

distributions were similar between cities, although Calgary had more high severity conditions (15.0% v. 10.5%) and a higher admission rate (22.5% v. 21.4%). Calgary triage nurses placed more patients in high acuity triage categories (85.1% vs. 45.2%) and achieved higher sensitivity for severe illness (96.2% vs. 76.2%); however, they were less accurate (28.7% vs. 60.3%) and less specific (16.8% vs. 58.4%). The proportion of CP patients triaged into high acuity categories ranged from 79% to 87% across four Calgary hospitals and from 28% to 62% at five Vancouver hospitals. **Conclusion:** This study shows profoundly different triage categorization at different sites seeing similar patient populations. Triage nurses are taught to strive for high sensitivity, but there may be operational consequences if specificity drops too low and large numbers of non-severe patients are triaged into high acuity categories. It is not clear which approach is better but these data suggest CTAS should not be used to compare patient acuity or complexity across different hospitals or regions.

Keywords: quality improvement and patient safety, Canadian Triage and Acuity Scale, chest pain

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Decision fatigue in the emergency department: how does emergency physician decision making change over an eight-hour shift?

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Introduction: Decision fatigue is a well-characterized phenomenon that has rarely been studied in the medical field. Emergency department (ED) physicians make many clinical decisions every shift. In this study, we examined ED physician decisions in computed tomography (CT) ordering, consultations, and discharges over time in an eight-hour shift. **Methods:** We performed a cohort study of adult patients presenting to two EDs of an academic, tertiary care hospital over a two-year period using the hospital administrative database. Patients triaged to the Urgent Care (minor acuity) area of the ED were excluded. Patients were analyzed based on the hour of the shift that they were initially assessed by an ED physician. For each hour, we evaluated the proportion of patients who had CTs, consultations, discharges, consultations not resulting in admission, returns within 72 hours of discharge, and median ED length of stay (LOS). Patients under the care of more than one ED physician (i.e. handovers) were analyzed as the time seen by the initial physician. Statistical significance of outcomes over time was assessed using random effects logistic regression. **Results:** 87,752 patients were included in the study period. 42,146 patients (48.0%) received consultations, of which, 29,347 (69.6%) were admitted. 45,470 patients (51.8%) were discharged without consultation, of which, 4102 (9.0%) returned within 72 hours. The median ED LOS for all non-consulted discharged patients was 4.9 hours. There was a statistically significant decline in the hourly rates of CT head and CT abdomen ordering as the shift progressed. CT head ordering declined significantly from 15.8% in the first hour to 12.2% in the last hour ($p < 0.0001$) while CT abdomen declined significantly from 9.6% to 7.6% ($p < 0.0001$). There were no significant differences in the hourly rates of consultations, consultations not resulting in admission, discharges, discharges returning within 72 hours, or ED LOS. **Conclusion:** ED physician decisions about patient disposition did not change in relation to hours into the shift. Interestingly, the rates of CT head and CT abdomen declined as the shift progressed. The lower CT ordering rates do not seem to be associated with any differences in patient disposition or ED LOS. In this large patient sample, we did not find evidence of decision fatigue among ED physicians.

