

**Title:**

Surgeon, Hospital, and Patient-Related Factors Effect on Mean Operative Time in Total Hip Arthroplasty

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**Introduction:**

Total hip arthroplasty (THA) is growing in demand as the population continues to age. In order to maintain a high level of quality care, it is crucial to understand the factors associated with poor outcomes. Longer operative times have demonstrated an association with poor outcomes in THA. Much of the published data of operative times is based on large database studies at larger institutions and may not account for surgeon volume. Operative times are used as a surrogate for determining the work involved in procedures, and thus reimbursement levels. Access to electronic medical records offers an opportunity for a more accurate reflection of actual operative times. This study was conducted to determine how surgeon, hospital, and patient-related factors influence operative time at the individual surgeon level in a single health system.

**Methods:**

This study involved a retrospective review of 4,295 THA procedures conducted by 41 surgeons at four hospitals (one quaternary academic, one tertiary academic, and two community hospitals). Operative time was documented as incision to surgery end time after dressings are placed. Operative times, hospital type, trainee presence, patient ASA status, and patient body mass index (BMI) categories were documented for each case and mean operative time was calculated for each surgeon, along with surgeon experience and volume. The effect of surgeon, hospital, and patient-related factors on operative time was assessed.

**Results:**

The mean operative time for 41 surgeons was  $108 \pm 22$  minutes. Underweight patients had significantly shorter operative times than morbidly obese patients. Procedures at a community

hospital had shorter operative times than those at the quaternary academic hospital. Operative time was not significantly affected by surgeon volume, experience, patient ASA status, or trainee presence.

**Conclusions:** Body mass index had a significant effect on operative time. Trainee presence, surgeon volume and experience, and patient ASA status did not affect operative time. This study demonstrated a longer mean operative time for THA than prior studies. Further investigations of larger hospital systems are warranted to examine additional provider and patient factors which may influence operative time.