

## **Trauma Fellowship for Emergency Physician**

Institution: McGill University

Location: Montreal General Hospital, McGill University Health Centre (hereafter referred to as MGH)

Type of Fellowship Program: Clinical Fellowship

Program Information

- Number of positions: 1 per year
- Academic Affiliation: McGill University
- Hospitals involved: Montreal General Hospital (MGH)
- Background: The Montreal General Hospital, a designated Level I Trauma center since 1997, sees a high volume of acutely ill victims of trauma, blunt and penetrating. With the advent of these centers, mortality of severe trauma patients has dramatically been reduced. The MGH has developed a Trauma Team Leader (TTL) group, consisting of a mix of emergency physicians, surgeons, and anaesthetists; this provides a unique balance and perspective on trauma management. The TTL group is responsible for the acute management of all major trauma patients coming in our hospital. This TTL program is the 1<sup>st</sup> such program in Québec. Our TTL program has contributed in handling such mass casualty events as the Dawson shooting and the Greyhound bus crash. We are the only Trauma Center in Québec with a staff physician dedicated solely to the care of the critically ill trauma victim.

Because Emergency Physicians are at the forefront of the care of injured patients, we have decided to create our fellowship to further enhance the training of Emergency Physicians who wish to be leaders in this highly specialized field.

- Research activity: no formal activity for the moment
- Publications: None for the moment
- Mission: see goals and objectives for the emergency trauma fellowship (attached)
- Effect on Residency Training: the presence of an Emergency Medicine Trauma Fellow will increase the teaching available to residents rotating through the Montreal General Hospital's Emergency Department, whether they be Emergency Medicine (Royal College and Family Medicine) or surgical sub-specialty programs. The Fellow will also share responsibility in organizing various scholarly activities related to Trauma Care.

Fellowship Program Director:

- Dr. Bruno Bernardin (director)

Teaching Faculty

- Bruno Bernardin: Specialist in Emergency Medicine; MGH ED attending physician since 1997; Trauma Team Leader since 2005; ED Trauma coordinator since 2004
- Jean-Marc Troquet: Specialist in Emergency Medicine; MGH ED attending physician since 1999; Trauma Team Leader since 2005; ED Trauma coordinator since 2004
- Joe Nemeth: Emergency Physician MGH ED since 2001 ; Trauma Team Leader since 2005;
- Trauma Team Leader (TTL) core group: consists of 7 emergency physicians, 4 general surgeons, one orthopedist and two anesthesiologists. All members of the TTL core group are also instructors in the Advanced Trauma Life Support Course. Most of them are also faculty in various yearly MGH trauma courses/lectures offered to the community as part of MGH or McGill CME. Drs Bernardin, Troquet Nemeth, and DeChamplain have been repeatedly guest lecturers on various trauma topics at national and provincial Emergency Medicine Conferences.

#### Academic Facilities

- Montreal General Hospital ED
- Montreal General Hospital SICU
- McGill University Simulation Centre
- Dedicated trauma step down unit at the MGH

#### Fellow Duties and Responsibilities:

- See attached goals and objectives.

#### Curriculum

- See attached goals and objectives
- Case load and variety: the MGH ED sees annually over 9000 trauma victims; we also received last year 643 trauma transfers from referring hospitals. Of these combined numbers, 1803 were admitted to hospital in the course of the last year—almost five patients per day; 344 went directly to the ICU and 291 to the neurosurgical floor. There were also a total of 218 victims of gun shot wounds and 523 victims of stab wounds. The trauma fellow would be exposed to a significant proportion of these patients, either through his functions as a TTL—which supervise all the trauma admissions— or through his ICU rotations.
- Evaluations: the Fellow will be evaluated within each rotation by his clinical supervisors as per the goals and objectives. The Fellow will meet four times in the year with the fellowship director to review his progress and the rotation evaluations. This will ensure that any areas needing special attention will be rapidly identified and corrected. The fellow will be required to submit a written evaluation for each of his rotations. These will be

compiled by the Fellowship director and kept available to make proper adjustments.

- Regular reading material
  - EAST guidelines,
  - selected trauma journal literature
  - ATLS Guidelines
  - Weekly Trauma Service Teaching rounds in conjunction with the MGH General Surgery Department

### **Goals and Objectives for the Post Graduate Trauma Fellowship for Emergency Physicians**

#### **McGill Royal College Emergency Medicine Program.**

##### **General Goals**

The post graduate fellowship in Trauma for Emergency Physicians, is a one year supervised training program open to qualified residents who have completed a postgraduate Royal College specialty program in Emergency Medicine or the equivalent. Fellows will acquire an understanding of Trauma Systems, including the role of TTLs (trauma team leaders), the emergency management of trauma, as well as having an in depth understanding of the pathophysiology of trauma.

At the end of their training, the Fellow will have acquired the knowledge and skill set to function as a TTL in a Trauma Centre and manage any form of trauma that comes in a level I Trauma Center Emergency Department. The fellow will be able to:

1. lead the emergency team and/or trauma team through resuscitative measures and treatment at a consultant level
2. prioritize the management of the severely injured in mass casualty incidents
3. identify situations where further or additional expertise is required
4. collaborate effectively with other consultants (including but not limited to trauma surgery, orthopedics, neurosurgery, radiology and interventional radiology).

