



Introduction:

- National Guidelines for the Field Triage of Injured Patients have been widely adopted to ensure seriously injured patients are transported to trauma centers.
- Mechanism of injury (MOI) criteria which are designed to predict injury are a component of these guidelines
- May lead to overtriage of patients

Objective:

To determine if vehicle intrusion alone as MOI criteria necessitates trauma activation

Methods:

- Retrospective, single center chart review was conducted to include all adult patients involved in motor vehicle collisions (MVC) presented to a Level 1 trauma center from 2016-2022
- Patients were divided by MOI Criteria: Vehicle Intrusion alone vs. multiple activation criteria.
- Trauma center need was defined as an ISS \geq 16
- Sensitivity and specificity analyses were conducted to evaluate clinical significance.

Falls

- Adults > 20ft
- Children > 10 ft or two or three times the height of the child

High-risk auto crash

- Intrusion, including roof: > 12inches occupant site, >18 inches any site
 - Ejection (partial or complete) from automobile
 - Death in same passenger compartment
 - Vehicle telemetry data consistent with a high risk of injury
- Auto vs pedestrian/bicyclist thrown, run over, or with significant(>20mph) impact Motorcycle crash > 20 mph

Results Continued:

Cohorts	Trauma Center Need + (ISS \geq 16)	Trauma Center Need - ISS<16)
Vehicle Intrusion	177	1921
MOI+	99	743

Sensitivity	64.1%
Specificity	27.9%
+ Predictive Value	8.4%
- Predictive Value	88.2%
Overtriage	72.1%
Undertriage	35.9%
Positive Likelihood Ratio (+LR)	0.89

Figure 1: Mechanism of Injury criteria as a component of the field triage of Injured Patients

Results:

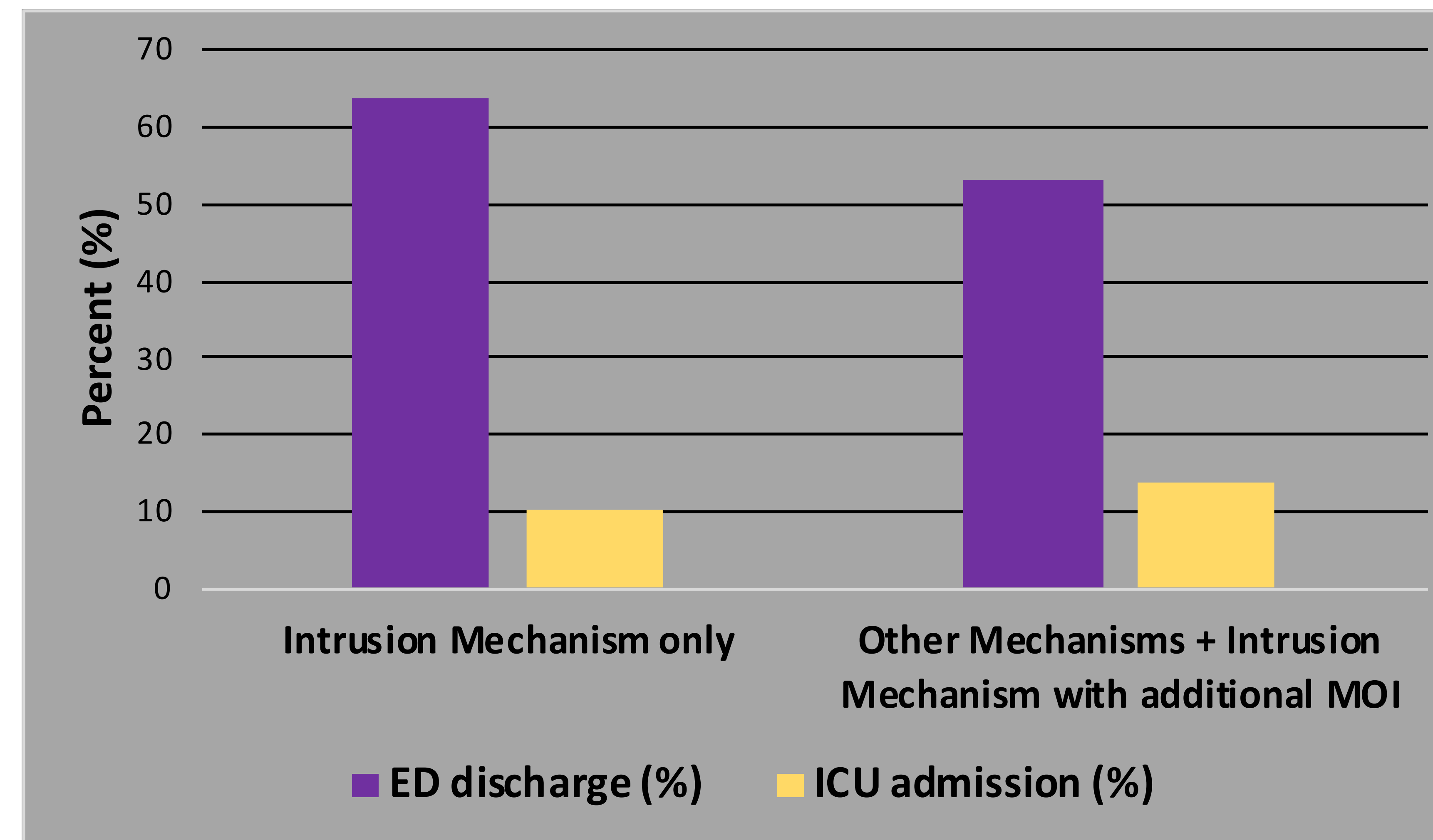


Figure 2: Hospital Outcomes for Intrusion alone and multiple MOI. criteria

Table 1: Vehicle Intrusion analysis designating trauma center need as an ISS \geq 16 as consistent with previous studies

Discussion:

-Vehicle intrusion criteria alone had statistically significant differences in discharge results, injury profiles, CT scans, ICU admissions, and mortality as compared to other mechanism criteria.

-Need for further prospective multi-center studies of vehicle intrusion as an MOI criteria.

References:

- American College of Surgeons <https://www.facs.org/quality-programs/trauma/systems/field-triage-guidelines/>
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- Brown JB, Stassen NA, Bankey PE, Sangosanya AT, Cheng JD, Gestring ML. Mechanism of Injury and Special Consideration Criteria Still Matter: An Evaluation of the National Trauma Triage Protocol. *Journal of Trauma and Acute Care Surgery.* 2011;70(1):38. doi: 10.1097/TA.0b013e3182077ea8