pregnancies among all pregnancies in the cohort. ED utilization peaked in the first trimester and in the first week postpartum. A dose-response effect was seen in the number of peri-pregnancy ED visits in relation to certain maternal characteristics. Women residing in rural areas had an odds ratio (OR) of 3.44 (95% CI 3.39 to 3.49) for ≥ 3 ED visits, compared to those in urban areas. Women with 3-5 (OR 1.99 95% CI 1.97-2.01), 5-6 (OR 3.55, 95% CI 3.49 to 3.61), or ≥ 7 (OR 7.59, 95% CI 7.39 to 7.78) pre-pregnancy comorbidities were more likely to have ≥ 3 peri-pregnancy ED visits than those with 0-2 comorbidities. Of all recognized pregnancies in the cohort, only 106,989 (3.9%) had an injury-related ED visit. **Conclusion:** Peri-pregnancy ED utilization occurs in nearly 40% of pregnancies, notably in the first trimester and immediately postpartum. Efforts are needed to streamline rapid access to ambulatory obstetrical care during these peak periods, when women are vulnerable to either a miscarriage, or a complication after a livebirth.
Keywords: early pregnancy complications, obstetrics, pregnancy

LO52

Distraction in the ED using Virtual reality for Intravenous Needs in Children to Improve comfort- DEVINCI - a pilot RCT

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Introduction: Venipuncture is a frequent cause of pain and distress in the pediatric emergency department (ED). Distraction, which can improve patient experience, remains the most studied psychological intervention. Virtual reality (VR) is a method of immersive distraction that can contribute to the multi-modal management of procedural pain and distress. **Methods:** The main objectives of this study were to determine the feasibility and acceptability of Virtual Reality (VR) distraction for pain management associated with venipunctures and to examine its preliminary effects on pain and distress in the pediatric ED. Children 7-17 years requiring a venipuncture in the pediatric ED were recruited. Participants were randomized to either a control group (standard care) or intervention group (standard of care + VR). Principal clinical outcome was the mean level of procedural pain, measured by the verbal numerical rating scale (VNRS). Distress was also measured using the Child Fear Scale (CFS) and the Procedure Behavior Check List (PBCL) and memory of pain using the VNRS. Side effects were documented. **Results:** A total of 63 patients were recruited. Results showed feasibility and acceptability of VR in the PED and overall high satisfaction levels (79% recruitment rate of eligible families, 90% rate of VR game completion, and overall high mean satisfaction levels). There was a significantly higher level of satisfaction among healthcare providers in the intervention group, and 93% of those were willing to use this technology again for the same procedure. Regarding clinical outcomes, no significant difference was observed between groups on procedural pain. Distress evaluated by proxy (10/40 vs 13.2/40, $p = 0.007$) and memory of pain at 24 hours (2.4 vs 4.2, $p = 0.027$) were significantly lower in the VR group. Venipuncture was successful on first attempt in 23/31 patients (74%) in the VR group and 15/30 (50%) patients in the control group ($p = 0.039$). Five of the 31 patients (16%) in the VR group reported side effects **Conclusion:** The addition of VR to standard care is feasible and acceptable for pain and distress management during venipunctures in the pediatric ED. There was no difference in self-reported procedural pain between groups. Levels of procedural distress and memory of pain at 24 hours were lower in the VR group.
Keywords: pain management, pediatric, virtual reality

