

Desarrollo y validación de un modelo predictivo siguiendo las recomendaciones de la declaración TRIPOD

VIII Jornadas de Usuarios de R

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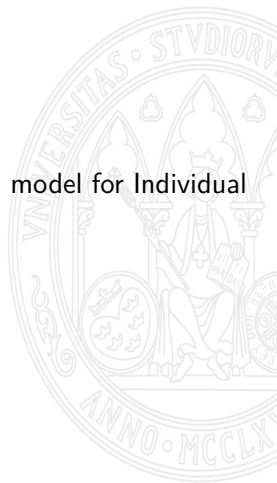


Declaración TRIPOD



¿Qué significa *TRIPOD*?

The Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis (TRIPOD)



The TRIPOD Statement

Annals of Internal Medicine

RESEARCH AND REPORTING METHODS

Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis (TRIPOD): The TRIPOD Statement

Gary S. Collins, PhD; Johannes B. Reitsma, MD, PhD; Douglas G. Altman, DSc; and Karel G.M. Moons, PhD

Prediction models are developed to aid health care providers in estimating the probability or risk that a specific disease or condition is present (diagnostic models) or that a specific event will occur in the future (prognostic models), to inform their decision making. However, the overwhelming evidence shows that the quality of reporting of prediction model studies is poor. Only with full and clear reporting of information on all aspects of a prediction model can risk of bias and potential usefulness of prediction models be adequately assessed. The Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis (TRIPOD) Initiative developed a set of recommendations for the reporting of studies developing, validating, or updating a prediction model, whether for diagnostic or prognostic purposes. This article describes how the TRIPOD Statement was developed. An extensive list of items based on a review of the literature was created, which was reduced after a Web-based survey and revised during a 3-day meeting in June

2011 with methodologists, health care professionals, and journal editors. The list was refined during several meetings of the steering group and in e-mail discussions with the wider group of TRIPOD contributors. The resulting TRIPOD Statement is a checklist of 22 items, deemed essential for transparent reporting of a prediction model study. The TRIPOD Statement aims to improve the transparency of the reporting of a prediction model study regardless of the study methods used. The TRIPOD Statement is best used in conjunction with the TRIPOD explanation and elaboration document. To aid the editorial process and readers of prediction model studies, it is recommended that authors include a completed checklist in their submission (also available at www.tripod-statement.org).

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For author affiliations, see end of text.

For contributors to the TRIPOD Statement, see the **Appendix** (available at www.annals.org).

Figura 1: Artículo. The TRIPOD Statement

The TRIPOD Explanation and Elaboration

Annals of Internal Medicine RESEARCH AND REPORTING METHODS

Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis (TRIPOD): Explanation and Elaboration

Karel G.M. Moons, PhD; Douglas G. Altman, DSc; Johannes B. Reitsma, MD, PhD; John P.A. Ioannidis, MD, DSc; Petra Macaskill, PhD; Ewout W. Steyerberg, PhD; Andrew J. Vickers, PhD; David F. Ransohoff, MD; and Gary S. Collins, PhD

The TRIPOD (Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis) Statement includes a 22-item checklist, which aims to improve the reporting of studies developing, validating, or updating a prediction model, whether for diagnostic or prognostic purposes. The TRIPOD Statement aims to improve the transparency of the reporting of a prediction model study regardless of the study methods used. This explanation and elaboration document describes the rationale; clarifies the meaning of each item; and discusses why transparent reporting is important, with a view to assessing risk of bias and clinical usefulness of the prediction model. Each checklist item of the TRIPOD Statement is explained in detail and accom-

panied by published examples of good reporting. The document also provides a valuable reference of issues to consider when designing, conducting, and analyzing prediction model studies. To aid the editorial process and help peer reviewers and, ultimately, readers and systematic reviewers of prediction model studies, it is recommended that authors include a completed checklist in their submission. The TRIPOD checklist can also be downloaded from www.tripod-statement.org.

Ann Intern Med. 2015;162:W1-W73. doi:10.7326/M14-0698 www.annals.org
For author affiliations, see end of text.
For members of the TRIPOD Group, see the [Appendix](#).

Figura 2: Artículo. The TRIPOD Explanation and Elaboration

¿Dónde podemos encontrar la declaración?

- <https://www.tripod-statement.org/>
 - The TRIPOD Statement
 - The TRIPOD Explanation and Elaboration

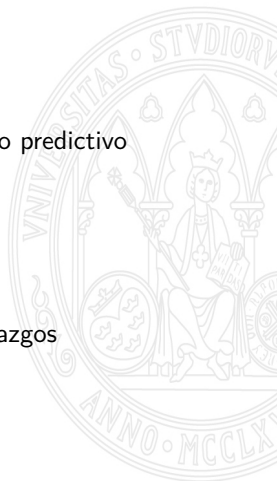


Antecedentes

- En biomedicina se desarrollan modelos predictivos para **estimar la probabilidad o riesgo** de que
 - una enfermedad o condición específica esté presente (modelos diagnósticos)
 - un evento concreto ocurra en el futuro (modelos pronósticos)
- Existe evidencia de que la calidad de los informes sobre los estudios de modelos de predicción es pobre.

