

3. PEM Subspecialty Resident Rotation in Emergency Medicine and Trauma

Experience:

The experience for the PEM subspecialty residents during the emergency medicine and trauma rotation includes the care of trauma/surgical and emergency medical conditions such as: acute cardiac, respiratory, abdominal, neurologic, toxicologic, obstetric/gynecologic, and psychiatric. PEM subspecialty residents evaluate about 15-20 patients per shift under the direct supervision of board certified emergency medicine physicians at UNMH Adult ED. UNMH is a Level One Trauma Center.

Goals:

1. Learn the general principles of the diagnosis and management of major trauma.
2. Learn the general principles of the diagnosis and management of minor trauma.
3. Learn the general principles of the diagnosis and management of medical emergencies in adult patients such as: acute myocardial infarction, stroke, congestive heart failure, pulmonary embolism and toxicologic overdose. Exposure to obstetric and gynecologic and psychiatric emergencies is also expected.

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. Formulate a diagnosis quickly, with particular attention to diagnoses that require immediate airway intervention (e.g. depressed mental status, foreign body obstruction).
 - e. Describe indications for admission to a critical care unit.
 - f. Outline plan for stabilization, including relevant physiology, tests and therapies.
3. Generate differential diagnoses, order appropriate diagnostic studies and formulate treatment plans for common emergency medicine problems.
4. Describe principles of the team approach to the management of an adult or 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. Cerebrospinal Fluid Analysis including studies for viruses and fungi
 - e. Drug Levels and Toxicological Studies
 - f. Chest Radiographs
 - g. Abdominal/Pelvic Radiographs
 - h. Cervical Spine Films

- i. FAST (Focused Assessment by Sonography in Trauma)
 - j. EKG
 - k. Head CT
 - l. Chest/Abdominal CT
 - m. MRI
6. Describe the indications and appropriate techniques, and perform the following procedures under direct supervision by attending *with presence in room (independent competence not expected for all procedures)*:
- 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. Thoracostomy Tube Placement
 - ii. Cardioversion/Defibrillation
 - iii. Conversion of SVT
 - iv. Intraosseous Access and Fluid Administration
 - v. Pericardiocentesis
 - vi. Central Venous Catheterization (including U/S guided techniques)
 - vii. Cardiac Pacing – External
 - viii. Venous Cutdown
 - ix. Arterial Line Placement
 - c. Abdominal
 - i. Peritoneal Lavage
 - ii. Gastric Lavage
 - d. Special Procedures
 - i. Lumbar Puncture
 - ii. Laceration Repair
 - iii. Vaginal Delivery
 - iv. Foreign Body Removal
 - v. Procedural Sedation
 - vi. Incision and Drainage of Abscesses
 - vii. Nasal Packing
 - viii. Peritonsillar Abscess Drainage
 - ix. Regional Nerve Blocks (including U/S guided techniques such as brachial plexus blocks)
 - x. Dental Blocks
 - xi. Slit Lamp Examination
 - xii. Intracranial Pressure Monitor
 - xiii. Paracentesis
 - e. Orthopedic
 - i. Closed Reduction and Splinting
 - ii. Arthrocentesis
 - iii. Dislocation Reduction
7. List important principles in prioritizing the care of multiple patients.
8. Identify different methods to adjust pace to ED patient acuity, volume and flow.
9. Function appropriately in resuscitations as a directed team member.

