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Estimating Alcohol and Drug Involvement in Hospitalized Adolescents with Assault Injuries

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Abstract

Purpose—Adolescents using alcohol and drugs are at higher risk for assaultive behaviors. We examined adolescents aged 10 to 20 years who were hospitalized for assault injuries between July 1995 and December 1998 in Maryland to determine the demographic and injury related predictors of the presence of drug/alcohol use among adolescents and to estimate the presence of drug/alcohol use among adolescents with undetermined drug and/or alcohol use.

Methods—Patient records for adolescents were selected from 2,189 discharges from the Maryland Trauma Registry and 1,625 discharges from the Maryland Hospital Discharge data system. Three discrete groups of adolescents were identified: (1) those on the Trauma Registry and in the Hospital Discharge data system (N = 1,197); (2) only those on the Trauma Registry (N = 992); or (3) only those in the Hospital Discharge data system (N = 428). Multiple logistic regression was performed to determine the predictors of the presence of drug/alcohol use among adolescents in the Trauma Registry. These models were then used to estimate the presence of drug/alcohol use among adolescents with undetermined drug and/or alcohol use.

Results—Age, sex, mechanism of injury, day of hospital admittance, and time of day were significant predictors of alcohol/drug use. The proportion of predicted alcohol/drug involved hospitalized cases varied from 54% to 66%.

Conclusion—Our methodology and findings contribute to the understanding of the epidemiology of assaultive behaviors and the role of alcohol/drug use in injury among adolescents.

INTRODUCTION

Alcohol-related injuries in the United States kill approximately 3,400 adolescents annually and result in more than 2 million hospitalizations among this age group. Homicides account for nearly one-half of all alcohol-related deaths (47%) and hospitalizations (46%) among adolescents [1].

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There is a growing body of research that suggests that underage drinking and drug use may place adolescents at excess risk for traumatic violence. For instance, Levy et al. [2] found that approximately 37% of assaults among U.S. adolescents aged 20 and younger were attributable to alcohol. Similarly, Spirito et al. [3] reported that 70% of high school students with gunshot injuries tested positive for alcohol and/or drug use. In addition, several emergency room studies have revealed that there is an increased risk for assault among alcohol-positive adults and adolescents when compared to other types of injuries (for a review, see Cherpitel [4] and Kelly et al. [5]). In sum, these findings demonstrate that adolescents who engage in alcohol and/or drug use are at a greater risk for intentional injury (e.g., assault) than nonusers.

In the past, studying this phenomenon at the hospital level has been difficult because routine alcohol and drug screening is not always performed in hospitals and trauma centers. For example, Soderstrom et al. [6] found that less than two-thirds of the trauma centers in the United States routinely screen for alcohol. Moreover, given that hospital discharge records usually do not contain illicit substance information, it is often difficult to assess the impact of such substances on intentional injuries. Prior research in California has demonstrated that if data were available for a subset of traumatic assault cases, then substance use in the remaining cases can be estimated [7–8].

Given that the homicide rate for Maryland adolescents aged 15 to 19 has been consistently higher than the rate for U.S. adolescents since at least 1981 [9–10] and that injury prevention advocates are in need of improved methods for describing factors that contribute to hospitalized injuries, we selected this population in order to provide estimates of the number of alcohol and/or drug involved adolescent assault injuries.

Predicting the number of alcohol and/or drug positive cases in this population is important for several reasons. First, a method that clarifies the relationships between alcohol, drugs, and the demographic and injury characteristics of assault injury patients in hospital discharge data would be a valuable tool for researchers and practitioners in injury prevention. Second, these estimates could be used as a strategic planning tool for trauma centers and hospitals. The present research was conducted with three objectives in mind: first, describe adolescents who had assault injuries and who were hospitalized in the Maryland Trauma Center (MTC); second, use the MTC data to determine the predictors of alcohol and/or drug use; and third, use these predictors to estimate alcohol and/or drug use in adolescents with unknown alcohol and/or drug use.

