

TRIPOD Checklist: Prediction Model Development

Section/Topic	Item	Checklist Item	Page
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.	Title page
Abstract	2	Provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions.	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.	Introduction paragraph 1-3
	3b	Specify the objectives, including whether the study describes the development or validation of the model or both.	Introduction paragraph 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.	Data sources
	4b	Specify the key study dates, including start of accrual; end of accrual; and, if applicable, end of follow-up.	Study sample
Participants	5a	Specify key elements of the study setting (e.g., primary care, secondary care, general population) including number and location of centres.	Study sample
	5b	Describe eligibility criteria for participants.	Study sample
	5c	Give details of treatments received, if relevant.	n/a
Outcome	6a	Clearly define the outcome that is predicted by the prediction model, including how and when assessed.	Outcome
	6b	Report any actions to blind assessment of the outcome to be predicted.	n/a
Predictors	7a	Clearly define all predictors used in developing or validating the multivariable prediction model, including how and when they were measured.	Predictors
	7b	Report any actions to blind assessment of predictors for the outcome and other predictors.	n/a
Sample size	8	Explain how the study size was arrived at.	Study sample
Missing data	9	Describe how missing data were handled (e.g., complete-case analysis, single imputation, multiple imputation) with details of any imputation method.	Predictors
Statistical analysis methods	10a	Describe how predictors were handled in the analyses.	Predictors
	10b	Specify type of model, all model-building procedures (including any predictor selection), and method for internal validation.	Model derivation and evaluation paragraph 1-5
	10d	Specify all measures used to assess model performance and, if relevant, to compare multiple models.	Model derivation and evaluation paragraph 2-4
Risk groups	11	Provide details on how risk groups were created, if done.	n/a
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.	Results paragraph 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.	Table 1
Model development	14a	Specify the number of participants and outcome events in each analysis.	Results paragraph 1
	14b	If done, report the unadjusted association between each candidate predictor and outcome.	n/a
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).	eTable 6
	15b	Explain how to use the prediction model.	Discussion
Model performance	16	Report performance measures (with CIs) for the prediction model.	Results paragraph 3
Discussion			
Limitations	18	Discuss any limitations of the study (such as nonrepresentative sample, few events per predictor, missing data).	Discussion paragraph 6
Interpretation	19b	Give an overall interpretation of the results, considering objectives, limitations, and results from similar studies, and other relevant evidence.	Discussion paragraph 1-7
Implications	20	Discuss the potential clinical use of the model and implications for future research.	Discussion paragraph 3-5
Other information			
Supplementary information	21	Provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets.	Data availability
Funding	22	Give the source of funding and the role of the funders for the present study.	Title page