

# **OHSU Trauma Service**

## **6/07**

### **Trauma Chief Resident and Trauma Intern Rotation Syllabus for:**

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# **I. Orientation to Service**

OHSU is a designated Level 1 trauma center. This means OHSU has made a commitment to meet the requirements of being immediately available to care for seriously injured patients. The OHSU trauma team consists of two trauma chief residents (PGY4 and/or PGY5) and an intern (PGY1). In addition, trauma nurse practitioners participate in the care of patients on the ward. The two full time trauma nurse practitioners are Lynn Eastes, and Maureen Harrahill.

Department of Surgery faculty lead the trauma team. The OHSU faculty are Richard Mullins, Martin Schreiber, John Mayberry, Bruce Ham, Jennifer Watters, and Susan Rowell. In addition, there are other faculty who work part time, and take in-house trauma call at night or on the weekends. The trauma faculty office is on the third floor of Beard Hall, and the office phone is 503 494 2400. The trauma office manager is Carole Snyder, assisted by Lori Bohannon. Ms Bohannon is your contact person for trauma conference.

At all times there is a trauma team assigned at OHSU to respond to trauma team activations, and provide immediate assessment and care of injured patients. Because the service is always working it is critically important that the team members coming and going communicate the status of the patients.

The trauma team responds to the Emergency Department when the trauma team is activated, an event signaled by the message on the trauma beepers. There are three categories of patients transported to OHSU as trauma team activation. Category 1 patients are individuals identified at the scene of injury as meeting the criteria for being seriously injured. The pre-hospital care providers enter the patients into the regional trauma system and transport the patient to OHSU. Category 2 injured patients come to OHSU's emergency department and after evaluation by the OHSU emergency medicine physicians, are considered seriously injured and entered into the trauma system. Category 3 patients are patients transferred to OHSU from around the state of Oregon from other trauma centers.

When patients are coming to OHSU as Category 1 or Category 3 patients a decision is made by the emergency medicine faculty physician whether to activate a Level 1, a Level 2 or Level 3 trauma team activation. A Level 1 patient is judged to have life or limb threatening injuries, and a full trauma team of anesthesiologists, trauma team in-house staff surgeon and the trauma chief resident and emergency medicine physicians, as well as nurses and other associated providers should respond. A Level 2 trauma team should include all the above listed providers except for the anesthesiologists. A Level 3 Trauma team may or may not include the in-house trauma surgeon, but does include the trauma chief resident. While the trauma faculty is not required to attend Level 3 trauma team activations, the trauma chief resident is expected to inform the in-house trauma surgeon regarding the evaluation and plan of treatment for the Level 3 patients. If a level 3 patient is to be admitted to the hospital, the trauma chief must notify the in-house trauma attending.

The trauma chief is responsible for trauma system patients brought to OHSU as Level 1, Level 2 or Level 3 trauma team activations. Injured patients in the trauma bay should have a systematic evaluation of patients following the guidelines summarized in the Advanced Trauma Life Support (ATLS). While many of the injured patients are treated by specialists at OHSU, trauma system patients are the responsibility of the trauma service. On rare occasions, trauma team activation patients are admitted to a service other than the trauma service. For example a gun shot wound to the head taken to OR may be admitted to the neurosurgery service. When there is a discussion about admitting a patient to other than the trauma service, the in-house trauma surgeon should be consulted.

The trauma service manages a wide range of patients. Over 85% of patients have sustained blunt trauma. Over 20% of patients are over the age of 65, and in addition to injuries have pre-existing medical conditions. The trauma chief resident is expected to carry the trauma beeper, and respond to the emergency department

for trauma team activations. The exception would be if the trauma chief was directed by the in-house attending to continue the care of a trauma patient in another location while the in-house attending went to the trauma team activation.

The trauma chief resident is expected to provide surgical care to patients with injuries to the lung, ribs, abdominal organs, arteries and soft tissues throughout the body. Much of the work done by the trauma team is in the ICU. The trauma chief resident is expected to provide leadership in the management of patients requiring resuscitation from shock, mechanical ventilation, antibiotic and surgical treatment of infections and correction of electrolyte abnormalities.

#### A. COMPOSITION OF THE SERVICE:

The trauma service is managed by two “chief residents”, an intern and two Acute Care nurse practitioners. The trauma service regularly has senior medical students who are assigned to work primarily in the surgical ICU, but also participate in the care of injured patients in the emergency department and in the operating room. Also participating in the care of patients are two discharge planning nurses who assist in the timely discharge of injured patients.

