

Repeat surgery after lumbar decompression for herniated disc: the quality implications of hospital and surgeon variation

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Abstract

Background context: Repeat lumbar spine surgery is generally an undesirable outcome. Variation in repeat surgery rates may be because of patient characteristics, disease severity, or hospital- and surgeon-related factors. However, little is known about population-level variation in reoperation rates.

Purpose: To examine hospital- and surgeon-level variation in reoperation rates after lumbar herniated disc surgery and to relate these to published benchmarks.

Study design/setting: Retrospective analysis of a discharge registry including all nonfederal hospitals in Washington State.

Methods: We identified adults who underwent an initial inpatient lumbar decompression for herniated disc from 1997 to 2007. We then performed generalized linear mixed-effect logistic regressions, controlling for patient characteristics and comorbidity, to examine the variation in reoperation rates within 90 days, 1 year, and 4 years.

Results: Our cohort included 29,529 patients with a mean age of 47.5 years, 61% privately insured, and 15% having any comorbidity. The age-, sex-, insurance-, and comorbidity-adjusted mean rate of reoperation among hospitals was 1.9% at 90 days (95% confidence interval [CI], 1.2-3.1), with a range from 1.1% to 3.4%; 6.4% at 1 year (95% CI, 3.9-10.6), with a range from 2.8% to 12.5%; and 13.8% at 4 years (95% CI, 8.8-19.8), with a range from 8.1% to 24.5%. The adjusted mean reoperation rates of surgeons were 1.9% at 90 days (95% CI, 1.4-2.4) with a range from 1.2% to 4.6%, 6.1% at 1 year (95% CI, 4.8-7.7) with a range from 4.3% to 10.5%, and 13.2% at 4 years (95% CI, 11.3-15.5) with a range from 10.0% to 19.3%. Multilevel random-effect models suggested that variation across surgeons was greater than that of hospitals and that this effect increased with long-term outcomes.

Conclusions: Even after adjusting for patient demographics and comorbidity, we observed a large variation in reoperation rates across hospitals and surgeons after lumbar discectomy, a relatively simple spinal procedure. These findings suggest uncertainty about indications for repeat surgery, variations in perioperative care, or variations in quality of care.

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