MP11

Evaluation of a pharmacist-led antimicrobial stewardship service in a pediatric emergency department

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Introduction: We implemented a pharmacist-led antimicrobial stewardship (AMS) service for patients discharged from the pediatric emergency department (PED). This service, supported by a collaborative practice agreement, allows pharmacists to follow up with patients and independently stop, start, or adjust antimicrobial agents based on culture results. The primary objective of our study was to evaluate the impact of this service on the rate of return visits to the PED within 96 hours. The secondary objective was to evaluate the appropriateness of the prescribed antimicrobial agent at follow up. **Methods**: This study was completed as a retrospective chart review 6 months pre-implementation (January 1st, 2016 to June 31st, 2016) and 6 months post-implementation (February 1st, 2017 to July 31st, 2017) of a pharmacist-led AMS service. A research assistant extracted data from electronic medical records using a standardized data collection form. All patients discharged from the PED with a suspected infection whose cultures fell within the parameters of the collaborative practice agreement were included in this study. Data were reported descriptively and compared using a two-sided chi-square test. **Results**: This study included 1070 patient encounters pre-implementation and 1040 patient encounters post-implementation of the AMS service. The most commonly reviewed culture was urine (38% pre-implementation and 41% post-implementation). The rate of return visits to the PED within 96 hours was 12.0% (129/1070) pre-implementation vs 10.0% (100/1049) post-implementation phase ($p = 0.07$). A significantly higher percentage of inappropriate antimicrobial therapy was identified at the time of follow up in the pre-implementation phase (7.0%, 68/975) compared to the post-implementation phase (5.0%, 46/952), $p = 0.047$. **Conclusion**: Although this pharmacist-led AMS service did not affect the rate of return visits within 96 hours, it may have led to more judicious use of antimicrobial agents.

Keywords: antimicrobial stewardship, pediatric emergency department

MP12

Preparing emergency patients and providers study: patient expectations and factors leading to presentation

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Introduction: Effective communication to develop a shared understanding of patient expectations is critical to a positive encounter in the Emergency Department (ED). However, there is limited research examining Patient/Caregiver (P/C) expectations in the ED and what factors lead to P/C presentation. This study aims to address this gap by answering the following questions: 1) What are common P/C reported factors affecting ED presentation? 2) What are common P/C expectations of an ED visit? 3) How do P/C expectations vary based on ED site or factors affecting presentation in the ED? **Methods**: The Preparing Emergency Patients and Providers (PrEPP) tool was designed to collect P/C expectations, worries, perceived causes of symptoms, and factors affecting presentation from a convenience sample of patient visits to the emergency department (ED). The PrEPP tool was provided to all P/Cs with CTAS 2-5 when they registered at one of 4 EDs in the Halifax area from January to June 2016. Completed tools were collected in a REDCap database where qualitative data was coded into categories (i.e. presenting illness, injury). Descriptive and chi-squared statistical analyses were performed. **Results**: In total, 11,418 PrEPP tools were collected; representing 12% of the total ED visits to the 4 ED sites during the study period. The main factors affecting ED presentation were: self-referral 68%, family/friends 20%, telehealth 8%, unable to see their GP 7%, GP referral 6%, or walk-in-clinic 5%. P/Cs main causes of worry were: presenting illness 19%, injury 15%, or pain 14%. The main expectations for the ED visit were to get a: physician's opinion 73%, x-ray 40%, or blood test 20%. Most P/Cs indicated they did not expect medication during (63%), or after (66%), their ED visit. There were significant differences in P/C expectations between adult and pediatric EDs ($\chi 2 = 720.949$, $df = 14$, $P = 0.000$) and those P/Cs unable or able to access primary care prior to ED presentation ($\chi 2 = 38.980$, $df = 1$, $P = 0.000$). The rate of expecting a physician's opinion at the pediatric ED was higher than the adult ED (77.6% vs 70.9%), while lower for expecting CT/MRIs (4.6% vs 11.4%). P/Cs who were unable to access primary care prior to ED presentation expected services which were available at primary care at a higher rate than those who accessed primary care (58.5% vs 36.7%). **Conclusion**: Our findings identify some of the factors that influence P/C's decision to present to the ED and their expectations of the ED visit.

