The Journal of Emergency Medicine, Vol. 48, No. 2, pp. 152–157, 2015

0736-4679/$ - see front matter

ELSEVIER

http://dx.doi.org/10.1016/j.jemermed.2014.09.005

Original Contributions

FREESTANDING EMERGENCY DEPARTMENTS AND THE TRAUMA PATIENT

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□ **Abstract—Background: Freestanding emergency departments (FEDs) continue to grow in number and more research is needed on these facilities. Objective: We sought to characterize the types of injuries and patients who initially presented to two FEDs and were transferred to the main tertiary care ED for trauma team consult and admission. Methods: This retrospective cohort descriptive study examined medical records of adult trauma patients who were initially seen at an FED and then transferred to the main ED. All patients who received a trauma consultation were included. Data collection included demographics, initial mode of transport to the ED, injury, mechanism of injury, ED, hospital course and outcome. Results: Mean age was 61.8 ± 23.8, 96.7% were Caucasian and 52.5% were male. Mode of transport to the FEDs included private vehicle (46.4%) and emergency medical services (53.6%). The main injury mechanisms were fall from standing (51.9%) and fall from an object (16%). A total of 12.7% were from motor vehicle accidents and 6.6% presented from bicycle and all-terrain vehicle accidents. Blunt traumatic injuries accounted for 97.8% (n = 177) patients. Computed tomography scanning was performed on 90.1% of patients. Median ED length of stay was 189 min. Mean hospital length of stay was 3 days and 2.2% (n = 4) of patients died from their injuries. Conclusions: Understanding the patients and traumatic injuries that present to FEDs will guide training and identify resources needed for patients requiring additional care at a trauma center.** © 2015 Elsevier Inc.

□ **Keywords—trauma; freestanding emergency departments; tertiary care**

INTRODUCTION

The popularity of freestanding emergency departments (FEDs) is increasing. Earlier studies have demonstrated FED growth of up to 20% in 1 year and they continue to expand geographically (1). More than 400 FEDs are in operation, and the majority of them are affiliated with hospitals. Patients in need of emergency care are more likely to use the services of the nearest ED and, in some areas, these FEDs have helped ease the burden of overcrowded EDs (2–4). Even with the growth of these facilities, we were unable to locate earlier publications that studied traumatic injuries seen at FEDs and required additional care. We examined a population of trauma patients who presented to our FEDs and were subsequently transferred to the main tertiary care ED for a trauma consultation.

Research involving FEDs has yet to evolve and the exact definition of FEDs remains obscure. Examining FED literature is difficult because facilities in the past provided varying levels of service. It was rare that a severe injury or illness presented to an FED in the 1980s. The results of one investigation conducted in the early 1980s found that critical ambulance traffic always bypassed the 15 FEDs being studied and noncritical ambulance transport patients were brought to only 1 facility (5). Most FEDs during the 1980s were known to treat only minor injuries and illness.

RECEIVED: 7 March 2013; FINAL SUBMISSION RECEIVED: 9 May 2014;
ACCEPTED: 2 September 2014

In another study, the authors concluded that these facilities did not compete with hospital EDs for patients with major illness or injury and hospital admission referrals rarely occurred (6,7).

Our FEDs are staffed with board-eligible or board-certified emergency medicine physicians and are open 24 hours a day, 7 days a week, 365 days a year. We have full laboratory and x-ray capabilities, which include x-ray and computed tomography (CT) scan available at all times. We also offer emergent magnetic resonance imaging and ultrasound during the hours of 7 AM to 7 PM Monday through Friday and on Saturday mornings. Our tertiary care ED based at the main hospital is staffed with the same physicians as the FEDs. Local urgent care centers may be staffed with physicians, physician's assistants, or nurse practitioners. Individual facilities have varying requirements as to whether physicians must be of a particular specialty and if they require board eligibility or certification. Most urgent care centers do not have full laboratory services or offer advanced imaging, such at CT scans or ultrasound.

Simon et al. studied the impact of FEDs on patient acuity and volume at a tertiary care center (8). Their findings showed that although there was a decline in the number of patients at the main ED, the hospital health system as a whole experienced an increase in the overall volume of patient visits (8).

Currently, FEDs treat both major and minor illness and injury. Admission rates to hospitals with associated FEDs often increase despite the decreased patient load at the main ED. FEDs must be prepared for all medical emergencies, even those with life-threatening potential, thus necessitating a need for more research. In our hospital system, patients are often transferred to the FEDs for further evaluation once emergency medical services (EMS) has evaluated the patient and determined they do not meet Trauma Field Triage Criteria and may be brought to the closest ED or the patient's choice of ED (including FEDs). However, there is also a population of patients who arrive to FEDs by private vehicle after a trauma-related accident.

It is important to describe the mechanisms of the trauma and types of patients likely to be seen in FEDs. This will allow for proper resources, training, and technology to be incorporated into these facilities. Research in this area of patient care can provide insight into the population using these facilities and the frequency with which patients with traumatic injuries present for care. It may also provide valuable information to create protocols and develop practice standards for FEDs that encounter patients with significant traumatic injuries. We sought to characterize the types of traumatic injuries in patients who present to our FEDs and are transferred to the main tertiary care ED for a trauma consult.

MATERIALS AND METHODS

This study was a retrospective cohort of all patients with traumatic injuries presenting to our FEDs and requiring transport for a trauma evaluation at the main ED. Data was collected from July 2007 to December 2011. The hospital's Institutional Research Review Board approved the study.

The main ED in this study is a tertiary care hospital serving a metropolitan area with a population estimated at 699,935 in 2009 (7). It is a Level I Trauma Center with 33 beds, five minor treatment rooms, and an emergency medicine residency program. The health care system opened two FEDs in communities located 9.6 and 12 miles from the main ED. Annual volume for each of the three EDs is 60,000 at the main ED, 23,000 at FED no. 1 and 16,000 at FED no. 2. The FEDs in this study treated all illness and injuries that arrived by private vehicle as well as a large portion of ambulance traffic in the area. In addition, each FED has two rooms designated as trauma rooms. Local EMS within the study region have been instructed to take all major trauma requiring trauma team activation, ST-elevation myocardial infarctions, and strokes to the main ED. All other ambulance traffic may be transported to the FEDs, at the request of the patient or family.

We included all trauma patients identified from the hospital system ED records that were initially seen at an FED and then transferred to our tertiary care ED for evaluation. Patients were excluded if they were under 18 years of age or were not transferred to the tertiary care ED for a trauma consultation (Figure 1). The decision to transfer a patient for trauma consultation was determined by the ED attending and the on-call trauma surgery attending and no specific protocol was utilized. We also examined the frequency with which our studied population was seen at the FEDs.

Our FEDs and tertiary care ED used LOGICARE electronic tracking system (v.7.8.00.10). Patient lists for electronic medical record review were obtained from the hospital's trauma registry, which maintains detailed records of all patients, and used ICD-9 codes 800–959.9. Patient demographic information, the injuries sustained, mechanism of trauma, Injury Severity Score (ISS) and ED course with patient outcome were entered into Microsoft Excel, version 2000 (9.0.2720; Redmond, WA). Data was analyzed using SAS for Windows, version 9.1 (SAS Institute, New York, NY). We report descriptive statistics for our cohort using proportions and medians with interquartile ranges when appropriate.