

Timely Administration of Pain Relief May Reduce Chances of Hospitalization for Children in Sickle Cell Crisis, Nemours Children's Health Study Shows

WILMINGTON, Delaware (September 2, 2025)— Patients with sickle cell disease often experience episodes of body pain so severe that they seek treatment at the emergency department (ED). A new study led by researchers at Nemours Children's Health shows that pediatric patients who receive the first dose of opioid-based pain relief within 60 minutes of arriving at the emergency department had a 15% lower chance of being hospitalized. The study was published today in *JAMA Pediatrics*.

The researchers also found that the greatest likelihood of avoiding hospitalization came from timely administration of the first two doses of opioid medications. After the first dose was given within an hour of arrival at the ED and the second dose was administered within the next 30 minutes, the need for hospitalization dropped by 38%.

These episodes of debilitating pain are often referred to as a pain crisis or sickle cell crisis. As the study's lead author, Ibrahim Gwarzo, DrPH, MPH, MBBS, Research Scientist at Nemours Children's Health, Delaware Valley, explained, "Timely opioid administration for sickle cell pain is critical in so many ways. We demonstrated in our research that ensuring pain relief and providing comfort to patients prevents complications that could arise from prolonged pain and stress, and reduces the likelihood of hospitalization."

Dr. Gwarzo added that patients in emergency departments often experience delays in receiving pain medication for reasons such as staffing shortages and concerns about the safety of opioids.

In response to this issue, the American Society of Hematology (ASH) and the National Heart, Lung, and Blood Institute (NHLBI) published guidelines during the past decade that recommend patients with sickle cell disease pain receive a first dose of an opioid within 60 minutes of arriving in the ED. NHLBI recommends subsequent doses every 30 minutes until pain is well controlled; ASH recommends subsequent doses every 30 to 60 minutes.

For this study, Gwarzo and colleagues examined data from 9,233 visits across 12 EDs that took place between January 1, 2019, and December 31, 2021. Using data from the Pediatric Emergency Care Applied Registry Network, they analyzed the timing of opioid administration and assessed whether the timing affected the patients' likelihood of hospitalization.

Senior author David Brousseau, MD, MS, Pediatrician-in-Chief and Director of Research at Nemours Children's Health, Delaware Valley, said the study's results should help ED personnel understand the importance of helping patients with sickle cell disease manage their pain in a time-sensitive manner.

"Emergency departments are busy, with lots of patients with competing priorities. Therefore, providers need to prioritize patients based on evidence that the need is immediate. Our study provides evidence that timely, guideline-adherent care is associated with decreased hospitalizations," Brousseau said. "We hope this information will help emergency department providers prioritize changes aimed at improving the care for this population."

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About Nemours Children's Health

Nemours Children's Health is one of the nation's largest multistate pediatric health systems, which includes two freestanding children's hospitals and a network of more than 70 primary and specialty care practices. Nemours Children's seeks to transform the health of children by adopting a holistic health model that utilizes innovative, safe, and high-quality care, while also addressing children's needs well beyond medicine. In producing the highly acclaimed, award-winning pediatric medicine podcast *Well Beyond Medicine*, Nemours underscores that commitment by featuring the people, programs and partnerships addressing whole child health. Nemours Children's also powers the world's most-visited website for information on the health of children and teens, [Nemours KidsHealth.org](https://www.NemoursKidsHealth.org).

The Nemours Foundation, established through the legacy and philanthropy of Alfred I. duPont, provides pediatric clinical care, research, education, advocacy, and prevention programs to the children, families and communities it serves. For more information, visit [Nemours.org](https://www.Nemours.org).



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For further information: Leah Goodwyne, leah.goodwyne@nemours.org, (904) 676-2229.

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