

**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

#### P117

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

K. Crowder, BN, BSc, MD, E. Domm, MN, PhD, BScN, R. Lipp, BScN, O. Robinson, BSc, S. Vatanpour, MSc, PhD, D. Wang, MSc, E. Lang, MD, University of Calgary Cumming School of Medicine, Calgary, AB

**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

#### P118

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

A. Cournoyer, MD, J. Soucy-Legault, MD, A. Frégeau, MD, M. Iseppon, MD, A. Iseppon, PharmD, J. Lessard, MD, V. Huard, MD, J. Morris, MD, MSc, J. Chauny, MD, MSc, M. Marquis, MSc, J. Paquet, PhD, R. Daoust, MD, MSc, Université de Montréal, Montréal, QC

**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

telle association n'a cependant pas été observée par rapport à la survie au congé hospitalier. **Conclusion:** L'administration de bêta-bloquants semble associé à un meilleur devenir chez les patients en ACR avec un rythme initial défibrillable. Étant donné la nature du devis de ces études et leur petite taille, une étude prospective de qualité serait nécessaire afin de déterminer l'efficacité de cette classe de médicament et de faire une recommandation forte à ce sujet.

**Keywords:** arrêt cardiaque, bêta-bloquant, rythme défibrillable

#### P119

##### Emergency department census is useful as a real-time measure of crowding

R. Clouston, MD, M. Howlett, MD, D. Canales, MA, J. Fraser, BN, D. Sohi, BSc, S. Lee, MD, P. Atkinson, MBChB, Dalhousie University, Saint John, NB

**Introduction:** Crowding is associated with poor patient outcomes in emergency departments (ED). Measures of crowding are often complex and resource-intensive to score and use in real-time. We evaluated single easily obtained variables to establish the presence of crowding compared to more complex crowding scores. **Methods:** Serial observations of patient flow were recorded in a tertiary Canadian ED. Single variables were evaluated including total number of patients in the ED (census), in beds, in the waiting room, in the treatment area waiting to be assessed, and total inpatient admissions. These were compared with Crowding scores (NEDOCS, EDWIN, ICMED, three regional hospital modifications of NEDOCS) as predictors of crowding. Predictive validity was compared to the reference standard of physician perception of crowding, using receiver operator curve analysis. **Results:** 144 of 169 potential events were recorded over 2 weeks. Crowding was present in 63.9% of the events. ED census (total number of patients in the ED) was strongly correlated with crowding (AUC = 0.82 with 95% CI = 0.76 - 0.89) and its performance was similar to that of NEDOCS (AUC = 0.80 with 95% CI = 0.76 - 0.90) and a more complex local modification of NEDOCS, the S-SAT (AUC = 0.83, 95% CI = 0.74 - 0.89). **Conclusion:** The single indicator, ED census was as predictive for the presence of crowding as more complex crowding scores. A two-stage approach to crowding intervention is proposed that first identifies crowding with a real-time ED census statistic followed by investigation of precipitating and modifiable factors. Real time signalling may permit more standardized and effective approaches to manage ED flow.

**Keywords:** crowding, emergency department, scoring

#### P120

##### A survey of Ontario Family Health Teams: Family physicians are reliant on emergency services for complicated early pregnancy loss

J. Cirone, BSc, C. Thompson, MSc, S. McLeod, MSc, C. Varner, MD, MSc, University of Western Ontario, Windsor, ON

**Introduction:** The majority of first trimester pregnancy care in Canada is provided by family physicians and emergency departments (EDs). Early pregnancy loss occurs in approximately 30% of pregnancies, and the majority take place in first trimester when many patients do not yet have an obstetrical care provider. In Ontario, nearly 70% of patients are rostered to a family physician, many of whom practice in Family Health Teams (FHTs). The objective of this study was to determine how Ontario family physicians manage early pregnancy complications and explore the services available for patients experiencing early pregnancy loss or threatened early pregnancy loss.

**Methods:** Family physician leads from 104 Ontario FHTs were contacted by email and invited to complete a 19-item, online questionnaire using modified Dillman methodology. The survey was developed by investigators based on a review of relevant literature and consultation with clinical experts. Prior to distribution, the questionnaire was peer reviewed and tested for face and construct validity, as well as ease of comprehension. **Results:** Respondents from 50 FHTs across Ontario completed the survey (response rate 48.1%). Of the respondents, 45 (90.0%) reported access to an ED in their community, 45 (90.0%) had access to an obstetrician/gynecologist, 33 (66.0%) had access to an early pregnancy clinic, and 18 (36.0%) reported comprehensive obstetrical care from first trimester to delivery within their FHT. The following services were only accessible through the ED: administration of RhoGAM (n = 28; 56.0%); surgical management of spontaneous or missed abortion (n = 22; 44.0%); same day serum quantitative beta human chorionic gonadotropin (n = 21; 42.0%); same day radiologist-interpreted ultrasound assessment (n = 15; 30.0%); and medical management of spontaneous or missed abortion (n = 12; 24.0%). Forty (80.0%) respondents stated physicians in their practice would provide urgent follow-up care for patients with spontaneous abortion, 35 (70.0%) would provide care for threatened abortion, and 26 (52.0%) would provide urgent care for missed abortion. For patients with a stable ectopic pregnancy, 37 (74.0%) respondents would refer to the ED. **Conclusion:** This study suggests FHTs in Ontario provide comprehensive care to patients with uncomplicated early pregnancy loss such as spontaneous abortion, yet rely on the ED for management of complicated early pregnancy loss, when medical or surgical management is indicated or for ectopic pregnancy.

**Keywords:** early pregnancy complications, miscarriage, primary care

#### P121

##### A quality improvement project to improve medical imaging ordering workflow in the emergency department

J. Choi, MD, MPH, R. Bhayana, MD, D. Wang, BHSc, MD, E. Bartlett, MD, MPH, R. Menezes, PhD, University Health Network, Toronto, ON

**Background:** Many computerized tomography (CT) scans ordered after-hours from the emergency department (ED) at our institution required a discussion between the emergency physician (EP) and radiology resident (RR), leading to workflow inefficiency. **Aim Statement:** The aim was to improve workflow efficiency and provider satisfaction, and reduce CT turnaround time, without significantly affecting CT utilization within six months. **Measures & Design:** We created a new workflow by creating an electronic list of ED CT requests that RRs monitor. RRs protocolled all requests and only called the ED physician for more details when required. The intervention was implemented in a stepwise fashion via plan-do-study-act cycles. An electronic survey measured qualitative outcomes, and quantitative outcomes were analyzed via statistical process control (SPC) charts and other statistical methods. **Evaluation/Results:** Survey response was high (76% EP, 79% RR). Most EPs and RRs felt more efficient (96.3%, 73.3%), RRs felt fewer disruptions (83.3%), and most EPs felt that scans were done faster (84.1%). We analyzed CT turnaround times and utilization using SPC charts and segmented regression analyses. Turnaround time trended to improvement (33 mins vs 29 mins on weekdays [WD], 37 mins vs 33 on weekends [WE]), but was not statistically significant. There was background rising CT utilization over time (+0.7 and + 1.9 CT/100 ED visits/year on WD and WE, respectively, p < 0.0005), but the intervention itself did