



## Operative Time is an Independent Predictor of Complications Following Posterior Cervical Fusion

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### Introduction

Posterior cervical fusion (PCF) is a common surgical procedure with generally good long-term outcomes. The effect of prolonged operative time has not been identified using a large nationwide database, and may impact outcomes following PCF.

### Methods

Adult patients undergoing PCF from 2005-2012 were identified by the Current Procedural Terminology (CPT) codes in the ACS NSQIP database. Patients were subdivided into cohorts based on operative time (Group 1, = 4 hours, Group 2, > 4 hours). Univariate and multivariate analyses were performed to assess the impact of operative duration on 30-day postoperative complications. Odds ratios (OR) were calculated with 95% confidence intervals.

### Results

524 patients who underwent PCF were identified. The mean operative time was 198.6 (105.29) minutes. In 374 patients the operative time was > 4 hours, and in 150 it was = 4 hours. Multi-level fusion was associated with prolonged operative time (62.6% vs 76.7%  $P=0.002$ ). Prolonged operative time was associated with increased rate of sepsis/septic shock (0% vs 2%  $P=0.0061$ ), intra/ post-operative blood transfusion (4.55% vs 18.0%  $P<.0001$ ), and extended length of stay >5 days (21.9% vs 32.7%  $P=0.0103$ ). Prolonged operative time was an independent predictor for extended length of stay (LOS) > 5 days (OR: 1.80, 1.1-2.8) and intra/post-operative blood transfusion (OR: 5.0, 2.6-9.5).

### Learning Objectives

The aim of this study was to analyze whether prolonged operative time influences complications, reoperations, and readmissions in adult patients undergoing posterior cervical fusion (PCF) using a large national database.

### Conclusions

Prolonged operative time was more common in patients undergoing multi-level fusion. Operative time of greater than four hours was an independent predictor for longer LOS and blood transfusions following PCF. This operative variable should be monitored closely during PCF in order to reduce LOS and need for transfusion intra or post-operatively.