Title: Surgical Time Predicts Readmission for Non-Infectious Reasons After THA and TKA

Abstract: Readmission after Total Hip Arthroplasty (THA) or Total Knee Arthroplasty (TKA) places a large burden on the health care system, and understanding common drivers and predictors for readmission is becoming increasingly important. Surgical time has been shown to associate with surgical site infections (SSIs); we hypothesized it may also be associated with readmissions.

Methods: We queried an electronic database for all patients who underwent THA or TKA at our institution from 2006 through 2010. We identified those who were readmitted within 30 and 90 days of discharge and recorded time in surgery for all patients. A multivariable logistic regression model with adjustments for age, gender, race, payer type, length of stay (LOS) and co-morbidities (CHF and CAD) was used to calculate the odds ratio (OR) of readmission given a surgical time greater than or equal to 2 hours. Statistical significance was defined as p<0.05. We excluded patients with incomplete records of surgical time and risk factors, leaving 5397 of the 6631 patients who underwent THA or TKA during the study period for analysis. We further evaluated those readmitted with long surgical times, segmenting the readmitted population with available 90-day readmission code data into two groups: those readmitted with infection (ICD-9 codes 996.66 and 998.XX excluding 998.0, 998.4, 998.6, and 998.7; n=72) and those readmitted for non-infectious reasons (n=284). These groups were both compared to non-readmitted controls (n=5041).

Results: Patients with surgical times of 2 hours or greater had an adjusted OR of 1.42 (95% CI: 1.08-1.87) for readmission within 30 days and of 1.26 (95% CI: 1.01-1.57) for readmission within 90 days. Patients with surgical times of 2 hours or greater had an adjusted OR of 1.02 (95% CI: 0.63-1.64) for 90-day readmission for infection and of 1.30 (95% CI: 1.02-1.66) for 90-day readmission for non-infectious reasons.

Conclusion: A surgical time greater than or equal to 2 hours was an independent predictor of readmission within 90 days, however this was not due to an increased rate of infection.