



## Risk Factors for Wound Complications Following Posterior Lumbar Fusion

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### Introduction

Posterior lumbar fusion is a common surgical procedure with growing utilization. Wound complications can be catastrophic and consistent risk factors have not been identified using a large nationwide database. The American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) provides a large multicenter database and allows for the analysis of potential risk factors.

### Methods

This was a retrospective analysis of prospectively collected data from the NSQIP database. Patients > 18 years old undergoing PLF, PLIF, TLIF or PLF with PLIF or TLIF between 2005 and 2012 were included. Patient baseline factors, perioperative data, preoperative labs, American Society of Anesthesiologists (ASA) scores and post-operative events were recorded. Patients in the two cohorts were compared using multivariate logistic regression analysis with significance defined as  $p < 0.05$ . Odds ratio (OR) was calculated with a 95% confidence interval.

### Results

During the study period 6,007 patients met inclusion criteria. Rate of any wound complication was 2.4% (141/6,007) with superficial infection 1.4% (82/6,007), deep infection 0.6% (35/6,007), wound dehiscence 0.3% (16/6,007) and organ space infection 0.2% (12/6,007). Patients with wound complications had a higher rate of reoperation (2.4% vs 47.5%,  $p < 0.0001$ ), readmission (1.7% vs 21.3%,  $p < 0.0001$ ) and total length of stay > 5 days (17.7% vs 30.5%,  $p < 0.0001$ ). Independent predictors of wound complications were obese class III (OR 4.6, 2.8-7.5), prior stroke (OR 2.0, 0.9-4.2), bleeding disorder (OR 4.4, 2.1-9.2).

### Learning Objectives

By the conclusion of this session, participants should be able to understand risk factors for wound complications in patients undergoing posterior lumbar fusion.

Risk Factors	Adjusted OR	95 CI		P Value
PRHCT	0.953	0.919	0.989	0.011
Obese Class I vs nonobese	1.829	1.179	2.839	0.704
Obese Class II vs nonobese	1.668	0.958	2.904	0.436
Obese Class III vs nonobese	4.587	2.792	7.536	<.0001
Diabetes	1.468	0.987	2.183	0.0577
Stroke	1.988	0.931	4.243	0.0758
Steroid Use	0.512	0.243	1.079	0.0786
Bleeding Disorder	4.411	2.111	9.218	<.0001
Operative Time > 4 hours	1.559	1.097	2.216	0.0133

### Conclusions

Higher rates of wound complications were associated with patient comorbidities and prior functional status as well as longer operative time. As expected higher reoperation rates, readmissions and longer LOS were associated with patients developing wound complications. These factors should be considered during perioperative care in patients undergoing elective posterior lumbar fusion.