

# Incidence and Timing of Periprosthetic Joint Infection After Primary Total Hip and Knee Arthroplasty

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**INTRODUCTION:** Total hip arthroplasty (THA) and total knee arthroplasty (TKA) are among the most commonly performed orthopaedic procedures, with annual volumes steadily increasing. Periprosthetic joint infection (PJI) complicates approximately 1–2% of these cases, with 39–58% reported to occur within the first postoperative year. We aim to describe the temporal incidence of PJI after THA and TKA to improve treatment planning and patient counseling.

**METHODS:** A retrospective review was conducted using institutional records and the Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI) database, identifying patients who underwent primary THA or TKA between 2000 and 2023, and were subsequently treated for PJI. Cases were verified through manual chart review. PJI was defined according to the 2018 Musculoskeletal Infection Society (MSIS) criteria. Demographics, treatment details, and time to infection were analyzed. Minimum follow-up was one year.

**RESULTS:** Among 12,940 primary arthroplasties performed, 152 cases of PJI were identified, an overall infection rate of 1.2%. Temporal distribution of PJI diagnoses was as follows: 49% within 3 months, 56% within 6 months, 66% within 1 year, 78% within 2 years, 90% within 5 years, and 98% within 10 years postoperatively.

**DISCUSSION AND CONCLUSION:** The observed PJI rate aligns with national estimates. A majority of infections occurred early, with over half diagnosed within 6 months and less than 25% occurring beyond 2 years. These findings underscore the critical importance of early postoperative vigilance for PJI detection and intervention.

