



Preamble

The Trauma and Acute Care Surgery Service is staffed by general surgeons specializing in the care of Trauma and Critical Care patients and supported by ER physicians, thoracic surgeons and anesthesia as Trauma Team Leaders (TTL). Furthermore, its multidisciplinary approach includes collaboration with other health care professionals from the intensive care, neurosurgery, orthopedics, vascular, plastics, OMF, as well as from specialized nurses, physiotherapists, occupational and respiratory therapists. Residents will be exposed to and manage critically ill trauma and surgical patients as they arrive in the Emergency Room. Residents must recognize patients in severe shock and apply basic and advanced principles of resuscitation, relevant to all specialties in medicine. Junior residents must learn and appreciate basic and advanced life-saving techniques. Seniors must become leaders as they supervise junior residents and gradually assume the role of trauma team leader under the supervision of an attending TTL.

MEDICAL EXPERT

By the end of the Trauma and Acute Surgical Service rotation,

1. Strive to function effectively as a trauma and acute surgical expert, integrating all of the CanMeds Roles to provide optimal, ethical and patient-centered trauma and surgical care.
2. Establish significant clinical knowledge with regards to trauma and acute surgical care, specifically in the following areas:

Trauma:

- Shock (hypovolemic/hemorrhagic, neurogenic, obstructive, cardiogenic and septic)
- Principles of resuscitation, including knowledge of various fluid solutions and their impact on volume and immunologic therapy
- Airway management including RSI (Rapid Sequence Intubation)
- Traumatic brain injury
- Complex facial fractures Solid
- and hollow viscus injury Blunt
- and penetrating neck injury
- Blunt and penetrating thoracoabdominal injury
- Penetrating flank injury
- Principles of damage control
- Complex pelvic fractures
- Major extremity injury
- Electrical and burn injury



Objectives of Training

- Trauma system measurements and scoring (AIS, ISS, TRISS, APACHE II, etc.)
- Trauma system standards, resources and organization at the local, regional and national level
- Blood transfusion medicine and massive transfusion protocols
- Mechanism of injury and its clinical relevance
- Safe transportation of the trauma or acutely ill surgical patient
- Invasive and non-invasive monitoring of the trauma patient (ICP drains, brain tissue oxygenation monitors, jugular venous bulb catheters, bladder pressure, compartment pressure measurements)
- Indications for operative and non-operative management of blunt and penetrating trauma
- Brain death criteria and organ donation work-up

Acute Surgical Care (however, please see more detailed goals and objectives in the chapter on ACS):

- Sepsis and Multiple Organ Failure
 - Abdominal Compartment Syndrome
 - Soft tissue infection and necrotizing fasciitis
 - Appendicitis, cholecystitis, diverticulitis
 - Acute pancreatitis
 - Gastrointestinal perforation and hemorrhage
 - Small and large bowel obstruction
 - Mesenteric ischemia
 - Enteral and parenteral nutritional support
3. Perform a complete and appropriate assessment of trauma and acutely ill surgical patients by:
- Performing the Primary, Secondary and Tertiary Survey for trauma patients Understanding and applying ATLS protocols
 - Performing a focused physical examination on acutely ill surgical patients, notably appreciating the acute abdomen Performin of FAST and e-FAST examination
 - Recognizing, differentiating and evaluating different types of shock seen in trauma and acutely ill surgical patients
 - Recognizing and evaluating the difficult airway and airway compromise in trauma patients
 - Recognizing and evaluating the common causes of hypoxia in the trauma/surgical patient
 - Recognizing and evaluating the common causes of altered mental state in the trauma/surgical patient



Objectives of Training

- Eliciting important and relevant patient history when assessing a trauma or acutely ill surgical patient
 - Obtaining appropriate radiological and other ancillary tests, and recognizing important findings
4. Use preventive and therapeutic interventions effectively by:
- Understanding strategies to prevent secondary insults in trauma and surgical patients
 - Initiating venous thromboembolism prophylaxis in the trauma or surgical patient and understanding the indications for prophylactic IVC filters
 - Recognizing strategies to reduce GI ulcers and ventilated-associated pneumonias in intubated patients
 - Using prophylaxis antibiotics appropriately in the trauma or acutely ill surgical patient
 - Appreciate the use of non-invasive modalities like angiography in the management of trauma patients
5. Demonstrate proficient and appropriate use of procedural skills in the ER, Operating Room, or on simulators in the management of trauma and surgical patients, specifically:

