### Variables

| **CONSORT** | **STROBE** | **TRIPOD** |
|-------------|------------|-----------|
| (6a) Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed. | (7) Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable. | (6a) Clearly define the outcome that is predicted by the prediction model, including how and when assessed. [D;V] |
| **In the methods and results section:** | **In the methods and results section:** | **In the methods and results section:** |
| (i) Are all outcome measures, which are reported on in the results section, explicitly defined as main/primary or secondary outcome (if applicable) in the methods section? | (i) Are all outcomes, which are reported on in the results section, named and defined in the methods section? Note that the word outcome or an appropriate alternative needs to be used, possible terms are endpoint, variable of interest or target variable. | (i) Are all outcomes, which are predicted by the prediction model, defined in the methods section? Note that the word outcome or an appropriate alternative needs to be used, possible terms are endpoint, variable of interest or target variable. |
| Note that the words primary and secondary need to be used. Also the word outcome or an appropriate alternative needs to be used, possible terms are endpoint, response, variable of interest or target variable. | (ii) Are all other variables, which are reported on in the results section, named and defined in the methods section? This includes exposures, predictors, potential confounders, potential effect modifiers etc. | Example (Diagnosis): Definite infection was defined by measurements taking values \( \geq x \). Probable infection was defined by measurements taking values \( \geq y \) (\( x > y \)). |
| (ii) For each outcome measure, is it declared how they were assessed? | Category A: Yes to (i) AND yes to (ii) | Example (Prognosis): Outcomes of interest were any type of death, disease related death, and disease related events. |
| (iii) For each outcome measure, is it declared when they were assessed? | Category B: Yes to (i) AND no to (ii) | (ii) Are all predictors, which are used in the prediction model, listed in the methods section? |
| Category A: Yes to (i) AND yes to (ii) AND yes to (iii) | Category C: No to (i) | (iii) Is it reported when the outcomes were measured? |
| Category B: Yes to (i) AND (yes to (ii) AND no to (iii)) OR (no to (ii) AND yes to (iii)) | | In case of a prognostic model, this includes the specification of the time-points, during the follow-up period, at which the outcomes were measured. |
| Category C: No to (i) OR (yes to (i) AND no to (ii) AND no to (iii)) | (iv) Are for all predictors the units of measurements (continuous) or all categories (categorical/ordinal) specified? | In case of a survival model, this requires the date of last follow-up. |
| | (v) Is it specified when each predictor was measured? | |
| | Category A: Yes to (i) AND yes to (ii) AND yes to (iii) AND yes to (iv) AND yes to (v) | |
| | Category B: Yes to (i) AND yes to (ii) AND (yes to 1 or 2 out of (iii), (iv), (v)) | |
| | Category C: No to (i) OR (yes to (i) and no to (ii)) OR (yes to (i) AND yes to (ii) AND no to (iii) AND no to (iv) AND no to (v)) | |
## Study size

### CONSORT

| Question                                                                 | Category A | Category B | Category C |
|-------------------------------------------------------------------------|------------|------------|------------|
| (i) Is a clear declaration of the target (i.e. a number known before data collection) sample size given? | Yes | No | No |
| (ii) It is mentioned on which primary outcome the calculation was based? | Yes | No | No |
| (iii) Is the method of sample size calculation given and does it fit the type of endpoint and does it fit the study design? | Yes | No | No |
| (iv) Are the significance level ($\alpha$, type I error) and the statistical power ($\beta$, type II error) reported? | Yes | No | No |

### STROBE

| Question                                                                 | Category A | Category B | Category C |
|-------------------------------------------------------------------------|------------|------------|------------|
| (i) Have the authors refrained from post hoc justification for the study size and from retrospective power calculations? | Yes | No | No |
| (ii) Is a clear declaration of the target sample size given (i.e. a number known before data collection)? | Yes | No | No |
| (iii) Has a method of sample size calculation been used or is a description of the considerations that determined the sample size given? | Yes | No | No |
| (iv) Is it mentioned on which outcome the sample size determination was based on? | Yes | No | No |

