

## **Police transport vs. ground EMS: A trauma system-level evaluation of prehospital care policies and their effect on clinical outcomes**

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## **Abstract**

### Background

Rapid transport to definitive care (“scoop and run”) verses field stabilization in trauma remains a topic of debate and has resulted in variability in pre-hospital policy. We aimed to identify trauma systems frequently using a true “scoop and run” police transport approach and to compare mortality rates between police and ground emergency medical services (EMS) transport.

### Methods

Using the National Trauma Databank (NTDB), we identified adult gunshot and stab wound patients presenting to level 1 or 2 trauma centers from 2010-2012. Hospitals were grouped into their respective cities and regional trauma systems. Patients directly transported by police or ground EMS to trauma centers in the 100 most populous US trauma systems were included. Frequency of police transport was evaluated, identifying trauma systems with high utilization. Mortality rates and risk-adjusted odds ratio for mortality for police vs. EMS transport were derived.

### Results

Of 88,564 total patients, 86,097 (97.2%) were transported by EMS and 2,467 (2.8%) by police. Unadjusted mortality was 17.7% for police transport and 11.6% for ground EMS. After risk-adjustment, patients transported by police were no more likely to die than those transported by EMS (OR=1.00, 95% CI: 0.69-1.45). Among all police transports, 87.8% occurred in three locations (Philadelphia, Sacramento, and Detroit). Within these trauma systems, unadjusted

mortality was 19.9% for police transport and 13.5% for ground EMS. Risk-adjusted mortality was no different (OR=1.01, 95% CI: 0.68-1.50).

### Conclusions

Using trauma system level analyses, patients with penetrating injuries in urban trauma systems were found to have similar mortality for police and EMS transport. The majority of pre-hospital police transport in penetrating trauma occurs in three trauma systems. These cities represent ideal sites for additional system-level evaluation of pre-hospital transport policies.

### Level of Evidence

III. Prognostic/Epidemiologic.

### Key Words

Pre-hospital transport; trauma systems; penetrating trauma

## Background

The development of trauma systems in the United States has helped improve the care of injured patients.<sup>1</sup> Trauma systems are typically designed and developed at the local, state, or regional level based on resource availability, geography, and need. However, in many settings local history and culture of rescue personnel and trauma providers continue to shape practices. As a result, trauma systems have developed significant variability with respect to system-wide policies and protocols, including those for pre-hospital care. Pre-hospital trauma care protocols range from no intervention (“scoop and run”) in some locations to fluid resuscitation, advanced life support, or rapid sequence intubation with mechanical ventilation in others.

In order to identify optimal pre-hospital management strategies, it is important to study the clinical implications of different pre-hospital policies. One example of a unique pre-hospital policy that could be of benefit to other urban trauma systems is the routine use of police transport for individuals with penetrating injuries. In Philadelphia, Pennsylvania, patients with penetrating injuries have been transported to the nearest trauma center by police officers for over twenty-five years.<sup>2,3</sup> Under the current policy that was implemented in 1996, “Police personnel will transport: Persons suffering from a serious penetrating wound, e.g., gunshot, stab wound and similar injuries of the head, neck, chest, abdomen and groin to the nearest accredited trauma center. Transportation will not be delayed to wait the arrival of the Fire Department paramedics.”<sup>4</sup>

Major current initiatives of the American College of Surgeons Committee on Trauma (ACS COT), such as the Hartford Consensus, emphasize the importance of expanding the roles of police officers in providing basic trauma care, particularly in the arena of hemorrhage control.<sup>5</sup> Given these new recommendations, it is important to systematically evaluate the role

that the police department currently plays in pre-hospital trauma care. Due to the current paucity of data regarding the implications of police department pre-hospital trauma care on clinical outcomes, we aimed to compare mortality rates for police transport (a true “scoop and run” approach) to ground emergency medical services (EMS) transport. Additionally, we sought to identify cities and trauma systems that frequently utilize police transport for penetrating trauma and determine the implications of routine police transport at the trauma system level.