MATERIALS AND METHODS

This study examined adolescents aged 10 to 20 years who were hospitalized for assault injuries between July 1, 1995, and December 31, 1998, in Maryland. Patient records were selected from 2,189 discharges from the Maryland Trauma Registry and 1,625 discharges from the Maryland Hospital Discharge data system. Three discrete groups of adolescents were identified: (1) those who were in the Trauma Registry and in the Hospital Discharge data system (T&H, $N = 1,197$); (2) those who were only on the Trauma Registry (TCO, $N = 992$); or (3) those who were only in the Hospital Discharge data system (HFO, $N = 428$). Adolescents who were not in either of these data systems, who sustained injuries that did not require hospitalization (e.g., patients who were dead at the scene or upon arrival), or who died after treatment were excluded.

Alcohol and drug information was available for cases in the Trauma Registry. The classification of “alcohol and/or drug involvement or use” refers to a positive alcohol/drug laboratory test at the time of admission. A positive laboratory test for either substance or a negative test for alcohol and drugs constituted a known alcohol and/or drug involved case.

We used t-tests and analysis of variance to examine the association between center/facility group and the continuous variables—age, length of stay, and injury severity score. Chi-square analysis was used to examine the association between demographic groups and injury characteristics, and alcohol/drug involvement within or between center/facility groups [11]. Multiple logistic regression models [12–13] were used to determine the demographic and injury-related predictors of the presence of drug and/or alcohol use for adolescents in the Trauma Registry and to estimate the presence of drug and/or alcohol use among adolescents who were only in the Hospital Discharge data system. We also estimated the number of alcohol and/or drug cases for unknown (untested) T&H and TCO patients.

T&H and TCO groups were examined separately in order to provide lower and upper bounds for alcohol and/or drug involvement. Within each center/facility group, a random half of the patients that were tested was used to develop the model and the remaining half was used to validate the model. This process was conducted for 50 randomly generated samples in each of the T&H and TCO groups.

Finally, to examine the extent to which the T&H and TCO models were both reliable and valid predictors of alcohol and/or drug involvement, while also minimizing misclassification errors, we used cutoff points that maximized the sum of sensitivity and specificity [14]. The ability of different cutoff points to correctly classify cases of alcohol and/or drug use was examined by using five diagnostic screening statistics [11,15–16]. Patients with predicted probabilities equal to or above the cutoff point were classified as an alcohol and/or drug case, whereas patients with predicted probabilities below the cutoff point were classified as a non-alcohol and/or drug case. This study was approved by the Institutional Review Board.

RESULTS

Sixty-six percent of the Trauma Registry patients' records included known alcohol and/or drug information. Eighty-one percent of the T&H and 47% of the TCO patients were tested ($p<0.01$). Conversely, alcohol and/or drug use was not tested (or not captured in the electronic record) for 19% of T&H, 53% of TCO, and all of the HFO patients. T&H assaults were significantly more likely to have alcohol and/or drugs present when compared to TCO assaults, 30% versus 21%, respectively ($p<0.01$).

Demographic and injury characteristics stratified by center/facility group are presented in Table 1. Age, sex, and race were associated with center/facility group ($p<0.01$). All three groups were predominately male; ranging from 77% in HFO patients to 90% in T&H patients. More than 76% of the patients were African American. HFO patients were more likely to be female and/or White than the T&H and TCO Groups. HFO patients were younger, with a mean age of 16.4 years, compared to T&H and TCO patients with a mean age of 17.6 and 17.1, respectively.

All of the injury characteristics were significantly associated with center/facility group. The majority of patients in all three center/facility groups were discharged home. TCO patients were more likely to die than those in the other two groups, 11% versus 4% of T&H and 1% of HFO patients.

A comparison of hospitalized assault patients by mechanism of injury and center/facility group is presented in Figure 1. Firearms were the most likely mechanism of assault among T&H and TCO patients, while being struck with an object (including fists) was the most likely mechanism for HFO assaults.

Comparison of cases with and without known alcohol and/or drug use

When T&H cases with and without known alcohol/drug use were compared, they differed significantly on age, region of residence, injury severity score, time of day, and disposition of patient (Table 2). Except for region, all of other demographic characteristics were significantly different between the T&H cases with known alcohol and/or drug use and HFO cases. Mechanism of injury, time of day, and disposition of patient were the significant differences noted between T&H cases with known alcohol/drug use and HFO (unknown alcohol and/or drug use) cases. Age was significantly different between the TCO cases with and without known alcohol and/or drug use. TCO cases with known alcohol/drug use were older than TCO cases with unknown alcohol and/or drug use (17.4 vs 16.8 years). Twice as many young adolescents, ages 10–14, had unknown vs. known alcohol/drug use (17.0% vs. 8.5%). Mechanism of injury and time of day were significantly different among the injury characteristics for these two groups. All of the demographic characteristics were significantly different between the TCO cases with known alcohol/drug use and HFO cases. Among the injury characteristics, injury severity score, mechanism of injury, day of week, time of day, and disposition of patient were significantly different for these two groups.

