

## **Risk of Prosthetic Joint Infection Increases Following Aseptic Revision Surgery of Total Hip and Knee Arthroplasty**

### **Abstract:**

**Background:** The substantial social and economic burden of periprosthetic joint infection (PJI) following total joint arthroplasty (TJA) is well described. It is important to identify risk factors for PJI following TJA in order to mitigate these risks. The objective of this study is to evaluate early aseptic revision surgery as a potential risk factor for PJI following total hip (THA) and total knee arthroplasty (TKA).

**Methods:** Patients who underwent primary THA or TKA with early aseptic revision were identified in two national insurance databases. Patients with a PJI diagnosis prior to or at the time of revision were excluded. Rates of PJI at 1 and 2 years postoperatively from revision surgery were calculated. Revision patients were then compared 10:1 to matched controls without revision.

**Results:** 218 patients undergoing aseptic revision of THA within 1 year of index THA in the Medicare SAF-5 database and 41 patients in the Humana dataset were compared to matched controls. The risk of PJI was significantly increased at 1 year (6.4% vs. 1.7%, OR 4.30,  $p < 0.001$  for Medicare; 5.8% vs. 0.9%, OR 7.89,  $p < 0.001$  for Humana) and at 2 years (6.9% vs. 1.7%, OR 3.24,  $p < 0.001$  for Medicare; 6.5% vs. 1.1%, OR 6.21,  $p < 0.001$  for Humana) postoperatively. Similarly for TKA, 133 Medicare patients and 148 Humana patients who underwent aseptic revision within 1 year were compared to matched controls. Study patients were found to have significantly increased rates of PJI at 1 year (9.0% vs. 0.9%, OR 9.00,  $p < 0.001$  for Medicare; 4.7% vs. 1.1%, OR 5.49,  $p < 0.001$  for Humana) and 2 years (10.5% vs. 1.7%, OR 9.11,  $p < 0.001$  for Medicare; 6.1% vs. 1.5%, OR 5.03,  $p < 0.001$  for Humana) compared to controls.

**Conclusion:** Early aseptic revision surgery within 1 year of the index THA or TKA is associated with significantly increased risks of subsequent PJI within 2 years.