Objective: To determine which clinical parameters can be used to reliably identify severely injured trauma patients in the Emergency Department.

Methods: A retrospective study of all adult patients (>14 years) identified on our prospectively maintained Level I Trauma Center Registry at this inner city hospital over a six-month period. Medical records were reviewed for mode of arrival and triage classification assigned. We calculated Revised Trauma Score (RTS) and Injury Severity Score (ISS) for each patient. Admission to the SICU or to the OR or an operation within 48 hours of arrival was used as identifiers of severe injury.

Results: Of the 208 patients included in the study, 100 (48.08%) met criteria for severe injury. Ninety five patients (45.67%) were brought in by EMS as resuscitations, 76 (36.54%) were brought in by EMS but not as resuscitations, and 37 (17.79%) were walk-ins. Forty-four (46.32%) of the resuscitation patients, 34 (44.74%) of the non-resuscitation patients, and 22 (59.46%) of the walk in patients met criteria for severe injury (P = 0.275). Nurses assigned 112 patients to Triage Class A, 80 to Class B, 2 to Class C, and 14 were not assigned. Fifty-three (50%) of the C patients were severely injured (P = 0.604). There was a 75.26% concordance between mode of arrival and triage classification (kappa = 0.578). The calculated mean RTS of the severely injured patients was 7.59 and of those not severely injured, 7.82 (P = 0.010, odds ratio 0.1645). The ISS for the severely injured patients was 33.5 and of those not severely injured, 7.82 (P = 0.010, odds ratio 0.1645). The ISS proved to be the most reliable tool. Further study should be undertaken to validate its reliability and consideration should be given to using ISS to evaluate trauma patients on arrival to the Emergency Department.

Conclusions: Emergency physicians traditionally rely on mode of arrival and triage classification as predictors of the severity of injury in trauma patients. Both of these parameters are highly unreliable. Ambulatory trauma patients in our study had a greater than 50% incidence of severe injury. Triage classification is well correlated with mode of arrival and poorly correlated with injury severity. RTS, previously indicated for use as a medical triage instrument, proved to be unreliable in our study. The ISS proved to be the most reliable tool. Further study should be undertaken to validate its reliability and consideration should be given to using ISS to evaluate trauma patients on arrival to the Emergency Department.