ED patient acuity, volume and flow.
 10. Function appropriately in resuscitations as a directed team member.

Medical Knowledge

1. Describe the pathophysiology for the following conditions which are encountered in the Pediatric ED:
 - a. Pulmonary: acute pulmonary edema, acute upper airway obstruction (foreign body, allergic, infectious), status asthmaticus, pneumothorax, smoke inhalation, pneumonia, bronchiolitis, acute respiratory distress syndrome, drowning and near drowning, acute illness in a child with cystic fibrosis or bronchopulmonary dysplasia, SIDS
 - b. Cardiovascular: shock, acute blood loss, hypertensive crisis, acute myocardial infarction, cardiopulmonary arrest, cardiac arrhythmias (asystole, bradycardia, SVT, ventricular fibrillation, tachycardia, electromechanical dissociation), congestive heart failure, hypertension, aortic dissection, pericardial effusion, pericarditis, cardiac tamponade, shock (hypovolemic, cardiogenic, spinal, septic), acute illness in a patient with congenital heart disease, endocarditis, myocarditis, rheumatic fever, Kawasaki syndrome
 - c. Neurology: head trauma, acute increased intracranial pressure, cerebral edema, seizures, status epilepticus, stupor and coma, heat injury, weakness, paresis, ataxia, ventriculo-peritoneal shunt malfunction/infection
 - d. Infectious disease: septic shock, meningitis, encephalitis, HIV/AIDS, skin abscess, otitis media, otitis externa, pharyngitis, cervical adenitis, peritonsillar/retropharyngeal abscess, facial/orbital cellulitis, cellulitis, bacteremia, wound/bite infection, acute illness in immunosuppressed host
 - e. Endocrinology: diabetic ketoacidosis, hypoglycemia, hyperosmolar coma, hypocalcemia, hyponatremia, hypernatremia, diabetes insipidus, SIADH, acute illness in child with endocrine/metabolic disease, thyroid storm, acute adrenal insufficiency, congenital adrenal hyperplasia, infant presenting with inborn error of metabolism
 - f. Hematology/Oncology: acute illness in the oncology patient, fever and neutropenia, hemophilia with acute trauma, sickle pain crisis, sequestration, or acute chest syndrome, sickle cell disease with fever, anemia, thrombocytopenia and thrombotic and embolic disease
 - g. Gastroenterology: peptic ulcer disease, GI bleeding, abdominal pain, appendicitis, gastroenteritis, hepatitis, biliary tract disease, pancreatitis, gastroesophageal reflux, dehydration, small bowel obstruction, inflammatory bowel disease
 - h. Surgery: abdominal trauma (blunt/penetrating), acute abdomen, incarcerated hernia, pyloric stenosis, malrotation, massive GI bleeding, burns, foreign bodies, wound care, head or neck trauma, chest trauma, spine trauma, vascular injury, ruptured aortic aneurysm
 - i. Nephrology: hematuria, proteinuria, acute renal failure, end-stage renal disease, nephritic/nephrotic syndrome, glomerulonephritis, hemolytic uremic syndrome, urinary tract infection, edema, electrolyte disorders, acute illness or fever in a dialysis patient, acute illness or fever in a kidney transplant patient
 - j. Urology: balanitis, epididymitis, orchitis, testicular torsion, obstructive uropathy, renal colic
 - k. Allergy: anaphylaxis, angioedema, food allergy, drug allergy
 - l. Obstetrics/Gynecology: vaginal bleeding, vaginal discharge, pelvic inflammatory disease, sexual assault, pelvic pain, ectopic pregnancy, precipitous delivery
 - m. Toxicology and Environmental Exposure: poisoning, drug intoxication (unknown and common: acetaminophen, iron, aspirin, alcohols, cough and cold)

