

Paper #47

Intraoperative Scrub Nurse Hand-offs Increase Operative Times for Total Hip and Knee Arthroplasty

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Introduction: Surgeons typically remain scrubbed-in for the duration of a surgical case, while scrub nurses and/or surgical technicians often work shifts, necessitating occasional mid-surgery hand-offs. These hand-offs can create inefficiencies. Currently, no research has been done on the impact of intraoperative hand-offs on orthopaedic procedures' operative times. Since increased operative times are known to increase infection risk and healthcare expenditures, efforts to improve OR efficiency should be optimized wherever possible.

Methods: A retrospective chart review was performed at a major, urban, academic medical center for all primary total hip arthroplasties (THA) and total knee arthroplasties (TKA) done between May 2014 and May 2018, identified by CPT code. Operative times, number of scrub nurse hand-offs, surgeon information, and patient information were collected. A multivariable linear regression was performed to assess the association between patient and surgeon characteristics, intra-operative hand-offs, and operative times.

Results: 1,109 TKA and 1,032 THA patients were identified. Multivariable linear regression demonstrated that increasing the number of intraoperative scrub nurse hand-offs was associated with increased operative times for all patients. For TKA patients, all other variables being held equal, one handoff increased operative times by 3.89 minutes ($p=0.02$) and two or more hand-offs increased operative times by 15.99 minutes ($p<0.001$). For THA patients, all other variables being held equal, one handoff increased operative times by 6.20 minutes ($p<0.001$) and two or more hand-offs increased operative times by 18.52 minutes ($p<0.001$).

Conclusions: Although direct causation cannot be definitively established, we observed that intraoperative scrub nurse hand-offs were associated with statistically significant increases in operative times for both THA and TKA cases. Optimizing scrub nurse staffing models to decrease intraoperative hand-offs could have practical ramifications on orthopaedic patient care by increasing efficiency, decreasing costs, and potentially decreasing patient complications related to lengthened surgical times, such as infection.

Notes