## **Methods**

Using the National Trauma Databank (NTDB), all patients admitted with penetrating injuries (gunshot wounds (GSW) and stab wounds) from January 1, 2010 to December 31, 2012 were identified. These mechanisms of injury were determined by ICD-9 external causes of injury codes (E-codes) that are included in the NTDB. Patients were included if they were  $\geq 16$  years old or  $\leq 100$  years old, were transported to the hospital by ground EMS or the police department, and were treated at a level 1 or level 2 trauma center in one of the 100 most populous trauma systems in the United States. Trauma systems were defined by the central counties of 2010 U.S. Census Metropolitan Statistical Areas, which are geographic areas consisting of a large population nucleus and adjacent communities with a high degree of integration with the population nucleus.<sup>6</sup> Cities were not used to define trauma systems because doing so would exclude trauma centers that are not located within the boundaries of a city yet still serve the city’s population. Patients were excluded if they were transferred to or from another hospital or had incomplete records with respect to the primary outcome of in-hospital mortality. Study participants were limited to individuals with penetrating injury because they represent a unique

subpopulation of trauma patients most likely to benefit from timely surgical intervention and least likely to derive significant benefit from out-of-hospital interventions.

Baseline characteristics for ground EMS and police transport were compared using Chi squared or Student's T-tests. The primary outcome was in-hospital mortality, which included deaths in the emergency department (ED), deaths prior to hospital discharge, and discharge disposition to hospice. Unadjusted mortality rates for ground EMS and police transport were compared for all included patients, as well stratified for GSW and stab wound cohorts.

Using a general linear mixed effects model, risk-adjusted odds ratios for mortality for police vs. ground EMS transport were calculated. Clustering by trauma center was performed to account for hospital-level variability when calculating risk-adjusted odds ratios for mortality. Models were derived for all penetrating injuries and for the GSW and stab wound cohorts. Models were adjusted heart rate (HR), presenting systolic blood pressure (SBP), Glasgow Coma Scale Motor Score (GCS-Motor), Injury Severity Score (ISS), age, gender, race/ethnicity, insurance status, and year of admission.<sup>7,8</sup> Multiple imputation was used to address missing data for HR, SBP, GCS-Motor, ISS, and gender.

All included patients were assigned to their respective trauma systems. System-level analyses were conducted to evaluate the proportion of patients in each city who were transported by ground EMS vs. the police department. The utilization of police transport for penetrating trauma was evaluated and compared for each of the included trauma systems. The cities most frequently utilizing police transport were identified and used to create a sub-group for more focused analysis. Unadjusted mortality rates for ground EMS and police transport were compared for all patients and the GSW and stab wound cohorts within these trauma systems. Risk-adjusted odds ratios for mortality were also calculated for this subset of trauma systems.

The results of this study were two-sided and considered to be statistically significant at an alpha level of 0.05. SAS version 9.4 (SAS Institute Inc., Cary, NC) was used to perform all statistical analyses for this study. IRB exemption was obtained from the Northwestern University Feinberg School of Medicine Institutional Review Board.

## Results

Of the 2,329,446 patients included in the NTDB from January 1, 2010 to December 31, 2012, 88,564 total patients at 297 trauma centers met inclusion criteria for the study (Figure 1). 86,097 patients (97.2%) were transported directly to a trauma center by ground EMS and 2,467 (2.8%) were transported by the police department. Baseline characteristics of patients transported by ground EMS and the police department are provided in Table 1. Patients transported by police were, in general, more physiologically deranged (lower SBP and lower GCS motor score). Mean ISS was significantly higher among patients transported by the police department when compared to those transported by ground EMS (14.2 vs 10.1, respectively,  $p < 0.001$ ).

