

INPLASY202570079  
doi: 10.37766/inplasy2025.7.0079  
Received: 20 July 2025  
Published: 20 July 2025

Zhao, SJ; Yang, C; Xu, M; Feng, XQ.

**Corresponding author:**  
Shouju Zhao

shouju\_zhao0509@163.com

**Author Affiliation:**  
West China School of Nursing,  
Sichuan University, Chengdu,  
Sichuan Province, China.

**ADMINISTRATIVE INFORMATION**

**Support -** West China School of Nursing, Sichuan University, Chengdu, Sichuan Province, China.

**Review Stage at time of this submission -** Data analysis.

**Conflicts of interest -** None declared.

**INPLASY registration number:** INPLASY202570079

**Amendments -** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 July 2025 and was last updated on 20 July 2025.

**INTRODUCTION**

**Review question / Objective** To conduct a scoping review of risk prediction models for pressure injury (PI) in pediatric patients, providing evidence for optimizing or developing future models.

**Background** Pediatric pressure injury (PI) risk prediction models urgently require systematic evaluation. PIs are globally prevalent, pose serious risks (including pain, infection, and increased costs), and are key indicators of patient safety and care quality. Like adults, pediatric patients represent a high-risk population. Early identification of at-risk children is crucial for prevention, making the accuracy of risk prediction models vital. However, a systematic comparison and comprehensive evaluation of the development, validation, and predictive performance of PI risk prediction models specifically for pediatric patients is currently lacking.

**Rationale** The "rationale" for the study on the potential development of pressure injury (PI) in children after discharge from the Pediatric Intensive Care Unit (PICU) explains why this research is being conducted. It underscores the limited existing research in the field, specifies the study's objectives, emphasizes its significance, and mentions the use of a systematic review approach to address knowledge gaps in the research domain.

**METHODS**

**Strategy of data synthesis** Pediatric patients represent a high-risk population for pressure injuries (PIs), making accurate risk assessment the critical first step in effective PI management. Consequently, utilizing assessment tools with high sensitivity, high specificity, and practical ease of use is paramount for reliably identifying children at significant risk. This review clearly articulates the rationale for undertaking this research. It underscores the current limitations and scarcity of robust evidence in this specific field, defines the

primary objective of evaluating existing models, emphasizes the significant clinical importance of this work for improving pediatric care, and highlights the use of a systematic review methodology as the optimal approach to address the substantial knowledge gap concerning pediatric PI risk prediction models.

**Eligibility criteria** Inclusion Criteria: (1)Study Focus: The study must involve the development or validation of a PI risk prediction model specifically intended for pediatric patients. (2)Population: The study population must consist of pediatric patients aged 28 days to 18 years who were free of PIs at the time of risk assessment/model application. (3)Study Design: The study must be an original analytical observational study, specifically a cohort study, cross-sectional study, or case-control study. (4)Language: Publications must be in either English or Chinese. (5)Publication Date: Studies must have been published from the inception of the respective database(s) searched up to June 30, 2025. Inclusion: Build or validate a PI risk prediction model for pediatric patients; Patients aged 28 days to 18 years without PIs; Article category: Cohort studies, cross-sectional studies, or case-control studies.

Exclusion criteria: Studies lacking model development/validation details, populations outside 28 days-18 years or with existing PIs, non-eligible study designs, non-English/Chinese publications, publication after June 30, 2025, unavailable full texts, or duplicates. Ineligibility for any inclusion criterion resulted in exclusion.

### Source of evidence screening and selection

**Search Methods:** Literature searches will be conducted in the following databases: PubMed, ScienceDirect, Web of Science, Cochrane Library, Embase, Medline, China National Knowledge Infrastructure (CNKI), Wanfang Database, and VIP Database. The search timeframe was from database inception to June 30, 2025, using a combination of subject headings and free-text terms.

**Study selection:** All retrieved records were imported into EndNote X9. Two graduate researchers with systematic training in evidence-based nursing independently screened titles and abstracts against eligibility criteria. Potentially eligible studies underwent full-text appraisal, with detailed documentation of exclusion reasons. Any discrepancies during selection were resolved through researcher discussion or third-party consultation.

**Data management** Data extraction: The research team developed a standardized extraction form

based on the CHARMS checklist and essential study characteristics. Two investigators independently extracted data; discrepancies were resolved through adjudication by a third investigator.

**Quality assessment:** Two investigators independently assessed risk of bias and applicability of included prediction models using the Prediction Model Risk of Bias Assessment Tool (PROBAST). (1) Risk of bias assessment: Signaling questions across four domains (Participants, Predictors, Outcome, Analysis) were evaluated for each model (20 questions total). Responses ("Yes," "Probably Yes," "No," "Probably No," "Unclear") determined domain-specific and overall risk of bias judgments (Low/High/Unclear). (2) Applicability assessment: Three domains (Participants, Predictors, Outcome) were evaluated for clinical applicability, with domain-specific and overall judgments (Low/High/Unclear). Disagreements were resolved through consensus discussion or third-party adjudication.

**Language restriction** English and Chinese.

**Country(ies) involved** China.

**Keywords** Pressure injury; Children; Pediatric; Predictive model; Scoping review.

### Contributions of each author

Author 1 - Shouju Zhao.

Email: shouju\_zhao0509@163.com

Author 2 - Cheng Yang.

Email: 137864365@qq.com

Author 3 - Min Xu.

Email: xumin5182@126.com

Author 4 - Min Feng.

Email: fengxianqiong66@126.com