physical movement, handover, team communication, and other – did not change (50min49sec/shift pre vs 50min53sec/shift go live, p = 0.99). **Conclusion:** Implementation of Epic did not affect EP time with individual patients - there was no change in direct patient care or chart review. Documentation time increased and EP efficiency (patients seen per hr on shift) decreased after go live. Patient volumes cannot be adjusted in the ED therefore anticipating the EHR impact on EP workflow is critical for successful implementation. EDs may consider up staffing 20% during go live. Findings from this study can inform how to best support EDs nationally through transition to EHR.

Keywords: electronic health record, health informatics, time motion study

MP03

Clearing the air: A retrospective cohort study of cannabis-related harms in urban Alberta emergency departments following legalization

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Introduction: Non-medical cannabis recently became legal on October 18th, 2018 to Canadian adults. The impact of legalization on Emergency Departments (EDs) has been identified as a major concern. The study objective was to identify changes in cannabis-related ED visits and changes in co-existing diagnoses associated with cannabis-related ED visits pre- and post-legalization for the entire urban population of Alberta. Urban Alberta was defined as Calgary and Edmonton, inclusive of Sherwood Park and St. Albert given the proximity of some Edmontonians to their EDs) encompassing 12 adult EDs and 2 pediatric EDs. **Methods:** Retrospective data was collected from the National Ambulatory Care Reporting System, and from the HealthLink and the Alberta Poison and Drug Information Service (PADIS) public telehealth call databases. An interrupted time-series analysis was completed via segmented regression calculation in addition to incident rate and relative risk ratio calculation for the pre- and post-legalization periods to identify both differences among the entire urban Alberta population and differences among individuals presenting to the ED. Data was collected from October 1st, 2013 up to July 31st, 2019 for ED visits and was adjusted for natural population increase using quarterly reports from the Government of Alberta. **Results:** The sample included 11 770 pre-legalization cannabis-related visits, and 2962 post-legalization visits. Volumes of ED visits for cannabis-related harms were found to increase post-legalization within urban EDs (IRR 1.45, 95% CI 1.39, 1.51; absolute level change: 43.48 visits per month in urban Alberta, 95% CI 26.52, 60.43), and for PADIS calls (IRR 1.87, 95% CI 1.55, 2.37; absolute level change: 4.02 calls per month in Alberta, 95% CI 0.11, 7.94). The increase in visits to EDs equates to an increase of 2.72 visits per month, per ED. Lastly, increases were observed for cannabinoid hyperemesis (RR 1.23, 95% CI 1.10, 1.36), unintentional ingestion (RR 1.48, 95% CI 1.34, 1.62), and in individuals leaving the ED pre-treatment (RR 1.28, 95% CI 1.08, 1.49). Decreases were observed for coingestant use (RR 0.77, 95% CI 0.73, 0.81) and hospital admissions (RR 0.88, 95% CI 0.80, 0.96). **Conclusion:** Overall, national legalization of cannabis appears to be correlated with a small increase in cannabis-related ED visits and poison control calls. Post-legalization, fewer patients are being admitted, though cannabinoid hyperemesis appears to be on the rise.

Keywords: cannabis, legalization, policy

MP04

Predicting future ED needs – population trends may not be enough!