- medications, amphetamines, cocaine), bites and stings, drowning, near-drowning, electrical injuries, heat and cold injuries
- n. Psychiatry: acute psychosis, suicide attempt, acute agitation, aggressive behavior, anxiety
 - o. Orthopedic Surgery: bone and joint infections, overuse injuries, ligament injury, splinting, casting, proper x-rays, sprains, fractures, dislocations
 - p. Ophthalmology: corneal abrasions, eye pain, foreign bodies, acute visual loss, hyphema, globe injury, ocular trauma
 - q. Dermatology: acute drug reactions, contact dermatitis, bacterial, fungal and viral infections of the skin and hair, scabies, lice, cutaneous manifestations of systemic disease, Stevens-Johnson syndrome
 - r. Otolaryngology: epistaxis, foreign body aspiration, epiglottitis, croup, tracheitis, post-operative complications of tonsillectomy and adenoidectomy,
 - s. Social: child abuse or neglect, sexual abuse or assault
2. Explain triage principles in the management of victims or major multi-system trauma, including the rationale for and application of scoring systems.
 3. List important principles necessary for resuscitation of critically ill medical, surgical and trauma patients:
 - a. Management of an obstructed airway
 - b. Risks of delayed airway management with respiratory insufficiency
 - c. Rapid sequence induction, including indications and contraindications
 - d. Indications and principles of assisted ventilation
 - e. Options for vascular access
 - f. Cervical spine immobilization including appropriate alignment of the cervical spine
 - g. Blood product use in the management of shock
 - h. Appropriate fluids and rates for patients in shock
 - i. Indications for immediate thoracotomy
 - j. Indications and contraindications for bladder catheterization
 - k. Indications and contraindications for gastric intubation
 4. List the elements of the primary survey including:
 - a. Major causes of airway obstruction in multi-system trauma
 - b. Risk of cervical spine injury associated with multi-system trauma
 - c. Causes of early acute cardiopulmonary collapse following multi-system trauma
 - d. Distinguish causes of shock based on clinical findings
 - e. Methods of rapid assessment of central nervous system
 5. List the elements of the secondary survey of trauma patients:
 - a. Head (including face, eyes, ear and nose)
 - b. Neck
 - c. Back
 - d. Chest
 - e. Abdomen
 - f. Pelvis and extremities
 - g. Nervous system
 6. Describe the pathophysiology, discuss initial stabilization and ongoing management of the following common traumatic conditions:
 - a. Pulmonary contusion
 - b. Pneumothorax/Hemothorax
 - c. Flail Chest
 - d. Cardiac contusion
 - e. Hemopericardium

- f. Neurologic: head trauma, acute increased intracranial pressure, spinal trauma
 - g. Fractures: pelvic and long bone
 - h. Abdominal trauma: blunt and penetrating (stab wounds versus gunshot wounds)
 - i. Neck wounds
7. Explain the pharmacology of medications used in resuscitation.

Practice-based Learning and Improvement

1. Effectively search the medical literature, analyze the literature and determine its relevance for specific patients.
2. Effectively use online medical resources.
3. Facilitate professional learning with peers.
4. Review challenging cases to identify better patient care management strategies.

Interpersonal Skills and Communication

1. Demonstrate active listening skills including appropriate non-verbal behavior.
2. Effectively communicate with patients and families during critical illness.
3. Demonstrate respect for individual patient concerns and perceptions.
4. Effectively communicate and collaborate with the health care team including physicians, nurses, physical therapists, technicians, paramedics and other health care providers and specialists.
5. Accurately record findings and assessments in the medical record in a timely and legible manner.
6. Communicate with primary care provider for follow-up care.

Professionalism

1. Maintain confidentiality of patient information according to hospital and HIPAA regulations.
2. Respect patient self-autonomy and the right of the patient and family to be involved in care decisions.
3. Place the needs of the patients above personal concerns.
4. Develop an ethically sound relationship with patients and families.
5. Demonstrate respect for other health care professionals.
6. Demonstrate sensitivity and compassion to a variety of patient populations.
7. Apply sensitivity when evaluating cultural influences on patient and family behavior.
8. Demonstrate respect diversity of opinion, age, gender and ethnicity.
9. Develop awareness of ethical and medical-legal principles (emergency consent, AMA, EMTALA, organ donation, DNR, etc.).
10. Recognize the psychosocial needs of patients with traumatic injuries and their families.
11. Responds to pages and messages promptly.
12. Be punctual and respectful of others' time.
13. Demonstrate awareness of personal limitations and ask for help as appropriate.
14. Effectively instruct and mentor medical students.

Systems-based Practice

1. Practice cost-effective health care and resource allocation.
2. Advocate for quality patient care and assist patients in dealing with system complexities.
3. Describe principles of the team approach to the management of a child with major multi-system trauma.
4. Collaborate with other health care providers to facilitate orderly and effective transitions from one care environment to another such as critical care units, operating rooms, floor-

based nursing settings, rehabilitation settings, chronic care facilities, and home care settings.

5. Seek and address potential risk factors for the visit (intimate partner violence, knowledge limitations, etc.).
6. Demonstrate appropriate referral and consultation practices.
7. Coordinate recommendations from consultants.
8. Communicate effectively with members of other Departments (e.g. radiology, laboratory, respiratory therapy, etc.) to facilitate efficiency in obtaining tests and procedures.
9. Explain the role of Emergency Medical Services in the care of the acutely injured and acutely-ill patients.
10. Recognize system errors and recommend quality improvement.
11. Demonstrate advocacy for patients within the health care system.