Medical Knowledge

1. Describe the pathophysiology for the following conditions which are encountered in the ED:
 - a. Pulmonary: acute pulmonary edema, acute upper airway obstruction (foreign body, allergic, infectious), status asthmaticus, pneumothorax, smoke inhalation, pulmonary embolus, pneumonia, acute respiratory distress syndrome, drowning and near drowning
 - b. Cardiovascular: shock, acute blood loss, hypertensive crisis, acute myocardial infarction, cardiopulmonary arrest, cardiac arrhythmias, congestive heart failure, hypertension, aortic dissection, pericardial effusion, cardiac tamponade
 - c. Neurology: head trauma, acute increased intracranial pressure, cerebral edema, status epilepticus, stupor and coma, heat injury
 - d. Infectious disease: septic shock, meningitis, encephalitis, HIV/AIDS, cellulitis, abscess
 - e. Endocrinology: diabetic ketoacidosis, hypoglycemia, hyperosmolar coma
 - f. Hematology/Oncology: acute illness in the oncology patient, fever and neutropenia, hemophilia with acute trauma, sick cell pain crisis, sequestration, or acute chest syndrome, sickle cell disease with fever, anemia, thrombocytopenia and thrombotic and embolic disease
 - a. Gastroenterology: peptic ulcer disease, GI bleeding, abdominal pain, appendicitis, small bowel obstruction, inflammatory bowel disease, end-stage liver disease
 - b. Surgery: necrotizing fasciitis, abdominal trauma (blunt/penetrating), acute abdomen, massive GI bleeding, burns, foreign bodies, wound care, ruptured aortic aneurysm
 - c. Nephrology: hematuria, proteinuria, acute renal failure, end-stage renal disease, urinary tract infection, edema, electrolyte disorders, acute illness or fever in a dialysis patient, acute illness or fever in a kidney transplant patient
 - d. Urology: epididymitis, orchitis, testicular torsion, renal colic, obstructive uropathy
 - e. Allergy: anaphylaxis, angioedema
 - f. Obstetrics/Gynecology: pelvic inflammatory disease, sexual assault, pelvic pain, ectopic pregnancy, precipitous delivery
 - g. 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
 - h. Psychiatry: acute psychosis, suicide attempt, acute agitation
 - i. Orthopedic Surgery: splinting, casting, proper x-rays, sprains, fractures, dislocations
 - j. Ophthalmology: corneal abrasions, eye pain, foreign bodies, acute visual loss, ocular trauma
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 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

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 an adult or 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. Explain the role of Emergency Medical Services in the care of the acutely injured and acutely-ill patients.
8. Recognize system errors and recommend quality improvement.
9. 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. Perform an appropriate *problem-oriented* history and physical exam.
2. *Rapidly* 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. Formulate a diagnosis quickly, with particular attention to diagnoses that require immediate airway intervention (e.g. depressed mental status, foreign body obstruction).
 - e. Describe indications for admission to a critical care unit.
 - f. Outline plan for stabilization, including relevant physiology, tests and therapies.

3. Generate differential diagnoses, order appropriate diagnostic studies and formulate treatment plans for common emergency medicine problems.
4. *Apply* principles of the team approach to the management of an adult or child with multi-system trauma.
5. Explain the indications for, interpretation of and *their relevance to the patient's disease process* for the following diagnostic tests:
 - a. Arterial/Venous Blood Gas
 - b. Coagulation studies (PT, PTT, fibrinogen, FSP, D-dimers)
 - c. Complete Blood Count
 - d. Cerebrospinal Fluid Analysis including studies for viruses and fungi
 - e. Drug Levels and Toxicological Studies
 - f. Chest Radiographs
 - g. Abdominal/Pelvic Radiographs
 - h. FAST (Focused Assessment by Sonography in trauma)
 - i. EKG
 - j. Cervical Spine Films
 - k. Head CT
 - l. Chest/Abdominal CT
 - m. MRI
6. Describe the indications, appropriate techniques *and risks*, and perform the following procedures under direct supervision by attending *with presence in room (independent competence not expected for all procedures)* :
 - a. Airway Management
 - i. Cricothyrotomy
 - ii. Tracheostomy Tube Replacement
 - b. Cardio-Pulmonary
 - i. Cardioversion/Defibrillation
 - ii. Pericardiocentesis
 - iii. Cardiac Pacing – External
 - iv. Venous Cutdown
 - c. Abdominal
 - i. Peritoneal Lavage
 - d. Special Procedures
 - i. Vaginal Delivery
 - ii. Peritonsillar Abscess Drainage
 - iii. Regional Nerve Blocks (including U/S guided techniques such as brachial plexus blocks)
 - iv. Dental Blocks
 - v. Intracranial Pressure Monitor
 - vi. Paracentesis
 - e. Orthopedic
 - i. Arthrocentesis
 - ii. Dislocation Reduction
7. Describe the indications, appropriate techniques *and risks*, and perform the following procedures *under direct supervision by attending*:
 - a. Airway Management
 - i. Endotracheal Intubation
 - ii. Bag-Valve-Mask-Ventilation
 - iii. Rapid Sequence Induction
 - b. Cardio-Pulmonary
 - i. Thoracostomy Tube Placement

