

5.4.5. Calibration and Discrimination

We developed the model in the 70% derivation set and tested its discrimination and calibration (using both the Hosmer-Lemeshow test and the slope of the predicted vs. observed risk).

The c-statistic is 0.772 for the model, which means that the probability that predicting the outcome is better than chance. This method is used to compare the goodness of fit of logistic regression models. The range is between 0.5 to 1.0. A value of 0.5 indicates that the model is no better than chance at making a prediction of membership in a group and a value of 1.0 indicates that the model perfectly identifies those within a group and those not. Models are typically considered reasonable when the C-statistic is higher than 0.7. (Hosmer & Lemeshow, 2000).

Table 19. Model Performance Results

Data Source	Derivation	Validation
Number of hospitals	1703	1701
Number of Records	655709	657252
Post-Procedure Bleeding Rate	1.75	1.78
Calibration		
y0	0.0001	-0.0790
y1	1.0000	0.9716
Discrimination		
Adjusted R-Square	0.1156	0.1103
ROC	0.7751	0.7685
Predictive Ability		
Lowest Decile	0.0023	0.0028
Highest Decile	0.0708	0.0714
Residuals Lack of Fit (Pearson Residual Fall %)		
<-2	0.0000	0.0000
[-2, 0)	0.9825	0.9822
[0, 2)	0.0005	0.0004
[2+	0.0170	0.0175
Model Fitting		
Chi-Square	12454.29	12223.62
Number of Covariates	27	27

Figure 9. Risk decile plot in the all-patients cohort excluding cardiac arrest or cardiogenic shock

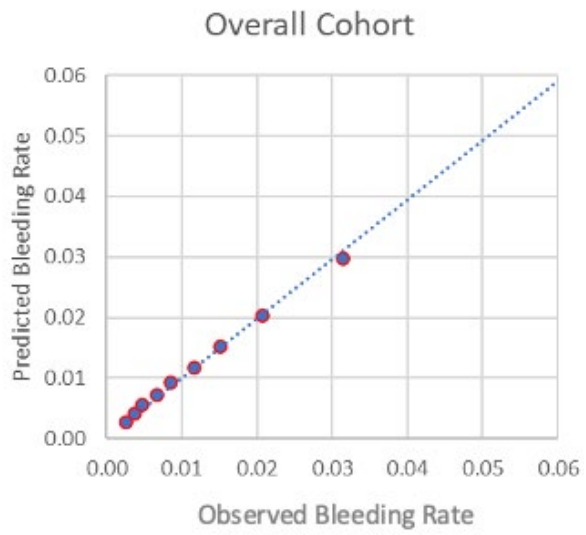


Figure 10. Calibration Curve

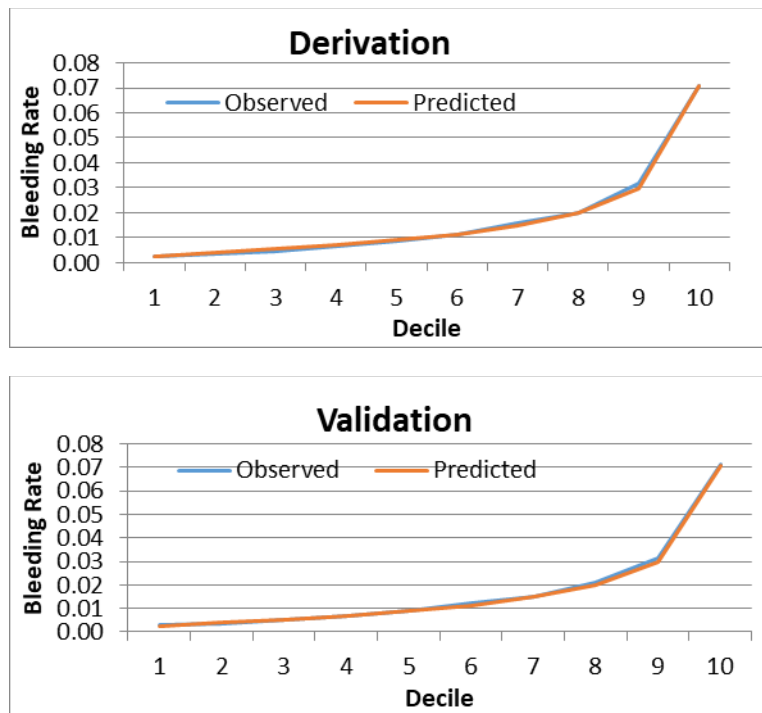


Figure 11. Adjusted Distribution of Bleeding

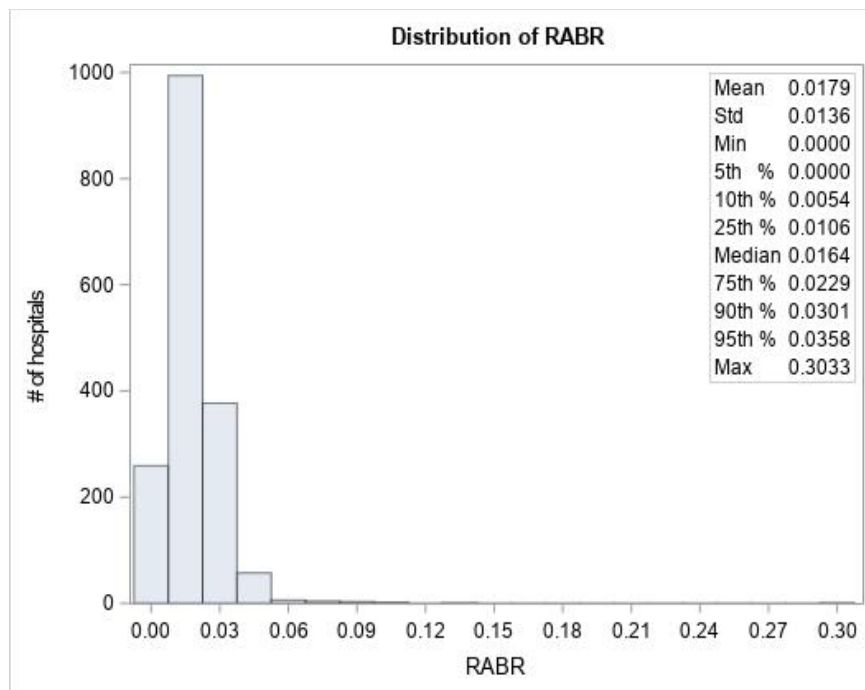


Figure 12. Distribution of Hospital Risk-Standardized Bleeding Rates (excluding CA/Shock)

