

of respondents (57.14%) reported that they “often” prescribe opioids for the treatment of acute pain in the emergency department, and an equal number of respondents reported doing so “sometimes” at discharge. Eighty-five percent of respondents reported most commonly prescribing intravenous morphine for acute pain in the emergency department, and over thirty-five percent reported most commonly prescribing oral morphine upon discharge. Patient age and risk of misuse were the most frequently cited factors that influenced respondents’ prescribing decisions. Only 4 of the 22 respondents reported using evidence-based guidelines to tailor their opioid prescribing practices, while an overwhelming majority (80.95%) believe there is a need for evidence-based opioid prescribing guidelines for the treatment of acute pain. Sixty percent of respondents completed additional training in safe opioid prescribing, yet less than half of respondents (42.86%) felt they could help to mitigate the opioid crisis by prescribing fewer opioids in the emergency department. **Conclusion:** Emergency physicians frequently prescribe opioids for the treatment of acute pain and new evidence suggests that this practice can lead to significant morbidity. While further research is needed to better understand emergency physicians’ opioid prescribing practices, our findings support the need for evidence-based guidelines for the treatment of acute pain to ensure patient safety.

Keywords: acute pain, opioid prescribing guidelines, opioid prescription

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Barriers and facilitators affecting implementation of a decision aid for the diagnosis of acute aortic syndrome: a qualitative study
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Introduction: Acute aortic syndrome (AAS) is an uncommon, life-threatening emergency that is frequently misdiagnosed. The Canadian clinical practice guidelines for the diagnosis of AAS were developed in order to reduce the frequency of misdiagnoses and number of diagnostic tests. As part of the guidelines, a clinical decision aid was developed in order to facilitate clinician decision-making based on practice recommendations. The objective of this study was to identify barriers and facilitators among physicians to implementation of the decision aid. **Methods:** We conducted semi-structured interviews with emergency room physicians working at 5 sites distributed between urban academic and rural settings. We used purposive sampling, contacting ED physicians until data saturation was reached. Interview questions were designed to understand potential barriers and facilitators affecting the probability of decision aid uptake and accurate application of the tool. Two independent raters coded interview transcripts using an integrative approach to theme identification, combining an inductive approach to identification of themes within an organizing framework (Theoretical Domains Framework), discrepancies in coding were resolved through discussion until consensus was reached. **Results:** A majority of interviewees anticipated that the decision aid would support clinical decision making and risk stratification while reducing resource use and missed diagnoses. Facilitators identified included validation and publication of the guidelines as well as adoption by peers. Barriers to implementation and application of the tool included the fact that the use of D-dimer and knowledge of the rationale for its use in the investigation of AAS were not widespread. Furthermore, scoring components were, at times, out of alignment with clinician practices and understanding of risk factors. The complexity of the decision aid was also identified as a potential barrier

to accurate use. **Conclusion:** Physicians were amenable to using the AAS decision aid to support clinical decision-making and to reduce resource use, particularly within rural contexts. Key barriers identified included the complexity of scoring and inclusion criteria, and the variable acceptance of D-dimer among clinicians. These barriers should be addressed prior to implementation of the decision aid during validation studies of the clinical practice guidelines.

Keywords: decision tool, acute aortic syndrome, aortic dissection

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Improving the diagnosis of pulmonary embolism in the emergency department

