

# **Emergency Department Violence Surveillance Study**

**November 2011**



**Emergency Nurses Association  
Institute for Emergency Nursing Research**



## ADVISEMENT

The published data should be used with the following advisement: the data are based on replies to a survey that was sent to emergency nurses randomly selected from ENA membership database. Response to the survey was voluntary. ENA does not assume responsibility for the accuracy of the information voluntarily reported by the individuals surveyed.

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## Executive Summary

Nine hundred deaths and 1.7 million nonfatal assaults occur each year in the United States due to workplace violence.<sup>1,2</sup> These numbers represent only the most serious physical violent incidents; the extent to which all types of violence are experienced in the workplace remains unknown. Workplace violence is a serious concern for emergency nurses.<sup>3</sup> Due to under-reporting, the occurrence of physical violence and verbal abuse toward emergency nurses remains not well understood. Therefore, it is essential to investigate the actual extent of violence and aggression toward emergency nurses. Launched in May 2009, the Emergency Department Violence Surveillance (EDVS) Study collects ongoing objective data allows for tracking changes related to violence toward emergency nurses as well as the processes used to respond to violence. Specifically, the EDVS Study was established to investigate:

- The extent of the occurrence of various types of workplace violence toward emergency nurses from patients and visitors on any given day.
- The extent of under-reporting of workplace violence toward emergency nurses from patients and visitors.
- The current reporting mechanisms, if any, for violence toward emergency nurses.
- The current processes, if any, used to respond to violence toward emergency nurses.
- Trends in violence toward emergency nurses over time.

The EDVS study utilizes a cross-sectional online survey to determine the prevalence and nature of workplace violence experienced by emergency nurses during the previous seven days. This report represents analysis of data collected approximately three months apart, from May 2009 to January 2011 during which 7,169 emergency nurses participated. Major findings are highlighted below:

- With respect to overall physical violence verbal abuse trends across the eight rounds of data, no linear trend component was detected.
- The overall frequency of physical violence and verbal abuse during a seven-day period (during which the participants worked an average of 36.9 hours in an emergency department) was fairly high (54.5%) across all rounds. Participants reported experiencing physical violence (with/without verbal abuse) (12.1%) and verbal abuse only (42.5%), during the seven-day period.
- The majority of the participants who were victims of workplace violence did not file a formal event report for the physical violence or the verbal abuse.
- The presence of reporting policies (especially zero-tolerance policies), was associated with a lower odds of physical violence and verbal abuse.
- Nurses whose hospital administration and ED management are committed to workplace violence control are less likely to experience workplace violence.

Ongoing research is needed to further determine the extent of underreporting, the incidence and prevalence of workplace violence, and the factors associated with the occurrence of workplace violence against emergency nurses. The continued collection of data through the EDVS study will provide further insight toward addressing these research needs.



## I. Background and Purpose

Nine hundred deaths and 1.7 million nonfatal assaults occur each year in the United States due to workplace violence<sup>1,2</sup>. These numbers represent only the most serious incidents; the prevalence of other types of violence remains unknown. Workplace violence has been a serious concern for emergency nurses<sup>3</sup>. Along with psychiatric units and nursing homes, the ED is one of the most dangerous work settings in health care for nurses because of violence from patients and/or visitors. Estimates indicate that about one-fourth of emergency nurses experienced frequent physical violence (more than 20 times) during the past three years. Verbal abuse is even more prevalent; about one-fifth of emergency nurses reported being the victim of verbal abuse at the workplace more than 200 times during the past three years<sup>3</sup>. In addition, research shows that the majority of nurses who experienced one or more forms of violence did not report the incident to either employers or law enforcement authorities. Some of the reasons that contribute to the under-reporting of violence included:

- A perception that assaults are part of the job.
- A belief among employees that reporting will not benefit them.
- A concern that assaults may be viewed as evidence of poor job performance.
- A lack of institutional policies.

Due to under-reporting, the extent of the occurrence of violence toward emergency nurses is not well understood. Therefore, it is essential to investigate the actual extent of violence and aggression toward emergency nurses. In addition, since violence in the emergency department is likely to rise with the ongoing nursing shortage, crowding issues and longer waiting times, it is crucial to obtain ongoing objective data in order to track changes related to violence toward emergency nurses as well as the processes used to respond to violence.

The purpose of this project, therefore, is to establish and maintain a national ongoing surveillance mechanism to establish:

- The extent of the occurrence of various types of workplace violence toward emergency nurses from patients and visitors on any given day.
- The extent of under-reporting of workplace violence toward emergency nurses from patients and visitors.
- The current reporting mechanisms, if any, for violence toward emergency nurses.
- The current processes, if any, used to respond to violence toward emergency nurses.
- Trends in violence toward emergency nurses over time.





## II. Methodology

### A. Design and Data Collection Instrument

This ongoing study utilizes a cross-sectional design to determine the prevalence and nature of workplace violence experienced by emergency nurses during the previous seven days, a short time frame for more accuracy in recall of events. The questionnaire was developed from the survey used in the 2007 ENA study, *Violence against Nurses Working in U.S. Emergency Departments*.<sup>3</sup> Establishment of content validity of the instrument has been described previously.<sup>4</sup> The questionnaire has three distinct sections of which no significant changes were made to its structure during the second year of data collection:

- The first section pertains to the emergency nurse's work environment, including emergency department's geographic location, facility type, and security (personnel and control measures) in the emergency department.
- The second section focuses on the nurse's experience of workplace violence from patients and visitors over the past seven days. If the participant indicates experiencing workplace violence, further information on the type of workplace violence (physical violence and/or verbal abuse, when and where the violence occurred, what clinical activities the nurse was involved in, etc., is gathered. Additionally, the participant is asked whether he or she reported the violent incident and how the incident was managed by their emergency department.
- The third section includes demographic questions about the emergency nurse participants.

For the purposes of this study, workplace violence was defined as, "An act of aggression directed toward persons at work or on duty, ranging from offensive or threatening language to homicide. Workplace violence is commonly understood as any physical assault; emotional or verbal abuse; or threatening, harassing or coercive behavior in the work setting that causes physical and/or emotional harm."<sup>3</sup> This study focuses on only workplace violence against emergency nurses by patients and/or patients' visitors.

### B. Survey Process and Sample

The anonymous online surveys were administered using Survey Select Expert (version 5.6). The surveys were conducted approximately three months apart from May 2010 to January 2011 utilizing a sample of emergency nurses, randomly selected from the ENA membership database, for each round, as previously described.<sup>4</sup> The sample sizes and response rates for each year are presented below (Table 1). Each round of data was collected within 1 of 4 quarters (Table 2). Response rates in this range are typical of online surveys. Due to missing data, sample size fluctuated based on the type of analysis.

**Table 1. Sample Size and Response Rates for Years 1-2**

	Year 1 (Round 1-4)	Year 2 (Rounds 5-8)	Total
Sample Size	3,211	3,958	7,169
Response Rate (%)	8.7%	10.6%	9.5%

**Table 2. Data Collection Rounds by Yearly Quarters**

Quarter of the Year	Month	2009	2010	2011
1	January			Round 8
	February		Round 4	
	March			
2	April		Round 5	
	May	Round 1		
	June			
3	July		Round 6	
	August	Round 2		
	September			
4	October		Round 7	
	November	Round 3		
	December			

### *C. Human Subjects Protection*

This study was granted exempt status by Chesapeake Research Review, Inc., Columbia, MD, an independent institutional review board. Consent to participate in the study was implied by virtue of a participant completing the survey and submitting it online. Computer-based files were made available only to authorized research staff using password-protected computers.

### *D. Data Analysis*

SPSS Windows (version 18.0) was used for data management and statistical analysis. Descriptive statistics on all variables (e.g., frequencies, means, standard deviation), chi-square analyses for categorical variables, and *t*-test or ANOVA for continuous variables were calculated. This report represents a trend and best predictor analysis of the first and second years of data. A descriptive analysis of the overall first and second years of data is presented in this report. The descriptive analysis for the first year (by round) of data is available in a previously published report.<sup>4</sup> Verbal abuse and physical violence rates from two years (eight consecutive rounds) of data collection were subjected to polynomial trend analyses. Three binary dependent variables were evaluated: (1) Any Abuse or Violence, (2) Verbal Abuse, and (3) Physical Violence.

