

# Improved Resource Utilization is Associated with High Volume Surgical Centers, Low Complication Rates, and Shorter Length of Stay in Patients Undergoing Transsphenoidal Surgery for Cushing's Disease

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## Introduction

The short-term cost associated with subspecialized surgical care is becoming an increasingly important metric and health economics concern. We sought to determine factors that are associated with hospital charges in patients undergoing transsphenoidal surgery for Cushing's disease in an effort to develop more cost-effective surgical paradigms.

## Methods

We analyzed the Nationwide Inpatient Sample (NIS) hospital discharge database from 2007 to 2009 using several multivariate regression models to determine factors that influence hospital charges in patients who had undergone transsphenoidal surgery for Cushing's disease. The NIS discharge database approximates a 20% sample of all inpatient admissions to nonfederal US hospitals. The regression model was adjusted for patient demographics, acuity measures, comorbidities, hospital characteristics, and complications.

## Results

A total of 454 operations performed at 116 hospitals were analyzed. The mean hospital charge was \$48,272  $\pm$  32,060. A multivariate regression model suggested that lower hospital charges were associated with higher volume centers ( $P < 0.001$ ), larger hospitals ( $P < 0.001$ ), fewer postoperative complications ( $P = 0.003$ ) and shorter hospital stays ( $P < 0.001$ ). Patient charges were 18% lower in higher volume centers compared to lower volume centers, and 23% lower in larger hospitals compared to smaller hospitals. Interestingly, 64% of surgical interventions were performed at lower volume hospitals. Hospital charges were 13% lower in cases where there was no postoperative neurological complication.

## Conclusions

Analysis of the NIS database demonstrates that higher surgical volume, larger hospital size, shorter hospital stays, and fewer complications are important variables that impact hospital charges in the surgical management of Cushing's disease.

## Learning Objectives

By the conclusion of this session, participants should be able to: 1) discuss the factors that influence hospital charges in transsphenoidal surgery, 2) discuss the importance of high volume centers in minimizing health care costs, and 3) describe strategies for improving health care expenditures in transsphenoidal surgery for Cushing's disease.