Emergency Medicine News:

[27 October 2015 - Volume 37 - Issue 10A - [no page #]](http://journals.lww.com/em-news/toc/2015/10271)

doi: 10.1097/01.EEM.0000473357.67412.76

News

News: Boston Medical Center Speeds Pain Relief to Pediatric Sickle Cell Patients

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A plan at Boston Medical Center to speed pain relief to sickle cell disease pediatric patients cut the time from triage to medication delivery in half, according to a study published in *Pediatrics*. (2015;136[4]:e1016; <http://emn.online/1LMvUV4>.) The results illustrate a significant improvement in pediatric sickle cell disease care and have already started to serve as a model for other hospitals.

Image Tools

“I did focus groups [as a fellow at Boston Medical Center] with patients and families just trying to figure out what did they like about the care they were receiving and where the problem areas were. Universally, the ER was a problem. And not only was it a problem here at our institution, but I expanded the study with a grant and at all the institutions in Boston, it was the same thing,” said Patricia Kavanagh, MD, an assistant professor of pediatrics at Boston University School of Medicine, a pediatric attending at Boston Medical Center and the lead author of the study.

Everyone with sickle cell disease is caught in an awful vortex, Dr. Kavanagh said. “When you usually go into the ER and have pain, it's very common to give one dose, maybe a second dose, and then you sort of walk away and check in on them an hour or so later. But it's so frustrating because when you look at the guidelines for these pain episodes, you don't expect them to respond to one dose,” she said.

One of the common complications of sickle cell disease, vaso-occlusive episode (VOE), causes extreme, crippling pain. Boston Medical Center cares for about 200 pediatric patients with sickle cell disease, which is approximately 50 percent of Boston's sickle cell disease pediatric population.

Researchers used four interventions to streamline VOE care: a standardized time-specific VOE protocol, intranasal fentanyl as the first parenteral pain medication, a sickle cell disease pain medication calculator, and provider and patient-family education. The results of the four initiatives included a reduction in the average time from triage to the first dose of a pain medication from 56 minutes to 23 minutes. The team also tracked the time to the second IV medication dose to ensure no delay in placing the IV when intranasal fentanyl was used first, and found the time decreased from 106 to 83 minutes. A reduction was also seen 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). Patients who were admitted were given patient-controlled analgesics to control their pain, and the time to its administration decreased from 216 minutes to 141 minutes.

No increase was seen in patients returning to the emergency department within 24 hours of their initial visit, and the number of hospitalizations for admitted patients also did not increase.

“The key implication is that if you treat pain appropriately, and that means in an efficient manner — giving pain medications one after the other — you can actually do a better job capturing pain in children with sickle cell disease, and more of them go home and stay there; they don't come back. Admitting children to the hospital means they're missing school, their parents are missing work. So you actually get better outcomes if you treat the pain according to the guidelines,” Dr. Kavanagh said.

“I think nationally if they were given more timely care,” she said, “they could probably go home, and that's the ultimate goal.”

Several institutions so far have already adopted intranasal fentanyl and are testing it as the first-line pain medication, according to Dr. Kavanagh. Benioff Children's Hospital in Oakland, part of the University of California-San Francisco, and Children's Healthcare of Atlanta are using it, and Children's Hospital of Philadelphia is investigating it.

Boston Medical Center's hospital administration requested to see studies with similar results for adult patients with sickle cell disease, which is what Dr. Kavanagh and her team are currently researching.

“Intranasal maxes out, so you can't really use it effectively in adults with sickle cell disease, but you can still pay attention to time to first dose and subsequent doses for them, and that's what we're doing now,” she said.

Researchers have already made improvements with the time to the first dose of pain medication, and now they are working on subsequent doses.