Trauma Association of Canada Accreditation Review of

British Columbia Northern Health Regional
Trauma System

Northern Health Authority
November 1 & 2, 2011

TAC Accreditors:

- Dr. Fred Brenneman MD, FRCSC, FACS
- Ms. Elsie Galbraith RN
- Ms. Paula Poirier RN, BN, MN
- Dr. Mary Stephens MD, FRCSC, FACS
Preamble:

The Trauma Association of Canada (TAC) was invited by the BC Northern Health Authority to conduct an accreditation assessment of the Northern Health Trauma System as well as individual site accreditation assessments of:

- University Hospital of Northern British Columbia – Level III
- Mills Memorial Hospital – Level V
- Fort St. John Hospital – Level V

This request was done to assess compliance with trauma system accreditation guidelines as defined by TAC\(^1\) and to suggest areas for improvement if any deficits or opportunities were apparent. Preparations by the institutions and the Northern Health Region for this assessment process then ensued and the site visits were organized with the support of the appropriate hospital executive and staff.

Level III-V Site Data Summary:

Total Funded Acute Care Beds:
- University Hospital of Northern British Columbia: 214
- Mills Memorial Hospital: 44
- Fort St. John Hospital: 44

Total Admitted Major Trauma Patients (ISS>12):
- University Hospital of Northern British Columbia: 84

Total Emergency Department Visits per annum:
- University Hospital of Northern British Columbia: 46,024

Population served: approximately 300,000

The accreditors would like to thank and acknowledge all of the BC Northern Health Regional trauma system leadership for the opportunity and privilege of reviewing their trauma system. We would like to extend our sincere thanks to all the participants for their time and participation either in person or by teleconference. We appreciate their valuable time and input given to our team during this trauma accreditation review process.
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Level 5 Hospitals

Terrace (Mills Memorial Hospital)
Dawson Creek
Fort St. John Hospital

Summary of Site Recommendations
Accreditation Summary

It is the overall recommendation for the Trauma Association of Canada that:

The following centres have appropriate level designations and receive the following TAC accreditation recognition:

- The University Hospital of Northern British Columbia is accredited as an Adult Level III Trauma Centre for a 5 year period.

- Mills Memorial & Fort St. John Level V Hospitals, Northern BC Health Region are accredited as a component of the Northern Health Region Trauma System for a 5 year period.

Please find within the accompanying detailed report, further recommendations and observations pertaining to the specific components of the Northern Health British Columbia Trauma System. All observations, recommendations and suggestions will be listed within the separate relevant sections.
Section One: Provincial Systems and Regional Overview

Provincial Trauma System

The BC Provincial Trauma system can be described as a system in transition. The British Columbia Trauma Advisory Committee (BCTAC) reports to the Provincial Health Services Authority through Mr. Rick Rogers (BCTAC Chair). There is currently a firm direction and support to develop a provincial trauma office. Individuals are being interviewed for the position of Provincial Trauma Medical Director and Provincial Trauma Executive Director. These positions will provide leadership and strategic direction for the overall Provincial Trauma System, the Provincial Trauma Registry, BCTAC, Injury Prevention and Surveillance.

The ongoing planning for this provincial oversight in trauma will assist in coordination and collaboration with various stakeholder groups, and focus efforts and resources within a cohesive provincial trauma system. Provincial trauma leads will provide overall trauma system leadership that will help facilitate and limit duplication of effort and make more efficient use of resources to improve patient care. The newly formed provincial trauma office will link with the new provincial structured EMS system. BCTAC is subdivided into a number of working groups including quality assurance, education, research, injury prevention, transport, and Event Preparedness. The provincial health care system is delivered by a number of regional healthcare authorities. These appear to be autonomous in funding and resources. The creation of a provincial trauma office offers the opportunity to provide leadership for system sustainability for all sites in the province. Such an organization will be able to fairly distribute resources according to the geographic realities and ensure appropriate redundancies in surge situations preventing inappropriate inefficient imbalances.

BCTAC is provincial with accountability for the delivery of trauma care on a province wide basis. It provides a framework in which province wide trauma issues can be addressed from a systems vantage point with multiple stakeholders participating. The active participation of the BC Northern Health Authority at BCTAC is to be commended and exemplifies a key component of a true provincial/regional trauma system.
Northern BC Trauma System meets Trauma Accreditation guidelines at the Provincial Trauma level.

The following recommendation is made to enhance this service at the Regional/Provincial Trauma System level.

Recommendation(s):

1. The Provincial Trauma Office should provide clear provincial direction for trauma care in BC, including provincial standards/guidelines for trauma care throughout the system.

2. Consideration be given that a consistent provincial source of funding be provided for those aspects of the program that are provincial (i.e. trauma medical directors, trauma coordinators, trauma data analysts, trauma admin support, trauma registry support). Funding for trauma services at the Level III trauma sites as well as funding for the Level V trauma sites should be consistent within BC.

Regional Trauma System

The Northern Health Authority covers a vast geographic land mass, approximately two-thirds the size of the province of BC and is divided into three major areas, the Northwest, the Northeast and the Northern Interior. It serves a population that is diverse in nature, varying from hubs of growing communities in the Interior and Northeast; to areas of scarce numbers of residents such as in the far Northwest. This presents unique challenges for provision of resources and access to trauma care. The TAC surveyors were able to review the NHA as a region and as a part of the BC Trauma System with a site visit to the UHNBC in Prince George, with in person interviews and video/teleconferencing capabilities.
With current oversight and support from the President & CEO, Mrs. Cathy Ulrich, and VP Medical Clinical Program, Dr. David Butcher, the NHA has evolved into a very effective model of delivery of trauma care in a rural setting, with one Level III and recently designated two Level V Trauma Centres. Under the superb leadership of Regional Trauma Medical Director Dr. John Ryan and the Regional Program Manager, Mrs. Jordan Oliver, UNHBC in Prince George has prepared for TAC Accreditation as a Level III, while Fort St. John in the Northeast and Mills Memorial Hospital in the Northwest have prepared for Level V status.

It was clearly evident that despite the challenges of geography, weather, and limited resources, processes are in place for the transport of critically injured trauma patients in a timely manner to the right destination, and the mandate for the continuum of care is fulfilled according to the TAC Guidelines.

