

Is American Joint Replacement Registry Data Consistent with International Survivorship in Hip and Knee Arthroplasty? A Comparative Analysis

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INTRODUCTION:

In collaboration with the Orthopaedic Data Evaluation Panel (ODEP), the American Joint Replacement Registry (AJRR) investigated the consistency of hip and knee arthroplasty survivorship results compared to the UK National Joint Registry (NJR).

METHODS:

A total of three primary knee devices and three primary hip devices were selected by AJRR and ODEP with known variation in performance. The implant manufacturers independently produced Kaplan Meier survivorship based on NJR data and submitted to ODEP for comparison. The AJRR mirrored the methodology, and results from both sources were stratified into three cohorts (all-age, <65, and ≥65 years).

RESULTS:

There were 42,671 AJRR and 60,439 NJR primary knee cases (TKA) and 70,169 AJRR and 422,657 NJR primary total hip arthroplasty (THA) cases. For TKA, performance between the AJRR and NJR were consistent, showing similar trends for comparatively high and low performing devices. Both posterior-stabilized (PS) and cruciate retaining (CR) devices showed statistical agreement in survivorship for all three cohorts. Unicompartmental knee arthroplasty (UKA) comparison also showed statistical agreement for the Medicare cohort. The all-age and <65-year-old cohorts showed similar trends and reached statistical agreement through seven and six years.

For THA, performance between the AJRR and NJR were consistent, showing similar trends for comparatively high and low performing devices; 0.18% average difference in survivorship at final follow up (eight years). One femoral device did not reach statistical agreement but showed only 0.61% difference in survivorship. The remaining acetabular and femoral devices reached statistical agreement in all-ages and through seven and eight years in the ≥65-year-old cohort.

DISCUSSION AND CONCLUSION:

AJRR and NJR performance trends and survivorship were similar across hip and knee arthroplasty with greatest consistency in the all-age and ≥65 cohorts. This focused comparison of survivorship showed encouraging results for reliability of patient outcomes in AJRR compared to the world's largest joint arthroplasty registry which has strong implications for global improvement in patient safety.