In a study published in *Seminars in Arthroplasty: JSES*, Kaiser Permanente Orthopaedic Surgeons and MDSA Researchers identified 6,409 and 779 patients who underwent primary elective anatomic total shoulder arthroplasty (TSA) for osteoarthritis and reverse TSA (RTSA) for rotator cuff arthropathy, respectively, with implanted cement information during 2009-2020. Cox proportional hazard regression weighted with the inverse propensity score and stratified by procedure type was used to evaluate risk for periprosthetic infection.

**Study Results**

No significant difference was found in the risk of developing deep infection, when comparing use of antibiotic bone cement (ABC) and plain cement in primary elective shoulder arthroplasty.

- In the TSA group, 20% received ABC. The cumulative infection probability at 5 years follow-up was 0.5% and 0.6% for the ABC and plain cement groups, respectively.
  - After covariate adjustment, no difference in infection risk (hazard ratio [HR]=0.72, 95% confidence interval [CI]=0.43-1.21, P=0.216).
  - *Cutibacterium acnes* (*C. acnes*) was found in all 5 (100.0%) ABC patients with an infection. Gram-positive cocci (36.4%) followed by *C. acnes* (27.3%) were the most common infecting organisms in plain cement patients with infection.
- In the RTSA group, 19% received ABC. The cumulative infection probability at 5 years follow-up was 2.7% and 0.9% for the ABC and plain cement groups, respectively.
  - After covariate adjustment, no difference in infection risk was found (HR=1.47, 95% CI=0.66-3.26, P=0.341).
  - Gram-positive cocci were most frequently found in ABC (50.0%) and plain (40.0%) cement patients with an infection.

**Practice Considerations**

- Compared to plain bone cement, ABC was not observed to reduce the risk of periprosthetic joint infection for shoulder arthroplasty patients with a standard risk of infection.
- Different at-risk pathogen profiles may develop with prolonged use of ABC.

**Link to Full Publication**