

Keywords: nausea and vomiting, cannabinoid hyperemesis syndrome, cannabis

P061

Mobile digital access to a web-enhanced network (mDAWN): mHealth for type-2 diabetes self-management and implications for emergency medicine

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Introduction: Diabetes mellitus affects over 2.7 million Canadians, with 90% being Type-2 diabetes (CDA 2010). Complications of diabetes are major causes for emergency department (ED) visits, adversely affecting patients' health and costing the health system. Improving diabetes self-management can lead to avoidance of ED visits and revisits after discharge. Recent developments in mobile Health (mHealth), such as home health monitoring with sensors, social media, and text messaging, have shown promise in supporting patients in chronic disease self-management. This project tested the feasibility of these tools to support self-management for people with type-2 diabetes. **Methods:** Forty-three people with type-2 diabetes took part in a three month program that provided: health information via text messages, online access to curated resources and a facilitated discussion board, and access to wireless monitoring devices. Participants were outfitted with a wireless blood pressure monitor and weight scale, standard blood glucose monitor, and online access to their physiological data. Data collected included pre and post-self-reported health measures, tracking of physiological changes, website and discussion board use, cost survey, and interviews. **Results:** Participants reported significantly less health distress and an increase in diabetes empowerment. HbA1c levels decreased from an average of 7.41 to 6.77. Average weight and blood glucose also decreased over the study period. Interview and cost survey findings revealed most participants felt mDAWN provided good value; 78% expressed interest in continuing all or parts of the program. Interview findings revealed that participants developed self-management routines, and experienced increased self-awareness of, and ownership over, their health achievements. **Conclusion:** mHealth tools provided participants with their own physiologic information, connection with peers, and evidence informed advice. Participants highly valued this combination and improved their self-management and health outcomes. Equipping patients with similar tools for self-management post ED discharge holds great promise for decreasing revisits and improving health outcomes. This study has stimulated a clinical trial now underway to evaluate the effectiveness of home monitoring to facilitate the transition of patients between acute care and community settings.

Keywords: technology, diabetes, monitoring

P062

Impact of pharmacist-led medication review in the emergency department on downstream health services utilization

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Introduction: Adverse drug events are a leading cause of Emergency Department (ED) visits and unplanned admissions. Up to 50% are misdiagnosed in the ED and on hospital wards leading to treatment delays. Our main objective was to evaluate the effect of pharmacist-led medication review in high-risk ED patients on the number of days in-hospital. Our hypothesis was that early pharmacist-led medication review may reduce the number of days spent in-hospital. **Methods:** We

evaluated a quality improvement program that was implemented in three British Columbian EDs. During a 12-month period, nurses identified consecutive patients at high-risk for adverse drug events using a clinical decision rule integrated into triage algorithms. Clinical pharmacist research assistants enrolled consecutive eligible high-risk patients, and systematically allocated them to medication review or control. In the intervention group, pharmacists collected best possible medication histories, reviewed medications for appropriateness and adverse drug events, and communicated review results to patients and physicians. In the control group, nurses collected best-possible medication histories, and physicians referred patients to the ED pharmacist as needed. Ongoing care was determined by physicians who were not blinded to group allocation, but were unaware of the evaluation. We assessed outcomes using administrative health databases. The primary outcome was the number of days spent in-hospital over 30 days. We used inverse propensity score weighted regression modeling to assess the relationship between medication review and health outcomes. The sample size was limited by the duration of the quality improvement program. **Results:** Among 10,807 patients 6,416 received medication review in the ED and 4,391 usual care. The groups were balanced in terms of baseline characteristics. The median number of hospital days was 0.48 days (95% confidence interval [CI] 0.00-0.96) less in the medication review group compared to usual care ($p = 0.058$). The difference was 0.60 days (95% CI 0.06-1.17; $p = 0.03$) less among patients under 80 years old. There was no effect on ED revisits, number of admissions and readmissions, or mortality. **Conclusion:** Medication review was associated with a trend in reduced hospital-bed utilization. While limited by lack of randomization, our evaluation suggests that ED pharmacists may impact subsequent resource utilization.

Keywords: adverse drug event, patient safety, medication review

P063

Is triage score a valid measure of emergency department case mix?

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Introduction: In the Canadian province of Alberta, (pop. 4,227,879), the publicly-funded health care system uses the five level Canadian Triage and Acuity Scale (CTAS), to prioritize emergency department (ED) patients. Health system decision makers and policy makers currently use CTAS as an isolated metric to describe ED patient case-mix and to compare EDs. **Methods:** Using the National Ambulatory Care Reporting System dataset, we reviewed the distribution of patient CTAS scores and the proportion of inpatient admissions by CTAS level for the 16 highest volume Alberta hospital EDs during FY 2013/2014. **Results:** Collectively, the EDs received 1,027,976 patients, with 1%, 18%, 44%, 30% and 7% classified as CTAS 1-5, respectively. The proportions by CTAS level ranged from 0.2% to 2.8% in CTAS 1; 3.3% to 33.3% in CTAS 2; 29.1% to 54.1% in CTAS 3; 16.7% to 49.0% in CTAS 4; and 3.1% to 12.3% in CTAS 5. Admission proportions by CTAS level ranged from 43.9% to 75.2% in CTAS 1; 18.9% to 42.1% in CTAS 2; 5.4% to 24.7% in CTAS 3; 0.8% to 9.3% in CTAS 4; and 0.1% to 9.1% in CTAS 5. **Conclusion:** Inter-hospital differences in CTAS acuity distributions reflect triage variability and real differences in case-mix. Wide variation in admission proportions by CTAS level reflects differing admission thresholds between sites, but also suggest intra-level differences in patient severity, comorbidity and complexity. Triage levels cannot be used as an isolated metric to describe and

compare ED case-mix. Further work is required to accurately characterize ED patient case-mix.