Predictors of alcohol/drug use

The total number of patients with known values in all variables in the T&H group and TCO group was 571 and 277, respectively. Alcohol/drugs were present in 356 (62%) T&H cases and 199 (72%) TCO cases. The predictors for both center/facility groups are shown in Table 3. Significant predictors of adolescent alcohol/drug involvement varied by center/facility group. Sex, mechanism of injury, day of week, and time of day admitted to the hospital were all significant ($p<0.05$) predictors for the T&H model.

More specifically, males were 2.5 times as likely as females to have alcohol and/or drugs present (Odds Ratio(OR)=2.47, 95% *Confidence interval (95% CI)*=1.35, 4.49). Adolescents who were cut were 1.8 times as likely as adolescents who were struck to have alcohol and/or drugs present (*OR*=1.83, *95% CI* =1.06, 3.19). Adolescents who were admitted on Sunday were twice as likely to have alcohol and/or drugs present as those admitted on Tuesday (*OR*=2.10, *95% CI* = 1.01, 4.39). Adolescents who were admitted to the hospital between 4 P.M. and 8 P.M. were approximately 58% less likely to have alcohol or drugs present than adolescents who were admitted between noon and 4 P.M. (*OR*=0.42, *95% CI* =0.18, 0.97).

In the TCO group, age was the only significant predictor of alcohol/drug involvement. Adolescents aged 15 to 20 years were 4 to 5 times as likely to have alcohol/drugs present as adolescents aged 10 to 14 years (15 to 17 years: *OR*=5.17, *95% CI* =1.45, 18.40; 18 to 20 years: *OR*=4.41, *95% CI* =1.26, 15.48).

Figure 2 shows the estimated percentages of HFO patients and other patients with unknown alcohol/drug involvement. The T&H Model estimated that 54% (229/421) of HFO patients had been using alcohol/drugs when injured. The TCO model estimated that 66% (280/421) of HFO patients had been using alcohol and/or drugs.

Finally, we used both the T&H and TCO models—applying the probabilities and classification method—to estimate alcohol and/or drug use in T&H and TCO patients when that information was undetermined. Figure 2 also presents these results.

The T&H model estimated that 61% of T&H (378/618) patients with unknown alcohol and/or drug information had been using alcohol and/or drugs when injured. Our actual data show that 62% of T&H tested patients had been using these substances. Sixty-six percent (431/648) of TCO patients with unknown alcohol and/or drug use were estimated to have been using alcohol

and/or drugs. Our actual data show that 72% of tested TCO patients had been using alcohol and/or drugs.

DISCUSSION

Alcohol and drug usage among adolescents is a serious public health problem that places this group at excess risk for assault. The overall goals of this research described adolescents who had assault injuries and who were hospitalized in the MTC; used the MTC data to determine the predictors of alcohol and/or drug involvement; and used the probabilities associated with these predictors to estimate the extent of alcohol and/or drug involvement in adolescents with unknown alcohol and/or drug use, in particular among HFO patients who are not tested for alcohol and/or drug involvement.

The major findings from this study were threefold. First, we found that age group in the TCO Model was a significant predictor of adolescent alcohol and/or drug involvement. The direction of the age group variable was consistent with the pre-existing literature (e.g., older adolescents were more likely to be using alcohol and/or drugs when injured than younger adolescents were). Findings for the time of day admitted variable were particularly interesting, given that prior research has demonstrated that the after-school hours tend to be the most troublesome for adolescents in terms of juvenile crime and teen pregnancy [17–18]. Two categories of time of day were noon to 4 P.M. and 4 P.M. to 8 P.M., both of these time periods contain supervised and unsupervised periods for adolescents. Time of day admitted to the hospital was a significant predictor (among other significant predictors) of adolescent alcohol and/or drug use for the T&H group. More than 70% of patients with time of injury information were admitted to the hospital within 2 hours of their actual injury time. The high proportion of admissions in the late afternoon or evening means that these assault injuries are most likely occurring during the after-school hours. Although the confidence intervals are wide among the age group and time of day variables, they remain significant.