LO53

Emergency department visits for hyperglycemia: through the eyes of the patient

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Introduction: Patients with poorly-controlled diabetes often visit the emergency department (ED) for treatment of hyperglycemia. While previous qualitative studies have examined the patient experience of diabetes as a chronic illness, there are no studies describing patients' perceptions of ED care for hyperglycemia. The objective of this study was to explore the patient experience regarding ED hyperglycemia visits, and to characterize perceived barriers to adequate glycemic control post-discharge. **Methods:** This study was conducted at a tertiary care academic centre in London, Ontario. A qualitative constructivist grounded theory methodology was used to understand the experience of adult patient partners who have had an ED hyperglycemia visit. Patient partners, purposively sampled to capture a breadth of age, sex, disease and presentation frequency were invited to participate in a semi-structured individual interview to probe their experiences. Sampling continued until a theoretical framework representing key experiences and expectations reached sufficiency. Data were collected and analyzed iteratively using a constant comparative approach. **Results:** 22 patients with type 1 or 2 diabetes were interviewed. Participants sought care in the ED over other options because of their concern of having a potentially life-threatening condition, advice from a healthcare provider or family member, or a perceived lack of convenient alternatives to the ED based on time and location. Participants' care expectations centred around symptom relief, glycemic control, reassurance and education, and seeking referral to specialist diabetes care post-discharge. Finally, perceived system barriers that challenged participants' glycemic control included affordability of medical supplies and medications, access to follow-up and, in some cases, the transition from pediatric to adult diabetes care. **Conclusion:** Patients with diabetes utilize the ED for a variety of urgent and emergent hyperglycemic concerns. In addition to providing excellent medical treatment, ED healthcare providers should consider patients' expectations when caring for those presenting with hyperglycemia. Future studies will focus on developing strategies to help patients navigate some of the barriers that exist within our current limited healthcare system, enhance follow-up care, and improve short- and long-term health outcomes.
Keywords: diabetes, hyperglycemia, patient experience

LO54

Emergency department prevalence of intracranial aneurysm on computed tomography angiography (EPIC-ACT)

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Introduction: Evidence is accumulating that a CT plus a CT angiogram (CTA) of the head and neck may be adequate to rule out subarachnoid haemorrhage (SAH) in patients with a thunderclap

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headache, thus potentially negating the need for lumbar puncture. One of the most widely cited objections to this strategy is the fear of detecting "incidental asymptomatic aneurysms," lesions seen on angiography that are not in fact the cause of the patient's symptoms. Currently existing data on the background rate of aneurysms are based on cadaveric studies, invasive angiography, or MRI, and thus does not reflect the true rate of incidental aneurysms that would be detected using a CT plus CTA strategy. This study characterizes the rate of incidental aneurysms identified on CTA in an emergency department population. **Methods:** In this multicentre retrospective cohort study we analyzed the electronic medical records of all emergency department patients ≥ 18 years of age who underwent CTA of the head and neck over a two month period across four urban tertiary care emergency departments. Two independent reviewers evaluated the final radiology reports and extracted relevant data. The primary outcome of interest was the presence of incidental intracranial aneurysm, defined as a newly diagnosed aneurysm not associated with evidence of acute hemorrhage. Secondary outcomes included aneurysm location and size. **Results:** Of 739 charts meeting inclusion criteria, incidental intracranial aneurysms were detected in 21 cases or 2.85% (95% confidence interval, 1.77 - 4.32). An additional 20 aneurysms were identified but excluded from the analysis as they were previously known (n = 9) or were associated with evidence of acute hemorrhage (n = 11) and thus were not considered incidental. Of 21 patients with identified incidental aneurysms, 7 had multiple aneurysms. The most common aneurysm sites were internal carotid artery (n = 13), middle cerebral artery (n = 6) and anterior cerebral artery (n = 4). The average size of incidental aneurysm was 4.1 mm. **Conclusion:** The rate of incidental intracranial aneurysm among emergency department patients undergoing CTA of the head and neck is lower than many previously described estimates obtained through invasive angiography and MRI studies. To our knowledge, this is the first study on the prevalence of incidental intracranial aneurysms in an emergency department specific population and may therefore help guide clinicians when considering using a CT plus CTA rule out strategy for patients presenting with acute headache suspicious for SAH.
Keywords: aneurysm, angiography, subarachnoid

LO55

Comparison of the age-adjusted D-dimer, clinical probability-adjusted D-dimer, and Wells rule with D-dimer for diagnosing deep vein thrombosis in the emergency department.