OHSU Department of Surgery sponsors a Surgical Critical Care Fellowship. The goal is to have each year two fellows. One fellow is assigned to the Trauma Surgical ICU service at all times. The fellow, and other ICU residents, may assist in the care of injured patients in the trauma resuscitation bay, and certainly after the patients are admitted. The Trauma fellow generally takes one 24 period per week of trauma call as the trauma chief resident so the trauma chiefs can be in compliance with the 80 hour work week.

The trauma chief residents also function as the chief residents for the Emergency General Surgery (EGS) service at night. During the day there is a EGS chief resident who is responsible for EGS patients. The EGS service has residents and a physician assistant who manage patients, conduct the consults. At night the in-house trauma surgeon may be the EGS attending, although in some cases the EGS attending is a separately assigned person. The trauma chief should remember that their first responsibility is the adult trauma patients, and when faced with a choice of caring for a trauma patient or EGS patient, should give priority to the trauma patient.

The trauma chief residents take a leadership role in the care of the trauma patients in the surgical ICU. In the ICU are at least two, and sometimes more, surgery residents, emergency medicine residents and sporadically residents from other services. The ICU service manages trauma patients, and patients from the Blue, Green and Gold services.

The faculty for the trauma service provides in-house 24 hours a day coverage of the activities of the trauma service. There is always an in-house faculty trauma surgeon on call, who comes to the ED for Level 1 and Level 2 trauma team activations. The faculty in-house trauma surgeon is expected to make rounds on trauma service patients admitted to the ward, and be aware of the patients in the ICU. There is a designated faculty ICU attending on who is expected to make bedside rounds. In addition to the in-house faculty surgeon, there is a back-up surgeon available who will be called in should the in-house trauma surgeon become overwhelmed by multiple simultaneously in need injured patients.

Trauma chief residents are responsible for the day-to-day care of all patients on the trauma service. Trauma surgeons should provide lead the evaluation of injured patients during level 1 trauma team activations, and assist the emergency medicine residents who take the lead during evaluation of level 2 and level 3 trauma team activation patients. The trauma chief is responsible for organizing the planning and conduct of surgical procedures within their scope of privileges that are performed on trauma service patients. Furthermore, the trauma chief must coordinate the timing of surgical procedures and diagnostic tests performed by specialist surgeons on patients admitted to the trauma service. The trauma chief resident is expected to communicate with the trauma attending all significant changes and plans. Trauma clinic is on Monday through Fridays and trauma chief resident is expected to attend and participate in the evaluation and care of patients.

The trauma chiefs are expected to coordinate their schedules to be in compliance with the 80 hour work week. Trauma Chiefs work 12 hours shifts, and have at least one day per week where they do not work for 24 hours. Trauma chief residents are able to work together to designate 24 hour work shifts should they mutually decide to do so. The trauma chiefs must work with the director of the trauma service, or his designee, to cover the times when neither of the trauma chiefs is available to work. If one of the two trauma chiefs takes a vacation, the other trauma chief should plan to work at night, and during the day the junior residents or ICU fellow may function as the trauma chief.

## B. ROLES AND RESPONSIBILITIES OF THE TRAUMA INTERN AND THE TRAUMA CHEIFS

Interns are responsible for the care of the ward patients. The intern is expected to be familiar with all patients on the trauma service who are not being cared for in an ICU. The intern works in close cooperation with the two acute care nurse practioners, Lynn Eastes and Maureen Harrahill. In addition Leah Gaedeke works part time as a nurse practioners. The intern is to organize their work schedule to assure that they are incompliance with the 80 hour restricted work week. Interns are expected to take off 24 hours during a weekday when the trauma coordinators are available to care for eh the ward patients. The interns participate in a night call schedule as organized by the residency coordinator in the Department of Surgery. Expectations are that the intern will notify the trauma chief resident of any significant developments on trauma patients on the ward. The intern is responsible for trauma patients admitted to the ward, including the occasional pre-operative work up of patients who are admitted for elective surgery. The interns are expected to attend trauma clinics on Mondays and Fridays, unless that is their day off. The interns are expected to take a leadership role in coordinating the timely discharge of patients. The trauma intern should anticipate that morning rounds will be made every day with the trauma attending.

Chief residents are responsible for the overall smooth running of the trauma service. The trauma chief residents are expected to be a role model for appropriate professional behavior, leadership, surgical knowledge and patient care. They oversee the general surgery patient wards, ICU and attend trauma team activations. The trauma chiefs will admit to the trauma service all injured children 15 years of age or older. These patients may be admitted to the Doernbecher hospital, but will be on the adult trauma service. The adult trauma chief resident is expected to respond to the ED for all pediatric trauma team activations. If representatives of the pediatric surgery service arrive they may take over and relieve the adult trauma chief. During the evenings of Monday through Thursday, the adult trauma chief is expected to function as a temporary pediatric surgery trauma chief. This means the adult trauma chief works up the patients, and notifies the pediatric trauma attending regarding the evaluation and plan of treatment for children 14 years of age or younger, and is available to answer questions regarding the pediatric patient's management. In the morning, if the adult trauma chief resident has admitted a new patient, they are expected to call and notify the pediatric chief resident.