Second, we found that actual alcohol and/or drug involvement ranged from 62% to 72%, and estimated alcohol and/or drug involvement ranged from 54 to 66% in hospitalized Maryland adolescents with an assault injury. Although the ranges of these estimates varied, the alcohol and/or drug models predicted illicit substance involvement within the specified level of accuracy. Moreover, these findings appear to be in accordance with prior research [2–5]. For instance, Spirito et al. [3] determined that approximately 70% of high school students with gunshot injuries tested positive for alcohol and/or drugs; our model including both demographic and injury characteristics estimated that between 54% and 66% of assault HFO patients had used alcohol and/or drugs at the time of injury.

Third, the number of HFO cases predicted to have alcohol and/or drug involvement was dependent upon whether patients had been admitted to trauma centers or other facilities. For example, we found that when alcohol and/or drug use was unknown in both T&H and TCO patients, these models estimated the number of cases that involved alcohol and/or drugs at levels similar to those actually seen in each center/facility group. These findings are consistent with the prior California research [7–8] and indicate that the alcohol/drug models in this study offer a viable option for estimating alcohol and/or drug involvement in assault injuries.

By using the predictive models described herein, researchers may be able to effectively identify and predict which patients have engaged in alcohol and/or drug use. In addition, hospital or trauma center facility administrators might use the present models to determine if their facility sees a critical mass of adolescents that are likely to have used alcohol and/or drugs and then implement measures for more systematic screening and early intervention services. This predictive ability is the strength of the present research and will allow researchers to draw

conclusions about alcohol and/or drug involvement in hospitalized patients that could not be made solely on the basis of discharge information. The key to successful diagnostic screening is to balance criteria so that both the estimates for adolescents with and without alcohol/drug use are recognized. Additional methods may be required to further reduce the amount of misclassification and to understand the impact of this error on the patient. Without the initial screening, optimal interventions can not be planned. The strength of this study is that it highlights that alcohol and drugs are underreported in this young population.

Moreover, it is important to distinguish between what the present models *can* and *cannot* do with regards to their predictive ability. What the present models *can* do is indicate to hospital-based clinicians that some demographic and injury characteristics place adolescents at higher risk for being involved in a substance-related assault. These characteristics should be considered when treating adolescents as well as used when designing preventive activities.

A limitation of the present research relates to the generalizability of its results. Indeed, the current findings were collected in one state that exhibited an adolescent homicide rate that was higher than the national rate. Therefore, applying these findings to other populations should be exercised with some degree of caution. Another limitation is that this study only looks at the presence or absence of alcohol/drugs and not the amount, although the amount of an illicit substance may have some bearing on these findings. Despite these limitations, we believe that researchers can use the current methodology and findings as an injury prevention tool that will help to determine other models for intentional injuries. More generally, these methods and findings offer guidance to those in prevention science in determining not only adolescent substance abuse and intervention groups for hospitals and trauma centers patients, but also guidance for interventions among other age groups and in the community at large. Most importantly, the practitioner must continue to screen adolescents who present with assaultive injuries for alcohol and/or drugs.

