

Public Insurance Is Associated with a Longer Time to Surgery for Distal Radius Fractures

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INTRODUCTION:

Distal radius fractures are among the most common orthopaedic injuries and are an important cause of health-related disability and lost wages. Although multiple treatment options exist, surgical treatment is typically indicated for fractures that are displaced or unstable in younger patients and/or those with high functional demands. When surgically treated, early surgery has been associated with fewer complications and improved patient-reported outcomes. Given the known association of insurance type on the quality, timeliness, and type of care patients receive, we sought to quantify the impact of insurance type on time to surgery for patients with distal radius fractures.

METHODS:

A retrospective cohort study of patients with surgically indicated distal radius fractures was conducted at a single institution. For each patient, we measured 1) the time from injury to surgery, 2) the time from injury to clinic visit, and 3) the time from clinic visit to surgery. Patients were included if they were more than 18 years old and had surgery between January 1, 2019 and January 1, 2021. Patients with polytrauma, open fractures, and acute carpal tunnel syndrome were excluded. Patients undergoing revision surgery or surgery for loss of reduction after initial nonsurgical management were also excluded. Demographic, clinical, and insurance information were recorded. Linear and cox regression models were used to analyze the data. An a priori power analysis indicated that to detect a relative hazard of 0.50 between patients with two types of insurance, with alpha of 0.05, power of 80%, and equal proportion of patients in both groups, we would require 65 patients per group. All analyses were conducted using the same software.

RESULTS:

A total of 130 patients met inclusion criteria. Ninety-one patients (70.0%) had private insurance; 33.1% were male, and mean age was 48.7 years old. Mean time from injury to surgery for the entire cohort was 15.6 ± 1.2 days. Those with private insurance had an average time from injury to surgery of 13.5 ± 1.0 days, while those with public insurance had an average of 18.6 ± 2.1 days. Thus, the time from injury to surgery was 5.1 days longer for patients with public insurance ($p = 0.019$). In a cox regression model, patients with public insurance had a relative hazard for surgery of 0.65 (95% confidence interval [0.44, 0.97], $p = 0.035$), indicating they had 0.65 times the odds of receiving surgery at any given time period compared to patients with private insurance. Patients with public insurance had an average time from injury to clinic visit that was 4.7 days longer than those with private insurance ($p = 0.006$). Time from clinic visit to surgery was also 0.4 days longer for patients with public insurance, but this difference was not statistically significant ($p = 0.721$). A schematic of the differences in time to care for public versus private insurance is shown in Figure 1. Age was found to be an effect modifier of the relationship between insurance type and time to surgery. In a stratified analysis, the difference in time to surgery between patients with public versus private insurance was more pronounced for those younger than 65 (8.3 days longer time to surgery, $p = 0.013$) than for those older than 65 (4.0 days longer time to surgery, $p = 0.259$). In a multivariable regression model, the use of interpreters was also found to be associated with a 9.4 day longer time to surgery ($p = 0.025$), and insurance type remained significant ($p = 0.027$). Mechanism of injury, gender, and a patient's race or ethnicity were not associated with time to surgery.

DISCUSSION AND CONCLUSION:

We identified a significant difference in time to surgery for surgically indicated distal radius fractures on the basis of insurance type. This difference was due to patients with public insurance having longer wait times for their first clinic visit. This observation suggests that patients with public insurance experience greater barriers to scheduling an appointment with an orthopaedic hand surgeon compared to those with private insurance. With an emerging body of literature suggesting that delays to care for distal radius fractures are associated with poorer outcomes, these findings highlight insurance type as an important driver of inequity in musculoskeletal health. Methods that mitigate barriers to high-quality care, such as implementing standardized preoperative protocols and integrating quality metrics that reward equitable care, should be studied to help minimize health disparities seen in the treatment of distal radius fractures.

Figure 1: Time to Surgery for Public vs Private Insurance

