

TRAUMA SUPER-USERS – A DRAIN ON THE SYSTEM

Eric H. Bradburn DO, MS, FACS

Tawnya M. Vernon BA; Shreya Jammula BS;

Alan D. Cook MD, FACS; Brian Gross BS;

Frederick B. Rogers MD, FACS

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Disclosure Statement

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Background

- ◆ **Extended hospital length of stay is widely associated with significant healthcare costs.**
- ◆ **Objective: Identify predictive characteristics of trauma super-users**
- ◆ **Hypothesis: Particular characteristics are likely predictive of trauma super-users of healthcare and can be used to characterize this population.**

Methods

- ◆ **The Pennsylvania Trauma Outcome Study database was retrospectively queried from 2003-2017 for all adult (age ≥ 15) trauma patients admitted to accredited trauma centers in Pennsylvania.**
- ◆ **Trauma super-users were defined as patients with hospital length of stay two standard deviations above the population mean or ≥ 22 days.**

Methods

- ◆ **Patient demographics, comorbid conditions and clinical variables were compared between trauma super-users and trauma non super-users to identify potential predictor variables.**
- ◆ **A multilevel mixed-effects logistic regression model controlling for age, gender, injury severity, admission Glasgow coma score (GCS) and systolic blood pressure assessed the adjusted impact of clinical factors in predicting trauma super-user status.**

Results

- ◆ **489,027 patients met inclusion criteria [super-user: 17,544 (3.59%); non super-user: 471,483 (96.41%)].**
- ◆ **Compared to non super-user counterparts, super-user patients were significantly more severely injured (ISS: 10.58 vs. 22.53, $p < 0.001$)**
- ◆ **Super-users had a higher incidence of chronic alcohol abuse.**

Results

- ◆ **In adjusted analysis, gunshot wound to the abdomen, undergoing major surgery and reintubation were significantly associated with trauma super-users.**
- ◆ **Penetrating injury overall was associated with decreased risk of being a super-user.**

Results

◆ Risk-adjusted predictors of trauma super-users

Trauma super-user		
Variable	AOR (95% CI)	<i>p</i>
GSW (abdomen)	1.82 [1.63-2.03]	<0.001
Penetrating MOI	0.624 [0.581-0.671]	<0.001
Major surgery	1.90 [1.83-1.97]	<0.001
Reintubation	11.55 [10.84-12.30]	<0.001
Age	1.001 [1.000-1.002]	0.018
Male sex	1.411 [1.351-1.474]	<0.001
ISS		
0-8	Reference	---
9-15	2.48 [2.33-2.63]	<0.001
16-25	5.31 [4.99-5.63]	<0.001
26-75	10.41 [9.79-11.06]	<0.001
Admission GCS	0.93 [0.925-0.932]	<0.001
Admission SBP	1.001 [1.000-1.001]	0.001
AUROC: 0.815		

Conclusion

- ◆ Reintubation, major surgery and gunshot wounds to abdomen are strongly predictive of trauma super-users.
- ◆ Understanding the profile of the super-user will allow clinicians to proactively put processes in place to streamline care and potentially reduce costs and hospital lengths of stay.