The unadjusted overall mortality was 11.8% for all penetrating wounds; 19.5% and 2.9% for GSWs and stab wounds respectively. Patients with GSWs had an unadjusted mortality of 19.5%, while those with stab wounds had a mortality of 2.9%. Overall unadjusted mortality rates were higher for police transport than ground EMS for GSWs (25.2% vs 19.3%,  $p < 0.001$ ). No significant differences in mortality between police and ground EMS transport were found for stab wounds (2.7% vs. 2.9%,  $p = 0.68$ ). After adjusting for age, gender, race, ISS, HR, SBP, GCS-Motor, and insurance status, patients with penetrating injuries transported by the police department were no more likely to die than those transported by ground EMS (OR=1.00, 95%



CI: 0.69-1.45). This held true when stratified for GSWs (OR=0.92, 95% CI: 0.62-1.37) and stab wounds (0.55, 95% CI: 0.19-1.55) (Table 2).

City level analyses revealed that 87.8% of all police transports occurred in only three cities' trauma systems: Philadelphia, PA, Sacramento, CA, and Detroit, MI. In Philadelphia 1,494 patients were transported by the police department, accounting for 60.6% of all police transports in the NTDB study cohort. In Sacramento there were 520 patients transported by police and in Detroit there were 153, representing 21.1% and 6.2% of all NTDB police transports, respectively.

When limiting analyses to the three trauma systems most frequently utilizing police transport for penetrating trauma (Philadelphia, Sacramento, and Detroit), the overall unadjusted mortality rate was 19.9% for police transport and 13.5% for ground EMS. Unadjusted mortality rates were higher for police transport than ground EMS for GSWs (26.4% vs. 20.8%,  $p<0.001$ ) and not significantly different for stab wounds (3.5% vs. 3.3%,  $p=0.89$ ). Following risk-adjustment, patients transported by the police department were no more likely to die than those transported by ground EMS (OR=1.01, 95% CI: 0.68-1.50). This held true for GSWs (OR=0.93, 95% CI: 0.62-1.41) and stab wounds (OR=0.32, 95% CI: 0.09-1.14). All unadjusted and risk-adjusted mortality data for the high police transport utilization sub-group are provided in Table 3.

## **Discussion**

This study demonstrates that for individuals with penetrating injuries in urban trauma systems, police transport is not associated with significant mortality differences when compared to similarly injured individuals transported by ground EMS. This study also identifies the three

urban, U.S. trauma systems that most frequently utilize police transport and account for nearly 90% of police transports in penetrating trauma included in the NTDB. The results of this study are important because they focus on data from major urban trauma systems and can be used to support the implementation of policies to incorporate police transport into the pre-hospital management protocols of similar urban trauma systems. Additionally, the results of this study reveal trauma systems where police transport is currently used and further research efforts into their benefit could be focused.

Previous research has evaluated the implications of pre-hospital care on clinical outcomes following trauma. Numerous studies have shown equal or higher mortality with EMS compared to private vehicle transport.<sup>9,10</sup> In Philadelphia, studies have found that ground EMS confers no survival benefit to police transport, though among the most severely injured police transport was associated with a survival advantage.<sup>2,11</sup> Other studies have demonstrated that pre-hospital intravenous fluid administration, endotracheal intubation, spine immobilization, and advanced life support are associated with higher mortality rates among certain subsets of trauma patients.<sup>12-15</sup> Work in Philadelphia has shown that the use of pre-hospital procedures in patients who ultimately undergo ED thoracotomy is also associated with higher mortality.<sup>16</sup> Additionally, research has demonstrated the importance of transport time in penetrating trauma, with shorter transport times being associated with improved survival.<sup>17-19</sup>

The results of this study reinforce previous findings from Philadelphia regarding the mortality implications of routine police transport, but represent the first time police transport has been compared to ground EMS nationally on a trauma system level. Additionally, this study represents the first time pre-hospital transport practices in trauma have been evaluated at the

system level. The ability to derive trauma system level data from the NTDB is a major strength of this study, as it facilitates system-level analyses for use in comparative effectiveness research.