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Introduction: As the population of Canadian cities grows, public policy planners frequently base predictions of future demand on population trends. We aimed to discover the relationship between demographically defined ED visit rate (EDVR) trends in an academic ED with corresponding population trends in the catchment area. **Methods:** We used administrative data to conduct a retrospective cohort time series to analyze per capita EDVR trends based on CTAS, age, gender and housing status for the period 2006-2015. These were adjusted for population growth using age-gender standardized rates from 2011 census data. All EDVR and Standardized estimates were extrapolated for 100,000 population. **Results:** There were 646 731 visits during the study period, increasing by 25.6% from 56 757 in 2006 to 71 289 in 2015, with an annual incremental linear trend of 1893/year (CI:1593-2192). The highest CTAS2 EDVR increase, 521/year, (95%CI: 433-608) was by non-homeless patients older than 49. CTAS2 visits and the rate in all non-homeless patients increased by 335/year, (95% CI 280-391), while homeless patients less than 30 showed the highest CTAS2 EDVR annual rate incremease (1183/year, CI:1448-2218). From 2008-2015, the annual linear per capita CTAS5 EDVR declined by 121/year (CI:79-163). The population of adults in Halifax increased by1.2%/yr with a linear trend of 4149/year (CI:4012-4287). The highest linear increasing trend was for those older than 49 (2604/year CI:2494-2714), followed by 30-50-year old group (1223/year, CI:1138-1309) with the lowest trend for those aged less than 30 (322/year,CI:170-473). Standardized and non-standardized rate decline (CTAS5) and incline (CTAS2) were statistically similar and were not influenced by population changes. The population older than 49 increased by 38% over the 10 year period, whereas the CTAS2 visit change increased by 250%. If the CTAS2 EDVR trend continues, this rate in 2027 will double that of 2015, even if the population in the catchment area remains stable. **Conclusion:** EDVR trends show an increase in CTAS2 visits driven chiefly by older patients. This trend exceeds the trend suggested by Canadian Foundation for Healthcare Improvement and is significantly more than predicted by population demographic changes. Healthcare administrators will need to bear these disparities in mind as they prepare for future ED capabilities.

Keywords: emergency demands, population trends

MP05

Validation of the Canadian clinical practice guideline clinical decision aid for acute aortic syndrome

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Introduction: Acute aortic syndrome (AAS) is a rare clinical syndrome with a high mortality encompassing acute aortic dissection, intramural hematoma and penetrating atherosclerotic ulcer. Up to 38% of cases are misdiagnosed on first presentation. There is a large variation in use of computed tomography to rule out AAS. The Canadian clinical practice guideline for the diagnosis of AAS was developed in order to reduce the frequency of misdiagnoses. As part of the guideline, a clinical decision aid was developed to facilitate clinician decision-making based on practice recommendations. Our

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objective was to validate the sensitivity of this clinical decision aid. **Methods:** Our validation cohort was recruited from a retrospective review of all cases of AAS diagnosed at three tertiary care emergency departments and one cardiac referral center from 2002-2019. Inclusion criteria: >18 years old, non-traumatic, symptoms <14 days and AAS confirmed on computed tomography, transesophageal echocardiography, intraoperatively or postmortem. The clinical decision aid assigns an overall score of 0-7 based on high risk pain features, risk factors, physical examination and clinical suspicion. Sensitivity with 95% confidence intervals are reported. Based on a national survey, a miss rate of <1% was predefined for the validation threshold. **Results:** Data was collected from 2002-2019 yielding 222 cases of AAS (mean age of 65 (SD 14.1) and 66.7% male). Kappa for data abstraction was 0.9. Of the 222 cases of AAS (type A = 125, type B = 95, IMH = 2), 35 (15.7%) were missed on initial assessment. Patients were risk stratified into low (score = 0, 2 (0.9%)) moderate (score = 1, 42 (18.9%)) and high risk (score ≥2,178 (80.2%)) groups. A score ≥1 had a sensitivity of 99.1% (95% CI 96.8-99.9%) in the detection of AAS. The clinical decision aid missed 0.9% (95% CI 0.3-3%) of cases. **Conclusion:** The Canadian clinical practice guideline's AAS clinical decision aid is a highly sensitive tool that uses readily available clinical information. Although the miss rate was <1%, the 95% confidence intervals crossed the predefined threshold. Further validation is needed in a larger population to ensure the miss rate is below an acceptable level.