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Background: Emergency physicians (EPs) can choose from several evidence-based pathways to diagnose pulmonary embolism (PE), however literature suggests that EPs frequently use computer tomography (CT) scanning as a stand-alone test for PE. This is a program of research to improve adherence to evidence-based PE diagnosis in the emergency department (ED). **Aim Statement:** To create a novel approach to PE diagnosis in the ED based on a framework explaining EP diagnostic PE behaviour and barriers to using evidence-based PE testing. **Measures & Design:** We conducted two types of qualitative interviews: 1). EPs in 5 Canadian cities watched videos of 2 simulated cases and then explained how they would test the patient. 2). Semi-structured EP interviews using the theoretical domains framework (TDF). The results of our analyses informed the construction of an explanatory framework for common EP diagnostic PE behaviours. Barriers to evidence-based behaviour were classified into domains. A Canadian EP expert group reviewed these results along with the existing evidence on ED PE diagnostic implementation. We developed a new approach to diagnosis of PE in the ED which addresses each of our domains. **Evaluation/Results:** We conducted 71 interviews. We identified 4 domains, each addressed in our pathway. ‘PE in a mythical and deadly beast’ PE kills and can masquerade so EPs look for PE in places where it does not exist and are rewarded for ‘over-testing’. Response: Creating a departmental conversation about missing PE, talking about the facts, busting the myths. EP feedback on PE testing including positive rate. ‘The end goal is CTPE’ PE creates anxiety for EPs and ordering a CTPE hands over responsibility to the radiologist. Response: A departmental protocol for PE testing which starts with D-dimer for every patient. Shifting focus to ruling out PE with D-dimer. Protocol is automated once initiated by EP. ‘PERC eases anxiety’ PERC is documented when it is negative and allows EP to stop. Response: EPs can choose to use and document PERC. ‘No-one has been fighting for the Wells score’ Poor understanding of purpose and function. Often at odds to Gestalt. Response: Protocol does not use Wells score. **Discussion/Impact:** We have developed a new diagnostic PE pathway which addresses current barriers to evidence-based practice which we will evaluate further.

Keywords: computer tomography scan, pulmonary embolism, quality improvement and patient safety

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Colder, but no less safe: A comparison of bicycle related traumas in winter compared to summer cyclists

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Introduction: This study aimed to examine difference in trauma injuries between bicycle users in winter months compared to summer months. Behavioral variables were also examined to assess seasonal variability, as well as associations with traumas. **Methods:** This was a retrospective cohort study of all bicycle related traumas presenting to a level I trauma center between the years 1998-2018. All data was collected through a standardized trauma database. Seasonal differences were examined by comparing trauma severity and behavior patterns between patients arriving in the months May-September (summer) and those arriving in November-March (winter). Outcome measures included: Injury Severity Scale, GCS, type of accident, helmet use, demographics and alcohol level. Groups were compared using t-tests and Chi-square analysis as appropriate. **Results:** A total of 980 bicycle related traumas were analyzed. There were a significantly greater number of injuries in the summer as compared to winter months (879 in summer vs. 101 in winter). While most injuries in both groups were rated in the severe range of the Injury Severity Scale, there were no differences in injury severity, initial GCS, deaths, or head injuries between the two seasons. There were also no differences in drug, alcohol, or helmet use. The only significant difference between seasons was that winter riders were more likely to be male. Overall, helmet use was associated with lower injury severity, less head trauma, and a higher initial GCS. Use of alcohol was associated with less likelihood of wearing a helmet. **Conclusion:** In conclusion, bicycle use in winter does not appear to be associated with worse outcomes than summer. Public health interventions can continue to encourage winter bicycle use, with the encouragement of helmet use and avoidance of alcohol when cycling as an important protective factor in both seasons.

Keywords: bicycle, environment, trauma

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A multicenter analysis of an emergency physician lead on department flow and the provider experience

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Introduction: Emergency department (ED) flow is a strong predictor of patient safety, quality of care and provider satisfaction. Throughput interventions have been shown to improve flow metrics, yet few studies have considered MD leadership roles and evaluated provider experience. Our objective was to evaluate the emergency physician lead (EPL) role, a novel MD staffing initiative. **Methods:** This mixed-method observational time series analysis evaluated ED metrics at two tertiary EDs including ED length of stay (LOS), EMS Park LOS and physician initial assessment (PIA) time as well as 72-hour readmit and left without being seen (LWBS) rates. Data was collected from the ED information system database for control (Dec 6, 2017-Feb 28, 2018 SITE1 and Mar 1-May 31, 2018 SITE2), pre (Sept 3-Nov 30, 2018 SITE 1 and Dec 3, 2018-Feb 28, 2019 SITE2) and post (Dec 3, 2018 -Feb 28, 2019 SITE1, Mar 1- May 31, 2019 SITE2) periods for adult patients presenting to each site. Site data was analyzed independently using descriptive and inferential statistics to calculate differences in means, and means were compared using t-tests. A survey elicited provider feedback from ED physicians, nurses, and EMS professionals on the effect of the EPL on throughput, timeliness of admissions and discharges, provider workload, and the EPL as a resource to other professionals. **Results:** The number of ED visits

