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

in the safety of their plan was 7.0/10. MDs felt that 2/10 patients with unrecognized delirium could be discharged (20.0% 95% CI: 2.5 to 55.0%). Their median confidence in the safety of their plan was 7.5/10. **Conclusion:** Despite the potential Hawthorne effect raising initial delirium recognition rates above clinicians' usual practice outside of a study, delirium recognition by both nurses and MDs remains poor in a national sample of ED patients. We also showed that a significant number of these patients could have been discharged with unrecognized delirium. Further research to find novel ways to improve delirium recognition is needed.
Keywords: delirium, recognition

LO57

Pain associated with investigations and procedural interventions commonly administered in the emergency department in older adults: a prospective cohort study

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Introduction: Acute pain is frequent among patients visiting the emergency department (ED). In addition to the acute discomfort, pain has been linked to adverse events and poorest outcomes in older adults. However, pain is frequently overlooked by emergency clinicians, particularly in older adults. Advanced age has been linked to poor recognition and under treatment of pain. The contribution of ED investigations and procedures to the patient's pain is unknown. This study aims to determine the intensity of the pain induced by the investigations and procedures commonly performed in the ED. **Methods:** In two EDs, a convenience sample of older adults (≥ 65 years old) with at least two investigations or procedures performed during their ED visit were eligible. Patients were excluded if they were hemodynamically unstable, in palliative care or not oriented in time and space. The pain intensity was assessed at bedside by a research assistant for the following investigations or procedures: blood sampling, intravenous catheter, electrocardiogram, X-rays, computed tomography, beside ultrasound, urinary catheter, cervical collar and prehospital immobilization mattress. The predetermined sample size was 50 pain assessment per investigation or procedure. The pain intensity was assessed using a numerous rating scale (NRS) ranging from 0 (no pain) to 10 (most severe pain), for each investigation or procedure received. NRS results are presented using median (med) and interquartile range (IQR) and classified as followed: no pain (0), mild pain (1-3), moderate pain (4-6) and severe pain (7-10). **Results:** Between June 2018 and December 2019, 494 patients were screened of which 318 were finally included (exclusion: not oriented (n = 113), refusal (n = 27), palliative care (n = 34), other reasons (n = 12)). The mean age of included patients was 77.8 years old (standard deviation = 8.0), 54.4% were female and 78.6% were living in the community. Only 15 patients (4.7%) were known to have cognitive impairment or dementia and 23 patients (7.2%) were on regular or PRN opioid medication at home. The expected sample size of at least 50 pain score assessment per investigation or procedure was obtained for all interventions with the exception of urinary catheter (n = 23) and immobilization mattress (n = 35). For the other investigations or procedures, the number of pain assessment ranged between 51 (cervical collar) and 231 (blood sampling). All investigations and procedures were associated with a median pain score of 0 with the exception of blood sampling (n = 231, med NRS 1 (IQR 0;3)), intravenous catheter (n = 241, med NRS 1 (IQR 0;4)),

urinary catheter (n = 23, med NRS 4 (IQR 1;6)), cervical collar (n = 51, med NRS 5 (IQR 0;8)) immobilisation mattress (n = 35, med NRS 3 (IQR 0;8)). Moderate or severe pain (NRS 4-10) was infrequently reported following most investigations or procedures with the exception of urinary catheter (60.8%), cervical collar (54.9%) and immobilization mattress (48.5%). Cervical collar induced severe pain in 41.8% of the patients. **Conclusion:** Most investigations and procedures commonly administered in the ED to older adults are associated with no pain or low intensity of pain. Severe pain is also infrequently induced by these interventions for most older adults. However, urinary catheter, cervical collar and immobilization mattress are associated with a higher intensity of pain and more than 40% of patients suffering from severe pain following the application of cervical collar. Considering the potential adverse effects of pain and the lack of evidence-based data to support the use of some interventions such as the cervical collar, the decision to use these interventions should be carefully weighted and could include a shared-decision making process. The generalizability of those findings to older adults with cognitive impairment is unknown. Future studies should focus on circumstances in which these procedures are beneficial to the patient to limit the unnecessary pain associated with their use.
Keywords: interventions, older adults, pain

LO58

Using volunteers to improve the experience of older patients in the emergency department

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Introduction: The Maximizing Aging Using Volunteer Engagement in the ED (MAUVE + ED) program connects specially trained volunteers with older patients whose personal and social needs are not always met within the busy ED environment. The objective of this study was to describe the development and implementation of the MAUVE + ED program and the activities performed with older patients by its volunteers. **Methods:** The MAUVE + ED program was implemented in the ED (annual census 65,000) of a large academic tertiary hospital in Toronto, Ontario. Volunteers were trained to identify and approach older patients and others at greater risk for adverse outcomes, including poor patient experience, in the ED and invite such patients to participate in the program. The program is available to all patients >65 years, and those with confusion, patients who were alone, those with mobility issues, and patients with increased length of stay in the ED. Volunteers documented their activities after each patient encounter using a standardized paper-based data collection form. **Results:** Over the program's initial 6-month period, the MAUVE + ED volunteers reported a total of 896 encounters with 718 unique patients. The median (IQR) time a MAUVE volunteer spent with a patient was 10 (5, 20) minutes, with a range of 1 to 130 minutes. The median (IQR) number of patients seen per shift was 7 (6, 9), with a range of 1 to 16 patients per shift. The most common activities the volunteer assisted with were therapeutic activities/social visits (n = 859; 95.9%), orientation activities (n = 501; 55.9%), and hydration assistance (n = 231; 25.8%). The least common were mobility assistance (n = 36; 4.0%), and vision/hearing assistance (n = 13; 1.5%). **Conclusion:** Preliminary data suggest the MAUVE + ED volunteers were able to enrich the experience of older adults and their families/carers in the ED.