TECHNICAL SKILLS - JUNIOR RESIDENTS:

I – perform independently

A – function as assistant

- Airway management (I) (including chin lift, bag-valve-mask, oral endotracheal intubation)
- Chest tube insertion (I)
- Central line venous access / venous cut down (I)
- Arterial blood gases (I)
- Closed reduction of long bone fractures (I or A)
- Local wound exploration (I)
- Midline laparotomy incision (open and close) (I)
- Describe/perform an exploratory laparotomy (I)
- Mechanical intestinal anastomosis (A)
- Appendectomy (I)
- Colostomy/ileostomy (A)
- Gastrostomy / jejunostomy (A)
- Elective hernia repair (I)
- Elective laparoscopic cholecystectomy (I or A)
- Rigid sigmoidoscopy (I)



TECHNICAL SKILLS - SENIOR RESIDENTS (including supervision of the above skills for junior residents):

- Difficult airway management (including awake intubation) (I)
 - Cricothyroidotomy (I)
 - Tracheostomy (open and percutaneous) (I)
 - Focused Assessment with Sonography for Trauma (FAST) (I)
 - Diagnostic peritoneal lavage (DPL) (I)
 - Emergency room thoracotomy (I)
 - Clamshell thoracotomy (I or A)
 - Perform an exploratory laparotomy with 4 quadrant packing (I)
 - Damage control laparotomy (I)
 - Formal trauma neck exploration (I)
 - Management of the open abdomen (I)
 - Control of major abdominal vascular injury (I)
 - Operative management of pancreatic injury or infected necrotizing pancreatitis (I)
 - Splenectomy (I)
 - Diaphragmatic injury repair (I)
 - Diagnostic laparoscopy (I)
 - Major intestinal repair or resection (I)
 - Laparoscopic cholecystectomy for acute cholecystitis (I or A)
 - Incarcerated / strangulated hernia repair (I)
 - Soft tissue infection debridement (I)
 - Operative management of gastrointestinal hemorrhage or perforation (I or A)
 - Extraperitoneal pelvic packing (I or A)
 - Medial visceral rotations or approaches to vascular control (I or A)
 - Appropriate vascular access for intraoperative angiogram (I or A)
 - Approaches to retrohepatic bleeding (A)
6. Seek appropriate consultation from other health professionals, including neurosurgery, vascular, orthopedics, plastics, OMF, CVT, as well as respiratory and occupational therapy, physiotherapy and social work



COMMUNICATOR

Residents must demonstrate communication skills in the following areas:

All Residents must:

1. Develop a rapport and trust with patients and families by being empathetic and listening to their concerns.
2. Accurately elicit and synthesize relevant information and perspectives of patients and families, as well as from other health professionals including ambulance technicians, nurses, RT's, physiotherapists, social workers and other consulting physicians.
3. Accurately convey relevant information and explanations to patients and families, law enforcement, and other health professionals including nurses, physiotherapists, social workers and other consulting physicians actively involved in the care of the trauma or acutely ill surgical patient.
4. Present all new cases and updates on patients on service in a thorough yet relevant manner in Morning Report to the team and attending physicians.
5. Actively participates in Trauma Rounds by reviewing recent or landmark articles, discussing relevant topics in an organized and structured fashion.

Junior Residents must:

1. Demonstrate the ability to keep an accurate and complete record of the management of the polytrauma or acutely ill surgical patient.
2. Demonstrate the ability to clearly and concisely report the relevant findings in the history and physical examination of the acutely ill surgical patient, and the relevant findings of the Primary and Secondary survey in the Trauma Bay.
3. Demonstrate the ability to listen attentively and follow the direction and plan of the Trauma Team Leader when managing a trauma patient

Senior Residents must:

