University of Alberta with acute AFF were enrolled. Following informed consent, each patient completed a survey administered by a trained researcher, administrative ED information (e.g., ED times) was collected from the ED information system, a chart review on treatments was conducted and patients were contacted for follow-up at 7 days via telephone. Descriptive (median and interquartile range {IQR} and proportions) and simple (Wilcoxon-Mann-Whitney, chi-square, z-proportion) statistics are presented for continuous and dichotomous outcomes. **Results:** Overall, 217 patients were enrolled; the median age was 64 years (IQR: 55, 73) and 39% were female. Males presenting to the ED with AFF were 10 years younger than females ($p < 0.001$); however, females weighed significantly less (median weight 69 vs. 95 kg; $p < 0.001$), consumed less alcohol (12 vs. 60 drinks/year; $p < 0.001$) and were less likely to be ex-smokers ($p = 0.022$) than men with AFF. Women arrived by Emergency Medical Services (EMS) ($p = 0.037$), experienced palpitations ($p = 0.042$), and reported a history of hypertension ($p = 0.022$) more frequently than men. Females were more often prescribed oral anticoagulants before ($p = 0.041$) and after ($p = 0.011$) the ED visit, and females with a history of AFF were less likely to present without anticoagulant/antiplatelet therapy ($p = 0.015$). Overall, both sexes had similar attempts at cardioversion (59.4% vs. 61.3%) and hospitalizations (12.5% vs. 8.6%), respectively. If initial chemical cardioversion failed, females were more likely to receive subsequent electrical cardioversion (60.0% vs. 26.7%, $p = 0.036$) than men. **Conclusion:** Overall, both women and men present frequently to the ED with AFF. Compared to men with AFF, women present with symptoms 10 years later, have different risk factors, experience more severe symptoms and use EMS more commonly; however, outcomes were similar. Unexplained sex-based variations in-ED and post-ED management are evident and these differences warrant further scrutiny.
Keywords: atrial fibrillation, anticoagulation, sex differences

P111

Burnout among emergency physicians working at a large tertiary center in London, Ontario

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Introduction: Emergency medicine (EM) is known to be a high-stress specialty. Work related stress and burnout have been reported to negatively impact physician-patient interactions, collaboration and ultimately overall physician mental and physical health. We sought to assess the rates of burnout among emergency physicians working at a single large Canadian tertiary care center and to identify higher risk groups. We hypothesized burnout rates to be uniformly high. **Methods:** We conducted a local cross-sectional study to assess burnout among adult and pediatric emergency physicians, fellows and residents at London Health Sciences Centre (LHSC). A total of 118 participants were invited to complete an anonymous online survey encompassing demographics, the validated MBI tool (Maslach Burnout Inventory) with additional questions aimed at identifying determinants of emergency physician burnout at LHSC. Each respondents three MBI scale scores for Emotional Exhaustion, Depersonalization and Personal Accomplishment were recorded with a possible range of 0-6. Descriptive statistics were calculated and relationships between risk factors (age, gender, years of practice, marital status, and credentials) and burnout scores were examined using t-tests, one-way ANOVAs, and/or regression analyses where appropriate. **Results:** To date the survey had a 50% (59/118) response rate. Of the 59 respondents 24 (40%) were female, the mean (SD) age was 40.6 years (10.5) and years of practice ranged from 1 to 35, with a mean of 13. Survey results indicated a high degree of burnout among LHSC EM physicians with a mean (SD) Emotional Exhaustion Score of 2.9 (1.3) and Depersonalization score of 2.4 (1.3), indicating that physicians felt burnt out from work between once a day to once a week. Inversely, the protective variable of Personal Accomplishment, with a score of 4.7 (0.9), indicated daily to weekly feelings of accomplishment. Female physicians (independent samples t-test, $p = 0.003$) and those having fewer years of practice (linear regression, $R2 = 0.188$, $p = 0.04$) were identified to have higher burnout. We did not identify any factors associated with Personal Accomplishment. **Conclusion:** Consistent with previous literature, LHSC emergency physicians were shown to be at risk for moderate to severe burnout. High risk groups identified included gender (female) and fewer years of practice. We did not identify any factors to be protective. Despite this, LHSC emergency physicians showed a high degree of personal accomplishment. While all physicians experience burnout, targeted interventions to newer female staff could have the highest benefit.
Keywords: wellness, burnout, emergency medicine consultant

