

organization that evaluates healthcare institutions based on quality of care, introduced a requirement for EDs to identify patients at high-risk for drug-related morbidity, so that medication management interventions can be targeted to high-risk groups. We derived a clinical decision rule to identify patients at high-risk for ADEs using 4 variables. Our objective was to validate the rule by determining its sensitivity and specificity in a new sample. **Methods:** We conducted a prospective observational study in two tertiary care and one urban community hospital in British Columbia and Ontario. We used a systematic selection algorithm to generate a representative sample, and enrolled adults who reported taking at least one medication during the prior two weeks. Nurses completed the clinical decision rule and evaluated patients for standardized clinical findings. Each patient was assessed by a research pharmacist and a physician who were blinded to data collected by nurses. Any disagreement was subsequently adjudicated by an independent committee. The primary outcome was an ADE, defined as an unintended and harmful event related to medication use resulting a change in medical management, hospital admission or causing death. We calculated the rule's sensitivity, specificity, and the proportion of patients screening positive with 95% confidence intervals (CI). **Results:** Among 1529 enrolled patients, 196 (12.8%, 95% CI 11.2-14.6%) were deemed to have experienced an ADE. The rule, consisting of the variables (i) having a pre-existing medical condition or having taken antibiotics within one week, and (ii) age  $\geq$  80 or having a medication change within 28 days, had a sensitivity of 92.9% (95%CI 88.3%-96.0%) and a specificity of 35.0% (95%CI 32.5%-37.7%) for ADEs. The proportion of patients screening positive was 41.7%. **Conclusion:** Among adults presenting to EDs, the rule was sensitive for ADEs while maintaining reasonable specificity. If implemented, the rule may help identify those patients at high-risk for ADEs who may benefit from evaluation by a clinical pharmacist in the ED, and will help institutions meet current Accreditation Canada standards.

**Keywords:** adverse drug event, patient safety, clinical decision rule

#### LO052

**Sticks and stones may break your bones, but does having a car crash in a rural location affect your access to EMS care and surgical intervention? The initial analysis of a unique EMS and Trauma Dataset**

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**Introduction:** In Canada, major trauma is a healthcare priority and in 2014 was responsible for over 15866 deaths, with a total economic burden of 26.8 billion dollars. Numerous factors influence the likelihood of occurrence and outcome from major trauma, including incident factors, host, EMS response, emergency, surgical and critical care. Traditionally trauma registers contained information that mainly concerning hospital treatment and host factors. This collaborative analysis uses matched data from a Provincial Trauma Research Register and records from a Provincial Ambulance Service. **Methods:** A retrospective observational (registry) study comparing rural and urban adult and pediatric major trauma patients (Injury Severity Score  $>$ 15) who were injured in a motor vehicle crash (ICD V20-V99) and presented to a level 1 or level 2 trauma centre by EMS by primary or secondary transfer, between April 2011 and March 2013 in a selected province in Canada. Comparisons of the process care times, and patient disposition, were made in an inclusive trauma system. **Results:** 108 cases meet the inclusion criteria with 78 considered rural and 30 urban using published

definitions. The median response times were 16.2 minutes for rural (95% CI: 13.2 -19.8) and 7.8 minutes for urban (95% CI: 7.2 - 10.5) with 60% and 61% meeting response targets respectively. A greater proportion of urban patients are taken initially to level 3-5 centers and require secondary transfer (45% urban vs 24% rural  $p = <$ 0.01). Median times intervals to surgical care were double for the urban patients (14 rural vs 32 hrs urban  $p = <$ 0.01). **Conclusion:** The majority of serious road traffic collisions occur in rural areas. Although rural patients wait longer for an initial EMS response, more rural patients are taken directly to a level 1 or 2 trauma center. Unexpectedly then rural patients have much shorter times to surgical care. The benefits of an inclusive trauma system should be weighed against the benefits of bypass processes in urban environments where the nearest Emergency Department is not a Level 1 or 2 Trauma Center.

**Keywords:** trauma, emergency medical services (EMS), rural

#### LO053

**Follow-up head CT scan after mild traumatic brain injury: is it really necessary?**

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**Introduction:** Injured seniors visits are on the rise in the emergency department (ED) and up to 30 % are traumatic brain injury (TBI). Many patients suffer from comorbidities that require the use of anticoagulant drugs. The use of these drugs usually modify the trajectory patients will undergo in the ED. In the last decade, some authors suggested a systematic follow-up CT head scan 8 hours after the initial, while others didn't see the need to scan, referring only to the clinical features. We sought to evaluate the presence of delayed intracranial bleeding, evolution and investigation at the ED of elderly patients presenting for a mild TBI, with or without anticoagulation. **Methods:** A retrospective cohort was built with hospital administrative clinical data for year 2014 at a Canadian Level 1 trauma center. Patients 65 years and older with traumatic brain injury and residing in the trauma center catching area were included. Data were extracted from medical files using a standardized collection tool in a consecutive pattern. Patients were classified in three groups: use of anticoagulant drug, use of antiplatelet drug and no anticoagulation. Clinico-administrative data, intervention delay, investigations, comorbidities, medication and physiological status were collected. Intra and extra-hospital data were collected for a period of 90 days and the use of imaging and trajectories were analysed. Univariate and multivariate analysis were conducted. **Results:** 93 of the 189 TBI injury were mild TBI. The 93 patients were divided in patients using anticoagulation (n = 9, 10 %), using antiplatelet drug (n = 58, 62.4 %) and no use of drug (n = 29, 31.2 %). Each group respectively undergo an initial head CT scan in a proportion of 88.9 %, 93 % and 76 %. Follow-up head CT scan were seen in 43 %, 16 % and 10 %. Delayed intra-cranial hemorrhage were identified in respectively 0 %, 2 % and 0 %. **Conclusion:** With the increase in patients presenting at Canadian ED for head trauma, our study suggests that anticoagulated elderly patients suffering from a mild traumatic brain injury do not systematically require a follow up CT head scan or longer observation time at the ED. A future clinical decision rule to determine the need of follow-up CT could be of benefit to emergency physicians.

**Keywords:** minor head injury, elderly, anticoagulant

#### LO054

**The emergency department usage and utility of ISAR and CAM assessment tools in identifying hip fracture patients at risk for developing delirium**