## TRAUMA CONFERENCE AND TRAUMA MORBIDITY AND MORTALITY.

The trauma chief residents are expected to manage the weekly Wednesday morning trauma conference. The trauma chief will pick the three trauma cases and one EGS case to be presented one week prior to the conference. This selection is done in consultation with Dr Mullins or his designee, and is typically done at the end of the Wednesday morning trauma conference. The concept is to inform the radiology resident what radiographs would be useful. Wednesday the Trauma chief will prepare an email message that reports the name and medical record number of the selected patients, the theme of the discussion, the radiographs needed, and a brief description of what findings on the radiographs the trauma chief would like to have discussed. This trauma conference selection list is emailed to Lori Bohannon, Administrative assistant to the Trauma Section. She will prepare the final format announcing trauma conference, and send it to a mailing list of faculty and staff interested in trauma conference. The trauma chief is expected to oversee the preparation of power point presentations on case presented at trauma conference. Typically the radiology resident

assigned to the conference will send their selected images to the trauma chief, and the trauma chief will compose the final format. The trauma chief must send by email to Lori Bohannon the presentations, and Ms Bohannon will Wednesday morning before trauma conference load these power point presentations on the desk top at Vey Auditorium of Doernbecher Children's Hospital.

The trauma chief should present a concise summary of the patient's clinical course at trauma conference. The emphasis should always be on discussing the decisions made in the management of a specific case, and highlight the outcomes. Discussion in general regarding trauma problems should be minimized. Many patients have multiple problem, and the trauma chief should select in these cases the specific issues to be discussed. Remember that anyone can walk into trauma conference, and thus no unique identifiers, such as patient names, should be used. Complications should not be discussed at trauma conference.

Medical students on the trauma service are invited to present at trauma conference. Their presentations are an important component of their grade, so the trauma chiefs should provide some guidance, and give them adequate opportunity to select the cases they want to present.

Following trauma conference, Trauma M and M is held for one hour. The Trauma Chief, working with Lynn Eastes should be prepared to present the selected cases. The faculty and other members of the trauma team will vote as to their judgment regarding complications, and thus the trauma chief should prepare an informative summary. Deaths and complications on the trauma service should also be forwarded by the Trauma Chief residents to the Department of Surgery M and M process. The trauma chief may also be called upon to present these complications at the Departmental M and M process held on Monday afternoon

One of the trauma chief residents is expected to participate in the Tuesday morning multidisciplinary rounds in the ICU. These start at 9 AM. These rounds are typically led by the ICU fellow and faculty.

The Trauma chief residents are expected to guide the education of medical students who rotate on the trauma or the surgical critical care service, and participate in their evaluations.

#### POLICIES; THE FOLLOWING ARE A LIST OF SPECIFIC POLICIES AND GUIDELINES

-GI Endoscopic Procedures: All GI endoscopic procedures done in the ICU will require that the trauma chief residents either reserve with the GI lab to have the equipment brought to the ICU, or that the patient be scheduled to have the procedure done in the south OR.

-Trauma patients admitted to ED observation unit: A substantial proportion of trauma team activation patients are either discharged home or admitted to ED observation unit. Patients admitted to ED observation unit are the primary responsibility of the Emergency Medicine attending. The trauma team should be available to consult on these patients if there are questions or changes in status. Most patients admitted to ED observation unit will be seen in trauma clinic follow up.

-Trauma patients in the ICU: The trauma chief resident is responsible as the primary resident on all patients in the ICU who are admitted to the trauma service. Occasionally a trauma system patient with an isolated injury (for example gunshot wound to brain) would be admitted to a specialty service. The trauma chief resident must have a full knowledge and actively participate in the care of patients in the ICU. When trauma patients are discharge to the ward from the ICU, the trauma chief, or his/her designee should notify the trauma intern or trauma acute care nurse practioners who will be accepting the patient in transfer.

-Clinics: Trauma chiefs have multiple responsibilities but are expected to organize themselves, and attend the trauma clinic on Monday and Friday. These clinics start at 1 PM, and are held on the third floor of the physicians pavilion.