Second Year Objectives:

After completing this rotation, the fellow will demonstrate the ability to:

Patient Care

1. *Rapidly* perform an appropriate *problem-oriented* history and physical exam.
2. *Rapidly* assess patients with urgent conditions:
 - a. Recognize respiratory failure.
 - b. Manage the airway, including knowledge about and use of appropriate equipment and drugs.
 - c. Manage the acute airway in a child with a tracheostomy tube.
 - d. Recognize shock.
 - e. Formulate a diagnosis quickly, with particular attention to diagnoses that require immediate airway intervention (e.g. depressed mental status, foreign body obstruction).
 - f. Describe indications for admission to a critical care unit.
 - g. Outline plan for stabilization, including relevant physiology, tests and therapies.
3. Generate differential diagnoses, *order appropriate diagnostic studies and formulate treatment plans* for common PEM problems.
 - a. General: septic or ill appearance, unexplained crying, fever, hypothermia, Acute Life Threatening Event, sudden death, weight loss, psychological disturbance, dehydration, alleged or suspected child abuse or neglect
 - b. Allergy: acute allergic reactions
 - c. Respiratory: respiratory effort (increased or decreased), poor air movement, tachypnea, dyspnea, apnea, stridor, wheezing, crackles
 - d. Cardiology: arrhythmia, bradycardia, tachycardia, cardiopulmonary arrest, hypertension, hypotension, quality of pulses, skin perfusion, chest pain
 - e. Neurology: altered mental status, coma, encephalopathy, dizziness, weakness, parasthesias, status epilepticus, neck stiffness
 - f. Gastroenterology: abdominal distention, peritoneal signs, acute hemorrhage, vomiting, diarrhea, constipation, foreign body ingestion, jaundice, difficulty swallowing
 - g. Hematology/Oncology: bleeding, bruising, purpura, petechiae, neutropenia, anemia, thrombocytopenia, lymphadenopathy, hepatosplenomegaly, acute illness or fever in a neutropenic child with cancer
 - h. Nephrology: hematuria, oliguria, anuria, polyuria, edema, dysuria, hypertension
 - i. Urology: groin or scrotal mass or pain
 - j. Dermatology: skin rash, hair loss

- k. Ophthalmology: red eye, abnormal pupils or eye movements, eye pain, visual disturbance
 - l. Otolaryngology: dizziness, nosebleed, sore throat, painful swallowing, earache, ear discharge, new hearing loss
 - m. Endocrinology: polydipsia, polyuria, known diabetic with acute symptoms, thyroid enlargement
 - n. Gynecology: vaginal discharge, vaginal bleeding, amenorrhea, breast masses
 - o. Musculoskeletal: extremity pain, limp, arthralgia, joint swelling, back pain, neck pain
 - p. Psychiatry: depression, suicidal or homicidal ideation, anxiety, aggressiveness
 - q. Trauma: lacerations, burns, fractures
4. *Apply* principles of the team approach to the management of a child and *demonstrate leadership skills* with multi-system trauma.
 5. Explain the indications for and interpretation of and *their relevance to the patient's disease process as well as recognize cost* for the following diagnostic tests:
 - a. Arterial/Venous Blood Gas
 - b. Coagulation studies (PT, PTT, fibrinogen, FSP, D-dimers)
 - c. Complete Blood Count
 - d. Blood chemistries including renal function tests
 - e. Serologic Tests for Infection (hepatitis, mononucleosis)
 - f. Bacterial, viral and fungal cultures including rapid screening tests
 - g. Urinalysis
 - h. Pregnancy Testing
 - i. Cerebrospinal Fluid Analysis including studies for viruses and fungi
 - j. Drug Levels and Toxicological Studies
 - k. Chest Radiographs
 - l. Abdominal/Pelvic Radiographs
 - m. Cervical Spine Films
 - n. Head CT
 - o. Chest/Abdominal CT
 - p. MRI
 - q. EKG
 - r. Echocardiography
 6. Describe the indications and appropriate techniques *and risks*, and perform the following procedures *under direct supervision by attending*:
 - a. Airway Management
 - i. Endotracheal Intubation
 - ii. Cricothyrotomy
 - iii. Bag-Valve-Mask-Ventilation
 - iv. Rapid Sequence Induction
 - v. Tracheostomy Tube Replacement
 - b. Cardio-Pulmonary
 - i. Thoracentesis
 - ii. Thoracostomy Tube Placement
 - iii. Cardioversion/Defibrillation
 - iv. Conversion of SVT
 - v. Intraosseous Access and Fluid Administration
 - vi. Pericardiocentesis
 - vii. Central Venous Catherization
 - viii. UVC Line Placement
 - ix. Cardiac Pacing – External

- x. Arterial Line Placement
 - c. Abdominal
 - i. Gastric Lavage
 - ii. Gastrostomy Tube Replacement
 - d. Special Procedures
 - i. Lumbar Puncture
 - ii. Laceration Repair
 - iii. Foreign Body Removal
 - iv. Procedural Sedation
 - v. Incision and Drainage of Abscesses
 - vi. Nasal Packing
 - vii. Regional Nerve Blocks
 - viii. Slit Lamp Examination
 - ix. Intracranial Pressure Monitor
 - e. Orthopedic
 - i. Closed Reduction and Splinting
 - ii. Arthrocentesis
 - iii. Dislocation Reduction
- 7. *Demonstrate knowledge* of the indications for admission to the hospital ward, critical care unit, neonatal intensive care unit or transfer to another facility.
- 8. *Appropriately prioritize* the care of multiple patients.
- 9. *Adjust pace appropriately* to ED patient acuity, volume and flow.
- 10. Function appropriately in resuscitations as *an autonomous team member* and *begin to demonstrate team leadership skills*.

