

Usefulness of the TRIPOD guideline to a prediction model development improvement (PREDICE-SCORE).

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INTRODUCTION: TRIPOD Statement offers a series of recommendations to improve the reporting of predictive models. In 2012 our group developed and published a clinical prediction rule in "de novo" heart failure (HF) called PREDICE-SCORE, since the TRIPOD Statement was not yet published the aim of this project was to assess the quality of PREDICE-SCORE original paper and locate possible deficiencies, following the TRIPOD' recommendations.

METHODS:

Prediction model development TRIPOD checklist



RESULTS:

In the original article, several of the recommendations of the TRIPOD guideline were not attended:

- measures of accuracy in the construction of the statistical model and in the clinical prediction rule.
- the management of lost data.
- the unappropriated examples for the use of the predictive model.



In addition, we detected **two mistakes:**

- Table 3 heading n=412 instead of n=600.
- Table 4 transcription of percentages that estimate the risk.

"Role of biological and non biological factors in congestive heart failure mortality: PREDICE-SCORE: A clinical prediction rule"

Title	Results	Methods
<ul style="list-style-type: none"> ✗ Phase ✗ Targeted population ✗ Objective to predict 	<ul style="list-style-type: none"> ✗ Number of patients with missing data. ✗ Error in table 4 ✗ Full model. 	<ul style="list-style-type: none"> ✗ Report of blind assessments ✗ Size calculation ✗ Missing data management
<p>★ ★ ★ ★ ★</p>	<p>★ ★ ★ ★ ★</p>	<p>★ ★ ★ ★ ★</p>
Introduction and abstract	Discussion	Other
<p>✓ All available* information included</p>	<p>✓ All information included</p>	<p>✓ All available** information included</p>
<p>★ ★ ★ ★ ★</p>	<p>★ ★ ★ ★ ★</p>	<p>★ ★ ★ ★ ★</p>

* At the moment of the paper there was no other comparable predictive model.

** The creation of a web calculator is proposed.

CONCLUSIONS:

We found **missing and wrong information** in the PREDICE-SCORE original published article that could have been avoided. **TRIPOD recommendations clearly contribute to the improvement of prognostic research.**



What if we had had the TRIPOD in 2012

- ★ **More accurate title:** "Development of PREDICE-SCORE: a clinical prediction rule of mortality at one year in the debut of heart failure"
- ★ **Improve the patient flow report:**
 - Include a flow chart
 - Detection of an error in Table 3 heading (should be written n=412 instead of n = 600)
- ★ **Add the Prognosis Index** (Formula to construct the predictive model).

Same Multivariable prediction model better reported

- ★ **Give examples of prognosis** with the predictive model and the user-friendly model.
- ★ **Report** how the size was calculated and if any action was taken to blind the outcome or the predictor.
- ★ **Report** how missing data and participants with missing data were managed
- ★ **Detection of an error in Table 4:** Error in percentage of risk in user-friendly model.



Check the quality of the development process itself for improvements following the TRIPOD recommendations.

Since the TRIPOD check the presence of **"key details"** of how prediction models were developed and validated, also can be seen as a tool to drive the process to create a prognostic model in research as well to as for the critical appraisal of a prognosis article