

**Emergency Medical Services Out-of-Hospital and Transport Times and Their Association with Mortality
in Trauma Patients Presenting to an Urban Level I Trauma Center**

McCoy, C., Menchine, M., Sampson, S., Anderson, C., Kahn, C.
Annals of Emergency Medicine, February 2013

1. Why is this topic important?

Very few studies have been conducted concerning trauma injury, EMS scene and transport times and patient outcomes. This research evaluates the effect of EMS time on trauma patient outcomes. Time has consistently been emphasized as a critical variable; if research can demonstrate that shorter transport times affect patient care, this will have an important effect on EMS decision-making at all levels, including administrators and elected officials. This study makes a crucial contribution to an often overlooked area of EMS trauma research.

2. What does this study attempt to show?

The purpose of this study is to determine if there is an association between out-of-hospital time and mortality for trauma patients presenting to a Level I urban trauma center. Between 1996 and 2009 the trauma registry for Orange County California collected data on 26,564 patients; of these, 19,167 were stratified according to age, gender, blunt vs. penetrating injury, [Revised Trauma Score](#) (RSS) and [Injury Severity Score](#) (ISS). Adjusted for these variables, patient mortality was measured against both EMS scene and transport time intervals: 0-9 minutes, 10-19 minutes, and ≥ 20 minutes and total time. No interval included dispatch-to-scene arrival time.

3. What are key findings?

For blunt and penetrating trauma to median scene time was 13 minutes; median transport time was 12 minutes, and total scene plus transport times were median 26 minutes. For patients presenting with *penetrating* trauma, the [odds ratio](#) (OR) of death was significantly increased when scene time was ≥ 20 minutes compared to on-scene time of 0-9 minutes. On-scene times of 10-19 minutes were not significantly associated with patient mortality. Transport times showed no significant association with mortality. For *blunt* trauma, there was no significant association with on-scene and/or transport times with patient mortality. Increasing age and ISS did increase significantly odds of death.

4. How is patient care impacted?

These results support the "Golden Hour" theory for trauma patients as the study found increased mortality for penetrating injury with on-scene times ≥ 20 minutes. There was no association between transport times and mortality, thus providing support for bypassing non-trauma centers when transporting patients with serious injury for a trauma center. As the authors state, the "debate between 'load and go' versus 'stay and stabilize,'" continues pending further research. Present in the study are limitations common to all research that uses registry data, even when well controlled. [Registries and Selection Bias](#)

[Emergency medical services out-of-hospital sce... \[Ann Emerg Med. 2013\] - PubMed - NCBI](#)