***In addition to the clinical management of trauma patients, the Fellow will demonstrate knowledge of:***

- 1. trauma administration and trauma systems***
- 2. pre-hospital trauma care***
- 3. trauma research***

#### **4. trauma education**

Emphasis will be placed on the initial resuscitation and stabilization of the poly-traumatized patient and the subsequent collaborative emergency management with the consulting teams.

The Fellow will also be required to have knowledge of post-ED care. The Fellow must be cognizant of what happens post surgical or radiological intervention, in the ICU, step-down unit and in the trauma follow-up clinics.

Most of the training will occur as a member of the Emergency Department of the Montreal General Hospital. The fellow will be under the direct supervision of the core TTL group and selected Emergency Physicians. The fellow will be exposed to trauma as part of the Trauma Service, the TTL team, and as well during Emergency Medicine shifts. The Fellow will be expected to follow his patient longitudinally through admission, ICU, step-down unit, ward to discharge.

To compliment and enhance the training and exposure, the fellow will be encouraged to explore other trauma systems (either nationally or internationally).

The fellow will be expected to carry out scholarly activities in the form of a small research project, participation in trauma rounds, journal club, and grand rounds presentation at emergency medicine academic rounds. The fellow will be expected to be up to date on current literature, be able to critically appraise the literature and have an understanding of evidence based medicine as it applies to the trauma literature. Finally, the fellow will be expected to learn the functioning and components of both the hospital and provincial Trauma Registries.

#### **One year program**

- ◇ based on 13 four week periods
  - 5 rotations as TTL
  - One pediatric trauma rotation
  - One airway/ trauma anesthesia rotation (focusing on fibre-optic techniques)
  - One Trauma Administration rotation: focusing on Trauma Registries, Trauma Systems (provincial and world-wide) and Pre-hospital aspects
  - 2 periods in SICU
  - one advanced ultra sound rotation (focusing on advanced echo and critical care echo)
  - one elective

- one trauma rotation abroad (USA or South Africa)
- Longitudinal radiology, focusing on developing an approach to interpreting trauma CTs.
- Longitudinal Trauma Clinics for follow up
  
- ◇ There will be additional academic/scholarly activities:
  - Core interactive text review
  - Weekly trauma rounds
  - Journal club
  - Presentations at:
    - Emergency academic rounds
    - Emergency journal club
    - Trauma Service Academic Rounds
  - The academic activities associated with the rotations such as SICU, daily rounds on admitted patients to the team

## **SPECIFIC OBJECTIVES**

### **Medical Expert and Clinical Decision-maker**

The Fellow must be able to

- Obtain a history that is accurate, pertinent and concise for the nature of the problem
- Perform physical examination (primary and secondary surveys), and appropriate resuscitative procedures and interventions.
- Perform appropriate post-resuscitative care and timely tertiary and quaternary surveys.
- Understand the mechanisms of injury and the associated injuries that must be excluded.
  
- Perform the following procedures including indications, contraindications, complications:
  - FAST
  - Central line access
  - Venous cut-down
  - IO (Intra-osseous)
  - RSI
    - Must also demonstrate an understanding of the medications used, indications, contra indications, complications.

- Must also demonstrate proficiency and understanding of rescue techniques and devices, including fiberoptics.
  - Cricothyroidotomy
  - Chest tube insertion
  - Resuscitative ED thoracotomy
  - DPL or DPA
  - Pelvis stabilization
  - Cervical spine immobilization
  - Long bone reduction and immobilization
- The Fellow must demonstrate an approach to interpreting the following radiologic interventions:
  - C-spine x-ray
  - CXR
  - CT head
  - CT C-spine
  - CT chest
  - CT abdo/pelvis
  - Long bone and thoraco lumbar x-rays.
- The Fellow must understand when to appropriately involve interventional radiology
- The Fellow must demonstrate the ability to interpret accurately the results of common diagnostics tests.
- The Fellow must understand and be able to apply the difference in trauma epidemiology and management for adult and pediatric populations.
- Demonstrate knowledge in:
  - Resuscitative fluid management and massive transfusion protocols
  - Indications for emergent operative management of various types of injuries, including but not limited to severe intracranial injuries/TBI, penetrating neck, airway trauma, abdominal trauma, peripheral/extremity vascular trauma.

### **Communicator**

The Fellow must demonstrate effective communication skills by his/her ability to:

- work harmoniously within the team
- extract necessary information from transferring physicians, provide guidance in patient stabilization and management

by telephone, and subsequently provide clear pre-transfer instructions.

- communicate effectively to the ED personnel information about patients being transferred from outside institutions.
- formulate a clear plan of action and convey information to other colleagues
- deliver information to patient and families in a sensitive manner using the appropriate vocabulary for their understanding of the situation
- liaise effectively with the other TTLs and transfer of information and summarize the evidence to allow for better consultation and follow-up on the cases
- write legible and pertinent documentation enabling another professional to access the information pertaining to the case.
- Provide clear and constructive written feedback to the referring MDs.

