

Does Destination Determine Destiny? A Statewide Analysis of Trauma Center Mortality

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Background:

Excellent trauma care relies on an excellent trauma system. In a standardized trauma system, patient outcomes would be based on severity of injury, rather than presenting hospital.

Objectives:

In this study, we sought to determine the relationship between severity of presentation of patients and their outcome as measured by mortality or transfer to another institution at trauma centers throughout the State of Pennsylvania (PA).

Methods:

After IRB approval, data were gathered about PA trauma centers from the Pennsylvania State Trauma Systems Foundation (PTSF). Anonymous data from each of the state's 32 certified trauma centers as they relate to mortality, transfer and Injury Severity Score (ISS) score were gathered. ISS scores were reported as the institutional average. Included in the analysis were adult patients. Excluded were pediatric trauma patients. The analyzed cohort was for the calendar year 2008. Smoothed Lowess curves were used to determine relationships.



Results:

In 2008, there was a total of 31,612 trauma-activated adult patients in PA. Of these cases, 95.5% (n=30,197) were admitted to the hospital at which they were initially seen, 3.0% (n=960) were transferred to another institution, and 1.4% (n=450) died in the Emergency Department. Analysis by institutional ISS score and total number of transfers from any one institution found no relationship. When controlling for the volume of trauma at the presenting institution, it was determined that the six lowest trauma volume institutions in PA transferred the greatest proportion of their patients despite having the lowest average ISS scores. When accounting for these six lowest ISS score institutions, Figure 1 represents the lack of a clear relationship between ISS score and institutional mortality. There is no relationship between institutional ISS scores and their proportion of patients admitted. Mortality appears to be institution-specific.

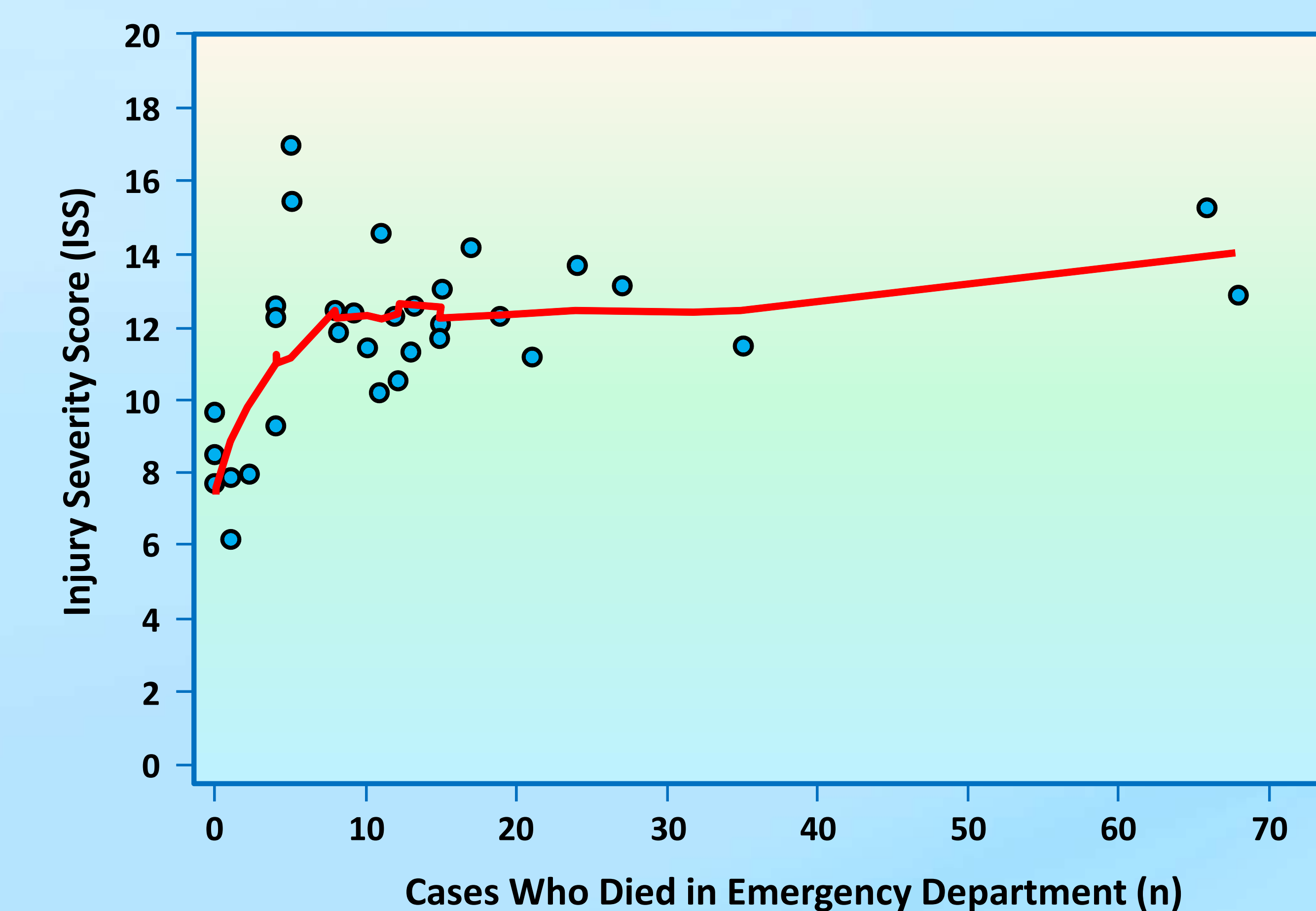


Figure 1. Scatterplot of Injury Severity Score (ISS) and patients who died at the institution with smoothed Lowess curve.

Conclusion:

In this retrospective analysis of data reported to a state-wide trauma certification agency in PA, the overwhelming majority of patients receive all of their care (96.9%) at the institution to which they present. As measured by ISS, mortality appears to be linked to the institution rather than injury severity. Low volume trauma centers appear to transfer the greatest proportion of their patients despite low ISS.

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