-OR: Trauma chiefs should recognize that as “captain of the ship” they have a responsibility to recognize that patients who are trauma system entries may need to proceed promptly to the operating room. The trauma chiefs, working with the trauma attending, must inform the operating room head nurse, and the anesthesiologist of the need to proceed promptly to the OR, and furthermore inform the operating room team what procedure and instruments may be required. The trauma chiefs should make a reasonable effort to obtain informed consent prior to procedures in seriously injured patients. The trauma and EGS service have “block time” on Tuesday and Thursday morning, which they can schedule cases into up to that morning. These times should be used for emergency cases. If the Trauma chief desires to schedule a semi-elective or elective case, they should call Jenny Wells at 45300 and ask her assistance in scheduling the operative procedure.

-Informing families: The trauma team, and trauma chiefs in particular, should make every effort within reason to inform the family of trauma patients who need emergency care. This can be a very challenging problem, and the trauma chief should work closely with the other members of the resuscitation team, including the social workers, to inform family within HIPPA confidentiality guidelines.

-Diversion of trauma patients from OHSU. OHSU is required by law to go on trauma divert if we are unable to meet our obligations to be ready to immediately respond to a patient. The common causes for going on divert are no available ICU bed, no available OR, or a sudden surge of patients in the ED. The decision to go on divert is made by the trauma attending.

The trauma chief should recognize that they have a key role in assuring that OHSU does not needlessly go on divert. This means the trauma chief should be pro-active in making sure there is an available ICU bed, that patient care and dispositions are made in a timely manner, and that the team members are organized to achieve maximal efficiency. The obligation of the trauma chief is to assure that trauma patients in the ICU are discharge in a timely manner to the ward so that an ICU bed is available. At the start of each shift, the trauma chief should consult with the charge nurse in the 7A Trauma ICU to work out a plan for how to remain green for trauma by having at least one open ICU bed

-OR: In the case of elective or take back surgery, the trauma chief of his/her designee should prior to surgery mark the site and side of surgery on the patient. Please check at this time if desired antibiotics have been ordered and are being administered prior to the incision..

-OR: In OR, a nurse will ask for a pause to confirm correct site, side and surgery. If X-rays are available to confirm the side or level they should be viewed at this time. Please also write names of participating residents and students on the board and indicate who is dictating.

-OR: The trauma team can be activated while the trauma team is performing a surgical procedure. It is the responsibility of the trauma chief resident to work with the trauma attending to determine how an appropriate member of the trauma team will respond to the ED. It may be necessary to call in the back up trauma attending to respond to new trauma team activations if the team is overwhelmed.

-All operations must have a dictation, but also a brief op note in CPRS after procedure. Please use the Template for Brief Op Note, and be sure it is titled “Brief Op Note.”

-Communicate with Kelly Smith, manager of the Trauma section at 45300 during work hours Monday through Friday if there are administrative questions.

## Procedures:

The following are a list of non-operating room procedures that may be done by residents with staff supervision but not presence:

Central lines: including subclavian, internal jugular and femoral vein catheters, pulmonary artery catheters, and arterial lines including the radial and femoral artery—Interns, and junior residents working in the ICU must be supervised by the trauma or ICU attending, the trauma chief resident or the ICU fellow. The in-house trauma chief resident should be aware and approve all invasive procedures performed on trauma patients.

Chest tubes:

Chest tubes are to be inserted under the supervision of the trauma or ICU attending, the trauma chief resident or the ICU fellow

Suture or stapling of lacerations

The trauma attending or the trauma chief resident or his/her designee must be aware and approve of all wounds sutured in the ED or ICU or on the ward.

Skin biopsies (non-OR)—chief resident to supervise, attending to be aware

Opening surgical wounds (non-OR)—the trauma chief resident to be aware; if mesh in place, attending must also be aware

Removing stitch or stitch abscess (non-OR)—the trauma chief resident or attending aware

Surgical ICU

Emergency intubation—The trauma attending, and the trauma chief must be aware of all emergency endotracheal intubations to be performed on trauma patients. Most intubations will be performed in the ED and ICU by personnel other than the trauma chief but the trauma chief and trauma attending are expected to be in attendance if time permits in order to be prepared to perform an emergency surgical air way if intubation fails.

Bronchoscopy—Bronchoscopy should be scheduled with the respiratory therapists in the ICU, and the trauma attending or ICU attending should be in attendance. The trauma chief resident should be notified

Percutaneous tracheotomy- The trauma or ICU attending must approve all elective tracheotomies.

Percutaneous tracheotomy should always be performed with the assistance of a physician performing a bronchoscopy.

Open Tracheotomy- The trauma or ICU attending must approve all elective open tracheotomies. The trauma chief or his/her designee must schedule the procedure with the operating room charge nurse, who send to the ICU an OR nurse with equipment (including Bovie) to perform the procedure.