An older trend analysis from the first year of data collection (rounds 1 to 4) was contrasted with a trend analysis from the second year (rounds 5 to 8). Trend analyses included likelihood ratio tests of overall differences between rounds, tests of deviation from linearity, and Wald chi-square



tests of polynomial trend components (linear, quadratic, and cubic). In addition, Wald chi-square tests of adjacent rounds were conducted within year. Detailed rates for cross-classified verbal abuse and physical violence categories are presented for each round, each year, and overall. Within each seasonal quarter and overall, consecutive years were compared on rates for cross-classified verbal abuse and physical violence categories (via z-tests for independently sampled proportions).

Additionally, logistic regression analyses were performed to identify factors that are associated to the occurrence of violence. Based on pooled data from the four consecutive rounds of surveys, a series of logistic regression analyses were conducted predicting (1) past seven-day physical violence rates and (2) past seven-day verbal abuse rates. Factor items included categorical and interval-scaled factors. Categorical items were dummy coded, and interval-scaled items were standardized. Factors were conceptualized as falling within 10 distinct blocks including Types of EDs based on Population Served, Region Served, ED Capacity and Utilization, Facility Type, Security/Personnel Type, Environmental Control Measures, Safety Perception, Training, and Preparedness, Hospital Safety Commitment and Policy, Nurse Demographics and Nurse Role.

Analyses included estimates and inferential tests for individual items, item blocks, and combining items and blocks. Item effects were examined (1) alone, (2) controlling for the effects of other items within the relevant block, and (3) controlling for the effects of all items from all blocks. Block effects were examined (4) for each block alone, and (5) controlling for the effects of all items from other blocks. Models examining effects of individual items alone included only cases with valid responses on the item. All multivariable models employed a mean fill for those few cases with missing values on some predictors.

### III. Results

#### A. Characteristics of the Sample

Table 3 displays the demographic characteristics of the emergency nurses over the two years of the study. Characteristics of the sample for these four rounds were similar. Of the 7,169 nurses who participated, the majority were women (85.1%) and 35 to 54 years of age (62.9%). Most nurses had earned either a Bachelor (47.6%) or an Associate-level (29.3%) nursing degree. Just over two-thirds (67.7%) of the nurses had worked in emergency nursing for six years or more ( $n = 7,076$ , mean  $12.7 \pm 9.2$ ), half (50.4%) had worked in emergency care (all roles) for 13 years or more ( $n = 6,947$  mean  $15.1 \pm 9.9$ ), and the majority (87.1%) had worked in their current emergency department for at least two years ( $n = 7,031$ , mean =  $8.3 \pm 7.9$ ). Nurses from all 50 states, the District of Columbia and overseas U.S. military bases were represented in the sample.

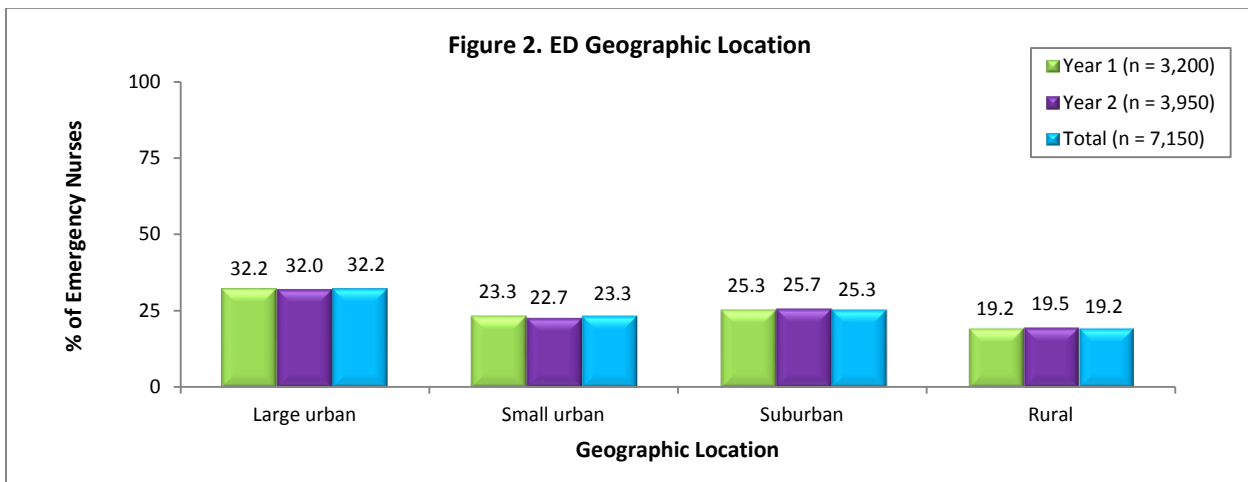
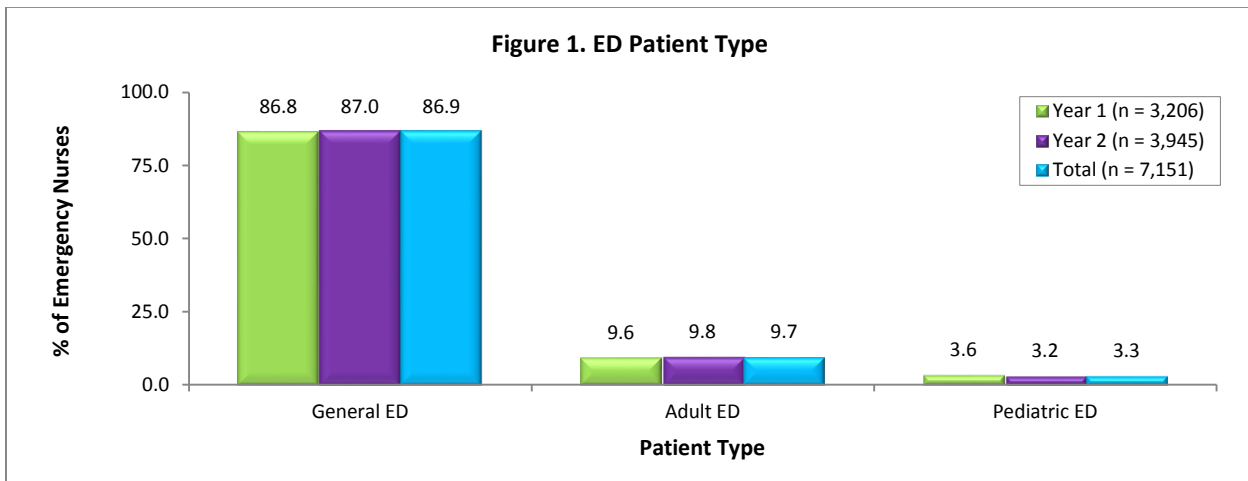
**Table 3. Characteristics of the Emergency Nurse Participants**

