|  |  |  |
| --- | --- | --- |
| 1 | **Participants** | |
| 1.1 | Were appropriate data sources used, e.g. cohort, RCT or nested case-control study data? | Yes |
| 1.2 | Were all inclusions and exclusions of participants appropriate? | Yes |
|  | Risk of bias introduced by selection of participants | **Low RoB** |
|  | Concern that the included participants and setting do not match the intended purpose | **Low concern** |
|  |  |  |
| 2 | **Predictors** | |
| 2.1 | Were predictors defined and assessed in a similar way for all participants? | Yes |
| 2.2 | Were predictor assessments made without knowledge of outcome data? | Yes |
| 2.3 | Are all predictors available at the time the model is intended to be used? | Probably Yes |
|  | Risk of bias introduced by predictors or their assessment RISK: | **Low RoB** |
|  | Concern that the definition, assessment or timing of predictors in the model do not match the intended purpose | **Low concern** |
|  |  |  |
| 3 | **Outcome** | |
| 3.1 | Was the outcome determined appropriately? | Yes |
| 3.2 | Was a pre-specified or standard outcome definition used? | Yes |
| 3.3 | Were predictors excluded from the outcome definition? | Yes |
| 3.4 | Was the outcome defined and determined in a similar way for all participants? | Yes |
| 3.5 | Was the outcome determined without knowledge of predictor information? | Yes |
| 3.6 | Was the time interval between predictor assessment and outcome determination appropriate? | Yes |
|  | Risk of bias introduced by the outcome or its determination | **Low RoB** |
|  | Concern that the outcome, its definition, timing or determination do not match the intended purpose | **Low concern** |
|  |  |  |
| 4 | **Analysis** | |
| 4.1 | Were there a reasonable number of participants with the outcome? | Yes |
| 4.2 | Were continuous and categorical predictors handled appropriately? | Yes |
| 4.3 | Were all enrolled participants included in the analysis? | No |
| 4.4 | Were participants with missing data handled appropriately? | Yes |
| 4.5 | Was selection of predictors based on univariable analysis avoided? | Yes |
| 4.6 | Were complexities in the data (e.g. censoring, competing risks, sampling of controls) accounted for appropriately? | Yes |
| 4.7 | Were relevant model performance measures evaluated appropriately? | Yes |
| 4.8 | Were model overfitting and optimism in model performance accounted for? | Yes |
| 4.9 | Do predictors and their assigned weights in the final model correspond to the results from multivariable analysis? | Probably Yes |
|  | Risk of bias introduced by the analysis RISK: | **Low RoB** |
|  | *Explanation*: Despite the one 'No' rating, the risk of bias is low, as the participants were removed due to them having insufficient data, and this did not change the overall characteristics of the patients. |  |
|  |  |  |
|  | **Overall** | |
|  | **Low Risk of Bias** | |
|  | **Low Concern of Lack of Applicability** | |

Supplementary Table 3: An analysis of our model by the Prediction model Risk Of Bias ASsessment Tool (PROBAST) showed low risk of bias and low concern of lack of applicability in prediction models.