

# **The Volume-outcome Relationship of Percutaneous Coronary Intervention: Can Current Procedure Volume Minimums Be Applied to a Developing Country**

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## **Abstract**

### Objectives

A minimum percutaneous coronary intervention (PCI) hospital volume of 400 cases per year is recommended by the American College of Cardiology/American Heart Association (ACC/AHA). However, it is unclear whether this minimum value standard applies to non-Western developing countries, such as Taiwan. The aim of this study was to assess the application in Taiwan of current ACC/AHA practice guidelines for minimum hospital PCI volume.

### Methods

Using the 2003 Taiwan National Health Insurance Research Database and the Cause of Death Data File, we analyzed and compared the risk of 30-day mortality for patients (n = 12 369) treated at low- (<200 cases per year), medium- (200-399 cases per year), and high- ( $\geq$ 400 cases per year) PCI volume hospitals. A multivariable logistic regression using generalized estimating equations was conducted to assess the independent association of hospital PCI volume and patient 30-day mortality.

### Results

Crude 30-day mortality rates among low-, medium-, and high-PCI volume hospitals were 3.10%, 2.82%, and 1.80%, respectively. Patients treated at low-PCI volume hospitals had 1.54 (95% CI, 1.17-2.02) times higher odds of 30-day mortality than those treated at high-PCI volume hospitals after adjusting for other factors. The adjusted odds ratio between medium- and high-volume hospitals did not reach statistical significance (odds ratio 1.33, 95% CI 0.91-1.56).

### Conclusions

Though greater, the adjusted odds of 30-day mortality for patients undergoing PCI at medium-volume hospitals was not significantly different from those of patients

treated at high-volume hospitals. This suggests that current ACC/AHA PCI hospital volume minimums may need to be reevaluated in non-Western countries such as Taiwan.