

Race and insurance status are associated with higher charges in patients having pituitary tumor surgery in New York State

Authors: G. Edward Vates, MD, PhD, FACS, Amy LaLonde, BS, MS, Charles Lee, BS, Kristopher Kimmell, MD, Laura Calvi, MD, Matthew Miller, MD, FACS, and Tanzy Love, PhD

Cost of care can be influenced by factors unrelated to quality. We previously demonstrated that, for patients undergoing pituitary tumor surgery, hospital costs, charges, & length of stay (LOS) across New York State were significantly affected by surgeon volume & geographic location. To identify factors that may have gone unnoticed, we conducted further analysis to identify patient-related factors present in low vs. high charging hospitals.

We performed cost analysis on pituitary tumor surgery cases previously identified in the NY state inpatient database (SPARCS 2006-2012). Controlling for surgeon volume, hospital location, and LOS, a Bayesian model-based clustering method segregated hospitals into low, medium, and high charging; subsequent ANOVA and linear regression identified patient factors that were statistically different between these groups.

2,784 surgeries were performed in NY (2006-2012), 63% of patients were white, and 66% were privately insured, with Medicare/Medicaid covering 32%. Among low (6), medium (31) and high charge hospitals (32), median charges were \$10,740, \$24,221 and \$43,520 respectively. Mean percent white patients were 14%, 48%, and 54%; mean percent privately insured patients were 28%, 40% and 60%. The association between race, insurance status and hospital charges was significant using both one-way ANOVA (race, $p = 0.0471$; insurance status $p = 0.0104$) and linear regression (race, $p = 0.0349$; insurance status, $p = 0.0029$). Costs and LOS were not different between low, medium and high charging hospitals.

When studying patients having pituitary tumor surgery, high charging hospitals had a statistically significant increased proportion of white and privately insured patients, even though the cost of providing the service and the LOS (an indirect proxy for quality) was no different from low charging hospitals. Understanding the forces that influence hospital charges will be important to improve health care quality and cost effectiveness.