

# Partial two stage revision with component retention of periprosthetic infection of the hip joint: a systematic review

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## Abstract Orthopaedica Belgica

### Introduction

The annual global volume of primary total hip arthroplasty (THA) rises, OECD countries projected to grow by 1.2% yearly, reaching 2.8 million procedures by 2050. Despite its success, 1-2% of cases suffer from periprosthetic joint infection (PJI). Treatment options vary; Debridement, Antibiotics, Implant Retention (DAIR) show 12-80% success, particularly for early infections. Revision surgeries, one-stage and two-stage, are established with reasonable outcomes. Interest in partial two-stage revisions grows to minimize complications. This study aims to systematically review partial two-stage exchange arthroplasty for periprosthetic hip infections, analyzing success rates and identifying suitable patients.

### Materials & Methods

A systematic review is currently being undertaken, adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Searches were conducted in PubMed/MEDLINE and Embase databases using relevant keywords and MESH terms such as "Arthroplasty, Replacement, Hip," "Infections," and "Reoperation." Currently, 22 articles containing 287 cases are under consideration for inclusion. These articles will undergo analysis by one resident and two senior hip surgeons. Studies detailing techniques involving retention of either acetabular or femoral components will be included in the review process.

### Results

The findings of our ongoing systematic review are currently being analyzed. Two prior reviews are relevant to this topic. Anagnostakos et al. (2019) presented a compilation of 7 studies, encompassing 80 patients. The predominant approach involved removing the acetabular cup while retaining the well-fixed stem. The eradication rate ranged from 81.3% to 100%, with follow-up periods averaging between 19 and 70 months. Staphylococci were the primary causative agents, with MRSA infections yielding the poorest outcomes. Rosinsky et al. (2020) reported on nine studies involving 134 patients. Similarly, the majority underwent femoral retention procedures, with an overall success rate of 89.41%. The average follow-up period was 60.56 months. Our systematic review integrates these findings along with the latest literature from 2020 onwards, providing a comprehensive analysis of partial two-stage exchange arthroplasty outcomes for periprosthetic hip infections.

### Discussion

Prior reviews show a 90% efficacy rate, aligning with extensive literature on 1 and 2-stage revisions. The hypothesis proposes that robust implant-bone osseointegration prevents biofilm formation. However, not all PJI patients qualify due to factors like MRSA infection, implant loosening, and immunocompromised patients. Success depends on pathogen-host dynamics and antibiotic susceptibility. Benefits include shorter surgery, less blood loss, and reduced bone loss. Drawbacks involve persistent infection risk and inability to correct joint anatomy. Challenges in data collection stem from limited cohorts and procedural variability. Larger, longer studies are crucial for assessing clinical efficacy.