

physicians (MD). An ACP requesting DI at the time of first assessment would likely improve patient flow. We investigated whether ACPs can safely and cost-effectively request DI for extremity injuries without increasing cost or exposing patients to unnecessary radiation. **Methods:** A prospective evaluation of a convenience sample of patients presenting with an extremity injury sustained within 48 hours of presentation. At time of initial assessment, the ACP, following specific guidelines, recorded whether or not they believed an x-ray was indicated, and if so, what DI views they felt appropriate. Their opinion was blinded from the physician subsequently assessing the patient. An ACP opinion of the need for DI was compared with the subsequent test ordered by the MD. The MD decision to order DI was considered 'gold standard'. Opinions were considered "matched" if the MD ordered DI of the same body part that the ACP believed was indicated. Sensitivity, specificity, positive predictive and negative predictive values (PPV, NPV) were calculated. Using data from our ED information system, we estimated the time that would have been saved by allowing ACPs to order DI. **Results:** Of 199 patients 192 images were ordered and 89 fractures were diagnosed. ACPs and MDs agreed that DI was necessary 94.70% of the time (95% CI: {90.6%, 97.4%}). There were 8 x-rays the ACP did not order that the MD did order, of which one showed a fracture. Twice, the ACP would have ordered an x-ray that the MD did not. In terms of identifying the need for DI, ACPs were 95.8% sensitive and 71.4% specific. The PPV was 98.9% (95% CI: {95.8%, 99.8%}), and the NPV was 38.5% (95% CI: {15.1%, 67.7%}). On average, ACP opinion of DI indication was made 54.1 minutes (95% CI: {48.0, 60.2}) earlier than that of the MD. **Conclusion:** The overall agreement between MDs and ACPs was almost 95%. ACPs are more likely to under-order x-rays than to over-order them, lowering the risk of increasing radiation exposure and cost. ACP DI ordering may decrease the time of processing of patients with extremity injuries by almost an hour.

**Keywords:** paramedic, diagnostic imaging, emergency department

#### LO009

##### Impact of physician navigators on measures of emergency department efficiency

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**Introduction:** The Physician Navigator (PN) is a novel position created to manage patient flow in real-time at a very-high volume emergency department (ED). When paired with an emergency physician, PNs actively track patient wait times, and direct the physician to see and re-assess patients in a particular order to improve measures of emergency department efficiency, and maximize patient flow. Anecdotal evidence has shown that PNs decrease length-of-stay times for non-resuscitative patients in the setting of increased patient volumes, and without additional nursing or physician hours. The objective was to study the operational impact of PN on emergency department patient flow. **Methods:** A 48-month pre-/post-intervention retrospective chart review at an urban community emergency department from September 2011 to September 2015. The PN program started on March 1, 2013. The main outcome is emergency department length-of-stay (LOS). Secondary outcomes include time to physician-initial-assessment (PIA), left-without-being-seen rates (LWBS), left-against-medical-advice (LAMA), and physician satisfaction rates. Autoregressive integrated moving average models were generated for Canadian Triage and Acuity Scale (CTAS) 2 to 5 patients to quantify the immediate impact of the intervention on the outcome levels, and whether the impact was sustained over time. **Results:** Interim results are provided. 399,958 patients attended the ED during the study period. Daily patient volumes

increased 11.2% during the post-intervention period. There were no significant increases in the number of physicians shifts/day, and physician hours/day during the post-intervention period. Post-intervention, for CTAS 2-5 patients, there was a reduction in average LOS by 0.04 hours/PN ( $p < 0.05$ ), and 90th-percentile LOS by 0.14 hours/PN ( $p < 0.05$ ). For secondary outcomes, there was a decrease in overall average PIA by 6.37 minutes/PN ( $p < 0.05$ ), and 90th-percentile PIA by 8.29 minutes/PN ( $p < 0.05$ ). LWBS rates decreased by 40.8% ( $p < 0.05$ ). There were no significant changes in LAMA rates. **Conclusion:** The implementation of Physician Navigators is associated with significant reductions in LOS, PIA, and LWBS rates for non-resuscitative patients at a very-high volume emergency department.

**Keywords:** patient flow, efficiency

#### LO010

##### Clinical assessment of transient ischemic attack patients for symptomatic carotid disease in the emergency department

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**Introduction:** TIAs precede about 30% of strokes, with 4-10% having a stroke within 90 days of their TIA. In patients with a TIA due to symptomatic carotid disease, diagnosis and treatment within 2 weeks has been shown to have much better outcomes, while delay beyond 12 weeks no longer reduces subsequent stroke risk. The objective of this study was to determine the clinical findings associated with symptomatic critical disease following an ED visit for TIA to indicate patients requiring prompt carotid imaging. **Methods:** We performed a prospective Canadian multicenter cohort study, at 13 academic sites, of ED patients with TIA or non-disabling stroke from 2006-2014. Treating ED physicians indicate clinical features on standardized data collection forms. Symptomatic carotid disease was carotid stenosis 50-99%, or carotid dissection, adjudicated by stroke neurology to be the etiology of the index event. Patients were followed by medical review and telephone up to 90 days. Univariate analysis was conducted for clinical features associated with patients who were eventually found to have symptomatic carotid disease as a cause for their TIA. **Results:** The cohort included 305 patients with and 5,277 without symptomatic carotid disease. Positive predictors of symptomatic carotid disease included older age (74.0 yrs vs 68.0 yrs  $p < 0.0001$ ), male sex (62.9% vs 47.9%;  $p < 0.0001$ ), history of weakness (63.3% vs 41.4%;  $p < 0.0001$ ), language disturbance (52.1% vs 40.0%;  $p < 0.0001$ ), weakness on physical exam (25.5% vs 17.1%;  $p = 0.0002$ ), history of hypertension (74.8% vs 59.5%;  $p < 0.0001$ ), and known history of carotid stenosis (18.9% vs 3.1%;  $p < 0.0001$ ). Negative predictors of symptomatic carotid disease included first ever TIA (56.8% vs 68.8%;  $p < 0.0001$ ), history of altered sensation (39.4% vs 45.8%;  $p = 0.0322$ ), lightheadedness (13.0% vs 22.4%;  $p = 0.0002$ ), and vertigo (3.6% vs 12.7%;  $p < 0.0001$ ). **Conclusion:** TIA patients with older age, male sex, weakness, language disturbance or history of carotid stenosis need to be promptly imaged to assess for symptomatic carotid disease.

**Keywords:** diagnostic imaging, clinical assessment, transient ischemic attack (TIA)

#### LO011

##### Identification of mild acute cerebrovascular syndrome (ACVS) in the emergency department: validation of an ACVS clinical classifier to help distinguish mimics

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