- ii. Conversion of SVT
 - iii. Intraosseous Access and Fluid Administration
 - iv. Central Venous Catheterization (including U/S guided techniques)
 - v. Arterial Line Placement
 - c. Abdominal
 - i. Gastric Lavage
 - 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. Slit Lamp Examination
 - e. Orthopedic
 - i. Closed Reduction and Splinting
8. *Apply important principles* in prioritizing the care of multiple patients to practice.
 9. *Apply* different methods to adjust pace to ED patient acuity, volume and flow.
 10. Function appropriately in resuscitations as an *autonomous team member*.

Medical Knowledge

1. Describe the pathophysiology and *explain possible disease and treatment complications* for the following conditions which are encountered in the ED:
 - a. Pulmonary: acute pulmonary edema, acute upper airway obstruction (foreign body, allergic, infectious), status asthmaticus, pneumothorax, smoke inhalation, pulmonary embolus, pneumonia, acute respiratory distress syndrome, drowning and near drowning
 - b. Cardiovascular: shock, acute blood loss, hypertensive crisis, acute myocardial infarction, cardiopulmonary arrest, cardiac arrhythmias, congestive heart failure, hypertension, aortic dissection, pericardial effusion, cardiac tamponade
 - c. Neurology: head trauma, acute increased intracranial pressure, cerebral edema, status epilepticus, stupor and coma, heat injury
 - d. Infectious disease: septic shock, meningitis, encephalitis, HIV/AIDS, cellulitis, abscess
 - e. Endocrinology: diabetic ketoacidosis, hypoglycemia, hyperosmolar coma
 - f. Hematology/Oncology: acute illness in the oncology patient, fever and neutropenia, hemophilia with acute trauma, sick cell 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, small bowel obstruction, inflammatory bowel disease, end-stage liver disease
 - h. Surgery: necrotizing fasciitis, abdominal trauma (blunt/penetrating), acute abdomen, massive GI bleeding, burns, foreign bodies, wound care, ruptured aortic aneurysm
 - i. Nephrology: hematuria, proteinuria, acute renal failure, end-stage renal disease, 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: epididymitis, orchitis, testicular torsion, renal colic, obstructive uropathy
 - k. Allergy: anaphylaxis, angioedema

- l. Obstetrics/Gynecology: 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
 - o. Orthopedic Surgery: splinting, casting, proper x-rays, sprains, fractures, dislocations
 - p. Ophthalmology: corneal abrasions, eye pain, foreign bodies, acute visual loss, ocular trauma
2. *Apply* 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 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. *Explain the rationale* and 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. *Explain the rationale* and 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 and 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

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, collaborate and *begin to direct* 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. *Apply* 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 an adult or 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. *Demonstrate collaboration* with Emergency Medical Services in the care of the acutely injured and acutely-ill patients.
8. Recognize system errors and recommend quality improvement.
9. 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. *Rapidly* perform an appropriate problem-oriented history and physical exam.
2. *Demonstrate* the rapid assessment of patients with urgent conditions to 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. Formulate a diagnosis quickly, with particular attention to diagnoses that require immediate airway intervention (e.g. depressed mental status, foreign body obstruction).
 - e. Describe indications for admission to a critical care unit.
 - f. Outline plan for stabilization, including relevant physiology, tests and therapies.
3. Generate differential diagnoses, order appropriate diagnostic studies and formulate treatment plans for common emergency medicine problems.
4. *Demonstrate as a team leader* the principles of the team approach to the management of an adult or child with multi-system trauma.
5. Explain the indications for, interpretation of, *limitations of* and their relevance to the patient's disease process for the following diagnostic tests:
 - a. Arterial/Venous Blood Gas
 - b. Coagulation studies (PT, PTT, fibrinogen, FSP, D-dimers)
 - c. Complete Blood Count
 - d. Cerebrospinal Fluid Analysis including studies for viruses and fungi
 - e. Drug Levels and Toxicological Studies
 - f. Chest Radiographs
 - g. Abdominal/Pelvic Radiographs
 - h. FAST (Focused Assessment by Sonography in Trauma)
 - i. EKG
 - j. Cervical Spine Films
 - k. Head CT
 - l. Chest/Abdominal CT
 - m. MRI
6. Describe the indications, appropriate techniques, risks, *limitations and alternatives*, and perform the following procedures under direct supervision by attending *with presence in room (independent competence not expected for all procedures)* :
 - a. Airway Management
 - i. Cricothyrotomy
 - ii. Tracheostomy Tube Replacement
 - b. Cardio-Pulmonary