Although pre-hospital police transport of the injured is not associated with different mortality rates than ground EMS transport, this trauma system level analysis does support the viability of police transport as an alternative mode of pre-hospital transport in urban trauma systems. For example, in Chicago, IL individuals who are shot on the city's south side experience longer pre-hospital transport times and higher mortality than those similarly injured in other portions of the city due to lack of a trauma center in close proximity to that part of the city.<sup>20</sup> As one example, Chicago could consider allowing police to transport these patients to the hospital to address this specific problem. Based on the results of this study, these patients would be unlikely to experience any worse outcomes than waiting for ground EMS transport and may actually end up having improved outcomes. Additionally, by identifying trauma systems that frequently utilize police transport, the results of this study can help trauma system leaders in cities like Chicago know where they can seek guidance if they are interested in instituting their own police transport protocol.

This study is not without limitations. As with all large, multi-center database analyses, there may be issues with data quality and missing data. Although there are auditing mechanisms in place to identify errors in abstraction, errors may still occur. Missing data was not a major factor in this analysis, but where it occurred, it was handled with imputation. Patients were not randomly assigned to police or EMS transport, therefore some selection bias may have occurred. We have attempted to overcome this with our risk adjustment model. Risk-adjustment is another potential limitation, as risk-adjustment is limited to the variables collected by the NTDB. As a result, there may be potential confounders that were unable to be identified. Specifically, pre-

hospital transport time is likely a significant confounder, but was unable to be utilized in the risk adjustment model due to inconsistent reporting of this information in the NTDB. Additionally, the results of this study are reflective of the data from the trauma centers that contribute to the NTDB. Although more than 800 centers contribute data, it is not mandatory and not all U.S. trauma centers participate. However, our ability to group all patients within a single city's trauma system is a novel approach, which has never been done before using the NTDB.

Police transport is not associated with significant mortality differences than ground EMS transport for individuals with penetrating injuries in urban trauma systems. Three urban trauma systems are responsible for the vast majority of police transports nationwide. System-level analyses like those performed in this study can improve the generalizability of results and identify trauma systems that can provide valuable insight into unique policies and protocols. The goal of any trauma system is to deliver optimal care to injured patients. An important part of accomplishing this is determining what system-level policies are beneficial in individual trauma systems and using that knowledge to drive policy change in trauma systems likely to derive similar benefits.

### **Author Contributions**

M.W.W. participated in the study design, data analysis, and manuscript preparation. A.B.N. participated in the study design and manuscript preparation. M.B.S. participated in the study design and manuscript preparation. E.R.H. participated in the study design, data analysis, and manuscript preparation.

## References:

1. MacKenzie EJ, Rivara FP, Jurkovich GJ, Nathens AB, Frey KP, Egleston BL, Salkever DS, Scharfstein DO. A national evaluation of the effect of trauma-center care on mortality. *N Engl J Med.* 2006;354(4):366-378.
2. Band RA, Salhi RA, Holena DN, Powell E, Branas CC, Carr BG. Severity-adjusted mortality in trauma patients transported by police. *Ann Emerg Med.* 2014;63(5):608-614 e603.
3. Wilkinson P. The Bullet and the Damage Done. *Rolling Stone.* 2003.
4. Department PP. Directive 63. *Philadelphia Police Department, ed.* Philadelphia, PA. 1996.
5. Jacobs LM, Joint Committee to Create a National Policy to Enhance Survivability from Intentional M-C, Active Shooter E. The Hartford Consensus III: Implementation of Bleeding Control: If you see something do something. *Bull Am Coll Surg.* 2015;100(1 Suppl):40-46.
6. 2010 Standards for Delineating Metropolitan and Micropolitan Statistical Areas. *Federal Register* 75 (28 July 2010): 37246-35755. *Fed Regist.* 2010;75(123):37246-37252.
7. Haider AH, Hashmi ZG, Zafar SN, Castillo R, Haut ER, Schneider EB, Cornwell EE 3rd, Mackenzie EJ, Efron DT. Developing best practices to study trauma outcomes in large databases: an evidence-based approach to determine the best mortality risk adjustment model. *J Trauma Acute Care Surg.* 2014;76(4):1061-1069.
8. Haider AH, Saleem T, Leow JJ, Villegas CV, Kisat M, Schneider EB, Haut ER, Stevens KA, Cornwell EE 3rd, MacKenzie EJ, et al. Influence of the National Trauma Data