Keywords: decision fatigue, computed tomography ordering

LO64

Variation in Alberta emergency department patient populations

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Introduction: Increasing pressures on the health care system, particularly in emergency departments (EDs), make it critical to understand changing ED case-mix, patient demographics and care needs, and resource utilization. Our objective is to assess Alberta (AB) ED volumes, utilization and case mix, stratified by ED type. This knowledge will help identify opportunities for system change and quality improvement. **Methods:** Data from Alberta Health Services administrative databases, including the National Ambulatory Care Reporting System, ED Admission/Discharge/Transfer data, and Comprehensive Ambulatory Care Classification System codes, were linked for all ED visits from 2010-17. Data were stratified by seven facility categories: tertiary referral (TR), regional referral (RR), community <5,000 inpatient discharges (CL), community >600 inpatient discharges (CM), community <600 inpatient discharges (CS), community ambulatory care (CA), and free-standing EDs (FS). **Results:** We analyzed 11,327,258 adult patient visits: 13% at TR, 34% at RR, 24% at CL, 16% at CM, 9% at CS, 1% at CA, and 3% at FS sites. Acuity was highest at TR and RR hospitals, with 76%, 63%, 25%, 26%, 22%, 12% and 55% of patients falling into CTAS levels 1-3, for TR, RR, CL, CM, CS, CA, and FS respectively. Admission rates were highest at TR and RR hospitals, (23%, 13%, 5%, 5%, 4%, 0% and 0%), as were left without being seen rates, (5%, 4%, 1%, 2%, 1%, 0% and 5%). The most common ICD-10 diagnoses were chest pain/abdominal pain in TR and RR centres, and IV (antibiotic) therapy in all levels of community and FS EDs. **Conclusion:** Acuity and case-mix are highly variable across ED categories. Acuity, admission rates and LWBS rates are highest in TR and RR centres. Administrative data can reveal opportunities for health system re-engineering, e.g. potentially avoidable IV antibiotic visits. Further investigation will clarify the type of ED care provided, variability in resource utilization by case-mix, and allocation, and will help identify the optimal metrics to describe ED case-mix.

Keywords: case-mix, emergency department, triage

LO65

Safety and satisfaction of a new program redirecting low-acuity emergency department patients to medical clinic: a prospective cohort study

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Introduction: Overcrowding in emergency departments (EDs) is a constant problem. One of the major factors contributing to this situation is the inappropriate ED use by patients with low-acuity problems. In order to reduce overuse, EDs have developed agreements with clinics to reorient low-acuity ambulatory patients toward them. These agreements often leave the burden of decision on the triage personnel as to which patients can be safely redirected. The aim of this study was to evaluate the safety of redirecting patients to nearby medical clinics and to evaluate their satisfaction with this program. **Methods:** In the ED of a tertiary care facility, a computer-based algorithm allowing triage personnel to reorient patients presenting with one of 52 medical complaints, was implemented in 2016. Our prospective cohort study was composed

of reorientation admissible ED patients between March 2017 and August 2017. Patient safety was evaluated with patient follow-up phone interviews one week after their visit to the ED to identify the number of patients who needed to return to a medical facility after their reorientation. Patient satisfaction with the reorientation program was evaluated during the same follow-ups. **Results:** Of the 980 reoriented patients interviewed, only 57 (5.9%; 95% confidence interval [CI] 4.57-5) had to unexpectedly go back to a health care facility. None of these returns were for severe complications. Over 84% of the reoriented patients were satisfied with their reorientation and 89% say they would use this program again. Having a transportation problem was most common reason mentioned by patients for refusing to be reoriented. **Conclusion:** Reorientation to medical clinics using a new computer-based algorithm was safe and no case of urgent return was seen during the 6-month study period. In addition, patients who were reoriented to medical clinics were satisfied by their treatment experience. **Keywords:** reorientation, overcrowding

LO66

The effect of Alberta's new impaired driving legislation on motor vehicle-related trauma

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Introduction: Motor vehicle collisions (MVCs) resulting in injuries and death disproportionately involve impaired drivers. Those under the influence of alcohol also have a higher rate of presentation and admission to hospital for traumatic injuries. In an attempt to decrease impaired driving and alcohol-related MVCs and injuries, the government of Alberta introduced stricter impaired driving legislation in the summer of 2012. It has yet to be determined what impact this new legislation has had on traumatic injuries secondary to MVCs and alcohol impairment. The objective of this study was to assess the relationship between the implementation of the new legislation and the proportion of alcohol-related MVC trauma presenting to the emergency department of a Level I Trauma Centre. **Methods:** A retrospective single centre cross-sectional chart review examining adult patients presenting to the ED of a major trauma centre who: a) require trauma team activation or consultation and b) have a MVC related injury. Of those charts meeting these criteria, the proportion of patients with positive blood alcohol concentration (BAC) was compared between the year before and the four years after implementation of the new legislation. Patients were identified using electronic medical record logs. We compared the proportion of impaired drivers by year using the SPSS software package and conducted an interrupted time series analysis in order to determine whether the implementation of the law directly affected the measured outcomes. **Results:** 1470 total MVC related trauma patients were identified during the study period (468 prior to legislation implementation [2010-2012] and 1002 after [2012-2016]). The proportion of drivers with BAC defined as legally impaired decreased significantly over this time period ($p=0.003$). Based on preliminary interrupted time series analysis we cannot conclude that the implementation of the new laws led to this significant change ($p=0.524$). When analyzing drivers between 16 to 25 years old, we noted a non-significant but notable decrease in the proportion of impaired drivers from 45.9% in 2011 to 21.1% in 2016 ($p=0.173$). **Conclusion:** While an impact was not seen immediately following the implementation of Alberta's new impaired driving legislation, the proportion of impaired drivers requiring trauma team activation has decreased significantly since enactment of the new legislation from 28.9% in 2011 to 16.9% in 2016. However, based on interrupted time series analysis we cannot conclude the new legislation independently influenced this change. The impact of other factors including public

