



Post-Operative Length of Stay after Coronary Artery Bypass Surgery

Post-operative length of stay (PLOS) following coronary artery bypass (CABG) surgery varies widely across hospitals. Using data from The Society of Thoracic Surgeons National Cardiac Surgery Database (STS database), The STS National Database Committee and the Duke Clinical Research Institute (DCRI) have developed models to determine what clinical factors influence PLOS and to allow a mechanism for comparing hospitals with respect to PLOS after adjusting for these factors.

The population consists of patients in the STS database that underwent isolated CABG surgery from January 1, 1998 to December 31, 1999. Patients under the age of 20 and patients with missing PLOS were excluded from the analysis, resulting in a database that contains clinical information on 310,080 patients from 547 hospitals.

Because previous attempts to directly model PLOS (or a transformation of PLOS) from preoperative clinical characteristics have resulted in models with poor predictive ability, two binary logistic regression models were developed for predicting short (less than 6 days) and long (over 14 days) length of stay. Twenty-four pre-operative patient risk factors were included in each model. Variables with the most predictive power (based on the value of the Wald Chi-Square statistic) for short PLOS were age, gender, chronic lung disease, renal failure and CHF. For long PLOS, the major predictors were age, chronic lung disease, renal failure and CHF.

Having developed these models, it is now possible to make comparisons with PLOS across hospitals after adjusting for patient risk factors. For example, the association between adjusted mortality and adjusted long length of stay is provided in the graph below. It is evident from this graph that hospitals with longer lengths of stay also tend to have higher adjusted mortality rates. Comparisons such as this will assist hospitals in making decisions that will improve efficiency and quality of care.

Hospital Level Comparison

