Medical Xpress

New initiative could help improve surgical outcomes in children, study suggests

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A group of pediatric surgeons at hospitals around the country have designed a system to collect and analyze data on surgical outcomes in children – the National Surgical Quality Improvement Program (NSQIP) is the first national database able to reliably compare outcomes among different hospitals where children's surgery is performed. The effort could dramatically improve surgical outcomes in children, say the initiative's leaders, who published their findings online August 5, 2013 in the journal, *Pediatrics*.

The model is based on a similar effort adopted nationwide nearly a decade ago for adult surgery that resulted in reduced mortality and dramatic decreases in post-surgical complications. These efforts, led by the American College of Surgeons (ACS), are being driven not by a federal mandate, but by a desire to improve patient care, says R. Lawrence Moss, MD, corresponding author of this new study and surgeon-in-chief at Nationwide Children's Hospital.

"The real impetus is that people want their patients to do better," said Dr. Moss, who has been involved with the initiative since its inception. "This was a surgeon-directed effort and the ultimate goal is to improve quality of patient care."

The ACS NSQIP-Pediatric began as a pilot in 2008 with four hospitals. The program now has 43 participating institutions that perform children's surgery. The August study is the third published by the group and details how a new statistical model designed specifically for children

can be used to reliably discriminate performance among hospitals.

Historically, U.S. hospitals didn't track this kind of information in children or adults, because there was simply no way to collect, analyze and interpret the data in a way that made sense. For example, comparing outcomes of bypass surgery in a cardiac unit at an urban facility performing thousands of the procedures per year to those of an under-staffed rural hospital that rarely does the operation would be comparing apples to oranges, Dr. Moss said. A key component of NSQIP is its ability to accurately adjust outcomes for patient risk factors. This means NSQIP is able to compare hospital performance even when the institutions see different patient populations.

When the ACS implemented its model for measuring surgical outcomes in adult surgery in 2004, it quickly became clear that, while that system would be useful in an adult setting, it couldn't be used by pediatric surgeons. Not only does the adult model include surgeries that aren't performed in children, but the range of post-surgical complications is also different, Dr. Moss, said. Adults often suffer complications as a result of diabetes, smoking-related respiratory problems or coronary disease – comorbidities a surgeon wouldn't often see in a pediatric patient. Pediatric patients are more affected by congenital abnormalities and comorbidities specifically related to the diagnosis for which they are having surgery.

Procedures, comorbidities and potential complications are more specific to the pediatric population in the new model. In addition, this new program focuses more on morbidity as a measure of surgical outcomes, rather than mortality, which Dr. Moss said better encompasses the specific nature of pediatric surgery.

Furthermore, creating a "risk-adjusted" model allows pediatric surgeons to avoid the apples to oranges comparison, Dr. Moss said. Such elements

as surgical case load, complexity of cases, patient demographics and other categories are factored into a highly precise algorithm. The resulting model allows a children's surgical department in a small-town hospital to meaningfully compare its outcomes with a large institution such as Nationwide Children's.

"In the unique world of children's surgery, we can now accurately obtain and share risk-adjusted outcomes in a way that will allow institutions to take actions that are going to improve patient care," said Dr. Moss, who also is the E. Thomas Boles Jr. Professor of Surgery at The Ohio State University College of Medicine.

Participating institutions employ a full-time surgical clinical reviewer who collects data in nearly 100 different categories, ranging from patient demographics to specific post-surgical complications patients experience within 30 days of surgery. Each institution submits its data, then receives a report that shows how they rank in the different categories. These rankings are blind, in that the only institution named in a report is the one receiving the report.

In the Pediatrics study, the new model was used to analyze data on 46,281 patients under the age of 18 who underwent surgery at 43 participating institutions in 2011. It's a proof-of-concept that the model works, said Jacqueline M. Saito, MD, MSCI, assistant professor of Surgery at Washington University and St. Louis Children's Hospital.

"An important milestone for the program is the ability to analyze hospital performance in multiple outcomes and by surgical specialty," said Dr. Saito, who is the lead author of the study. "Hospitals with below expected performance may use the information yielded from this analysis to improve surgical outcomes locally. Eventually, best practice guidelines will be developed using processes from hospitals with better than expected outcomes."

Now that the model has been tested, the ACS is inviting other institutions to join. The ACS program for adult surgery has hundreds of participating hospitals, and Dr. Moss predicts the pediatric program will also see a surge in participation. To share best practices, those institutions that have the best outcomes will be asked to share details of their programs at the ACS annual meeting.

Provided by Nationwide Children's Hospital

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