



Paper #12

## **Antibiotic Cement Decreases Re-Revision Risk by 45% in 1154 Aseptic Revision Total Knee Arthroplasties**

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**Introduction:** The survivorship of revision total knee arthroplasty (rTKA) and the risk factors associated with re-revision are topics that are not well defined. Our aim is to use an institutional joint replacement registry to evaluate the survivorship of rTKA and identify patient, surgeon, and hospital risk factors associated with re-revision

**Methods:** A retrospective cohort study was conducted of patients who had aseptic rTKA from 2001 to 2010. The endpoint of interest was all cause re-revision TKA. The exposures were patient (age, gender, body mass index (BMI), race, general health status, diagnosis), implant (hinge vs. other, cement type), surgeon (yearly volume, total experience), and hospital (volume). Frequencies proportions, means and standard deviations were used for describe the study sample. A multivariable Cox regression model was used to adjust for confounders with adjustment for clustering by surgeon

**Results:** 1154 aseptic rTKAs were identified with 114 (9.9%) re-revisions with an infection rate of 2.9%. The average age was 65.1 (SD=9.8), most where white (64.2%) and female (61.4%). Antibiotic cement was used in 26.7% of revisions. The mean time to re-revision was 4.0 years. Infection (29.8%) and instability (28.1%) were the leading causes of re-revision. The Kaplan Meyer survivorship at 5 years was 80% and at 9 years 53%. In adjusted models, the use of antibiotic loaded cement was strongly protective of re-revision (HR=0.55, CI: 0.32-0.94). For every 5 case increase in surgeon annual volume the re-revision risk dropped (HR=0.92, CI: 0.66, 1.28) while for surgeon experience it increased (HR=1.10, CI:1.02,1.18). The use of a hinge increased the risk of re-revision (HR=1.23, CI: 0.32, 0.94)

**Conclusion:** Revision TKAs have a low (80%) survivorship at 5 years and a 2.9% risk of infection. Infection and instability account for 60% of re revision. Antibiotic cement can halve the risk of re-revision.