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# The risk of risk-adjustment measures for perioperative spine infection after spinal surgery

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## Abstract

**Study design:** Cross-sectional data analysis of the Nationwide Inpatient Sample (NIS).

**Objective:** To develop a risk-adjustment index specific for perioperative spine infection and compare this specific index to the Deyo Comorbidity Index. Assess specific mortality and morbidity adjustments between teaching and nonteaching facilities.

**Summary of background data:** Risk-adjustment measures have been developed specifically for mortality and may not be sensitive enough to adjust for morbidity across all diagnosis.

**Methods:** This condition-specific index was developed by using the NIS in a two-step process to determine confounders and weighting. Crude and adjusted point estimates for the Deyo and condition-specific index were compared for routine discharge, death, length of stay, and total hospital charges and then stratified by teaching hospital status.

**Results:** A total of 23,846 perioperative spinal infection events occurred in the NIS database between 1988 and 2007 of 1,212,241 procedures. Twenty-three diagnoses made up this condition-specific index. Significant differences between the Deyo and the condition-specific index were seen among total charges and length of stay at nonteaching hospitals ( $P < 0.001$ ) and death, length of stay, and total charges ( $P < 0.001$ ) for teaching hospitals.

**Conclusion:** This study demonstrates several key points. One, condition-specific measures may be useful when morbidity is of question. Two, a condition-specific perioperative spine infection adjustment index appears to be more sensitive at adjusting for comorbidities. Finally, there are inherent differences in hospital disposition characteristics for perioperative spine infection across teaching and nonteaching hospitals even after adjustment.

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