

MP014**What ultrasonography characteristics predict surgical intervention for children with testicular torsion?**

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Introduction: The timely diagnosis and treatment of testicular torsion is essential as a longer duration of symptoms is correlated with testicular necrosis and infertility. Ultrasound imaging assists in separating this diagnosis from other causes of acute scrotal pain. Our objective was to characterize which ultrasound findings predicted surgical intervention.

Methods: We performed a retrospective health records review of all patients, ages 0-17 years that presented to the emergency department of the Children's Hospital of Eastern Ontario over a 5-year period (2009-14) with scrotal pain <24 hours duration who were assessed by an emergency physician (EP) and received a testicular ultrasound by the Diagnostic Imaging Department. Patients' records and ultrasound reports were reviewed by two reviewers who recorded ultrasound findings, times of EP assessment, ultrasound and surgical intervention in a standardized data extraction form. Sensitivity, specificity and positive and negative predictive values were calculated for the ultrasound findings. **Results:** 190 patients were analyzed of which 34 had a final diagnosis of testicular torsion (mean age 11.5 years, range 0-17.3). The mean time from EP assessment to ultrasound was 67.6 minutes (95%CI 50.5-84.6) during the daytime (800-2159) and 83.2 minutes (95%CI 36.7-130.4) for overnight presentations (2200-759). The absence of blood flow on colour Doppler ultrasound of the affected testicle was the best predictor of surgical intervention (sensitivity = 94.1% [95%CI 80.3%-99.3%], specificity = 99.4% [95%CI 96.5%-99.9%], positive likelihood ratio = 146.8 [95%CI 20.7-1037.7] and negative likelihood ratio = 0.06 [95%CI 0.02-0.23]). Other ultrasound findings that help rule in testicular torsion were the presence of a heterogeneous testicle on the symptomatic side (specificity = 91.0% [95%CI 85.4%-95.0%]) and the presence of the whirlpool sign (specificity = 99.4% [95%CI 96.5%-99.9%]). **Conclusion:** The absence of blood flow on ultrasound is the best ultrasound finding for predicting surgical management of testicular torsion. Neither a heterogeneous testicle nor whirlpool sign had strong enough sensitivity to warrant their independent use. Future studies, such as those utilizing point of care ultrasound by EPs, should be conducted to study the affect on delays in treatment.

Keywords: testicular torsion, ultrasound

MP015**Daily encounter cards: evaluating the quality of documented assessments**

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Introduction: In response to concerns in the literature over the quality of completed work-based assessments (WBAs), faculty development and rater training initiatives have been developed. The Completed Clinical Evaluation Report Rating (CCERR) was designed to evaluate these interventions by providing a measure of the quality of documented assessments on In-Training Evaluation Reports (ITERs). Daily Encounter Cards (DECs) are a common form of WBA used in the Emergency Department setting. A tool to evaluate initiatives aimed at improving the quality of completion of this widely used WBA is also needed. The purpose of this study was to provide validity evidence to support using the CCERR to assess the quality of DEC completion.

Methods: This study was conducted in the Department of Emergency Medicine at the University of Ottawa. Six experts in resident assessment

grouped 60 DECs into three quality categories (high, average, poor) based on their perception of how informative each DEC was for reporting judgments of the resident's performance. Eight clinical supervisors (blinded to the expert groupings) scored the 10 most representative DECs in each group using the CCERR. Mean scores were compared using a univariate ANOVA to determine if the CCERR was able to discriminate DEC quality. Reliability for the CCERR scores was determined using a generalizability analysis. **Results:** Mean CCERR scores for the high (37.3, SD = 1.2), average (24.2, SD = 3.3), and poor (14.4, SD = 1.4) quality groups differed ($p < 0.001$). A pairwise comparison demonstrated that differences between all three quality groups were statistically significant ($p < 0.001$), indicating that the CCERR was able to discriminate DEC quality as judged by experts. A generalizability study demonstrated the majority of score variation was due to differences in DECs. The reliability with a single rater was 0.95. **Conclusion:** There is strong validity evidence to support the use of the CCERR to evaluate DEC quality. It can be used to provide feedback to supervisors for improving assessment reporting, and offers a quantitative measure of change in assessor behavior when utilized as a program evaluation instrument for determining the quality of completed DECs.