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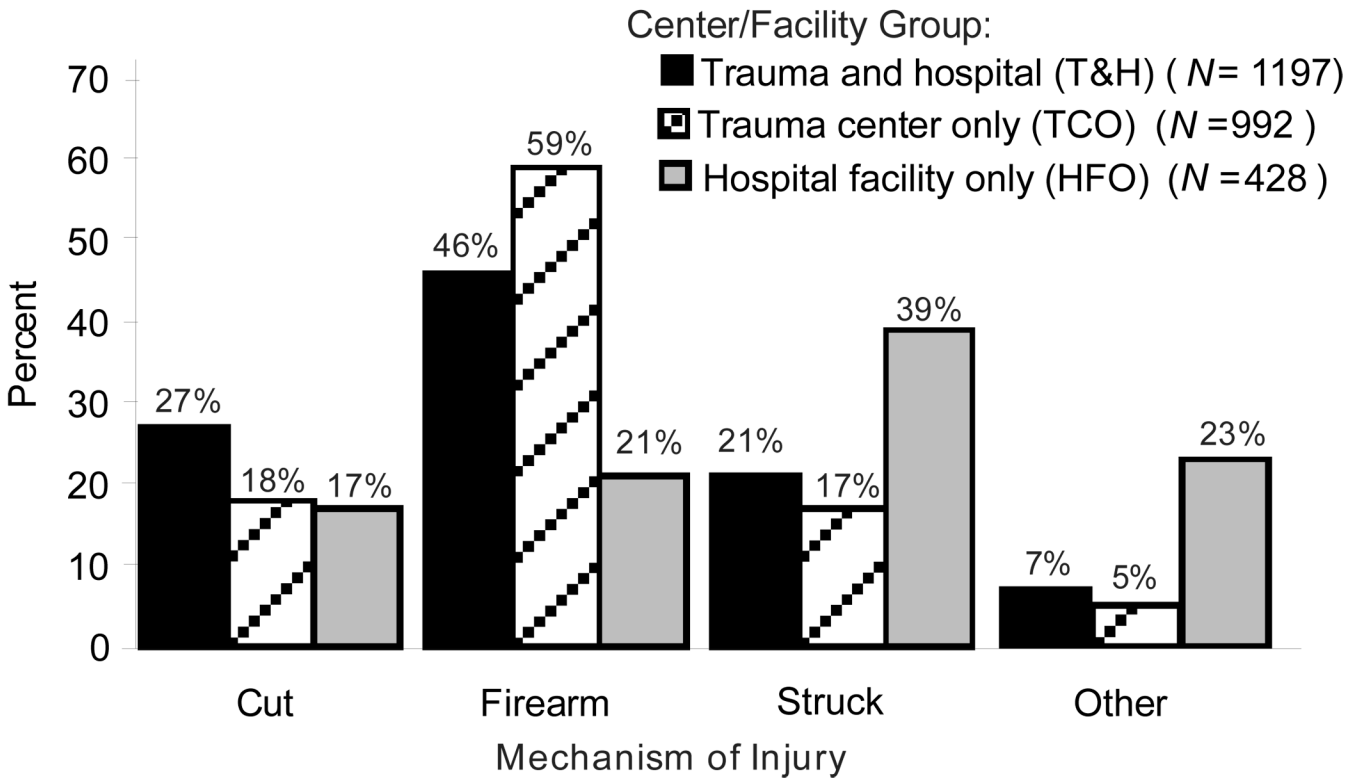

Figure 1.
Mechanism of Injury Comparison of Assault Hospital Patients by Center/Facility Group, for Adolescents 10 to 20 Years Old: Maryland, 1995–1998

