low as 27% have limited widespread use of this method. Inhaled methoxyflurane (I-MEOF) offers a rapidly administered, minimally invasive option for short-term analgesia. We conducted a pilot study to evaluate the feasibility of studying whether I-MEOF increased success rates for atraumatic reduction of anterior shoulder dislocation. **Methods:** A convenience sample of 20 patients with uncomplicated anterior shoulder dislocations were offered the Cunningham reduction method supported by methoxyflurane analgesia under the guidance of an advanced care paramedic. Operators were instructed to limit their attempt to the Cunningham method. Outcomes included success rate without the requirement for PSA, time to discharge, and operator and patient satisfaction with the procedure. **Results:** 20 patients received I-MEOF and an attempt at Cunningham reduction. 80% of patients were male, median age was 38.6 (range 18-71), and 55% were first dislocations of that joint. 35% (8/20 patients) had reduction successfully achieved by the Cunningham method under I-MEOF analgesia. The remainder proceeded to closed reduction under PSA. All patients had eventual successful reduction in the ED. 60% of operators reported good to excellent satisfaction with the process, with inadequate muscle relaxation being identified as the primary cause of failed initial attempts. 80% of patients reported good to excellent satisfaction. **Conclusion:** Success with the Cunningham technique was marginally increased with the use of I-MEOF, although 65% of patients still required PSA to facilitate reduction. The process was generally met with satisfaction by both providers and patients, suggesting that early administration of analgesia is appreciated. Moreover, one-third of patients had reduction achieved atraumatically without need for further intervention. A larger, randomized study may identify patient characteristics which make this reduction method more likely to be successful.

Keywords: methoxyflurane, procedural sedation and analgesia, shoulder dislocation

P008

Care of palliative patients by paramedics in the 911 system

C. Wallner, BSc, MD, MCR, M. Welsford, BSc, MD, K. Lutz-Graul, BSc, K. Winter, BSc, MBA, McMaster University, Hamilton, ON

Introduction: Palliative Care aims to relieve suffering and improve the quality of living and dying in patients with life-limiting, progressive conditions. Many patients and families prefer to stay at home at end of life. Despite this, many access 911 in times of apparent crisis. It has been noted in the literature that a well functioning palliative care system includes considering Emergency Medical Services as part of the patients' circle of care. Training in palliative care is traditionally limited or absent for prehospital clinicians, including Paramedics and Emergency Medical Services Physicians. Furthermore, in our region, there are currently no medical directives available to Paramedics within the 911 system specifically addressing the needs of palliative care patients. **Methods:** A feasibility study (Expanding Care by Paramedics for Palliative Patients – EC3P) was designed to evaluate implementation of a new palliative care medical directive with trained teams of Paramedics available to respond to 911 calls. As part of this study, a pre-implementation retrospective chart review was performed. Patient care records were screened for "palliative" within the past medical history and text fields. Information about dispatch and scene times, patient demographics, details of patient encounter, and disposition of the patient were recorded. Descriptive statics were used. **Results:** Data was reviewed for all calls in 2018. Call data was reviewed to exclude those that were pediatric (<18yo) and those whose palliative status was unknown or unclear. There was a total of 318 calls. The majority of the calls (83%) were between 7am and 8pm, with peaks at 10 am and 6pm. The majority were transported to hospital (74%), 16% were transferred to hospital initiated by their palliative care physician, 20% "refused" transport, and 6% were declared dead and not transported. The most common reasons for calling 911 were new symptoms or a sudden worsening of chronic symptoms, followed by needs exceeding caregiver capacity; the third most common was lift assist without apparent injury. **Conclusion:** Much is unknown about the palliative patient population as it intersects with prehospital emergency care. This study will help provide information needed to guide further research and implementation.

