Provide the approach and results of calibration and discrimination testing. Describe any over- or under-prediction of the model for important subgroups. Please attach results of calibration and discrimination testing. *

Attachment (pdf, jpg, png)

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Model validation was performed by bootstrap validation. 1.The BSI model (Full model) was trained on the 2014 national dataset. 2. 1000 bootstrap samples were formed by drawing randomly with replacement from the original sample dataset. 3. A new model was trained on each bootstrap sample, and record of each corresponding model parameters and performance metrics were saved. 4. Repeat steps 1-3 for an intercept only (Null) model. Finally, the 1000 Null and 1000 Full models were compared using several measures for model error and Likelihood ratios.

Full Model: root mean square error

Variable	N	Mean	Std Dev	Minimum	25th	50th	75th	Maximum
RMSE	1000	2.05823	0.03667	1.93151	2.03307	2.05733	2.08426	2.16329

Null Model: root mean square error

Variable	N	Mean	Std Dev	Minimum	25th	50th	75th	Maximum
RMSE	1000	3.21269	0.0556	3.02722	3.17491	3.21493	3.25179	3.38153

To demonstrate calibration of this model we focus on the RMSE's 36% percent reduction of the null to full model.