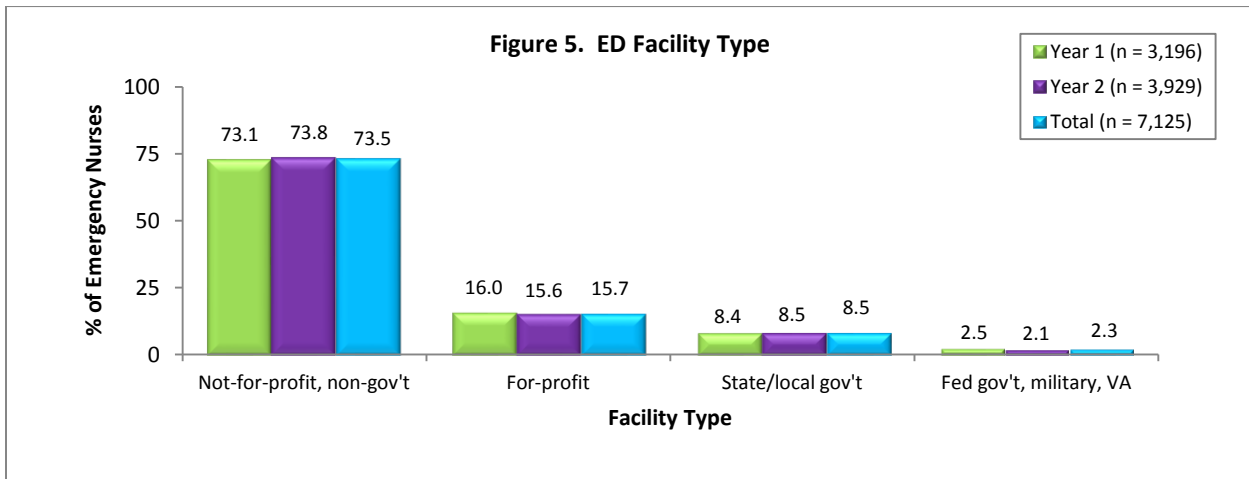
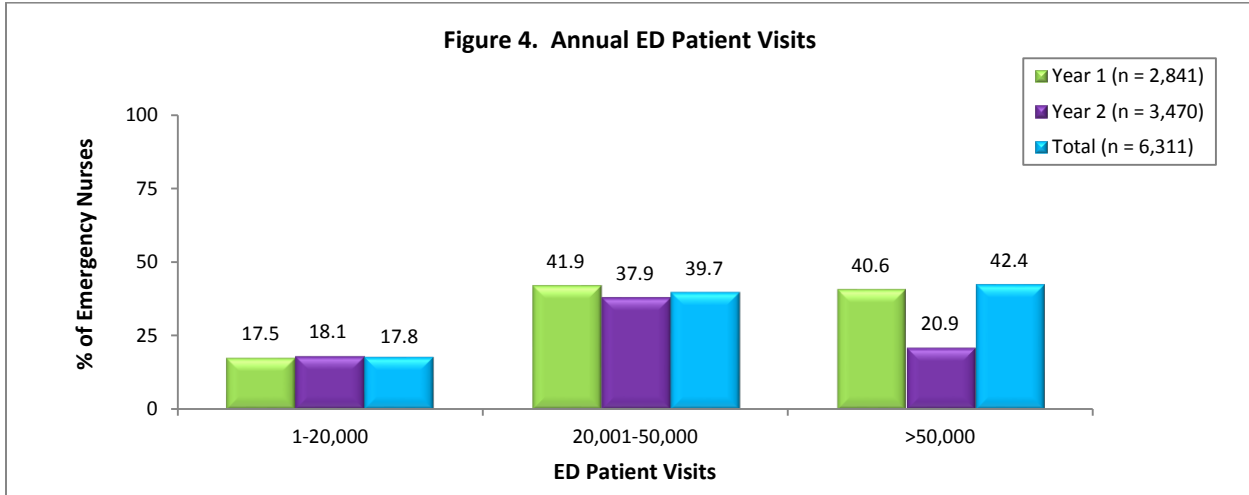
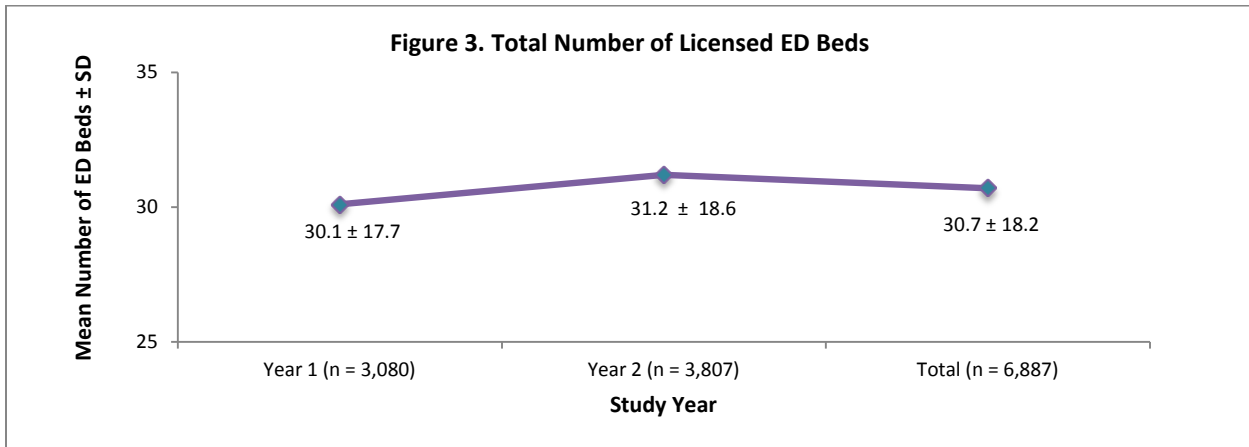
Characteristic	Mean $\pm$ SD* or %		
	Year 1	Year 2	Total
Gender	( $n = 3,187$ )	( $n = 3,918$ )	( $n = 7,105$ )
Male	15.0%	14.9%	14.9%
Female	85.0%	85.1%	85.1%
Age	( $n = 3,199$ )	( $n = 3,939$ )	( $n = 7,138$ )
18–24	1.5%	2.3%	1.9%
25–34	15.4%	17.0%	16.3%
35–44	27.5%	27.1%	27.3%
45–54	36.7%	34.7%	35.6%
55–64	18.2%	18.1%	18.1%
$\geq 65$	0.7%	0.8%	0.7%
Role in the ED	( $n = 3,194$ )	( $n = 3,774$ )	( $n = 6,968$ )
Staff nurse	56.5%	58.6%	57.6%
Charge nurse	17.1%	17.2%	17.2%
Director/manager	12.1%	12.9%	12.5%
Clinical educator/coordinator, CNS, NP	10.5%	9.2%	9.8%
Other	3.8%	2.1%	2.9%
Level of Nursing Education	( $n = 3,185$ )	( $n = 3,924$ )	( $n = 7,109$ )
LPN/LVN certificate	0.4%	0.2%	0.3%
Diploma	7.7%	7.6%	7.7%
Associate	29.5%	29.2%	29.3%
Bachelor	46.9%	48.2%	47.6%
Graduate degree	15.6%	14.8%	15.1%
ED Experience	( $n = 3,177$ )	( $n = 3,899$ )	( $n = 7,076$ )
Years as an emergency nurse	$12.9 \pm 9.2$	$12.5 \pm 9.3$	$12.7 \pm 9.2$
	( $n = 3,157$ )	( $n = 3,874$ )	( $n = 7,031$ )
Years as a nurse in current ED	$8.4 \pm 7.8$	$8.3 \pm 7.9$	$8.3 \pm 7.9$
	( $n = 3,112$ )	( $n = 3,835$ )	( $n = 6,947$ )
Years in emergency care in all roles	$15.2 \pm 9.7$	$15.0 \pm 10.0$	$15.1 \pm 9.9$