Keywords: emergency medical services, palliative care

P009

Quality improvement and implementation of urine culture follow up process

N. Walji, MBChB, MSc, A. Greer, BSc, MD, M. Hewitt, BSc, MD, M. BinKharfi, MBBS, McMaster University, Hamilton, ON

Background: The diagnosis of urinary tract infection (UTI) is made based on symptoms, urinalysis and urine culture. While simple urinary tract infections do not require routine culture, the Infectious Disease Society of America (IDSA) Guidelines state that complicated urinary tract infections should have urine cultures performed to determine which antibiotics are effective, as there is a higher risk of infection with resistant organisms. We hypothesized that the rate of urine cultures sent for complicated UTI is less than is recommended by the literature. **Aim Statement:** We aimed to implement a follow-up reporting system for Urinary Culture in patients diagnosed with complicated UTIs and raise our Urinary Culture rates in this population to 80% by June 2019. **Measures & Design:** We performed a single-center chart review using Emergency Department (ED) charts of non-admitted patients. They were audited daily for two weeks to obtain a sample of patients who had a discharge diagnosis of urinary tract infection, pyelonephritis or cystitis. Charts capturing these diagnoses were assessed to see if a culture was clinically indicated and if it was ordered. Charts were screened for the presence of any of the following criteria indicating complicated UTI: known structural or functional abnormality of the urinary tract, genitourinary obstruction, pregnancy, immunosuppression, diabetes, indwelling or intermittent catheter use, fever, male patient, clinical pyelonephritis, antimicrobial failure, or transfer from a nursing home. Data was then compiled to determine culture rates in complicated and uncomplicated UTIs. This prevalence rate established the baseline performance in the ED which was used to inform the quality improvement project. **Evaluation/Results:** Over a two week period, 26 patients were discharged from the ED with a diagnosis of UTI, with 17 of these patients meeting criteria for complicated UTI. Only 6 of 17 complicated UTIs were sent for urine culture, therefore our pre-implementation culture rate was 35%. After initial data collection, a follow-up system was designed ensuring that urine culture and sensitivities results would be compiled and reviewed daily at Hamilton Health Sciences. This system was created with input from key stakeholders including department chiefs, core lab services, ED physicians and business clerks. A discrepancy form was created for documentation of culture result recognition and any required patient follow up ie. antibiotic change. In October 2019, the system had been implemented for a month, after which another chart review was completed. 27 cases were captured, 18 of which were complicated. The

https://doi.org/10.1017/cem.2020.217 Published online by Cambridge University Press

complicated culture rate had increased significantly from 35% to 72%. **Discussion/Impact:** In the ED, ordering of cultures for patients being discharged, regardless of type, is commonly associated with concern of result follow up, which may take up to 72 hours. This discrepancy system was implemented to ensure that all urine cultures ordered had appropriate follow up, thus supporting physicians in ordering cultures when indicated. The significant improvement in culture rate from 35% to 72% is balanced by one single culture of all 9 simple UTIs (11%). In PDSA cycle 2, we hope to increase rates to 90% by improving current challenges with the system.
Keywords: complicated urinary tract infection, quality improvement and patient safety, urine culture

P010

An examination of sample size selection in medical record reviews in emergency medicine journals

J. Vinken, BKI, MA, M. Bilic, BSc, R. Jones, BSc, S. Upadhye, BSc, MD, MSc, McMaster University, St. Catharines, ON

Introduction: Medical record review (MRR) studies are commonly used in Emergency Medicine (EM) research. It is not always clear how sample size calculations are reported, or the methods by which they were derived. This scoping review sought to examine reporting and justification of MRR sample sizes from the EM literature. **Methods:** Using Web of Science, we identified the top ten journals, based on impact factor rating in 2018, within the field of Emergency Medicine. Journals were excluded if they were not in English or did not include sufficient articles for analysis. Within each of these ten selected journals, we searched for chart reviews and related terms: "medical record", "outpatient record", "inpatient record", "clinical record", and "nursing note". From this search subset, five articles were randomly selected from each journal. Data about sample size and sample size selection were extracted and analyzed by two reviewers independently for each article. **Results:** Of the 50 articles randomly selected, 48 articles were retrospective MRRs and two articles were prospective MRRs. 78% (39 articles) chose sample size based on availability, 14% (seven articles) chose sample size based on power calculations, 4% (two articles) chose sample size based on a previous study's methodology, and 4% (two articles) did not give details on sample size selection. **Conclusion:** While some emergency medicine MRRs based sample size selection on power or previous studies, the vast majority are based on availability with study-specific exclusion/inclusion criteria. This may indicate they are using a smaller sample size than necessary to be sufficiently powered to assess their end goal. More work is required to determine the effect of this on outcomes and interpretability of results, as well as which method is most accurate and efficient.
Keywords: medical record review, sample size calculation, sample size decision making

