Adjusted CHARMS 2014 Relevant items to extract from individual studies in a systematic review of prediction models

|  |  |
| --- | --- |
| **Domain** | **Key items** |
| **TUMOUR** | Tumour type |
| **SOURCE OF DATA** | Source of data used for hypoxia signature development |
| **Data** | Content of data used for hypoxia signature development |
| **Data SIZE** | Size of data used for hypoxia signature development |
| **MISSING DATA** | Number of participants with any missing value (include predictors and outcomes) |
| Handling of missing data (e.g., complete-case analysis, imputation, or other methods) |
| **MODEL DEVELOPMENT** | Modelling method (e.g., logistic, survival, neural network, or machine learning techniques) |
| Method for selection of predictors **for inclusion** in multivariable modelling (e.g., all candidate predictors, pre-selection based on unadjusted association with the outcome) |
| **MODEL**  **EVALUATION** | Method used for testing model performance: development dataset only (random split of data, resampling methods e.g. bootstrap or cross-validation, none) or separate external validation (e.g. temporal, geographical, different setting, different investigators) |
| In case of poor validation, whether model was adjusted or updated (e.g., intercept recalibrated, predictor effects adjusted, or new predictors added) |
| **RESULTS** | Final result presented, including predictor weights or regression coefficients, intercept, baseline survival |
| model performance measures and result e.g., sum score, nomogram, score chart, predictions for specific risk subgroups with performance |
| **INTERPRETATION AND DISCUSSION** | Interpretation of presented models (confirmatory, i.e., model useful for practice versus exploratory, i.e., more research needed) |
| Comparison with other studies, discussion of generalizability, strengths and limitations. |