nature medicine



# Table 1 The MI-CLAIM checklist

From: Minimum information about clinical artificial intelligence modeling: the MI-CLAIM checklist

| **Before paper submission** | | | |
|---|---|---|---|
| **Study design (Part 1)** | **Completed:** | **page number** | **Notes if not completed** |
| The clinical problem in which the model will be employed is clearly detailed in the paper. | ☒ | 1 | |
| The research question is clearly stated. | ☒ | 1 | |
| The characteristics of the cohorts (training and test sets) are detailed in the text. | ☐ | | No train/test split |
| The cohorts (training and test sets) are shown to be representative of real-world clinical settings. | ☐ | | No train/test split |

| | | | |
|---|---|---|---|
| The state-of-the-art solution used as a baseline for comparison has been identified and detailed. | ☒ | 2 | |
| **Data and optimization (Parts 2, 3)** | **Completed:** | **page number** | **Notes if not completed** |
| The origin of the data is described and the original format is detailed in the paper. | ☒ | 1 | |
| Transformations of the data before it is applied to the proposed model are described. | ☒ | 1-2 | |
| The independence between training and test sets has been proven in the paper. | ☐ | | No train/ test split |
| Details on the models that were evaluated and the code developed to select the best model are provided. | ☒ | 1-2 | |
| Is the input data type structured or unstructured? | ☒ Structured ☐ Unstructured | | |
| **Model performance (Part 4)** | **Completed:** | **page number** | **Notes if not completed** |
| The primary metric selected to evaluate algorithm performance (e.g., AUC, F-score, etc.), including the justification for selection, has been clearly stated. | ☒ | 1 | |

| | | | |
|---|---|---|---|
| The primary metric selected to evaluate the clinical utility of the model (e.g., PPV, NNT, etc.), including the justification for selection, has been clearly stated. | ☐ | | No clinical aspect, this is a biological discovery study |
| The performance comparison between baseline and proposed model is presented with the appropriate statistical significance. | ☐ | | only K-means vs. Leiden explored |
| **Model examination (Part 5)** | **Completed: page number** | | **Notes if not completed** |
| Examination technique 1[a] | ☒ | 3 | |
| Examination technique 2[a] | ☒ | 3-4 | |
| A discussion of the relevance of the examination results with respect to model/algorithm performance is presented. | ☒ | 3-4 | |
| A discussion of the feasibility and significance of model interpretability at the case level if examination methods are uninterpretable is presented. | ☐ | | The clustering is interpretable through UMAP and ROC gene mapping. |
| A discussion of the reliability and robustness of the model as the underlying data distribution shifts is included. | ☐ | | Implied through denoising and integration analysis but not directly tested |
| **Reproducibility (Part 6): choose appropriate tier of transparency** | | | **Notes** |
| Tier 1: complete sharing of the code | | ☒ | |

| | | |
|---|---|---|
| Tier 2: allow a third party to evaluate the code for accuracy/fairness; share the results of this evaluation | ☐ | |
| Tier 3: release of a virtual machine (binary) for running the code on new data without sharing its details | ☐ | |
| Tier 4: no sharing | ☐ | |

PPV, positive predictive value; NNT, numbers needed to treat.

[a]Common examination approaches based on study type: for studies involving exclusively structured data, coefficients and sensitivity analysis are often appropriate; for studies involving unstructured data in the domains of image analysis or natural language processing, saliency maps (or equivalents) and sensitivity analyses are often appropriate.

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