

non-significant incidental findings of 80% ($\alpha = 5\%$, Power = 90%). **Results:** A total of 1629 studies were included (mean 62 yrs, SD 16.7, 56.9% female, median CTAS score 2, 45.2% admitted). PE was found in 233 (14.3%) patients. 173 (10.6%) studies had a finding of an alternative diagnosis, the majority being pulmonary infiltrates ($n = 130$, 75.1%). In patients who underwent both CTPA and chest x-ray (CXR), CXRs alone would have led to the same alternative diagnosis in 116 (77.1%) patients. A total of 223 (13.6%) patients had an incidental finding; the majority included pulmonary nodules ($n = 83$, 37.2%) and adenopathy ($n = 26$, 11.6%). Only 26 (17.1%) incidental findings were significant; most common included pulmonary nodules ($n = 6$, 3.9%) and masses ($n = 7$, 4.6%) that lead to newly identified and biopsied lung cancer diagnoses. Incidental findings led to an additional 301 follow-up CTs with a yield of significant result of 9.2% ($n = 48$ CTs). **Conclusion:** Chest CTs ordered in the ED for clinical suspicion of PE is equally as likely to identify alternative diagnoses or incidental findings as PE. The majority of incidental findings are non-significant and result in an increased use of CT. CXRs should routinely be ordered prior to further investigation for PE with chest CT to reduce unnecessary testing and thus time and cost to the system.

Keywords: pulmonary embolism, chest computed tomography, incidental findings

MP21

An interprofessional delirium assessment tool for healthcare professionals and trainees working in the emergency department

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Introduction: Multiple studies since the '90's demonstrate that ED staff fail to identify delirium in up to 75% of older patients. Those patients who are discharged have a 3-fold increased mortality. **Methods:** We iteratively developed a 14-item interprofessional tool with 4 clinical vignettes to assess comfort, knowledge and ability to identify delirium among medical students, EM residents, staff MDs and RNs. We conducted a prospective observational study using modified Dillman survey methodology. Surveys were sent on paper to residents and nurses and online to medical students and staff MDs. **Results:** Our response rate was 68% (38/56) for residents, 80%(16/20) for RNs; but only 37% (13/35) for staff MDs and 13%(139/1036) for medical students. Comfort with identifying delirium increased with level of medical training; 38/139(27%) 1st-4th year medical students (MS1-MS4); 25/38(66%) 1st-5th year residents (R1-R5); and 12/13(92%) staff physicians reported being comfortable ($\chi^2 = 34.7$, $df = 2$, $p < 0.001$). MS1-MS2 were the least comfortable, with only 5/82(6%) reporting comfort, increasing to 33/57(58%) among MS3-MS4 ($\chi^2 = 44.9$, $df = 1$, $p < 0.001$). A greater proportion of R4-R5 who completed a geriatric emergency medicine (Geri-EM) curriculum reported comfort, 11/12(92%) compared to 14/26 (54%) of R1-R3 ($\chi^2 = 19.2$, $df = 1$, $p < 0.05$). Only 5/16(31%) nurses reported being comfortable with identifying delirium. Ability to identify all 4 clinical vignettes correctly was higher among MS3-MS4 than MS1-MS2 (32/57(56%) vs. 30/82(37%), $\chi^2 = 5.2$, $df = 1$, $p < 0.05$). There was no difference between respondents from different levels of medical training (62/139(45%) MS1-MS4, 21/38(55%) R1-R5 and 6/13(46%) staff MDs, $\chi^2 = 1.4$, $df = 2$ $p = 0.52$). There was no effect of Geri-EM completion on perfect vignette scores (6/12(50%) R4-R5 vs. 15/26(58%) R1-R3, $\chi^2 = 0.20$, $df = 1$, $p = 0.66$). There was a trend towards a lower proportion of nurses who identified all 4 clinical vignettes correctly compared to physicians (4/16(25%) vs. 27/51(53%), $\chi^2 = 3.82$, $df = 1$, $p = 0.051$). **Conclusion:** Our tool may be useful for assessing comfort and knowledge

of delirium among ED physicians and nurses. Completion of the Geri-EM curriculum was associated with increased comfort with detecting delirium but not knowledge. Future studies should assess current ED delirium comfort and knowledge at different levels of training; between professions and examine differences nationwide.