Keywords: triage, case mix

P064

Effect of increased availability of pre-authorized radiological test ordering on CT scan utilization in the emergency department

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Introduction: Computed tomography (CT) scan utilization has increased dramatically over the past 25 years. This has sparked concern for potential overuse leading to unnecessary radiation exposure for patients and increased health care costs, without any improvement in health outcomes. In order to improve workflow through the Emergency Department (ED) at our institution, an existing pre-authorization policy during weekday business hours allows emergency physicians to order CT scans directly without the need for approval from a radiologist. This policy was recently expanded on September 28, 2015 to allow pre-authorized CT scan orders during weekday evening hours. The objective of our study is to evaluate the impact of increased availability of pre-authorized CT scan ordering on CT scan utilization and patient flow through the ED at two tertiary care hospitals in London, Ontario. **Methods:** This is a retrospective review comparing monthly CT scan utilization rates in the pre-implementation period from September 28, 2014 to February 28, 2015, to rates in the post-implementation period from September 28, 2015 to February 28, 2016. Length of stay parameters including time from physician initial assessment to CT scan order, completion, report and patient discharge will also be compared between the groups. **Results:** Results will be presented at CAEP 2016. No significant difference is expected in the monthly number of CT scans ordered per registered ED visits between the pre- and post-implementation groups. We also anticipate a significantly shorter average length of stay for patients receiving a CT scan in the post-implementation group. **Conclusion:** We expect there will be no significant increase in CT scan utilization with increased availability of pre-authorized CT scan ordering in our EDs. We also anticipated decreased patient length of stay leading to improved patient flow through the ED. Findings may offer support for organizations to safely implement or increase availability of pre-authorized CT scan orders to help improve patient flow and decrease costs in the ED.

Keywords: computed tomography, emergency medicine, utilization

P065

Surveying ED transition of care: satisfaction, awareness of risks and barriers to the implementation of a standardized protocol

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Introduction: Patient handoffs have been identified as the primary cause of error affecting patient safety. The lack of standardization - and the often-avoidable errors that occur as a result - profoundly affect patient care and emergency department (ED) administration. Our study set out to evaluate emergency doctors' awareness of these safety concerns, as well as their satisfaction with handoff practices currently used in their respective EDs. We also aimed to identify the potential barriers to the use of a standardized approach to patient transition of care. **Methods:** Guided by a modified Delphi method, a 29-question survey was developed by a panel of experts on patient transition of care. A printed version of the survey was distributed to ED doctors attending a local emergency medicine conference. An electronic version was

subsequently distributed to all ED doctors registered as members of our provincial professional organizations. **Results:** We achieved a 68% response rate. Amongst the 309 participants, 51% (95%CI 44-56%) acknowledged that handoffs between emergency doctors are a frequent cause of error related to patient care. Frequent interruptions (77% (95% CI 72-82%)) and heavy workloads (73% (95%CI 68-79%)) were identified as the main factors negatively influencing the quality of handoffs. Despite 61% (95%CI 56-68%) satisfaction with the currently employed methods, 74% (95%CI 68-79%) of the respondents believe that handoffs would benefit from standardization and 83% (95%CI 79-88%) are open to changing their current practices. In addition, 53% (95%CI 48-60%) believe that the tools used for transition of care can be improved. Apprehension regarding the increase of handoff burden (86% (95%CI 81-90%)) was identified as the primary barrier to the implementation of a standardized handoff protocol. **Conclusion:** Doctors are generally satisfied with current handoff practices used in the ED. Nevertheless, their awareness of the possible risks associated with transition of care may be driving their openness to adapting their practice, potentially towards a more standardized approach given the conceivable benefits to patient safety. In light of these results, we aim to develop a comprehensive, standardized handoff protocol, and to evaluate its applicability in the ED with a prospective study.

Keywords: safety, handover, administration

P066

Comfort of emergency medicine physicians in implementing early goal directed therapy for sepsis

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Introduction: The recently published ProMISE, ARISE and ProCESS trials demonstrated that protocol-based resuscitation (EGDT) of ER patients in whom septic shock was diagnosed did not improve outcome when compared to usual care. The objective of this project was to survey McMaster emergency physicians in areas including sepsis definition, clinical recognition in adults, self-rated skills assessment, attitudes towards skills augmentation and compare results to the cohort surveyed 11 years ago, close to the introduction of EGDT. **Methods:** Full time faculty at McMaster's Department of Emergency Medicine and ER residents were surveyed anonymously using an electronic survey. The questions covered demographics and training data, identification of septic patients, sepsis intervention and attitudes towards skills augmentation. **Results:** A total of 18 physicians responded to the electronic survey to date. All respondents were able to correctly input definitions for SIRS, sepsis, severe sepsis and septic shock. The majority of respondents felt the best strategy to identify potentially septic adults involved monitoring abnormal vital signs (67%) with some stating serum lactate assessment (33%). Of the 11 possible interventions options provided to care for septic patients, respondents appeared more comfortable with placement of lines, giving vasopressors and appropriate use of fluids for resuscitation. This was compared to more specialized interventions like initiating IV steroids in vasopressor dependant shock despite adequate fluid loading. 22% of respondents believed that patients without respiratory compromise with clinically severe sepsis should be intubated which was found to be 48% in the previous cohort surveyed 11 years ago. 78% believed patients in septic shock without respiratory compromise should be intubated, reassuringly similar to the previous survey result of 87%. **Conclusion:** Emergency physicians at our Canadian institution are comfortable with the skill set required to care for patients with sepsis. Respondents surveyed to date were all comfortable with important resuscitative measures including accurate identification, placement of lines and appropriate fluid administration and were receptive