The provincial transport and destination protocols for BCAS and bed allocation system through Bedline are followed for the most part, ensuring that the most critical patients requiring tertiary or quaternary care are transported to VGH a Level I Centre in Vancouver or to Edmonton from the Northeast if BCAS is unable to transport in a timely fashion. There is a process to monitor and evaluate any delays when they occur and are reviewed at various levels including BCTAC.

According to the many staff who were interviewed, all agreed that the standardized Provincial Guidelines as well as Regional Guidelines for Transport, TTA, Trauma Transfer, documentation forms have dramatically improved the delivery of trauma care and the level of confidence of trauma care providers throughout the region.

However it was noted that there was a need for access to continuing education in trauma care, particularly in remote areas, but virtually throughout the entire region. Trauma training such as ATLS, FAST, Rural Trauma Care Course or other courses, should be a priority to ensure family physicians who often cover the rural ER’s have this opportunity.

**Northern BC Trauma System meets Trauma Accreditation guidelines at the Regional Trauma Level.**
The following recommendations are made to enhance this service at the Regional Trauma System level.

**Recommendation(s):**

1. That the NHA ensure that trauma education including courses and training for ATLS or equivalent be made accessible to physicians who are expected to provide trauma care.

2. That all referring centres be encouraged to follow the protocols in place including the BCAS transport and Bedline to ensure seamless and consistent processes and avoid delays.

3. Consideration be given that the current level of funding for trauma positions within Prince George, Terrace and Fort St. John should continue and not be removed or decreased for any reason in the near future. Recognition be given that continued annualized funding to support the Trauma Programs in the NorthEast and Northwest are extremely important for the ongoing evolution and maturation of the Trauma System.

4. Continued support (financial/system) re: implementing the trauma system road map (Strategic Plan).

**Emergency Management**

Overall Emergency Management is a strategic process and usually resides at the executive level in an organization. It serves as an advisory or coordinating function to ensure that all parts of an organization are focused on the common goal. Effective Emergency Management relies on a thorough integration of emergency plans at all levels of the organization, and an understanding that the lowest levels of the organization are responsible for managing the emergency and getting additional resources and assistance from the upper levels.
NHA’s emergency management resources are coordinated regionally across the district. Active participation of the trauma system and all levels of trauma centres providing clinical care in the regional/provincial emergency preparedness plan are essential, recognizing that trauma care is only one component of potential emergency disasters. “Code Orange” plans for mass casualties/disasters are in place throughout various facilities within the NHA.

There is room to grow however, and a close relationship between the Provincial Trauma office and all provincial emergency preparedness groups should be established.

**Northern Health Authority Regional Trauma System, Emergency Preparedness meets Trauma Accreditation guidelines at the Regional Trauma Level.**

The following recommendation is made to enhance this service at the Regional Trauma System level.

**Recommendation(s):**

1. There needs to be clear direction and a defined overall plan for Emergency Preparedness throughout the Northern Region.

**Pre-Hospital Services**

Overall, the accreditation team was very impressed with this innovative state-of-the-art prehospital system and their role and care of the trauma patient in the pre-hospital phase. The province of British Columbia utilizes a robust, mature and extensive prehospital care system which has recently been amalgamated under the leadership of the Provincial Health Services Authority (PHSA). It utilizes three levels of paramedic care, primary care paramedics, advanced care paramedics and critical care paramedics. These paramedics work and function from a set of provincial medical directives and treatment guidelines. These treatment guidelines are kept up to date by the regional prehospital medical directors and a new provincial prehospital medical director, utilizing subject matter experts in subspecialty fields to continually maintain best practice. An excellent example of that in a trauma system care capacity is the recent implementation of a prehospital C-spine clearance protocol utilizing the Canadian C-spine rule.
for those patients with a low mechanism of injury meeting established criteria. Use of this Canadian C-spine rule in the prehospital setting decreases the number of patients that require C-spine immobilization and standing board routine. The prehospital system also utilizes destination protocols. These protocols are generated regionally and locally depending upon the care needs, ambulance availability, geographical and time issues. The system currently uses field trauma triage guidelines. These guidelines are developed to provide direction to the paramedics to transport patients that should frequently bypass non-trauma centres to take the multisystem trauma patient directly to the trauma care facility when it is safe enough to do so.

The current prehospital system in British Columbia utilizes four helicopters and a series of fixed wing aircrafts. These are absolutely necessary given the large geographic dimension of the province and the need to provide tertiary and quaternary level services to geographically isolated areas. There is real time medical oversight for patient transports in these clinical situations. This system is also utilized to prevent the loss of clinically necessary emergency treatment personnel from leaving isolated positions in order to safely convey multisystem trauma patients. These flights are generally done with two critical care paramedics and their skills are maintained in an urban land capacity through rigorous continuing medical education, medical oversight, and maintenance of competency programs.

This care is sub-specialized for children utilizing the Infant Transport Team (ITT) where children and expectant mothers are transported with critical care paramedics that have special focused education in the treatment of very young patients and Obstetrics. The real time medical oversight for this particular system is coordinated through the BCCH intensive care unit. Advanced, and critical care paramedics enjoy a robust continuing medical education system and most recently utilized the Canadian Association of Emergency Physicians difficult airway course (AIME). They also benefit from training opportunities utilizing simulators at the Trauma Training Centre.

The province utilizes primary air response to attend to patients at the scene with rotary wing capacity and CCP’s. The province also utilizes a single patient transfer phone number through the “BC Bedline Program” for information regarding transfer and real-time bed availability. This is advantageous as discussion between the sending and receiving physician can occur while simultaneously utilizing teleconference technology and transport can then be organized based on the geographic, time, and patient needs of the sending facility. Calls are taped for medicolegal
reasons. There does seem to be some utilization of older referral systems, but as BC Bedline builds its successes and steadily facilitates care, its use has become more widespread.

Prehospital Care meets Trauma Accreditation guidelines at the Regional Trauma Level.

Trauma Registry

The BC trauma registry is housed in Vancouver. It has established thorough inclusion criteria which were well documented in the data provided to the accreditors.

