

# **Association between surgeon and hospital volume in coronary artery bypass graft surgery outcomes: a population-based study.**

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## **Abstract**

**BACKGROUND:** We have found no study conducted outside of the United States on the association between physician volume and patient outcomes after coronary artery bypass graft surgery. The aim of this study is to examine the association between surgeon-hospital coronary artery bypass graft volume and patient outcomes using three-year population-based data on Taiwan.

**METHODS:** This study uses the Taiwan National Health Insurance Research Database covering the period 2000 to 2002, with the study sample comprising 9,895 first-time coronary artery bypass graft admissions, treated by 316 surgeons in 46 hospitals.

**RESULTS:** Of the sampled patients, 356 (3.6%) were discharged after death. Those patients treated by low-volume (1–50 cases) surgeons had significantly higher mortality rates than those treated by medium-volume (51–100 cases) surgeons (7.0% vs 3.8%), high-volume (101–150 cases) surgeons (7.0% vs 2.7%), or very-high-volume (151 cases) surgeons (7.0% vs 3.2%). However, hospital coronary artery bypass graft volume alone is an insufficient predictor of hospital in-patient deaths ( $p = 0.078$ ). The adjusted odds ratio of hospital in-patient deaths declined with increasing surgeon volume, with the odds of in-patient death for those patients treated by low-volume surgeons being 1.52 times those of medium-volume surgeons, 1.89 times those of high-volume surgeons, and 2.04 times those of very-high-volume surgeons.

**CONCLUSIONS:** We conclude that for all coronary artery bypass graft surgeries taking place in Taiwan, the skill and experience of individual surgeons is a more critical factor for patient outcome than either hospital equipment or surgical teams.

