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How Best to Design Surgical Comanagement Services for Pediatric Surgical Patients?

Tamara D. Simon, MD, MSPH^{1,2}

¹Department of Pediatrics, University of Washington/Seattle Children's Hospital, Seattle, Washington

²Center for Clinical and Translational Research, Seattle Children's Research Institute, Seattle, Washington

In this issue of *Hospital Pediatrics*, Dr David Rappaport and colleagues report on the outcomes and costs associated with implementation of a surgical hospitalist comanagement service for medically complex children undergoing spine fusion surgery at Nemours/Alfred I. duPont Hospital for Children (duPont) that was started in September 2005.¹ This report is of great personal interest because it is the first on the topic of pediatric hospitalist comanagement of spine fusion surgery patients after our study at Children's Hospital in Denver at the same time.² Since then, a substantial number of surgical hospitalist comanagement services have been initiated across the nation. Because very little evidence exists to guide the organization of such services, a diversity of approaches to comanagement have been implemented.

As with the program at duPont, numerous surgical hospitalist comanagement services at tertiary care pediatric hospitals have been initiated after sentinel events. Although rare, sentinel events result in action and are frequently the most effective initiator for change in the real-world setting. However, the ability of these new services to reduce an already rare number of sentinel events is limited. Instead, we might expect surgical comanagement services to reduce utilization (particularly unnecessary utilization) and the associated opportunities for errors, and, perhaps, reduce those more frequent medical and surgical complications, improve patient experience, and/or improve patient outcomes. Initiation of the surgical comanagement service at duPont was not associated with a reduction in median length of stay (LOS) but was associated with fewer days of parenteral nutrition and fewer laboratory studies on the inpatient unit.¹ There was no statistically significant change in returns to the operating room, other complications, or 30-day readmissions. The changes seen at duPont, such as reduction in the intensive intervention of parenteral nutrition, improve patient safety in an incremental fashion, ultimately contributing to sentinel event

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Address correspondence to Tamara Simon, MD, MSPH, Seattle Children's Research Institute Building 1, M/S C9S-9, 1900 Ninth Ave, Seattle, WA 98101. tamara.simon@seattlechildrens.org.

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risk reduction. This safety comes with a cost,¹ but increased supervision will of course increase costs.

The adult surgical comanagement literature provides some intriguing, albeit limited, precedent in designing services for pediatric surgical patients. Among adults, observers have noted that the complexity of patients involved and the surgical system through which they receive care may dictate the degree to which efficiency and outcomes can be improved.³ For example, decreases in LOS were not seen among comanaged patients undergoing highly protocol-guided elective hip and knee arthroplasty⁴ and neurosurgical patients⁵ but were seen in less homogeneous elderly patients undergoing comanagement for hip fractures^{6,7} and on a cardiothoracic surgery service.⁸ Identification of the procedures and patients who most stand to benefit from comanagement becomes more critical in light of associated costs and as negative consequences such as hospitalist dissatisfaction are observed.⁹

Although Rappaport et al¹ assert that, in contrast to the adult literature, controversy has generally not arisen in pediatric surgical hospitalist comanagement, close examination of their study suggests otherwise. Importantly, duPont sees a high volume of patients, with ~1800 orthopedic admissions per year and 6 orthopedic surgeons operating on medically complex patients. All of the children studied had neuromuscular scoliosis, one-half of whom were nonverbal and two-thirds were non-ambulatory. By the time of full implementation of surgical comanagement, supervision of the medically complex children by the orthopedic team was replaced with hospitalist and nurse practitioner-coordinated care before and after surgery. Initiation of the surgical comanagement service at duPont was not associated with a reduction in median LOS, but variability in LOS was reduced.¹ In contrast, surgical comanagement at Children's Hospital in Denver involved a far smaller volume of surgeries.² The hospitalist was selectively used to comanage the children who had medical complexities. However, the surgical comanagement service in Denver was associated with a reduction in mean LOS and variability in LOS for all children. Of note, duPont's service did not, at the time of the study, include preoperative evaluations of medically complex surgical patients, whereas the Denver service did. In addition, as stated by Rappaport et al, comanagement services may exert their impact differently over time. If nothing else, these contrasting findings underscore the degree to which the context for evaluation of pediatric surgical hospitalist comanagement services matters. Of course, LOS is only 1 of numerous outcomes to be evaluated after implementation of these services. As new surgical hospitalist comanagement services are initiated, hospitalists must seize the opportunity to generate badly needed evidence, just as Dr Rappaport and his colleagues have.

As pediatric hospitalists enter the realm of surgical comanagement, the evaluation of outcomes and costs associated with implementation of a surgical hospitalist comanagement service by Dr Rappaport and colleagues in this issue of *Hospital Pediatrics* generates ample opportunity for continued discussion of optimal service design. With the diversity of services being implemented, more reports of these services in the real-world setting are needed to generate evidence to guide the optimal implementation of surgical comanagement services for hospitalized children.

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