



Study of EMS Findings Predictive of Pediatric Trauma Center Needs

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Purpose and Specific Aims:

Injured patients account for 40% of all emergency medical services (EMS) transports. While children represent a small percentage of overall EMS responses, injury related complaints are a significant proportion of those responses. Prehospital care providers must ensure that injured pediatric patients are taken to the most appropriate hospital. Failure to correctly triage these patients can result in a significant increase in mortality risk.

The Field Triage Criteria were established by the American College of Surgeon's (ACS) Committee on Trauma over 20 years ago to help guide prehospital care providers' triage decision making for injured patients. These criteria were developed based on the best available science and consensus opinion. They include physiologic, anatomic, and mechanism of injury findings that indicate a patient should be transported to a trauma center. Little data exists on the validity of the overall criteria or its individual components. The Field Triage Criteria were updated in 2006 but those changes have not been evaluated either. Under-triage of pediatric trauma patients could result in an increase in morbidity and mortality and over-triage may expose patients to more dangerous modes of transport and make the EMS system less responsive for other patients. Furthermore, much of the research to date has been done in adults and has not considered the special needs of injured children.

Aim 1: Describe the Field Triage Criteria findings of prehospital care providers for injured pediatric patients (age 15 years and younger) and gather information on each patient's resource utilization and outcome.

Hypothesis: Forty percent of injured pediatric patients will meet the anatomic, physiologic, or mechanism of injury criteria of the Field Triage Criteria and ten percent will be identified as needing the resources of a pediatric trauma center.

Aim 2: Retrospectively apply both the 1999 and 2006 Field Triage Decision Schemes to the data collected in Aim 1 and determine the rate of under- and over-triage for each scheme.

Hypothesis: The 2006 Field Triage Decision Scheme will cause no more than a 1% increase in over-triage and will reduce under-triage by at least 10% compared to the 1999 scheme.

Aim 3: Using the data collected in Aim 1 we will determine the predictive value of each component of the Field Triage Decision Scheme for identifying injured pediatric patients who need the resources of a trauma center.

Hypothesis 1: The individual components of the Field Triage Decision Scheme are predictive of a composite measure of trauma center need (non-orthopedic surgery within 24 hours, intensive care unit (ICU) admission, or death prior to hospital discharge).

Hypothesis 2: The individual components of the Field Triage Decision Scheme are predictive of a patient Injury Severity Score (ISS) greater than 15.

Aim 4: **This aim will only be conducted at the Medical College of Wisconsin Site.** Determine the proportion of all EMS transported injured pediatric patients that are taken to the study hospital- (i.e., the regional pediatric trauma center) between June 1, 2009 and August 31, 2010.

Hypothesis: The proportion of injured pediatric patients taken by prehospital care providers to non-study facilities will be less than ten percent.