

BMC reduces emergency wait time, improves care for pediatric sickle cell disease patients

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Boston Medical Center (BMC) has significantly reduced the amount of time that pediatric patients experiencing pain from sickle cell disease (SCD) wait before receiving pain medication when they come to the emergency department. The hospital's quality improvement initiative cut the wait time by more than 50 percent, from an average of 56 minutes to 23 minutes, from triage to administration of the first dose of pain medication. The results, published in *Pediatrics*, demonstrate a significant improvement in SCD care for pediatric patients in BMC's emergency department and could serve as a model for other hospitals across the country.

Sickle cell disease affects approximately 100,000 Americans and can cause numerous complications, including severe pain and increased risk for infection, stroke and death. One complication, called a Vaso-occlusive episode (VOE), causes extreme, debilitating pain and is one of the most common reasons that patients with SCD go to the emergency department and/or are hospitalized. In Boston, BMC cares for approximately 50 percent of the [pediatric patients](#) with SCD - close to 200 patients.

The National Heart, Lung, and Blood Institute recommends that pediatric patients with SCD who are experiencing a VOE be triaged and treated as quickly as possible in the emergency department. However, previous national studies have indicated that these patients often wait, on average, between 65 and 90 minutes for the first dose of [pain medication](#)

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"When a child with [sickle cell disease](#) comes to the emergency room with pain from a VOE, they likely have been in tremendous pain for hours," said Patricia Kavanagh, MD, MSc, pediatrician at BMC and assistant professor of pediatrics at Boston University School of Medicine (BUSM). "The goal of this initiative was to treat the pain episode as quickly and aggressively as possible so that these children could return to their usual activities, including school and time with family and friends."

From September 2010 to April 2014, a multidisciplinary team at BMC worked in the [pediatric emergency department](#) to change how these patients were triaged and treated. The four interventions they focused on to improve care included: the development of a standardized time-specific protocol that guided care when the patient is in the emergency department; using intranasal fentanyl - a pain medication taken through the nose - as a first-line pain medication since placing intravenous lines (IVs) can be hard in children with SCD; using an online "calculator" to quickly determine appropriate pain medication doses in line with what is used nationally for children in the emergency department; and providing education to both emergency providers and families on this work.

The results of the four initiatives included a reduction in the average time from triage to the first dose of a pain medication - either through the nose or IV - from 56 minutes to 23 minutes. To ensure that there was no delay in placing the IV when intranasal fentanyl (2 doses) was used first, the team tracked the time to the second IV pain medication dose, which also decreased from 106 minutes to 83 minutes. There also was a reduction in the time it took for the physician to determine whether the patient would be admitted (from 163 minutes to 109 minutes) or discharged (from 271 minutes to 178 minutes). In addition, patients who were admitted were given patient-controlled analgesics (PCA) to control their pain, and the time to its initiation decreased from 216 minutes to 141 minutes.

The data also showed that while the proportion of discharged patients increased from 32 to 48 percent, there was no increase in patients returning to the emergency department within 24 hours of their initial visit nor was there an increased number of hospitalizations for patients who were admitted.

"By working collaboratively with caregivers across the [emergency department](#) to implement these changes, BMC has significantly improved the quality of care for BMC's young patients with SCD during emergency situations," said James Moses, MD, MPH, director of patient safety and quality for pediatrics at BMC and assistant professor of medicine at BUSM. "While future studies are necessary to determine if these results can be replicated at other hospitals, our data indicates that these initiatives could have a tremendous impact on care for kids with SCD across the country."

Provided by Boston University Medical Center

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