### **Collaborator**

The Fellow must be able to:

- act as a leader of a multidisciplinary (trauma) team
- effectively collaborate with all the consulting services required for the management of the poly-traumatized. patient in the Emergency Department.

### **Manager**

The Fellow should understand and be able to apply in their practice:

- the principles of mass casualty triage
- management of a mass casualty incident
- “code orange” protocols
- make timely management, follow-up and disposition decisions.
- provide effective consultation to a referring physician and provide appropriate information when a patient is returned to the sending hospital.
- Understand and use resources (labs, radiologic) in an evidenced and cost effective fashion.
- Understand information systems as applied to trauma (eg. Trauma registry)

### **Health Advocate**

The fellow should be able to recognize and advise patients and their families regarding the general epidemiology and prevention of trauma, more specifically :

- Fall prevention
- Self protection (helmets, eye wear, seat belts etc.)
- Participation in activities while under the influence of drugs or alcohol (driving, cycling, work).

In addition, the fellow must:

- Identify the high risk suicidal patient and institute appropriate precautions and management
- Identify patients that are potential organ or tissue donors and understand the role of the organ and tissue donation teams
- Identify the potentially volatile situations that endanger the entire ED, and institute proper security measures

## **Scholar**

Residents should be able to demonstrate an intellectual approach to medical practice in the following areas during participation on patient rounds, teaching sessions, journal clubs and interdisciplinary meetings.

- Continuing medical education;
  - show interest in self-education skills by demonstrating knowledge in the evolving concepts in the management of trauma patients and new management developments .
- Critical Appraisal of the Medical Literature;
  - demonstrate the ability to research the medical literature and identify the best available evidence for any patient related question.
  - Identify limitations in current trauma research
- Scientific interest
  - Show interest in other scientific areas closely related to clinical trauma, such as but not limited to basic pharmacology, radiology, by recognizing potential implication of these fields into clinical practice
  - Demonstrate ability in identifying areas in trauma where gaps in knowledge or expertise exists by retrieving the essentials of the literature, summarizing the evidence to date and develop research ideas to fill these gaps while being able to demonstrate the clinical relevance of finding answers to the question at hand.
- Teaching skills:



- Fellows should be able to explain the management of all aspects of a poly-traumatized patient.
- Fellows should be able to instruct residents all procedural skills required for the emergency management of the poly-traumatized patient.
- Should be available to answer and/or discuss the current literature and controversies about the management of the poly-traumatized patient.
- ATLS instruction: The Fellow will participate as an instructor of the ATLS courses with the goal of becoming an ATLS instructor
- McGill Simulation Centre: the Fellow will participate in trauma simulations organized by the Emergency Medicine or other programs.

### **Professional**

The Fellow should be familiar with medical, legal, psychiatric and social aspects of trauma. The Fellow should always approach situations with the highest level of integrity and honesty. The Fellow must demonstrate awareness of his/her own limitations and seek advice when appropriate. More specifically the Fellow should demonstrate professionalism in the following issues:

- Obtaining consent (when appropriate) for therapeutic modality or research study inclusion by the patient or the next of kin.
- Respect patients' rights to confidentiality and neutrality in the face of authorities involvement whilst fulfilling social and legal obligations as per the medical ethics code and the local regulations.
- Approach and involve families/next of kin respectfully when bringing up the issue of organ or tissue donation as well as other end of life issues.
- Recognize the limitation of medical practice in the face of threat or aggression and decide when appropriate to involve legal authorities.
- Recognize the limitations of informed consent (capacity and competence) in trauma care. Seek appropriate advice from consultants to achieve the best therapeutic or management plan for these patients.

### **Fellow Duties and Responsibilities:**

The Emergency Trauma Fellow must demonstrate flexibility in scheduling to allow maximal exposure as per the epidemiology of trauma.

As such, the Fellow must expect to work a good proportion of evening, night and week ends.

During the TTL rotations, the Trauma Fellow will be paired with the physicians from the core TTL group while being on-call. TTL on-calls consist of 24 hour periods and done from home. The Fellow will be expected to do a minimum of 10 on-calls per period during their TTL rotations. A minimum of 3 week-end calls per period will be in effect, to maximize exposure according to certain types of trauma epidemiology (penetrating).

During the TTL rotations, the Fellow will also work clinically in the Emergency Department with the Emergency Physician TTLs and selected Emergency Physicians to allow exposure to all the spectrum of trauma patients. On average, 8 ED shifts will be required per period during these months.

The Fellow is expected to attend regular Trauma Service outpatient follow-up clinics on a weekly basis (usually half a day per week), unless this conflicts with other teaching/ clinical activities. During these clinics, the Fellow will be supervised directly by the Trauma Surgeons and will be dedicated to trauma related issues (i.e specifically excluding other general surgical issues).

The Emergency Trauma Fellow is also expected to help coordinate, in conjunction with the Surgical Trauma Fellow, and participate in the Trauma Service's weekly rounds and presentations. The Fellow is expected to give at least two formal presentations per year at the Trauma Rounds and/ or at the Emergency Medicine Rounds.