



AMERICAN
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CARDIOLOGY®

The American College of Cardiology National Cardiovascular Data Registry (NCDR) utilizes statistical models to provide both risk-adjusted and risk-standardized outcomes to participating hospitals. The results of these models can be used to benchmark performance and guide quality improvement efforts.

The NCDR CPMI Registry® has several approved risk models that are currently reported as executive level metrics. These risk models include: In-hospital risk standardized rate of mortality (for all AMI patient and for All AMI patients excluding cardiac arrest), risk standardized rate of bleeding, risk standardized increased length of stay greater than 3 days post-acute myocardial infarction and risk standardized discharge to post-acute care.

In 2022, an ACC NCDR workgroup was established to:

- Provide guidance on updating the current in-hospital risk standardized rate of mortality model currently in use in the CPMI registry
- Recommend model inclusion and exclusion criteria
- Recommend updates and adjustments to the risk model variables utilizing the CPMI Registry® v3.0 dataset
- Develop a model useful for internal benchmarking for healthcare facilities and public reporting

At this time, we are pleased to share the proposed **In-hospital Risk-standardized Mortality Model** for your review and welcome your comments.

Risk Model Summary

Model Eligibility

- Inclusion Criteria:
 - Patients with STEMI
 - Patients with NSTEMI
- Exclusion Criteria:
 - Patients who transfer to another acute care facility
 - Patients with low-risk chest pain
 - Patients with Unstable Angina

Risk Variables

Full Model
Age
Diabetes Mellitus
Dyslipidemia
Prior PCI
History of Cerebrovascular Disease
Peripheral Arterial Disease
Cardiogenic shock
Heart Failure
Heart Rate
Systolic Blood Pressure
Cardiac arrest and missing rhythm
Cardiac arrest and not shockable rhythm
Cardiac arrest and shockable rhythm
STEMI or STEMI Equivalent
GFR
Hemoglobin

Model Type

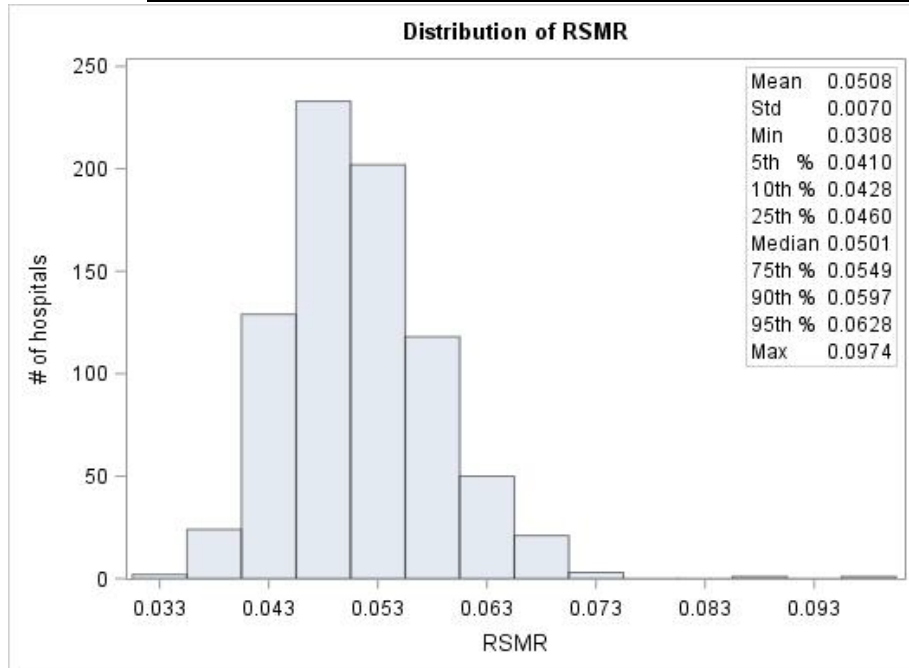
This proposed mortality model is a multivariate hierarchical logistic regression model.

Model Performance

Full model: c-statistic = 0.868

Performance Estimates

Distribution of Hospital Risk-Standardized Mortality Rates



Updated measures

In efforts to support both facility level quality improvement efforts and public reporting programs, this new update will change the following measures:

- 43. In-hospital Risk-standardized mortality (All AMI patients)
- 44. In-hospital Risk-standardized mortality (All AMI patients excluding those with cardiac arrest)