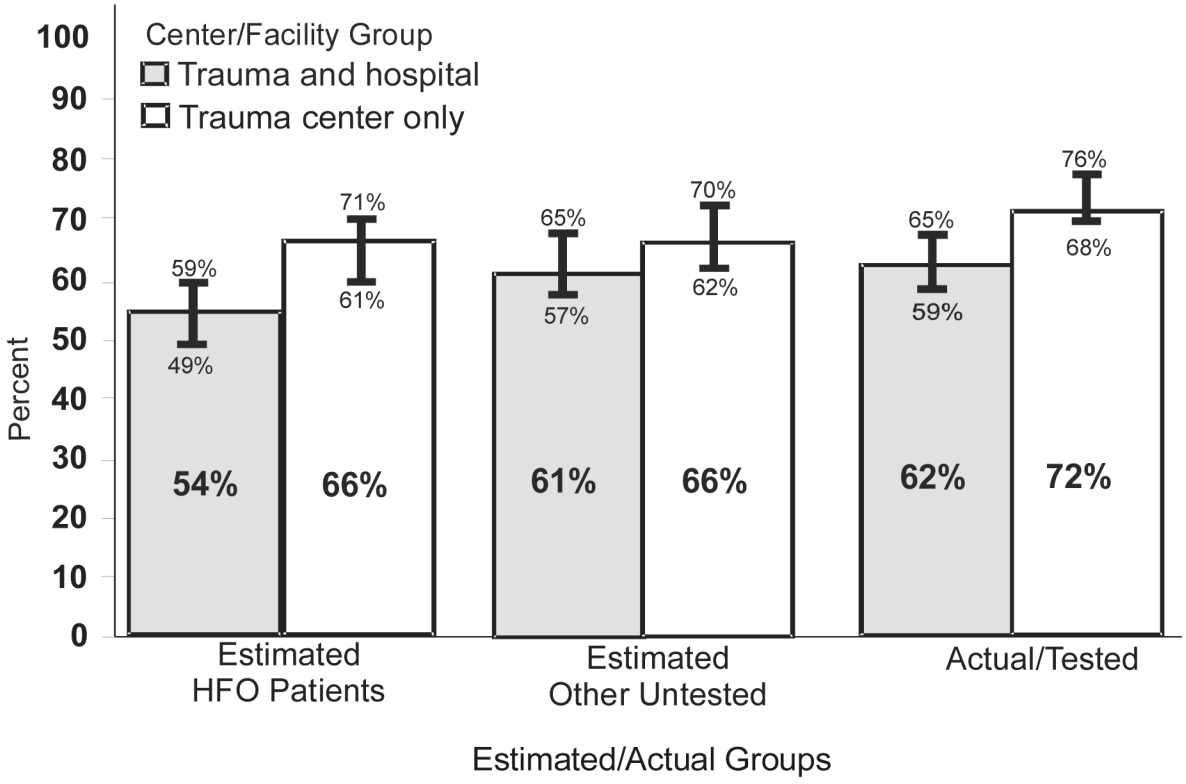

Figure 2.
Estimated and Actual Percentage (95% Confidence Interval) of Alcohol and/or Drug Use Based on Data From Trauma and Hospital and Trauma Center Only Group

Table 1

Demographic and Injury Characteristics by Center/Facility Group, for Assault/Homicide Adolescents, 10–20 Years Old, Discharged from Maryland Hospitals, 1995–1998

Demographic and Injury Characteristic	Center/Facility Group					
	Trauma and Hospital		Trauma Center Only		Hospital Facility Only	
	Mean	Stand. Dev.	Mean	Stand. Dev.	Mean	Stand. Dev.
Age*	17.6	1.9	17.1	1.9	16.4	2.7
Length of Hospital Stay*	3.5	6.1	2.2	6.6	3.5	6.3
Injury Severity Score at Discharge*	8.7	9.7	7.0	10.4	4.2	10.4
Demographic Characteristics	**%**		**%**		**%**	
Age*	*N* = 1197		*N* = 992		*N* = 428	
10–14	23		13		25	
15–17	36		40		32	
18–20	58		47		43	
Sex*						
Male	90		85		77	
Female	10		15		23	
Race*						
White	15		11		22	
African-American	82		87		76	
Other	2		2		1	
Unknown	1		0		1	
Injury Characteristics	**%**		**%**		**%**	
Day of Hospital Admittance*						
Sunday	15		16		14	
Monday	15		15		18	
Tuesday	11		14		15	
Wednesday	14		12		14	
Thursday	13		13		12	
Friday	14		14		13	
Saturday	18		17		13	
Time of Day*†						
4–7:59 AM	14		6		13	
8–11:59 AM	7		3		11	
12–3:59 PM	7		9		14	
4–7:59 PM	14		17		15	
8–11:59 PM	27		33		20	
12–3:59 AM	32		27		26	
Disposition of Patient at Discharge*						
Home	87		82		94	
Died	4		11		1	
Other	8		7		5	
TOTAL	**100%**		**100%**		**100%**	

*Note. $p < 0.01$

†indicates that 62 (5%) of TCO cases did not contain valid time of day information. Asterisks also indicate that Center/Facility Groups are significantly different at the specified alpha level. Totals may not add due to rounding. Data source: Health Services Cost Review Commission's Maryland Hospital Discharge Database and Maryland Institute for Emergency Medical Services Systems' Maryland Trauma Registry Data.