P112

FLO on flow: front line ownership of emergency department, hospital, and health system patient flow a novel approach to ED overcrowding (Part 1)

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Introduction: Hospital access block, often called Emergency Department (ED) overcrowding when it manifests there, is an important public health issue and seemingly intractable problem in our evolving Health Care system. The multiple, dynamic, and inter-dependent factors influencing its cause (and potential solutions) may best fit a complex adaptive systems analysis and approach. One technique described in similar contexts is Front Line Ownership (FLO) based on the theoretical framework of positive deviance. The aim of this study is to discover where pragmatic bottom-up insights and adaptive work-arounds can be elicited, described, iterated, and potentially implemented at a broader scale to catalyze systems change, in service of improving patient flow. **Methods:** This is a qualitative study which identified, convened, and surveyed stakeholders representing three components of the system. Purposive sampling was used to gather a full range of perspectives from three groups: 1) patients and or families, 2) front-line providers, and 3) management/leaders. Interviews were recorded and transcribed by a third party, then each transcription was coded independently by two investigators (at least one of which was the PI). Informed consent was obtained from all participants and each was offered the opportunity to review the transcription to ensure accuracy. A framework analysis was used to synthesize, reflect upon, and interpret the data from multiple perspectives using a structured, iterative approach. **Results:** In part 1 of this study, three broad over-lapping themes emerged from the analysis as being areas of opportunity for reducing hospital access block. They are: 1) Boundary Conditions (the historical, organizational cultural, psychological, economic, and other contexts influencing system performance), 2) Systems Integration (how well the parts interface with each other relate to the whole), and 3) Operations management (the more technical aspects of patient flow). When these three broad themes are cross-analyzed with a more conventional input-throughput-output approach, previously under-emphasized avenues for improvement may become apparent. **Conclusion:** A front-line ownership analysis of ED overcrowding is feasible. There are adaptive behaviors by some front-line individuals at each "level" of perspective that have been identified

https://doi.org/10.1017/cem.2018.310 Published online by Cambridge University Press

and could be modified and implemented locally to improve patient flow in the ED (and the rest of the health system).
Keywords: quality improvement and patient safety, positive deviance, complex adaptive systems

P113

A systematic review and meta-analysis of tourniquet devices for speed of application, successful hemostasis and patient tolerance

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Introduction: Tourniquets are a mainstay of hemorrhage management. However, there is insufficient evidence to guide device sselection. This review analyses the literature on tourniquets, for the following outcomes: lower-extremity arterial hemostasis, application speed, and pain. **Methods:** Studies were limited to English. Non-human studies, case series, and intra-operative applications were excluded. A systematic review of MEDLINE, PubMed, Google Scholar, and the Cochrane Database from 1992 to Dec 2017 was performed. Article citations were also assessed. **Results:** Twenty-one studies met criteria, testing 28 tourniquet devices. The most popular devices for arterial hemostasis were the Combat Application Tourniquet (C-A-T) (662 applications), Special Operations Forces Tactical Tourniquet (SOFTT) (307 applications), blood pressure cuff (80 applications), rubber tubing (58 applications) and the Emergency Medical Tourniquet (EMT) (52 applications). The blood pressure cuff achieved the highest (weighted averages) rate of 99% (95% CI 93 to 100) based on four studies of 80 applications. Followed by the EMT which achieved 83% (95% CI 72 to 93), based on three studies of 52 applications ($p < 0.01$). The fastest device to apply, taking 17 seconds (95% CI 11 to 23), was surgical tubing, based on two studies totalling 30 applications. The next fastest was the blood pressure cuff, requiring 20 seconds (95% CI 18 to 22), based on two studies totaling 58 applications (though there was no statistical difference in application time, $p = 0.08$). Tolerance could not be analyzed, due to heterogeneity of outcome measures. **Conclusion:** This is the first meta-analysis of tourniquet outcomes. The literature lacks a standard approach to device application. The quality of evidence is of very low due to the small sample sizes, lack of blinding, selective outcome reporting and result inconsistency. Common medical equipment appear to outperform commercial tourniquets for arterial hemostasis and speed of application; however, they are some of the least studied devices.
Keywords: trauma, tourniquet, hemorrhage control

