

in emergency department and time to see an MD were greater among people experiencing homelessness. **Conclusion:** Administrative health data allows researchers to enhance interventions and models of care to improve services for vulnerable populations. Given the challenging fiscal realities of research, our study provides insights to more effectively target interventions for vulnerable populations.

**Keywords:** data, homelessness, interventions

#### P085

##### Remember that patient you saw last week – Characteristics of patients experiencing unanticipated death following emergency department discharge

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**Background:** The emergency department (ED) is an at-risk area for medical error. We measured the frequency and characteristics of patients with unanticipated death within 7 days of ED discharge and whether medical error contributed. **Aim Statement:** This study aimed to calculate the frequency of patients experiencing death within 7 days after ED discharge and determine whether these deaths were related to their index ED visit, were unanticipated, and whether possible medical error occurred. **Measures & Design:** We performed a single-centre health records review of 200 consecutive cases from an eligible 458,634 ED visits from 2014–2017 in two urban, academic, tertiary care EDs. We included patients evaluated by an emergency physician who were discharged and died within 7 days. Three trained and blinded reviewers determined if deaths were related to the index visit, anticipated or unanticipated, or due to potential medical error. Reviewers performed content analysis to identify themes. **Evaluation/Results:** Of the 200 cases, 129 had sufficient information for analysis, translating to 44 deaths per 100,000 ED discharges. We found 13 cases per 100,000 ED discharges were related and unanticipated deaths and 18 of these were due to potential medical errors. Over half (52.7%) of 129 patients displayed abnormal vital signs at discharge. Patients experienced pneumonia (27.1%) as their most common cause of death. Patient characteristic themes were: difficult historian, multiple complaints, multiple comorbidities, acute progression of chronic disease, recurrent falls. Provider themes were: failure to consider infectious etiology, failure to admit high-risk elderly patient, missed diagnosis. System themes included multiple ED visits or recent admission, no repeat vital signs recorded. **Discussion/Impact:** Though the frequency of related and unanticipated deaths and those due to medical error was low, these results highlight opportunities to potentially enhance ED discharge decisions. These data add to the growing body of ED diagnostic error literature and emphasize the importance of identifying potentially high risk patients as well as being cognizant of the common medical errors leading to patient harm.

**Keywords:** medical error, quality improvement and patient safety, unanticipated death

#### P086

##### Violence prevention strategies in emergency departments: Key informant interviews

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**Introduction:** Emergency Departments (EDs) are at high risk of workforce-directed violence (WDV). To address ED violence in Alberta Health Services (AHS), we conducted key informant interviews to identify successful strategies that could be adopted in AHS EDs. **Methods:** The project team identified potential participants through their ED network; additional contacts were identified through snowball sampling. We emailed 197 individuals from Alberta (123), Canada (46), and abroad (28). The interview guide was developed and reviewed in partnership with ED managers and Workplace Health and Safety. We conducted semi-structured phone interviews with 26 representatives from urban and rural EDs or similar settings from Canada, the United States, and Australia. This interview process received an ARECCI score of 2. Two researchers conducted a content analysis of the interview notes; rural and urban sites were analyzed separately. We extracted strategies, their impact, and implementation barriers and facilitators. Strategies identified were categorized into emergent themes. We aggregated similar strategies and highlighted key or unique findings. **Results:** Interview results showed that there is no single solution to address ED violence. Sites with effective violence prevention strategies used a comprehensive approach where multiple strategies were used to address the issue. For example, through a violence prevention working group, one site implemented weekly violence simulations, a peer mentorship support team, security rounding, and more. This multifaceted approach had positive results: a decrease in code whites, staff feeling more supported, and the site no longer being on union “concerned” lists. Another promising strategy included addressing the culture of violence by increasing reporting, clarifying policies (i.e., zero tolerance), and establishing flagging or alert systems for visitors with violent histories. Physician involvement and support was highly valued in responding to violence (e.g., support when refusing care, on the code white response team, flagging). **Conclusion:** Overall, one strategy is not enough to successfully address WDV in EDs. Strategies need to be comprehensive and context specific, especially when considering urban and rural sites with different resources available. We note that few strategies were formally evaluated, and recommend that future work focus on developing comprehensive metrics to evaluate the strategies and define success.

**Keywords:** violence in healthcare, violence prevention

#### P087

##### A comparison of how emergency physicians and plastic surgeons evaluate and triage pediatric hand fractures: a prospective trial of the Calgary Kids’ Hand Rule

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**Introduction:** Hand fractures in children are common and most are adequately managed with immobilization alone. There is a subset of fractures that require surgery as well as a fear of growth plate disturbance. For these reasons, triaging the so-called “complex” fractures that require specialized care by a hand surgeon is critical. In an effort to improve triaging for pediatric hand fractures, we previously derived and internally validated a prediction model for pediatric hand fracture triage using multivariable logistic regression with bootstrapping. The primary outcome was “complex fracture”, a definition we assigned to any fractures that required surgery, closed reduction or more than four appointments with a plastic surgeon. The model identified six significant predictors of complex fractures: angulation, condylar involvement, dislocation or subluxation, displacement, open fracture,

