

Appendix 2 (as supplied by the authors): Supplemental statistical and sensitivity analysis

Model discrimination (predictive accuracy) was assessed by the area under the receiver operating characteristic curve (AUROC) represented by the c-statistic. We used a threshold of a c-statistic value of 0.70 and above indicates good discrimination between those admitted versus not admitted(1). We evaluated the model's ability to predict subgroups of patients with a differing risk of index hospitalization by plotting predicted vs. observed events in deciles(2, 3). Each model was validated through cross-validation (4).

As a check for collinearity, we also re-ran each multivariable model using the forward stepwise procedure with p-value <0.1 set as the inclusion criterion and p-value >0.05 as the removal threshold. We then compared the final selection of variables, the sign and magnitude of the odds ratios (OR) as well as their standard errors (SE): no discrepancy with the original results provided further evidence of a good fit and no/low collinearity. The results of the stepwise approach were closely aligned with the original models (data available from the authors on request).

We also re-ran the models individually on 5 most costly conditions in both cohorts: the predictor estimates remained unaffected while c-statistics improved to above 0.7, especially among HCUs (Appendix 4).

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