Medical Knowledge

1. Describe the pathophysiology, *explain possible disease and treatment complications and outline an evidence-based approach to the management* for the following conditions which are encountered in the Pediatric ED:
 - a. Pulmonary: acute pulmonary edema, acute upper airway obstruction (foreign body, allergic, infectious), status asthmaticus, pneumothorax, smoke inhalation, pneumonia, bronchiolitis, acute respiratory distress syndrome, drowning and near drowning, acute illness in a child with cystic fibrosis or bronchopulmonary dysplasia, SIDS
 - b. Cardiovascular: shock, acute blood loss, hypertensive crisis, acute myocardial infarction, cardiopulmonary arrest, cardiac arrhythmias (asystole, bradycardia, SVT, ventricular fibrillation, tachycardia, electromechanical dissociation), congestive heart failure, hypertension, aortic dissection, pericardial effusion, pericarditis, cardiac tamponade, shock (hypovolemic, cardiogenic, spinal, septic), acute illness in a patient with congenital heart disease, endocarditis, myocarditis, rheumatic fever, Kawasaki syndrome
 - c. Neurology: head trauma, acute increased intracranial pressure, cerebral edema, seizures, status epilepticus, stupor and coma, heat injury, weakness, paresis, ataxia, ventriculo-peritoneal shunt malfunction/infection
 - d. Infectious disease: septic shock, meningitis, encephalitis, HIV/AIDS, skin abscess, otitis media, otitis externa, pharyngitis, cervical adenitis, peritonsillar/retropharyngeal abscess, facial/orbital cellulitis, cellulitis, bacteremia, wound/bite infection, acute illness in immunosuppressed host
 - e. Endocrinology: diabetic ketoacidosis, hypoglycemia, hyperosmolar coma, hypocalcemia, hyponatremia, hypernatremia, diabetes insipidus, SIADH, acute illness in child with endocrine/metabolic disease, thyroid storm, acute adrenal

insufficiency, congenital adrenal hyperplasia, infant presenting with inborn error of metabolism

- f. Hematology/Oncology: acute illness in the oncology patient, fever and neutropenia, hemophilia with acute trauma, sickle pain crisis, sequestration, or acute chest syndrome, sickle cell disease with fever, anemia, thrombocytopenia and thrombotic and embolic disease
 - g. Gastroenterology: peptic ulcer disease, GI bleeding, abdominal pain, appendicitis, gastroenteritis, hepatitis, biliary tract disease, pancreatitis, gastroesophageal reflux, dehydration, small bowel obstruction, inflammatory bowel disease
 - h. Surgery: abdominal trauma (blunt/penetrating), acute abdomen, incarcerated hernia, pyloric stenosis, malrotation, massive GI bleeding, burns, foreign bodies, wound care, head or neck trauma, chest trauma, spine trauma, vascular injury, ruptured aortic aneurysm
 - i. Nephrology: hematuria, proteinuria, acute renal failure, end-stage renal disease, nephritic/nephrotic syndrome, glomerulonephritis, hemolytic uremic syndrome, urinary tract infection, edema, electrolyte disorders, acute illness or fever in a dialysis patient, acute illness or fever in a kidney transplant patient
 - j. Urology: balanitis, epididymitis, orchitis, testicular torsion, obstructive uropathy, renal colic
 - k. Allergy: anaphylaxis, angioedema, food allergy, drug allergy
 - l. Obstetrics/Gynecology: vaginal bleeding, vaginal discharge, pelvic inflammatory disease, sexual assault, pelvic pain, ectopic pregnancy, precipitous delivery
 - m. Toxicology and Environmental Exposure: poisoning, drug intoxication (unknown and common: acetaminophen, iron, aspirin, alcohols, cough and cold medications, amphetamines, cocaine), bites and stings, drowning, near-drowning, electrical injuries, heat and cold injuries
 - n. Psychiatry: acute psychosis, suicide attempt, acute agitation, aggressive behavior, anxiety
 - o. Orthopedics: bone and joint infections, overuse injuries, ligament injury, splinting, casting, proper x-rays, sprains, fractures, dislocations
 - p. Ophthalmology: corneal abrasions, eye pain, foreign bodies, acute visual loss, hyphema, globe injury, ocular trauma
 - q. Dermatology: acute drug reactions, contact dermatitis, bacterial, fungal and viral infections of the skin and hair, scabies, lice, cutaneous manifestations of systemic disease, Stevens-Johnson syndrome
 - r. Otolaryngology: epistaxis, foreign body aspiration, epiglottitis, croup, tracheitis, post-operative complications of tonsillectomy and adenoidectomy
 - s. Social: child abuse or neglect, sexual abuse or assault
2. *Apply and demonstrate the use* of triage principles in the management of victims or major multi-system trauma, including the rationale for and application of scoring systems.
 3. *Explain the rationale and demonstrate the necessary skills* for resuscitation of critically ill medical, surgical and trauma patients:
 - a. Management of an obstructed airway
 - b. Risks of delayed airway management with respiratory insufficiency
 - c. Rapid sequence induction, including indications and contraindications
 - d. Indications and principles of assisted ventilation
 - e. Options for vascular access
 - f. Cervical spine immobilization including appropriate alignment of the cervical spine

