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## Study: 34% of Trauma Patients Undertriaged



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A new study published in the *American Journal of Emergency Medicine* found that 34 percent of major trauma patients are undertriaged in the United States, much higher than the undertriage goal of five percent set by the American College of Surgeons' (ACS) Committee on Trauma.

Also, more than 40 percent of undertriaged patients were diagnosed with traumatic brain injury, making that the most common diagnosis, according to the study from the Center for Pediatric Trauma Research and the Center for Injury Research and Policy at Nationwide Children's Hospital.

The ACS' Committee on Trauma recommends that patients with severe injuries should be treated at level I or level II trauma centres which have the resources to provide the best care for those patients. However, one of three severely injured patients in 2010 actually received their treatment at lower-level trauma centres or non-trauma centres, according to the new study.

Current guidelines define a major trauma patient as one with an injury severity score of 16 or above on a scale of 1 (minor) to 75 (unsurvivable). In 2010, there were some 169,523 major trauma patients whose level of care was known, and 57,609 were undertriaged.

### Lower Risk of Death for Patients Treated at Trauma Centres

"Previous studies have found that patients treated at level I trauma centres have a 25 percent lower risk of death than those treated at non-trauma centres," said Huiyun Xiang, MD, PhD, MPH, director of the Center for Pediatric Trauma Research at Nationwide Children's Hospital, principal investigator at the hospital's Center for Injury Research and Policy, and senior author of the study. "However, we didn't know how many seriously injured people in the United States were not receiving definitive care at higher level trauma centres until now."

### Older Patients Most Likely to be Undertriaged

Dr. Xiang's study revealed that older patients were particularly likely to be undertriaged (i.e., treated at level III trauma centres or non-trauma centres). Undertriage rates for older patients were as follows:

- Patients 85 years old or older: over 54 percent
- Patients between 75-84 years: about 47 percent
- Patients between 55-64 years: nearly 32 percent

Meanwhile, adults ages 18-54 were the least likely to be undertriaged – about 22 percent of major trauma patients in that group were treated at level III trauma or non-trauma centres. Almost 35 percent of seriously injured children five years and younger were undertriaged, and 25 percent of children between 6 and 17 years old were undertriaged.

### Distance from Trauma Centre, Decision Making Impact Rates

The high numbers of undertriaged patients could be attributed to a number of factors. Some 43 million Americans live more than an hour's drive from a level I or level II trauma centre, Dr. Xiang said, making it difficult for many to reach the higher level centres.

Of those people who are injured, only 18 percent are transported to a medical facility by emergency medical services (EMS). As such, many trauma patients – or their family members and friends – make the decisions about where to seek care, instead of trained medical professionals, Dr. Xiang noted. Traumatic brain injury, the most common diagnosis for undertriaged major trauma patients, can be difficult to detect without proper training.

Other factors, such as weather conditions and end-of-life directives, may also play a role. When EMS providers and trauma centre staff were surveyed about undertriage of the elderly in an earlier study, they cited lack of familiarity with triage protocols, inadequate training, and age bias as possible explanations.

### 'No Easy Solutions' to the Undertriage Problem

"There are no easy solutions to the issue of undertriage," Dr. Xiang said, noting that level I and level II trauma centres do not have the capacity now to care for every patient who experiences major trauma. Dr. Xiang's team estimated that trauma centres across the US would need to

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augment their treatment capacity by 51 percent to be able to accommodate all undertriaged major trauma patients.

Dr. Xiang said more research was needed to better understand the problem of undertriage and develop solutions to it. While this study is the first to find that traumatic brain injury makes up such a large percentage of diagnoses for undertriaged patients, Dr. Xiang's team said, no study has been conducted to compare the outcomes of undertriaged TBI patients with properly triaged TBI patients.

Source: EurekAlert.org

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