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Introduction: Diagnosing deep vein thrombosis (DVT) is of critical importance because of its associated morbidity and mortality. Diagnosing DVT can be challenging in the Emergency Department (ED) due to inconsistent adherence to, and utilization of the Wells rule. Both the age-adjusted and clinical probability adjusted D-dimer have been shown to decrease ultrasound (US) utilization rates. We aimed to compare the safety and efficacy of the Wells score with D-dimer to the age-adjusted and clinical probability-adjusted D-dimer in Canadian ED patients tested for DVT. **Methods:** This was a health records review of ED patients investigated for DVT at two EDs over a two-year period. Inclusion criteria were ED physician ordered duplex ultrasonography or D-dimer for investigation of lower limb DVT. Patients under the age of 18 were excluded. DVT was considered to be present during the ED visit if DVT was diagnosed on duplex ultrasonography and was treated for acute DVT, or if the patient was subsequently diagnosed with pulmonary embolism (PE) or DVT during the next 30 days. Trained researchers extracted anonymized data. The Wells D-dimer, age-adjusted D-dimer, and the clinical probability-adjusted D-dimer rules were applied retrospectively. The rate of duplex ultrasonography imaging and the false negative rate was calculated for each rule. **Results:** Between April 1st 2013 and March 31st 2015, there were 1,198 patients tested for DVT. Of the low and moderate clinical pretest probability patients (Wells score ≤ 2), only 436 had a D-Dimer test and were eligible for our analysis. The average age of the patients was 59, 56% were female, and 4% had a malignancy. 207/436 patients (47.4%, 95%CI 42.8-52.2%) would have had US imaging for DVT if the age-adjusted D-dimer rule was used. 214/436 patients (49.1%, 95%CI 44.4-53.8%) would have had imaging for DVT if the clinical probability-adjusted D-dimer was used. If the Wells rule was used with the standard D-dimer cutoff of 500, 241/436 patients (55.2%, 95%CI 50.6-59.9%) would have had imaging for DVT. The false-negative rate for the Wells rule was 1.5% (95%CI 0.5-4.4%). The false-negative rate for the age-adjusted D-dimer rule was 1.3% (95%CI 0.4-3.8%). The false-negative rate for the clinical-probability adjusted D-Dimer was 1.8% (95%CI 0.7-4.5%). **Conclusion:** In comparison with the approach of the Wells score and D-dimer, both the age-adjusted and clinical probability-adjusted D-dimer diagnostic strategies could reduce the proportion of patients who require US imaging.
Keywords: thrombosis

LO56

Rate of delirium recognition by nurses and physicians in a cohort of 1584 older emergency department patients: how many would have been sent home?

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Introduction: Unrecognized delirium in the ED remains common despite a 3 fold mortality increase for those discharged home. But previous studies have not assessed delirium recognition rate in a multicenter study nor assessed the management plans of ED staff when they fail to recognize delirium. Objectives: To document 1) the rate of delirium recognition by nurses and MDs in a national sample and 2) the intended management plans for patients with unrecognized delirium. **Methods:** This is a planned sub-study of a randomized clinical trial at 5 EDs in 4 provinces conducted in English and French. We included people ≥ 65 years old. We excluded those with an ED stay < 4 hours, critical illness, visual impairment or from a nursing home. Research assistants (RAs) assessed delirium using the validated Confusion Assessment Method. RAs then asked ED nurses and physicians if the patient had delirium according to their clinical assessment. RAs also asked how confident they were that the patient could be safely discharged home using a 10 point Likert scale. We report proportions and 95% confidence intervals. RAs notified all ED staff of unrecognized CAM + ve patients prior to actual discharge for safety reasons. **Results:** We recruited 1584 older people; 1496 (92.5%) had complete data. Mean age was 76.5; 49% were female. Nurses performed 1465 delirium assessments. There were 76 CAM + ve patients in our sample (5.2%, 95% CI 4.2 to 6.5%). Nurses recognized delirium in 34/76 (44.7%, 95% CI: 33.3 to 56.6%). MDs assessed 20 CAM + ve patients and recognized the delirium in 10/20 (50.0%, 95% CI: 27.2 to 72.8). Nurses felt that 11/42 patients with unrecognized delirium could be discharged (26.2% 95% CI: 13.9 to 42.0%). Their median confidence

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