Methods: A comprehensive review of the literature was conducted surrounding decision-making for incapacitated and unrepresented patients in the hospital setting. Articles were identified using MEDLINE (1946-October 2015) and Embase (1974-October 2015). The reference lists of relevant articles were hand searched. Articles describing decision-making processes that have been proposed, tested or applied in practice were chosen for full review. The aim of this review was to outline recognized medical decision-making processes for incapacitated and unrepresented patients, and to identify areas for future research. **Results:** The search yielded 20 articles addressing decision-making for incapacitated and unrepresented patients in the hospital setting. All of these articles focus on the intensive care unit and other hospital wards; no literature on the ED setting was found. Five types of formal consulting bodies exist to assist physicians in applying the best interest standard for this patient cohort: internal hospital ethics committees, external ethics committees, public guardians, court-appointed guardians, or judges. The majority of decisions for these patients, however, are made informally by a single physician or by a healthcare team, although it is well recognized that this approach lacks appropriate safeguards. There is no consensus surrounding the optimal approach to decision-making in these cases, and as such there is significant inconsistency in how medical decisions are made for these patients. **Conclusion:** There are several articles describing decision-making processes for incapacitated and unrepresented patients, none of which focus on the ED. These processes are not practical for use in the ED. Further inquiry is needed into the most ethical and respectful method of decision-making for this patient cohort in the ED.

Keywords: ethics, geriatrics

P141

Limited variation in diagnostic imaging use among emergency department physicians

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Introduction: Use of diagnostic imaging in the emergency department (ED) has significantly increased over time. The decision to use a certain type of imaging, if any at all, is not always clear. Accordingly, concerns of appropriateness are justified. A starting point to assess imaging appropriateness is to measure variation in its use. It has been suggested that where large variation exists, there may be inappropriate use. **Methods:** We retrospectively studied consecutive ED visits at North York General Hospital between April 1, 2009 and March 31, 2013 (n = 316,251), and developed a two-level hierarchical logistic regression model to quantify inter-physician variation in imaging use (high-cost imaging: computed tomography (CT), magnetic resonance (MR), nuclear medicine; low-cost: plain radiography, ultrasound) in the ED after adjusting for patient-, visit- and physician-level factors. **Results:** Plain radiography or ultrasound examinations were performed during 36.3% of ED visits; CT, MR, or nuclear medicine examinations were performed during 10.6% of ED visits; 4.1% of ED visits had both high- and low-cost imaging. After adjusting for patient-, visit- and physician-specific factors, only 2.4% and 2.2% of the variation regarding whether or not an ED visit resulted in at least one high-cost and low-cost imaging test, respectively, was attributable to individual physician practice patterns. Physicians who had a tendency to obtain more low-cost imaging also obtained more high-cost imaging, and those who obtained less low-cost imaging also obtained less high-cost imaging. **Conclusion:** Only a small portion of the variation in imaging use was attributed to differences in ED physician ordering patterns, however, these findings may still help promote discussion among clinicians, and improve imaging utilization.

Keywords: variation, case-mix adjustment, hierarchical logistic regression

P142

The anticoagulated trauma patient: a Canadian experience in the era of direct oral anticoagulants

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Introduction: The anticoagulated trauma patient is a particularly vulnerable population. Our current practice is guided by experience with patients taking vitamin K dependent antagonists (VKA, like warfarin). It is currently unknown how the increasing use of direct oral anticoagulants (DOACs) will change our trauma population. We collected data about this new subset of patients to compare their clinical characteristics to patients on pre-injury VKA therapy. **Methods:** Retrospective review of anticoagulated trauma patients presenting to Toronto's two adult trauma centres, Saint Michael's Hospital and Sunnybrook Health Sciences Centre, from June 2014-June 2015 was undertaken. Patients were recruited through the institutions' trauma registries and were eligible if they suffered a traumatic injury and taking an oral anticoagulant pre-injury. Clinical and demographic data were extracted by a trained reviewer and analysed with descriptive statistics. **Results:** Our study recruited 85 patients, 33% were taking DOACs and 67% VKAs. Trauma patients on DOACs & VKAs respectively had similar baseline characteristics such as age (75.9 vs 77.4), initial injury severity score (ISS (16.9 vs 20.6)) and concomitant antiplatelet use (7.1% vs 5.4%). Both groups' most common mechanism for injury was falls and the most common indication for anticoagulation was atrial fibrillation. Patients on DOACs tended to have lower average INR (1.25 vs 2.3) and serum creatinine (94.9 vs 127.4). **Conclusion:** Patients on DOACs pre-injury now account for a significant proportion of orally anticoagulated trauma patients. Patients on DOACs tended to have less derangement of basic hematological parameters complicating diagnosis and management of coagulopathy.

Keywords: direct oral anticoagulants, bleeding

P143

Retrospective review of microbiology results in adult patients presenting to the emergency department with acute epididymitis

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Introduction: North American practice guidelines for empiric antibiotic selection in the treatment of epididymitis are based on very small studies. These guidelines recommend antibiotic selection based on age. This study's objective was to determine if culture results in a Canadian emergency department population with acute epididymitis support these guidelines. **Methods:** We conducted an electronic health records review ED patients with a discharge diagnosis of epididymitis. All patients who presented to two emergency department sites of the Ottawa Hospital from 2012 through 2014 were included. Data collected were patient age, urine culture results, results of urine or urethral swab nucleic acid amplification test (NAAT) for gonorrhea or chlamydia, and results of scrotal ultrasound. Ultrasound radiology reports were independently reviewed by two authors and classified as positive, negative, or indeterminate. **Results:** We identified 379 cases of epididymitis. There were

