| Section                              | Item | Checklist description                                                                 | Reported on Page Number/Line Number | Reported on Section/Paragraph |
|--------------------------------------|------|---------------------------------------------------------------------------------------|------------------------------------|------------------------------|
| **Title and abstract**               | Title | Identify the study as developing and/or validating a multivariable prediction model, the target population, and the outcome to be predicted. | Page 1/Line 3-6                    | Title                        |
|                                      | Abstract | Provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions. | Page 2-3/Line 43-84               | Abstract                     |
| **Introduction**                     | Background and objectives | 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/Line 11-4-25               | Introduction/Paragraph 2     |
|                                      | 3b | Specify the objectives, including whether the study describes the development or validation of the model or both. | Page 3/Line 161-162                | Introduction/Paragraph 5     |
| **Methods**                          | Source of data | 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/Line 174-181               | Methods/Paragraph 1          |
|                                      | 4b | Specify the key study dates, including start of accrual; end of accrual; and, if applicable, end of follow-up. | Not Applicable                     | NA                           |
|                                      | Participants | Specify key elements of the study setting (e.g., primary care, secondary care, general population) including number and location of centres. | Not Applicable                     | NA                           |
|                                      | 5a | Describe eligibility criteria for participants. | Page 6/Line 180-181               | Methods/Paragraph 1          |
|                                      | 5b | Give details of treatments received, if relevant. | Not Applicable                     | NA                           |
|                                      | Outcome | Clearly define the outcome that is predicted by the prediction model, including how and when assessed. | Page 6-7/Line 201-207             | Methods/Paragraph 3          |
|                                      | 6b | Report any actions to blind assessment of the outcome to be predicted. | Not Applicable                     | NA                           |
|                                      | Predictors | Clearly define all predictors used in developing or validating the multivariable prediction model, including how and when they were measured. | Page 7/Line 215-220               | Methods/Paragraph 4          |
|                                      | 7b | Report any actions to blind assessment of predictors for the outcome and other predictors. | Not Applicable                     | NA                           |
| **Sample size**                      | 8 | Explain how the study size was arrived at. | Not Applicable                     | NA                           |
| Section                      | Page/Line | Methods/Paragraph |
|------------------------------|-----------|-------------------|
| Missing data                 | 9         | Methods/Paragraph 1 |
| Statistical analysis methods | 10a       | Methods/Paragraph 3 |
|                              | 10b       | Methods/Paragraph 3 |
| Risk groups                  | 11        | Methods/Paragraph 3 |
| Model development            | 14a       | Results/Paragraph 1 |
|                              | 14b       | Not Applicable     |
| Model specification          | 15a       | Results/Paragraph 3 |
|                              | 15b       | Results/Paragraph 3 |
| Model performance            | 16        | Results/Paragraph 3 |
| Results                      |           |                   |
| Participants                 | 13a       | Results/Paragraph 1 |
|                              | 13b       | Results/Paragraph 1 |
| Interpretation               | 19b       | Discussion/Paragraph 3 |
| Implications                 | 20        | Discussion/Paragraph 7 |
| Other information            | 21        | Data availability statement/Paragraph 1 |
| Supplementary information    | 22        | Funding/Paragraph 1 |
| Funding                      | 22        | Funding/Paragraph 1 |

**Discussion**

| Limitations                  | 18        | Discussion/Paragraph 6 |
| Interpretation               | 19b       | Discussion/Paragraph 3 |
| Implications                 | 20        | Discussion/Paragraph 7 |

**Other information**

| Supplementary information    | 21        | Data availability statement/Paragraph 1 |
| Funding                      | 22        | Funding/Paragraph 1 |
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.