Variables Involved in STS Risk Modeling

Database Section / Variable	Operative Mortality Models			CAB Morbidity Models					Combined Outcomes (Mortality, Morbidity)	CAB Length of Stay Models	
	CAB	Valve	CAB+ Valve	Reop	Stroke	Deep Sternal Infx	Renal Failure	Prolonged Vent		Short Stay	Long Stay
B. Demographic											
Age	×	×	×	×	×	×	×	×	×	×	×
Gender	×	×	×	×	×	×	×	×	×	×	×
Race	×			×	×	×	×	×	×	×	×
D. Risk Factors											
Body Surface Area (Using Ht, Wt)	×	×	×	×	×	×	×	×	×		×
Diabetes	×	×	×	×	×	×	×	×	×	×	×
Diabetes Control	×			×	×	×	×	×	×	×	×
Renal Failure	×	×	×	×	×	×	×	×	×	×	×
Dialysis-Dependent Renal Failure	×	×	×	×	×	×	×	×	×	×	×
Hypertension	×	×		×	×	×	×	×	×	×	×
Hypercholesterolemia	×							×	×	×	×
Chronic Lung Disease	×	×	×	×		×	×	×	×	×	×
Peripheral Vascular Disease	×	×	×	×	×	×	×	×	×	×	×
Cerebrovascular Disease	×			×	×	×	×	×	×	×	×
Cerebrovascular Accident	×	×			×			×	×	×	×
Cerebrovascular Accident Timing	×				×			×	×	×	×
Immunosuppressive Treatment	×		×	×	×	×	×	×	×	×	×
Infectious Endocarditis Type		×									
Last Preop Creatinine Level		×	×								
Smoker				×	×	×	×	×	×	×	×
Current Smoker				×	×	×	×	×	×	×	×
E. Previous Interventions											
Prior Cardiac Operations	×	×	×	×	×		×	×	×	×	×
Prior PTCA/Ather Timing	×			×			×	×	×	×	×
F. Cardiac Status											
Congestive Heart Failure				×			×		×	×	
Myocardial Infarction	×	×	×	×		×	×	×	×	×	×
Myocardial Infarction Timing	×	×	×	×		×	×	×	×	×	×
Cardiogenic Shock	×	×	×	×	×		×	×	×	×	×
Resuscitation	×			×	×		×	×	×		×
NYHA Classification	×	×	×	×	×	×	×	×	×	×	×

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G. Medications											
Inotropic Agents		×	×								
H. Hemodynamics and Cath											
Ejection Fraction	×		×	×	×		×	×	×	×	×
Number of Diseased Vessels	×		×	×	×	×	×	×	×	×	×
Left Main Disease	×			×	×		×	×	×	×	×
Pulmonary Artery Mean Pressure		×	×								
Aortic Valve Stenosis	×			×	×		×	×	×	×	×
Mitral Valve Insufficiency	×			×	×	×	×	×	×	×	×
J. Operative											
Procedure Status	×	×	×	×	×		×	×	×	×	×
P. CPB and Support											
Intra-Aortic Balloon Pump Timing	×	×	×	×	×	×	×	×	×	×	×

Missing Data Imputation

Required variables: Age and gender are required variables for all models. If either is missing, no value for predicted risk will be calculated.

Categorical variables: Missing data are assumed to have the lowest risk category. For example, if diabetes was not coded, it would be assumed to be "No"; if procedure priority were not coded, the procedure would be assumed to be "Elective". For "Number of Diseased Vessels", "3" is the substitute for missing.

Continuous variables: The following table shows the values assigned to missing data for continuous model variables:

Model Variable	Model Imputation Information
Body Surface Area	Missing or out-of-range height and weight information leads to a missing BSA value. In these instances, BSA is assigned a default value based on gender. For the Valve-Only and Valve+CAB mortality models: Male = 1.967 m^2, Female = 1.704 m^2 For all CAB models: Male = 2.017 m^2, Female = 1.759 m^2
Ejection Fraction	Set to 50%