- g. Blood product use in the management of shock
 - h. Appropriate fluids and rates for patients in shock
 - i. Indications for immediate thoracotomy
 - j. Indications and contraindications for bladder catheterization
 - k. Indications and contraindications for gastric intubation
4. *Demonstrate and perform* the elements of the primary survey including:
 - a. Major causes of airway obstruction in multi-system trauma
 - b. Risk of cervical spine injury associated with multi-system trauma
 - c. Causes of early acute cardiopulmonary collapse following multi-system trauma
 - d. Distinguish causes of shock based on clinical findings
 - e. Methods of rapid assessment of central nervous system
 5. *Demonstrate and perform* the elements of the secondary survey of trauma patients:
 - a. Head (including face, eyes, ear and nose)
 - b. Neck
 - c. Back
 - d. Chest
 - e. Abdomen
 - f. Pelvis and extremities
 - g. Nervous system
 6. Describe the pathophysiology, discuss initial stabilization and ongoing management *and explain possible disease and treatment complications* of the following common traumatic conditions:
 - a. Pulmonary contusion
 - b. Pneumothorax/Hemothorax
 - c. Flail Chest
 - d. Cardiac contusion
 - e. Hemopericardium
 - f. Neurologic: head trauma, acute increased intracranial pressure, spinal trauma
 - g. Fractures: pelvic and long bone
 - h. Abdominal trauma: blunt and penetrating (stab wounds versus gunshot wounds)
 - i. Neck wounds
 7. *Demonstrate and apply knowledge regarding the pharmacology of medications used in resuscitation by choosing medications appropriately.*

Practice-based Learning and Improvement

1. Effectively search the medical literature, analyze the literature and determine its relevance for specific patients.
2. Effectively use online medical resources.
3. Facilitate professional learning with peers.
4. Review challenging cases to identify better patient care management strategies.

Interpersonal Skills and Communication

1. Demonstrate active listening skills including appropriate non-verbal behavior.
2. Effectively communicate with patients and families during critical illness.
3. Demonstrate respect for individual patient concerns and perceptions.
4. Effectively communicate and collaborate with the health care team including physicians, nurses, physical therapists, technicians, paramedics and other health care providers and specialists.
5. Accurately record findings and assessments in the medical record in a timely and legible manner.

6. Communicate with primary care provider for follow-up care.

Professionalism

1. Maintain confidentiality of patient information according to hospital and HIPAA regulations.
2. Respect patient self-autonomy and the right of the patient and family to be involved in care decisions.
3. Place the needs of the patients above personal concerns.
4. Develop an ethically sound relationship with patients and families.
5. Demonstrate respect for other health care professionals.
6. Demonstrate sensitivity and compassion to a variety of patient populations.
7. Apply sensitivity when evaluating cultural influences on patient and family behavior.
8. Demonstrate respect diversity of opinion, age, gender and ethnicity.
9. *Demonstrate* ethical and medical-legal principles (emergency consent, AMA, EMTALA, organ donation, DNR, etc.).
10. Recognize the psychosocial needs of patients with traumatic injuries and their families.
11. Responds to pages and messages promptly.
12. Be punctual and respectful of others' time.
13. Demonstrate awareness of personal limitations and ask for help as appropriate.
14. Effectively instruct, mentor and *begin to supervise* medical students and residents.

Systems-based Practice

1. Practice cost-effective health care and resource allocation.
2. Advocate for quality patient care and assist patients in dealing with system complexities.
3. Describe principles of the team approach to the management of a child with major multi-system trauma.
4. Collaborate with other health care providers to facilitate orderly and effective transitions from one care environment to another such as critical care units, operating rooms, floor-based nursing settings, rehabilitation settings, chronic care facilities, and home care settings.
5. Seek and address potential risk factors for the visit (intimate partner violence, knowledge limitations, etc.).
6. Demonstrate appropriate referral and consultation practices.
7. Coordinate recommendations from consultants.
8. Communicate effectively with members of other Departments (e.g. radiology, laboratory, respiratory therapy, etc.) to facilitate efficiency in obtaining tests and procedures.
9. Explain the role of Emergency Medical Services in the care of the acutely injured and acutely-ill patients.
10. Recognize system errors and recommend quality improvement.
11. Demonstrate advocacy for patients within the health care system.

Third Year Objectives:

After completing this rotation, the fellow will demonstrate the ability to:

Patient Care

1. *Instruct and critique residents and medical students on their performance of a history and physical exam.*
2. *Instruct and critique the assessment of patients with urgent conditions by residents and medical students.*
 - a. Recognize respiratory failure.

