USE OF A ROBUST PROCESS IMPROVEMENT METHODOLOGY TO DECREASE SICKLE CELL-RELATED SUPER UTILIZATION OF EMERGENCY DEPARTMENT AND INPATIENT SERVICES

Lead Author: Christine Youngblood, MSN, MHA, RN, CPHQ
Contributing Authors: Titilope Fasipe, MD, PhD, Precious Uwaezuoke, MSN, FNP-C, Devin Olivares-Reed Bethany Lowe, MHA, Heidi Russell, MD, PhD
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Background
Using a robust process improvement methodology, we identified an opportunity to decrease avoidable emergency center (EC) and inpatient admissions for pediatric patients with sickle cell disease (SCD), across a hospital system. System-wide treatment guidelines had been previously implemented without significant impact on encounter frequency. Like other populations in health care, most encounters were attributed to a small subset of patients, i.e. super utilizers.

Objectives
With this project, we identified this population and developed evidence-based strategies.

Methods
A Measures and Analytics work group was formed to establish the data collection strategy, process performance baselines, project inputs, and the proposed measurement system. Multi-disciplinary stakeholders and content experts employed iterative cause and effect analysis, process mapping, literature review, data analytics and selected chart reviews to develop a population and potential systemic modifications. Repeatability and reproducibility validated the measurement system.
The team developed and validated an algorithm, within the electronic medical record, for identifying the SC population and for categorizing the reason for EC and inpatient admissions. Then we performed a rolling calculation of encounters in the previous 365 days and categorized our patients into low, intermediate, and high utilization categories. We used this algorithm to develop baseline run charts.

Results
Patient utilization followed expected distribution with 8% of patients accounting for 48% of encounters. The reason for encounters varied by age, requiring different medical and psychosocial pathways. Children 10 years and older presenting with pain was the most frequent encounter type. Younger children presented with fever.

Discussion
Inclusion of data analytics was key to identifying utilization patterns and will be fundamental to improving utilization and morbidity-related outcomes in the sickle cell population.