

skills performance in beginners and intermediate learners in a systematic review. The objective of this study was to conduct a systematic review of the interrelationship between spatial abilities, anatomy knowledge and technical skills. **Methods:** Search criteria included 'spatial abilities', 'anatomy knowledge' and 'technical skills'. Keywords related to these criteria were identified. A literature search was done up to November 9, 2018 in Scopus and in several medical and educational databases on Ovid and EBSCOhost platforms. A bank of citations was obtained and was reviewed independently by two investigators. Citations related to abstracts, literature reviews, theses and books were excluded. Articles related to retained citations were obtained and a final list of articles was established. Methods relating spatial abilities testing, anatomy knowledge assessment and technical skills performance were identified. **Results:** A series of 385 titles and abstracts was obtained. After duplicates were removed and selection criteria applied, 11 articles were retained, fully reviewed, and subsequently excluded with reasons. **Conclusion:** No eligible articles were found in a systematic review of the interrelationship between spatial abilities, anatomy knowledge and technical skills. The outcome of future studies could help to further understand the cognitive process involved in learning a technical skill in Emergency Medicine.

Keywords: anatomy knowledge, spatial abilities, technical skills

P069

Implementing supervised consumption service access for emergency department patients

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Background: Unintentional opioid overdoses in and around acute care hospitals, including in the ED, are of increasing concern. In April 2018, the Addiction Recovery and Community Health (ARCH) Team at the Royal Alexandra Hospital opened the first acute care Supervised Consumption Service (SCS) in North America available to inpatients. In the SCS, patients can consume substances by injection, oral or intranasal routes under nursing supervision; immediate assistance is provided if an overdose occurs. After a quality assurance review, work began to expand SCS access to ED patients as well.

Aim Statement: By expanding SCS access to ED patients, we aim to reduce unintentional and unwitnessed opioid overdoses in registered ED patients to 0 per month by the end of 2020. **Measures & Design:** Between June 13-July 15, 2019, ARCH ED Registered Nurses were asked to identify ED patients with a history of active substance use who may potentially require SCS access. Nurses identified 69 patients over 43 8-hour shifts (range 0-4 patients per shift); thus, we anticipated an average of 5 ED patients per 24-hour period to potentially require SCS access. Based on this evidence of need, ARCH leadership worked with a) hospital legal team and Health Canada to expand SCS access to ED patients; b) ED leadership to develop a procedure and flowchart for ED SCS access. ED patients were able to access the SCS effective October 1, 2019. **Evaluation/Results:** From October 1 to December 1, 2019, the SCS had 35 visits by 23 unique ED patients. The median time spent in the SCS was 42.5 minutes (range 14.0-140.0 minutes). Methamphetamine was the most commonly used substance (19, 45.2%), followed by fentanyl (10, 23.8%); substances were all injected (91.4% into a vein and 8.6% into an existing IV). In this time period, there were zero unintentional,

unwitnessed opioid poisonings in registered ED patients. Data collection is ongoing and will expand to include chief complaint, ED length of stay and discharge status. **Discussion/Impact:** Being able to reduce unintentional overdoses and unwitnessed injection drug use in the ED has the potential to improve both patient and staff safety. Next steps include a case series designed to examine the impact of SCS access on emergency care, retention in treatment and uptake into addiction treatment.

Keywords: overdose, quality improvement and patient safety, supervised consumption

P070

A systematic assessment of opioid-related advertisements aimed at emergency physicians in North America

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Introduction: The opioid epidemic has been influenced by immense marketing campaigns produced by pharmaceutical companies. These campaigns include advertisements aimed at emergency medicine (EM) physicians, which may have influenced overprescription. This study is a part of a larger effort to systematically assess opioid ads published in major medical journals in North America. To our knowledge, this is the first study to systematically assess the volume, claims, and levels of evidence for opioid ads aimed at EM physicians.

Methods: Up to two issues per year from 1996 to 2016 of ten major North American medical journals were hand-searched for opioid advertisements. Specifically, we assessed random samples of issues from five major North American emergency medicine journals, including *Annals of Emergency Medicine*, *Emergency Medicine*, *Canadian Journal of Emergency Medicine*, *Emergency Medicine Journal*, and *American Journal of Emergency Medicine*. Five generalist medical journals were assessed including *Journal of the American Medical Association*, *New England Journal of Medicine*, *Canadian Medical Association Journal*, *American Family Physician*, and *Canadian Family Physician*. The volume of advertisements, nature of the claims, and cited evidence were collected by independent reviewers. The referenced evidence was assessed using the Oxford Centre for Evidence-Based Medicine Levels of Evidence rubric. **Results:** Of the 269 issues across the ten journals, opioid ads comprised 95 of the 3392 pharmaceutical advertisements with 79 opioid ads available for analysis. When analysis was completed with two reviewers, inter-rater agreement was rated as 99.87 (Cohen's kappa of 0.976). 37/79 ads did not mention the addictive potential of opioids, with 60/79 not mentioning the possibility of death. The tamper potential of medications was mentioned in 27/79 ads. Positive claims included efficacy (47/79), fast-acting ability (16/79), patient preference (5/79), convenience (26/79) and reduced side effects (22/79). 26/79 cited references directly in their text. Citations were provided for a total of 19 available original studies, of which a majority (16/19) were Level 2 evidence. Upon examination of conflicts of interest, 100% (19/19) of the referenced studies were funded by a pharmaceutical company. **Conclusion:** A variety of claims were published in medical journals through opioid advertisements, which cite industry studies. Many ads did not mention key negative information, which may have influenced EM physician prescribing.

