

OAC and those who were referred to cardiology, family medicine, or did not have a documented follow up plan. Patients with a previous history of AF or current anticoagulant therapy were excluded. We recorded if any patients returned to the ED within 90 days with ischemic stroke, AF recurrence, myocardial infarction, other embolic disease or death. **Results:** 86 of 294 (29.5%) of patients who qualified under CHADS-65 received OACs appropriately. 64 of 66 (97.0%) of patients who did not qualify under CHADS-65 did not receive OACs appropriately. 5 patients overall returned within 90 days with ischemic stroke, 4 of those were not prescribed OACs, however this was not statistically significant ($P = 0.999$). **Conclusion:** This data suggests that physicians in the study are under-prescribing OACs relative to published guidelines. A larger study is necessary to elucidate the effect of ED OAC prescribing patterns on long-term patient outcome.

Keywords: atrial fibrillation, oral anticoagulant, quality improvement and patient safety

MP38

Are we missing pulmonary embolism in acute exacerbations of chronic obstructive pulmonary disease presenting to the emergency department? Multicenter insights into incidence of concomitant disease and yield of testing

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Introduction: Patients with Chronic Obstructive Pulmonary Disease (COPD) often present to the ED with acute exacerbations (AE-COPD) of the disease. A potential occult yet fatal disease that might contribute or accompany an AE-COPD presentation is a pulmonary embolism (PE). Previous studies have investigated and report rates of PE in up to 29% of patients presenting with AE-COPD. Misdiagnoses of PE leads to poor outcomes, however, over-testing for PE also presents with substantial risks to the patient and strain on acute care resources. The goal of this study was to pragmatically identify the prevalence and 30-day incidence of PE in patients presenting with AE-COPD to EDs, as well as the burden and yield of PE investigations. **Methods:** We conducted a retrospective analysis of extracted data for patients ≥ 50 years old presenting to one of four emergency departments in Calgary with an AE-COPD since 2013. Patients with a history of outpatient anticoagulation therapy from a community pharmacy were excluded. Each patient chart was reviewed to identify a diagnosis of PE during the admission for an AE-COPD, or 30 days post discharge from an AE-COPD admission or ED presentation. An AE-COPD diagnosis was defined as a primary. **Results:** A total of 9554 AE-COPD ED patient visits were included in the study. 0.69% (95% CI 0.54 to 0.88) were identified to have a PE. 26 of the 66 (39.4%) were diagnosed during an AE-COPD inpatient admission, while 43 (65.2%) were diagnosed within 30 days post-discharge from an AE-COPD admission or ED presentation. Since 2016, 7.4% of AE-COPD patients underwent a CT-PE, while 16.7% underwent a d-dimer. The most common chief complaint in PE patients was dyspnea (75.8%). The mean age of the PE diagnosed was 73.4, with nearly equal representation of both sexes. Many patients had underlying comorbidities, such as hypertension, diabetes, and cancer of various sites, all of which are risk factors for developing a PE. **Conclusion:** The prevalence and 30-day incidence of PE in AE-COPD patients appears to be lower than what was previously reported in the literature. Despite this, a significant proportion of AE-COPD patients were exposed to the risks and burden of a PE work up, with low diagnostic

yield. PE investigations in AE-COPD should be used selectively and could inform a quality improvement indicator. A future prospective study would drastically contribute to whether a PE clinical work up should be recommended and of value to patients.

Keywords: chronic obstructive pulmonary disease, pulmonary embolism

MP39

Reducing overcapacity: applying the LEAN model to length of stay in the emergency department

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Introduction: Recently there have been many studies performed on the effectiveness of implementing LEAN principals to improve wait times for emergency departments (EDs), but there have been relatively few studies on implementing these concepts on length of stay (LOS) in the ED. This research aims to explore the initial feasibility of applying the LEAN model to length-of-stay metrics in an ED by identifying areas of non-value added time for patients staying in the ED. **Methods:** In this project we used a sample of 10,000 ED visits at the Health Science Centre in St. John's over a 1-year period and compared patients' LOS in the ED on four criteria: day of the week, hour of presentation, whether laboratory tests were ordered, and whether diagnostic imaging was ordered. Two sets of analyses were then performed. First a two-sided Wilcoxon rank-sum test was used to evaluate whether ordering either lab tests or diagnostic imaging affected LOS. Second a generalized linear model (GLM) was created using a 10-fold cross-validation with a LASSO operator to analyze the effect size and significance of each of the four criteria on LOS. Additionally, a post-test analysis of the GLM was performed on a second sample of 10,000 ED visits in the same 1-year period to assess its predictive power and infer the degree to which a patient's LOS is determined by the four criteria. **Results:** For the Wilcoxon rank-sum test there was no significant difference in LOS for patients who were ordered diagnostic imaging compared to those who were not ($p = 0.6998$) but there was a statistically significant decrease in LOS for patients who were ordered lab tests compared to those who were not ($p = 2.696 \times 10^{-10}$). When assessing the GLM there were two significant takeaways: ordering lab tests reduced LOS (95% CI = 42.953 - 68.173min reduction), and arriving at the ED on Thursday increased LOS significantly (95% CI = 6.846 - 52.002min increase). **Conclusion:** This preliminary analysis identified several factors that increased patients' LOS in the ED, which would be suitable for potential LEAN interventions. The increase in LOS for both patients who are not ordered lab tests and who visit the ED on Thursday warrant further investigation to identify causal factors. Finally, while this analysis revealed several actionable criteria for improving ED LOS the relatively low predictive power of the final GLM in the post-test analysis ($R^2 = 0.00363$) indicates there are more criteria that influence LOS for exploration in future analyses.

