Application of Total Care Time and Payment per Unit Time Model for Physician Reimbursement for Common General Surgery Operations

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BACKGROUND: The relative value unit system relies on subjective measures of physician input in the care of patients. A payment per unit time model incorporates surgeon reimbursement to the total care time spent in the operating room, postoperative in-house, and clinic time to define payment per unit time. We aimed to compare common general surgery operations by using the total care time and payment per unit time method in order to demonstrate a more objective measurement for physician reimbursement.

STUDY DESIGN: Average total physician payment per case was obtained for 5 outpatient operations and 4 inpatient operations in general surgery. Total care time was defined as the sum of operative time, 30 minutes per hospital day, and 30 minutes per office visit for each operation. Payment per unit time was calculated by dividing the physician reimbursement per case by the total care time.

RESULTS: Total care time, physician payment per case, and payment per unit time for each type of operation demonstrated that an average payment per time spent for inpatient operations was $455.73 and slightly more at $467.51 for outpatient operations. Partial colectomy with primary anastomosis had the longest total care time (8.98 hours) and the least payment per unit time ($188.52). Laparoscopic gastric bypass had the highest payment per time ($707.30).

CONCLUSIONS: The total care time and payment per unit time method can be used as an adjunct to compare reimbursement among different operations on an institutional level as well as on a national level. Although many operations have similar payment trends based on time spent by the surgeon, payment differences using this methodology are seen and may be in need of further review. (J Am Coll Surg 2012;214:937–942. © 2012 by the American College of Surgeons)

Currently, physician reimbursement is determined by an equation that uses relative value units (RVU) associated with Current Procedural Terminology (CPT) codes. This method, developed in the late 1980s, attempted to incorporate physician work, expenses incurred by the physician and hospital, and physician and hospital liability for individual services rendered. When the physician work component of the RVUs is assigned to an operation, consideration is given to various aspects of the care provided, including time, technical skills, mental and physical effort, judgment, and stress related to potential patient risk.[1-3]

Considering the complex, dynamic, ever-changing landscape of medicine, the American Medical Association and specialty societies formed the RVU Update Committee (RUC) to recommend changes in payment for different CPT codes to the Centers for Medicare and Medicaid Services (CMS).[2] The RUC makes recommendations based on specialty-based surveys to members regarding each of their services rendered; however, these surveys are considered subjective and may be plagued by poor participation and recall bias.[4] Many have called for creation of an objective measure to help guide the RUC in its recommendations.

Martin and coworkers (2010)[2] described a novel method of evaluating physician payments for common vascular procedures based on time spent on each case to quantify the time component of RVU. They found a striking difference

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Abbreviations and Acronyms

CPT = Current Procedural Terminology
PFP = payment for performance
PPUT = payment per unit time
RUC = RVU Update Committee
RVU = relative value unit
TCT = total care time

between reimbursement of open procedures compared with endovascular procedures, with the latter being paid at a rate approximately 175% that of the former ($316/hr vs $556/hr, respectively). Although these data did not take into account other differences or intangible time incurred during the operative planning and administrative components of these procedures, it did indicate that further consideration is needed to optimize physicians reimbursed in a fair manner. Total care time (TCT) and payment per unit time (PPUT), as described by Martin and colleagues,[2] attempt to add objectivity to the determination of surgeon effort, a fundamental aspect in the calculation of a surgeon's RVU reimbursement scheme. The goal of this study was to apply TCT and PPUT methodology to assess variations in reimbursements among commonly performed general surgery operations.

METHODS

Physician payments per case were recorded over the 2010 financial year for 9 common general surgery operations (4 traditionally inpatient procedures and 5 traditionally outpatient procedures) at our tertiary care health center. Data for physician payments were obtained using Medicare and private insurance data. Average length of stay in days and average number of follow-up appointments was calculated for each procedure. An estimate of 30 minutes of care time was imputed for each hospital day and each follow-up office visit. This was added to the average operative time (as opposed to total anesthesia time) for the associated operation to determine the TCT:

$$\text{Total Care Time in hours} = \text{Incision Time} + \text{Postoperative Days (0.5 h)} + \text{Follow-up Days (0.5 h)}$$

Payment per unit time was calculated by dividing the physician reimbursement per case by the average TCT of each procedure:

$$\text{Payment per Unit Time in dollar} = \frac{\text{Physician Reimbursement}}{\text{Total Care Time}}$$

RESULTS

Over a 1-year period, 844 single CPT code cases were performed (312 inpatient cases and 532 outpatient cases), all of which were paid using Medicare reimbursement schedule. The total number of cases, operative time, postoperative care days, and follow-up days, as well as physician payment per case for individualized CPT codes for both inpatient and outpatient procedures are shown in Table 1. Average reimbursement was $455.73/hour for common inpatient operations and $467.51/hour for common outpatient operations. The largest payment per unit time difference among inpatient elective general surgery operations occurred between laparoscopic gastric bypass surgery ($707.30/hour) and partial colectomy with anastomosis ($188.52/hour). Among outpatient elective operations, the largest PPUT difference occurred between complete thyroidectomy ($693.97/hour) and umbilical hernia repair ($321.25/hour).

DISCUSSION

Physician reimbursement has become a subject of intense discussion in the recent years.[5] With current budget constraints and possible cuts to Medicare and Medicaid reimbursements, increasing the objectivity in our reimbursement mechanisms is important in justifying a surgeon's payment. Although TCT by itself does not fully indicate how much surgeon effort each operation entails, it does objectively describe the overall time a surgeon must dedicate to a patient once an operation commences.

Our analysis of common in- and outpatient procedures found little difference between the average reimbursement per unit time between inpatient and outpatient cases. However, within the inpatient group, variation in reimbursement existed. Laparoscopic Roux-en-Y gastric bypass had a PPUT of $707.30/hour; partial colectomy with anastomosis averaged at $188.52/hour. This could be in part due to the difference in TCT between the two procedures (4.72 hours vs 8.98 hours, respectively); however, physician payment was also a significant contributor to the disparity, with the laparoscopic gastric bypass being reimbursed at nearly double that of the partial colectomy with anastomosis ($3,335 vs $1,693, respectively). One could argue that the laparoscopic techniques require added skill and this causes the difference in reimbursement; however, fellowships are available for both minimally invasive surgery and colorectal surgery, indicating that both skills require additional training for mastery. Such variations become apparent in reimbursement, demonstrating the benefit of using PPUT methodology; however, resolving such variations in reimbursement in an effort to create payment fairness requires further review of CPT codes and associated RVUs by the respective specialty societies, RUC, and outcomes researchers.