Prince George enters data and submits to the BC provincial registry. Currently Terrace and Fort St. John do not enter data into the provincial registry. Plans are underway for this to start happening on each Level V site.

Currently Prince George enters a subset of data into a ‘pre-reg’. This occurs within a few days of patient arrival. The ‘pre-reg’ purpose is to facilitate better immediate Quality Improvement. ‘Pre-reg’ data is later downloaded into the actual Prince George Trauma Registry. A second data analyst later collects the rest of the data required. Currently, entering the patient record into the trauma registry is not completed until about six months later.

Prince George has to date not produced a Prince George Level III trauma centre annual trauma report. This should be encouraged as a routine yearly expectation. It is anticipated that in preparation of such a report, issues around data quality may be identified and addressed. It will also help Prince George to better understand the trauma patient population it serves. Data presented for this accreditation had inconsistencies in numbers of trauma patients actually seen. (Data provided came from both the BC trauma registry and locally generated numbers). These annual reports should include QI outcomes.

The BC trauma registry is in the process of complying with updates mandated by the National Trauma Registry. This will entail an update of the current software and transition to AIS 2005 coding. Funding should be provided, preferably at a provincial level, for the implementation of this provincial software update. Provincial funding is also required for trauma registry data
analyst education in AIS 2005 coding. Provincial funding should be available for ongoing education for trauma registry data analysts.

The BC Trauma Registry plans to eventually have all of its participating sites participate in the NTDB. It would seem appropriate for provincial funding, to be made available for this provincial initiative.

The BCTR meets Trauma Accreditation guidelines at the NHA Regional Trauma Level.

The following recommendations are made to enhance this service within the Regional Trauma System.

**Recommendation(s):**

1. That consideration be given to having only one person perform data entry into the definitive Prince George Trauma Registry, in order to achieve accurate, and more timely, concurrent data entry.

2. Consideration to be given for Provincial support and funding to allow the BC trauma registry and all local sites to upgrade software and hardware to meet requirements of the NTR (National Trauma Registry). Provincial funding and facilitation of training for data entry personnel in transition to AIS 2005 should be considered.

3. Consideration to be given for a trauma annual report to be produced by Prince George using trauma registry data describing its patient population served, QI processes and QI reports.
Lab and Blood Services

The Laboratory Services at the UHNBC demonstrates a high standard of practice and quality with respect to the needs of trauma patients. There is 24/7 lab coverage (in house/on call), and a massive transfusion policy in place. The UHNBC also has numerous policies and committees in place all of which show the commitment to quality. Although there is not a satellite blood bank in the ED there are good communication strategies with the ED and rapid access to blood products when required of the trauma patient.

NHA Laboratory and Blood Services meets accreditation guidelines.

Diagnostic Imaging

According to Dr. Ken Winnig the regional director of Diagnostic Services and Lab Services, NHA has a regional forum to provide oversight to site administrations for these services.

Teleconferences are held 3-4 times per year to discuss trauma related regional issues with regard to diagnostics and lab/blood services.

There are adequate personnel to cover day shifts and on call availability is provided afterhours at the designated Level III and Level V centres.

Although there is a regional PACS system for viewing of films, it is not province wide and this makes out of region viewing difficult and may require that radiology exams need to be repeated. However access to a provincial grid in the near future will make radiology viewing possible province wide. This will enhance trauma care in BC.

There are currently seven CT scans throughout NHA including two at UHNBC, and one each at Terrace, Fort St. John, Quesnel, Prince Rupert and Dawson. There is also an MRI at UHNBC.
Fort St. John, Terrace, and Prince George have dedicated on call radiology coverage, while Prince George also covers two weeks at a time on call at several referring sites such as Quesnel and Prince Rupert. Since Interventional Radiologists are not available except for one week a month, patients requiring embolization are transferred out of region to Vancouver. At PG the radiologist is part of the call out for Level I TTA, and is on site within 15-20 minutes.

Regionally, access to DI for trauma patients is a priority and is readily available. The service provided by dedicated radiology staff and physicians is quite commendable and was reiterated by many of the staff interviewed during this site visit. In very remote areas a dual trained Lab/X-ray technician may be available to get x-rays and blood draws and is another unique facet of providing trauma care in a very resource limited area.

**Diagnostic Imaging meets Trauma Accreditation guidelines at the NHA Regional Trauma Level.**

**The following recommendations are made to enhance this service within the Regional Trauma System.**

**Recommendation(s):**

1. Continued support of PACS within the region should be encouraged to facilitate viewing of x-rays done remotely, and to reduce the number of radiology tests that need to be repeated.

**Injury Prevention**

Injury prevention in the NHA is predominantly a function of the Population Health Team and is supported by community partners. The Injury Prevention Coordinators participate on the British Columbia Provincial Injury Prevention Committee (BCIPLAN) which provides an overall picture of injury within the province as well as regionally. It was evident in the site visit that there was collaboration within the region, with UHNBC injury surveillance and BCIRPU in identifying the unique injury patterns within the NHA. For example a campaign launched by the RoadHealth
Coalition targeted traffic road users in the interior based on data indicating a higher rate of injury and death in this population. Raising public awareness was effective in reducing these injuries. Future campaigns are being considered to address dangerous off road vehicle use by the oil and gas workers, and also a Men’s Health Initiative for the NHA.

However, it was mentioned that injury prevention is under resourced, difficult to fund and that the Population Health Team was at risk of losing a dedicated IP coordinator.

The accreditation team would highly endorse the partnership of UHNBC as a Level III Trauma Centre within the regional and provincial mandate, to participate in injury prevention initiatives and support the efforts of the Public Health moving in this direction.

The P.A.R.T.Y. Program is conducted in various locations in the NHA but is difficult to sustain as it is supported entirely by volunteers and grants. The age group targeted by PARTY is at very high risk of injury here as everywhere. The program should be supported with resources by the NHA to continue its efforts throughout the region in raising awareness about preventable injury to teens.

Overall the Injury Prevention efforts in the region are highly commendable.

Injury Prevention meets Trauma Accreditation guidelines at the NHA Regional Trauma Level.

The following recommendations are made to enhance this program within the Regional Trauma System.

