

**Does Resident Involvement Increase Complications in Orthopaedic Trauma?**

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**Purpose:** In a new health-care landscape where quality metrics are becoming increasingly important, more focus has been placed upon the role of residents in patient care. Yet little data exist exploring the risk of complications when residents participate in the surgical care of the orthopaedic trauma patient. We explored the influence of residents on the rate of adverse events for orthopaedic trauma patients using the ACS-NSQIP (American College of Surgeons National Surgical Quality Improvement Program) database.

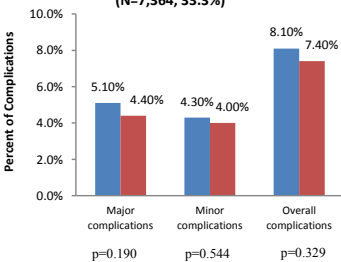
**Methods:** Using the ACS-NSQIP database, a prospective cohort of 22,099 orthopaedic patients from 2006-2013 were categorized by lower extremity, upper extremity, and hip/pelvis fractures using CPT codes. Demographics including age, sex, race, and comorbidities were recorded. The incidence of minor and major complications was also evaluated for patients. Bivariate analyses using the chi-squared test and Wilcoxon-Mann-Whitney test were performed to compare patient complications between the cases with and without resident involvement. Controlling for individual patient comorbidities, we used a multivariable regression model to determine the risk of developing a major, minor, or any complication with resident participation. Statistical significance was set at  $P < 0.05$ .

**Results:** 22,099 patients were included in the analysis, of whom 7160 (32.4%) patients had residents involved in their surgical care and 14,939 (67.6%) had only an attending-level physician involved. As shown in Figures 1-3, no significant difference was found in the rate of major, minor, or all complications due to resident involvement for any anatomic region. After controlling for individual patient factors such as age, sex, and ASA (American Society of Anesthesiologists) status, resident involvement did not have a significant impact on the development of major, minor, or total complications. When further analyzing the incidence of complications by individual CPT codes, resident involvement was not significantly associated with increased adverse events.

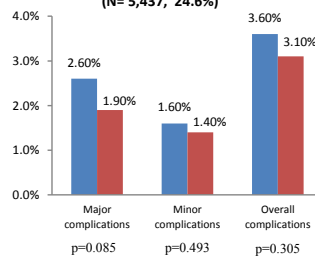
**Conclusion:** Our data are the first to show that resident involvement does not negatively impact patient care in orthopaedic trauma. As quality measures become increasingly important, our study indicates resident involvement should not be a major concern.

POSTER ABSTRACTS

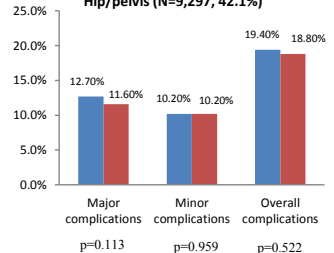
**Figure 1. Rate of Complications for LE (N=7,364, 33.3%)**



**Figure 2. Rate of Complications for UE (N= 5,437, 24.6%)**



**Figure 3. Rate of Complications for Hip/pelvis (N=9,297, 42.1%)**



See pages 47 - 108 for financial disclosure information.