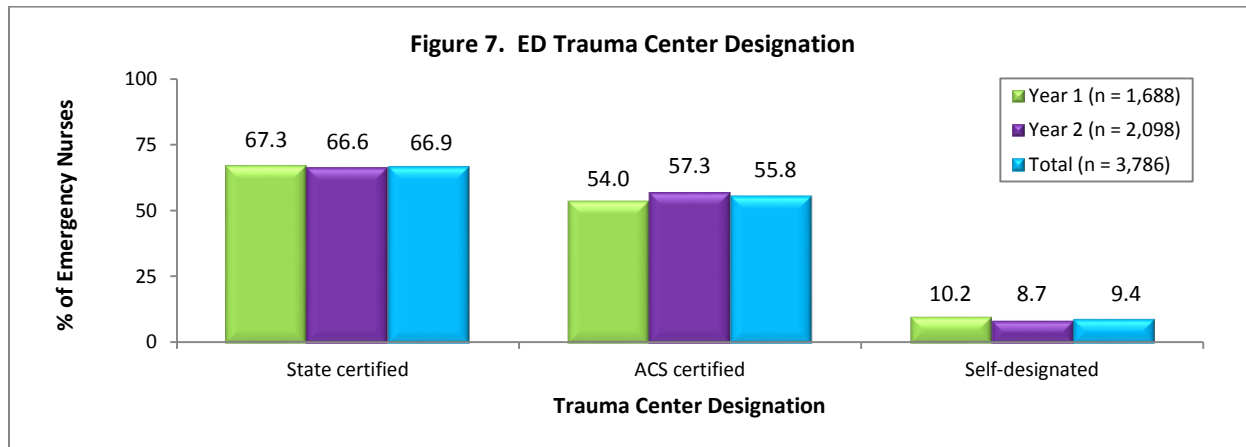
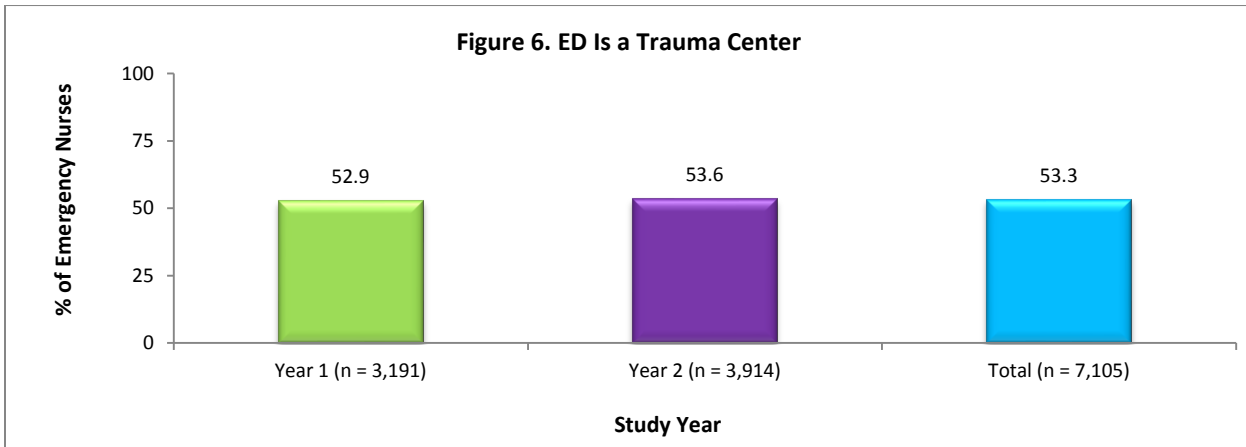
\*SD, standard deviation.

Figures 1 - 7 represent the characteristics of emergency departments in which the nurses currently worked. The majority of the participants (86.9%) worked in a general ED. The geographic locations of EDs ( $n = 7,150$ ) were represented almost equally by facilities located in Large Urban areas (32.2%), Small Urban areas (23.3%), Suburban areas (25.3%), and Rural areas (19.2%). The emergency departments of 33.4% of the participants had 1-20 beds, 42.6% had 21-

40 beds, and 24.0% had 41-100 beds (mean number of ED beds = 30.7±18.2). Nurses from small emergency departments (1-20,000 annual ED patient visits; 17.8%), medium emergency departments (20,001-50,000 annual ED patient visits; 39.7%), and large emergency departments (>50,000 annual ED patient visits; 42.4%) were well represented. The majority of participants worked for a non-government, not-for-profit facility (73.1%). More than half (53.3%) of nurses reported that their emergency department was a trauma center (either state-certified, ACS-certified, self-designated, or some combination of these).



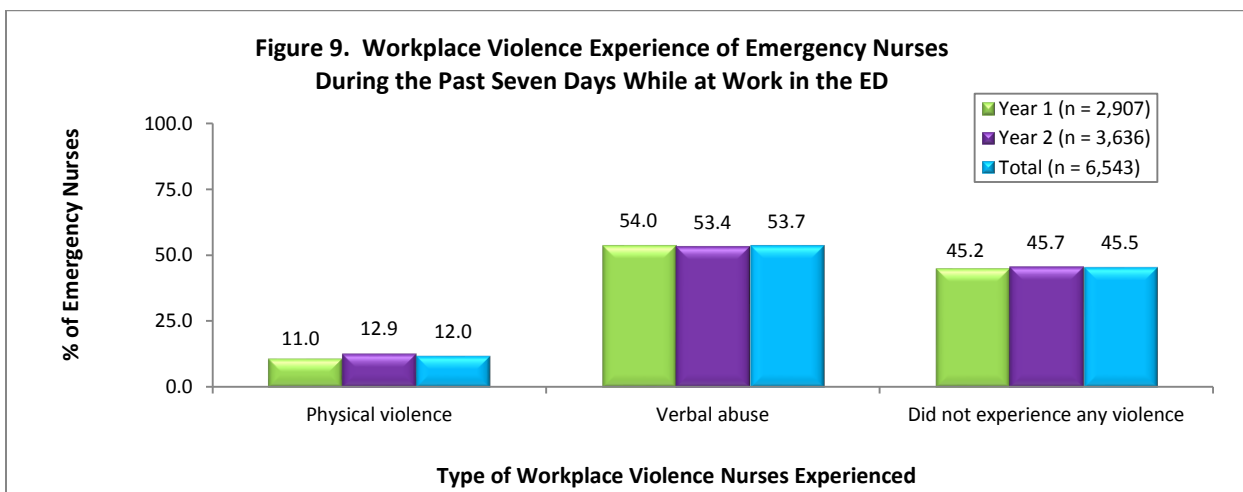
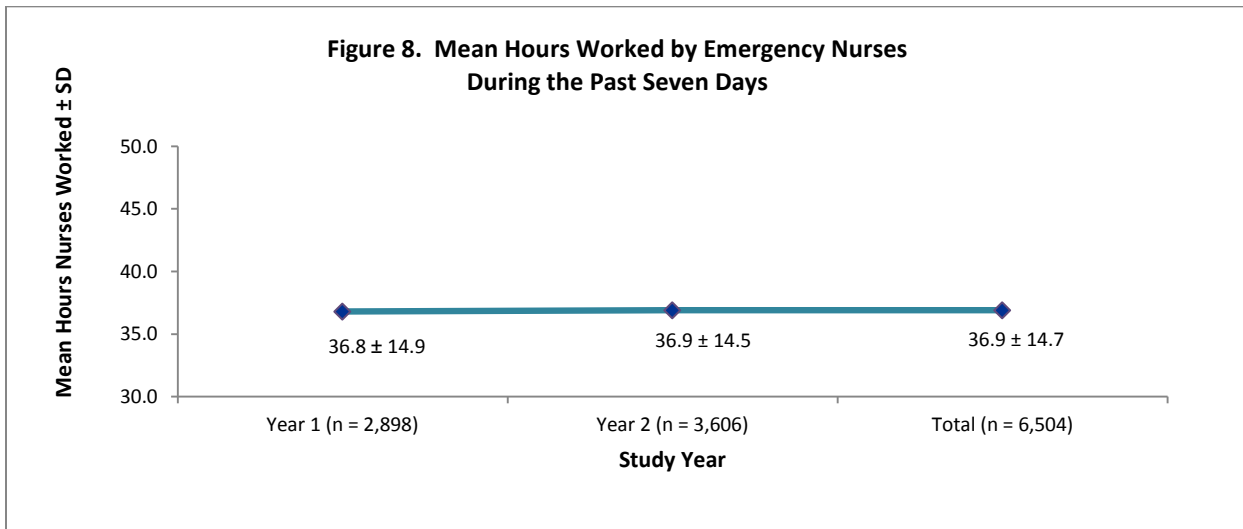




*†Percentages do not equal 100% as respondents could select more than one response.*

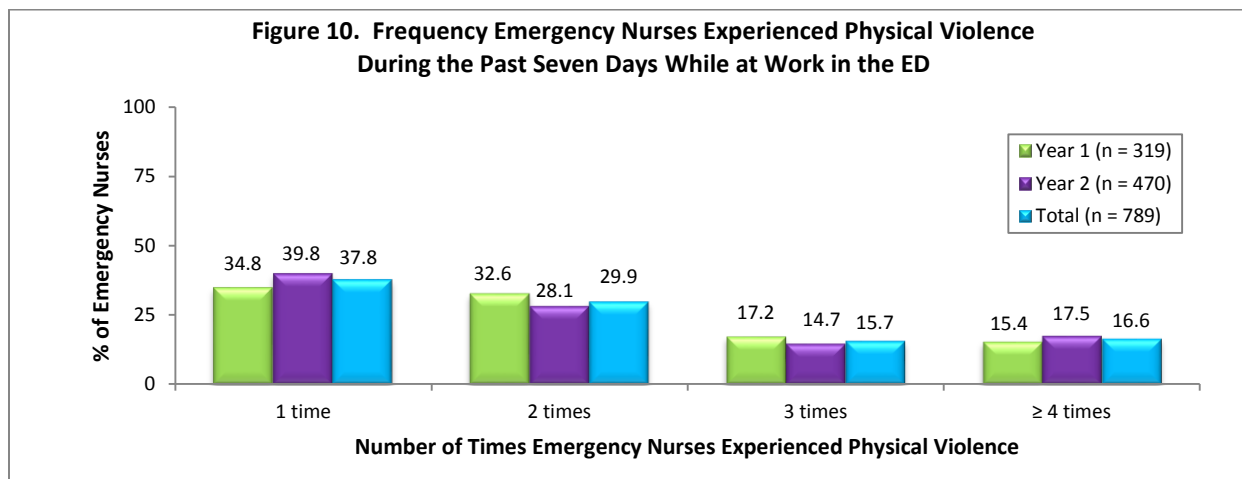
### B. Occurrence of Physical Violence and Verbal Abuse

