

Repeat Emergency Room Visits for Hand and Wrist Injuries

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Purpose To characterize patients with hand or wrist injuries presenting to our university-based emergency department (ED) after a previous evaluation by an outside ED. We hypothesized that a majority of these patients did not require emergent care, most arrived during working hours, and a disproportionate number were uninsured.

Methods We retrospectively reviewed 3,047 orthopedic hand consults from 2002 to 2010. Patients were included if our ED was the patient's second ED evaluation within 30 days for the same complaint. Demographics, diagnosis, referral instructions from the initial institution, date and time of ED visit, treatment received, and insurance status were recorded. Clinical urgency was quantified on an ordinal scale.

Results A total of 325 patients met the inclusion criteria. The most common diagnoses were distal radius and metacarpal fractures. There were 266 (82%) patients with nonurgent diagnoses. A junior-level orthopedic resident treated and discharged 97% of patients from the ED. Sixty-two percent of the patients were uninsured, 32% had Medicaid, and 6% had commercial insurance or Medicare. There was a disproportionate percentage of uninsured and Medicaid patients compared with the payer mix of our state, orthopedic department, and ED. Ninety percent of patients presented on weekdays, and 84% arrived between 6 AM and 6 PM.

Conclusions Most patients who met our inclusion criteria presented to our ED during regular business hours. Most were uninsured and did not have a condition that warranted urgent or emergent evaluation and treatment. With limited resources, it is important that an appropriate follow-up plan from the initial ED be in place so that patients do not have to present to a second ED for the same problem. (*J Hand Surg Am.* 2014;39(4):752–756. Copyright © 2014 by the American Society for Surgery of the Hand. All rights reserved.)

Type of study/level of evidence Prognostic IV.

Key words Emergency, insurance, transfer, trauma, walk-in.

HEALTH CARE SPENDING IS AN important subject for policymakers and consumers. Emergency department (ED) overuse is an important cause of wasteful health care spending.¹ The ED offers

full-service health care, 24 hours a day, regardless of the patient's ability to pay. A large number of people are turning to EDs for nonurgent care, where the cost associated with an ED visit averages over \$700 more than an office-based visit.^{1,2} Recent estimates state that more than half of all ED visits are potentially avoidable and contribute to approximately \$38 billion of wasteful health care spending each year.¹

The hand is the most common body site injured, and these injuries have a noteworthy impact on health care spending.^{3,4} They represent 12% of all injuries evaluated in the ED.⁴ Though there is high demand for hand specialists to treat these injuries, deficiencies in ED hand coverage result in a large number of

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interfacility transfers.^{5–8} Economically disadvantaged patients are often subject to unnecessary transfers or face difficulty obtaining appropriate outpatient follow-up.⁹ Asplin et al¹⁰ demonstrated that patients who were uninsured or had Medicaid were much less likely to have success in obtaining ambulatory care appointments than those with private insurance. These challenges lead to more burdens on tertiary referral centers and their EDs.^{9,11}

Many patients use the ED for nonurgent and chronic conditions.^{12,13} Recent studies evaluating the transfer of patients with hand and upper extremity injuries did not consider patients who later sought care at a second ED for the same problem.^{5,6,14} The purpose of this study was to quantify and characterize the patients presenting to our university-based ED after a previous evaluation by an outside ED. Furthermore, we sought to examine factors that led to the second ED visit. We hypothesized that a majority of these patients did not require urgent or emergent care, that most arrived at the ED during working hours, and that a disproportionate number were uninsured or underinsured.

MATERIALS AND METHODS

We obtained institutional review board approval and performed a retrospective review of 3,047 orthopedic hand consults from the ED of our urban, university-based level 1 trauma center from January 2002 through January 2010. Patients presenting to our ED within 30 days of a documented visit to an outside ED for the same complaint were included in this review. In all cases, our ED was the patient's second ED evaluation for the same injury or complaint. We included only walk-in patients, those coming to our ED on their own without any prior arrangement between the initial ED and ours, and using their own personal mode of transportation.

In order to focus on patients with relatively acute conditions, we excluded patients who sought care in our ED more than 30 days from their initial presentation at the outside ED. We also excluded patients who came to our ED for a different upper extremity complaint, whose conditions were proximal to the wrist, and who had injuries that did not involve the upper extremity. Patients seen in an urgent care center and those without documentation of the outside ED's name and evaluation date were excluded. We excluded patients directly transferred from another institution.

Other collected data included age, sex, insurance status, ED arrival date and time, and the interval between

initial evaluation at the outside ED and presentation to our ED. Data obtained regarding the initial evaluation at an outside institution included the distance from our hospital as well as written discharge instructions given to the patient. If a patient was told to follow-up with an orthopedist or orthopedic surgeon, we reviewed the medical record for any documented reason related to why the patient chose to follow-up in our ED.

Patients without insurance were categorized as uninsured. Insurance groups were Medicaid, Medicare, and commercial insurance. We divided arrival times into 2 periods: 6:00 AM to 5:59 PM and 6:00 PM to 5:59 AM. Arrivals between the hours of 6:00 PM Friday and 5:59 AM Monday were grouped as weekend and all others as weekday.

Two authors (G.J. and W.B.) independently reviewed the medical records and identified the presenting diagnosis. We recorded qualifying statements for each diagnosis, such as nondisplaced versus displaced or extra-articular versus intra-articular. This provided additional information to help categorize the severity of the condition. Before data analysis, 2 of the authors (V.T. and G.J.) agreed upon an ordinal rating system for clinical complexity and urgency in treatment of patient injury: 1, elective; 2, semi-elective; 3, urgent; and 4, emergent (Table 1). The reviewers (V.T. and V.C.P.) were blinded to all other demographic data, and they independently categorized each patient injury according to the rating system. The Cohen kappa coefficient for inter-rater reliability was 0.93. The final urgency rating for each patient was the consensus of the 2 reviewers in cases of dissenting ratings. Calfee et al⁹ previously used this method.

A chi-square test assessed for any association between the insurance distributions of the study group, state, orthopedic department, orthopedic hand division, and entire ED population. A 2-proportion *t* test was used to analyze the distribution between these groups. The Student *t* test was used to analyze the days elapsed between ED visits. The Wilcoxon Mann-Whitney test analyzed the travel distances of patients from their initial emergency facility to our ED. All statistical analyses were conducted at a 95% confidence level, and a *P* less than .05 was considered statistically significant.

RESULTS

During the research period, 325 patients met our inclusion criteria. There were 230 males and 95 females with an average age of 27 years (range, 1–83 y; SD, 16).

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