Percutaneous gastrostomy- The trauma attending or ICU attending must approve all elective PEGs. When the GI lab provides the equipment, the trauma chief resident or his/her designee will schedule the case with the GI lab. When the OR provides the equipment the trauma chief resident or his/her designee will contact the

charge nurse, schedule the case, and make sure that following the procedure the scope is rinsed and returned promptly to the OR for cleaning.

## **II. WEEKLY TRAUMA SURGERY SCHEDULE**

**MONDAY:** OHSU Grand Rounds 0700-0815 (Old library)  
OHSU Resident Conference 0830-0930  
Trauma Clinic 1300  
OHSU M&M conference 1700

**TUESDAY:** EGS and Trauma Block time  
Multi disciplinary rounds in 7A ICU

**WEDNESDAY:** Trauma Conference; 7 – 8 AM  
Trauma M and M 8-830 AM

**THURSDAY:** EGS and Trauma Block Time

**FRIDAY:** Trauma breakfast  
Trauma clinic 1300

Note: Much of trauma surgery is emergency and performed as add on cases, so that many operations on the trauma service occur at night or on the weekend.

### **III. Curriculum/Educational Goals and Objectives**

#### *A. Educational Goals and Objectives*

#### **Educational Goals for Interns:**

##### **Medical Knowledge**

- Understand the overall evaluation and management of an injured patient.
- Understand the patho-physiology of common problems in injured patients on the ward, including respiratory care of patients with chest injuries including rib and sternal fractures, pulmonary contusions, pneumonia, hemopneumothorax, and pulmonary thrombotic events.
- Understand the treatments needed to maintain normal serum sodium, potassium and chloride concentrations
- Understand the treatment of patients with brain injury.
- Understand the initial work up and physiology of patients with fractures and patients who have had surgical repair of fractures.
- Understand optimal nutritional support of injured patients.
- Understand the physiologic changes following surgeries.
- Understand the nutritional assessment and needs of the surgical patient.
- Understand the management of patients with coronary artery disease, diabetes, hypertension, chronic obstructive pulmonary disease, and morbid obesity who are injured.

##### **Patient Care:**

- Develop skills needed to manage hospitalized injured patients.
- Understand the common methods of evaluating common post injury complications including: chest pain, dyspnea, hypoxia, hypotension, oliguria, fever, abdominal distention.
- Develop skills at managing wounds including changing packing, wound-vacuum sponges, application of occlusive dressings, debridement of wounds, and evaluation of closed suction drainage .
- Understand the concepts surrounding drain and catheter care including: central lines, bladder catheters, chest tubes, small bowel feeding tubes, nasogastric tubes, PEG tubes and surgically placed drains.
- Counsel and educate patients and their families on the injuries and long terms prognosis.
- Learn to make informed decisions about efficient ordering of diagnostic tests including radiographs.
- Understand pain management including use of intravenous, enteral and epidural analgesics in injured patients.
- Understand the indications for blood transfusion and the proper procedure for obtaining informed consent in patients who need blood transfusion..
- Understand the perioperative issues of the patient undergoing splenectomy including the administration of vaccinations.
- Understand the proper technique for removing a chest tube, and changing a tracheostomy.
- Understand the management of complex wounds..

##### **Professionalism:**

- Work in an effective manner with the trauma nurse practioners.
- Learn to communicate effectively and compassionately with patients and patient's family.
- Develop skills at communicating to nurses, respiratory therapists, physical therapists, and other members of the trauma care team.
- Learn to efficiently sign out trauma patients to interns providing coverage teams.

- Be sensitive to patients and in their social and cultural context as well as with mental health diseases, such as PTSD, anger issues, schizophrenia, depression or limited resources.
- Understand the importance of accurate and complete documentation of important events and decisions in the medical records.
- Prepare accurate and timely discharge summaries.
- Work to communicate with injured patient's primary care physicians who will assume a role in the patient's care following hospital discharge.
- Learn and practice the ethical principles involved with caring for the surgical population, including consent-ability, confidentiality, and informed consent.

### **Interpersonal and Communication Skills**

- Respectfully respond to questions from patients and appropriate family members.
- Learn and follow the HIPPA guidelines regarding discussions with patient's friends, associates and other persons who, according to confidentiality standards, cannot be informed of details regarding the patient.
- Learn to listen and assess non-verbal cues from patients and staff.
- Work effectively with the members of the trauma care team, communicating issues appropriately and succinctly.
- Write orders that are clear, consistent with standards and contain proper notation regarding date and time.

