TRIPOD Checklist: Prediction Model Development and Validation

Section	Item		Checklist description	Reported on Page Number/Line Number	Reported on Section/Paragraph
Title and abstract					
Title	1	D;V	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
Abstract	2	D;V	Provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions.	Page:2-3/Line:21-50	Abstract
Introduction					
Background and objectives	3a	D;V	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:4-9/Line:52-154	Introduction
	3b	D;V	Specify the objectives, including whether the study describes the development or validation of the model or both.	Page:8-9/Line:137-153	Introduction
Methods					
Source of data	4a	D;V	Describe the study design or source of data (e.g., randomized trial, cohort, or registry data), separately for the development and validation data sets, ifapplicable.	Page:20-21/Line:291-311	Experimental framework /Datasets
	4b	D;V	Specify the key study dates, including start of accrual; end of accrual; and, if applicable, end of follow-up.	N/A; All the data we use come from the open	N/A
Participants	5a	D;V	Specify key elements of the study setting (e.g., primary care, secondary care, general population) including number and location of centres.	N/A; All the data we use come from the open source dataset BraTS20	N/A
	5b	D;V	Describe eligibility criteria for participants.	N/A; All the data we use come from the open	N/A
	5c	D;V	Give details of treatments received, if relevant.	N/A; All the data we use come from the open	N/A
Outcome	6a	D;V	Clearly define the outcome that is predicted by the prediction model, including how and when assessed.	Page:21/Line:326-341	Experimental framework /Evalution metric
	6b	D;V	Report any actions to blind assessment of the outcome to be predicted.	N/A; we do not have any this actions	N/A
Predictors	7a	D;V	Clearly define all predictors used in developing or validating the multivariable prediction model, including how and when they were measured.	N/A; This work is based on artificial intelligence (deep learning)	N/A
	7b	D;V	Report any actions to blind assessment of predictors for the outcome and other predictors.	N/A; we do not have any this actions	N/A
Sample size	8	D;V	Explain how the study size was arrived at.	Page:20-21/Line:291-311	Experimental framework /Datasets

Missing data	9	D;V	Describe how missing data were handled (e.g., complete-case analysis, single imputation, multiple imputation) with details of any imputation method.	N/A; There is no missing data in the data we studied.	N/A
Statistical analysis methods	10a	D	Describe how predictors were handled in the analyses.	Page:23/Line:343-347	Results/Implementation details
	10b	D	Specify type of model, all model-building procedures (including any predictor selection), and method for internal validation.	Page:10-19/Lines:156-289	nism;2D-TransConver and 3D-TransConver;Loss function
	10c	V	For validation, describe how the predictions were calculated.	Page:22/Line:326-341	Experimental Framework /Evalution metric
	10d	D;V	Specify all measures used to assess model performance and, if relevant, to compare multiple models.	Page:23-28/Line:348-402	ate-of-the-arts Network Architectures
	10e	V	Describe any model updating (e.g., recalibration) arising from the validation, if done.	N/A; not done	N/A
Risk groups	11	D;V	Provide details on how risk groups were created, if done.	risk assessment of the model.	N/A
Development vs. validation	12	V	For validation, identify any differences from the development data in setting, eligibility criteria, outcome, and predictors.	ied the model is based on BraTS2018 and BraTS2019 public dataset.	N/A
Results					
Participants	13a	D;V	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.	we use come from the open source dataset BraTS2018 and BraTS2019	N/A
	13b	D;V	Describe the characteristics of the participants (basic demographics, clinical features, available predictors), including the number of participants with missing data for predictors and outcome.	se come from the open source dataset BraTS2018 and BraTS2019	N/A
	13c	V	For validation, show a comparison with the development data of the distribution of important variables (demographics, predictors and outcome).	se come from the open source dataset BraTS2018 and BraTS2019	N/A
Model development	14a	D	Specify the number of participants and outcome events in each analysis.	Page:20-22/Line:290-325	/Datasets; Data pre-processing and augmentat
	14b	D	If done, report the unadjusted association between each candidate predictor and outcome.	N/A; not done	N/A
Model specification	15a	D	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:10-11/Line:156-175	Method/Model architecture
	15b	D	Explain how to the use the prediction model.	Page:23/Line:343-347	Implementation details
Model performance	16	D;V	Report performance measures (with CIs) for the prediction model.	Page:23-31/Line:348-447	ate-f-he-rts Network Architectures; Ablation study
Model-updating	17	V	If done, report the results from any model updating (i.e., model specification, model performance).	Page:28-31/Line:403-447	Ablation study
Discussion					
Limitations	18	D;V	Discuss any limitations of the study (such as nonrepresentative sample, few events per predictor, missing data).	Page:34-35/Line:502-512	Limitations and further work

Interpretation	19a	V	For validation, discuss the results with reference to performance in the development data, and any other validation data.	Page:30-32/Line:450-486	Advantage of TransConver
	19b	D;V	Give an overall interpretation of the results, considering objectives, limitations, and results from similar studies, and other relevant evidence.	Page:30-32/Line:450-486	Advantage of TransConver
Implications	20	D;V	Discuss the potential clinical use of the model and implications for future research.	Page:35/Line:513-524	Conclusions
Other information					
Supplementary information	21	D;V	Provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets.	N/A; we do not have supplementary information	N/A
Funding	22	D;V	Give the source of funding and the role of the funders for the present study.	Page:36/Line:529-531	Acknowledgments

* Items relevant only to the development of a prediction model are denoted by D, items relating solely to a validation of a prediction model are denoted by V, and items relating to both are denoted D;V. We recommend using the TRIPOD Checklist in conjunction with the TRIPOD Explanation and Elaboration document.

Article information: https://dx.doi.org/10.21037/qims-21-919
*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.