- b. Manage the acute airway, including knowledge about and use of appropriate equipment and drugs.
 - c. Manage the airway in a child with a tracheostomy tube.
 - d. Recognize shock.
 - e. Formulate a diagnosis quickly, with particular attention to diagnoses that require immediate airway intervention (e.g. depressed mental status, foreign body obstruction).
 - f. Describe indications for admission to a critical care unit.
 - g. Outline plan for stabilization, including relevant physiology, tests and therapies.
3. *Instruct and critique residents and medical students as they generate differential diagnoses, order diagnostic studies and formulate treatment plans for common PEM problems.*
- a. General: septic or ill appearance, unexplained crying, fever, hypothermia, Acute Life Threatening Event, sudden death, weight loss, psychological disturbance, dehydration, alleged or suspected child abuse or neglect
 - b. Allergy: acute allergic reactions
 - c. Respiratory: respiratory effort (increased or decreased), poor air movement, tachypnea, dyspnea, apnea, stridor, wheezing, crackles
 - d. Cardiology: arrhythmia, bradycardia, tachycardia, cardiopulmonary arrest, hypertension, hypotension, quality of pulses, skin perfusion, chest pain
 - e. Neurology: altered mental status, coma, encephalopathy, dizziness, weakness, paresthesias, status epilepticus, neck stiffness
 - f. Gastroenterology: abdominal distention, peritoneal signs, acute hemorrhage, vomiting, diarrhea, constipation, foreign body ingestion, jaundice, difficulty swallowing
 - g. Hematology/Oncology: bleeding, bruising, purpura, petechiae, neutropenia, anemia, thrombocytopenia, lymphadenopathy, hepatosplenomegaly, acute illness or fever in a neutropenic child with cancer
 - h. Nephrology: hematuria, oliguria, anuria, polyuria, edema, dysuria, hypertension
 - i. Urology: groin or scrotal mass or pain
 - j. Dermatology: skin rash, hair loss
 - k. Ophthalmology: red eye, abnormal pupils or eye movements, eye pain, visual disturbance
 - l. Otolaryngology: dizziness, nosebleed, sore throat, painful swallowing, earache, ear discharge, new hearing loss
 - m. Endocrinology: polydipsia, polyuria, known diabetic with acute symptoms, thyroid enlargement
 - n. Gynecology: vaginal discharge, vaginal bleeding, amenorrhea, breast masses
 - o. Musculoskeletal: extremity pain, limp, arthralgia, joint swelling, back pain, neck pain
 - p. Psychiatry: depression, suicidal or homicidal ideation, anxiety, aggressiveness
 - q. Trauma: lacerations, burns fractures
4. *Demonstrate* the principles of the team approach to the management of a child with multi-system trauma *through leadership during trauma activations.*
5. *Instruct residents and medical students* on the indications for and interpretation of, limitations of and their relevance to the patient's disease process as well as recognize costs for the following diagnostic tests:
- a. Arterial/Venous Blood Gas
 - b. Coagulation studies (PT, PTT, fibrinogen, FSP, D-dimers)
 - c. Complete Blood Count
 - d. Blood Chemistries including renal function tests

- e. Serologic Tests for Infection (hepatitis, mononucleosis)
 - f. Bacterial, Viral and Fungal Cultures including Rapid Screening Tests
 - g. Urinalysis
 - h. Pregnancy Testing
 - i. Cerebrospinal Fluid Analysis including studies for viruses and fungi
 - j. Drug Levels and Toxicological Studies
 - k. Chest Radiographs
 - l. Abdominal/Pelvic Radiographs
 - m. Cervical Spine Films
 - n. Head CT
 - o. Chest/Abdominal CT
 - p. MRI
 - q. EKG
 - r. Echocardiography
6. *Instruct residents and medical students* on the indications and appropriate techniques and risks, limitations and alternatives, and *supervise their performance* of the following procedures *under indirect supervision with attending available*:
- a. Airway Management
 - i. Endotracheal Intubation
 - ii. Cricothyrotomy
 - iii. Bag-Valve-Mask-Ventilation
 - iv. Rapid Sequence Induction
 - v. Tracheostomy Tube Replacement
 - b. Cardio-Pulmonary
 - i. Thoracentesis
 - ii. Thoracostomy Tube Placement
 - vi. Cardioversion/Defibrillation
 - vii. Conversion of SVT
 - viii. Intraosseous Access and Fluid Administration
 - ix. Pericardiocentesis
 - x. Central Venous Catherization
 - xi. UVC Line Placement
 - xii. Cardiac Pacing – External
 - xiii. Arterial Line Placement
 - c. Abdominal
 - i. Gastric Lavage
 - ii. Gastrostomy Tube Replacement
 - d. Special Procedures
 - i. Lumbar Puncture
 - ii. Laceration Repair
 - iii. Foreign Body Removal
 - iv. Procedural Sedation
 - v. Incision and Drainage of Abscesses
 - vi. Nasal Packing
 - vii. Regional Nerve Blocks
 - viii. Slit Lamp Examination
 - ix. Intracranial Pressure Monitor
 - e. Orthopedic
 - i. Closed Reduction and Splinting
 - ii. Arthrocentesis
 - iii. Dislocation Reduction