Keywords: advertisement, opioid

P071**Artificial intelligence in emergency medicine: A scoping review**

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Introduction: The study of artificial intelligence (AI) in medicine has become increasingly popular over the last decade. The emergency department (ED) is uniquely situated to benefit from AI due to its power of diagnostic prediction, and its ability to continuously improve with time. However, there is a lack of understanding of the breadth and scope of AI applications in emergency medicine, and evidence supporting its use. **Methods:** Our scoping review was completed according to PRISMA-ScR guidelines and was published a priori on Open Science Forum. We systematically searched databases (Medline-OVID, EMBASE, CINAHL, and IEEE) for AI interventions relevant to the ED. Study selection and data extraction was performed independently by two investigators. We categorized studies based on type of AI model used, location of intervention, clinical focus, intervention sub-type, and type of comparator. **Results:** Of the 1483 original database citations, a total of 181 studies were included in the scoping review. Inter-rater reliability for study screening for titles and abstracts was 89.1%, and for full-text review was 77.8%. Overall, we found that 44 (24.3%) studies utilized supervised learning, 63 (34.8%) studies evaluated unsupervised learning, and 13 (7.2%) studies utilized natural language processing. 17 (9.4%) studies were conducted in the pre-hospital environment, with the remainder occurring either in the ED or the trauma bay. The majority of interventions centered around prediction ($n = 73$, 40.3%). 48 studies (25.5%) analyzed AI interventions for diagnosis. 23 (12.7%) interventions focused on diagnostic imaging. 89 (49.2%) studies did not have a comparator to their AI intervention. 63 (34.8%) studies used statistical models as a comparator, 19 (10.5%) of which were clinical decision making tools. 15 (8.3%) studies used humans as comparators, with 12 of the 15 (80%) studies showing superiority in favour of the AI intervention when compared to a human. **Conclusion:** AI-related research is rapidly increasing in emergency medicine. AI interventions are heterogeneous in both purpose and design, but primarily focus on predictive modeling. Most studies do not involve a human comparator and lack information on patient-oriented outcomes. While some studies show promising results for AI-based interventions, there remains uncertainty regarding their superiority over standard practice, and further research is needed prior to clinical implementation.

Keywords: artificial intelligence, machine learning, technology

P072**Preventing emergency department visits among patients with cancer: a scoping review**

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Introduction: Patients frequently present to the Emergency Department (ED) with predictable complications associated with radiation and chemotherapy for active cancer. Care alternatives have been proposed to reduce ED visits; however, no systematic review related to ED presentations has been completed. The objective of this scoping review was to examine the effectiveness of interventions designed to reduce ED visits among patients receiving active cancer treatment. **Methods:** A comprehensive literature search involving nine electronic databases and the grey literature was completed. Inclusion criteria considered studies assessing the impact of any intervention to reduce ED

utilization among patients with active cancer. Two reviewers independently assessed relevance and inclusion; disagreements were resolved through third party adjudication. Dichotomous and continuous outcomes were summarized as risk ratio (RR) or mean difference (MD) with 95% confidence intervals (CIs) using a random-effects model, wherever appropriate. **Results:** From 3303 citations, a total of 25 studies were included. Interventions identified in these studies comprised: routine and symptom-based patient follow-up, oncology outpatient clinics, early symptom detection, comprehensive inpatient management, hospital at home, and patient navigators. Six out of eight studies assessing oncology outpatient clinics reported a decrease in the proportion of patients presenting to the ED. A meta-analysis of three of these studies did not demonstrate reduction in ED utilization (RR 0.78; 95% CI: 0.56 to 1.08; I² = 77%) when comparing oncology outpatient clinics to standard care; however, sensitivity analysis removing one study reporting rare events supported a decrease in ED visits (RR 0.86; 95% CI: 0.74 to 0.99; I² = 47%). Three studies assessing patient follow-up interventions showed no difference in ED utilization (RR 0.69; 95% CI: 0.38 to 1.25; I² = 86%). **Conclusion:** A variety of interventions designed to mitigate ED presentations by patients receiving active cancer treatment have been developed and evaluated. Limited evidence suggests that an oncology outpatient clinic may be an effective strategy to reduce ED utilization; however, additional high-quality studies are needed.

Keywords: cancer, emergency department

P073**Emergency department trauma team in situ simulations at an urban, academic centre to improve team communication and detect latent safety threats**

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Innovation Concept: Effective communication for ad hoc teams is critical to successful management of multisystem trauma patients, to improve situational awareness and to mitigate risk of error. **OBJECTIVES** 1. Improve communication of ad hoc teams. 2. Identify system gaps. **INNOVATION** Team in situ simulations provide a unique opportunity to practice communication and assess systems in the real environment. Our trauma team consists of residents and staff from emergency services, general surgery, orthopedics, anaesthesia, nursing and respiratory therapy. **Methods:** A team of subject matter experts (SME's) from trauma, nursing, emergency medicine and simulation co-developed curriculum in response to a needs assessment that identified gaps in systems and team communication. The simulation occurred in the actual trauma bay. The on-call trauma team was paged and expected to manage a simulated multisystem trauma patient. Once the team arrived, they participated in a briefing, manikin-based simulation and a communication and system focused debriefing. **Curriculum, Tool, or Material:** Monthly scenarios consisted of management of a blunt trauma patient, emergency airway and massive hemorrhage protocol. Teams were assessed on communication skills and timeliness of interventions. Debriefing consisted of identification of system gaps and latent safety threats. Feedback was given by each discipline followed by SME's. Information was gathered from participant evaluations (5-point Likert scale and open ended questions) and group debrief. Feedback was themed and actions taken to co-create interventions to communication gaps and latent safety threats. As a result, cricothyroidotomy trays were standardized