### TRIPOD

| Question                                                                 | Category A | Category B | Category C |
|-------------------------------------------------------------------------|------------|------------|------------|
| (i) Is a clear declaration of the target sample size given (i.e. a number known before data collection)? | Yes | No | No |
| (ii) Has a method of sample size calculation been used or is a description of the considerations that determined the sample size given? | Yes | No | No |
| Example for a description: The number of cases is determined by being all consecutive patients at a specific center in a specific time frame satisfying a specific set of criteria. | Yes | No | No |
| (iii) Is it mentioned on which outcome the sample size determination was based on? | Yes | No | No |
| (iv) Is the adequacy of the sample size in relation to the number of predictors used in the prediction model discussed? | Yes | No | No |

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**Note for training:** discussion on large cohort studies
### Missing data

| CONSORT | STROBE | TRIPOD |
|---------|--------|--------|
| (16) For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups. | (12c) Explain how missing data were addressed. | (12c) Explain how missing data were addressed. |
| In the results section: | (14b) Indicate the number of participants with missing data for each variable of interest. | (14b) Indicate the number of participants with missing data for each variable of interest. |
| (i) For each analysis of the primary outcome(s) is it clearly specified on which population, e.g. intention-to-treat or per protocol etc., it is based? | | |
| (ii) Is the number of participants per intervention group reported for each analysis? | | |
| (iii) If no intention-to-treat population has been used in the analysis are the disadvantages of such an approach clearly stated? Answer yes if an intention-to-treat population has been used exclusively or in combination with other types of populations. Answer no if it is not clear which population has been used. | | |

**Category A:** Yes to (i) AND yes to (ii) AND yes to (iii)

**Category B:** Yes to (i) AND (yes to (ii) AND no to (iii)) OR (no to (ii) AND yes to (iii))

**Category C:** (Yes to (i) AND no to (ii) AND no to (iii)) OR no to (i)

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**Diagram:**

- **CONSORT** diagram showing the flow of data from enrollment to analysis.
- **STROBE** diagram focusing on missing data handling.
- **TRIPOD** diagram illustrating the integration of missing data strategies.
### Statistical methods

| CONSORT | STROBE | TRIPOD |
|---------|--------|--------|
| (12a) Statistical methods used to compare groups for primary and secondary outcomes. | (9) Describe any efforts to address potential sources of bias. | (10d) Specify all measures used to assess model performance and, if relevant, to compare multiple models. |
| In the methods and results section: | (12a) Describe all statistical methods, including those used to control for confounding. | In the methods section: |
| (i) Is the statistical method used for the analysis of the primary outcome specified in enough detail such that it could be reproduced? This includes, for example, confidence level, two- or one-sided tests, treatment of unequal variances etc. | (i) Was the potential for bias discussed in any way? | (i) Have measures to quantify calibration for the prediction model been specified? |
| (ii) Are the results concerning the primary outcome that are reported in the results section clearly obtained by the method described in the methods section for the analysis of the primary outcome? If you answered no to (i), answer no to this question as well. | (ii) Is it clearly stated which variables have been used in the adjustment? | Note that the word calibration does not have to be used. |
| (iii) If any secondary outcomes are specified, are the methods for their analysis stated in the methods section for each outcome or for each type of outcome? Answer yes to this question if no secondary outcomes are specified. | (iii) Is it clearly stated how it has been determined which variables are used in the adjustment? | (ii) Have measures to quantify discrimination of the prediction model been specified? |
| **Category A:** Yes to (i) AND yes to (ii) AND yes to (iii) | (iv) Is a protocol or an analysis plan or something similar mentioned and are exploratory/unplanned analyses clearly distinguished? | Note that the word discrimination does not have to be used. |
| **Category B:** Yes to (i) AND (yes to (ii) AND no to (iii)) OR (no to (ii) AND yes to (iii)) | **Category A:** Yes to all questions | In the discussion section: |
| **Category C:** Yes to (i) AND no to (ii) AND no to (iii) OR no to (i) | **Category B:** Yes to 3 out of the 4 questions | (iii) Has the performance of the prediction model been compared to existing models? If the authors argue coherently that no other models exist, answer yes to this question. |
| **Category C:** Yes to less than 3 questions of the 4 questions | **Category C:** Yes to less than 3 questions of the 4 questions | **Category A:** Yes to (i) AND yes to (ii) AND yes to (iii) |
| **Category C:** No to (i) OR no to (ii) | **Category B:** Yes to (i) AND yes to (ii) AND no to (iii) | **Category C:** No to (i) OR no to (ii) |