### **Practice-Based Learning**

- Accept responsibility for the care of trauma patients on the ward and in the clinic.
- Learn to modify interventions, including pain medication management, based upon the individual patient's needs..
- Apply knowledge of anatomy to care of injured patient's wounds.
- Facilitate the learning of medical students on the team by informing of the rationale for care of injured patients.
- Use the OHSU library and internet to access medical information and review recent advances of the surgical patient.
- Attend trauma conference and trauma breakfast literature review, and learn the principals applied to care of injured patients currently on the trauma service.

### **System-Based Practice**

- Develop systems to help maintain consistent quality of patient care.
- Understand, utilize and review clinical pathways for patients.
- Learn to practice cost-effective health care.
- Assist patients with limited resources in finding practical solutions to their need for care after hospital discharge.
- Assist patients to interact with the legal system in a fair manner.
- Partner with surgical facilitators, coordinators and social workers to provide seamless care from admission through follow up in the trauma clinic.

## **Educational Objectives for Interns:**

### **Medical Knowledge:**

- Describe the potential complications arising from hyponatremia and hyperchloremic metabolic alkalemia.
- Describe the drugs and protocols that can be used to manage diabetic injured patients.
- List etiologies for dyspnea and low trans-cutaneous oxygen saturations.
- Describe the clinical presentation of a patient hemorrhagic shock.
- Draw an illustration of the anatomical relationship of the intercostal nerve, artery and vein.
- Describe the complications of using for analgesia epidural catheters and Patient controlled anesthesia.
- List at least four pathological explanations for abdominal distention in an injured patients.
- List the differential diagnosis of an injured patient with rib fractures who has chest pain, and hypoxia.
- Describe the common signs and symptoms associated with central line sepsis.
- List the contra-indications to removing the Foley catheter.

### **Patient Care:**

- Prepare a program for providing nutritional support to a brain injured patient who has a feeding gastrostomy tube.
- Order drugs and guidelines for patients suspected to be agitated from ethanol withdrawal.
- Describe interventions and therapies that will reduce the risk of myocardial ischemia in an injured patient with coronary artery disease.
- Describe the treatment of reactive airway disease
- Describe the IV solutions and rates of infusions that should be ordered for an acutely injured patient admitted to the trauma ward.
- Describe the symptoms, evaluation, and management of pulmonary embolus.
- List the appropriate upper GI bleeding prophylaxis in an injured patient who is considered high risk for gastritis.
- List appropriate immunizations that a patient should receive after a splenectomy.
- Describe the signs and symptoms, diagnostic tests and management of small bowel obstruction. Describe the key radiographic finding that would assist in differentiating between ileus and small bowel obstruction.
- Identify the common clinical presentation of urosepsis following removal of a foley catheter.
- Describe the steps to be take in de cannulating a patient with a tracheostomy.
- Prepare a history and physicals on an injured patient admitted from the trauma resuscitation bay.
- Be prepared on daily trauma faculty rounds on ward patients to discuss the diagnoses and treatment plans for injured patients.
- Attend Monday and Friday trauma clinic, unless otherwise involved in critical duties.
- Keep the trauma chief resident informed regarding clinically important changes in patients on the ward.

### **Professionalism:**

- Attend surgery Grand Rounds, Trauma Conference, Trauma and Departmental Mortality and Morbidity conferences.
- Be on time to all conferences.
- Complete documentation in a timely manner including discharge summaries (within 24 hours or at discharge for transfers to other facilities), procedure dictations (within 24 hours of the procedure)
- Comply with the ACGME duty hour guidelines.

### **Interpersonal and Communication Skills**

- Coordinate with nurse practitioners and with discharge planning personnel the timely discharge of patients that assures optimal care of the patient after discharge.
- Assure that patients and their families understand the injuries the patient has sustained, the general treatment plan, and the follow up for these individual injuries after hospital discharge.
- Assist the patient in understanding the medications that they will be discharged with.
- Communicate with wound care nurse regarding ostomy marking and post operative complex wound care.

### **Practice-Based learning:**

- Evaluate an article relating to pertinent patient care issues
- Attend trauma conference and learn from the literature based summaries the evidence based factors that influence patient care.

### **Systems-Based Practice:**

- Review trauma based practice guidelines available on line.