- Bank on the study of trauma outcomes: is it time to set research best practices to further enhance its impact? *J Am Coll Surg*. 2012;214(5):756-768.
9. Cornwell EE, 3rd, Belzberg H, Hennigan K, Maxson C, Montoya G, Rosenbluth A, Velmahos GC, Berne TC, Demetriades D. Emergency medical services (EMS) vs non-EMS transport of critically injured patients: a prospective evaluation. *Arch Surg*. Mar 2000;135(3):315-319.
  10. Zafar SN, Haider AH, Stevens KA, Ray-Mazumder N4, Kisat MT5, Schneider EB6, Chi A7, Galvagno SM Jr8, Cornwell EE 3rd9, Efron DT, et al. Increased mortality associated with EMS transport of gunshot wound victims when compared to private vehicle transport. *Injury*. 2014;45(9):1320-1326.
  11. Band RA, Pryor JP, Gaieski DF, Dickinson ET, Cummings D, Carr BG. Injury-adjusted mortality of patients transported by police following penetrating trauma. *Acad Emerg Med*. 2011;18(1):32-37.
  12. Liberman M, Mulder D, Sampalis J. Advanced or basic life support for trauma: meta-analysis and critical review of the literature. *J Trauma*. 2000;49(4):584-599.
  13. Bochicchio GV, Ilahi O, Joshi M, Bochicchio K, Scalea TM. Endotracheal intubation in the field does not improve outcome in trauma patients who present without an acutely lethal traumatic brain injury. *J Trauma*. 2003;54(2):307-311.
  14. Haut ER, Kalish BT, Cotton BA, Efron DT, Haider AH, Stevens KA, Kieninger AN, Cornwell EE 3rd, Chang DC. Prehospital intravenous fluid administration is associated with higher mortality in trauma patients: a National Trauma Data Bank analysis. *Ann Surg*. Feb 2011;253(2):371-377.

15. Haut ER, Kalish BT, Efron DT, Haider AH, Stevens KA, Kieninger AN, Cornwell EE 3rd, Chang DC. Spine immobilization in penetrating trauma: more harm than good? *J Trauma*. 2010;68(1):115-120; discussion 120-111.
16. Seamon MJ, Fisher CA, Gaughan J, Lloyd M, Bradley KM, Santora TA, Pathak AS, Goldberg AJ. Prehospital procedures before emergency department thoracotomy: "scoop and run" saves lives. *J Trauma*. 2007;63(1):113-120.
17. Feero S, Hedges JR, Simmons E, Irwin L. Does out-of-hospital EMS time affect trauma survival? *Am J Emerg Med*. 1995;13(2):133-135.
18. Gervin AS, Fischer RP. The importance of prompt transport of salvage of patients with penetrating heart wounds. *J Trauma*. 1982;22(6):443-448.
19. Swaroop M, Straus DC, Agubuzu O, Esposito TJ, Schermer CR, Crandall ML. Pre-hospital transport times and survival for Hypotensive patients with penetrating thoracic trauma. *J Emerg Trauma Shock*. 2013;6(1):16-20.
20. Crandall M, Sharp D, Unger E, Straus D, Brasel K, Hsia R, Esposito T. Trauma deserts: distance from a trauma center, transport times, and mortality from gunshot wounds in Chicago. *Am J Public Health*. 2013;103(6):1103-1109.

