

Appendix 1 - Quality Assessment Framework

1. Study participation
 - (a) Study population described
 - i. Description of setting & study period yes/partly/no
 - ii. Description of in- and exclusion criteria yes/partly/no
 - iii. Description of patient mix (surgical/medical/both) yes/partly/no
 - iv. Number of patients reported yes/partly/no
 - v. Number of patients > 100 yes/no
 - vi. Mortality rate reported yes/partly/no
 - vii. Description of patient characteristics (e.g. mean/median age, apache, saps scores etc.) yes/partly/no
 - (b) Study population represents source population yes/partly/no
2. Prognostic factor measurement
 - (a) Prognostic factors defined
 - i. Clear definition of all prognostic factor(s) evaluated (SOFA, SOFA derivatives, moment of measurement, other covariates) yes/partly/no
 - ii. Clear description of type of model(s) (e.g. logistic regression) yes/partly/no
 - (b) Prognostic factors measured appropriately
 - i. Description of proportion of participants with complete data and handling of missing values yes/partly/no
3. Outcome measurement
 - (a) Outcome defined
 - i. Clear definition of outcome of interest (e.g. ICU/hospital mortality) yes/partly/no
4. Analysis
 - (a) Analysis described & appropriate
 - i. Description of all evaluation measures yes/partly/no
 - ii. Description of model building strategy (e.g. logistic regression) yes/partly/no
 - iii. Description of test method (e.g. train/test set, bootstrapping) yes/partly/no

- iv. Both aspects of discrimination and calibration evaluated yes/no
- v. Separate test set used for testing yes/no
- (b) Analysis provides sufficient presentation of data
 - i. There is sufficient presentation of data to assess the adequacy of the analysis (e.g. model coefficients with p-values) yes/partly/no
 - ii. There is no selective reporting of results yes/partly/no
 - iii. There is comparison to or combination with a standard model (admission-based or other organ failure score) yes/partly/no