

male (AOR = 1.94; 95% CI 1.11 - 3.40), and reported that their overdose was unintentional (AOR = 2.95; 95% CI 1.04 8.35) and caused by illegal opioids (AOR = 4.73; 95% CI 2.63 8.52) were significantly more likely to be offered a THN kit. **Conclusion:** ED-based THN programs have the potential to reach significant proportions of patients at high risk of mortality. However, these programs may have differential reach within the target population. Further research is needed to examine barriers and facilitators to offering all eligible ED patients a THN kit. **Keywords:** Take Home Naloxone, opioids, overdose

LO19

Understanding discharge communication behaviours in a pediatric emergency care context: a mixed methods study

J. A. Curran, PhD, A. Bishop, PhD, A. Plint, BSc, MSc, MD, S. Macphee, BSc, MD, Dalhousie University, Halifax, NS

Introduction: Optimal discharge communication between healthcare providers and parents who present to the emergency department (ED) with their children is not well understood. Current research regarding discharge communication is equivocal and predominantly focused on evaluating different delivery formats or strategies with little attention given to communication behaviours or the context in which the communication occurs. The objective of this study was to characterize the process and structure of discharge communication in a pediatric ED context. **Methods:** Real-time video observation and follow-up surveys were used in two academic pediatric EDs in Canada. Parents who presented with their child to the ED with one of six illness presentations, a Canadian Triage Acuity Score of 3-5 were eligible to participate. All ED physicians, learners, and staff members were also eligible. Provider-parent communication was analyzed using the Roter Interaction Analysis System (RIAS) to code each utterance. Parent health literacy and anxiety were measured upon admission to the ED. Parent recall of important discharge information and satisfaction with communication was assessed within 72 hours of discharge. **Results:** A total of 107 ED patient visits were video recorded and a total of 70,000 utterances were coded across six illness presentations: abdominal pain (n = 23), asthma (n = 7), bronchiolitis (n = 4), diarrhea/vomiting (n = 20), fever (n = 27), and minor head injury (n = 26). The average length of stay for participants was 3 hours, with an average of three provider interactions per visit. Interactions ranged in time from less than one minute up to 29 minutes, with an average of six minutes per interaction. The majority of visits were first episodes for the presenting illness (63.2%). Physician utterances coded most commonly involved giving medical information (22.9%), whereas nurses most commonly gave orientation instructions (20.9%). Learners were most likely to employ active listening techniques (14.2%). Communication that provided post-discharge instructions for parents comprised 8.5% of all utterances. Overall, providers infrequently assessed parental understanding of information (2.0%). Only 26% of parents recalled receiving important discharge information deemed relevant to their child's disposition. Yet, parent satisfaction with the amount of information communicated during the ED visit was generally high (89.6% agreed or strongly agreed). **Conclusion:** This is the first study of ED discharge communication to be conducted in a pediatric setting using video observation methods. Provider-parent communication was predominantly characterized by giving medical information, with little time devoted to preparing families to care for their child at home. Greater assessment of parent comprehension of discharge communication is needed to ensure that parents understand important instructions and know when to seek further care.

Keywords: discharge communication, pediatric emergency care, mixed methods

LO20

Emergency department initiated drug therapy and patient compliance in acute renal colic

A. Watt, MD, J. Brubacher, MD, MSc, L. Cuthbertson, BHSc (OT) MEd, R. Stenstrom, MD, J. E. Andruchow, MD, MSc, G. Andolfatto, MD, B. Weber, MD, G. Innes, MD, MSc, University of British Columbia Department of Emergency Medicine, North Vancouver, BC

