

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	Title
Abstract	2	Provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions.	Page 3/line 44-70	Abstract/Para 1-4
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.	Page 5/Line 88-103	Introduction/Para 2-3
	3b	Specify the objectives, including whether the study describes the development or validation of the model or both.	Page 5-6/Line104-117	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 6-7/Line 121-131	Methods/Para 1
	4b	Specify the key study dates, including start of accrual; end of accrual; and, if applicable, end of follow-up.	Page 6-7/Line 121-131	Methods/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 7/Line 140-141	Methods/Para 2
	5b	Describe eligibility criteria for participants.	Page6-7/Line 122-135	Methods/ Para 2
	5c	Give details of treatments received, if relevant.	N/A	Not prognostic model
Outcome	6a	Clearly define the outcome that is predicted by the prediction model, including how and when assessed.	Page 7/Line 140-67	Methods/ Para 2-3
	6b	Report any actions to blind assessment of the outcome to be predicted.	Page 8/Line 147-76	Methods/ Para 3-4
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 140-167	Methods/Para 2-3
	7b	Report any actions to blind assessment of predictors for the outcome and other predictors.	Page 8/Line 147-176	Methods/ Para 3-4
Sample size	8	Explain how the study size was arrived at.	Page 6/Line 122-137	Methods/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.	Page 7/Line133-135	Methods/ Para 2
Statistical analysis methods	10a	Describe how predictors were handled in the analyses.	Page 7-8/Line140-165	Methods/ Para 2-3
	10b	Specify type of model, all model-building procedures (including any predictor selection), and method for internal validation.	Page 7-8/Line140-165	Methods/ Para 2-3
	10d	Specify all measures used to assess model performance and, if relevant, to compare multiple models.	Page 7-8/Line140-165	Methods/ Para 2-3
Risk groups	11	Provide details on how risk groups were created, if done.	Page 8/Line148-150	Methods/ Para 3
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 9/Line180-181	Results/Para1
	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 11/Line210	Results/Para 3
Model development	14a	Specify the number of participants and outcome events in each analysis.	Page 11-12/Lin210-245	Results/Para 3-5
	14b	If done, report the unadjusted association between each candidate predictor and outcome.	Page 10/Line 197- 220	Results/Para
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 10/Line188-195	Results/Para 1
	15b	Explain how to use the prediction model.	Page 10/Line188-195	Results/Para 1
Model performance	16	Report performance measures (with CIs) for the prediction model.	Page 12/Line233-247	Results/Para 1
Discussion				
Limitations	18	Discuss any limitations of the study (such as nonrepresentative sample, few events per predictor, missing data).	Page 16/ Line 312-314	Discussion/Para 1-3
Interpretation	19b	Give an overall interpretation of the results, considering objectives, limitations, and results from similar studies, and other relevant evidence.	Page 16/Line 296-312	Discussion/Para 3-4
Implications	20	Discuss the potential clinical use of the model and implications for future research.	Page 16/Line 296-312	Discussion/Para 3-4
Other information				
Supplementary information	21	Provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets.	Page 6-7/Line 121-131	Methods/Para 4
Funding	22	Give the source of funding and the role of the funders for the present study.	Page 16/Line 319-324	Acknowledgements

Article information: <http://dx.doi.org/10.21037/atm-20-4813>

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