at SITE1 were 13136 (Ctrl), 13236 (Pre) and 13137 (Post), and at SITE2 were 14371(Ctrl), 13866 (Pre) and 14962 (Post). Mean ED LOS was decreased by 17 min in post vs control and 20 min vs pre at SITE1 ($p < 0.01$). SITE2 saw an increase in ED LOS by 7 min vs control and 8 min vs pre ($p < 0.01$). EMS LOS at SITE1 was decreased by 21 min vs control and 22 min vs pre ($p < 0.01$), but was increased at SITE2 by 2 min vs control ($p = 0.09$) and 14 min vs pre ($p < 0.01$). PIA time at SITE1 was decreased by 15 min vs control ($p < 0.01$) and 13 min vs pre and increased by 5 min vs control and 12 min vs pre at SITE2 ($p < 0.01$). 72 hour readmit and LWBS rates were unchanged at both sites. Qualitative feedback from ED providers highlighted the early provision of treatments and investigations by the EPL, and many felt the EPL was an important resource. **Conclusion:** The inclusion of both quantitative and qualitative data in this study provided a robust analysis of the impact of the EPL role and demonstrated modest but important improvements. A site-dependent, carefully considered implementation of the EPL role may improve ED metrics and provider experiences.

Keywords: emergency physician lead, emergency medical services park, provider experiences

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Impact des bêtabloquants pour les patients souffrant d'un arrêt cardiorespiratoire avec un rythme initial défibrillable : une revue systématique et méta-analyse

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Introduction: Malgré les progrès au niveau des soins de réanimation lors des dernières années, le pronostic des patients souffrant d'un arrêt cardiorespiratoire (ACR) demeure abyssal et aucun médicament ne semble influencer leur devenir au long cours. Cependant, les résultats de quelques études évaluant l'impact des bêtabloqueurs chez cette population s'avèrent cependant très encourageants. L'objectif de cette revue systématique, est d'évaluer l'évidence disponible quant à l'impact des bêtabloqueurs sur le devenir des patients traités pour un ACR dont le rythme initial est défibrillable. **Methods:** La présente revue systématique a été préalablement enregistrée sur Prospero (CRD42018105453). Les moteurs de recherche Medline, Embase et CENTRAL ont été fouillés de leur création jusqu'au 17 octobre 2018. La recherche de littérature grise s'est faite via Web of Science et Google Scholar. Les références de tous les articles inclus ainsi que des méta-analyses existantes sur le sujet ont également été révisées. Tous les types de devis ont été considérés, sauf les études de cas et les séries de cas. Les études devaient inclure des adultes (16 ans et plus) en ACR dont le rythme initial était défibrillable, dont une partie avait reçu un médicament bêtabloquants par voie intraveineuse pendant leur ACR et l'autre un traitement standard, et présenter une mesure de résultat centrée sur le patient (retour de circulation spontanée [RCS], survie ou bon devenir neurologique). La qualité des articles a été évaluée à l'aide du 'Newcastle Ottawa scale'. **Results:** Deux études observationnelles rétrospectives, menées auprès d'un total de 66 patients, ont été incluses. Il y avait une association positive entre l'administration de bêtabloquants et l'occurrence d'un RCS (rapport de cotes [RC] = 5.76 [intervalle de confiance [IC] à 95% = 1.79-18.52], $p = 0.003$), ainsi qu'avec la présence d'un bon devenir neurologique (RC = 4.42 [IC95% = 1.05 - 18.56], $p = 0.04$). Une