

Perception Versus Reality in the Cost of Orthopedic Trauma Implants

Mark Ayoub, MD,* William Paul Bassett, MD,[†] Patricia Seuffert, MS, APN,[‡]
Douglas Matijakovich, MD,[§] Dorene A. O'Hara, MD,[§] and Mark S. Butler, MD[‡]

*Department of Orthopaedic Surgery, UCSF-Fresno, Fresno, CA; [†]Rutgers Robert Wood Johnson University Hospital, New Brunswick, NJ; [‡]University Orthopaedic Associates, Somerset, NJ; and [§]Rutgers Robert Wood Johnson Medical School, New Brunswick, NJ

OBJECTIVE: Health care costs are increasing in medicine and in orthopedics. Device choice in orthopedic cases can impact the cost of the procedure and thus result in cost savings. This study aims to determine whether orthopedic attendings and residents accurately estimate device costs they are implanting in trauma cases and whether costs would influence their surgical device selection.

DESIGN: Using nationally published average cost data for 13 implants, a survey was distributed at 6 US academic centers. Respondents were asked to select the correct cost from cost ranges. They also answered yes/no questions about their choices regarding published research outcomes for specific fractures. Residents' answers were compared with faculty answers using *t* tests for each cost estimate question, and chi-square tests for yes/no questions and frequencies.

RESULTS: A total of 51 faculty members and 76 residents responded. Attending estimates were closer to the actual cost for most devices. The average total error in cost estimate for all 13 implants was \$11,288.36 for residents (35.6% difference) and \$10,208.33 for faculty members (32.2% difference). Significantly more faculty members estimated costs within 10% versus residents. When asked if the literature showed differences in outcome when using different implants to treat 4 common fractures, most answered these questions correctly. Further, 71.1% of residents said their choice of implant would change if costs affected physician reimbursements versus 58% for faculty members.

CONCLUSIONS: Our data indicate orthopedic physicians are not aware of true implant costs and nearly half of attendings would not consider cost as a factor in deciding between equivalent implants, even if this affected their

reimbursement. Most notably, participants showed a poor ability to closely estimate the cost of more expensive implants (actual device cost greater than \$2000). Our results suggest that medical cost containment should be stressed to the next generation of surgeons. (J Surg Ed ■■■■-■■■. © 2018 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: trauma surgery implant cost, medical cost containment, resident education, systems-based practice

COMPETENCIES: Systems-based practice, Medical knowledge

INTRODUCTION

Medical care in the United States is expensive, and is projected to grow to approximately 19.6% of the US GDP by 2017.¹ Medical devices are a substantial portion of this cost, with some reports indicating over \$150 billion being spent each year.^{2,3} Orthopedic procedures include a significant percentage of this expense,^{2,4} and the devices used in these procedures are often times the largest portion of the cost of these procedures.⁵

Studies in orthopedics have attempted to determine whether or not orthopedic surgeons are aware of the costs of the devices they implant, since physicians are now often encouraged to consider costs in their choice of treatment.² This is especially important given the variability in cost between different implants for a given procedure.⁵ One of the first requirements for surgeons to successfully control expenses in their decision-making process is having an awareness of device costs. In a recent study on the cost of commonly used orthopedic implants, orthopedic surgery attendings estimated costs correctly 21% of the time, while residents estimated costs correctly 17% of the time.² Another study on costs of biologic implants for orthopedic surgery showed a higher percentage of correct estimates,

Correspondence: Inquiries to Mark Ayoub, MD, Department of Orthopaedic Surgery, UCSF-Fresno, 2823 Fresno Street, Fresno, CA 93721; e-mail: ayoubmarks@gmail.com

8. Which of the following most closely estimates the average selling price for distal femoral locking plates?

- \$500
- \$1,500
- \$2,000
- \$4,000
- \$5,000
- \$8,000

FIGURE 1. Survey question #8.

approximately 75%, but with large variations in the estimates.⁷

The aim of this study was to further investigate whether orthopedic surgery residents and attendings have an accurate perception of the costs of the hardware they are implanting in common orthopedic trauma cases. In addition, this study seeks to identify if physicians recognize situations in which more cost-effective implants can be safely employed without compromising patient outcomes. Lastly, the willingness of surgeons to alter their implant selection in order to contain expenses was examined.

MATERIALS AND METHODS

True costs of several implants were calculated using data from Mendenhall Associates.⁶ This is an independent third party without industry influence that collected information on implant costs throughout the country. Their figures were based on data obtained from 119 US hospitals for orthopedic cases treated in 2012. The average “costs” for cases was calculated from this data. These costs included the cost of the implant for that hospital (e.g., plate with screws, nail with interlocking screws), as well as the cost of the instruments used. An instrument was defined as a device used in a case that was not implanted into the patient (guidewires, K-wires used to provisionally hold a reduction, drill bits, etc.).

A survey was then conducted and distributed to 6 US medical centers among resident and attending orthopedic surgeons. These centers included Pennsylvania State University (Hershey, PA), Union Memorial Hospital (Baltimore, MD), Rutgers Robert Wood Johnson

University Hospital (New Brunswick, NJ), University of Medicine and Dentistry of New Jersey (Newark, NJ), Monmouth University Hospital (Long Branch, NJ), and Saint Joseph’s Regional Medical Center (Paterson, NJ). Surgeons and orthopedic residents received a survey and answered questions about their resident year where applicable and completion of a trauma fellowship. The survey asked individuals to select the best estimate of the cost for a given implant from a wide range of choices (Fig. 1). Respondents also answered several yes/no questions about their choices related to outcomes, published outcome research, and reimbursement concerns (Fig. 2). In order to ensure that responses were unbiased and independent, a research coordinator administered the identical questionnaires to all available residents and attendings during a department grand rounds meeting at each program. No individuals at any program were forewarned about the survey nor was anyone permitted to consult any source or device about the questions.

Results for residents were compared with those of attendings using *t* tests for each cost estimate question. Each cost question in the survey was analyzed independently. Respondents gave an estimate of the cost of each device or implant, and the mean scores were calculated for each question and compared with the true cost of the device, calculating a difference and standard deviation. Attending and resident group means were compared using two-tailed *t* tests for 2 means. A Bonferroni correction factor for multiple comparisons was used for the additional comparisons of the responses of trauma attendings versus residents. A power analysis was conducted, showing that a sample size of 110 was required to show a \$2000 difference in the total

9. Is there published data indicating difference in outcomes with use of a hip intramedullary nail (IMN) versus sliding hip screw for stable intertrochanteric hip fractures?

- a) Yes
- b) No

10. If the cost of the implants and disposables were to affect physician reimbursements, meaning that more expensive implants would result in lower reimbursements for physicians, would that influence your choice of implant between a hip IMN vs. sliding hip screw for a stable intertrochanteric hip fracture?

- a) Yes
- b) No

FIGURE 2. Survey questions #9 and #10.

Download English Version:

<https://daneshyari.com/en/article/10222802>

Download Persian Version:

<https://daneshyari.com/article/10222802>

[Daneshyari.com](https://daneshyari.com)