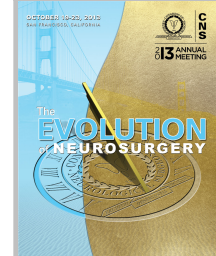


Cost-Utility Analysis of Surgical Treatment for Adult Spinal Deformity

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Introduction

Cost-utility analysis is critical to the efficient allocation of health care resources. The current study examines the cost-effectiveness of surgical treatment of adult spinal deformity (ASD) with extended follow-up on observed payments and QALYs following primary surgery, including any related readmissions.

Methods

Single-center, retrospective analysis of consecutive patients undergoing primary surgery for ASD. Payments (in 2010 dollars) to the hospital were collected from administrative data, with QALYs calculated from the SF-6D. Payments and QALYs were discounted at 3.5% per year. The study analyzed the incremental cost-effectiveness ratios (ICERs) based on improvement in QALYs from baseline and alternative assumptions of the reduction in HRQOL without surgical intervention. Results were projected through 10-year follow-up, and 95% confidence intervals (CIs) were calculated using nonparametric bootstrap methods.

Learning Objectives

By the conclusion of this session, participants should be able to: (1) Appreciate the potential for adult spinal deformity surgery to be cost-effective over extended follow-up and among patients likely to deteriorate in health-related quality of life without surgery; (2) Appreciate the importance of future research on the cost-effectiveness of surgery for adult spinal deformity.

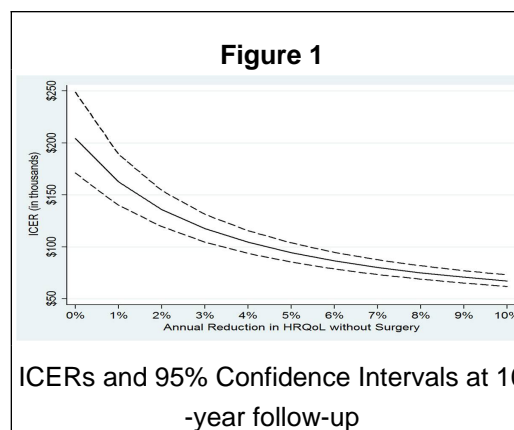
Results

Three-year follow-up was available for 257 of 316 eligible patients (81%), which were predominantly female (n=224, 87%) with average age of 49 (range 18 to 82). Total discounted per-patient payments averaged \$205,203, including any readmissions over the follow-up period. Discounted QALYs averaged 1.9 over 3-year follow-up. Projecting through 10-year follow-up, ICERs ranged from \$67,306 based on an assumed 10% reduction in quality-of-life per year without surgery to \$204,348 assuming no reduction in quality-of-life without surgery.

Specific ICERs are presented in Table 1, with the full range of ICERs and confidence intervals presented in Figure 1.

	3-Year Follow-Up (n=257)		Projected 10-Year Follow-Up	
	Average	95% CI	Average	95% CI
ICER No reduction in HRQoL without surgery	\$970,918	\$760,628 - \$1,360,603	\$204,384	\$171,086 - \$249,001
ICER 5% reduction in HRQoL without surgery	\$545,871	\$472,491 - \$648,739	\$94,547	\$85,492 - \$103,888
ICER 10% reduction in HRQoL without surgery	\$387,077	\$345,479 - \$435,665	\$67,306	\$62,034 - \$73,180

ICERs and 95% Confidence Intervals at 10-year follow-up



Conclusions

This study considers the cost-effectiveness of surgical treatment for ASD with a range of assumptions regarding the reduction in HRQOL without surgery. The results illustrate the potential for ASD surgery to be cost-effective provided accurate identification of patients likely to deteriorate in HRQOL without surgery as well as extended durability of surgical treatment. Future research should pursue direct measurement of the incremental improvement in QALYs attributed to surgery as well as outpatient resource utilization and indirect costs/benefits resulting from changes in absenteeism or productivity at work.

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