Based on the pooled data, of the 6,504 emergency nurses who responded to the question of whether they experienced workplace violence recently, 54.5% ( $n = 3,568$ ) reported having experienced physical violence and/or verbal abuse from a patient and/or visitor during the past seven calendar days, during which the nurses worked an average of 36.9 hours. Specifically, 42.5% ( $n = 2,779$ ) reported experiencing verbal abuse only, and 11.2% ( $n = 734$ ) reported experiencing both physical and verbal violence, and 0.8% ( $n = 55$ ) reported experiencing physical violence only. Additionally, of the 789 participants who experienced physical violence, 62.2% ( $n = 491$ ) experienced more than one incident of physical violence from a patient/visitor during the past seven calendar days (Figures 8-10).



†Percentages do not equal 100% as respondents could select more than one response.





### Trend of Violence Occurrence During the 12-Month Period of Time

To examine the trend of violence occurrence between each round, three binary dependent variables were evaluated: (1) Any physical or verbal violence, (2) Verbal abuse, and (3) Physical violence. Tables 4a-c display trend analysis descriptive and inferential test statistics. Tables 4a-c includes overall chi-square statistics, polynomial trend analysis chi-square statistics, and symbols (<, >) indicating significant contrasts on rate variables for consecutive rounds (1 vs 2, 2 vs 3, and 3 vs 4). In addition, odds ratios for linear trends are reported.

**Table 4a. Year 1: Cross-Classified Verbal Abuse and Physical Violence Rates by Round, with Trend Analysis Inferential Tests**

Abuse/Violence Type	All % (n)	% (n) Within Round				Overall $\chi^2$ (p)	Linear		Dev. $\chi^2$ (p)	Quad. $\chi^2$ (p)	Cubic $\chi^2$ (p)
		1	2	3	4		OR	$\chi^2$ (p)			
None	45.2% (1,314)	49.3% (307)	41.6% (264)	44.4% (320)	45.5% (423)						
Any Abuse or Violence	54.8% (1,593)	<b>50.7%</b> (316)	> <b>58.4%</b> (371)	55.6% (400)	54.5% (506)	7.76 (.051)	1.03	1.02 (.312)	<b>7.10</b> (.029)	<b>5.52</b> (.019)	2.10 (.147)
Verbal abuse (VA) only	43.8% (1,274)	42.4% (264)	45.7% (290)	43.5% (313)	43.8% (407)						
Physical violence (PV) only	0.8% (22)	0.2% (1)	0.5% (3)	1.0% (7)	1.2% (11)						
Both PV and VA	10.2% (297)	8.2% (51)	12.3% (78)	11.1% (80)	9.5% (88)						
Verbal abuse (+/- PV)	54.0% (1,571)	<b>50.6%</b> (315)	> <b>58.0%</b> (368)	54.6% (393)	53.3% (495)	7.26 (.064)	1.02	0.33 (.564)	<b>7.12</b> (.028)	<b>5.39</b> (.020)	2.27 (.132)
Physical violence (+/- VA)	11.0% (319)	<b>8.3%</b> (52)	> <b>12.8%</b> (81)	12.1% (87)	10.7% (99)	7.70 (.053)	1.08	1.76 (.185)	<b>6.77</b> (.034)	<b>6.36</b> (.012)	0.75 (.387)
Total N	2,907	623	635	720	929						

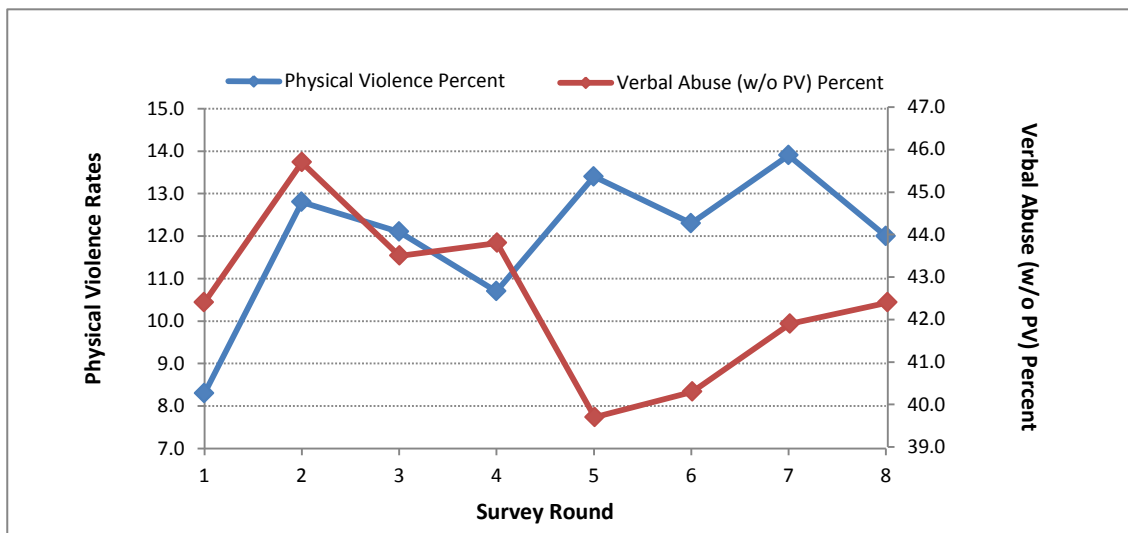
**Table 4b. Year 2: Cross-Classified Verbal Abuse and Physical Violence Rates by Round, with Trend Analysis Inferential Tests**

Abuse/Violence Type	All % (n)	% (n) Within Round				Overall $\chi^2$ (p)	Linear OR $\chi^2$ (p)		Dev. $\chi^2$ (p)	Quad. $\chi^2$ (p)	Cubic $\chi^2$ (p)
		5	6	7	8						
None	45.7% (1,661)	46.9% (252)	47.4% (362)	44.2% (565)	45.6% (482)						
Any Abuse or Violence	54.3% (1,975)	53.1% (285)	52.6% (402)	55.8% (712)	54.4% (576)	2.30 (.513)	1.03 (.379)	1.48 (.476)	0.06 (.804)	1.21 (.272)	
Verbal abuse (VA) only	41.4% (1,505)	39.7% (213)	40.3% (308)	41.9% (535)	42.4% (449)						
Physical violence (PV) only	0.8% (33)	0.4% (2)	0.8% (6)	1.4% (18)	0.7% (7)						
Both PV and VA	12.0% (437)	13.0% (70)	11.5% (88)	12.5% (159)	11.3% (120)						
Verbal abuse (+/- PV)	53.4% (1,942)	52.7% (283)	51.8% (396)	54.3% (694)	53.8% (569)	1.38 (.710)	1.02 (.486)	0.79 (.673)	0.01 (.932)	0.77 (.379)	
Physical violence (+/- VA)	12.9% (470)	13.4% (72)	12.3% (94)	13.9% (177)	12.0% (127)	2.16 (.539)	0.98 (.622)	1.92 (.382)	0.10 (.75)	1.50 (.221)	
Total N	3,636	537	764	1,277	1,058						

