

# Tertiary hospital transfers for evaluation and treatment of the infected hand: A healthcare cross-sectional analysis

Paul Clark, MD(1), Ryan Warth, MD(2), Dean W Smith, MD(2)  
 (1) Division of Plastic and Reconstructive Surgery, Department of Surgery McGovern Medical School at UTHealth  
 (2) Department of Orthopaedic Surgery, McGovern Medical School at UTHealth

## Introduction

Emergency center and hospital assessment for hand infections is common. However, a portion of these patients are transferred to tertiary hospitals for definitive care. Previous publications regarding hand patient transfers focus primarily on traumatic injuries or in combination with infections; many are single institution experiences and focus on appropriateness of transfer and financial status. To date there has not been a large-scale healthcare analysis regarding patients transferred for hand infections. The purpose of our investigation was to analyze patients transferred in the state of Texas for hand infections.

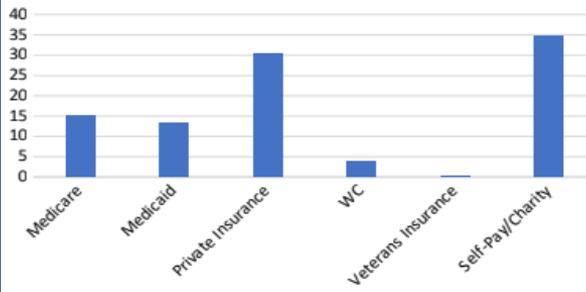
## Methods

A cross-sectional analysis was performed using the Texas Healthcare Information Collection Database between 2015-2019. Data was queried for outpatient Current Procedure Terminology (CPT) codes and ICD 10 codes associated with infections distal to the elbow. Statistical analyses were performed for patient demographics, zone of residence, primary insurance, day of week transfers initiated, length of stay (LOS), and management. Surgeries were categorized based on the ICD-10.

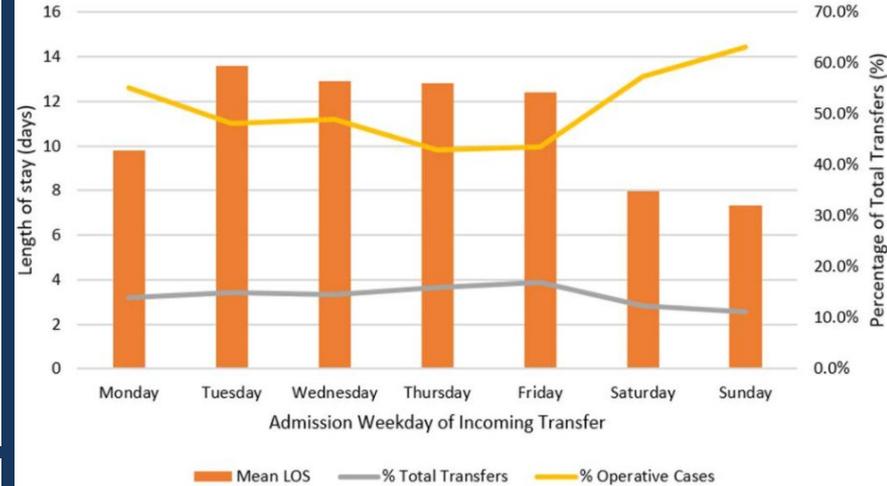
## Results

3,581 patients were transferred for hand infections. 2,493 procedures were performed in 1,692 (49.6%) of transferred patients, 42% (557) were aged 19-44 years. Region of residence was mostly metropolitan 79.3% (1,995) and nearly all patients were transferred to metropolitan regions 96.9% (1,265) ( $p < 0.001$ ). Patients' primary insurance was self-pay 34.7% (453), private 30.4% (397) or Medicare/Medicaid 28.5% (396). Operations occurred in 50.5% (1,692) of patients, involving subcutaneous tissue most frequently 48.4% (1,127/2,493 total procedures). The most common procedures were drainage 46.7% (1,163) or excision 41.1% (1,024). Operative patients' LOS was  $7.7 \pm 10.3$  days, versus  $14.9 \pm 16.5$  days for non-operative ( $p < 0.001$ ). Weekend transfers had decreased average LOS relative to weekday (mean  $7.7 \pm 9.5$  days versus  $12.3 \pm 15.2$  days;  $p < 0.001$ ), but a 94.7% increased odds of operation (OR=1.947 [95% CI, 1.652-2.294];  $p < 0.001$ ).

## Primary Insurance Used



## Relationship between Admission Weekday, Length of Stay, and Operative Cases



## Conclusions

Many patients are transferred to tertiary centers within Texas for hand infections annually. Patients managed with operations most frequently had a drainage procedure. Roughly 2/3 patients carried private or Medicare/Medicaid insurances and only 1/3 were self-pay. Operative patients had a shorter average LOS. These findings are important for healthcare systems managing transferred hand infection patients as they identify/describe the patient cohort, expected management, LOS and insurance statuses.