

# Trauma Rotation

## Legacy Emanuel Hospital

### PGY1

## Goals and Objectives

### Synopsis:

PGY I Resident. The PGY I residents will respond to all trauma alerts and will be introduced into the process of evaluation, triage and treatment of the multiple injured patient. They will do this under the guidance of the PGY 3 or 4 resident and the trauma surgery attending. They should be capable of performing both the primary and secondary surveys on injured patients and developing a treatment plan for those patients. In addition, the first year resident will be involved primarily in the management of trauma patients on the surgical ward. They will be supervised by the trauma attending. The trauma intern will be given opportunity to be introduced to technical skills as they relate to trauma such as arterial line placement, central line placement, chest tube placement, and placement of immobilizing splints.

### Patient Care:

The intern will develop a fundamental understanding of specific concepts in the following areas:

#### **Resuscitation and Diagnostic Decision Making**

History taking: the ability to collect an appropriate history as it relates to traumatic injury and critical illness

Physical exam: perform both a comprehensive and directed physical exam relevant to the traumatically injured or critically ill patient

Establish resuscitative, diagnostic, and treatment priorities in patients with multiple non-life-threatening injuries

Basic means of establishing intra-vascular access

Basic indications, contraindications, risks and potential benefits of invasive patient monitoring

#### **Operative Management of Trauma**

Indications for immediate operative management of the traumatically injured patient

### **Medical Knowledge:**

The intern is expected to develop an understanding of the key elements in each of the following areas:

Principles of Post-injury Care

Consistently apply basic science principles to common clinical situations  
Familiarity with various modes of mechanical ventilation, as well as learning techniques to improve gas exchange  
Refined ability to interpret radiographic findings, EKGs, laboratory data, and intravascular and intra-cranial monitoring systems  
Operative Management of Trauma  
Basic pharmacological principles of anesthesia  
Principles of Post-injury Care  
Basic knowledge of the evaluation, resuscitation, treatment, and long-term effects of injuries to the following organ systems or body areas:

- Central and peripheral nervous system

- Head and neck

- Cardiac system

- Major vascular structures including great vessels, carotid, upper extremity, aorta and its major branches, as well as lower extremity. This also includes corresponding major venous structures

- Thoracic contents including ribs, pleural space, lungs

- Intra-abdominal contents including the stomach, small bowel, colon, spleen, pancreas, hepato-biliary system and diaphragm

- Genito-urinary system

- Bony structures including face, extremities, spine, skull, and pelvis  
Soft tissues including skin and muscles

- Endocrine organs  
Psychiatric disorders including substance abuse, post-traumatic stress disorder

- Fundamentals of surgical nutrition including nutrition evaluation as well as routes of access, TPN, enteral nutrition, and nutritional supplements

### **Practice-Based Learning and Improvement**

Interns will learn how to effectively utilize hospital educational resources and begin to apply literature based and evidence based concepts as well as experimental evidence to their daily practice of surgery.

Interns will demonstrate ability to use electronic references including hand-held computers, web-based resources, and common electronic databases (i.e.: Medline) to support patient care and self-education

Develop and maintain a willingness to learn from failures and use failures to improve both personal performance and the overall process of patient care

### **Interpersonal and Communication Skills**

The intern is expected to develop an understanding of the key elements in each of the following areas:

- Resuscitation and Diagnostic Decision Making

- Effective communication and interaction with the emergency department

- Effective communication and interaction with ancillary support staff

- Principles of Post-injury Care

Develop effective verbal and written communication skills  
Effective communication with OR staff and leadership within the OR

## **Professionalism**

All residents will demonstrate personal integrity, honesty, accountability, respect, compassion, patient advocacy and dedication to patient care and well-being that supersedes self-interest

All residents will demonstrate a commitment to excellence and continuous professional development

All residents will demonstrate a commitment to ethical principles pertaining to the provision of critical care, patient confidentiality, and informed consent

All residents are expected to demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

All residents will demonstrate respect and a professional demeanor in relationships with colleagues

All residents will develop lifelong learning skills through the application of basic science concepts to clinical management, critical reading and critical thinking.