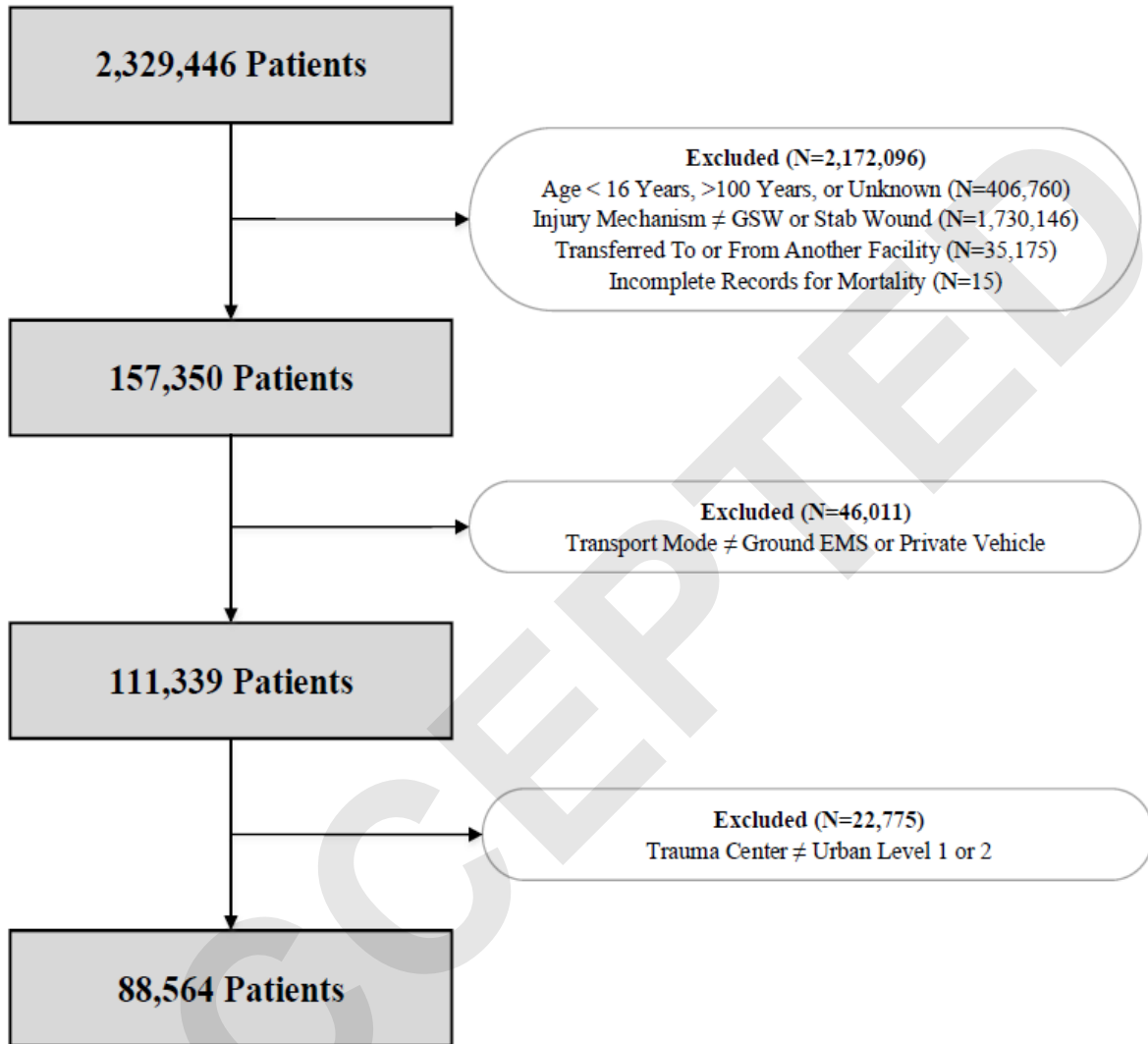
## Figure Legend

**Figure 1:** Flow diagram illustrating the selection of patients for this study from the NTDB between January 1, 2010 and December 31, 2012.