Keywords: daily encounter cards, assessment, residency education

MP016**Measuring frailty can help emergency departments identify seniors at risk of functional decline after minor injuries**

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Introduction: The CETI team has shown that around 18% of otherwise independent seniors remain in a state functional decline up to six months after a minor injury. In that context, frailty may be associated with increased likelihood of decline. As most seniors consult Emergency Departments (EDs) when injured, measuring frailty may help identify those at risk of functional decline. **Objectives:** This study aims to 1) describe frailty in the sub-group of independent community-dwelling seniors consulting Emergency Departments (ED) for minor injuries, 2) examine the association between frailty and functional decline three months post-injury, 3) ascertain the predictive accuracy of frailty measures and Emergency Physicians' (EPs) for functional decline. **Methods:** Prospective cohort in 2011-2013 among 1072 seniors aged ≥ 65 , independent in basic daily activities, evaluated in Canadian EDs for minor injuries and discharged home. Frailty was assessed at EDs using the Canadian Study of Health and Aging-Clinical Frailty Scale (CSHA-CFS) and the Study of Osteoporotic Fracture index (SOF). Functional decline was defined as a loss $\geq 2/28$ on the Older American Resources Services scale three months post-injury. Generalized mixed models were used to explore differences in functional decline across frailty levels. Areas Under the Receiver operating characteristic curve (AUC) were used to ascertain the predictive accuracy of frailty measures and EPs' clinical judgement. **Results:** The SOF and CSHA-CFS were available in 342 and 1058 participants, respectively. The SOF identified 55.6%, 32.7%, 11.7% patients as robust, prefrail and frail. These CSHA-CFS ($n = 1058$) proportions were 51.9%, 38.3% and 9.9%. The 3-month incidence of functional decline was 12.1% (10.0%-14.6%). The AUCs of the CSHA-CFS and the EPs' were similar (0.548 - 0.777), while the SOF was somewhat higher (0.704 - 0.859). **Conclusion:** Measuring frailty in community-dwelling seniors with minor injuries in EDs may enhance current risk screening for functional decline. However, before implementation in usual care, feasibility issues such as inter-rater reliability and acceptability of frailty tools in the EDs have to be addressed.

Keywords: frailty, minor injury, functional decline

MP017

Impact of physician payment mechanism on wait times and ED length of stay

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Introduction: Vancouver Coastal Health (VCH) emergency physicians have been on contract based funding models for two decades. On October 1, 2015, physicians at one hospital (SPH) switched to fee-for-service (FFS) payments. Conventional wisdom is that FFS physicians are motivated to see more patients quickly and achieve higher throughput. Our hypothesis was that FFS payment would reduce patient wait times. **Methods:** This interrupted time series analysis with concurrent control was performed in VCH Region, where there are two tertiary EDs. During the 20-week study period (July 15-Nov 30), VGH remained on contract, while SPH converted to FFS (the intervention). VCH administrative data was aggregated by week. Our primary outcome was median wait time to MD. Secondary outcomes were ED LOS and left-without-being-seen (LWBS) rates. **Results:** Interrupted time series plots will be presented for the data. Data from 67,214 ED visits were analyzed (31,733 SPH, 35,481 VGH). Figure 1 shows that baseline wait time was 74 minutes at the control and 53 minutes at the intervention site. During the pre-intervention period, there was a non-significant downward trend of 0.4 minutes per week at the intervention hospital relative to control ($p = 0.26$). After FFS conversion, there was a 4.1 minute increase in wait time at the control site ($p = 0.18$), and a significant downward trend of 1.4 minutes per week ($p = 0.001$). After FFS conversion, wait times at the intervention site increased by 4.8 minutes more than control (p -value for the difference = 0.27), and the wait time trend increased significantly by 1.3 minutes per week relative to the expected counterfactual trend ($p = 0.02$). Baseline EDLOS for discharged patients was 227 minutes at the control hospital and 193 minutes at the intervention site. There were similar pre-intervention LOS increases at both hospitals. Post-intervention, both sites saw significant increases in EDLOS, followed by a similar downward trends of -2.68 minutes per week ($p = 0.001$). Baseline LWBS rate was 3.86% at the control hospital and 3.56% at the intervention site. Pre-intervention trends, and post-intervention level/trend changes did not differ by site. **Conclusion:** Conversion to FFS payment was associated with an increase in wait time trend of 1.3 minutes per week relative to control. There were no significant changes in EDLOS or LWBS rates. In this preliminary analysis, FFS payment had little effect on wait times or patient throughput.