Interns are expected to demonstrate a basic understanding of the following:

- Ethical, Economic and Legal Aspects of Trauma Care

- Basic ethical principles for commonly encountered ethical dilemmas

- Societal impact of traumatic injury and trauma care

- Economic impact upon the patient and family

- Elements of malpractice and strategies for limiting risk

## **System-Based Practice**

The intern will develop a basic understanding of key elements in the following areas:

- Epidemiology of Trauma and Injury Prevention

- The local, regional, national and international economic, societal, and clinical impact of traumatic injury

- Pre-hospital Care

- Organization, supervision, and coordination of emergency medical services

- Principles of Post-injury Care:

- Develop an appreciation for the benefits of a multi-disciplinary approach to management of critically ill surgical patients

## **Instructional Methods**

1. Daily rounds on Trauma Step-Down Unit and Ward (TRACU) with attending trauma surgeon
2. Trauma Didactic Conferences (every MON and FRI) and Journal Club
3. Trauma Admissions Conference (every THUR)

4. Morbidity and Mortality (every FRI)
5. Trauma patient resuscitation in ED and OR
6. Operative management, follow-up, of trauma patients
7. Weekly formal TRACU multidisciplinary rounds
8. Trauma Clinic (3 afternoons per week)
9. OHSU Surgery Grand Rounds (every MON)

## **Syllabus**

1. Chest tube indications and management
2. Fluid and electrolyte management
3. Decision-making in trauma
4. Thoracic trauma
5. Ethical dilemmas in trauma
6. Trauma Systems
7. Anticoagulation and its effects
8. Rehabilitation of the head-injured patient

## **Reading List**

1. Emanuel Hospital Trauma Clinical Protocols (over 200)
2. *ACS Surgery, Principles and Practice*, 2005, WebMD
3. *Advanced Trauma Life Support*, Seventh Edition, ACS 2004.

## **Evaluation and Feedback Methods**

1. Direct feedback on daily rounds
2. Feedback through OHSU resident evaluation program

# Trauma Rotation

## Legacy Emanuel Hospital

### PGY3/4

#### Goals and Objectives

##### Synopsis:

PGY 3 or PGY 4 Resident. The resident should be skilled at the evaluation, triage and treatment of the complex trauma patient. The resident at the end of their rotation will understand the details of specific organ injuries and their management. The resident will perform operations on the injured patients. The resident will increase his/her knowledge base by independent reading and interactions on daily hospital rounds. Twice a month the trauma resident will be responsible for presenting a case at the Trauma Admissions Conference. The trauma resident will learn to manage the complex trauma patient and deal effectively with multiple consultants (emergency room physicians, neurosurgeons and orthopedists), physician assistants, and other health care professionals.

##### Patient Care:

The senior resident will develop a fundamental understanding of specific concepts in the following areas:

##### **Resuscitation and Diagnostic Decision Making**

Basic and advanced airway management

Management of immediately life threatening blunt and penetrating chest injury

Extensive knowledge of invasive monitoring procedures and ability to integrate these methods to the development of diagnostic and therapeutic plans. In addition, the resident will also assist junior peers in procedural skill acquisition

Capabilities and limitations of various diagnostic studies including plain

radiographs, ultra-sound, diagnostic peritoneal lavage, CT scan, angiography

Decision making regarding patient flow to further diagnostic studies, operating room, intensive care unit, or surgical floor

Indications and performance of various unusual trauma bay procedures including resuscitative thoracotomy, post-mortem cesarean section, reduction and splinting of fractures and dislocation

Decision making with respect to patient discharge and follow-up care

Consistent integration of medical facts with clinical data, while incorporating potential risks, benefits and alternatives

##### **Operative Management of Trauma**

Establish intra-operative treatment priorities

Advanced vascular exposure

Operative sequence of multiple complex injuries in all body areas and organ systems

Comprehensive knowledge of injury identification and treatment of injuries involving all body areas

Basic knowledge of orthopedic, urologic, plastic, ENT, and neurosurgical operations including indications, timing, complications, and limitations

Principles of damage control, including temporizing techniques for vascular and enteric injuries

### **Medical Knowledge:**

In addition to understanding concepts mastered during the junior years, the senior resident will develop an in-depth understanding of key elements in each of the following areas:

