Major trauma in the province of New Brunswick: A descriptive epidemiological study and mortality assessment.

Background
The implementation of a structured regional trauma system aims to decrease injury-related mortality among trauma victims. The New Brunswick Trauma Program (NBTP), a province-wide trauma system, was implemented in February 2010 to service the province’s largely rural population. Using data from the NBTP trauma registry, we aim to better describe and understand major trauma in the province over a two-year period. We hope to provide up to date and accurate information that can be used to inform provincial policy development and implementation, as well as establish a framework for future longitudinal studies.

Methods
A retrospective observational study design was used to study major trauma in patients discharged from leading trauma centres (level I or level II) between April 2011 and March 2013, who fulfilled the predetermined selection criteria. Cases that were transported to hospital by EMS, had an ISS over 15 and arrived to hospital within 24hrs of injury were included. Cases that were discharged from hospital alive within 3 days of injury were excluded. Geolocation, pre-hospital times, course in hospital and vital statistics were gathered. Statistical hypothesis testing and regression analysis was used to assess the effect of known risk factors on mortality.

Results
Validation of our dataset with newly developed and revised inter-institutional processes resulted in a completion rate of nearly 100% for all data points with the exception of geolocation. Analysis of the 306 cases show a male to female ratio of 2.93, an median age of 51 years and a median ISS of 25. Only 5% of cases had an ISS over 40. ISS was higher in males, individuals with a positive serum EtOH and Indirect transfers. Transportation events were the leading cause of injury (49.7%), followed by Falls (32.7%). The All-terrain sub-group accounted for 8.8% of injuries. The analysis of patients who were indirectly transported to a lead center showed a higher ISS, a higher male-to-female ratio, a slightly lower average age, a higher rate of surgical intervention, longer time to OR and longer length of stay. A third of cases were discharged directly home and 23.5% of cases died prior to discharge.

Conclusion
This project has led to the development of revised inter-institutional processes based upon the actions required to ensure completeness and validation of our data set. These processes will help ensure the validity and completeness of data used in future projects. This project will also serve as framework for future longitudinal assessments of major trauma in the province of NB.