Keywords: delirium, survey, education

MP22

The impact of collaborative social media promotion on the dissemination of CJEM articles

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Introduction: The *CJEM* Social Media Team was created in 2014 to assist the journal with the dissemination of its research online. It consists of two Social Media Editors (Junior and Senior) and a team of volunteer medical students and residents to assist their work. Collaborative promotional agreements were developed to promote *CJEM* articles on the Skeptics' Guide to Emergency Medicine (SGEM) podcast through the 'Hot off the Press' (HOP) series and the CanadiEM blog through an infographic series. **Methods:** *CJEM* papers were selected for promotion by the Team based on their perceived interest to the online community of emergency physicians. Altmetric scores, which are a measure of online dissemination derived from a weighted algorithm of social media metrics, were collated for articles promoted using the SGEM HOP or CanadiEM blogs. A control group was created using the articles with the top two Altmetric scores in each *CJEM* issue in 2015 and 2016. Erratum, Letters, and articles written by the social media editors were excluded from the control groups. The success of the social media promotion was quantified through the measurement of Altmetric scores as of January 1, 2017. Unpaired two-tailed *t*-tests with unequal variance were used to test for significant differences. **Results:** 106 and 82 eligible articles were published in 2015 and 2016, respectively. Four articles in 2015 and two articles in 2016 were excluded from the control groups because they were written by the social media editors. SGEM HOP podcasts promoted one article in 2015 and five articles in 2016. CanadiEM infographics promoted three articles in 2015 and eight articles in 2016. No articles were promoted in both series. The average Altmetric score was higher for SGEM HOP (61.0) than CanadiEM Infographics (31.5, $p < 0.04$), 2015 controls (15.8, $p < 0.01$), and 2016 controls (13.6, $p < 0.01$). The average Altmetric score for CanadiEM Infographics was higher than 2015 controls ($p < 0.04$) and 2016 controls ($p < 0.02$). There was no significant difference between the control groups. **Conclusion:** The results suggest that collaborating with established social media websites to promote *CJEM* articles using podcasts and infographics increases their social media dissemination. Given the nonrandomized design of these results, causative conclusions cannot be drawn. A randomized study of the impact of social media promotion on readership is underway.

Keywords: social media, podcasts, infographics

MP23

The yield of computed tomography of the head in patients presenting with syncope: a systematic review

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Introduction: Syncope accounts for 1-3% of Emergency Department (ED) visits. Previous studies have reported overuse of computed

tomography (CT) of the head among syncope patients. Professional organizations including Choosing Wisely have recommended against its use in the absence of high-risk features. However, a review of CT head use among syncope patients and its diagnostic yield has not been previously reported. **Methods:** We conducted a systematic review using EMBASE, Medline, and Cochrane databases from inception to August 2016. We included studies involving adult syncope patients that reported CT head use and its diagnostic yield during acute management by a two-step process: first title/abstract review and then full-text review of selected articles. We excluded case reports, narrative reviews and those involving children. We collected the proportion of patients who had CT head performed, and its diagnostic yield. Outcomes included identification of acute intracranial conditions (hemorrhage, mass or infarct) that require further management. Two reviewers independently abstracted the data and discrepancies were resolved by consensus. We calculated inter-observer reliability for inclusion in the systematic review using kappa values. We performed meta-analysis for diagnostic yield of the CT head. **Results:** Fifteen studies with 2,802 syncope patients in four sub-groups (proportion of patients among whom CT head was performed and its yield in ED and inpatient settings; studies that reported only the yield among those with CT head performed; and the use and yield among syncope patients ≥ 65 years old) were included. The inter-observer agreement for inclusion of final articles for meta-analysis was $\kappa = 0.925$ [95% CI: 0.861-0.990]. Seven ED studies ($n = 1,261$) reported 55.7% patients (95% CI: 32.1-78.0%) had head CT performed with a yield of 4.0% (95% CI: 2.7-5.6%); 5 studies with 1138 hospitalized patients reported that 38.6% (95% CI: 20.4-58.6%) had head CT with a yield of 1.1% (95% CI: 0.4-2.2%). The yield among studies that report only outcomes for CT head was 2.3% and the yield among patients' ≥ 65 years was 7.7%. **Conclusion:** Our review found that a very high proportion of syncope patients had CT head performed during acute management with a very low diagnostic yield. The yield is higher among patients ≥ 65 years old. A robust tool to identify patients who require a CT head will reduce unnecessary testing.

