

TRIPOD Checklist: Prediction Model Development

Section	Item	Checklist description	Reported on Page Number/Line Number	Reported on Section/Paragraph
Title and abstract				
Title	1	Identify the study as developing and/or validating a multivariable prediction model, the target population, and the outcome to be predicted.	Page 1/ Line 1-2	Title page
Abstract	2	Provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions.	Page 2/Line 35-57	Abstract
Introduction				
Background and objectives	3a	Explain the medical context (including whether diagnostic or prognostic) and rationale for developing or validating the multivariable prediction model, including references to existing models.	Page 3/Line 81-89	Introduction/ Para 3
	3b	Specify the objectives, including whether the study describes the development or validation of the model or both.	Page 4/Line 90-93	Introduction/ Para 4
Methods				
Source of data	4a	Describe the study design or source of data (e.g., randomized trial, cohort, or registry data), separately for the development and validation data sets, if applicable.	Page 4/Line 98-123	Method/Para 1-2
	4b	Specify the key study dates, including start of accrual; end of accrual; and, if applicable, end of follow-up.	Page 4/Line 99	Method/Para 1
Participants	5a	Specify key elements of the study setting (e.g., primary care, secondary care, general population) including number and location of centres.	Page 4/Line 98-100	Method/Para 1
	5b	Describe eligibility criteria for participants.	Page 4/Line 100-105	Method/Para 1
	5c	Give details of treatments received, if relevant.	Page 5/Line 130-156	Method/Para 4-5
Outcome	6a	Clearly define the outcome that is predicted by the prediction model, including how and when assessed.	Page 7/Line 161-163	Method/Para 6
	6b	Report any actions to blind assessment of the outcome to be predicted.	N/A	N/A
Predictors	7a	Clearly define all predictors used in developing or validating the multivariable prediction model, including how and when they were measured.	Page 7/Line 169-175	Method/Para 7-8
	7b	Report any actions to blind assessment of predictors for the outcome and other predictors.	N/A	N/A
Sample size	8	Explain how the study size was arrived at.	Page 4/Line 99	Method/Para 1

Missing data	9	Describe how missing data were handled (e.g., complete-case analysis, single imputation, multiple imputation) with details of any imputation method.	N/A, few data were missing	N/A, few data were missing
Statistical analysis methods	10a	Describe how predictors were handled in the analyses.	Page 7/Line 169-175	Method/Para 7-8
	10b	Specify type of model, all model-building procedures (including any predictor selection), and method for internal validation.	Page 7/Line 175-183	Method/Para 8
	10d	Specify all measures used to assess model performance and, if relevant, to compare multiple models.	Page 7/Line 175-183	Method/Para 8
Risk groups	11	Provide details on how risk groups were created, if done.	Risk groups not created	Risk groups not created
Results				
Participants	13a	Describe the flow of participants through the study, including the number of participants with and without the outcome and, if applicable, a summary of the follow-up time. A diagram may be helpful.	Page 8/Line 187-198	Result/Para 1
	13b	Describe the characteristics of the participants (basic demographics, clinical features, available predictors), including the number of participants with missing data for predictors and outcome.	Page 8/Line 198	Result/Para 1
Model development	14a	Specify the number of participants and outcome events in each analysis.	Page 8/Line 206-213	Result/Para 3
	14b	If done, report the unadjusted association between each candidate predictor and outcome.	Page 9/Line 215-219	Result/Para 4
Model specification	15a	Present the full prediction model to allow predictions for individuals (i.e., all regression coefficients, and model intercept or baseline survival at a given time point).	Page 9/Line 221-223	Result/Para 4 + Figure 1
	15b	Explain how to use the prediction model.	Page 22/Line 510-515	Figure 1 legend
Model performance	16	Report performance measures (with CIs) for the prediction model.	Page 9/Line 224	Result/Para 4
Discussion				
Limitations	18	Discuss any limitations of the study (such as nonrepresentative sample, few events per predictor, missing data).	Page 16/Line 402	Discussion/Last para
Interpretation	19b	Give an overall interpretation of the results, considering objectives, limitations, and results from similar studies, and other relevant evidence.	Page 13-16/Line 312-401	Discussion/Para 4-9
Implications	20	Discuss the potential clinical use of the model and implications for future research.	Page 17/Line 418	Conclusions
Other information				
Supplementary information	21	Provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets.	N/A, no supplementary materials	N/A, no supplementary materials
Funding	22	Give the source of funding and the role of the funders for the present study.	Page 17/Line 422	Acknowledgements

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*As the checklist was provided upon initial submission, the page number/line number reported may be changed due to copyediting and may not be referable in the published version. In this case, the section/paragraph may be used as an alternative reference.