Keywords: physician compensation, efficiency, fee for service

MP018

Exercise prescription by Canadian emergency medicine physicians

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Introduction: Health promotion and disease prevention have been increasingly recognized as activities within the scope of emergency medicine. Exercise prescription by physicians has been shown to improve outcomes in obesity, cardiovascular disease, and many other diseases. An estimated 600,000 Canadians receive the majority of their care from emergency departments (ED), representing a substantial opportunity for health promotion. Our study examined the frequency of exercise

prescription by emergency physicians (EPs) and determined factors that influence decisions to prescribe exercise. **Methods:** A national, confidential 22-item survey was distributed to Canadian EPs via email by the CAEP survey distribution protocol in November/December 2015. Demographics, exercise prescription rates and self-reported exercise habits were collected. **Results:** A total of 332 EPs responded. 92.4% of EPs reported being at least moderately active. 62.7% of EPs often or always counsel their patients about preventative medicine (smoking cessation, drug and alcohol use, diet and safe sex). However, only 23.8% often or always ask about their exercise habits. Even fewer (12.7%) often or always prescribe exercise. Training background significantly predicted level of comfort prescribing exercise. CCFP trained EPs were 5.1 ($p = 0.001$) times more likely than trained EPs to respond 'yes' they feel comfortable prescribing exercise, and 3.7 ($p = .009$) times more likely to respond 'sometimes'. CCFP (EM) trained EPs were 3.5 ($p < 0.001$) times more likely than trained EPs to respond 'yes' they feel comfortable prescribing exercise, and 2.0 ($p = .031$) times more likely to respond 'sometimes'. 76.1% of respondents believe that other EPs rarely or never prescribe exercise. Of respondents, only 36% feel comfortable prescribing exercise. The majority of EPs (73.4%) believe that the ED environment did not allow adequate time for exercise prescription. **Conclusion:** The majority of EPs counsel their patients regarding other forms of preventative medicine but few prescribe exercise to their patients. Available time in the ED was cited as a significant barrier to exercise prescription. CCFP trained EPs are more comfortable prescribing exercise, suggesting that their training may better educate and prepare them to counsel patients on exercise compared to trained EPs. Further education may be required to standardize an approach to prescribing exercise in the ED.

Keywords: exercise, health promotion, education

MP019

Systematic review of the management of lateral epicondylitis using transdermal nitroglycerin

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Introduction: Lateral epicondylitis (LE), also known as tennis elbow, is an overuse-underuse tendinopathy originating from the forearm extensor tendons of the elbow. An emerging therapy for the treatment of LE is the use of transdermal nitroglycerin (NTG) patches for pain relief and improved function. Our systematic review assesses 18 to 65 year old patients with clinically diagnosed LE and no structural damage or longstanding elbow injury to determine if transdermal NTG patches provide improved short term and long term pain relief as well as improved function in comparison with placebo. **Methods:** We included randomised controlled trials (RCT's) of NTG patch use versus placebo for the treatment of LE. Prospective comparison studies were also eligible for assessing the long term pain relief of NTG patch use. We performed a literature search using MEDLINE, EMBASE, SportDiscus and the Cochrane Database of Systematic Reviews. English language articles were retrieved for review up to November 2015. Risk of bias within the studies was assessed regarding randomisation, allocation sequence concealment, blinding and selective outcome reporting. **Results:** Three RCT's were included that compared transdermal NTG patch use (two studies with 1.25mg/24h and one study comparing 0.72, 1.44 and 3.6mg/24h) versus a placebo to treat LE. One prospective comparison study of five years duration was included as a follow-up to one of the included RCT's to assess pain and function five years after the discontinuation of therapy. Data was not pooled because of heterogeneity in study methods and outcomes. The use of transdermal NTG patches provided short term pain relief (2-6 weeks for dosing of 0.72mg/24h or 1.25mg/24h) compared with placebo as suggested by three RCT's. Long term pain relief was improved by NTG patch use compared with placebo