1. When assuming the role of the Trauma Team Leader (under the supervision of the attending TTL), demonstrate superior leadership qualities in the Trauma Bay by effectively communicating the current status of the trauma patient and management plan to the junior resident, nurses, RT's, orderlies and radiology technicians.
2. Establishes communication with Radiology, the Operating Room and other consulting physicians in a timely fashion, providing them with concise and relevant information regarding the trauma patient.
3. Discusses patient management with the appropriate attending physician on a regular basis.
4. Prepares and discusses patient morbidity and mortality at Trauma Rounds.
5. Gathers relevant information and clearly communicates with outside institutions on the minimum requirements before transferring trauma or acutely ill surgical patients ensuring patient safety and a smooth transfer



COLLABORATOR

Residents on the Trauma and Acute Care Surgery Service must be able to demonstrate their collaboration in the following areas:

1. Participate in Morning Report and Trauma Rounds, demonstrating an ability to accept, consider and respect the opinions of other team members.
2. Be able to consult other health professionals (i.e. physicians, physiotherapists, RT's, social workers, etc.), demonstrate respect for their opinions and develop a care plan in collaboration with these professionals.
3. Work closely with the Intensive Care Team by pooling resources, information, and technical skills to expedite diagnosis and management of trauma and acutely ill surgical patients.

MANAGER

All Residents must:

1. Recognize the limitations and scarce resources in pre hospital care at the local, provincial and national level, and how this impacts the management of trauma patients.
2. Recognize the limited resources within the hospital, including radiologic diagnostic and interventional studies, nurses, OR resources, occupational/physiotherapists, and manage patient care within these confines
3. Utilize hospital resources wisely when managing trauma and acutely ill surgical patients.
4. Demonstrate an ability to communicate with other surgeons when planning the timing of an emergency operation.

Junior Residents must:

1. Manage day-to-day issues and discharge planning for patients on the service

Senior Residents must:

1. Oversee junior resident management of patient care
2. Take a leadership role in the Trauma Bay by gradually assuming the role of the Trauma Team Leader, under the supervision of the attending TTL

HEALTH ADVOCATE

Residents on the Trauma and Acute Care Surgery Service must be able to:

1. Demonstrate a willingness to participate in trauma injury education and prevention.
2. Recognize how public policy (i.e. mandatory passenger seatbelts, firearm control, etc) directly impacts injury prevention.



General Surgery (TRAUMA SERVICE) – MUHC-MGH Site

Objectives of Training

3. Assist in the Quebec Trauma Registry program and the MUHC Trauma and Acute Care Services Registry, contributing to health policy and resource allocation to further improve quality of care of trauma and acutely ill surgical patients.
4. Recognize the deficiencies in our regional structure when transferring severely injured trauma patients to a Level I Trauma Center such as the MGH, and advocating an improvement in this system by debriefing the referring institution after each transfer to ensure patient safety in subsequent transfers.

SCHOLAR

Residents on the Trauma and Acute Care Surgery Service must be able to demonstrate their scholarly approach to medical practice in the following way:

1. Recognize areas of weakness of knowledge or skills, and formulate a plan to correct these weaknesses through reviewing the literature, participating in simulation, or practicing skills in an animal lab.
2. Critically appraise evidence from recently published or landmark articles pertaining to the care of trauma and acutely ill surgical patients.
3. Demonstrate an ability to pose research questions based on the epidemiology of trauma or acutely ill surgical patient care, or based on a clinical dilemma encountered during the rotation.
4. Demonstrate an interest in trying to solve these problems with a methodological approach based on a scientific method.
5. Teach medical students and residents by formal lectures, informal discussions and by example.

PROFESSIONAL

Residents must demonstrate their professionalism in the following way

1. Respect patient confidentiality, privacy and autonomy.
2. Deliver trauma and surgical care with integrity and honesty.
3. Demonstrate self-evaluation and continued receptiveness to criticism
4. Demonstrate a sense of responsibility by ensuring continuity of care for patients, including outpatient management.
5. Demonstrate an understanding of their limitations and know when to call for help in difficult situations.
6. Be able to recognize and discuss ethical issues as they arise in trauma and surgical care, including issues of informed consent, level of intervention, advance directives and organ donation as it applies to trauma and acutely ill surgical patients.
7. Document patient care, status, family meetings and consent in a complete fashion