The Costs of Operative Fixation for Ankle Fractures: A Multi-Center Retrospective Comparison of Inpatient and Outpatient Surgery

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Level of Clinical Evidence: III
Introduction

• One of the emerging trends in contemporary healthcare is the shift in surgical resources to the outpatient setting coupled with reductions in the inpatient length of stay.

• Factors including patient medical co-morbidities, age demographics, presence of poly-trauma as well as specified fellowship training of the surgeon may determine the selection of inpatient admission or outpatient setting for performing ankle fracture surgery.

• Important to critically evaluate practice management patterns in an effort to realize institutional cost savings while promoting enhanced patient care.
Purpose

• To assess the financial cost of surgically-treated ankle fractures in both the inpatient and outpatient settings.

• To determine whether the surgery location (inpatient and outpatient) was associated with specific patient demographics, medical co-morbidities, or surgeon practice patterns.
Methods

• Multi-center retrospective cohort study of 240 surgically treated ankle fractures over a two-year period involving two tertiary care hospitals and their affiliated ambulatory surgery centers

• Case Selection
  - Patient selection criteria based on CPT codes
  - Exclusion criteria included open trauma, pilon fracture, history of prior ankle fracture, or pediatric patients
  - The total direct cost of each surgery was calculated including categorized charges for room and board, pharmacy, rehabilitation, radiology, surgical implant materials, and surgeon professional fees.

• Patient Demographics and Risk Factors
  - Patient age, presence of poly-trauma, medical co-morbidities (syncope, hypertension, diabetes, as well as coronary artery, pulmonary, renal or hepatic disease), and ordering of ankle CT-scan were evaluated

• Stratification by Subspecialty fellowship training of the surgeon
Results

• 142 inpatient and 98 outpatient ankle fracture surgeries were performed.

• Median length of stay was 5 days for inpatients and the mean total direct cost was $11,466 for each inpatient case with room and board charges averaging $2,694.

• The mean total direct cost for each outpatient procedure was $3,111.
Results

• Statistically significant higher percentages were recorded among inpatients in the following patient demographic groups: age 65 years or older (p < 0.0003), hypertension (p < 0.0230), presence of poly-trauma (p < 0.0149) and ordering of ankle CT-scan (p < 0.0001).

• 84% of ankle fracture surgeries performed by foot and ankle fellowship-trained surgeons were outpatient procedures while 71% of ankle fracture surgeries performed by orthopaedic trauma fellowship-trained surgeons were inpatient procedures.
Discussion

• Our data shows that with 5 day median length of stay for the hospitalized patient group, the average total cost for inpatient ankle fracture surgery was nearly four times higher and $8,000 more than the total cost for outpatient ankle fracture surgery.

• Increased patient age and other specific medical co-morbidities were statistically linked with inpatient admission.
Discussion

• In this multi-center study, foot and ankle fellowship-trained surgeons were more likely than trauma fellowship-trained surgeons to perform outpatient ankle fracture surgery.

• Healthcare institutions may realize substantial practice management cost savings by shifting ankle fracture surgery to the outpatient setting.
References