7. Demonstrate *and instruct residents and medical students* on the indications for admission to the hospital ward, critical care unit, neonatal intensive care unit or transfer to another facility.
8. *Demonstrate the ability to prioritize the care of multiple patients as a supervisor.*
9. *Demonstrate the ability to adjust pace to ED patient acuity, volume and flow.*
10. Function appropriately *and autonomously* in resuscitations *as the team leader.*

Medical Knowledge

1. *Critique the explanation and description of the pathophysiology, possible disease and treatment complications given by residents and medical students, critique the approach to the management suggested by residents and medical students using an evidence-based approach and explain the rationale for decisions regarding disposition* for the following conditions which are encountered in the Pediatric ED:
 - a. Pulmonary: acute pulmonary edema, acute upper airway obstruction (foreign body, allergic, infectious), status asthmaticus, pneumothorax, smoke inhalation, pneumonia, bronchiolitis, acute respiratory distress syndrome, drowning and near drowning, acute illness in a child with cystic fibrosis or bronchopulmonary dysplasia, SIDS
 - b. Cardiovascular: shock, acute blood loss, hypertensive crisis, acute myocardial infarction, cardiopulmonary arrest, cardiac arrhythmias (asystole, bradycardia, SVT, ventricular fibrillation, tachycardia, electromechanical dissociation), congestive heart failure, hypertension, aortic dissection, pericardial effusion, pericarditis, cardiac tamponade, shock (hypovolemic, cardiogenic, spinal, septic), acute illness in a patient with congenital heart disease, endocarditis, myocarditis, rheumatic fever, Kawasaki syndrome
 - c. Neurology: head trauma, acute increased intracranial pressure, cerebral edema, seizures, status epilepticus, stupor and coma, heat injury, weakness, paresis, ataxia, ventriculo-peritoneal shunt malfunction/infection
 - d. Infectious disease: septic shock, meningitis, encephalitis, HIV/AIDS, skin abscess, otitis media, otitis externa, pharyngitis, cervical adenitis, peritonsillar/retropharyngeal abscess, facial/orbital cellulitis, cellulitis, bacteremia, wound/bite infection, acute illness in immunosuppressed host
 - e. Endocrinology: diabetic ketoacidosis, hypoglycemia, hyperosmolar coma, hypocalcemia, hyponatremia, hypernatremia, diabetes insipidus, SIADH, acute illness in child with endocrine/metabolic disease, thyroid storm, acute adrenal insufficiency, congenital adrenal hyperplasia, infant presenting with inborn error of metabolism
 - f. Hematology/Oncology: acute illness in the oncology patient, fever and neutropenia, hemophilia with acute trauma, sickle pain crisis, sequestration, or acute chest syndrome, sickle cell disease with fever, anemia, thrombocytopenia and thrombotic and embolic disease
 - g. Gastroenterology: peptic ulcer disease, GI bleeding, abdominal pain, appendicitis, gastroenteritis, hepatitis, biliary tract disease, pancreatitis, gastroesophageal reflux, dehydration, small bowel obstruction, inflammatory bowel disease
 - h. Surgery: abdominal trauma (blunt/penetrating), acute abdomen, incarcerated hernia, pyloric stenosis, malrotation, massive GI bleeding, burns, foreign bodies, wound care, head or neck trauma, chest trauma, spine trauma, vascular injury, ruptured aortic aneurysm
 - i. Nephrology: hematuria, proteinuria, acute renal failure, end-stage renal disease, nephritic/nephrotic syndrome, glomerulonephritis, hemolytic uremic syndrome,

- urinary tract infection, edema, electrolyte disorders, acute illness or fever in a dialysis patient, acute illness or fever in a kidney transplant patient
- j. Urology: balanitis, epididymitis, orchitis, testicular torsion, obstructive uropathy, renal colic
 - k. Allergy: anaphylaxis, angioedema, food allergy, drug allergy
 - l. Obstetrics/Gynecology: vaginal bleeding, vaginal discharge, pelvic inflammatory disease, sexual assault, pelvic pain, ectopic pregnancy, precipitous delivery
 - m. Toxicology and Environmental Exposure: poisoning, drug intoxication (unknown and common: acetaminophen, iron, aspirin, alcohols, cough and cold medications, amphetamines, cocaine), bites and stings, drowning, near-drowning, electrical injuries, heat and cold injuries
 - n. Psychiatry: acute psychosis, suicide attempt, acute agitation, aggressive behavior, anxiety
 - o. Orthopedic Surgery: bone and joint infections, overuse injuries, ligament injury, splinting, casting, proper x-rays, sprains, fractures, dislocations
 - p. Ophthalmology: corneal abrasions, eye pain, foreign bodies, acute visual loss, hyphema, globe injury, ocular trauma
 - q. Dermatology: acute drug reactions, contact dermatitis, bacterial, fungal and viral infections of the skin and hair, scabies, lice, cutaneous manifestations of systemic disease, Stevens-Johnson syndrome
 - r. Otolaryngology: epistaxis, foreign body aspiration, epiglottitis, croup, tracheitis, post-operative complications of tonsillectomy and adenoidectomy
 - s. Social: child abuse or neglect, sexual abuse or assault
2. *Demonstrate and instruct residents and medical students* on triage principles in the management of victims or major multi-system trauma, including the rationale for and application of scoring systems.
 3. *Demonstrate and instruct residents and medical students* on important principles necessary for resuscitation of critically ill medical, surgical and trauma patients:
 - a. Management of an obstructed airway
 - b. Risks of delayed airway management with respiratory insufficiency
 - c. Rapid sequence induction, including indications and contraindications
 - d. Indications and principles of assisted ventilation
 - e. Options for vascular access
 - f. Cervical spine immobilization including appropriate alignment of the cervical spine
 - g. Blood product use in the management of shock
 - h. Appropriate fluids and rates for patients in shock
 - i. Indications for immediate thoracotomy
 - j. Indications and contraindications for bladder catheterization
 - k. Indications and contraindications for gastric intubation
 4. *Demonstrate and instruct* on the elements of the primary survey including:
 - a. Major causes of airway obstruction in multi-system trauma
 - b. Risk of cervical spine injury associated with multi-system trauma
 - c. Causes of early acute cardiopulmonary collapse following multi-system trauma
 - d. Distinguish causes of shock based on clinical findings
 - e. Methods of rapid assessment of central nervous system
 5. *Demonstrate and instruct* on the elements of the secondary survey of trauma patients:
 - a. Head (including face, eyes, ear and nose)
 - b. Neck
 - c. Back
 - d. Chest

