





Edmonton Zone Medicine Quality Council Partnerships in Action Strategic Clinical Improvement Committee

DEFINE OPPORTUNITY

BACKGROUND

- Vaso-occlusive pain episodes (VOE) due to tissue ischemia and inflammation are the most common clinical manifestation of sickle cell disease (SCD) and constitute a primary reason for recurrent Emergency Department (ED) visits and/or hospitalizations for individuals with SCD.
- Current national and international guidelines recommend:
- Administration of first dose of analgesia within 30 minutes of ED triage and/or 60 minutes of ED presentation. • Frequent monitoring and assessment of vital signs, pain scores, and sedation scale (RAAS), every 30 minutes for the first 2 hours, then every 1 hour if stable.
- Escalation of opioid treatment (dose, route, frequency) if pain not optimally controlled (pain score > 6).

Benefits of Timely Management of VOE:

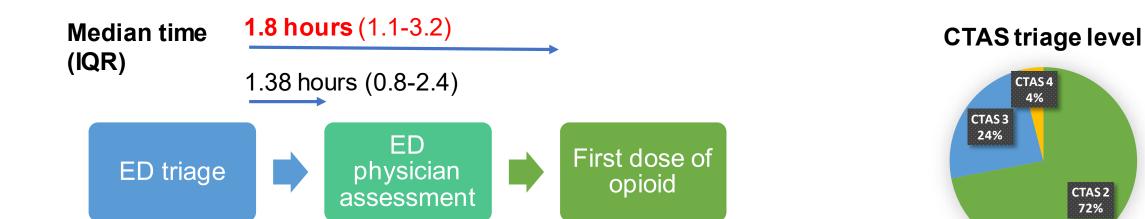
- **U**Rates of admission/readmission to hospital
- ↑ Pain support
- ↑ Patient satisfaction
- Earlier identification of serious underlying disease/complications

PROBLEM

- The University of Alberta Hospital (UAH) is not meeting the recommendations outlined by national and international guidelines for treating individuals with SCD who present to the ED with VOE.
- While the pediatric ED at the UAH has a standardized sickle cell VOE protocol, the adult ED does not. Delays in appropriate management can lead to long-term morbidities and mortality.

BASELINE

Based on an audit of 56 sickle pain crises presentations at UAH ED from 2000-2017 (n=26 patients):



AIM

- By December 2020:
- 20% reduction in the time from ED triage to first dose of analgesia, and in keeping with national and international guidelines, within 30 minutes of ED triage and/or 60 minutes of ED presentation.
- 20% improvement in patient satisfaction and experience in those who present to the UAH ED with sickle cell VOE, as measured by a pre-devised patient survey.

BUILD UNDERSTANDING

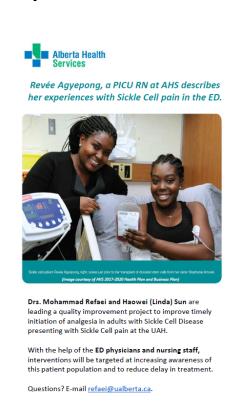
PROCESS ASSESSMENT • A brief literature review and QI tools were completed to assist with identifying root causes and areas of opportunity.

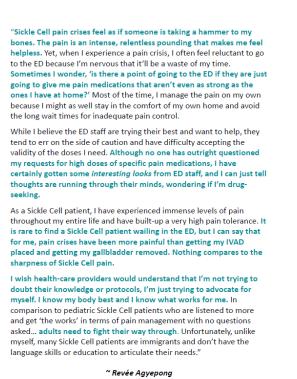
Patient arrives at ED and is assigned a triage urgency level (CTAS)	Patient-
Patient is registered	related
Patient is assessed by ED triage nurse	Not showing their SCD cards
Patient is assigned ED bed	Prevention and management as outpatient La
Patient is assessed by ED floor nurse	opioid taken prior to presentation
Patient is assessed by ED physician	Fear of opioid overdose/opioid crisis
Physician orders first dose of analgesic	Lack of experience and knowledge Lack of initia Lack of standardized protocol to
ED floor nurse administers first dose of analgesic Nurse monitors and administers repeat doses of analgesic	manage VOE in ED MD- related
ED Physician reassesses patient	Figure 1: Cause and Effect D
ED Physician consults hematology (if necessary) Physician discharges or admits patient	to delays in appropriate manage and categorized into patient-rel related, Health Care System, an