Keywords: acute aortic syndrome, aortic dissection, vascular

MP06

Using electrocardiogram-to-activation time to assess emergency physicians' diagnostic delay of acute coronary occlusion

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Introduction: Electrocardiogram (ECG) diagnosis of acute coronary occlusion has been broadening in recent years, from classic ST-Elevation Myocardial Infarction (STEMI) criteria to STEMI-equivalents and rules for subtle occlusions. However, there is no quality metric focused on emergency physicians' decision-making. We hypothesized that the time from initial emergency department (ED) ECG to activation of Code STEMI could quantify diagnostic delay associated with automated interpretation, classic STEMI criteria, and other signs of occlusion. **Methods:** This multicentre retrospective study reviewed all ED Code STEMI patients with confirmed culprit lesions from two urban academic EDs over a three-year period (Jan 2016 to Dec 2018). We reviewed charts to calculate ECG-to-Activation (ETA) time, measured from the time stamp on the initial ED ECG to the time a Code STEMI was activated (based on the hospital call centre log). We examined ECGs to determine: 1) if automated computer interpretation labelled "STEMI" or not; and 2) whether they met classic STEMI criteria, STEMI-equivalent patterns, or rules for subtle occlusion, based on a priori criteria from published guidelines or studies. All ECGs were reviewed by the lead author (JTTM) and those not obviously meeting classic STEMI criteria were independently reviewed by the other author. **Results:** There were 180 Code STEMIs from the ED with culprit lesions, including 177 with complete information. Average ETA time was 46.5 minutes (95% Confidence Interval [CI] 36.3-56.7min). Automated interpretation labelled 55.4% of initial ECGs as "STEMI" (ETA 13.9 min, 95%CI 9.8-18.0min), and 44.6% not as "STEMI" (ETA 86.9min, 95%CI 67.9-105.9min). Initial ECGs included 62.1% with classic STEMI criteria (ETA 17.3min, 95%CI 12.8-21.8min), 11.3% with STEMI-equivalents (ETA 49.5min, 95%CI 29.5-69.5min), 18.1% with subtle occlusions (ETA 118.3min, 95%CI 81.5-155.1min) and 8.5% with no initial sign of occlusion (ETA 102.9min, 95%CI 53.9-151.9min). Inter-rater reliability was very good (Cohen's kappa 0.84). **Conclusion:** Over 90% of Code STEMI patients with culprit lesions had initial ECGs diagnostic of acute coronary occlusion, but automated interpretation and classic STEMI criteria only identified 55.4% and 62.1%, respectively. STEMI-equivalents and subtle occlusions were associated with significant diagnostic delays. ETA time can serve as a quality metric for emergency physicians and may help guide ED quality improvement initiatives.

Keywords: acute coronary occlusion, electrocardiogram, ST elevation myocardial infarction

MP07

Identification of barriers and facilitators for implementation of the Canadian Syncope Risk Score

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Introduction: Wide variability exists in emergency department (ED) syncope management. The Canadian Syncope Risk Score (CSRS) was derived and validated to predict the probability of 30-day serious outcomes after ED disposition. The objective was to identify barriers and facilitators among physicians for CSRS use to stratify risk and guide disposition decisions **Methods:** We conducted semi-structured interviews with physicians involved in ED syncope care at 8 Canadian sites. We used purposive sampling, contacting ED physicians, cardiologists, internists, and hospitalists until theme saturation was reached. Interview questions were designed to understand whether the CSRS recommendations are consistent with current practice, barriers and facilitators for application into practice, and intention for future CSRS use. Interviews were conducted via telephone or videoconference. Two independent raters coded interviews using an inductive approach to identify themes, with discrepancies resolved through consensus. Our methods were consistent with the Knowledge to Action Framework, which highlights the need to assess barriers and facilitators for knowledge use and for adapting new interventions into local contexts. **Results:** We interviewed 14 ED physicians, 7 cardiologists, and 10 hospitalists/internists across 8 sites. All physicians reported the use of electrocardiograms for patients with syncope, a key component in the CSRS criteria. Almost all physicians reported that the low risk recommendation (discharge without specific follow-up) was consistent with current practice, while less consistency was seen for moderate (15 days outpatient monitoring) and high risk recommendations (outpatient monitoring and/or admission). Key barriers to following the CSRS included a lack of access to outpatient monitoring and uncertainty over timely follow-up care. Other barriers included patient/family concerns, social factors, and necessary bloodwork. Facilitators included assisting with patient education, reassurance of their clinical gestalt, and optimal patient factors (e.g. reliability to return, support at home, few comorbidities). **Conclusion:** Physicians are receptive to using the CSRS tool for risk stratification and decision support. Implementation should address identified barriers, and adaptation

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