

Center-Level CABG and Valve Operative Outcomes and Volume-outcome Relationships in New York State

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Abstract

Background: We analyzed center-level outcome correlations between valve surgery and coronary artery bypass graft (CABG) in New York (NY) State and how volume-outcome effect differ between case types. **Methods:** We used the 2014-2016 NY cardiac surgery outcomes report. Center-level observed-to-expected (O/E) ratio for operative mortality provided risk-adjusted operative outcomes for isolated CABG and valve operations. Correlation coefficient characterized the concordance in center-level outcomes in CABG and valve. Discordant outcomes were defined as having O/E ratio >2 in one operation type with O/E ratio <1 in another. Linearized slope of volume-outcome effect in case types offered insights into centers with discordant performances between procedures. **Results:** Among 37 NY centers, annual center volumes were 220 ± 120 cases for CABG and 190 ± 178 cases for valve operations. Modest center-level correlation between CABG and valve O/E ratio was shown ($R^2 = 0.31$). Two centers had discordant performance between valve and CABG (O/E <1 for CABG while O/E > 2 for valve procedures). No centers had CABG O/E ratio > 2 while valve O/E ratio <1 . Linearized slope describing volume-outcome effects showed stronger effect in valve operations compared to CABG: O/E ratio declined 0.1 units per 100 CABG volume increase, while O/E ratio declined 0.33 units per 100 valve volume increase. **Conclusions:** In NY hospitals, favorable valve outcomes may indicate good CABG outcomes but good CABG outcomes may not ensure valve outcomes. Outcome variation in valve operation could be related to stronger volume-outcome effect in valve operations relative to CABG. Valve operations may benefit from regionalization.

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Center O/E ratios for CABG and valve operations