- i. Pericardiocentesis
 - ii. Venous Cutdown
 - c. Abdominal
 - i. Peritoneal Lavage
 - d. Special Procedures
 - i. Vaginal Delivery
 - ii. Regional Nerve Blocks (including U/S guided techniques such as brachial plexus blocks)
 - iii. Intracranial Pressure Monitor
- 7. Describe the indications, appropriate techniques, risks, *limitations and alternatives*, and perform the following procedures *under indirect supervision with attending available*:
 - a. Airway Management
 - i. Endotracheal Intubation
 - ii. Bag-Valve-Mask-Ventilation
 - iii. Rapid Sequence Induction
 - b. Cardio-Pulmonary
 - i. Thoracostomy Tube Placement
 - ii. Cardioversion/Defibrillation
 - iii. Conversion of SVT
 - iv. Intraosseous Access and Fluid Administration
 - v. Central Venous Catheterization (including U/S guided techniques)
 - vi. Arterial Line Placement
 - c. Abdominal
 - i. Gastric Lavage
 - 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. Peritonsillar Abscess Drainage
 - viii. Regional Nerve Blocks
 - ix. Dental Blocks
 - x. Slit Lamp Examination
 - xi. Paracentesis
 - e. Orthopedic
 - i. Closed Reduction and Splinting
 - ii. Arthrocentesis
 - iii. Dislocation Reduction
- 8. *Appropriately prioritize* the care of multiple patients.
- 9. *Adjust pace appropriately* to ED patient acuity, volume and flow.
- 10. *Demonstrate leadership skills during resuscitations.*

Medical Knowledge

1. Describe the pathophysiology, explain possible disease and treatment complications and *outline an evidence-based approach to management* for the following conditions which are encountered in the ED:
 - a. Pulmonary: acute pulmonary edema, acute upper airway obstruction (foreign body, allergic, infectious), status asthmaticus, pneumothorax, smoke inhalation,

- pulmonary embolus, pneumonia, acute respiratory distress syndrome, drowning and near drowning
 - b. Cardiovascular: shock, acute blood loss, hypertensive crisis, acute myocardial infarction, cardiopulmonary arrest, cardiac arrhythmias, congestive heart failure, hypertension, aortic dissection, pericardial effusion, cardiac tamponade
 - c. Neurology: head trauma, acute increased intracranial pressure, cerebral edema, status epilepticus, stupor and coma, heat injury
 - d. Infectious disease: septic shock, meningitis, encephalitis, HIV/AIDS, cellulitis, abscess
 - e. Endocrinology: diabetic ketoacidosis, hypoglycemia, hyperosmolar coma
 - f. Hematology/Oncology: acute illness in the oncology patient, fever and neutropenia, hemophilia with acute trauma, sick cell 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, small bowel obstruction, inflammatory bowel disease, end-stage liver disease
 - h. Surgery: necrotizing fasciitis, abdominal trauma (blunt/penetrating), acute abdomen, massive GI bleeding, burns, foreign bodies, wound care, ruptured aortic aneurysm
 - i. Nephrology: hematuria, proteinuria, acute renal failure, end-stage renal disease, 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: epididymitis, orchitis, testicular torsion, renal colic, obstructive uropathy
 - k. Allergy: anaphylaxis, angioedema
 - l. Obstetrics/Gynecology: 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
 - o. Orthopedic Surgery: splinting, casting, proper x-rays, sprains, fractures, dislocations
 - p. Ophthalmology: corneal abrasions, eye pain, foreign bodies, acute visual loss, ocular trauma
2. *Demonstrate* 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* 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* 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* 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

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, collaborate and *lead* 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 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 an adult or 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. Demonstrate collaboration and *give feedback* to Emergency Medical Services in the care of the acutely injured and acutely-ill patients.
8. Recognize system errors and recommend quality improvement.
9. Demonstrate advocacy for patients within the health care system.