**Recommendation(s):**

1. Consideration be given to support/funding for implementation of the PARTY Program for Northeast and Northwest regions.

2. That the NHA Leadership support the efforts of the UHNBC and Population Health team from a regional perspective and within a trauma system in their efforts to address the injury prevention priorities identified in this region.
**Rehabilitation Services**

A 22 bed inpatient rehabilitation unit is housed at UHNBC in Prince George and serves the entire NHA for patients requiring orthopedic, stroke, non-major trauma and some burn injury management. Spinal cord injured patients and Major TBI patients are sent to the GF Strong Rehabilitation Centre in Vancouver.

The limited resources in such a large geographic area presents many challenges in providing access to rehabilitation as well as adequate and appropriate services.

According to the rehab staff interviewed at the site visit, they felt it was difficult to provide efficient and effective use of resources without dedicated medical direction and leadership. Although very committed in their roles of care delivery, there was clearly frustration regarding the processes. Delays in discharge from rehab translates into longer wait times for patients from referral sites. It was difficult to assess the situation specifically with respect to trauma since there was no data available regarding LOS, wait times, referral times, medical service involved etc. Although rehabilitation is not identified as a criteria mandated for a Level III centre, it is a systems and regional priority as part of the continuum of trauma care. Prince George is the only facility that houses inpatient rehabilitation in the region. The TAC Guidelines state, “this important facet of care along the continuum deserves attention and greater resource commitment to ensure patients achieve the best possible functional and psychological outcomes following injury. This will ultimately ensure a more timely and complete reintegration into society and return to the workforce”. Rehabilitation Services requires a review by the BCTAC, as to the provision of services and access to care in the NHA.

**Rehabilitation meets Trauma Accreditation guidelines at the NHA Regional Trauma Level.**
The following recommendations are made to enhance this service within the Regional Trauma System.

Recommendation(s):

1. Consideration be given that the NHA Leadership supports the efforts of the UHNBC and Population Health team from a regional perspective and within a trauma system in their efforts to address the injury prevention priorities identified in this region.

2. Consideration be given that delivery of rehabilitation services in the NHA be reviewed by the BCTAC and the PTCO when it is formalized.

3. Consideration be given that clearer data be collected on wait times, referral patterns, LOS, processes, type of patients (i.e. ortho vs. TBI) to drill down resource requirements & needs.

4. If unable to acquire a physiatrist consideration should be given that a dedicated Medical Director be assigned to improve processes of care and rehab patient flow.
Provincial Systems and Regional Overview Summary of Recommendations

1. The Provincial Trauma Office should provide clear provincial direction for trauma care in BC, including provincial standards/guidelines for trauma care throughout the system.

2. Consideration be given that a consistent provincial source of funding be provided for those aspects of the program that are provincial (i.e. trauma medical directors, trauma coordinators, trauma data analysts, trauma admin support, trauma registry support). Funding for trauma services at the Level III trauma sites within BC should be consistent as should funding for the Level V trauma sites.

3. That the NHA ensure that trauma education including courses and training for ATLS or equivalent be made accessible to physicians who are expected to provide trauma care.

4. That all referring centres be encouraged to follow the protocols in place including the BCAS transport and Bedline to ensure seamless and consistent transfer of trauma patients to avoid delays.

5. Consideration be given that the current level of funding for trauma positions within Prince George, Terrace and Fort St. John should continue and not be removed or decreased for any reason in the near future. Recognition be given that continued annualized funding to support the Trauma Programs in the Northeast and Northwest are extremely important for the ongoing evolution and maturation of the Trauma System.

6. Continued support (financial/system) re: implementing the trauma system road map (Strategic Plan).

7. There needs to be clear direction and a defined overall plan for Emergency Preparedness throughout the Northern Region.
8. That consideration be given to having only one person perform data entry into the definitive Prince George Trauma Registry, in order to achieve more timely, accurate, and concurrent data entry.

9. Consideration to be given for Provincial support and funding to allow the BC trauma registry and all local sites to upgrade software and hardware to meet requirements of the NTR (National Trauma Registry). Provincial funding and facilitation of training for data entry personnel in transition to AIS 2005.

10. Consideration to be given that a trauma annual report will be produced annually by Prince George using trauma registry data describing its patient population served, QI processes and QI reports.

11. Continued support of PACS within the region should be encouraged to facilitate viewing of x-rays done remotely.

12. Consideration be given to support/funding for implementation of the PARTY Program for Northeast and Northwest regions.

13. Consideration be given that the NHA Leadership support the efforts of the UHNBC and Population Health team from a regional perspective and within a trauma system in their efforts to address the injury prevention priorities identified in this region.

14. Consideration be given that delivery of rehabilitation services in the NHA be reviewed by the BCTAC and the PTCO when it is formalized.

15. Consideration be given that clearer data be collected on wait times, referral patterns, LOS, processes, types of patient’s i.e. ortho vs TBI to drill down resource requirements & needs.

16. If unable to acquire a physiatrist consideration should be given that a dedicated Medical Director be assigned to improve processes of throughput and management of care.
Section Two: University Hospital of Northern British Columbia, Prince George

Executive Summary – University Hospital of Northern British Columbia

The Level III Trauma System at the University Hospital of Northern British Columbia met criteria as established by the Trauma Association of Canada and is endorsed as a Level III Trauma Centre for a 5 year period.

The Level V Trauma Facilities at Terrace (Mills Hospital) & Fort St. John met criteria as established by the Trauma Association of Canada and are endorsed as Level V Trauma Centres for a 5 year period.

The accrediting team would like to acknowledge the outstanding commitment to trauma provided by the Trauma Leadership at UHNBC. The accrediting group would like to acknowledge the high quality of the documentation provided, the availability of all staff interviewed, and the forthright open nature of all. Throughout the Accreditation site visit the commitment of the Northern Health Region to trauma was evident. It is hoped that the current level of commitment/funding will continue in light of this accreditation review.

UHNBC trauma centre should be proud of their successes in provision of Level III trauma care, as well as their ongoing Regional Leadership in the Northern Health trauma system development and support to the Level V Trauma Centres.