## **Educational Goals for Trauma Chief Residents:**

### **Medical Knowledge**

- Understand the overall evaluation and the need to prioritize the treatment of the multi system trauma patient.
- Understand the patho-physiology of serious problems that threaten the airway, breathing and circulation of injured patients in the trauma resuscitation bay, the ICU and in the Operating room.
- Describe the critical findings on CT scan of the abdomen which indicate the need for a laparotomy in a patient with a seat belt contusion of the abdominal wall.
- Understand the role of blood product transfusion to resuscitate injured patients in hemorrhagic shock, and the development of coagulopathy.
- Understand the surgical treatment of bowel injuries, and the need for resection, anastomosis and
- Understand the critical issues in the treatment of patients with brain injury including interpretation of intracranial pressure.
- Understand the initial work up and physiology of patients with fractures and the risk factors associated with the development of skeletal muscle compartment syndromes.
- Understand optimal nutritional support of injured patients.
- Understand the physiologic changes following surgeries.
- Understand the nutritional assessment and the advantages and indications for enteral versus parenteral nutrition.
- Understand the management of patients with coronary artery disease, diabetes, hypertension, chronic obstructive pulmonary disease, and morbid obesity who are injured.

### **Patient Care:**

- Develop skills needed to coordinate the care of multiple system injured patients among multiple specialists.
- Understand the common methods of evaluating common post injury complications including: dyspnea, hypoxia, hypotension, oliguria, fever, abdominal distention.
- Develop skills at evaluating and treating wounds including indications for debridement, primary closure and indications for antibiotics and indications for closed suction drainage of wounds.
- Counsel and educate patients and their families on the injuries and long term prognosis.
- Learn to make informed decisions about efficient ordering of diagnostic tests including radiographs.
- Understand pain management including use of intravenous, enteral and epidural analgesics in injured patients.

- Understand the indications for blood transfusion and the proper procedure for obtaining informed consent in patients who need blood transfusion..
- Understand the perioperative issues of the patient undergoing splenectomy including the administration of vaccinations.
- Attend trauma follow up clinic and assist in the long term care of patients

### **Professionalism:**

- Develop the interpersonal skills that enable you to work in the trauma resuscitation bay with the emergency medicine residents to achieve a prompt complete coordinated evaluation and resuscitation of patients who present as trauma system entries.
- Work in an effective manner with the trauma nurse practitioners.
- Develop skills at communicating to nurses, respiratory therapists, physical therapists, and other members of the trauma care team.
- Learn to efficiently sign out trauma patients to the other trauma chief.
- Be sensitive to patients and in their social and cultural context as well as with mental health diseases.
- Provide clear leadership in circumstances are confusing for members of the trauma team.
- Understand the importance of accurate and complete documentation of important events and decisions in the medical records.
- Effectively communicate to with the trauma attending to keep them informed regarding key decisions and issues.
- Learn and practice the ethical principles involved with caring for the surgical population, including respectful end-of-life decisions, confidentiality, and informed consent.

### **Interpersonal and Communication Skills**

- Respectfully respond to questions from patients and appropriate family members.
- Learn and follow the HIPPA guidelines regarding discussions with patient's friends, associates and other persons who, according to confidentiality standards, cannot be informed of details regarding the patient.
- Learn to communicate effectively and compassionately with patients and patient's family.
- Learn to listen and assess non-verbal cues from patients and staff.
- Work effectively with the members of the trauma care team, including the intern, and the residents in the ICU, to communicate your instructions and decisions clearly and succinctly.
- Write orders that are clear, consistent with standards and contain proper notation regarding date and time.
- Dictate procedure notes within 24 hours of completing a surgical procedure, and include in your dictation the name of the attending responsible for the procedure.
- Work with the other health care providers to develop a summary of key teaching points at trauma conference.

### **Practice-Based Learning**

- Accept responsibility for preparing weekly list of morbidity and mortality cases, and present at the trauma M and M and when requested, the Department of Surgery M and M.
- Learn to modify the interventions and work up of patients to make what is done for patients consistent with the patient's individual patient's preferences..
- Using a thorough knowledge of regional anatomy tailor the care of an individual patient's wounds to their specific needs.
- Facilitate the learning of medical students on the team by informing of the rationale for care of an individual injured patient.

- Use the OHSU library and internet to access medical information and review recent advances of the surgical patient.
- Select for trauma conference cases to present that are illustrative of key teaching points. Prepare informative and focused presentations for trauma conference.

### **System-Based Practice**

- Develop systems to help maintain consistent quality of patient care.
- Understand, utilize and review clinical pathways for patients; for example the rhabdomyolysis protocol, the use of heparin and protocols for treatment of patients in alcohol withdrawal.
- Learn to practice cost-effective health care.
- Assist patients with limited resources in finding practical solutions to their need for care after hospital discharge.
- Assist patients to interact with the legal system in a fair manner.