Introduction: NSAIDs offer more effective analgesia than opioids, require less rescue medication, and decrease the incidence of nausea and vomiting in renal colic patients. Alpha blockers and Opioids are also prescribed frequently, but doses used and treatment durations are not well described. Our objective was to investigate ED prescribing decisions and medication compliance by patients with acute renal colic. **Methods:** In this prospective two-city cohort study, we invited patients with a first ED visit for image-confirmed 2-10 mm ureteric stones to consent to a telephone survey 10 days after their ED visit. During follow-up interviews, patients were asked what drugs they were prescribed and how many doses they required. This study was REB approved. **Results:** A convenience sample of 224 patients, including 152 males (67.9%) and 72 females (median age = 52.4 years) completed 10-day surveys. NSAIDs were prescribed for 48.7%, tamsulosin for 65.2% and opioids for 81.7%. One-third received a tamsulosin-NSAID combination, 40% an opioid-NSAID combination and 28% a tamsulosin-NSAID-opioid combination. Of 109 patients prescribed an NSAID, only 70 (64.2%) took 1 dose/day; however an additional 28 who were not prescribed NSAIDs took 1 NSAID dose/day. Mean (sd) NSAID intake in the overall study group was 1.1 (1.5) doses/day from day 1-5 and 0.6 (1.1) doses/day on days 6-10, with 90%ile values of 3.0 and 2.0 doses/day. NSAID compliance was more common in patients who stated they received high quality discharge instructions (63.8% vs. 32.6%; RR = 1.95; 95% CI 1.47-2.60). Mean opioid intake in the overall study group was 1.2 (1.7) doses/day from day 1-5 and 0.5 (1.3) doses/day on days 6-10, with 90%ile values of 4.0 and 2.0 doses/day. Among patients prescribed tamsulosin, the average was 4.0 days of compliance (sd = 4.3), with a 90%ile value of 10 days. **Conclusion:** This study provides estimates for the amount of drug actually used by renal colic patients during the 10-days after their ED visit. Patients used fewer opioid doses than expected, and NSAID and tamsulosin compliance appears relatively poor. NSAID compliance was better in patients who perceived high quality discharge instructions. This study suggests there is room for improvement in medication prescribing and discharge instructions for ED patients with an acute episode of ureteral colic.

Keywords: renal colic, nonsteroidal anti-inflammatory drug, pharmacology

LO21

Ability of single negative ultrasound to rule out deep vein thrombosis in pregnant women: A systematic review and meta analysis

K. Al Lawati, BSc, MD, J. Aljazeera, MBBS, S. Bates, MD, CM, MSc, W. Chan, MD, MSc, K. de Wit, MBChB, MSc, MD, McMaster University, Hamilton, ON

Introduction: The accuracy of ultrasound (US) for diagnosing lower extremity deep vein thrombosis (DVT) in non-pregnant patients has been well validated. However, in pregnant women with suspected DVT and an initial negative US (with imaging of the iliac veins), serial US is recommended. We aimed to determine the ability of single negative US to exclude DVT in symptomatic pregnant women. **Methods:** Two authors independently reviewed the following databases: MEDLINE,

PubMed and EMBase from inception until May 2017. Three authors reviewed all full text papers and data were extracted from included studies by four authors. An overlap among study populations was identified in 4 of the manuscripts, all from one multicentre Canadian study. Two authors performed data re-extraction from the hard copy research charts from this study. We assessed the risk of bias using the CLARITY group tool for prognostic studies. **Results:** Of 109 potentially relevant articles, 8 studies (7 prospective studies and 1 retrospective) were included. Risk of bias was low for the included populations, and low or moderate for method of measurement and for completeness of follow up. A total of 635 pregnant patients with symptoms of DVT had an initial negative US examination. Of those, 6 had positive DVT during serial US (0.94%) and 3 developed DVT during 3-month follow-up after serial ultrasound (0.47%). Using random-effects model, the pooled false negative rate of a single ultrasound was 1.27% (95% confidence interval, 0.42 to 2.56), $I^2 = 27\%$. **Conclusion:** The false negative rate of a single ultrasound with iliac vein imaging for DVT in pregnancy is low. Our results will help inform shared decision making around planning repeat ultrasound scans in these patients.

Keywords: deep vein thrombosis, ultrasound, pregnancy

LO22

Improving the pain experience for children with limb injury: a city-wide quality improvement collaborative

J. Thull-Freedman, MD, MSc, T. Williamson, PhD, E. Pols, BSN, A. McFetridge, BSN, S. Libbey, BSc, K. Lonergan, BSc, E. Lang, MD, A. Stang, MD, MPH, MBA, Departments of Pediatrics and Emergency Medicine, University of Calgary, Calgary, AB