Northern Health executive management team has demonstrated commitment to the continuing progress of the regional trauma system as evidenced by their strong support of the TAC accreditation process as well as their ongoing development of the regional trauma program. The NHA executive/management team is to be commended in supporting NHA Trauma System and providing the leadership. Multiple strengths of the program are detailed in this document. Recommendations for ongoing development and overall improvement are provided.
Specialty Services within the Hospital

Emergency Department/TTL’s

The Emergency Department at UHNBC sees about 46,000 patient visits annually with about 80-100 Trauma Team Activations per year. The ED receives notification from BCAS for incoming trauma patients. There is a list of people and departments that receive notification of a TTA, including blood bank, operating room, critical care unit, general surgery, orthopedic surgery, radiology, and others.

The Prince George Emergency Department appears well prepared to accept and manage trauma patients. There is a heated and covered ambulance bay for unloading patients. The hospital no longer has a helipad as air ambulance helicopters no longer land directly at PG. There is a relatively small two bay trauma resuscitation room that is well equipped to manage the trauma patient. FAST capability is good throughout the Department, with all TTLs able to perform trauma ultrasound. Access to blood products from the blood bank is good, including type O blood within 10 minutes. Access to CT scan for trauma patients is very good and the CT scanner is in close proximity to the ED. The TTL may not always stay with the patient while the patient is in CT scan, depending on the hemodynamic stability of the patient; a nurse is always in attendance.

The ED has good support for trauma nursing education, including TNCC courses. Trauma education rounds occur quarterly, with all invited and good attendance. Staff support for critical incidents include debriefing sessions held very soon after the incident. The working environment for staff in the ED appears to be very collegial, with a strong group of nurses and doctors providing collaborative care to their patients. The conditions are somewhat challenging currently due to overcrowding with a high number of admitted patients in the ED who may wait for a significantly long time for a ward bed to become available.

There are 20-25 Trauma Team Leaders (TTL) at UHNBC. TTL response times are mandated to be 20 minutes and this policy has very good compliance. The TTL shift is 24 hours (6am-6am),
although some TTLs will arrange split shifts. There have been no recent problems in filling the
TTL roster. There is a provincial on call funding mechanism to provide for stable per diem TTL
funding. All TTLs at UHNBC are ATLS trained. In fact, all ED physicians at UHNBC are
mandated to have ATLS training as a requirement for employment. The TTL at UHNBC does not
usually send a follow-up note to the referring doctor, if a trauma patient is sent to UHNBC from a
Level V Trauma Centre. This is an important feedback mechanism to the referring trauma team,
and it should be mandatory.

Access to ATLS courses for MD’s was identified as an issue by both Level III and V sites.
Within the province of BC there is a long waitlist for ATLS access. It is recognized that ATLS
courses provide an opportunity to meet trauma staff within the province and also to learn
regarding the BC provincial trauma system.

The ED/Trauma/TTL services of UHNBC meet Trauma Accreditation guidelines for a
Level III Trauma Centre.

The following recommendations are made to enhance their role in the Regional Trauma
System.

Recommendation(s):

1. Consideration be given that the overall provision of ATLS courses be addressed within
the province of BC by the Level I & II sites which provide the ATLS course. The
provincial access to these ATLS courses needs to be improved by providing more
courses annually.

2. Establish a process within the NHA (Level III & V) Trauma centres to provide timely
feedback to referring physician following care of the trauma patients.

3. It is recommended that the TTL stay with the trauma patient while in CT scan, as these
patients may sometimes become hemodynamically unstable from their injuries.
**Trauma Service**

There is no dedicated admitting trauma service at UHNBC, and the low trauma volumes do not warrant such a service. Trauma patients are admitted to the general surgeon, the orthopedic surgeon, or the “Doctor of the Day” family physician, depending on the type and severity of the injuries.

Feedback both from Vancouver to Prince George and from Prince George to its referring sites should be encouraged. As the Provincial Electronic Medical Record develops, follow-up for receiving and sending sites will become easier.

Trauma Rounds – formal educational rounds are currently done quarterly and available to Level V sites via telecommunication. These rounds are well attended and clearly felt to be of value by multidisciplinary staff.

**Trauma Services at the UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.**

**Critical Care Services**

UHNBC has a ten bed critical care unit, and has the capacity to care for ten ventilated patients at any one time. Historically, it has operated on an open unit medical model, with the MRP being an internist or an anesthetist. However, with the recent recruitment of a newly trained intensivist, there are plans to change the medical model to a closed unit in January 2012. This operational change is in keeping with current practice in most Canadian critical care units of this size. There remains some organizational work to be done, including the development of ICU admission and discharge criteria. In addition, it would be beneficial to develop a communication strategy to be used when transferring ICU trauma patients to the ward, in order to inform the ward MRP of the transfer of care.

**The Critical Care Services of UHNBC meet Trauma Accreditation guidelines for a Level III Trauma Centre.**
The following recommendations are made to enhance their role in the Regional Trauma System.

**Recommendation(s):**

1. It is recommended that the UHNBC leadership continue efforts to support the change of the ICU medical model of care to a closed unit.

2. It is recommended that the ICU develop admission and discharge criteria, as well as a mechanism to safely transfer care to the MRP on the ward upon ICU discharge.

**High Acuity/Step down/Specialty Units**

There is a small step down unit that is managed by the general surgeons. This higher acuity area has a 3:1 nursing ratio. Trauma patients may be cared for in this unit if appropriate.

**High Acuity Services at the UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.**

**Acute Care Wards**

Trauma patients admitted to the acute care ward will be cared for by the general surgeon, orthopedic surgeon, or family doctor as MRP, depending on the nature and severity of injuries. There has been an inconsistent willingness on the part of the general surgery group to act as MRP for the non-operative trauma patient, although the reviewers heard from all parties (including the general surgeons) that it is believed that the general surgeons should be accepting these patients under their care. It is reasonable to transfer the stable trauma patient to their family doctor when no further active acute care issues are present.
Acute Care Wards at the UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.

**Surgical Services**

The OR seems very supportive of trauma. Urgent cases during the day are placed in the ‘next available room’. Until 2300 OR staff is in house and cases are done by priority. After 2300, 2-3 OR RNs are available on call from home. There did not appear to be any issue with timeliness of OR response for urgent cases from 2300-0700.

