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Healthcare utilization among homeless and/or substance using adults presenting to the ED

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Introduction: Substance use and unstable housing are associated with heavy use of the Emergency Department (ED). This study examined the impact of substance use and unstable housing on the probability of future ED use. **Methods:** Case-control study of patients presenting to an urban ED. Patients were eligible if they were unstably housed for the past 30 days, and/or if their chief complaint was related to substance use. Following written informed consent, patients completed a baseline survey and health care use was tracked via electronic medical records for the next six months. Controls were enrolled in a 1:4 ratio. More than 2 ED visits during the follow-up was pre-specified as a measure of excess ED use. Descriptive analyses included proportions and medians with interquartile ranges (IQR). Binomial logistic regression models were used to estimate the impact of housing status, high-risk alcohol use (AUDIT) and drug use (DUDIT), and combinations of these factors on subsequent acute care system contacts (ED visits + admissions). We controlled for age, gender, comorbidities at baseline, and baseline presenting acuity. **Results:** 41 controls, 46 substance using, 91 unstably housed, and 31 both unstably housed and substance using patients were enrolled ($n = 209$). Median ED visits during follow up were 0 (IQR: 0-1.0) for controls, 1.0 (IQR: 0-3.3) for substance using, 1.0 (IQR: 0-4.0) for unstably housed and 4 (IQR: 2-12.3) for unstably housed and substance using patients. The median acute care system contacts over the same period was 1.0 (IQR 0-2.0) for controls, 1.0 (IQR: 0-4.0) for substance using, 1.0 (IQR: 0-5.0) for unstably housed and 4.5 (IQR: 2.8-14.3) for unstably housed and substance using patients. Being unstably housed was the factor most strongly associated with having > 2 ED visits ($b = 3.288$, $p < 0.005$) followed by high-risk alcohol and drug use ($b = 2.149$, $p < 0.08$); high risk alcohol use alone was not significantly associated with ED visits ($b = 1.939$, $p < 0.1$). The number of comorbidities present at baseline was a small but statistically significant additional risk factor ($b = 0.478$, $p < 0.05$). The model correctly predicted 70.1% of patients' ED utilization status. **Conclusion:** Unstable housing is a substantial risk factor for ED use; high-risk alcohol and drug use, and comorbidities at baseline increased this risk. The intensity of excess ED use was greatest in patients who were unstably housed and substance using.

Keywords: substance use, homelessness, utilization

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Does the use of bedside ultrasound to identify intrauterine pregnancy in the emergency department shorten the length of stay of patients presenting with 1st trimester vaginal bleeding or pelvic pain?

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Introduction: The use of point of care ultrasound (POCUS) has increased rapidly in the emergency department (ED) over the last 10 years. This study seeks to determine whether the use of POCUS to identify intrauterine pregnancy in the ED shortens the length of stay of patients presenting with first trimester pregnancy-related complaints at The Scarborough Hospital (TSH). **Methods:** A prospective chart review of

women seen at TSH ED for first trimester pregnancy-related complaints was conducted from March 1, 2014 to December 30, 2014. ED physicians were asked to record the names of patients assessed using POCUS in the ED along with their findings during the study period (experimental group). Health Records data was used to find all patients seen in the emergency department during the study period with the chief triage complaint of "Pregnancy Issues < 20 weeks" (control group). **Results:** A total of 378 patients were identified in the control group and 61 patients were recorded in the experimental group. The outliers were removed from both groups. The POCUS identified an intra-uterine pregnancy (POS IUP) in 47.5% and no definite intrauterine pregnancy (NDIUP) in 52.5%. In the control group, 82.0% proceeded to obtain a formal ultrasound (FUS) after the POCUS. Patients found to have a POS IUP on the POCUS spent 141.48 ± 100.95 minutes in hospital, while patients found to have NDIUP spent 197.10 ± 132.48 minutes in hospital ($p = 0.07$). The POS IUP group spent statistically significantly less time in hospital when compared to the control group ($p = 0.001$). In the POCUS group, patients seen between 1700 and 0800 (i.e. when FUS is not available) spent significantly less time ($p = 0.02$) in hospital (113.13 ± 118.07 minutes, $n = 24$) when compared to patients seen between 0800 and 1700 (208.28 ± 106.35 minutes, $n = 36$). **Conclusion:** For first-trimester pregnancy-related complaints, POCUS has been shown to be effective in reducing the time that patients spend in hospital at TSH. This difference was especially apparent when POCUS was used at times when FUS was not available. Despite the apparent reluctance of many ED physicians to discharge patients without a FUS, even after identifying a POS IUP on the POCUS, it was evident that this technology was saving time for both physicians and patients.

Keywords: ultrasound, point-of-care ultrasound (PoCUS)

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Identifying patients who may benefit from extracorporeal membrane oxygenation (ECMO) after cardiac arrest in the urban emergency departments of Saskatchewan

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Introduction: Emergency physician-initiated Extracorporeal Membrane Oxygenation (ECMO/ECPR/ECLS) is gaining critical mass as a successful rescue strategy for patients requiring resuscitation. Wang et al. (2014), Bellezzo et al. (2012) and others have demonstrated promising results of survival to discharge with good neurological function in patients who were resistant to existing treatment protocols after out-of-hospital cardiac arrest. As Saskatchewan does not yet utilize ECMO for cardiac arrest, the objective of this study was to examine the number of adult cardiac arrest patients in the urban emergency departments (EDs) of Saskatchewan who may benefit from the use of ECMO. **Methods:** Using a retrospective review, we identified 401 patients who died after presenting with cardiac arrest between January 1st, 2013 and December 31st, 2014. Of the original 401, 136 were female and 264 were male, with a mean age of 60.1 ± 20.2 years. The charts of 22 (5.5%) trauma patients were excluded because the suitability of ECMO in these patients is uncertain. **Results:** For the 379 non-trauma patients, the mean resuscitation length was 41.6 ± 32.8 minutes (median = 42 minutes) and 125 of these patients received prehospital mechanical CPR. We applied Bellezzo et al.'s (2012) inclusion and exclusion criteria to identify prospective candidates for ECMO. In total, 53 patients (14.0%) with a mean age of 57.1 ± 13.4 years old, represent suitable candidates for ECMO. 260 (68.6%) were deemed unsuitable either because they failed the inclusion criteria or met explicit exclusion criteria. The remainder (66 [17.4%]) were