Keywords: communication, emergency department, patient expectations

MP13

Association between the quantity of subcutaneous fat and the inter-device agreement of two tissue oximeters

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Introduction: Near-infrared spectroscopy (NIRS) can be used to monitor the oxygen saturation of hemoglobin in any given superficial tissue. However, the measurements provided by different oximeters can vary a lot. Little is known about the specific patient characteristics that could affect the inter-device agreement of tissular oximeters. This study aimed to evaluate the association between the quantity of subcutaneous fat (assessed by skinfold thickness) and the inter-device agreement of two tissue oximeters, the INVOS 5100c and the Equanox 7600. **Methods**: In this prospective cohort study, tissue saturations and skinfold thickness were measured at four different sites on both sides of the body in healthy adult (≥18 years old) volunteers. The association between the quantity of subcutaneous fat (assessed by skinfold thickness) and the inter-device agreement (absolute difference between the oximetry values provided by the two oximeters) was first assessed with a Pearson's correlation and a scatter plot. Subsequently, a linear mixed model was used to evaluate the impact of the subcutaneous fat and other covariables (age, sex) on the inter-device agreement while adjusting for the repeated measurements across different sites for the same volunteers. **Results**: From January to March 2015, 53 healthy volunteers were included in this study with ages ranging between 20 and 81 years old, on which a total of 848 measures were taken. Higher skinfold measures were associated with an increase in the difference between measures provided by both oximeters (Slope = -0.59, Pearson correlation coefficient

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= -0.51, p < 0.001). This observed association persisted in a linear mixed model (-0.48 [95% confidence interval {CI}-0.61 to -0.36], p < 0.001). The sex of the volunteers also influenced the inter-oximeter agreement (Women:-5.77 [95%CI -8.43 to -3.11], p < 0.001), as well as the forearm sites (Left forearm: −7.16 [95%CI -9.85 to −4.47], p < 0.001; right forearm: −7.01 [95%CI -9.61 to −4.40], p < 0.001). **Conclusion**: The quantity of subcutaneous fat, as well as the sex of the volunteers and the measurement sites, impacted the inter-device agreement of two commonly used oximeters. Given these findings, monitoring using tissue oximetry should be interpreted with great care when there is a significant quantity of subcutaneous fat.
Keywords: inter-device agreement, near-infrared spectroscopy, tissular oximetry

MP14

Use of conventional cardiac troponin assay for diagnosis of non-ST-elevation myocardial infarction: 'The Ottawa Troponin Pathway'

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Introduction: Guidelines recommend serial conventional cardiac troponin (cTn) measurements 6-9 hours apart for non-ST-elevation myocardial infarction (NSTEMI) diagnosis. We sought to develop a pathway based on absolute/relative changes between two serial conventional cardiac troponin I (cTnI) values 3-hours apart for 15-day MACE identification. **Methods**: This was a prospective cohort study conducted in the two large ED's at the Ottawa Hospital. Adults with NSTEMI symptoms were enrolled over 32 months. Patients with STEMI, hospitalized for unstable angina, or with only one cTnI were excluded. We collected baseline characteristics, Siemens Vista cTnI at 0 and 3-hours after ED presentation, disposition, and ED length of stay (LOS). Adjudicated primary outcome was 15-day MACE (AMI, revascularization, or death due to cardiac ischemia/unknown cause). We analysed cTnI values by 99th percentile cut-off multiples (45, 100 and 250ng/L). **Results**: 1,683 patients (mean age 64.7 years; 55.3% female; median ED LOS 7 hours; 88 patients with 15-day MACE) were included. 1,346 (80.0%) patients with both cTnI ≤45ng/L; and 58 (3.4%) of the 213 patients with one value≥100ng/L but both <250ng/L or ≤20% change did not suffer MACE. Among 124 patients (7.4%) with one value >45ng/L but both <100ng/L based on 3 or 6-hour cTnI, one patient with Δ<10ng/L and 6 of 19 patients with Δ≥20ng/L were diagnosed with NSTEMI (patients with Δ10-19ng/L between first and second cTnI had third one at 6-hours). Based on the results, we developed the Ottawa Troponin Pathway (OTP) with a 98.9% sensitivity (95%CI 96.7-100%) and 94.6% specificity (95%CI 93.4-95.7%). **Conclusion**: The OTP, using two conventional cTnI measurements performed 3-hours apart, should lead to better identification of NSTEMI particularly those with values >99th percentile cut-off, standardize management and reduce the ED LOS.
Keywords: chest pain, non-ST elevated myocardial infarction (NSTEMI), troponin