The OR at the UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.

**Perioperative Services**

The accrediting team met with personnel from Perioperative Services. No concerns were identified. Postoperative surgical care is available by qualified personnel when needed. 24/7 coverage is available. At times the Preoperative Service area serves as overflow for the ten bed ICU.

PACU at the UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.

**Orthopedics**

The accrediting team met with Dr. Paul VanZyl who was representing the Division of Orthopedic Surgery. There are six orthopedic surgeons stationed in Prince George. There is inconsistent orthopedic surgery coverage in the NE and NW. Communication regarding gaps in orthopedic surgery coverage for the NE and NW is improving, such that the Prince George orthopedic group is made aware. About twelve hours of orthopedic trauma OR time is available weekdays at Prince George. Overall the group feels they have adequate access to OR for orthopedic trauma needs. One of the orthopedic surgeons in the group has completed a trauma fellowship and is available
for more complex orthopedic trauma work. All spine injured patients are referred out to a centre with a higher level of care for spinal cord injuries.

The orthopedic group is not comfortable being the MRP for trauma patients requiring ICU care. As well they prefer that patients with closed head injuries or any significant chest trauma not be admitted to their service. However, they willingly remain involved for orthopedic concerns.

The orthopedic surgeons felt they had reasonable access for their patients to the Prince George rehab beds (max two day wait). Once the patients were on the rehab ward, they defer medical management to family doctors. They however remain available for calls regarding these patients. They are not aware of any concerns regarding rehab from an orthopedic perspective.

**Orthopedic Services at the UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.**

**Pediatric Trauma**

Pediatric trauma is initially managed at all sites within the Northern Health Region. These patients are preferentially triaged to the Children’s Hospital in Vancouver. There is good communication with BC Children’s Hospital and all felt they had good access to beds and services in Vancouver for pediatric trauma.

**Pediatric Services at the UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.**

**Burns and Plastics**

No plastic or burn surgery service is available within the Northern Health Region. On line consultation with specialist plastics and burn surgeons is available through Vancouver. Patients requiring plastics/burns expertise are transferred out. No issues were identified regarding access to service for this patient population.
Burns & Plastics Services at the UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.

Neurosurgery (if applicable)

No neurosurgical services are currently available within the Northern Health. Via the LLTO document developed for BC, severely head injured patients are triaged to Vancouver or sometimes to Edmonton for patients in the Northeast. This referral process appears to be working well with no refusal of these patients. Good online consultation services are available when needed.

No Neuro Services at the UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.

General/Trauma Surgery

The accrediting team met with Dr. Michelle Sutter who was representing the Division of General Surgery at Prince George. There is a group of eight general surgeons in Prince George, with only six taking general surgery call, and three of them being vascular surgery trained. There is a PGY5 resident from Vancouver on rotation at Prince George for nine months of the year. Some general surgeons have more commitment/interest in the trauma program. Some have other significant demands on their time (oncology, teaching, etc.). However the entire group is supportive of the trauma services provided at Prince George.

The staff General surgeon and any residents on General Surgery are notified with trauma team activations. The OR is also notified for trauma team activations. The current practice is to have the Emergency Physician or TTL assess the patient first. He/she will then call the staff general surgeon if their services are required.
General Surgery appears to have no reluctance in admitting injured patients. At times patients are admitted to the ‘doctor of the day’ or a GP comfortable managing these patients. Trauma data provided to the committee was found to be inconsistent in identifying the actual numbers of trauma patients seen. Of data presented, it appears that ~1/3 of patients are admitted to other than a surgical service (GP, pediatrics, neurology). Admitting general surgeons will hand off care of these patients on the ward to a GP when appropriate.

There appears to be good 24/7 OR availability for the severely injured patients when needed. Within Prince George there appears to be great physician collegiality in the OR accommodating cases in a timely manner. On occasion a second general surgeon is called in to accommodate workload/acute. There appears to be great collegiality within the group in this regard.

General Surgery indicated that when required the Massive Transfusion Protocol worked well. As well radiology services were felt to be easily available in a timely manner with radiologist interpretation of imaging readily available.

General Surgery is participatory in the Trauma M&M and QI review process. As well surgery has their own M&M rounds in which trauma related cases are discussed. Resolutions from the trauma committee regarding change in process/procedure are communicated back to the general surgery group via their liaison in the trauma committee.

Anesthesia is notified with trauma team activations. Anesthesia will participate in the emergency department resuscitation. On occasion an extra anesthetist is called in if necessary. Again there appears to be great collegiality within the anesthesia group in this regard.

Periopeartive Services at UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.
The following recommendations are made to enhance the Regional/Provincial Trauma System.

**Recommendation(s):**

1. Consideration that criteria be developed in consultation with general surgery for which general surgeons will be present ASAP on patient arrival (e.g. penetrating torso trauma with hemodynamic instability, patients hemodynamically unstable in transfer to Prince George, etc.)
2. Guidelines be established as to identify the service(s) which should admit trauma patients. These criteria should then be followed such that there is not day to day variability in practice.

**Adjuncts to Clinical Care**

**PIPS**

The Quality Assurance/PIPS practices at UHNBC have been developed and implemented under the leadership of Medical Director Dr. John Ryan and Trauma Manager Jordan Oliver, with support from Trauma Coordinator Kristy Paterson and Data Analyst Mary Sue Dashper. Clinical indicators have been identified and are monitored for quality and variances. For example there is a process in place to review each TTA, and follow-up with feedback, recommendations or action taken. All death charts are reviewed by the Medical Director in collaboration with the Trauma Advisory Committee.

Trauma Rounds are held 3-4 times per year, well attended by physicians, nurses, allied health and medical students. Referral centres are invited to participate via videoconference and occasionally present their own cases. This forum provides opportunities for shared learning, and process for improvement throughout the NHA.
In addition up to date education, best practice initiatives, outreach news, upcoming CME’s is offered through the Trauma Regional Newsletter and Trauma Flash which engages staff and Physicians to submit articles and is circulated throughout the NHA.