Objetivos

- Realizar informes completos y claros
 - información sobre **todos los aspectos** del modelo predictivo
- Estándar de información
 - evaluación crítica
 - interpretación del estudio
 - valoración de la fiabilidad y relevancia de los hallazgos
 - evitar estimaciones sesgadas



La declaración TRIPOD

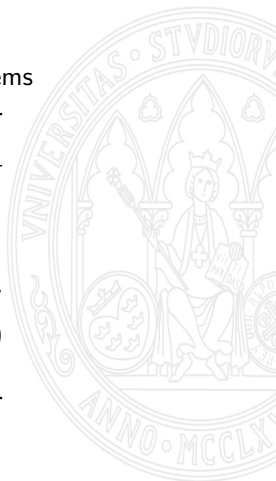
- Lista de verificación de 22 ítems basados en
 - evidencia empírica
 - revisión bibliográfica
 - revisado/verificado por:
 - profesionales de la salud
 - editores de revistas
- Informar sobre:
 - Diseño del estudio
 - Desarrollo
 - Análisis
 - Resultados



Descripción de los ítems

Tabla 1: TRIPOD. Descripción de los ítems

Contenido	Ítems
Título y resumen	1 - 2
Antecedentes y objetivos	3
Metodología	4 - 12
Resultados	13 - 17
Discusión	18 - 20
Otra información	21 -22

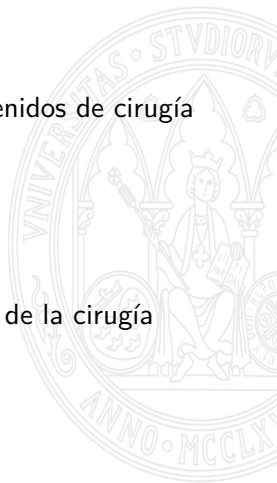


Aplicación



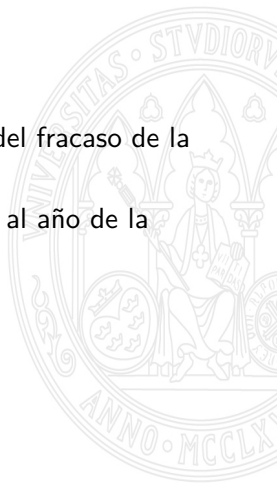
Estudio *observacional retrospectivo*

- Cohorte de 300 pacientes obesos mórbidos intervenidos de cirugía bariátrica
- Dos técnicas:
 - bypass gástrico laparoscópico (BGL)
 - gastrectomía vertical laparoscópica (GVL)
- Eficacia terapéutica del BGL frente a GVL al año de la cirugía bariátrica.



Objetivos del estudio

- Identificar los **factores de riesgo** determinantes del fracaso de la cirugía bariátrica
- Modelo predictivo de pérdida de peso inadecuada al año de la intervención quirúrgica
 - Ecuación para predecir el fracaso de la cirugía



Técnicas estadísticas aplicadas (1)

1 Propensity Score Analysis

```
library( nonrandom )  
fCirg_ps <- pscore( fallocirugia ~ ., data = dfpsm,  
                   name.pscore = "ps")
```

Técnicas estadísticas aplicadas (2)

2 Regresión logística multivariante

```
library( glmulti )  
mod <- glmulti( fallocirugia ~ ., data = dfreg, level = 1,  
               method = "h", crit = "aic", minsize = 3,  
               maxsize = 4, confsetsize = 1000,  
               fitfunction = "glm", family = binomial )
```

- Criterio de Información de Akaike (AIC)
- Overfitting (regla de 10-15 eventos por variable/característica)
- Rendimiento global, calibración, discriminación...
- Medidas específicas de utilidad clínica

Técnicas estadísticas aplicadas (3)

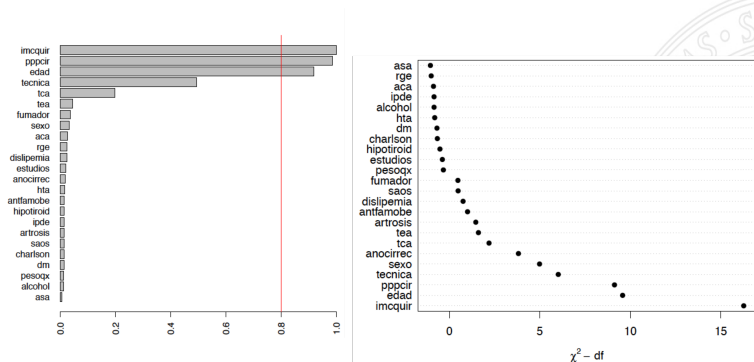


Figura 3: Grado de importancia de los predictores analizados

Gracias por su atención

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