

## Evidence Based Acute Sickle Cell Pain Management in the Emergency Department

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**Purpose & Rationale:** To improve system wide acute sickle cell pain management in a suburban health care center emergency department through implementation of evidence based clinical pathway (EBCP). To address suboptimal and delayed pain management interventions and lack of knowledge regarding evidence based practice and sickle cell related organ damage, disability and death.

**Research Question:** Does implementation of an EBCP for patients with acute sickle cell pain result in improved time from emergency department (ED) registration to first and subsequent pain assessment, opioid administration, and decreased admission rates?

**Syntheses of Review of Literature:** Episodes of unpredictable and unrelenting acute sickle cell pain are the most common reason for visits to the ED and hospitalizations for this patient population. Despite evidence of untimely death associated with sickle cell disease (SCD) related organ damage, patients with SCD continue to experience delayed and suboptimal acute pain management. Inadequate clinician education and indifference to available evidence based pain management guidelines are some of the underlying reasons cited.

**Methods /Procedures:** Guided by the *Advancing Research and Clinical Practice through Close Collaboration* (ARCC) model, a retrospective chart audit of patient visits to the ED from 7/08-5/09 was conducted utilizing the modified sickle cell data form. An assessment of ED nurses' knowledge, attitude and self reported practice regarding SCD was conducted (Sickle Pain-KAPNS). An educational intervention about SCD pain, its underlying pathology and organ damage was mandated for ED nurses. A post education Sickle Pain-KAPNS was assessed. The EBCP was developed by a Sickle Cell Action Team. Staff received education regarding the EBCP and Patient Controlled Analgesia (PCA) pump training. A mock drill followed. This resulted in revisions to the EBCP leading to implementation of a three month pilot phase. Chart audits of patient visits to the ED for acute SCD pain were scheduled to be conducted on a monthly basis after completion of the pilot.

**Results:** This study will report on chart audit comparison data from the pre-intervention and subsequent month's post-intervention. A pre-intervention N = 44, with pain score above 7 and M = 9. Time from ED registration to first opioid administration, M = 67 minutes (SD=48.1) and range 6-258 minutes. Reassessment post-opioid administration M = 113 minutes (SD=118.4) 7-732 minutes. No patients received a PCA. The number of patients that required admission was 50% (22/44). Pre-education Sickle Pain-KAPNS N= 20; M= 22.3 (SD= 6.50) and post intervention Sickle Pain-KAPNS N= 16, M= 30.9 (SD= 4.57). Post-intervention for a 1 month chart audit, N=17, pain score above 7, M = 8.8. ED registration to first opioid, M = 35 minutes (SD=23), range 11 - 95 minutes. Reassessment post-opioid administration, M = 22 minutes (SD =9) 10-45 minutes. One patient received a PCA. The number of patients that required admission was 41% (7/17).

**Discussion/Application of Practice:** A multidisciplinary team approach can improve pain outcomes for patients with SCD and enhance best practice. Future plans include utilization of integrative therapies, a patient satisfaction survey, and collaboration with RN staff in ED to identify future goals.