Table 2

Demographic and Injury Characteristics -Assaults by Center/Facility Group and Known and Unknown Alcohol/Drug use, Adolescents 10–20 Years Old

	Center/Facility Group											
	T&H				HFO		TCO				HFO	
	Known		Unknown		Unknown		Known		Unknown		Unknown	
Demographic/Injury Characteristics	**Mean**	**Std dev**	**Mean**	**Std dev**	**Mean**	**Std dev**	**Mean**	**Std dev**	**Mean**	**Std dev**	**Mean**	**Std dev**
Demographic Characteristics												
Age	17.7	1.8	17	2.2*	16.4	2.7**	17.4	2	16.8	2.4	16.4	2.7****
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Age				*		****						****
10–14	51	5.3	21	9.1	108	25%	40	8.5	89	17	108	25%
15–17	335	34.6	91	39.6	138	32%	186	39.7	209	40	138	32%
18–20	581	60.1	118	51.3	182	43%	243	51.8	225	43	182	43%
Sex						****						****
Male	875	90.5	202	87.8	329	77%	416	88.7	429	82	329	77%
Female	91	9.4	28	12.2	99	23%	53	11.3	94	18	99	23%
Race						****						***
White	141	14.6	26	11.3	95	22%	57	12.2	49	9.4	95	22%
African-American	789	81.6	197	85.7	325	76%	400	85.3	465	88.9	325	76%
Other	32	3.3	7	3	5	1%	11	2.3	7	1.3	5	1%
Unknown	5	0.5	0	0	3	1%	1	0.2	2	0.4	3	1%
Region				*								****
Northwest Area	18	1.9	4	1.7	14	3%	7	1.5	6	1.1	14	3%
Baltimore Metro Area	696	72	191	83	314	73%	287	61.2	446	85.3	314	73%
National Capital Area	184	19	23	10	65	15%	95	20.3	31	5.9	65	15%
Southern & Eastern Shore	26	2.7	8	3.5	18	4%	13	2.8	8	1.5	18	4%
Out of State	43	4.4	4	1.7	17	4%	67	14.3	32	6.1	17	4%
Injury Characteristics												
	Mean	**Std**	**Mean**	**Std**	**Mean**	**Std**	**Mean**	**Std**	**Mean**	**Std**	**Mean**	**Std dev**
Length of Stay	3.6	5.8	3.3	7	3.5	6.3	2.3	4.9	2.1	17.5	3.5	6.3****
Injury Severity Score at	8.9	9.6	7.6	9.7	4.2	10.4	9.1	14.5	5	9.9	4.2	10.4****
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Mechanism of Injury						***				****		****
Cut	256	26.5	63	27.4	71	16.6	65	13.9	114	21.8	71	16.6
Firearm	455	47.1	91	39.6	91	21.3	314	67.0	274	52.4	91	21.3
Struck	195	20.2	56	24.3	168	39.3	15	3.2	37	7.1	168	39.3
Other	61	6.3	20	8.7	98	22.9	75	16.0	98	18.7	98	22.9
Day of Hospital Admittance												
Sunday	144	14.9	39	17.0	59	13.8	79	16.8	82	15.7	59	13.8
Monday	138	14.3	36	15.7	78	18.2	61	13.0	90	17.2	78	18.2
Tuesday	108	11.2	26	11.3	65	15.2	53	11.3	81	15.5	65	15.2
Wednesday	142	14.7	27	11.7	62	14.5	58	12.4	57	10.9	62	14.5
Thursday	126	13.0	30	13.0	51	11.9	62	13.2	63	12.0	51	11.9
Friday	133	13.8	30	13.0	57	13.3	71	15.1	64	12.2	57	13.3
Saturday	176	18.2	42	18.3	56	13.1	85	18.1	85	16.3	56	13.1
Time of Day				****		****				*		****
4–7:59 AM	124	12.8	42	18.3	56	13.1	28	6.0	29	5.5	56	13.1
8–11:59 AM	58	6.0	24	10.4	48	11.2	9	1.9	18	3.4	48	11.2
12–3:59 PM	67	6.9	20	8.7	60	14.0	37	7.9	52	9.9	60	14.0
4–7:59 PM	131	13.5	35	15.2	66	15.4	68	14.5	96	18.4	66	15.4