**Table 4c. Contrasting Cross-Classified Verbal Abuse and Physical Violence Rates by Year Within Quarter**

Abuse/Violence Type	All % (n)	Year 1 % (n)	Year 2 % (n)	z (p)	Q1			Q2			Q3			Q4		
					Rnd 1 % (n)	Rnd 5 % (n)	z (p)	Rnd 2 % (n)	Rnd 6 % (n)	z (p)	Rnd 3 % (n)	Rnd 7 % (n)	z (p)	Rnd 4 % (n)	Rnd 8 % (n)	z (p)
None	45.5% (2,975)	45.2% (1,314)	45.7% (1,661)	0.40 (.687)	49.3% (307)	46.9% (252)	-0.82 (.415)	41.6% (264)	47.4% (362)	2.17% (.030)	44.4% (320)	44.2% (565)	-0.09% (.931)	45.5% (423)	45.6% (482)	0.04 (.964)
Any Abuse or Violence	54.5% (3,568)	54.8% (1,593)	54.3% (1,975)	"	50.7% (316)	53.1% (285)	"	58.4% (371)	52.6% (402)	"	55.6% (400)	55.8% (712)	"	54.5% (506)	54.4% (576)	"
Verbal abuse (VA) only	42.5% (2,779)	43.8% (1,274)	41.4% (1,505)	-1.95 (.051)	42.4% (264)	39.7% (213)	-0.93 (.351)	45.7% (290)	40.3% (308)	-2.03 (.042)	43.5% (313)	41.9% (535)	-0.69 (.487)	43.8% (407)	42.4% (449)	-0.63 (.529)
Physical violence (PV) only	0.9% (55)	0.8% (22)	0.8% (33)	0.44 (.660)	0.2% (1)	0.4% (2)	0.67 (.504)	0.5% (3)	0.8% (6)	0.70 (.485)	1.0% (7)	1.4% (18)	0.77 (.440)	1.2% (11)	0.7% (7)	-1.17 (.241)
Both PV and VA	11.2% (734)	10.2% (297)	12.0% (437)	2.29 (.022)	8.2% (51)	13.0% (70)	2.67 (.008)	12.3% (78)	11.5% (88)	-0.46 (.645)	11.1% (80)	12.5% (159)	0.93 (.355)	9.5% (88)	11.3% (120)	1.31 (.191)
Verbal abuse (+/- PV)	53.7% (3,513)	54.0% (1,571)	53.4% (1,942)	-0.48 (.629)	50.6% (315)	52.7% (283)	0.71 (.475)	58.0% (368)	51.8% (396)	-2.32 (.020)	54.6% (393)	54.3% (694)	-0.13 (.897)	53.3% (495)	53.8% (569)	0.22 (.824)
Physical violence (+/- VA)	12.1% (789)	11.0% (319)	12.9% (470)	2.35 (.019)	8.3% (52)	13.4% (72)	2.80 (.005)	12.8% (81)	12.3% (94)	-0.28 (.778)	12.1% (87)	13.9% (177)	1.14 (.254)	10.7% (99)	12% (127)	0.91 (.362)
Total N	6,543	2,907	3,636		623	537		635	764		720	1,277		929	1,058	

**Figure 11: Physical Violence Rates and Verbal Abuse (Without Physical Violence) Rates by Assessment Round**





Overall violence and verbal abuse rates were fairly high across all rounds (54.5%). The overall rate is primarily a function of verbal abuse. Physical violence rarely occurred without verbal abuse (55 cases [0.8%]).

With respect to overall violence and abuse trends, no linear trend component was detected (OR=1.03); however, a significant deviation from linearity was present,  $\chi^2=7.10$ ,  $p=.029$  (Figure 11). This was due to a concave downward pattern in the rates over time,  $\chi^2=5.52$ ,  $p=.019$ . Contrasts of adjacent rounds yielded a significant increase in overall violence and/or abuse between round 1 (50.7%) and round 2 (58.4%),  $\chi^2=7.51$ ,  $p=.006$ .

With respect to verbal abuse rates (with or without physical violence), the same pattern was observed (Figure 11). Specifically, no linear trend component was detected (OR=1.02); however, a significant deviation from linearity was present,  $\chi^2=7.12$ ,  $p=.028$ . This was again due to a concave downward component in the trend across rounds,  $\chi^2=5.39$ ,  $p=.020$ . Contrasts of adjacent rounds yielded a significant increase in verbal abuse between round 1 (50.6%) and round 2 (58.0%),  $\chi^2=6.91$ ,  $p=.009$ .

Tables 5-7 and Figures 12-19 reflect characteristics specific to either the physical violence or verbal abuse experienced by the emergency nurses in the eight rounds of the study. The characteristics appeared to be similar across all eight rounds. The most prevalent types of physical violence and verbal abuse were having been grabbed/pulled (48.3%) and having been yelled/shouted at or sworn/cursed at (89.0%). Patients were the main perpetrators in all cases with 97.8% ( $n = 760$ ) of physical incidents and 92.3% ( $n = 2,918$ ) of verbal incidents having involved a patient. The participants who experienced physical violence indicated that characteristics of patient-perpetrators of physical violence included ( $n = 787$ ): being under the influence of alcohol (55.7%), being under the influence of illicit/prescription drugs (46.8%) and/or were psychiatric patients (45.2%). The majority (73.1%) of these participants perceived the patient-perpetrator of physical violence to be lucid at the time of the incident.

Over three-quarters (82.0%) of the incidents of physical violence occurred in a patient's room, 24.0% in a corridor/hallway/stairwell/elevator, and 14.6% at the nurses' station. The most frequently reported activities that emergency nurses were involved in at the time of a violent incident were triaging a patient (40.2%), restraining/subduing a patient (34.8%) and performing an invasive procedure (29.4%). Of the participants who were victims of workplace physical violence ( $n = 789$ ), 13.4% sustained a physical injury, with the most common type of injury being a bruise/contusion/blunt trauma (60.0%).

For nurses who indicated experiencing verbal abuse, over half (58.4%) reported feeling angry about the verbal abuse that they experienced, 39.2% indicated that the incident(s) made them feel anxious, 29.9% felt indifferent to the verbal abuse, and 19.2% felt frightened. Relatively few participants who experienced verbal abuse expressed feelings of depression (6.4%) or sympathy/empathy for the perpetrator (6.8%).

**Table 5. Types of Workplace Violence Experienced by the Emergency Nurse Participants†**

Act of Physical Violence	% of Emergency Nurses		
	Year 1 (n = 317)	Year 2 (n = 462)	Total (n = 779)
Bitten	7.6%	5.6%	6.4%
Choked/strangled	0.3%	0.4%	0.4%
Grabbed/pulled	47.0%	49.1%	48.3%
Hair pulled	1.9%	1.7%	1.8%
Hit by person (e.g., punched, slapped)	43.5%	39.8%	41.3%
Hit by thrown object(s)	17.0%	16.2%	16.6%
Kicked	25.6%	26.0%	25.8%
Pinched	18.9%	14.5%	16.3%
Pushed/shoved/thrown	26.2%	28.6%	27.6%
Scratched	19.2%	20.6%	20.0%
Sexually assaulted	0.6%	0.4%	0.5%
Spit on	33.8%	37.2%	35.8%
Stabbed	0.0%	0.4%	0.3%
Voided/vomited on purposefully	5.4%	6.1%	5.8%
<b>Act of Verbal Abuse</b>	<b>Year 1 (n = 1,455)</b>	<b>Year 2 (n = 1,780)</b>	<b>Total (n = 3,235)</b>
Called names	69.9%	66.9%	68.2%
Harassed with sexual language/innuendos	24.1%	21.5%	22.7%
Threatened with legal action	51.0%	52.5%	51.8%
Threatened with physical violence/weapons	19.2%	20.3%	19.8%
Sworn/cursed at	89.3%	88.8%	89.0%
Yelled/shouted at	89.6%	88.5%	89.0%

†Percentages do not equal 100% as respondents could select more than one response.

