

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.	Page1/Line3-4	Title Page/Paragraph1
Abstract	2	Provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions.	Page1-2/Line23-58	Abstract/Paragraph1-4
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.	Page2-3/Line65-89	Introduction/Paragraph1
	3b	Specify the objectives, including whether the study describes the development or validation of the model or both.	Page3-4/Line90-123	Introduction/Paragraph2
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.	Page4/Line134-140	Methods/Paragraph2
	4b	Specify the key study dates, including start of accrual; end of accrual; and, if applicable, end of follow-up.	Page4/Line134-140	Methods/Paragraph2
Participants	5a	Specify key elements of the study setting (e.g., primary care, secondary care, general population) including number and location of centres.	Page4/Line129-140	Methods/Paragraph1-2
	5b	Describe eligibility criteria for participants.	Page5/Line163-176	Methods/Paragraph5-6
	5c	Give details of treatments received, if relevant.	Page5/Line178-183	Methods/Paragraph7
Outcome	6a	Clearly define the outcome that is predicted by the prediction model, including how and when assessed.	Page5-6/Line185-222	Methods/Paragraph8-11
	6b	Report any actions to blind assessment of the outcome to be predicted.	Page5-6/Line185-222	Methods/Paragraph8-11
Predictors	7a	Clearly define all predictors used in developing or validating the multivariable prediction model, including how and when they were measured.	Page5-6/Line185-222	Methods/Paragraph8-11
	7b	Report any actions to blind assessment of predictors for the outcome and other predictors.	Page5-6/Line185-222	Methods/Paragraph8-11
Sample size	8	Explain how the study size was arrived at.	Page7/Line231-232	Methods/Paragraph12

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	No missing data
Statistical analysis methods	10a	Describe how predictors were handled in the analyses.	Page7/Line237-247	Methods/Paragraph12
	10b	Specify type of model, all model-building procedures (including any predictor selection), and method for internal validation.	Page7/Line237-247	Methods/Paragraph12
	10d	Specify all measures used to assess model performance and, if relevant, to compare multiple models.	Page7/Line247-250	Methods/Paragraph12
Risk groups	11	Provide details on how risk groups were created, if done.	Page7/Line237-247	Methods/Paragraph12
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.	Page4/Line134-140	Methods/Paragraph2
	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.	Page7-9/Line255-322	Results/Paragraph1-7
Model development	14a	Specify the number of participants and outcome events in each analysis.	Page7-9/Line255-322	Results/Paragraph1-7
	14b	If done, report the unadjusted association between each candidate predictor and outcome.	Page9-10/Line326-342	Results/Paragraph8
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).	Page9-10/Line326-342	Results/Paragraph8
	15b	Explain how to use the prediction model.	Page10/Line341-342	Results/Paragraph8
Model performance	16	Report performance measures (with CIs) for the prediction model.	Page10/Line344-349	Results/Paragraph9
Discussion				
Limitations	18	Discuss any limitations of the study (such as nonrepresentative sample, few events per predictor, missing data).	Page16/Line549-557	Discussion/Paragraph10
Interpretation	19b	Give an overall interpretation of the results, considering objectives, limitations, and results from similar studies, and other relevant evidence.	Page11-15/Line391-530	Discussion/Paragraph2-8
Implications	20	Discuss the potential clinical use of the model and implications for future research.	Page15/Line532-547	Discussion/Paragraph9
Other information				
Supplementary information	21	Provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets.	Page5/Line161	Table S1
Funding	22	Give the source of funding and the role of the funders for the present study.	Page16/Line572-574	Acknowledgment

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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.