

# INPLASY

## Risk factors, prevention and treatment of infections related to total hip arthroplasty: a scoping review

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### ADMINISTRATIVE INFORMATION

**Support** - No financial support.

**Review Stage at time of this submission** - Preliminary searches.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202490023

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 6 September 2024 and was last updated on 6 September 2024.

### INTRODUCTION

**Review question / Objective** What are the risk factors associated with THA infections, as well as their diagnosis and treatment methods?

**Background** Total hip arthroplasty (THA) is a complex surgery and is indicated for the treatment of degenerative diseases such as osteoarthritis, rheumatoid arthritis and osteonecrosis, in addition to fractures of the femoral neck. This procedure aims to restore mobility, relieve pain and improve patients' quality of life. However, infections, especially periprosthetic joint infection (PJI), are serious complications that can compromise the success of surgery. Therefore, this review aims to identify risk factors, as well as methods for preventing and treating infections in THA.

**Rationale** The rationale for conducting a scoping review on "Risk factors, prevention, and treatment of infections related to total hip arthroplasty" stems from the need to comprehensively understand the

current landscape of infection management in hip arthroplasty. Infections after total hip arthroplasty (THA) are a serious complication that can lead to significant patient morbidity, prolonged treatment, and increased healthcare costs. Given the complexity and variability of infection risk factors, prevention strategies, and treatment options, this review aims to map existing literature to identify key risk factors, evaluate current prevention practices, and synthesize treatment approaches. By providing a broad overview, the study will highlight gaps in knowledge and guide future research or clinical practice to improve patient outcomes following THA.

### METHODS

**Strategy of data synthesis** The data synthesis strategy for the scoping review involves a descriptive synthesis where findings are organized into key themes like risk factors, prevention strategies, and treatments, often in tabular format. A thematic analysis will group qualitative data based on recurring patterns, while frequency

analysis will summarize the prevalence of specific topics across studies. The review will also identify gaps in the literature where evidence is lacking or inconsistent. Finally, a narrative summary will contextualize the findings, highlighting trends and guiding future research directions.

**Eligibility criteria** The eligibility criteria for selecting articles include studies involving patients who have undergone total hip arthroplasty (THA) and focus on risk factors, prevention strategies, or treatments related to infections. Both quantitative and qualitative studies, such as randomized trials, cohort studies, and reviews, will be included. Articles must be published in English (or specified languages) and within a relevant time frame. Studies not focused on THA-related infections or lacking full-text availability will be excluded, ensuring a comprehensive yet focused review of the literature.

**Source of evidence screening and selection** The source of evidence screening and selection process involves a systematic search of databases and other relevant sources to identify studies that meet the predefined eligibility criteria. Titles and abstracts of retrieved articles will first be screened for relevance, followed by a full-text review of potentially eligible studies. Two or more reviewers will independently assess the articles to ensure consistency and reduce bias, with disagreements resolved through discussion or consultation with a third reviewer. The selection process will be documented, often using a PRISMA flow diagram, to ensure transparency and replicability.

**Data management** Data management in the scoping review will involve using reference management software to organize and track all identified studies from the search. After importing the citations, duplicates will be removed, and relevant articles will be categorized according to inclusion and exclusion criteria. Data extraction forms will be developed to systematically collect key information from each study, including study characteristics, outcomes, and findings. The extracted data will be stored in a secure database, ensuring accuracy and easy retrieval during synthesis. Regular backups and version control will be maintained to avoid data loss or errors.

**Reporting results / Analysis of the evidence** The reporting of results and analysis of evidence in the scoping review will involve a clear and structured presentation of the findings. Data will be summarized both quantitatively and qualitatively, using tables and charts to display key themes, such as risk factors, prevention strategies, and

treatments for infections related to total hip arthroplasty. A narrative synthesis will accompany the visual data, highlighting trends, patterns, and gaps in the literature. The analysis will focus on providing a broad overview of the current state of knowledge, identifying areas for future research, and ensuring that the findings are relevant for clinical practice and decision-making.

**Presentation of the results** The presentation of the results will include a comprehensive overview of the identified studies, organized by key themes such as risk factors, prevention strategies, and treatments for infections related to total hip arthroplasty. Findings will be displayed using tables, charts, and graphs to illustrate the prevalence and effectiveness of various interventions and risk factors. A narrative summary will accompany these visual aids, providing context and interpretation of the data, highlighting significant trends and discrepancies, and offering insights into gaps in the current research. This approach ensures clarity and facilitates the understanding of how the evidence informs current practices and future research directions.

**Language restriction** Only texts in English were selected.

**Country(ies) involved** Brazil - Hospital de Base Ary Pinheiro (HBAP).

**Other relevant information** The study is highly relevant because it aims to systematically map and summarize the existing evidence on a critical aspect of hip arthroplasty. Infections following total hip arthroplasty (THA) are a significant concern, impacting patient outcomes and healthcare costs. This scoping review will provide a comprehensive overview of known risk factors, evaluate current prevention strategies, and assess treatment options, offering valuable insights for clinicians, researchers, and policymakers. By identifying gaps in the literature and highlighting areas where further research is needed, the study contributes to improving infection management practices and guiding future research efforts in the field.

**Keywords** Total Hip Arthroplasty; Periprosthetic Infection; Complications; Diagnosis; Treatment.

**Dissemination plans** Dissemination plans include publishing the findings in a peer-reviewed journal to reach academics and clinicians, presenting results at relevant conferences and webinars to engage with the field, and preparing summary reports or policy briefs for healthcare institutions and stakeholders. Additionally, the review will be

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shared through online platforms, such as academic networks and social media, to increase its visibility and accessibility. Collaborations with healthcare organizations and research groups will also be pursued to integrate the findings into ongoing practices and initiatives.

### **Contributions of each author**

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