

Significant Reduction of Intraoperative Material Costs Through Surgeon Intervention*Laurence B. Kempton, MD; Todd O. McKinley, MD; Greg E. Gaski, MD;**Anthony T. Sorkin, MD; Walter W. Virkus, MD**Indiana University School of Medicine, Indianapolis, Indianapolis, USA*

Purpose: Reducing costs in health care is becoming increasingly important. Surgeons have the ability to modulate operating room costs through choice of implants and disposable items, but it is not clear how much of an impact surgeons might have. Our hypothesis was that surgeon identification and modification of practices responsible for intraoperative cost variation would lead to significant cost reductions.

Methods: This was a prospective observational study of 6 orthopaedic trauma subspecialists at a Level I trauma center using retrospectively collected control data from the same surgeons. Control data included all operatively treated bimalleolar ankle fractures (BAFs) and bicondylar tibial plateau fractures (BTPFs) from 2013 to July 2014 (19-month period) (Group 1). Operative sessions involving multiple procedures were excluded to avoid including costs of unrelated procedures. Using operating room inventory software, we created a spreadsheet displaying all itemized surgical costs for each procedure. Operative notes and radiographs were reviewed to confirm accuracy of the spreadsheets. From August 2014 to October 2014 (3-month “transition” period), the 6 surgeons evaluated the cases to determine sources of high cost and differences between the surgeons. The surgeons met for an evidence-based discussion of variations in treatment and the associated cost differences. Surgeons modified their surgical practices accordingly. A similar spreadsheet was generated for cost analysis from November 2014 through 2015 (14-month period) (Group 2). Operative costs of Group 1 were compared to Group 2. BAFs were analyzed separately from BTPFs. Statistical analysis utilized the Mann-Whitney U test as cost data were not normally distributed.

Results: Group 1 included 88 BAFs and 46 BTPFs. Group 2 included 82 BAFs and 43 BTPFs. Median cost of BAF decreased from \$676 to \$532 ($P = 0.0001$), and median cost of BTPF decreased from \$2515 to \$2184 ($P = 0.011$). Mean cost reductions were more substantial due to reduction in outlier cases. BAF mean decreased from \$1099 to \$775. BTPF mean decreased from \$3219 to \$2184.

Conclusion: We found significant operating room material cost reductions for BAF and BTPF. Cost distributions clustering more tightly around the median costs in Group 2 suggests increased uniformity of treatment strategies by the 6 surgeons. Further research to demonstrate maintenance of clinical outcomes in this scenario is warranted.