

# Risk-adjustment model in health outcomes evaluation: a contribution to strengthen assessment towards quality improvement in interventional cardiology

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## **Abstract**

### Objective

The aim of this study was to develop a risk adjustment model for major adverse cardiac and cerebrovascular events following percutaneous coronary intervention (PCI), using data from a national registry, and to highlight the use of the risk adjustment when we evaluate the quality of care in interventional cardiology.

### Design

The study design was based on a Coorte study. Bivariate and multivariate logistic regression models were used to identify independent risk factors for these major adverse events.

### Setting

A total of 19 hospitals from the Portuguese National Registry of Interventional Cardiology.

### Participants

Data from 10.641 consecutives procedures collected between June 30, 2003 and June 30, 2006.

### Intervention

Build a risk adjustment model for these major adverse events, following percutaneous coronary intervention.

### Main Outcome Measure

Factors that were associated with major adverse cardiac and cerebrovascular events following percutaneous coronary intervention.

### Results

The rate of in-hospital major adverse cardiac and cerebrovascular events was 1.9%. Factors associated with major adverse cardiac and cerebrovascular events included, among others: age >80 years (adjusted odds ratio = 3.91); female gender (1.72); and cardiogenic shock (6.05).

Overall, a good discrimination was achieved with receiver operating characteristics curve = 0.84 and Hosmer-Lemeshow goodness of fit statistic across groups of risk was not significant (P = 0.18) indicating little departure from a perfect fit.

#### Conclusions

These findings will represent an important contribution to quality and safety improvement and should help driving new research and innovative approaches to different subgroups of patients who have higher chances of having an adverse event or poorer outcomes following this intervention.

#### **Keywords**

risk adjustment, PCI, quality improvement, safety, outcomes research