and malrotation with strong performance (C-statistic 0.88) and was named the Calgary Kids' Hand Rule (CKHR). **Methods:** A prospective cohort study was conducted at the Alberta Children's Hospital from April 1 until December 31, 2019. Eligible patients included children 17 years and younger with a radiographically confirmed hand fracture. Both emergency physicians and plastic surgeons completed independent CKHR forms for each new hand fracture. The fracture was predicted as "complex" if any one of the six predictors were present on the form. If none of the six predictors were present, the predicted outcome was "simple". The observed outcome was "complex" if the fracture required surgery, closed reduction, or four or more appointments with a plastic surgeon at three months follow-up. All other fractures were observed outcome "simple". The classification performance of the CKHR was assessed via sensitivity, specificity, and C-statistic. The kappa coefficient for inter-rater reliability between emergency physicians and plastic surgeons was calculated for each predictor. **Results:** To date, 102 pediatric hand fractures have been included in this prospective cohort study. Of the 74 observed simple fractures, 49 were predicted as "simple" and 25 were predicted as "complex". Of the 28 observed "complex" fractures, 25 were predicted as "complex" and 3 were predicted as "simple". These findings correspond to a sensitivity of 89%, specificity of 66%, and a C-statistic of 0.78. Of the 3 observed "complex" fractures that were predicted as "simple", i.e. the 3 false negatives, one was a Seymour fracture of the fourth distal phalanx for which the emergency physician did not tick any boxes on the form. Upon further investigation, we learned that the physician had commented that the fracture was open, thus alluding to their acknowledgement of the predictor "open fracture" as being present). This fracture went on to require surgery. The second false-negative fracture was a non-displaced, intra-articular fracture of the fourth metacarpal head that required multiple appointments with the plastic surgeon. The third false-negative fracture was a non-displaced Salter-Harris II fracture of the thumb proximal phalanx without malrotation that received a closed reduction by the emergency physician. The kappa coefficient for inter-rater reliability between emergency physician and plastic surgeon evaluation of predictors varied by predictor from fair to almost perfect agreement. Condylar involvement had the highest kappa coefficient (kappa = 0.85) followed by malrotation (kappa = 0.65) and dislocation (kappa = 0.64). The predictors with the lowest kappa coefficients were displacement (kappa = 0.42), open fractures (kappa = 0.50), and angulation (kappa = 0.53). **Conclusion:** The Calgary Kids' Hand Rule had a sensitivity of 89% in a prospective cohort of pediatric hand fractures referred to the Alberta Children's Hospital. The sensitivity could likely be improved with knowledge translation and specific education regarding use of the prediction tool. Emergency physicians and plastic surgeons displayed the lowest inter-rater reliability when assessing displacement, open fractures, and angulation. These predictors may represent areas of future research and physician education to delineate and decrease the discordance between emergency physicians and plastic surgeons.

**Keywords:** hand, pediatrics, prediction model

#### P088

##### **Dextrose 50% versus dextrose 10% or dextrose titration for the treatment of out-of-hospital hypoglycemia; a systematic review and meta-analysis**

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**Introduction:** Paramedics commonly administer intravenous dextrose to severely hypoglycemic patients. Typically, the treatment provided is a 25g ampule of 50% dextrose (D50). This dose of D50 is meant to ensure a return to consciousness. However, this dose may be unnecessary and lead to harm or difficulties regulating blood glucose post treatment. We hypothesize that a lower dose such as dextrose 10% (D10) or titrating the D50 to desired level of consciousness may be optimal and avoid adverse events. **Methods:** We systematically searched Medline, Embase, CINAHL and Cochrane Central on June 5th 2019. PRISMA guidelines were followed. The GRADE methods and risk of bias assessments were applied to determine the certainty of the evidence. We included primary literature investigating the use of intravenous dextrose in hypoglycemic diabetic patients presenting to paramedics or the emergency department. Outcomes of interest were related to the safe and effective reversal of symptoms and blood glucose levels (BGL). **Results:** 660 abstracts were screened, 40 full text articles, with eight studies included. Data from three randomized controlled trials and five observational studies were analyzed. A single RCT comparing D10 to D50 was identified. The primary significant finding of the study was an increased post-treatment glycemic profile by 3.2 mmol/L in the D50 group; no other outcomes had significant differences between groups. When comparing pooled data from all the included studies we find higher symptom resolution in the D10 group compared to the D50 group; at 99.8% and 94.9% respectively. However, the mean time to resolution was approximately 4 minutes longer in the D10 group (4.1 minutes (D50) and 8 minutes (D10)). There was more need for subsequent doses in the D10 group at 23.0% versus 16.5% in the D50 group. The post treatment glycemic profile was lower in the D10 group at 5.9 mmol/L versus 8.5 mmol/L in the D50 group. Both treatments had nearly complete resolution of hypoglycemia; 98.7% (D50) and 99.2% (D10). No adverse events were observed in the D10 group (0/871) compared to 12/133 adverse events in the D50 group. **Conclusion:** D10 may be as effective as D50 at resolving symptoms and correcting hypoglycemia. Although the desired effect can take several minutes longer there appear to be fewer adverse events. The post treatment glycemic profile may facilitate less challenging ongoing glucose management by the patients.

**Keywords:** emergency medical services, hypoglycemia, prehospital

#### P089

##### **Reducing preventable patient transfers from long-term care facilities to emergency departments: a scoping review**

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**Introduction:** Emergency Department (ED) crowding is an international health system issue that is worsening. Further, ED crowding and "hallway medicine" has been identified as one of the most significant healthcare challenges currently facing Canadians. One contributor is preventable transfers from long-term care facilities (LTCFs) to Emergency Departments (EDs). In Canada, there were 63,752 LTCF patient transfers to the ED in 2014, with 24% (15,202) of them due to potentially preventable conditions. Each preventable transfer exposes patients to transport and hospital-related complications, and costs the healthcare system thousands of dollars. There have been many proposed and studied interventions aimed at alleviating the issue, but few attempts to assess and evaluate different interventions across institutions in a systematic manner. **Methods:** A scoping review of the literature using three electronic databases was conducted. A scoping