MANAGE CHANGE

COLLABORATION & COMMUNICATION STRATEGIES

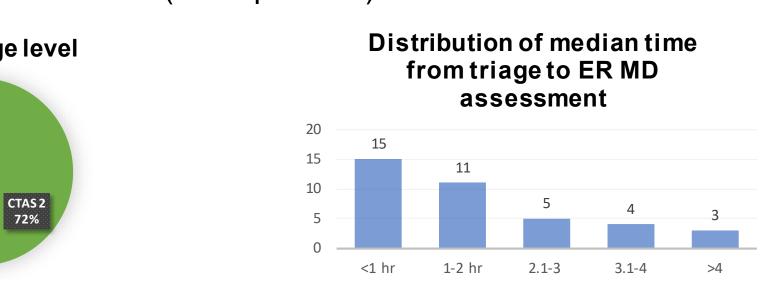
- Multidisciplinary team of physicians, medical students, nurses, clinical nurse educators (CNE), and QI specialists. • Two stakeholder meetings were conducted in September and December of 2018 to create process maps and identify root causes for prolonged time from triage to analgesia (figure 1).
- Periodic meetings held with frontline stakeholders from the hemoglobinopathy clinic, hematology, ED physicians, CNEs, and ED triage RNs. • Collaboration from a patient representative was elicited to learn about how to improve the patient experience.

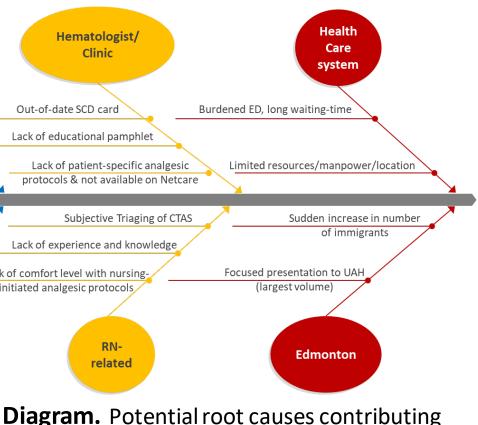






Improving Timely Treatment of Adult Sickle Cell Anemia Patients Presenting with Vaso-**Occlusive Pain Episodes at the University of Alberta Hospital Emergency Department** M. Refaei, P. Mathura, M. McGrath, N. Lam, L. Bolster, L. Sun, L. Truong





AREAS OF OPPORTUNITY

- Time from ED triage \rightarrow registration
- Assignment of appropriate triage urgency level (CTAS 2)
- Time from triage \rightarrow first dose of analgesic
- More frequent assessment of pain using appropriate tools

Diagram. Potential root causes contributing agement of VOE in the UAH ED were identified related, MD-related, Hematologist/Clinic, RNand Edmonton specific issues.

ACT TO IMPROVE

	GAP	INTERVENTION	
ATED	Ineffective use of patient SCD cards	 Update SCD card with patient-specific home analgesi Remind patients to retain digital copy of SCD card on Exploration of appropriate apps to support patient m 	cell phone and to share it with E
REL	Insufficient patient education	Patient-specific instructions for prevention and mana	igement of VOEs in both a paper
RELATED	Subjective triaging of sickle cell VOE	<text><text><text><text><text><text><text><list-item><list-item><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></list-item></list-item></text></text></text></text></text></text></text>	<text><text><text><text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text></text></text></text>
	Lack of standardized protocol	for management of VOE which includes preset orders and monitoring parameters for ED nurses and physicians (electronic version loaded onto Comprehensive Clinical Practice Guideline Library (ccPGL) and paper copies available at the ED triage desk)	differential, retic count, LDH, electrolytes, creatinine, ALT, GGT, ALP, total bilirubin, lipase, type and beta-HCG in females under 50, hemoglobin F and S quantification ver greater than 38.3 or symptoms of infection: urinalysis, urine culture & sensitivity, blood culture & ty x2 – Notify MD. spiratory symptoms: Chest X-ray PA & lateral, ECG and troponin. out other acute complications: priapism (consult urology if > 4 hours), splenic sequestration (with splenic enlargement and severe anemia/thrombocytopenia). splenomegaly).

RESULTS

• Due to the time, staff, and location constraints associated with the implementation of Connect Care and renovations at the UAH, a full PDSA cycle was not completed and has been delayed until Fall 2020. No results to report currently.

NEXT STEPS

 Incorporation of patient-specific instructions and standardized order set into Connect Care is planned for Fall 2020. Administer patient and ED provider satisfaction surveys to monitor experiences with the interventions and to identify further areas of opportunity. Monthly patient chart audits and adjustments to PDSA cycle based on assessment of interventions' impacts for 1 year following PDSA start date. Share interventions at ED physician divisional meetings and RN educational sessions to ensure that sustained awareness is maintained. Explore future possibility of upfront analgesia administration by RNs (upon verbal confirmation from MD).

LESSONS LEARNED

• Orientation module for new ED nurse hires lacks emphasis on pain management, appropriate triaging, the time sensitive nature of VOE presentations, and the RAAS scale which is used in the SCD VOE standardized order set. Updated orientation package has been made available to CNEs for teaching purposes.

Common misunderstanding that SCD only affects people of African descent. Updated orientation package addresses this knowledge gap. Best way to share learning to ED staff include presenting at morning huddles and hosting short, consecutive in-service sessions (10-15 min).