education, societal preferences and generational changes cannot be excluded. There continues to be a dramatic decrease in the proportion of impaired drivers presenting with MVC related trauma under 25 years old. This has not yet reached statistical significance probably due to small sample size but the trend is most prominent in this age group.

Keywords: impaired driving, motor-vehicle related trauma, Alberta's legislation

LO67

A variation on Triage Liaison Physicians (TLP): a comparative analysis of the Emergency Department Disposition and Care Consultant (EDC) concept

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Introduction: Despite evidence that triage liaison physicians (TLP) effectively reduce emergency department (ED) overcrowding, support for these interventions is patchy. The aim of this study was to evaluate the implementation of a TLP-like ED Disposition and Care Consultant (EDC) shift at an academic tertiary care ED. **Methods:** A 24-week pilot project was conducted 11/16-04/17. Physicians worked 8-hour day (07-15:00) and/or evening (15:00-23:00) EDC shifts and performed immediate triage and patient care when needed, assisted triage RNs, answered all incoming calls, and managed administrative matters. Due to their voluntary nature, not all shifts were filled. This study compared active (EDC) and control (C) shifts on the following ED metrics: length of stay (LOS), proportions of patients who left without being seen (LWBS), and safety (return visits to ED). Descriptive (median and interquartile range {IQR} and proportions) and simple (Wilcoxon-Mann-Whitney, chi-square, z-proportion) tests are presented for continuous and dichotomous outcomes, respectively. Multiple linear regression identified factors associated with LOS. **Results:** Of 112 possible EDC shifts, 58 (52%) were filled involving 4289 patients and compared to 276 C shifts involving 21,358 patients. ED volume, patient age (49; IQR: 31, 66), mode of arrival (~30% EMS), triage levels (~51% level 3), and complaints were similar between the groups. Overall, the EDC group reduced LWBS by 16% (8.7% vs. 10.4%; $p=0.001$), ED LOS for discharged patients by 30 minutes (5.5 vs. 6.0 hours; $p<0.001$), and ED LOS for admitted patients by 42 minutes (9.7 vs. 10.4 hours; $p=0.02$). The EDC increased the proportion discharged <4 hours by 28% (20.1 vs. 15.7%; $p<0.001$) and increased the proportion admitted <8 hours by 17% (8.2% vs. 9.6%, $p=0.002$). ED relapses <72 hours were similar (9.3% vs. 8.9%; $p=0.4$); however, admissions were higher in the EDC shifts (25.3% vs. 23.8%; $p=0.04$). In addition to EDC coverage status, LOS was influenced by triage level (1.7%, $p<0.001$), disposition (19.6%, $p<0.001$), and age (4.8%, $p<0.001$). **Conclusion:** Our results indicate that an EDC shift, while unpopular with many physicians, provides valuable services to an overcrowded ED and that the implementation of this type of shift could reduce LOS and LWBS statistics in a tertiary care institution. Additional evaluations to examine this and other front-end interventions in other ED centers are indicated.

Keywords: triage liaison physicians, emergency department operations, length of stay

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Patterns and predictors of emergency physician productivity

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