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), $I2 = 27\%$. **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

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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 childrens 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 childrens 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

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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 patientsdone through charting only and therefore dependent on the charts adequacy and completenessis 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