Keywords: syncope, computed tomography of the head

MP24

Effect on pain of an oral sucrose solution versus placebo in children 1 to 3 months old needing nasopharyngeal aspiration; a randomized controlled trial

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Introduction: Oral sweet solutions have been accepted as effective pain reducing agents for neonates. However studies in the Emergency Department (ED) setting have conflicting results. The objective is to compare the efficacy of an oral sucrose solution versus placebo in reducing pain in children 1 to 3 months of age during nasopharyngeal aspiration (NPA) in the ED. **Methods:** A randomized, double-blinded, placebo controlled clinical trial was conducted in a pediatric university-affiliated hospital ED. Participants from 1 to 3 months of age requiring NPA were recruited and randomly allocated to receive 2 mls of an 88% sucrose solution (SUC) or 2 mls of a placebo solution (PLA) orally, 2 mins before NPA. The primary outcome was the mean difference in pain scores at 1 min post NPA as assessed by the Face, Legs, Activity, Cry and Consolability (FLACC) Pain Scale. Secondary outcomes were the difference in pain scores using the Neonatal Infant Pain Scale (NIPS), crying time, heart rate and adverse events. **Results:** 72 participants were recruited and completed the study, 37 (group SUC) and 35 (group PLA) respectively. Both groups had similar demographic and

clinical characteristics and baseline FLACC and NIPS pain scores (all $p = \text{value} > 0.4$). The mean difference in FLACC scores compared to baseline was 3.3 (2.5-4.1) (SUC) vs. 3.2 (2.3-4.1) (PLA) ($p = .94$) at 1 min and -1.2 (-1.7 to 0.7) (SUC) vs. -0.8 (-1.5 to -0.1) (PLA) ($p = .66$) at 3 mins after NPA. For the NIPS scores, it was 2.3 (1.6-3.0) (SUC) vs. 2.5 (1.8-3.2) (PLA) ($p = .86$) at 1 min and -1.2 (-1.6 to -0.8) (SUC) vs. -0.8 (-1.3 to 0.2) (PLA) ($p = .59$) 3 mins after NPA. There was no difference in the mean crying time, 114 (98-130) secs (SUC) vs. 109 (92-126) secs (PLA) ($p = .81$). No significant difference was found in participants' heart rate at 1 min 174 (154-194) BPM (SUC) vs. 179 (160-198) BPM (PLA) ($p = .32$) and at 3 mins 165 (143-187) BPM (SUC) vs. 164 (142-186) BPM (PLA) ($p = .86$) after NPA. Three patients had vomiting during the procedure (2 PLA and 1 SUC), and one had an episode of choking (PLA). **Conclusion:** In infants 1 to 3 months of age undergoing nasopharyngeal aspiration in the ED, administration of an oral sweet solution did not statistically decrease pain scores as measured by the FLACC and NIPS scales. Participants' heart rate and crying time were not significantly decreased when sucrose was provided.

Keywords: pediatrics, pain, sucrose

MP25

The role of advanced imaging in the management of benign headaches in the emergency department: a systematic review

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Introduction: Headache is a common emergency department (ED) presentation. Benign (i.e., non-pathological) headaches are particularly common, including exacerbations of chronic migraine, tension, and cluster headache. Several studies have reported concerns over the frequent use of advanced imaging, specifically computed tomography (CT), in the ED management of benign or primary headache presentations. This systematic review examined the proportion of adult ED benign headache presentations who receive a CT(head). **Methods:** Eight bibliographic databases and the grey literature were searched. All studies reporting the proportion of benign headache patients receiving a CT(head) in the ED were eligible for inclusion. Studies which included a secondary headache population of 15% of their total study population or less were eligible for inclusion. Two reviewers independently assessed study inclusion and completed quality assessment and data extraction. Weighted medians were calculated for the primary and secondary outcomes, as appropriate. **Results:** The search returned 2,444 unique citations, of which 20 met the inclusion criteria (21 patient groups were analyzed). The majority of the studies were descriptive in nature and conducted in North America. The reported proportion of benign headache patients receiving a CT(head) varied considerably (range: 2.06-67.21%); with a weighted median of 30.0% (interquartile range: 30.0, 30.0). Studies published in 2000 or later (18/21 groups) were found to have a higher weighted median percentage compared to those published pre-2000 ($p = 0.016$). Neither the country of origin nor the proportion of patients with secondary headache included within the study population had a significant effect on CT utilization. Of the three studies which reported the discharge diagnosis of all patients, sub-arachnoid hemorrhage was discovered in 2/241 (0.83%) of CT scans. **Conclusion:** Considerable variation in CT utilization for benign headache ED presentations exists and estimates indicate that more than a quarter of patients receive a CT(head). Overall, these CT scans rarely identify significant pathology, suggesting imaging may be safely reduced. Further research is required to identify interventions which can safely and effectively reduce unnecessary imaging among headache presentations.

Keywords: headache, diagnostic imaging, computed tomography