

Similar Surgeon Energy Expenditure in the Inpatient Hospital and Ambulatory Surgery Center

Gloria Shoshana Coden, James P Miller, Lauren Elizabeth Schoeller, Carl T Talmo¹

¹New England Baptist Hospital

INTRODUCTION: Arthroplasty surgery has started shifting from the hospital setting to ambulatory surgery centers (ASCs). Few studies have evaluated how increased efficiency associated with ASCs affects the surgeon. We sought to compare the physical demands of performing arthroplasty surgery between an ASC and the hospital.

METHODS: We prospectively recorded the energy expenditure of a single fellowship-trained arthroplasty surgeon performing primary total hip (THA) and total knee arthroplasties (TKA) over 83 days. A total of 243 cases were performed at the hospital and 129 cases were performed at the ASC. Patients at the ASC were younger (60.6 versus 67.7 years, $p < 0.001$) and underwent more THAs (53.5% versus 40.7%, $p = 0.03$), but gender (46.5% versus 56.0% female, $p = 0.1$) and body mass index (29.5 versus 30.3 kilograms/meter², $p = 0.3$) were similar. A subanalysis was performed comparing 13 days at each site where 5 cases were performed each day, with similar numbers of THAs and TKAs (2.2 versus 2.8 THAs/day, $p = 0.1$). Records were reviewed. Chi-square and independent-samples t-tests were performed.

RESULTS: Operative time was 1.3 times longer at the hospital (102.8 versus 80.1 minutes, $p < 0.001$). Energy expenditure/patient was 1.2 times higher at the hospital (364.3 versus 300.6 Calories/patient, $p < 0.001$), but the energy expended/minute in the operating room was similar (3.6 versus 3.7 Calories/minute, $p = 0.2$). When comparing the 5 case days, overall time spent at the hospital or ASC was similar (550.4 versus 562.7 minutes, $p = 0.6$). Energy consumption/minute (3.6 versus 3.7 Calories/minute, $p = 0.7$) and per day (1986.2 versus 2116.7 Calories/day, $p = 0.5$) was similar at each location.

DISCUSSION AND CONCLUSION: Despite similar patient populations, surgeons spend more time in the operating room in the hospital than the ASC. When comparing days with similar caseloads, overall time spent on site and energy expended were similar. Surgeons should be aware that daily energy expenditure is independent of location, due to additional labor-intensive administrative tasks at ASCs.