	Center/Facility Group											
	T&H				HFO		TCO				HFO	
	Known		Unknown		Unknown		Known		Unknown		Unknown	
Demographic/Injury Characteristics	**Mean**	**Std dev**	**Mean**	**Std dev**	**Mean**	**Std dev**	**Mean**	**Std dev**	**Mean**	**Std dev**	**Mean**	**Std dev**
8–11:59 PM	259	26.8	59	25.7	87	20.3	156	33.3	174	33.3	87	20.3
12–3:59 AM	328	33.9	50	21.7	111	25.9	149	31.8	114	21.8	111	25.9
Disposition of Patient				*		***						****
Home	841	87.0	205	89.1	401	93.7	384	81.9	430	82.2	401	93.7
Died	36	3.7	14	6.1	5	1.2	50	10.7	60	11.5	5	1.2
Other	90	9.3	11	4.8	22	5.1	35	7.5	31	5.9	22	5.1
TOTAL	967	100	230	100	428	100	469	100	523	100	428	100

* p<0.05

** p<0.01

*** p<=.001

**** p<0.0001

Table 3

Multivariate Logistic Regression Odds Ratios (95% Confidence Intervals) for Presence of Alcohol and/or Drugs in Trauma and Hospital (T&H) (N=571) and in Trauma Center Only (TCO) (N=277) Groups for Adolescents, 10–20 Years Old, Hospitalized with Assault Injuries, Maryland, 1995–1998

	Alcohol and/or Drugs Present vs. Alcohol and Drugs Not Present	
Demographic/Injury Characteristic	**T& H Model**	**TCO Model**
Age Group (10–14)†		
15–17	1.94 (0.83, 4.51)	5.17 (1.45, 18.40)*
18–20	1.91 (0.85, 4.32)	4.41 (1.26, 15.48)*
Sex (Female)		
Male	2.47 (1.35, 4.49)*	1.77 (0.64, 4.90)
Race (White)		
African American	1.01 (0.58, 1.75)	1.92 (0.67, 5.48)
Other	0.42 (0.15, 1.23)	1.96 (0.18, 21.86)
Region (Southern & Eastern Shore Area)		
Northwest Area	0.92 (0.18, 4.77)	0.30 (0.01, 11.96)
Baltimore Metro Area	0.71 (0.27, 1.89)	0.19 (0.01, 2.40)
National Capital Area	1.98 (0.68, 5.71)	0.30 (0.02, 4.94)
Out of State	1.65 (0.44, 6.12)	0.30 (0.02, 4.94)
Length of Hospital Stay in Days	1.00 (0.96, 1.04)	0.97 (0.92, 1.03)
Injury Severity Score at Discharge	0.99 (0.97, 1.01)	1.01 (0.98, 1.04)
Mechanism of Injury (Struck)		
Cut	1.83 (1.06, 3.19)*	0.37 (0.10, 1.33)
Firearm	1.49 (0.88, 2.50)	0.36 (0.12, 1.03)
Other	1.07 (0.49, 2.35)	1.85 (0.15, 23.26)
Day of Hospital Admittance (Tuesday)		
Sunday	2.10 (1.01, 4.39)*	1.13 (0.36, 3.51)
Monday	1.37 (0.68, 2.78)	1.60 (0.49, 5.18)
Wednesday	1.82 0.88, 3.77)	0.47 (0.15, 1.47)
Thursday	1.74 (0.85, 3.58)	1.00 (0.27, 3.65)
Friday	0.76 (0.38, 1.52)	1.15 (0.35, 3.81)
Saturday	1.36 (0.70, 2.66)	1.22 (0.38, 3.97)
Time of Day (12–3:59 PM)		
4–7:59 P.M.	0.42 (0.18, 0.97)*	0.72 (0.17, 3.01)
8–11:59 P.M.	0.53 (0.24, 1.16)	1.49 (0.39, 5.66)
12–3:59 A.M.	0.96 (0.45, 2.06)	2.54 (0.67, 9.68)
4–7:59 A.M.	1.42 (0.60, 3.37)	1.98 (0.36, 10.79)
8–11:59 A.M.	1.72 (0.58, 5.07)	0.23 (0.03, 2.07)
Disposition of Patient (Home)		
Died	1.58 (0.49, 4.94)	0.68 (0.19, 2.45)
Other	1.33 (0.67, 2.64)	1.84 (0.50, 6.85)

* Note. $p < 0.05$.

† The reference category is presented in parentheses for each demographic and injury characteristic.