P114

Blood on board: the development of a prehospital blood transfusion program in a Canadian helicopter emergency medical service

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Introduction: Prehospital blood transfusion has been adopted by many civilian helicopter emergency medical service (HEMS) agencies and early outcomes are positive. Shock Trauma Air Rescue Service (STARS) operates six bases in Western Canada and in 2013 implemented a prehospital transfusion program. We describe the processes and standard work ensuring safe storage, administration, and stewardship of this precious resource. Our aim was to produce a sustainable and safe blood storage system that could be carried on each mission flown. **Methods:** Close collaboration with transfusion services and adherence to Canadian Transfusion Standards was key at each step of development. An inexpensive, reusable, temperature controlled thermal packaging device was obtained along with an electronic temperature logger. Conditioning of the device and temperature maintenance (1 6C) was tested to ensure safe storage conditions. Online training programs were developed for air medical crew (AMC) as well as transport physicians (TPs) regarding administration indications, safety, and stewardship processes. Blood traceability and usage was monitored on an ongoing basis for quality assurance. **Results:** Two units of O negative packed red blood cells (pRBCs) are now carried on each flight. The blood box is conditioned and prepared by transfusion services for routine exchange every 72 hours. If pRBCs are administered the blood bank is immediately notified for preparation of another cooler. Unused blood is returned to blood bank circulation. **Conclusion:** The introduction of the STARS blood on board program supports the provision of emergent transfusion to selected patients in the pre-hospital environment. Our standard work and stewardship processes minimize wastage of blood products while keeping it readily available for critically ill and injured patients. Subsequent work will aim to describe characteristics and patient centred outcomes.
Keywords: quality improvement and patient safety, prehospital blood transfusion, helicopter emergency medical service

P115

Bounceback reports-improving patient care

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Introduction: Seeking patient outcome feedback (POF), defined as obtaining information on a patients clinical course beyond ones care, is crucial to the learning process. However, the lack of POF is a major pitfall of emergency medicine. Emergency department (ED) bouncebacks, which are characterized as patients with unplanned returns to the ED after being discharged, are an important type of POF to study because they represent a potential misdiagnosis or mismanagement and can highlight areas for physician self-improvement. Currently, most hospitals do not relay details about ED bouncebacks back to the treating physician, unless a grave error occurred. This studys purpose is to provide weekly reports to all physicians in the ED on patients who have unplanned returns within 7 days of discharge from the ED, and evaluate the impact this has on the physicians practice on seeking POF. **Methods:** A new weekly report was distributed to physicians working at an academic hospital outlining the patients who have returned within 7 days of discharge from the ED, their new presenting complaint and final disposition. An online survey was also administered to all ED staff evaluating the amount of POF they sought pre and post report, and their attitude towards the new reports. **Results:** 22 responses were received, for a response rate of 85%. The majority of respondents follow the reports (73%) and actively seek POF by looking up patients charts and results(70%). Additionally, 58% state that they seek POF more often since receiving these reports, for both the bouncebacks and their other patients. Furthermore, 37% claimed that the reports helped improve the appropriateness of their referrals and 32% stated it helped increase their confidence in their clinical practice. The majority of physicians (87%) found the reports to be helpful and would like to continue receiving it. **Conclusion:** Weekly bounceback reports are a high-yield tool for increasing POF sought in the ED and have benefits for both the physician and the department as a whole. They can be used to not only identify patients who may have had an error in their management, but

https://doi.org/10.1017/cem.2018.310 Published online by Cambridge University Press