WHY THIS QI MATTERS

TO PATIENTS:

Reduce patient morbidities & dissatisfaction from poorly managed VOE in ED.

TO MD/RNs:

Streamline flow of patients through ED to foster cooperation from patients and hematologists.

REFERENCES

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RVENTION

- regimen
- ell phone and to share it with ED medical staff ASAP dical history capture
- ement of VOEs in both a paper and online format

geted at CNEs, ED triage nurses, and ED RNs Sickle Cell Disease Vaso-Occlusive Episode: Pain Assessment & Management **Core Concepts for ED Nurses** should VOEs be Managed in the EE Management of acute pain is central to the care of individuals with SCD, yet pain i often poorly or inadequately addressed in all types of health care settings. Mohammad Refae Leslie Truong Hematology Fellow PGY5 1st Year Medical Student Clinical Scenario The patient reveals he has sickle cell disease, and this is his 3rd ED visit this year for sickle cell pain. He has been hospitalized 2 times for pain and his last episod IV hydration (1 L over 1 hr Right now, his pain is a 10/10 in his lower extremities, but he denies any chest or IV pain relief (within 30 min of tria O₂ (regardless of SaO₂ levels) abdominal pain associated with that. His vital signs are stable: HR is 93, RR is 1 BP is 145/86, T is 36.9, and SaO₂ is 98%. 2) Monitor: vitals, pain, sedation (RASS) even You notice that the patient is playing with his phone and seems a little distracted Red Flags: RASS < -2, respiratory rate < 10/min, difficult to arouse When asked what the patient has tried at home, he says he has taken 30 mg of morphine PO and 600 mg of ibuprofen PO, but it isn't cutting the pain. <u>Re-evaluate</u>: consider escalating opioid treatment (dose, route, and/or frequence) When asked what usually works for him, he reports that he was treated with 1 mg morphine IV on his last hospital admission. You believe that 10 mg is a quite achieve adequate pain control within 1 ED presentation (pain score < 5). big dose and you are not comfortable with administering that...) <u>Consult</u>: involve Hemoglobinopathy clinic How would you assess and manage this patient's pain? Hematologist on-call for assistance.) <u>Educate</u>: your colleagues and support staff **Overview of Management** Rule out other life-threatening causes of pain related to SCD Follow the new SCD Emergency Department ORDER SET sult Hemoglobinopathy clinic or Hematologist on-call for Nursing assessment flowshee /itals, Pain score, RAA Emergency Department Management of Adult Sickle Cell Patients- Order Se Vitals (BP, HR, RR, O2 sat, Temp) Pain score (0-10) RAAS Nurse initials Time since atient's sickle cell disease card, and past 24hr opioid use at hom Within 30 mir Within 60 min dose of parenteral analgesia WITHIN 30 MINUTES of arrival to Emergency triage Within 90 mins hone 1-2 mg IV/SC or _____ mg IV/SC on arrival to ED and _____ mg IV/SC Q30min PRN OR Within 120 mins 0-20 mg IV/SC or ____ mg IV/SC on arrival to ED and ____ mg IV/SC Q30min PRN AND ____ Within 150 min oradol) 10 mg IV/IM x 1 (if normal renal function) AND _____ Within 180 mins hen 650 mg PO x1 (after temperature taken) then 650 mg PO every 4 hours PRN. 00 mg PO every 6 hours (if normal renal function; maximum dose 3200 mg in 24 hours) ntrol not achieved within first 2 hours, Orders Time/Date ordered C Nurse initial ent-Controlled Analgesia (PCA); see separate order se Time/Date

- res from 2 sites, urinalysis and urine cultures are draw e 2 g IV x1 or Levofloxacin 750 mg po x 1 (if unable to get IV access) keep O2 saturation greater than 95% ne (+ ____ mEq KCL IV at ____ mL/hour) (suggest 75-100 mL/hour) Location of Pair ۶ NS (if no concerns of hyponatremia) + ____ mEq KCl IV at ____ mL/hour ntial, retic count, LDH, electrolytes, creatinine, ALT, GGT, ALP, total bilirubin, lipase, type and CG in females under 50, hemoglobin F and S quantification ter than 38.3 or symptoms of infection: urinalysis, urine culture & sensitivity, blood culture a y symptoms: Chest X-ray PA & lateral, ECG and troponi ner acute complications: priapism (consult urology if > 4 hours), splenic sequestration (with largement and severe anemia/thrombocvtopenia). splenomegaly) Left ain assessment and sedation scale (RAAS) every 30 minutes for 2 hours, then every 1 hour i RAAS is < -2, RR< 10/min, difficult to arouse, AND administer oxygen via facemask 10 L/m.

administered

Right

SHARE LEARNING

TO HEALTHCARE SYSTEM:

Optimize scarce resources and reduce the need for hospital admission/readmission of SCD patients with VOE. Decrease the burden on ED and reduce overall wait times.