### **Educational Objectives for Trauma Chief Residents:**

#### **Medical Knowledge:**

- Describe the options for achieving emergency control of the airway including rapid sequence intubation, emergent cricothyroidotomy and tracheostomy.
- Describe the indications for an emergency department thoracotomy.
- List the options available to ventilate a patient with hypoxia and who has an endotracheal tube.
- Describe the reasons for electing to insert central venous access lines, and which location should be chosen.
- Describe the methods and drugs available to achieve pain control of seriously injured patients. Describe rationale for selecting an epidural anesthesia versus a patient controlled intravenous anesthetic.
- Describe the drugs that can be used to achieve sedation of intubated patients.
- Describe the rationale for proceeding with a laparotomy in a patient with solid organ injury in the abdomen.
- Describe the appearance of a ruptured diaphragm and the preferred technique for repair..
- Describe the common signs and symptoms associated with central line sepsis.
- Describe physical findings and method for establishing the diagnosis of abdominal compartment syndrome.
- Describe the options for achieving access to the GI track for providing nutritional support.

#### **Patient Care:**

- Prepare a program for providing nutritional support to a brain injured patient who has a feeding gastrostomy tube.
- Order drugs and guidelines for patients suspected to be agitated from ethanol withdrawal.
- Describe interventions and therapies that will reduce the risk of myocardial ischemia in an injured patient with coronary artery disease.
- Describe the treatment of reactive airway disease
- Describe the IV solutions and rates of infusions that should be ordered for an acutely injured patient admitted to the trauma ward.
- Describe the symptoms, evaluation, and management of pulmonary embolus.
- List the appropriate upper GI bleeding prophylaxis in an injured patient who is considered high risk for gastritis.
- List appropriate immunizations that a patient should receive after a splenectomy.
- Describe the signs and symptoms, diagnostic tests and management of small bowel obstruction. Describe the key radiographic finding that would assist in differentiating between ileus and small bowel obstruction.
- Identify the common clinical presentation of urosepsis following removal of a foley catheter.

- Understand the distinction between collapse of a lung's lobe and retained hemothorax clot that encases the lung and needs decortication.
- Attend Monday and Friday trauma clinic, unless otherwise involved in critical duties.
- Keep the trauma attending informed regarding clinically important changes and decision in patients.

### **Professionalism:**

- Attend surgery Grand Rounds, Trauma Conference, Trauma and Departmental Mortality and Morbidity conferences.
- Be on time to all conferences.
- Complete documentation in a timely manner including discharge summaries (within 24 hours or at discharge for transfers to other facilities), procedure dictations (within 24 hours of the procedure)
- Comply with the ACGME duty hour guidelines.

### **Interpersonal and Communication Skills**

- Coordinate with nurse practitioners and with discharge planning personnel the timely discharge of patients that assures optimal care of the patient after discharge.
- Assure that patients and their families understand the injuries the patient has sustained, the general treatment plan, and the follow up for these individual injuries after hospital discharge.
- Assist the patient in understanding the medications that they will be discharged with.
- Communicate with wound care nurse regarding ostomy marking and post operative complex wound care.

### **Practice-Based learning:**

- Evaluate an article relating to pertinent patient care issues
- Attend trauma conference and learn from the literature based summaries the evidence based factors that influence patient care.

### **Systems-Based Practice:**

- Review trauma based practice guidelines available on line.

## **Evaluation Tools:**

- The trauma surgeons will use of OHSU Department of Emergency Medicine verinform house office evaluation forms for emergency medicine PGY1 house officers who rotate on the trauma service, and the OHSU Department of Surgery verinform rotation evaluation forms to evaluate trauma chief residents.
- Verbal feedback and teaching will be given by trauma faculty as indicated during working rounds, during resuscitation of injured patients and in the operating room.
- Verbal feedback and guidance will be given to the residents during trauma conference discussions.
- In circumstances where a serious infraction by a PGY resident has been observed or alleged, the nature of the complaint will be described to the resident in writing.
- Verbal feedback and teaching will be given by surgery faculty after presentation of patients at Morbidity and Mortality conference.

## **Suggested reading for Interns and General Surgery Residents while rotating on the trauma service.**

Interns

*Sabiston's Textbook of Surgery*: 17<sup>th</sup> Edition, Edited by Townsend. Study Sections I and III.

*Clinical Procedures in Emergency Medicine*: 4<sup>th</sup> Edition, Edited by Roberts and Hedges. Study Sections I, II, III and V

Trauma Chief Residents

*Sabiston's Textbook of Surgery*: 17<sup>th</sup> Edition, Edited by Townsend. Study Sections I, II and III.

*Trauma*: 5<sup>th</sup> Edition, Edited by Mattos, Feliciano, and Moore.

*Current Surgical Therapy*: 8<sup>th</sup> Edition, Edited by Cameron. Study appropriate trauma related chapters.