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Figure 1



**Table 1:** Baseline characteristics of sample population by mode of pre-hospital transportation.

	<b>All Patients</b> n or mean +/- SD	<b>Ground EMS</b> n or mean +/- SD	<b>Police</b> n or mean +/- SD	<b>P Value</b>
<b>Population Size</b>	88,564	86,097	2,467	-
<b>Age</b>	32.6 +/- 13.4	32.7 +/- 13.4	30.4 +/- 11.3	<0.001 <sup>2</sup>
<b>Heart Rate<sup>1</sup></b>	90.5 +/- 31.3	90.6 +/- 31.1	88.1 +/- 37.2	<0.001 <sup>2</sup>
<b>Systolic Blood Pressure<sup>1</sup></b>	123.3 +/- 41.5	123.6 +/- 41.2	113.1 +/- 48.8	<0.001 <sup>2</sup>
<b>GCS Motor Score<sup>1</sup></b>	5.4 +/- 1.6	5.4 +/- 1.6	5.1 +/- 1.9	<0.001 <sup>2</sup>
<b>Injury Severity Score</b>	10.2 +/- 12.6	10.1 +/- 12.5	14.2 +/- 16.0	<0.001 <sup>2</sup>
<b>Gender</b>	-	-	-	<0.001 <sup>3</sup>
Male	77,379 (87.4%)	75,141 (87.3%)	2,238 (90.7%)	
Female	11,185 (12.6%)	10,956 (12.7%)	229 (9.3%)	
<b>Race/Ethnicity</b>	-	-	-	<0.001 <sup>3</sup>
Black	42,201 (47.7%)	40,775 (47.4%)	1,426 (57.8%)	
White	23,663 (26.7%)	23,420 (27.2%)	243 (9.9%)	
Hispanic	15,690 (17.7%)	15,430 (17.9%)	260 (10.5%)	
Asian	1,254 (1.4%)	1,232 (1.4%)	22 (0.9%)	
Other	5,756 (6.5%)	5,240 (6.1%)	516 (20.9%)	
<b>Insurance</b>	-	-	-	<0.001 <sup>3</sup>
Private	15,409 (17.4%)	15,111 (17.6%)	298 (12.1%)	
Governmental	26,270 (29.7%)	25,496 (29.6%)	774 (31.4%)	
Self-Pay	31,931 (36.1%)	31,015 (36.0%)	916 (37.1%)	
Other	14,954 (16.9%)	14,475 (16.8%)	479 (19.4%)	
<b>Injury Mechanism</b>	-	-	-	<0.001 <sup>3</sup>
GSW	47,224 (53.3%)	45,582 (52.9%)	1,642 (66.6%)	
Stab Wound	41,340 (46.7%)	40,515 (47.1%)	825 (33.4%)	

<sup>1</sup>First documented value after arrival to the hospital; <sup>2</sup>Student's T-Test; <sup>3</sup>Chi Squared

**Table 2:** Unadjusted mortality rates and risk-adjusted odds ratios for mortality for aggregate study population.

	Unadjusted Mortality Rates				OR for Mortality
	All Patients n (%)	Ground EMS n (%)	Police n (%)	P Value	OR (95% CI)
<b>All GSWs &amp; Stab Wounds</b>	10,422 (11.8%)	9,986 (11.6%)	436 (17.7%)	<0.001	1.00 (0.69-1.45)
<b>GSWs Only</b>	9,221 (19.5%)	8,807 (19.3%)	414 (25.2%)	<0.001	0.92 (0.62-1.37)
<b>Stab Wounds Only</b>	1,201 (2.9%)	1,179 (2.9%)	22 (2.7%)	0.68	0.55 (0.19-1.55)

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**Table 3:** Unadjusted mortality rates and risk-adjusted odds ratios for mortality among trauma systems with high utilization of police transport in penetrating trauma (Philadelphia, Sacramento, and Detroit).

	Unadjusted Mortality Rates				OR for Mortality
	All Patients n (%)	Ground EMS n (%)	Police n (%)	P Value	OR (95% CI)
<b>All GSWs &amp; Stab Wounds</b>	1,345 (15.1%)	913 (13.5%)	432 (19.9%)	<0.001	1.01 (0.68-1.50)
<b>GSWs Only</b>	1,230 (22.4%)	819 (20.8%)	411 (26.4%)	<0.001	0.93 (0.62-1.41)
<b>Stab Wounds Only</b>	115 (3.4%)	94 (3.3%)	21 (3.5%)	0.89	0.32 (0.09-1.14)

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