Keywords: lean thinking, process efficiency, quality improvement

MP40

Psychological distress in patients following pulmonary embolism diagnosis

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Introduction: Pulmonary embolism (PE) is a treatable condition, with a low mortality rate (of around 1% in those who are diagnosed

with the condition). The risk of recurrent PE is well managed with long term anticoagulation. Past literature suggests that patients who are diagnosed with PE can go on to experience existential anxiety and symptoms suggestive of post-traumatic stress disorder (PTSD). This study aimed to evaluate the mental and emotional experiences of PE patients through the lens of PTSD, and the factors involved in psychological distress following a PE diagnosis. **Methods:** Semi-structured interviews were conducted with PE patients at the Juravinski Hospital thrombosis clinic in Hamilton, Ontario. Interview questions were based on DSM-5 criteria of PTSD and relevant existing literature. The transcripts were analyzed by two researchers based on an approach that considers both the content of patients' accounts as well as the way that patients choose to interpret and deliver those accounts, to develop major themes associated with psychological distress. **Results:** A total of 37 patients, ranging from 28 to 85 years of age, were interviewed. The patients' accounts suggested that the manner in which a PE diagnosis was delivered by an emergency physician was a significant factor in the degree to which they experienced psychological distress. For example, patients reported focusing on words suggesting that they were 'a ticking time-bomb' or that 'a lot of people don't get through this,' which introduced a degree of panic. A number of patients continued to focus on these words, months or years after their diagnosis. Some feared that they could have recurrent PE which could lead to death. Diagnoses that were delivered calmly with thorough explanations of why a patient experienced PE-related symptoms and how they will be treated, helped to minimize any subsequent anxiety. Patients initially misdiagnosed with an alternative condition in the ED also expressed feelings of anxiety and distress. The presence of physically and mentally distressing symptoms was also a factor which contributed to mental distress and anxiety regarding a PE recurrence. **Conclusion:** Caution should be taken in the delivery of PE diagnosis in the emergency department. Over-emphasis on the severity and life-threatening nature of PE should be avoided to reduce psychological distress.

Keywords: diagnosis, embolism, psychology

MP41

Feeling the flow: an evaluation of the GridlockED workshop experience

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Introduction: GridlockED is an educational (or "serious") game recently developed by a team at McMaster to teach medical learners about patient flow in the emergency department (ED). Beyond patient flow, we were cognizant that the game could provide additional learning opportunities for learners. The goal of this program evaluation project was to investigate workshop attendees' experiences and identify what areas they found most educational. **Methods:** A GridlockED board game workshop was developed and delivered in several locations over the fall of 2018. Workshops targeted medical learners and were organized by local emergency medicine interest groups. After a standardized video-based introduction to the game concept and rules, the learners played GridlockED for approximately 90 minutes. After the play session, learners completed an anonymous survey consisting of 7-point Likert scale questions about their experience. They were also asked to identify the learning domains for which GridlockED was developed (Patient Flow, Communication and Teamwork, and ED Basics), and were asked via free-text to identify learning objectives from their experience. We received an exemption

for this study from our institutional review board. **Results:** We had 25 respondents (24 medical students and 1 resident). Trainees rated GridlockED as both enjoyable to play and as a meaningful educational experience, with an average rating of 6.56 (SD 0.94) for enjoyability and 6.44 (0.92) for education. When asked what targeted learning domain was most helpful, 45% of students identified patient flow, 37% teamwork and communication, and only 18% ED basics. When asked to identify their top three areas of learning in open-ended responses, students actually identified resource management most frequently (48%), with improved communication skills (40%) as the second most prominent learning objective. Other interesting self-identified learning points were: a greater appreciation of the role of various providers (24%), the unpredictability of ED care (12%), and how things can go wrong (12%). **Conclusion:** Medical learners find GridlockED to be both enjoyable and educational. In our targeted areas of learning they found patient flow to be the most educational, but self-identified multiple other areas for learning. Students identified resource management and communication as key areas of learning, suggesting that future workshops might be designed specifically to teach these skills.

Keywords: medical education, program evaluation, serious games

MP42

Program assessment: taking stock of the current state of Canadian undergraduate medical education in procedural skills curricula

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Introduction: In order to better characterize procedural skills curricula in Canada, a national survey was conducted. The objectives of the survey were: (i) to characterize procedural skills education currently employed in pre-clerkship and clerkship curricula; (ii) to determine what skills physician-educators think medical students should know upon graduation; and (iii) to identify physician-educator perceptions regarding the development of pre-clerkship procedural curriculum. **Methods:** A web-based survey was distributed to 201 clinician-educators across Canada's 17 medical schools. Respondents were directed to an individualized survey based on their self-identified roles at their institution. Respondents were asked demographic questions, what procedural skills are being taught and in what setting at their institution, and their opinions on the value of a pre-clerkship procedural curriculum. **Results:** From the 17 school's surveyed, 12 schools responded, with 8 schools responding "yes" that they had a clerkship procedural curriculum. For a pre-clerkship procedural curriculum, only 4 schools responded "yes". The 5 of the top 10 procedural skills identified that medical students should know upon graduation, in order, are: IV Access, Airway Management/Ventilator Management, Local anesthesia/field block, Casting, Spontaneous Vaginal Delivery. On a Likert scale, clinician-educators strongly supported a pre-clerkship procedural curriculum (median = 4.00/5.00, mode = 5.00/5.00), and they believed it would decrease anxiety (median = 4.00/5.00), increase confidence (median = 4.00/5.00), and increase technical ability (median = 3.00/5.00) in incoming clerks. **Conclusion:** Across Canada, the state of undergraduate medical education procedural skills education is inconsistent. With the identification of the Top 10 procedural skills medical students should know upon graduation, the learning objectives of a formal curriculum can