trauma. The charts of all hospitalized (n = 100) and a sample (n = 101) of non-hospitalized children were reviewed. A ciTBI was found in 26 participants (3 neurosurgical interventions, 4 intubated and 26 admitted > one night). Among them, 18 were classified at high risk, 7 at moderate risk and 1 at low risk according to the clinical pathway. Using the PECARN rule alone would have classified 17 at high risk, 5 at moderate risk and 4 at low risk. Using the pathway to the entire population would yield the following risk of cTBI: High-risk: 25%; moderate risk: 1%; low risk < 0.1%. **Conclusion:** The Ste-Justine Head Trauma pathway effectively identifies children younger than two years at risk of ciTBI following head trauma while triaging effectively children at low risk. The pathway is more sensitive than the PECARN rule to identify children at risk of ciTBI.

Keywords: head trauma, children, pathway

P052

The effect of blood alcohol on outcomes in patients with major traumatic brain injury in Nova Scotia

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Introduction: Although alcohol use increases the risk of experiencing a traumatic brain injury (TBI), it remains unclear whether outcomes in alcohol-impaired patients are different from those of unimpaired patients. The objective of this study was to evaluate the effect of alcohol on length of stay (LOS) and mortality in patients with major TBI. **Methods:** Using data collected from the Nova Scotia Trauma Registry, we performed a retrospective analysis of all patients with major TBI (defined as having an abbreviated injury score (AIS) head ≥ 3) seen in Nova Scotia hospitals between 2002 and 2013. Patients were compared by blood alcohol concentration (BAC) at time of injury: negative (0-1.9 mmol/L), low (2-21 mmol/L), and moderate/high (≥22 mmol/L). A logistic regression model was constructed to test for outcomes and adjusted for the effects of age, gender, location, injury severity score (ISS), and BAC level. **Results:** In a twelve-year period, there were 4152 major TBI patients in Nova Scotia. Alcohol testing was performed in 43% of cases (80% male, mean age 44 ± 20 years), with 48% having a positive BAC. Mean acute LOS was similar for all three BAC groups. Increasing age (odds ratio [OR] = 1.01; $p < 0.001$), high ISS (OR = 4.92; $p < 0.001$), injuries occurring outside of Halifax Regional Municipality (OR = 1.72; $p < 0.001$), and having a lower BAC level (OR = 0.99; $p < 0.001$) independently predicted mortality. **Conclusion:** Our findings suggest that low BAC levels are associated with increased mortality in major TBI patients. Further study is warranted to elucidate alcohol's mechanism in TBI outcomes.

Keywords: alcohol, traumatic brain injury, outcomes

P053

Characteristics and patterns of major traumatic brain injury in Nova Scotia: a 12-year retrospective analysis

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Introduction: Traumatic brain injury (TBI) is a leading cause of death and disability in Nova Scotia. TBI occurs in approximately 50% of major trauma seen annually in the province. The purpose of this study was to describe the characteristics and patterns of major TBI seen in Nova Scotia over a 12-year period. **Methods:** This was a retrospective case series. Data were obtained from the Nova Scotia Trauma Registry for all patients presenting with major TBI (abbreviated injury score [AIS] head ≥3) between 2002 and 2013. Injury rates were calculated on the basis of 100,000 population (all ages) using population estimates from Statistics Canada. **Results:** Overall, 4152 major TBI patients were seen in Nova Scotia hospitals during the study period. Mean age of TBI patients was 51 ± 25 years; 73% were male. The majority of injuries were the result of blunt trauma (93%), with relatively few major TBIs resulting from penetrating trauma (7%). The most common mechanisms of injury were falls (44%) and motor vehicle crashes (27%). Analysis of census-based subpopulations of the province showed that injury rates varied significantly among counties (from 25 to 63 per 100,000 population). We observed an increase in the number of major TBI patients over twelve years. **Conclusion:** Our findings suggest significant regional variation in major TBI rates in Nova Scotia. There are ongoing needs for prevention and intervention efforts that focus on unintentional falls and motor vehicle crashes, especially in older adults. These results also suggest that geographically targeted efforts may be warranted.

Keywords: traumatic brain injury, patterns, retrospective

P054

Development of a hospital-wide program for simulation-based training in trauma care and management

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Introduction: The Queen Elizabeth II Health Sciences Centre (QEII HSC) is a Level I trauma center that provides tertiary care services to the province of Nova Scotia (pop. 940,592) and quaternary care services to Atlantic Canada (population > 2.4 million). The objective of this study was to describe and evaluate the development of an inter-professional hospital-wide trauma simulation that was performed at the QEII HSC in June of 2015. **Methods:** The simulation was performed in the dedicated trauma resuscitation bay in the emergency department of the trauma centre using SimMan equipment. The scenario involved a 35-year-old male pedestrian versus car at approximately 70 km. The patient required immediate resuscitation and transfer to the operating room for an emergency laparotomy. Evaluation of the simulation was through video feedback, time stamping, piloting of resident Trauma Team Activation evaluation, observation for latent safety issues, and participant feedback. Trauma team members were unaware of simulation prior to arrival. **Results:** Feedback received from simulation participants indicated that this exercise was incredibly "real" for them. Using the usual emergency department patient registration proved difficult in this simulation exercise, both for activation of the massive transfusion protocol and transfer of the patient to the operating room. Latent safety issues identified included a lack of communication with the operating room and unavailability of some resuscitation equipment. Debriefing after the event was felt to be important by all participants of the simulation. Having evaluators dedicated to observing specific aspects of the simulation would facilitate these exercises. Patient care was not interrupted in the emergency department or the operating room. **Conclusion:** The in situ simulation was a valuable experience for the trauma program, stakeholders, and all participants. Based on this trial simulation, additional simulations will be held within our trauma program. Further research is required to validate long-term retention of skills and knowledge, and to evaluate the impact of simulation training on staff performance and trauma patient outcomes.

Keywords: trauma, simulation, inter-professional