- e. Abdomen
 - f. Pelvis and extremities
 - g. Nervous system
6. *Instruct residents and medical students on the pathophysiology, discuss initial stabilization and ongoing management and explain possible disease and treatment complications of the following common traumatic conditions:*
 - a. Pulmonary contusion
 - b. Pneumothorax/Hemothorax
 - c. Flail Chest
 - d. Cardiac contusion
 - e. Hemopericardium
 - f. Neurologic: head trauma, acute increased intracranial pressure, spinal trauma
 - g. Fractures: pelvic and long bone
 - h. Abdominal trauma: blunt and penetrating (stab wounds versus gunshot wounds)
 - i. Neck wounds
 7. *Instruct and critique resident's and medical student's knowledge regarding the pharmacology of medications used in resuscitation by demonstrating appropriate medications choices.*

Practice-based Learning and Improvement

1. Effectively search the medical literature, analyze the literature and determine its relevance for specific patients.
2. Effectively use online medical resources.
3. Facilitate professional learning with peers.
4. Review challenging cases to identify better patient care management strategies.

Interpersonal Skills and Communication

1. Demonstrate active listening skills including appropriate non-verbal behavior.
2. Effectively communicate with patients and families during critical illness.
3. Demonstrate respect for individual patient concerns and perceptions.
4. Effectively communicate and collaborate with the health care team including physicians, nurses, physical therapists, technicians, paramedics and other health care providers and specialists.
5. Accurately record findings and assessments in the medical record in a timely and legible manner.
6. Communicate with primary care provider for follow-up care.

Professionalism

1. Maintain confidentiality of patient information according to hospital and HIPAA regulations.
2. Respect patient self-autonomy and the right of the patient and family to be involved in care decisions.
3. Place the needs of the patients above personal concerns.
4. Develop an ethically sound relationship with patients and families.
5. Demonstrate respect for other health care professionals.
6. Demonstrate sensitivity and compassion to a variety of patient populations.
7. Apply sensitivity when evaluating cultural influences on patient and family behavior.
8. Demonstrate respect diversity of opinion, age, gender and ethnicity.
9. *Demonstrate and instruct* the ethical and medical-legal principles (emergency consent, AMA, EMTALA, organ donation, DNR, etc.).
10. Recognize the psychosocial needs of patients with traumatic injuries and their families.

11. Responds to pages and messages promptly.
12. Be punctual and respectful of others' time.
13. Demonstrate awareness of personal limitations and ask for help as appropriate.
14. Effectively instruct, mentor and *supervise* medical students *and residents*.

Systems-based Practice

1. Practice cost-effective health care and resource allocation.
2. Advocate for quality patient care and assist patients in dealing with system complexities.
3. Describe principles of the team approach to the management of a child with major multi-system trauma.
4. Collaborate with other health care providers to facilitate orderly and effective transitions from one care environment to another such as critical care units, operating rooms, floor-based nursing settings, rehabilitation settings, chronic care facilities, and home care settings.
5. Seek and address potential risk factors for the visit (intimate partner violence, knowledge limitations, etc.).
6. Demonstrate appropriate referral and consultation practices.
7. Coordinate recommendations from consultants.
8. Communicate effectively with members of other Departments (e.g. radiology, laboratory, respiratory therapy, etc.) to facilitate efficiency in obtaining tests and procedures.
9. Explain the role of Emergency Medical Services in the care of the acutely injured and acutely-ill patients.
10. Recognize system errors and recommend quality improvement.
11. Demonstrate advocacy for patients within the health care system.