

# eScholarship@UMassChan

## Quadrимodal Distribution of Death after Trauma: Predictors of Death in the Fourth Peak

Item Type	Poster Abstract
Authors	Santry, Heena;Wilbert, Christopher J.;Psoinos, Charles M.;Flahive, Julie;Kroll-Desrosiers, Aimee;Emhoff, Timothy A.;Kiefe, Catarina I.
DOI	<a href="https://doi.org/10.13028/gxcx-2k29">10.13028/gxcx-2k29</a>
Rights	Copyright the Author(s)
Download date	2025-05-16 16:32:54
Item License	<a href="http://creativecommons.org/licenses/by-nc-sa/3.0/">http://creativecommons.org/licenses/by-nc-sa/3.0/</a>
Link to Item	<a href="https://hdl.handle.net/20.500.14038/27792">https://hdl.handle.net/20.500.14038/27792</a>

## **Quadrимodal Distribution of Death after Trauma: Predictors of Death in the Fourth Peak**

Heena P. Santry, MD MS<sup>1,2\*</sup>; Christopher J. Wilbert, MD<sup>3</sup>; Charles M. Psoinos, MD<sup>1</sup>, Julie M. Flahive, MS<sup>1</sup>; Aimee R. Kroll-Desrosiers MS<sup>2</sup>; Timothy A. Emhoff, MD<sup>1</sup>, Catarina I. Kiefe, PhD MD<sup>2</sup>

1. Department of Surgery, University of Massachusetts Medical School
2. Department of Quantitative Health Sciences, University of Massachusetts Medical School
3. Department of Emergency Medicine, MedStar Harbor Hospital, Baltimore, MD

\*2010-2015 UMass Clinical Research Scholar

### **Introduction**

Patterns of death after trauma are changing due to diagnostic and treatment advances. We examined mortality in critically injured patients at risk of death after discharge.

### **Methods**

We reviewed all critically injured (Injury Severity Score $\geq$ 25 AND death in Emergency Room, death within 24hrs, OR ICU admission $>$ 24hrs) adults (age $\geq$ 18) admitted to a Level 1 trauma center (01/01/2000-12/31/2010) and determined death post-discharge (Social Security Death Index) of patients discharged alive. We compared demographics, injury data, and critical care resource utilization between those who died during follow-up and survivors using univariate tests and Cox proportional hazards models.

### **Results**

Of 1,695 critically injured patients, 1135 (67%) were discharged alive. As of 05/1/2012, 977 (58%) index survivors were alive (median follow-up 62mos (IQR35,96)). Of 158 deaths post-discharge, 75 (47%) occurred within the first year. Patients who died post-discharge had longer hospital (24dys (IQR13,38) vs. 17dys (IQR10,27)) and ICU LOS (17dys (IQR6,29) vs. 8dys (IQR4,19)) and were more likely to undergo tracheostomies (36.1% vs. 15.6%,  $p<0.0001$ ) and gastrostomies (39.2% vs. 16.0%,  $p<0.0001$ ) and be discharged to rehabilitation (75.7% vs. 62.5%,  $p=0.0001$ ) or skilled nursing (13.1% vs. 5.8%,  $p=0.001$ ) than survivors. In multivariable models, male sex, increasing age, and increasing ICU LOS predicted 1-year and overall mortality. ICU LOS $>$ 16dys increased risk of death at one year (HR1.94 (1.22,3.06)) and by the end of follow-up (HR2.19 (1.58,3.04)) compared to shorter ICU stays.

### **Conclusion**

We propose the first year after discharge as the fourth peak of trauma related mortality. Duration of ICU LOS during index hospitalization is associated with post-discharge mortality.

**Word Count:** 250 excluding headings

**Funding Disclosure:** The research reported in this publication was supported by the University of Massachusetts Clinical Scholar Award (HPS) through the National Center for Advancing Translational Sciences of the National Institutes of Health under award numbers UL1RR031982, 1KL2RR031981-01, and UL1TR000161. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.