

Block 9 CAT
Nick Brautigam R3

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BLUF: Re-admissions after injury are common and are often unscheduled. While patient factors play a role in this, care at a trauma center is also associated with decreased odds for readmission, even when controlling for severity of injury. This suggests that the benefits of trauma center care extend beyond improvements in mortality to improved long-term outcomes.

Objective: The authors hypothesized that receiving treatment at a trauma center would be associated with improved care and therefore would be associated with reduced readmission rates.

Background: Trauma center care has been associated with improved mortality. It is not known if access to trauma center care is also associated with reduced readmissions.

Methods: The authors conducted a retrospective analysis of all hospital visits in California using the Office of Statewide Health Planning and Development Database from 2007 to 2008. All hospital admissions and emergency department visits associated with injury were longitudinally linked. Regions were categorized by whether they had trauma centers. The authors excluded all patients younger than 18 years. They performed univariate and multivariate regression analyses to determine if readmissions were associated with patient characteristics, length of stay for initial hospitalization, trauma center access, and triage patterns.

Results: A total of 211,504 patients were included in the analysis. Of these, 5,094 (2%) died during the index hospitalization. Of those who survived their initial hospitalization, 79,123 (38%) experienced one or more readmissions to any hospital within 1 year. The majority of these were one-time readmissions (62%), but 38% experienced multiple readmissions. Over 67% of readmissions were unplanned and 8% of readmissions were for a trauma. After controlling for patient variables known to be associated with readmissions, primary triage to a trauma center was associated with a lower odds of readmission (odds ratio, 0.89; $p < 0.001$). The effect of transport to a trauma center remained significantly associated with decreased odds of readmission at 1 year (odds ratio, 0.96; $p < 0.001$).

Discussion: These findings demonstrate that for patients who survive their initial trauma, triage to a trauma center is associated with an 11% reduction in the adjusted 30-day OR for readmission and a 4% reduction in odds at 1 year. This is the first study to show that trauma system care is associated with reduced readmissions across the injured US population. Additionally, it was found that patients with minor injuries experienced lower readmission rates when treated at trauma centers. Rates of readmission were 6% to 10% higher for patients with minor injuries who were taken to nontrauma centers when compared with those taken to trauma centers. There are however, limitations to this study. This is a retrospective study derived from administrative data. This limits the ability to obtain important clinical variables that could be important for analysis including physiology and functional status. As a result, there may be important clinical differences between patients treated at trauma centers and nontrauma centers, which may contribute to the observed results. The authors were also unable to determine which hospital processes may be associated with a trauma center benefit because there were no data on protocols or services used. The findings indicate that the benefits of trauma center care extend beyond improvements in mortality to reduced readmissions after trauma. These benefits are experienced by patients regardless of injury severity and may serve as complementary metric to assess the value of trauma systems to the US population.