Introduction: Undertreated pain is known to cause short and long-term harm in children. Limb injuries are a common painful condition in emergency department (ED) patients, accounting for 12% of ED visits by children. Our city has one pediatric ED in a freestanding children's hospital and 3 general ED's that treat both adults and children. 68% of pediatric limb injuries in our city are treated in the pediatric ED and 32% are treated in a general ED. A quality improvement (QI) initiative was developed at the children's hospital ED in April 2015 focusing on "Commitment to Comfort." After achieving aims at the children's hospital, a QI collaborative was formed among the pediatric ED and the 3 general ED's to 1) improve the proportion of children citywide receiving analgesia for limb injuries from 27% to 40% and 2) reduce the median time to analgesia from 37 minutes to 15 minutes, during the time period of April-September, 2016. **Methods:** Data were obtained from computerized order entry records for children 0-17.99 years visiting any participating ED with a chief complaint of limb injury. Project teams from each site met monthly to discuss aims, develop key driver diagrams, plan tests of change, and share learnings. Implementation strategies were based on the Model for Improvement with PDSA cycles. Patient and family consultation was obtained. Process measures included the proportion of children treated with analgesic medication and time to analgesia; balancing measures were duration of triage and length of stay for limb injury and all patients. Site-specific run charts were used to detect special cause variation. Data from all sites were combined at study end to measure city-wide impact using 2 and interrupted time series analysis. **Results:** During the 3.5-year time period studied (April 1, 2014-September 30, 2017), there were 45,567 visits to the participating ED's by children 0-17.99 years with limb injury. All visits were included in analysis. Special cause was detected in run charts of all process measures. Interrupted time series analysis comparing the year prior to implementation at the children's hospital in April 2015 to the

year following completion of implementation at the 3 general hospitals in October 2016 demonstrated that the proportion of patients with limb injury receiving analgesia increased from 27% to 40% ($p < 0.01$), and the median time from arrival to analgesia decreased from 37 to 11 minutes ($p < 0.01$). Balancing measure analysis is in progress. **Conclusion:** This multisite initiative emphasizing "Commitment to Comfort" was successful in improving pain outcomes for all children with limb injuries seen in city-wide ED's, and was sustained for one year following implementation. A QI collaborative can be an effective method for spreading improvement. The project team is now spreading the Commitment to Comfort initiative to over 30 rural and regional EDs throughout the province through establishment of a provincial QI collaborative.

Keywords: quality improvement and patient safety, quality improvement collaborative, pediatric pain

LO23

Reducing time to disposition for treat & release patients in the emergency department

V. Woolner, BScN MN, S. Ensafi, HBSc, PA, J. De Leon, BScN, MScN, L. George, HBSc, BScN, MN, L. Chartier, MD, CM, MPH, University Health Network, Toronto, ON

Introduction: Treat and Release (T&R) patients are seen and discharged home from the emergency department (ED), and asked to return within 12-72 hours for follow-up care (e.g., ultrasound, repeat blood work). Our two academic teaching hospitals see approximately 2,000 T&R patients per year. Handover of care for T&R patients done through charting only and therefore dependent on the charts adequacy and completeness crucial to the safety and quality of care they receive. An 18-month retrospective chart audit at our sites identified quality gaps, including suboptimal documentation that ultimately impedes patient disposition. Our projects aim was to reduce the time-to-disposition (TTD; time spent by patients between provider initial assessment and discharge from the ED) by a third (from 70min) in 6-months time (March 2017), a target felt to be both meaningful and realistic by our stakeholder team. **Methods:** Our primary outcome measure was the TTD (in minutes). Our process measure was the quality of documentation, using a modified version of QNOTE, a validated tool used to assess the quality of health-care documentation. PDSA cycles included: 1) Involvement of stakeholders for the creation and refinement of an improved T&R handover tool to cue more specific documentation; 2) Education of health-care providers (HCPs) about T&R patients; 3) Replacement of the previous T&R handover tool with a newly designed and mandatory tool (i.e. a forcing function); 4) Refinement of the process for T&R patients and chart hold-over. **Results:** Run charts for both the median TTD and median modified QNOTE scores over time demonstrate a shift (i.e., run chart rule) associated with the second and third clustered PDSA cycles. After the first three clusters of PDSA cycles (i.e., before-and-after), mean TTD was reduced by 40% (70min to 42min, $p = 0.005$). The quality of documentation (mean modified QNOTE scores) was also significantly improved (all results $p < 0.0001$): patient assessment from 81% to 92%, plan of care from 58% to 85% and follow-up plan from 67% to 90%. **Conclusion:** We reduced the time-to-disposition for T&R patients by identifying gaps in the quality of documentation of their chart. Using iterative PDSA cycles, we improved their time-to-disposition through improved communication between health-care providers and a new T&R handover tool working as a forcing function. Other centers could use similar assessment methods and interventions to improve the care of T&R patients.

Keywords: quality improvement and patient safety, emergency department, documentation