

future, the residents will be primed to understand and expect certain challenges that may arise. The educational experience fosters collaboration between prehospital and hospital-based providers. The sessions provide a reproducible, standardized experience for all participants; something that cannot be guaranteed with traditional EMS ride-alongs. Future sessions will evaluate participant satisfaction and self-efficacy with the use of a standard evaluation form including pre/post self-evaluations.

**Keywords:** emergency medical services, resident education

#### P056

##### **Rural versus urban pre-hospital and in-hospital mortality following a traumatic event in Québec, Canada**

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**Introduction:** Trauma remains the primary cause of death in people under 40 in Québec. Although trauma care has dramatically improved in the last decade, no empirical data on the effectiveness of trauma care in rural Québec are available. This study aims to establish a portrait of trauma and trauma-related mortality in rural versus urban pre-hospital and hospital settings. **Methods:** Data for all trauma victims treated in the 26 rural hospitals and 32 Level-1 and Level-2 urban trauma centres was obtained from Québec's trauma registry (2009-2013). Rural hospitals were located in rural small towns (Statistics Canada definition), provided 24/7 physician coverage and admission capabilities. Study population was trauma patients who accessed eligible hospitals. Transferred patients were excluded. Descriptive statistics were used to compare rural with urban trauma case frequency, severity and mortality and descriptive data collected on emergency department (ED) characteristics. Using logistic regression analysis we compared rural to urban in-hospital mortality (pre-admission and during ED stay), adjusting for age, sex, severity (ISS), injury type and mode of transport. **Results:** Rural hospitals (N = 26) received on average 490 000 ED visits per year and urban trauma centres (N = 32), 1 550 000. Most rural hospitals had 24/7 coverage and diagnostic equipment e.g. CT scanners (74 %), intensive care units (78 %) and general surgical services (78 %), but little access to other consultants. About 40% of rural hospitals were more than 300 km from a Level-1 or Level-2 trauma centre. Of the 72 699 trauma cases, 4703 (6.5%) were treated in rural and 67 996 (93.5%) in urban hospitals. Rural versus urban case severity was similar: ISS rural: 8.6 (7.1), ISS urban: 7.2 (7.2). Trauma mortality was higher in rural than urban pre-hospital settings: 7.5% vs 2.6%. Reliable pre-hospital times were available for only a third of eligible cases. Rural mortality was significantly higher than urban mortality during ED stays (OR (95% IC): 2.14 (1.61-2.85)) but not after admission (OR (95% IC): 0.87 (0.74-1.02)). **Conclusion:** Rural hospitals treat equally severe trauma cases as do urban trauma centres but with fewer resources. The higher pre-hospital and in-ED mortality is of grave concern. Longer rural transport times may be a factor. Lack of reliable pre-hospital times precluded further analysis.

**Keywords:** trauma, rural, mortality

#### P057

##### **Diagnosis for mild traumatic brain injury in three Canadian emergency departments: missed opportunities**

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**Introduction:** Patients with mild traumatic brain injury (mTBI) often present to the emergency department (ED). Incorrect diagnosis may delay appropriate treatment and recommendations for these patients, prolonging recovery. Notable proportions of missed mTBI diagnosis have been documented in children and athletes, while diagnosis of mTBI has not been examined in the general adult population. **Methods:** A prospective cohort study was conducted in one academic (site 1) and two non-academic (sites 2 and 3) EDs in Edmonton, Canada. On-site research assistants enrolled adult (>17 years) patients presenting within 72 hours of the injury event with clinical signs of mTBI and Glasgow comma scale score  $\geq 13$ . Patient demographics, injury characteristics, and ED flow information were collected by chart review. Physician-administered questionnaires and patient interviews documented the recommendations given by emergency physicians at discharge. Bi-variable comparisons are reported using Pearson's chi-square tests, Student's t-tests or Mann-Whitney tests, as appropriate. Multivariate analyses were performed using logistic regression methods. **Results:** Overall, 130/250 enrolled patients were female, and the median age was 35. Proportions of successfully diagnosed mTBI varied significantly across study sites (Site 1: 89%; Site 2: 73%, Site 3: 53%;  $p > 0.001$ ). Patients without a diagnosis were less likely to receive a recommendation to follow-up with their family physician (OR = 0.08; 95% CI: 0.03, 0.21) or advice about return to work (OR = 0.17; 95% CI: 0.08, 0.04) or physical activity (OR = 0.08; 95% CI: 0.04, 0.17). Patients with missed diagnoses had longer ED stays (median = 5.0 hours; IQR: 3.8, 7.0) compared with diagnosed mTBI patients (median = 3.9 hours; IQR: 3.0, 5.3). In the adjusted model, patients presenting to non-academic centers had reduced likelihood of mTBI diagnosis (Site 2: OR = 0.21; 95% CI: 0.08, 0.58; Site 3: OR = 0.07; 95% CI: 0.02, 0.24). **Conclusion:** The diagnostic accuracy of physicians assessing patients presenting with symptoms of mTBIs to these three EDs is suboptimal. The rates of missed diagnosis vary among EDs and were associated with length of ED stay. Closer examination of institutional factors, including diagnosis processes and personnel factors such as physician training, is needed to identify effective strategies to heighten the awareness of mTBI presentations.

**Keywords:** mild traumatic brain injury, concussion, practice variation

#### P058

##### **Morbid obesity association with return of spontaneous circulation from sudden cardiac arrest treated in a large, urban EMS system in the United States**

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**Introduction:** Patient co-morbidities contribute to survivability from out-of-hospital sudden cardiac arrest. Many studies have been conducted regarding contributing factors to sudden cardiac arrest survival, though very few studies have been published detailing specific analysis of morbid obesity association with return of spontaneous circulation (ROSC) in adults treated by paramedics. **Methods:** Adults in sudden cardiac arrest with resuscitation initiated, including at least one defibrillation, between July 1, 2016 and December 1, 2016 were enrolled. Due to an increasing prevalence of morbid obesity in the United States adult population, a novel defibrillation strategy, involving weight-based joule settings and double sequential external defibrillation (DSED) was initiated in June 2016. As exact body weight is logistically difficult to obtain in the EMS care environment, a paramedic-estimated weight at