

## New Persistent Opioid Use Following Operative Treatment of Ankle Fractures Compared to Nonoperatively Treated Fractures

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**Introduction/Purpose:** Chronic opioid use is a major public health concern in the United States. Orthopaedic surgeons prescribe 8% of narcotics in the U.S. while only comprising 2.5% of U.S. physicians. Understanding that neither the amount nor duration of opioid prescription correlates with patient satisfaction, orthopaedic surgeons have a unique opportunity to play a prominent role in the solution. In order to address and mitigate this epidemic, it is important to first understand rates of new persistent opioid use following specific orthopaedic procedures and to identify patient-specific risk factors.

**Methods:** Using a widely accepted insurance claims database, we identified patients who underwent surgical treatment of common ankle fractures patterns (bimalleolar, trimalleolar, and isolated distal fibula) between January 2008 and December 2016. None had an opioid prescription filled in the period of 12 months to 15 days prior to treatment (defined as “opioid naïve”). Opioid naïve patients who underwent closed treatment of a distal fibula fracture served as a comparative group. We evaluated peri-treatment and post-treatment opioid prescription fulfillment. The primary outcome, new persistent opioid use, was defined as opioid prescription fulfillment between 91 and 180 days after the procedure. Logistic regression was used to evaluate the effect of patient factors, including surgery type, age, gender, median household income, mental health and pain disorders on the likelihood of new persistent use.

**Results:** There was no significant difference in new persistent opioid use rates overall following surgical treatment of ankle fractures (8.4%) compared to closed fibula fracture treatment (7.4%), and all treatment groups demonstrated high rates of new persistent use. Two surgically treated fracture subtypes, treatment of bimalleolar ankle fractures and treatment of trimalleolar ankle fractures with fixation of posterior lip, demonstrated significantly higher new persistent opioid use rates (Figure). Rates were significantly increased among patients who received an opioid dose prescribed in the peri-treatment period that was in the top 25th percentile of total oral morphine equivalents. Patient-specific factors which were associated with new persistent opioid use included certain mental health disorders, comorbid conditions, arthritis, tobacco use, female gender, and household income greater than \$100,000.

**Conclusion:** Chronic opioid use, even in opioid naïve patients, is a major problem following orthopaedic procedures. To decrease the rate of chronic opioid use, it is important to first understand and define the rate of persistent use following these procedures. The overall new persistent opioid use following surgical fixation of ankle fractures was similar to the rate of persistent use in patients who underwent closed treatment of a fibula fracture. Understanding these high persistent use rates and the risk factors that may play a role in this problem provides a foundation upon which to address this sometimes lethal public health problem.

## Adjusted New Persistent Use Rates by Procedure Type and Total OME Dose

