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Medication timeliness in emergency department in pediatric sickle cell disease population presenting with vaso-occlusive episode

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Quality Improvement Abstract Title

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IRB Number (if applicable):

Describe role of Submitting/Presenting Trainee in this project (limit 150 words):
Along with the mentorship of Dr. Kestner, I helped develop this QI project. Through the fellows QI course, the project details were developed including me collecting baseline data then working with clinical decision support to develop and fine tune monthly reports. I have submitted this project and it was accepted for presentation at the American Society of Hematology National Convention in December 2018. I have been able to work with nursing from the ED to provide education to nurses regarding this project.

Problem Statement/Question, Background/Project Intent (Aim Statement), Methods (include PDSA cycles), Results, Conclusions limited to 500 words

Problem Statement/Question:

Vaso-occlusive episode (VOE) is the most common acute complication for individuals with sickle cell disease (SCD) and most common reason to seek medical care. Rapid initiation of analgesia therapy, with timely subsequent doses as needed upon presenting to the emergency department (ED) for VOE are current established guidelines. Our center's initial analgesic approach aligns with NHLBI Guidelines of initial analgesic therapy within 60 minutes of registration and reassessment along with subsequent doses every 15 to 30 minutes if severe pain persists. Our center also recommends initiation of continuous infusion (CI) of pain medication within 60 minutes following third bolus dose of pain medication for those not achieving sufficient analgesia.

Background/Project Intent (Aim Statement):

This project's aim is to reduce time to initial dose of analgesic therapy in patients with SCD presenting to the ED with VOE to less than 60 minutes from registration in 80% of study population, decrease time interval between first and third dose of opioids to less than 60 minutes in 80% of study population, and initiate CI of pain medication within 60 minutes of third dose of opioids in 60% of individuals requiring further analgesic

support. The goal is to achieve these measures within the completion of 6 monthly Plan-Do-Study-Act (PDSA) cycles.

Methods (include PDSA cycles):

Three initial countermeasures were implemented within our institution to achieve the targeted objectives. (1) An adjustment to current ED order sets to include intranasal fentanyl as an initial one time option for a quicker analgesic option upon registration. (2) Another adjustment to the initial ED order set used upon presentation of the patient to include CI orders. (3) Final initial adjustment to change nursing prompt within the electronic medical record (EMR) for reassessment following bolus doses of pain medication.

Results:

Over the first five PDSA cycles, promising results have been noted across all 3 aims. For the initial dosing, 4/5 months were above baseline with two month reaching target at 80%. For time between first and third dose of pain medication, 2 months were above baseline. For time between third dose and initiation of CI, 4/5 months were above baseline. Initial qualitative response from ED staff and nursing has been positive regarding initial countermeasures and care of the patients.

Conclusions:

This project identified the need for improvement efforts in patient care. The goal is to provide more efficient analgesic support; quicker pain control can be achieved, with this leading to improvement in patient care. It is anticipated that with the eventual achievement of the aims, a decreased admission rate will be noted; for those individuals still requiring further analgesic support, it is felt more efficient analgesic support will lead to quicker control of VOE and, subsequently, shorter hospitalizations. Additional countermeasures are currently being vetted to determine feasibility within our center and their ability to maintain the success of this project over time. Plan will be to continue to run monthly PDSA cycles for 6 months to evaluate response of timing to initial adjustments before integrating further interventions.