Reporting of the items of the TRIPOD statement

	Development	External validation	Incremental value	Development and external validation	Overall
	N=73	N=43	N=33	N=21	N=170
Items of the TRIPOD statement	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Title and abstract					
1. Title: identify the study as developing and/or validating a multivariable prediction model, the target population, and the outcome to be predicted.	1 (1)	4 (9)	3 (9)	0 (0)	8 (5)
2. Abstract: provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions.	1 (1)	2 (5)	0 (0)	0 (0)	3 (2)
Introduction					
3. Background and objectives:					
a. Explain the medical context (including whether diagnostic or prognostic) and rationale for developing or validating the multivariable prediction model, including references to existing models.	54 (74)	42 (98)	23 (70)	18 (86)	137 (81)
b. Specify the objectives, including whether the study describes the development or validation of the model or both.	43 (59)	29 (67)	17 (52)	18 (86)	107 (63)
Methods					
4. Source of data:					
a. 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.	68 (93)	42 (98)	33 (100)	19 (91)	162 (95)
b. Specify the key study dates, including start of accrual; end of accrual; and, if applicable, end of follow-up.	36 (49)	28 (65)	15 (46)	8 (38)	87 (51)
5. Participants:					
a. Specify key elements of the study setting (e.g., primary care, secondary care, general population) including number and location of centres.	52 (71)	35 (81)	21 (64)	13 (62)	121 (71)
b. Describe eligibility criteria for participants.	58 (80)	37 (86)	24 (73)	16 (76)	135 (79)
c. Give details of treatments received, if relevant.	42/72 (58)*	20 (47)	20 (61)	11 (52)	93/169 (55)*
6. Outcome:					
a. Clearly define the outcome that is predicted by the prediction model, including how and when assessed.	33 (45)	19 (44)	18 (55)	9 (43)	79 (47)
b. Report any actions to blind assessment of the outcome to be predicted.	19 (26)	12 (28)	9 (27)	7 (33)	47 (28)
7. Predictors:					
a. Clearly define all predictors used in developing or validating the multivariable prediction model, including how and when they were measured.	17 (23)	12 (28)	12 (36)	2 (10)	43 (25)
b. Report any actions to blind assessment of predictors for the outcome and other predictors.	5 (7)	3 (7)	3 (9)	0 (0)	11 (7)
8. Sample size: explain how the study size was arrived at.	27 (37)	18 (42)	13 (39)	5 (24)	63 (37)
9. Missing data: Describe how missing data were handled (e.g., complete-case analysis, single imputation, multiple imputation) with details of any imputation method.	28 (38)	21 (49)	11 (33)	6 (29)	66 (39)
10. Statistical analysis methods:					
a. Describe how predictors were handled in the analyses.	22 (30)	NA	10 (30)	5 (24)	37/127 (29)*
b. Specify type of model, all model-building procedures (including any predictor selection), and method for internal validation.	19 (26)	NA	1 (3)	10 (48)	30/127 (24)*
c. For validation, describe how the predictions were calculated.	NA	17 (40)	4/20 (20)*	4 (19)	25/84 (30)*
d. Specify all measures used to assess model	16 (22)	11 (26)	3 (9)	5 (24)	35 (21)

performance and, if relevant, to compare multiple models.					
e. Describe any model updating (e.g., recalibration) arising from the validation, if done.	NA	4/8 (50)*	9/11 (82)*	3/4 (75)*	16/23 (70)*
11. Risk groups: Provide details on how risk groups were created, if done.	20/22 (91)*	13/15 (87)*	18/20 (90)*	12/13 (92)*	63/70 (90)*
12. Development vs. validation: for validation, identify any differences from the development data in setting, eligibility criteria, outcome, and predictors.	NA	4 (9)	0/17 (0)*	5 (24)	9/81 (11)*
Results					
13. Participants:					
a. 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.	29 (40)	19 (44)	14 (42)	8 (38)	70 (41)
b. Describe the characteristics of the participants (basic demographics, clinical features, available predictors), including the number of participants with missing data for predictors and outcome.	18 (25)	9 (21)	4 (12)	5 (24)	36 (21)
c. For validation, show a comparison with the development data of the distribution of important variables (demographics, predictors and outcome).	NA	2 (5)	19 (58)	9 (43)	30/97 (31)*
14. Model development:					
a. Specify the number of participants and outcome events in each analysis.	47 (64)	NA	22 (67)	14 (67)	83/127 (65)*
b. If done, report the unadjusted association between each candidate predictor and outcome.	34/55 (62)*	NA	14/25 (56)*	11/14 (79)*	59/94 (63)*
15. Model specification:					
a. 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).	15 (21)	NA	1 (3)	6 (29)	22/127 (17)*
b. Explain how to the use the prediction model.	26 (36)	NA	5 (15)	12 (57)	43/127 (34)*
16. Model performance: report performance measures (with CIs) for the prediction model.	7 (10)	10 (23)	2 (6)	5 (24)	24 (14)
17. Model-updating: if done, report the results from any model updating (i.e., model specification, model performance).	NA	0/4 (0)*	NA	1/3 (33)*	1/7 (14)*
Discussion					
18. Limitations: discuss any limitations of the study (such as non-representative sample, few events per predictor, missing data).	66 (90)	36 (84)	30 (91)	18 (86)	150 (88)
19. Interpretation:					
a. For validation, discuss the results with reference to performance in the development data, and any other validation data.	NA	26 (61)	19/29 (66)*	13/20 (65)*	58/92 (63)*
b. Give an overall interpretation of the results, considering objectives, limitations, results from similar studies, and other relevant evidence.	71 (97)	40 (93)	33 (100)	20 (95)	164 (97)
20. Implications: discuss the potential clinical use of the model and implications for future research.	45 (62)	21 (49)	17 (52)	17 (81)	100 (59)
Other information					
21. Supplementary information: provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets.	35 (48)†	21 (49)†	24 (73)†	14 (67)†	94 (55)†
22. Funding: give the source of funding and the role of the funders for the present study.	17 (23)	11 (26)	9 (27)	8 (38)	45 (27)

NA: not applicable (not all items of the TRIPOD statement are relevant to all types of prediction model studies)

Number of models for which an item was reported is shown with percentage in parentheses.

*Percentages are based on number of models for which that item was applicable (and should have been reported). Where this number deviates from the total number of models, the actual number of applicable models is presented as denominator.

†Item 21: number of models for which this item was applicable is unknown. It probably was applicable to all models that reported this item. Instead of presenting a percentage of 100, we based the percentage on the total number of models.