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169 patients aged 18-35 years, and 202 patients over 35 years. The rates of positive urine culture, in the under 35 and over 35 population respectively, were 5% and 42% ($p < .0001$). The rates of positive NAAT were 10% and 4% ($p = .43$). Ultrasound was performed in 252 patients; 160 (63%) were positive. There was no significant difference in the rates of positive urine culture or NAAT between the ultrasound-positive patients and patients who had negative, indeterminate, or no ultrasound. **Conclusion:** Our findings are not concordant with clinical practice guidelines. While the over 35 age group had a statistically higher rate of positive urine culture, the rate of positive NAAT was not different from the younger group. Both urine culture and NAAT are usually negative in the under 35 group. Positive culture rates are not higher in the subgroup of ultrasound "proven" epididymitis. Physicians should exercise clinical judgement in selecting empiric antibiotics for patients with epididymitis; basing choice on patient age alone may not be appropriate.
Keywords: epididymitis, sexually transmitted infections (STI), antibiotic

P144

Sentinel visits in emergency department patients with diabetes mellitus as a warning sign for hyperglycemic emergencies

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Introduction: Patients with poorly controlled diabetes mellitus (DM) often visit the emergency department (ED) for management of hyperglycemia, diabetic ketoacidosis (DKA) and hyperosmolar hyperglycemic state (HHS). Many of these patients have a "sentinel" ED visit for other medical conditions prior to their hyperglycemic visit, which may worsen their glucose control. The objective of this study was to describe the epidemiology and outcomes of patients presenting with a sentinel ED visit prior to their visit for a hyperglycemic emergency. **Methods:** This was a health records review of patients ≥ 18 years presenting to one of four tertiary care EDs (combined annual census 300,000) with a discharge diagnosis of DM, hyperglycemia, DKA or HHS in a one-year period. Visits for hypoglycemia were excluded. Trained research personnel collected data from medical records including demographics, clinical history and results of investigations. Electronic charts were reviewed to determine if the patient came to the ED within the prior 14 days of their index hyperglycemia visit, and the details and outcomes surrounding both visits. Descriptive statistics were used where appropriate to summarize the data. **Results:** From January-December 2014, 609 ED visits had a discharge diagnosis of hyperglycemia. Mean (SD) age was 50.4 (19.5) years, and 343 (56.3%) were male. 101/609 visitors (16.6%) had an ED presentation within the previous 14 days from their hyperglycemia visit. 71 (70.3%) of these were discharged from this initial visit and 49/71 (69.0%) were discharged either without their blood glucose checked or with an elevated blood glucose (>11.0 mmol/L). Of the sentinel visits, 58 (57.4%) were for hyperglycemia and 15 (14.9%) were for infection. Upon returning to the ED, 45/101 (44.6%) visitors were subsequently admitted for management of severe hyperglycemia, DKA or HHS. **Conclusion:** This unique ED-based study demonstrates that patients with DM presenting with hyperglycemia or infection often return and may ultimately require admission. Clinicians should be vigilant in checking blood glucose when these patients present to the ED and provide clear discharge instructions for follow-up and glucose management. Future research should focus on improving glycemic control in these patients in order to prevent further hyperglycemic emergencies from occurring.
Keywords: diabetes, adverse events, sentinel visits

P145

HIV point of care testing by community paramedics in a vulnerable population: a pilot study

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Introduction: Literature suggests that up to 25% of people with HIV in North America are unaware of their status and are at risk to transmit the virus unknowingly. A high proportion of HIV patients are diagnosed when the disease is more advanced, with CD4 counts < 200. This study examined the rates of HIV testing, detection, and treatment of clients at an inner city shelter and detoxification centre after the introduction of a point of care testing (POCT) program by on-site community paramedics (CP). **Methods:** In 2013, in collaboration with a regional HIV program, CP received training and instituted an HIV POCT program and post-test counselling initiative. A retrospective electronic database review from October 16, 2013 to October 15, 2014 of adult patients who received testing was performed. Demographic and testing details of each patient encounter were abstracted and select variables were compared to a historic population who received POC HIV testing at an inner city emergency department (ED) in the same city. **Results:** 1,207 HIV POC tests were performed on 997 patients during the pilot. 57% of the patients tested were less than 40 years of age (range 18-73 years) compared to 55% in the historic ED population. A total of 9 reactive cases were identified in the study population including 3 new cases, 5 previously known cases, and 1 false reactive result. The mean age of the new cases was 47 years, vs 44 in the historical control. All 3 new cases were referred to a local HIV clinic for further care and treatment. New HIV cases represented 0.25% of total tests performed, which is less than the expected prevalence rate of 1% for this population, as well as the rate of 1.4% found in the ED population. **Conclusion:** Despite lower than expected reactive rates, the large scale implementation of a CP HIV POCT program in an inner city shelter and detoxification centre is feasible. All patients with new reactive tests were immediately connected to care. Future research will focus on risk factors and barriers to testing.
Keywords: community paramedicine, human immunodeficiency virus (HIV), point of care

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Designing better continuing education for rural emergency physicians

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Introduction / Innovation Concept: Rural emergency physicians often work alone, and identify higher needs for continuing professional development in emergency medicine (EM) than urban doctors. We have offered the Community Emergency Medicine Outreach program (CEMO) at 12 rural hospitals in Eastern Ontario since 2009. Each emergency team selects topics in Adult EM for discussion at half-day outreach sessions at their local hospital. **Methods:** The CEMO program director participated in a Masters of Health Professions Education program. Newly learned concepts were applied to further the development of CEMO. **Curriculum, Tool, or Material:** Five important lessons learned, and their impacts on CEMO: First, curriculum design is a dynamic process. While CEMO was originally developed for physicians, the program has attracted many participants from other disciplines including nurses, administrators, pharmacists, and learners. Content and delivery have been redesigned to enhance interprofessional learning, which promotes team harmony, local problem