MP15

Blood transfusion in upper gastrointestinal bleeding: evaluating physician practices in the emergency department

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Introduction: Acute upper gastrointestinal bleeding (UGIB) is a common presentation to emergency departments (ED). Of these patients, 35-45% receive a blood transfusion. Guidelines for blood transfusion in UGIB have been well established, and recommend a hemoglobin (Hb) level below 70 g/L as the transfusion target in a stable patient. There is no consensus on a transfusion threshold for unstable UGIB. There is limited data regarding physician practices in the ED. The aim of our study is to determine the appropriateness, by expert consensus, of blood transfusions in UGIB in a tertiary care hospital ED. **Methods**: We retrospectively reviewed patients presenting with UGIB to the University of Alberta Hospital ED in 2016. These patients were then screened for blood transfusions. Data were obtained from the patient records. Chart derived data were verified with records obtained from the blood bank. For each patient, the history, vitals, Glasgow Blatchford Score (GBS), relevant labs, and record of blood transfusions were collected and organized into a case summary. Each patient summary was presented individually to a panel of three expert clinicians (2 Gastroenterology, 1 Emergency Medicine), who then decided on the appropriateness of each blood transfusion by consensus. **Results**: Blood transfusions (data available 395/400) were given to 51% (202/395) of patients presenting with UGIB. Of these, 86% (174/202) were judged to be appropriate. Of the 395 patients, 34% (135/395) had a Hb of <70 g/L. Of these, 93% (126/135) were transfused, and all of these were considered appropriate. 18% (70/395) had a Hb between 71-80. 74% (52/70) of these patients were given blood, and 79% (41/52) were considered appropriate. 13% (50/395) of the patients had a Hb between 81-90, with 28% (14/50) receiving a transfusion. Of these, 36% (5/14) were deemed to be appropriate. 35% (140/395) of patients had a Hb of >90. 7% (10/140) of these received blood. 20% (2/10) were considered appropriate. **Conclusion**: The panel of expert clinicians judged 86% of the blood transfusions to be appropriate. All transfusions under the recommended guideline of 70 g/L were considered appropriate. In addition, the majority of transfusions above a Hb of 70 g/L were considered appropriate, but 37% were not. Further studies evaluating the feasibility of current guideline recommendations in an ED setting are required. Educational interventions should be created to reduce inappropriate blood transfusions above a Hb 70 g/L.
Keywords: blood transfusion, upper gastrointestinal bleeding

MP16

Which PoCUS skills are retained over time for medical students?

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Introduction: Point-of-care ultrasonography (PoCUS) is being incorporated into Canadian undergraduate medical school curricula. The purpose of this study was to evaluate novel PoCUS education sessions to determine what aspects of the sessions benefitted from hands-on training and which PoCUS skills were retained over time. **Methods**: Second year medical students voluntarily received three different PoCUS training sessions, each lasting three hours. Prior to the sessions, participants prepared independently with pre-circulated online learning materials. After a 15-minute lecture, experienced PoCUS providers led small group (1 instructor: 5 students), live

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