Development and Reporting of Prediction Models: Guidance for Authors From Editors of Respiratory, Sleep, and Critical Care Journals

10 Keys to Prediction Models

- Carefully consider the problem a model solves and approach trade-offs in precision, parsimony, and transparency accordingly

- Describe how outcome labels are developed and confirm event rate supports modeling objective
- Pre-specify predictor variables or use contemporary approaches like regularization, not p-value based methods
- Consider how predictor variables associate with the outcome. Limit loss of information due to transformation (such as categorizing continuous variables)
- Ensure predictor variables are known and accessible prior to outcome assessment
- Conduct internal and external validation steps. Test generalizability to new data
- Measure model discrimination, calibration, and clinical relevance - Priorities should be context-specific
- Evaluate model performance against comparators other than “no model”
- Report missing data and address using strategies beyond complete case analysis
- Include reporting checklists like TRIPOD, RECORD