**Table 6. Physical Violence Incidents – Characteristics†**

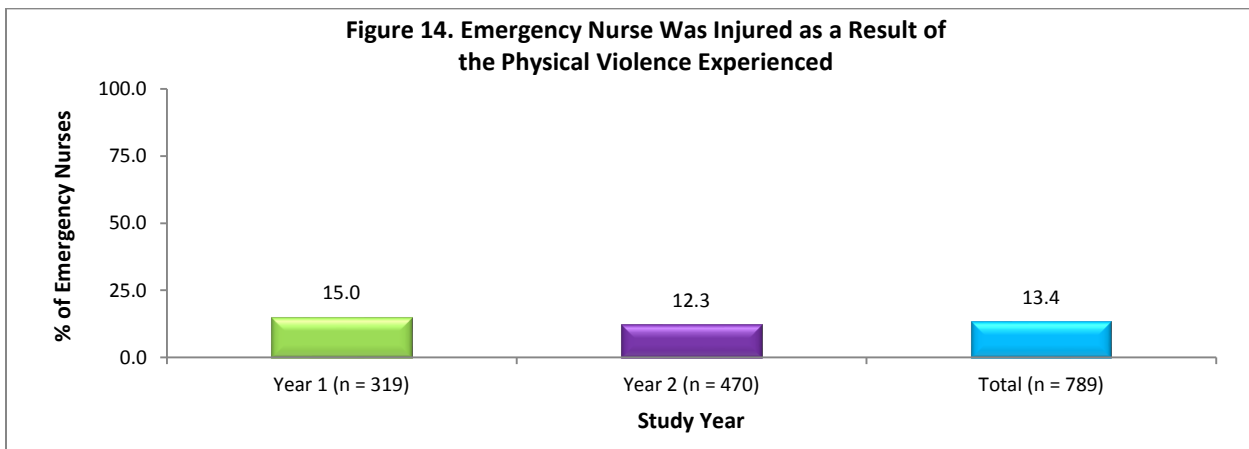
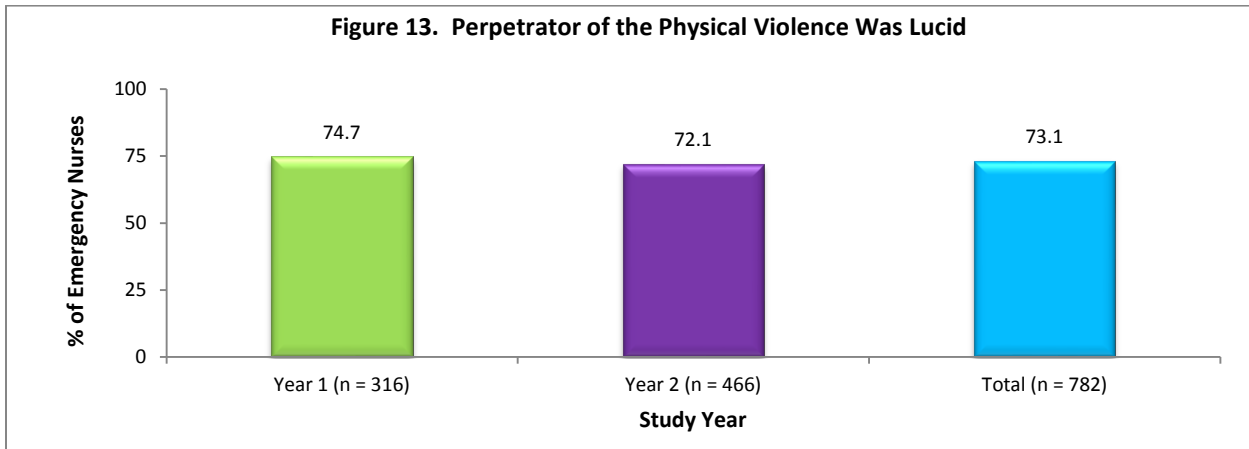
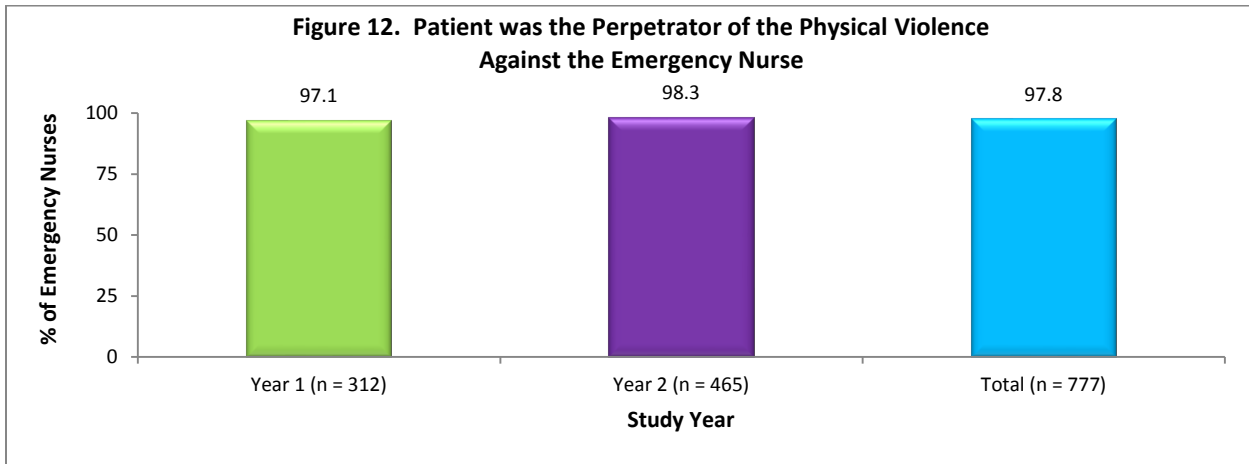
Patient Characteristics (either as the perpetrator or the patient the perpetrator was visiting)	% of Emergency Nurses		
	Year 1 (n = 318)	Year 2 (n = 469)	Total (n = 787)
Older adult/geriatric patient	16.4%	17.7%	17.2%
Pediatric patient	8.5%	6.4%	7.2%
Psychiatric patient	43.1%	46.7%	45.2%
Trauma patient	11.9%	8.3%	9.8%
Under the influence of alcohol	54.7%	56.3%	55.7%
Under the influence of illicit/prescription drugs	45.9%	47.3%	46.8%
Location Where Physical Violence Occurred	Year 1 (n = 319)	Year 2 (n = 470)	Total (n = 789)
Admitting/triage areas	13.2%	13.8%	13.6%
Corridor/hallway/stairwell/elevator	23.2%	24.5%	24.0%
Entrance/exit	4.7%	8.5%	7.0%
Lobby/waiting room	8.8%	8.5%	8.6%
Nurses' station	14.7%	14.5%	14.6%
Patient room	80.6%	83.0%	82.0%
Seclusion/time-out room	5.0%	4.7%	4.8%
Activities/Procedures Nurse Was Involved at Time of Incident	Year 1 (n = 314)	Year 2 (n = 462)	Total (n = 776)
Delivering bad news	2.5%	1.7%	2.1%
Medical/trauma resuscitation	4.1%	2.8%	3.4%
Performing an invasive procedure	30.9%	28.4%	29.4%
Restraining/subduing	33.8%	35.5%	34.8%
Transporting patient	7.6%	6.1%	6.7%
Triaging patient	38.2%	41.6%	40.2%

†Percentages do not equal 100% as respondents could select more than one response.

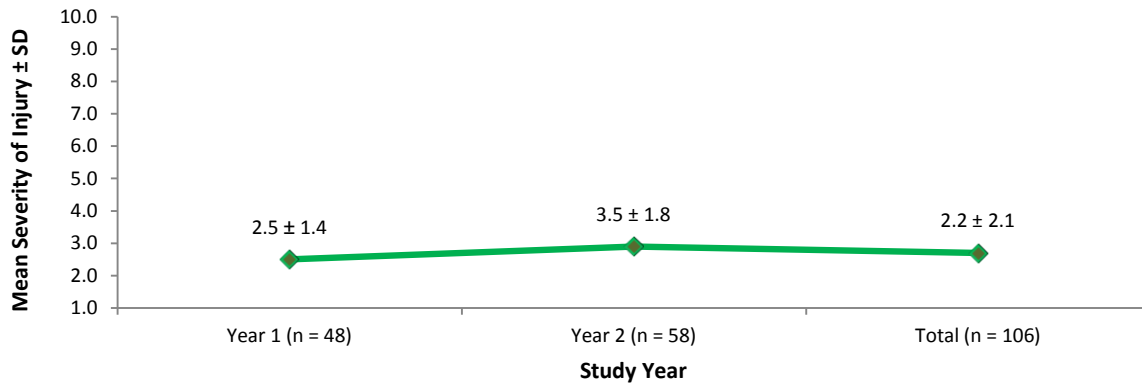
**Table 7. Injuries Sustained From Physical Violence†**