Principles of Post-injury Care

Integration of his/her knowledge of the injuries to various organ systems and the interaction of each as well as organ-organ interactions

Limitations and indications for monitoring

Brain death evaluation and certification

Organ donation including procurement, preservation, harvest, allocation, and the activities of major organ donation agencies

Diagnosis and management of persistent vegetative state

Importance of infection control

Outpatient management of the trauma patient

### **Practice-Based Learning and Improvement**

Senior level residents will consistently analyze their clinical experience of practice, identify areas for improvement and take appropriate educational steps to strengthen these weaknesses

Senior level residents will be able to critically evaluate information in the surgical and critical care literature as it pertains to their practice of surgery

### **Interpersonal and Communication Skills**

In addition to understanding concepts mastered during the junior years, the senior resident will develop an in-depth understanding of key elements in each of the following areas:

Resuscitation and Diagnostic Decision Making

Principles of trauma team leadership and command presence during resuscitation.

Operative Management of Trauma

Timely, effective communication and interaction with the anesthesia team

Effective communication with OR staff and leadership within the OR

### **Professionalism**

All residents will demonstrate personal integrity, honesty, accountability, respect, compassion, patient advocacy and dedication to patient care and well-being that supersedes self-interest

All residents will demonstrate a commitment to excellence and continuous professional development

All residents will demonstrate a commitment to ethical principles pertaining to the provision of critical care, patient confidentiality, and informed consent

All residents are expected to demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

All residents will demonstrate respect and a professional demeanor in relationships with colleagues

All residents will develop lifelong learning skills through the application of basic science concepts to clinical management, critical reading and critical thinking

The resident is expected to develop the following:

- Organizational skills

- Leadership skills including personnel management, negotiation, team development, and conflict resolution

### **System-Based Practice**

The resident will develop an appreciation and understanding of:

- Epidemiology of Trauma and Injury Prevention

- Basic principles of risk identification and development of preventive strategies

- Fundamental aspects of public health issues

- Pre-hospital Care

- Principles, risks, and benefits of EMS and aeromedical transport

- Organization, supervision, coordination, and interaction with aeromedical agencies

- EMS and aeromedical safety issues

- Identification and understanding of the limitations of regional healthcare delivery systems, including EMS, intra-hospital transport agencies, and referral hospitals

- Priorities of on-scene and in-transit patient evaluation and resuscitation

- Operative Management of Trauma

- Resource limitations and availability of the operating room including the conflicting duty to provide both elective and emergency surgical care

- Fundamentals of management including triage, communication, manpower management, and resource utilization

- Fundamentals of Rehabilitation

- Physical medicine and rehabilitation

- Effective communication and collaborative practice with ancillary services including speech therapy, occupational therapy, physical therapy, respiratory therapy, and substance abuse counselors

- Management of common complications that occur in the rehabilitation environment

## Instructional Methods

1. Daily rounds in Trauma ICU, Surgical ICU, and Pediatric ICU with attending trauma surgeon
2. Trauma Didactic Conferences (every MON and FRI) and Journal Club
3. Trauma Admissions Conference (every THUR)
10. Morbidity and Mortality (every FRI)
11. Trauma patient resuscitation in ED and OR
12. Operative management of trauma patients, both acute and follow-up procedures (liver pack removal, abdominal washouts, tracheostomies, etc.)
13. Weekly formal multidisciplinary ICU rounds
14. OHSU Surgery Grand Rounds (every MON)
15. Preparation to present an interesting ICU trauma case at Trauma Admissions Conference every other week (with literature review)

## Syllabus

1. Priorities in management of the multiple injured patient
2. Management of cardiovascular pharmacologic agents
3. Management of complex thoracic trauma
4. Ventilator management in the trauma patient, including indications for proning
5. Use of ECMO in the injured adult
6. The operating room as a trauma resuscitation room
7. Massive transfusion protocol
8. Mobile surgical transport team

## Reading List

4. Emanuel Hospital Trauma Clinical Protocols (over 200)
5. *The ICU Book*, Marino, Second Edition, 1998.
6. *Advanced Trauma Life Support, Seventh Edition*, ACS 2004.

## **Evaluation and Feedback Methods**

- a. Direct feedback on daily rounds
- b. Feedback through OHSU resident evaluation program