Note for training: mention necessary details for methods as exhaustively as possible, e.g. ANCOVA. Good idea to give a data example.

Specify all measures used to assess model performance and, if relevant, to compare multiple models. In the methods section:

(i) Have measures to quantify calibration for the prediction model been specified?
   - Note that the word calibration does not have to be used.

(ii) Have measures to quantify discrimination of the prediction model been specified?
   - Note that the word discrimination does not have to be used.

In the discussion section:

(iii) Has the performance of the prediction model been compared to existing models? If the authors argue coherently that no other models exist, answer yes to this question.

**Category A:** Yes to (i) AND yes to (ii) AND yes to (iii)

**Category B:** Yes to (i) AND yes to (ii) AND no to (iii)

**Category C:** No to (i) OR no to (ii)

Note for training: propensity score matching is addressing bias, adjustment=matching.
### Results with precision

| CONSORT | STROBE | TRIPOD |
|---------|--------|--------|
| **(17a)** For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval). | **(16a)** Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence intervals). Make clear which confounders were adjusted for and why they were included. | **(16)** Report performance measures (with CIs) for the prediction model. [D;V] |

In the results section:

(i) Is the estimated between group difference for each primary outcome reported? If the primary outcome or one of the primary outcomes is binary: these are absolute estimated effect sizes.

(ii) Are the unadjusted results for all of the point estimates reported?

(iii) Are the adjusted results for all of the point estimates reported?

(iv) Are the confidence intervals for all of the adjusted point estimates reported?

(v) Are the confidence intervals for all of the unadjusted point estimates reported?

**Category A:** Yes to (i) AND yes to (ii) AND yes to (iii) AND yes to (iv)

**Category B:** Yes to (i) AND yes to (ii) AND no to (iii) OR (yes to (ii) AND no to (iii))

**Category C:** No to (i) OR no to (ii) OR yes to (i) AND yes to (ii) AND no to (iii) AND no to (iv)

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**Note for the category:** Suppose that no CIs are reported without the estimate itself. If necessity of adjustment is not declared, you have to ask why not. If the paper is rated in the right side of the tree, i.e. as if adjustment was necessary even though it might not be the case.

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In the methods section:

(i) Has it been declared and justified that no adjustment for confounding is necessary?

(ii) Are all performance measures which are reported in the results section described in the methods section?

(iii) Are all performance measures which are described in the methods section reported in the results section for each of the proposed prediction models? If no performance measure is described throughout the paper answer no to this question.

**Category A:** Yes to (i) AND yes to (ii) AND yes to (iii)

**Category B:** Yes to (i) AND yes to (ii) AND no to (iii)

**Category C:** No to (i) OR no to (ii)

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In the results section:

(i) Are all performance measures which are described in the methods section reported in the results section for each of the proposed prediction models? If no performance measure is described throughout the paper answer no to this question.

(ii) Are all performance measures which are reported in the results section described in the methods section?

(iii) Are the confidence intervals or the p-values (e.g., 0.061 or < .001) for each reported performance measure reported in the results section?

**Category A:** Yes to (i) AND yes to (ii) AND yes to (iii)

**Category B:** Yes to (i) AND yes to (ii) AND no to (iii)

**Category C:** No to (i) OR no to (ii)