

Direct Cost Analysis of 38 Cervical Spinal Deformity Operations Across Two Major Spinal Deformity Centers with Implications for Catastrophic Costs and 90-Day Cost Bundles

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Introduction

CMS has recently implemented 90-day cost bundles for joint replacement surgery, and taken steps to expand bundled payment programs. Our goal is to determine the 90-day costs associated with cervical spinal deformity cases across two major spinal deformity centers in order to guide the development of reasonable bundled payment plans.

Methods

Retrospective evaluation of adults who underwent cervical deformity surgery 2013-2016 at two major spinal deformity centers (UCSF, Baylor). Inclusion criteria included adult patients with cervical kyphosis (C2-7 Cobb angle >10°) or cervical scoliosis (coronal Cobb angle >10°). Direct hospital costs for the index surgery and all visits within the first 90 days after surgery were determined from hospital billing data. Direct costs include surgical supplies/implants, room/care, pharmacy; they exclude indirect costs like overhead, administration, and utilities.

Results

38 patients (25F, 13M; mean age=60.4±9.8 years) underwent fusions for cervical deformity. 29 procedures were posterior, 1 anterior, 7 anterior-posterior, and 1 posterior-anterior-posterior. Average number of levels fused was 9.3±3.3. Average direct hospital cost for the 90-day period including surgery was \$64,480±23,816, and was similar between institutions (\$62,569 versus \$70,638). 4 of 38 patients (10.5%) were re-admitted within 90-days: re-admission costs constitute the majority of these patients' post-index surgery costs. 2 of 38 (5.3%) patients had catastrophic 90-day costs, greater than two standard deviations above the mean (>\$112,112).

Conclusions

The average 90-day direct hospital costs for patients undergoing cervical deformity surgery are \$64,480. Readmissions and a greater number of operated levels contribute to higher costs; reasonable 90-day cost bundle plans must account for both of these issues. A limitation is that our analysis includes costs at our main hospital only; it does not include post-operative outpatient medications, physical therapy, rehabilitation, or admissions to outside hospitals. It is therefore

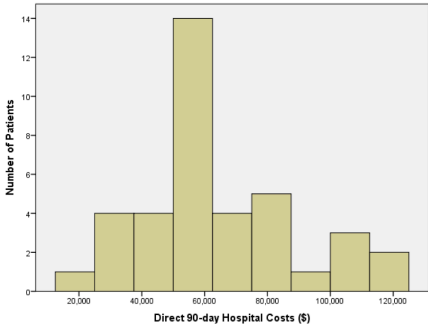
Learning Objectives

By the conclusion of this session, participants should be able to:

- 1) Discuss the average 90-day costs associated with cervical spinal deformity surgery at two major deformity centers
- 2) Describe the factors affecting variation in cost for these cases
- 3) Explain the importance of identifying catastrophic cost outliers in the formation of reasonable 90-day bundled payment programs

Figure 1

Figure 1. Distribution of direct 90-day hospital costs for 38 patients who underwent fusions for cervical spine deformity between 2013 and 2016.



Distribution of direct 90-day hospital costs for 38 patients who underwent fusions for cervical spine deformity between 2013 and 2016.

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