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Surgical home program for spinal fusion achieves long term success

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A standardized care pathway for children with adolescent idiopathic scoliosis undergoing spinal fusion surgery reduces the need for opioid pain medications and shortens hospital stays at Children's National Health System.

The outcomes were reported in the *Journal of Bone and Joint Surgery*. The study measured the impact of a new spinal fusion surgical home pathway that delivers coordinated, comprehensive care for every patient without increasing costs.

The study is the first of its kind to show that the benefits of this unique care pathway, which was mapped and designed at Children's National using the Six Sigma LEAN process, are sustainable and repeatable over a longer period of time, and have been maintained longer than any other pediatric spinal fusion care model to date.

"Our primary goal was to improve the value of care for children with scoliosis and their families," says Matthew Oetgen, M.D., chief of Orthopaedic Surgery and Sports Medicine at Children's National and study lead author. "Even better, we've shown that this model can be used consistently over time to maintain the benefits it delivers to this patient population."

The team conducted a retrospective analysis of prospective data from all patients (213) undergoing posterior spinal fusion at Children's National Health System from 2014 to 2017, a period of time that captures nearly

one year before implementation of the new pathway and 2.5 years after implementation.

As pressure builds to increase the value of care, many hospital systems are trying standardized care pathways for many complex conditions, in an effort to decrease care variability, improve outcomes and decrease cost. Previous research has shown the effectiveness of a variety of standardized pathways with wide-ranging goals for spinal fusion procedures, however, most published studies have focused only on the initial success of these pathways. This study is the first to look at the implementation over a period of two-and-a-half years to gauge whether the process and its effectiveness could be maintained long term.

The authors attribute physician buy-in across disciplines and strict adherence to pathway processes as key to the success of this model. In addition, the team created standardized educational procedures for onboarding new care providers and implemented standardized electronic order sets for both orthopaedic and anesthesia services to make the pathway easy to maintain with little deviation over time. Lean process mapping at the outset included a broad group of care providers who established a collaborative environment that empowered and engaged the entire team to take ownership over the new process.

"We used proven business models for culture change that were critical to the success of this program," Oetgen says. "We're proud of the model we have created and think it would work well in other pediatric hospitals with similar patient populations."

More information: Matthew E. Oetgen et al, Effectiveness and Sustainability of a Standardized Care Pathway Developed with Use of Lean Process Mapping for the Treatment of Patients Undergoing Posterior Spinal Fusion for Adolescent Idiopathic Scoliosis, *The Journal of Bone and Joint Surgery* (2018). DOI: 10.2106/JBJS.18.00079

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