

# INPLASY PROTOCOL

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**Conflicts of interest:**  
None declared.

## Risk Prediction Models of Mortality after Hip Fracture Surgery in the Elderly: A Systematic Review

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**Review question / Objective:** The study was to evaluate the existing risk prediction models for postoperative mortality of hip fracture in the elderly and provide evidence for their clinical application.

**Eligibility criteria:** Study inclusion criteria were as follows: (i) the studies included patients  $\geq 60$  years old after hip fracture surgery, (ii) studies in English and Chinese, (iii) the researches included the establishment process of the model, (iv) the researches took death as the outcome, (v) data were obtained from prospective cohort studies, nested case-control studies or case-cohort studies and (vi) original articles published in journals. Study exclusion criteria were as follows: (i) studies containing only one predictor, (ii) grey literature that have not been officially published, (iii) unable to obtain full-text researches, (iv) repeated published studies and (v) cell and molecular level researches or animal experiments.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 May 2022 and was last updated on 17 May 2022 (registration number INPLASY202250111).

### INTRODUCTION

**Review question / Objective:** The study was to evaluate the existing risk prediction models for postoperative mortality of hip fracture in the elderly and provide evidence for their clinical application.

**Condition being studied:** Risk Prediction Models of Mortality after Hip Fracture Surgery in the Elderly.

### METHODS

**Participant or population:** Elderly patients after hip fracture surgery.

**Intervention:** No intervention.

**Comparator:** There is no such content in this study.

**Study designs to be included:** Cohort and case-control studies.

**Eligibility criteria:** Study inclusion criteria were as follows: (i) the studies included patients  $\geq 60$  years old after hip fracture surgery, (ii) studies in English and Chinese, (iii) the researches included the establishment process of the model, (iv) the researches took death as the outcome, (v) data were obtained from prospective cohort studies, nested case-control studies or case-cohort studies and (vi) original articles published in journals. Study exclusion criteria were as follows: (i) studies containing only one predictor, (ii) grey literature that have not been officially published, (iii) unable to obtain full-text researches, (iv) repeated published studies and (v) cell and molecular level researches or animal experiments.

**Information sources:** PubMed, Web of Science, Cochrane Library, Embase, SonoMed, CNKI, VIP and Wanfang databases were searched.

**Main outcome(s):** Mortality after Hip Fracture Surgery in the Elderly.

**Quality assessment / Risk of bias analysis:** In this study, Risk Of Bias Assessment Tool (PROBAST) was used to evaluate the bias risk and applicability of multi-factor prediction models. The tool's bias risk assessment consists of four areas: participants, predictors, outcome and analysis. When the evaluation results of all problems in a certain field are "yes" or "probably yes", the risk level of the field is low. If one or more questions are evaluated as "no" or "probably no", the risk level of the field is high. If the evaluation result of one or more questions is "unclear", the risk level of the area is unclear. Applicability assessment includes three areas: participants, predictors and outcome, and its evaluation criteria are consistent with those of risk assessment. In addition, the

overall bias risk assessment and overall applicability assessment of the prediction model also follow the above principles.

**Strategy of data synthesis:** This study presents the extracted data in the form of tables and conducts qualitative analysis.

**Subgroup analysis:** There is no such content in this study.

**Sensitivity analysis:** There is no such content in this study.

**Language:** English.

**Country(ies) involved:** China.

**Other relevant information:** This study was conducted by three first-year nursing master's students. All three students have mastered literature search and English writing skills. There is also a professor and two doctoral students to supervise.

**Keywords:** Hip fracture; Mortality; the Elderly; Risk prediction model; Systematic Review.

**Contributions of each author:**

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Author 5 - Yiwei Luo.

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