At the time of the site visit coding of trauma charts was behind but expected to be concurrent within a few months. This would help the Trauma Program to get a more accurate picture of quality of care and indicator monitoring. Also producing an annual report would provide a clearer overview of the program with evidence to drive the direction of the program.

It was evident the trauma group worked very closely together and were committed to developing a more robust PIPS program and should be congratulated for their efforts. Since UHNBC plays such a major role in the region, the trauma program infrastructure should be supported by leadership in sustaining and expanding their indicator monitoring capabilities once the Level V referral Centres come on board with BCTR.

The PIPS program at UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.

The following recommendations are made to enhance the Regional/Provincial Trauma System.

**Recommendation(s):**

1. That the Trauma leadership continue their efforts in developing a robust PIPS program which will drive their own program, but also trauma care in the region.

2. That the UHNBC and regional leadership support the infrastructure with resources required sustaining their local and regional mandate for trauma care.

3. That the UHNBC continue to share their knowledge and provide feedback to their referral centres to enhance the trauma care delivery throughout the region.

4. That the UHNBC produce an Annual Trauma Report, to provide a clear overview of the mandate and future direction of trauma care locally and in the region.
Continuing Education

The UHNBC leadership was clearly supportive of providing opportunities for Trauma education for all staff and physicians. All TTL’s had been ATLS certified at some point but many had allowed their ATLS certification to expire. Subsidized funding is available for ATLS, TNCC, PALS, ACLS, and conferences such as the TAC Annual Meeting. However the surveyors heard repeatedly from those interviewed that access to these courses/CME’s was limited and held infrequently in their region. There also seemed to be a lack of certified local ATLS instructors which could make it more feasible to run their own courses.

The UHNBC should be commended in recently purchasing simulation equipment which will be accessible for ongoing trauma education. Mock trauma codes are just one of the planned teaching opportunities using the simulators. Considering the lack of educational opportunities in such a vast area it is evident that education is a high priority although a challenge to provide. UHNBC offers a comprehensive variety of continuing education opportunities. Overall, from a trauma systems perspective, the educational initiatives within UHNBC were notable.

Continuing Education at UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.

The following recommendations are made to enhance the Regional/Provincial Trauma System.

Recommendation(s):

1. That the UHNBC leadership support efforts to provide more access to trauma education such as ATLS courses including out of region and out of province as well as funding more certified instructors to offer local courses.
Research

The Prince George Trauma Program has participated in provincial research projects initiated via Vancouver. There is also some participation in projects initiated through the University of Northern British Columbia. To date there have been few research projects initiated on site. With time and maturation, it is expected that the involvement in research projects will increase. This is not a mandatory part of Level III trauma work.

Research at UHNBC meet Trauma Accreditation guidelines for a Level III Trauma Centre.

Hospital Governance

By definition, the lead trauma hospitals within a trauma system, must demonstrate leadership in all seminal aspects of trauma care, i.e. education, QA, data collection and registry mandates etc.

The University Hospital of Northern BC (UHNBC) is the only Level III lead trauma hospital in Northern Health Authority designated by the Ministry of Health. Locally, UHNBC is the adult/pediatric lead trauma hospital in the region.

The UHNBC is funded by the MOH and is responsible to assume the role of providing Level III clinical care, education, outreach activities, injury prevention and management of a data registry for trauma.

UHNBC executive management team is under the leadership of President & CEO, Cathy Ulrich. NHA is divided into three operating system models governed under the leadership of three Chief Operating Officers. As of fall 2011, the reporting structure for the Regional Trauma Services (Dr. John Ryan & Jordan Oliver) will report directly to the new Medical Lead (to be announced) and Executive Lead (Ms. Beth Ann Derksen) for the Critical Care Program. Both executive leads will report directly to the VP of Medicine & Clinical Programs, Dr. David Butcher.
UHNBC trauma services personnel; Dr. John Ryan, Trauma Medical Director, Jordan Oliver, Manager Trauma Services, Northern Interior provide a dual role at present. Jordan reports to the Manager of UHNBC Critical Care, Jim Fitzpatrick while Dr. Ryan reports internally to the Medical Director of Northern Interior, Dr. Susan MacDonald. The current Trauma Case Coordinator for UHNBC, Kristy Zurowski reports to Jordan Oliver as well as Mary Sue Dashper, Trauma Registry.

UHNBC does not clearly define the lines of authority in terms of the Trauma Program Services. Dr. John Ryan & Jordan Oliver have dual roles (Regionally & Locally) that can become splintered.

The team would also like to congratulate Dr. John Ryan and Jordan Oliver as well as the entire trauma program team for their support and leadership to the UHNBC trauma program/NHA Trauma System and Jordan’s countless time/leadership and effort in coordinating and facilitating the TAC accreditation site visit.

The Trauma Association of Canada accreditation team acknowledges the need for ongoing executive/management commitment to the development and ongoing maintenance of the UHNBC Trauma Program and overall Trauma System leadership.

The Hospital Governance at UHNBC meets Trauma Accreditation guidelines for a Level III Trauma Centre.

The following recommendations are made to enhance the local and Regional Trauma System.

Recommendation(s):

1. Consideration to be given to revise the current reporting structure to have the position of Manager of Trauma Services (UHNBC) report directly to the Director of Patient Care. This will provide consistency across the organizational chart as well as remove a manager position reporting to a manager.
2. Consideration to be given that the position (Trauma Case Coordinator) reports directly to Jordan Oliver as Site/Regional lead. This will provide better continuity and consistency across the continuum as well.

3. Continue to support the permanent funding and position of a 0.5 FTE Trauma Case Coordinator position at UHNBC.

4. Consideration be given to liaison with other similar rural trauma systems (Level III) hospitals in Canada.

**Level 5 Trauma Centres in Northern Health Authority**

The TAC accreditors were given the opportunity to videoconference with individuals from a few Level V trauma centres in the NHA. The general themes captured from these interviews included the desire for more clinical feedback, the need for more trauma education, and the satisfaction with trauma patient transfer out to a higher level of care.