P011

A learning module for better medical record review research.

J. Vinken, BKI, MA, S. Upadhye, BSc, MD, MSc, McMaster University, St. Catharines, ON

Innovation Concept: The objective of this research study was to create a flipped classroom, interactive, experiential learning module on how to do a medical record review study. It is designed for medical students, residents, physicians, and researchers to have a remote, online, but interactive experience that expands on textbook concepts. The "flipped classroom" means that learners will guide their own education. This learning module will include a pre-test, interactive video module, and a post-test. These components will ensure each learner reaches previously set learning goals and not only solidify the learning of learners but validate the educational method, proving its value. **Methods:** A review of the literature indicates that medical record review is a valuable method of research in emergency medicine however researchers may encounter methodological difficulties, and sometimes medical record reviews are performed in a suboptimal manner due to these difficulties. We are creating a learning module that builds off of the chapter in the Royal College Research Guide and elaborates on various elements, including sample size calculation. Previous work indicates that a flipped classroom approach in medicine to learning has been well developed and is backed by evidence as well as learner preference to guide their own learning. **Curriculum, Tool, or Material:** The learning module was initiated from the Royal College Research Guide chapter on how to conduct medical record review research. The module is a white board drawing style video that combines elements of explanation and elaboration of the chapter information and a step by step, learner-interactive example of a medical record research project creation. **Conclusion:** Medical record review research is accessible to many researchers due to the availability of data. This innovation would help ensure that with this availability, good research is being conducted. Future steps will involve testing and validating this learning module using the pre and post-tests, and expanding to create other, similar modules for other Royal College Research Guide chapters.
Keywords: flipped classroom, innovations in EM education, medical record review

P012

Does physician burnout differ between urban and rural emergency medicine physicians? A comparison using the Maslach Burnout Inventory tool

R. Leigh, MD, K. Van Aarsen, MSc, L. Foxcroft, MD, R. Lim, MD, London Health Science Centre, London, ON

Introduction: Previous literature suggests that emergency medicine physicians experience high levels of work-related burnout. However, these results are drawn primarily from physicians working in large urban emergency departments. The aim of this study was to compare physician wellness between emergency medicine physicians working in urban versus rural settings. **Methods:** Emergency medicine physicians were recruited to complete a wellness survey from both urban and rural emergency medicine departments in Southwestern Ontario. The primary outcome measure of interest was physician burnout as measured by the Maslach Burnout Inventory-Human Services Survey (MBI-HSS). This survey tool measures physician burnout in the three domains of emotional exhaustion, depersonalization, and personal accomplishment. Descriptive statistics, paired t-tests and Mann-Whitney U tests were used to analyze parametric and non-parametric burnout domain data respectively. **Results:** Surveys were completed by 67/99 (68%) and 22/66 (33%) of urban and rural emergency medicine physicians, respectively. An emotional exhaustion score ≥27 OR a depersonalization sub-score ≥10 was considered the threshold for burnout and was found in 71.4% (40/56) of urban physicians surveyed and 85.7% (18/21) (P = 0.20) of rural physicians. No statistically significant difference in mean emotional exhaustion, depersonalization, or personal accomplishment was noted between groups. **Conclusion:** High levels of burnout were noted amongst both urban and rural emergency medicine physicians. No statistically

https://doi.org/10.1017/cem.2020.217 Published online by Cambridge University Press