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## Relative value units correlate with pediatric surgeons' operating time: when perceived myth becomes reality

Danny C. Little, Shawn D. St Peter, Casey M. Calkins, Sohail R. Shah, J. Patrick Murphy, John M. Gatti, George K. Gittes, Ron J. Sharp, Walter S. Andrews, George W. Holcomb III, Daniel J. Ostlie, Charles L. Snyder<sup>\*</sup>

Department of Surgery, Children's Mercy Hospital, Kansas City, MO 64108, USA

Index words: Abstract Relative value unit; Purpose: In 1992, the Congress implemented a Medicare payment system based on relative value units Reimbursement; (RVUs). Today, RVUs are increasingly used to determine surgeon reimbursement from Medicare, Pediatric surgery Medicaid, and private third-party payers. We questioned whether current RVU assignments accurately reflect the quantity of time that surgeons spend operating. Methods: Over a 12-month period, 59 common pediatric operations were identified and classified as general surgery (n = 34), urology (n = 13), or minimally invasive (n = 10). Only operations performed as an outpatient or requiring less than one inpatient day of direct surgeon involvement were included. By regression analysis, correlation coefficients were generated comparing average operating time per procedure to the corresponding RVU generated. Results: Of 59 specific operations, a total of 744 general surgery cases, 1155 urological cases, and 370 minimally invasive cases were performed. RVU efficiency was greatest in general surgery (1 RVU = 5.18 operating minutes), followed by minimally invasive operations (1 RVU = 6.80 minutes) and urological operations (1 RVU = 8.59 minutes). Regression analysis proved minimally invasive operations to correlate best with RVUs with  $R^2 = 0.8376$ , followed by urology at  $R^2 = 0.6753$ , and then general surgery at  $R^2 = 0.649$ . Conclusions: The RVU has emerged as the most dominant factor influencing reimbursement of practicing pediatric surgeons. Despite common surgeon bias, RVUs do correlate with current operating times. These data prove important as surgeons analyze cost, negotiate contracts, and strategically plan for fiscal success. © 2006 Elsevier Inc. All rights reserved.

Are pediatric surgeons being reimbursed fairly? Do the long hours in the operating room and labors in clinic correlate with appropriate compensation? Most surgeons have silently asked these questions. After all, the relentless hours require considerable personal and family sacrifice. In fact, pediatric surgery may serve as the classic model of the intense commitment required to learn a craft, resulting in men and women in their mid-30s seeking their first job.

For most, the practice of pediatric surgery is satisfying and rewarding. Yet, a growing mistrust between surgeons and payers exists. Many have fed that the discrepancy is

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<sup>\*</sup> Corresponding author.

E-mail address: csnyder@cmh.edu (C.L. Snyder).

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General surgery <sup>a</sup>	Minimally invasive	Urology
Bronchoscopy	Laparoscopic appendectomy	Circumcision
Umbilical hernia	Laparoscopic gastrostomy	Cystoscopy
Gastrostomy	Laparoscopic fundoplication	Hypospadiacs repairs
Pyloromyotomy	Laparoscopic splenectomy	Meatotomy
Inguinal hernia	Laparoscopic nephrectomy	Operation for torsion
Central venous access	Laparoscopic pyloromyotomy	Pyeloplasty
Appendectomy	Laparoscopic varicocele	Chordee release
Anal fistulotomy	Laparoscopic cholecystectomy	Ureteral reimplant
Endoscopy	Laparoscopic orchiopexy	

 Table 1
 Operations included in the review

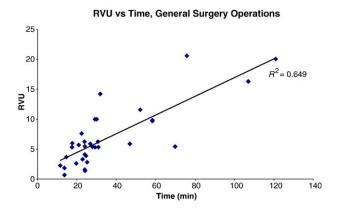
<sup>a</sup> For brevity, not all operations studied have been included in this list.

widening between what one earns and what one must spend financially, physically, and emotionally to practice. The yearly announcement of further compensation reductions from Medicare, Medicaid, and other third-party payers is met with concern. The evolution of medical care reimbursement has shifted attention from quality of patient care to an increasing focus on the global period, conversion factor, and the relative value unit (RVU).

This current review analyzes more than 2000 outpatient and short-stay pediatric surgical procedures generated at a large-volume tertiary children's hospital and correlates surgeons' operating times to RVUs generated.

## 1. Methods

From January to December 2003, 57 commonly performed, high-volume pediatric operations were identified



**Fig. 1** Scatterplot of RVU versus general surgery operations, correlation coefficients included.

RVU vs Time, Minimally Invasive Operations  $R^2 = 0.8376$ 

**Fig. 2** Scatterplot of RVU versus minimally invasive operations, correlation coefficients included.

Time (min)

150

200

100

and classified as general surgery (n = 34), urology (n = 13), or minimally invasive (n = 10) operations (Table 1). Current RVU assignments from the Centers for Medicare and Medicaid Services (CMS) were used. Current procedural terminology (CPT) codes from our operating room database were reviewed and cross-referenced to their corresponding RVU. To most accurately compare surgeons' operating times as a percentage of their overall care of a patient, only outpatient operations or those requiring less than one inpatient day of direct surgeon involvement were included. Thus, most of the surgeon's patient responsibility rested with the actual operation, unlike the extensive preoperative and postoperative care required for neonates and children with complex anomalies. Using linear regression, correlation coefficients were generated, comparing average operating time per procedure to RVU generated.

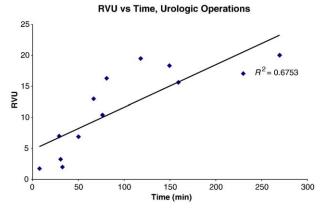
## 2. Results

0

0

50

For the 57 specific operations studied, an overall total of 2269 outpatient or short-stay procedures were included. This included 744 general surgery operations, 370 minimally



**Fig. 3** Scatterplot of RVU versus urological operations, correlation coefficients included.

250

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