**Terrace (Mills Memorial Hospital)**

Mills Memorial Hospital in Terrace is a 44 bed acute care hospital in the Northwest region of NHA. There are three ICU beds in the hospital. The ICU and ED nurses are “interchangeable” as most have taken the in-house critical care nursing course. The leadership and the nurses at MMH should be congratulated for this.

The access to VGH Level I trauma centre is very good through BC Bedline. However, there is very little (if any) feedback from the VGH TTL after the patient is sent to VGH. It is difficult for the MMH team to find out what injuries the trauma patient had and how they were managed. This feedback is important for quality improvement.
There is no orthopedic surgeon on site, so the trauma patient requiring orthopedic surgery needs to travel to Prince Rupert or Kitimat for surgery, then back to MMH for post-operative care. There is an on-site general surgeon only 3 out of 4 weeks in a month. MMH physicians have problems accessing ATLS courses in BC, and they would like to have the opportunity of hosting an ATLS course. There are local education funds to assist in the cost of a local ATLS course. The official opening of a new simulation lab at MMH is in November 2011. This simulation lab may be used for trauma education. Individuals at MMH have expressed a desire to participate in injury prevention PARTY Program at their hospital. This should be explored and supported by the NHA.

Dawson Creek

Dawson Creek & District Hospital is a 46 acute care bed hospital in the Northeast region of NHA. Dawson Creek has been able to duplicate and utilize the same trauma patient protocols as Fort St. John. The physicians at Dawson Creek share the same frustrations around lack of access to ATLS courses as do physicians in the whole NHA. They have not had difficulty transferring trauma patients out to a higher level of care.

Fort St. John Hospital

Fort St. John Hospital is a 44 bed acute care hospital in the Northeast region of NHA. The provincial LLTO (life, limb, threatened organ) policy is reportedly working for this hospital when there is a trauma patient in the ED that needs to be transferred to a higher level of care. FSJ Hospital has a policy that they do not keep ventilated patients in their hospital for longer than 24 hours. BCBedline is helpful in these transfers. However, due to geography and weather, BCAS is occasionally unable to provide air ambulance service to FJS, and the patient at times may be transferred to Edmonton by the Alberta STARS air ambulance service.
The TAC accreditors were told that those working in the ED at FJS almost never receive any feedback from Vancouver General Hospital’s TTL when they transfer patients to VGH. Feedback around the type and severity of trauma patient injuries, and the results of the initial management is important to enable the sending ED team to understand the consequences of their assessment and treatment of the trauma patient.

The NorthEastern/NorthWestern Hospitals in NHA meets Trauma Accreditation guidelines for a Level V Trauma Centre.

The following recommendations are made to enhance the Regional Trauma System.

**Recommendation(s):**

1. It is recommended that Level V trauma centres in NHA receive feedback from the TTL at the Level I Trauma Centre (VGH), detailing the referred trauma patient’s injuries (type and severity) and the management, in order for the referring trauma team to assess their own performance.

2. It is recommended that Level V Trauma Centres have better access to ATLS courses. This is a local and provincial responsibility. All physicians working in the ED at Level V Truman Centres should be ATLS trained.
University Hospital of Northern BC Summary of Site Recommendations

The following recommendations are made to enhance the Trauma System:

1. Consideration be given that the overall provision of ATLS courses be addressed within the province of BC by the Level I & II sites which provide the ATLS course. The provincial access to these ATLS courses needs to be improved by providing more courses annually.

2. Establish a process within the NHA (Level III & V) Trauma centres to provide timely feedback to referring physician following care of the trauma patients.

3. It is recommended that the TTL stay with the trauma patient while in CT scan, as these patients may sometimes become hemodynamically unstable from their injuries.

4. It is recommended that the UHNBC leadership continue efforts to support the change of the ICU medical model of care to a closed unit.

5. It is recommended that the ICU develop admission and discharge criteria, as well as a mechanism to safely transfer care to the MRP on the ward upon ICU discharge.

6. Consideration that criteria be developed in consultation with general surgery for which general surgeons will be present ASAP on patient arrival (e.g. penetrating torso trauma with hemodynamic instability, patients hemodynamically unstable in transfer to Prince George, etc.)

7. Guidelines be established as to identify the service(s) which should admit trauma patients. These criteria should then be enforced such that there is not day to day variability in practice.

8. That the Trauma Infrastructure continues their effort in developing a robust PIPS program which will drive their own program, but also trauma care in the region.
9. That the UHNBC and regional leadership support the infrastructure with resources required sustaining their local and regional mandate for trauma care.

10. That the UHNBC continue to share their knowledge, provide feedback to their referral centres to enhance the trauma care delivery throughout the region.

11. That the UHNBC produce an Annual Trauma Report, to provide an overview and clarity of the mandate and future direction of trauma care locally and in the region.

12. That the UHNBC leadership support efforts to provide more access to Trauma education such as ATLS courses including out of region and out of province as well as funding more certified instructors to offer local courses.

13. Consideration to be given to revise the current reporting structure to have the position of Manager of Trauma Services (UHNBC) report directly to the Director of Patient Care. This will provide consistency across the organizational chart as well as remove a manager position reporting to a manager.

14. Consideration to be given that the position (Trauma Case Coordinator) reports directly to Jordan Oliver as Site/Regional lead. This will provide better continuity and consistency across the continuum as well.

15. Continue to support the permanent funding and position of a 0.5 FTE Trauma Case Coordinator position at UHNBC.

16. Consideration be given to liaison with other similar rural trauma systems (Level III) hospitals in Canada.

17. It is recommended that Level V trauma centres in NHA receive feedback from the TTL at the Level I Trauma Centre (VGH), detailing the referred trauma patient’s injuries (type and severity) and the management, in order for the referring trauma team to assess their own performance.
18. It is recommended that Level V Trauma centres have better access to ATLS courses.
   This is a local and provincial responsibility. All physicians working in the ED at Level V
   Trauma Centres should be ATLS trained.
Trauma Association of Canada Accreditation Report
Respectfully Submitted

December 30, 2011
By the TAC Accreditors:

Dr. Fred Brenneman MD, FRCSC, FACS
Ms. Elsie Galbraith RN
Ms. Paula Poirier RN, BN, MN
Dr. Mary Stephens MD, FRSCS, FACS

Cc Trauma Association of Canada