



## Risk Factors for Wound Complications Following Posterior Cervical Fusion

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### Introduction

Posterior cervical fusion (PCF) is a common surgical procedure with growing utilization and good long-term outcomes reported. 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 PCF 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 (CI).

### Results

524 patients met inclusion criteria with incidence of any wound complication (3.2%), superficial infection (1.5%), deep infection (1.0%), wound dehiscence (0.6%) and organ space infection (0.6%). Higher rates of wound complications occurred in patients with ASA  $\geq 3$  ( $p=0.04$ ). Other patient comorbidities, operative variables and lab values were not significant risk factors for wound complications ( $p>0.05$ ). Patients with postoperative wound complications had higher reoperation rates

### Conclusions

Higher rates of wound complications were associated with higher ASA class though other comorbidities and prolonged operative time were not significant. As expected higher reoperation rates and readmissions were associated with patients developing wound complications. These factors should be considered during perioperative care in patients undergoing elective PCF.

### Impact of Wound Complications on 30 Day Postoperative Outcomes

Impact of Wound Complications on 30 Day Postoperative Outcomes							
	Total = 524		No Wound Complication, N=507		Wound Complication, N = 17		P value
	N	%	N	%	N	%	
Death	2	0.38%	2	0.39%	0	0.00%	0.7953
Return to OR	31	5.92%	21	4.14%	10	58.82%	<.0001
Unplanned Readmission (2011-2012)**	14	4.90%	11	3.93%	3	50.00%	<.0001
Total Length of Stay > 5 days	131	25.00%	125	24.65%	6	35.29%	0.319

\*\*Percentages are of 2011-2012 data, N=1,703 total

### Multivariate Logistic Regression

Multivariate Logistic Regression to Assess Independent Risk Factors for Wound Complications, N=524

Risk Factors	Adjusted OR	95 CI		P Value
ASA $\geq$ 3	0.293	0.083	1.034	0.0563

\*\*\*No real significant risk factor correlations found. Likely due to total N being so low

### Learning Objectives

Our objective was to analyze risk factors for wound complications following PCF and associated complications, mortality, reoperation rates and post-operative events within 30 days.