Area of Body Injured	% of Emergency Nurses		
	Year 1 (n = 47)	Year 2 (n = 57)	Total (n = 104)
Abdomen/chest	10.6%	14.0%	12.5%
Arms/hands	74.5%	73.7%	74.0%
Back/shoulder	25.5%	12.3%	18.3%
Head/face/neck	34.0%	40.4%	34.0%
Hip/buttocks/genitals	0.0%	5.3%	2.9%
Legs/feet	10.6%	8.8%	9.6%
Type of Injury to Body	Year 1 (n = 48)	Year 2 (n = 57)	Total (n = 105)
Abrasion/scratch	47.9%	54.4%	51.4%
Bruise/contusion/blunt trauma	64.6%	56.1%	60.0%
Exposure to bodily fluids	16.7%	22.8%	20.0%
Fracture	0.0%	3.5%	1.9%
Internal injuries	0.0%	0.0%	0.0%
Laceration/cut/puncture	4.2%	5.3%	4.8%
Psychological	10.4%	10.0%	10.4%
Sprain/strain/spasm	20.8%	10.0%	20.8%

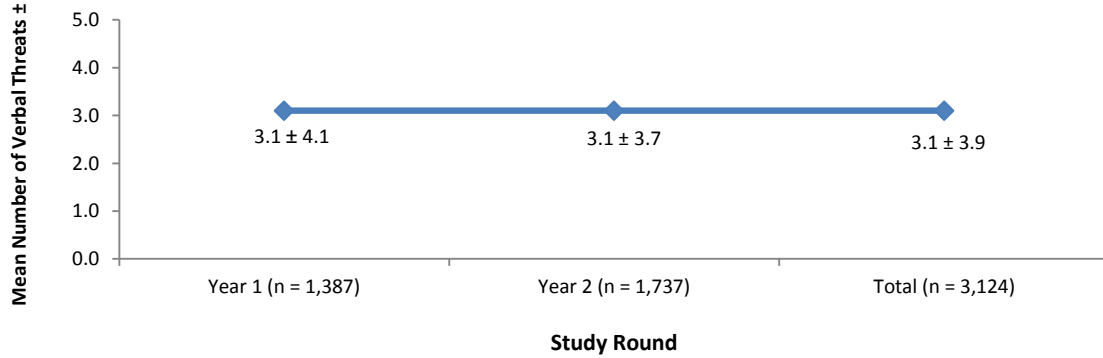
†Percentages do not equal 100% as respondents could select more than one response.



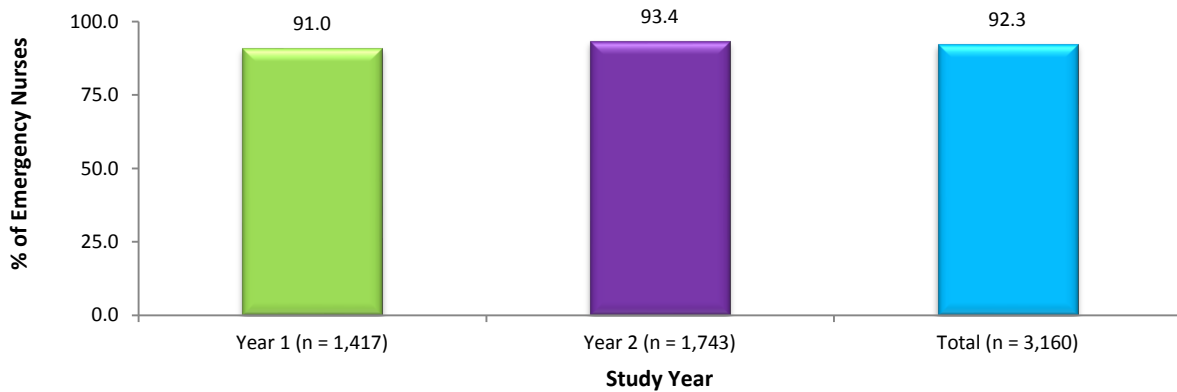
**Figure 15. Mean Severity of Injury Emergency Nurses Experienced**



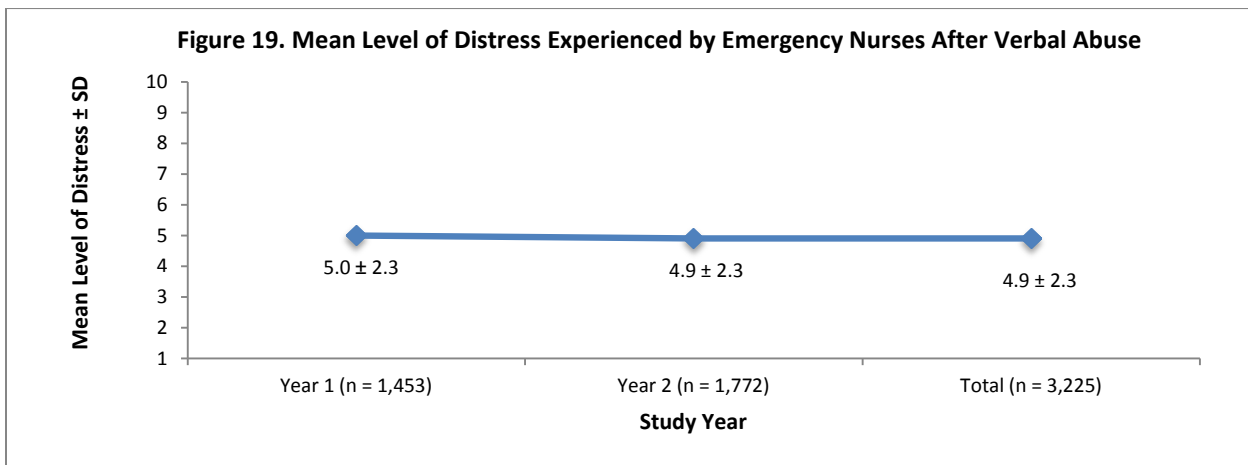
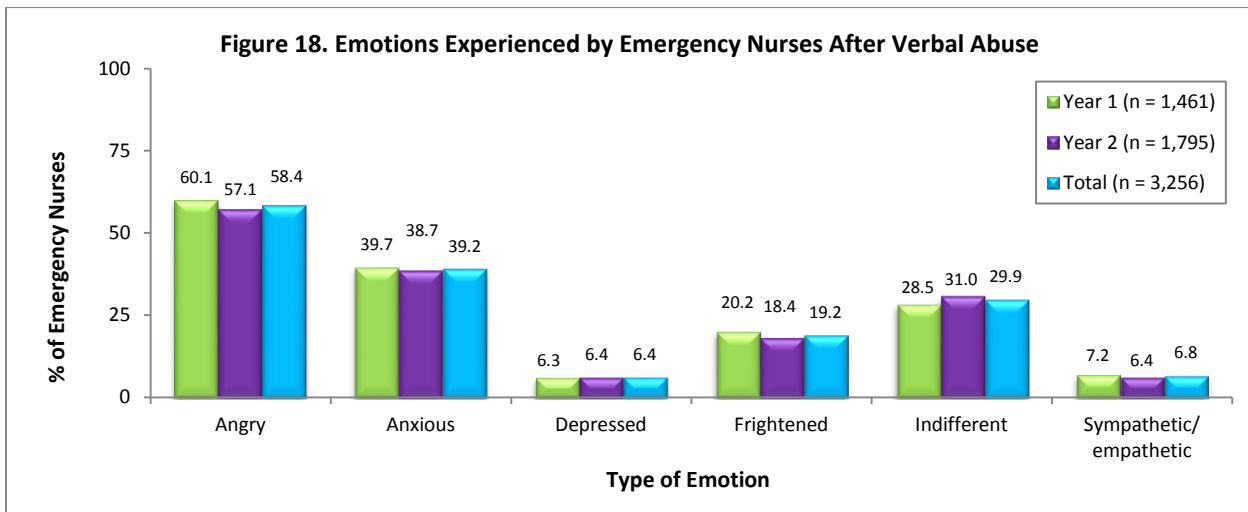
**Figure 16. Mean Number of Verbal Threats Emergency Nurses Experienced During the Past Seven Days While at Work in the ED**



**Figure 17. Patient was the Perpetrator of the Verbal Abuse Against the Emergency Nurse**







### C. Reporting Workplace Violence

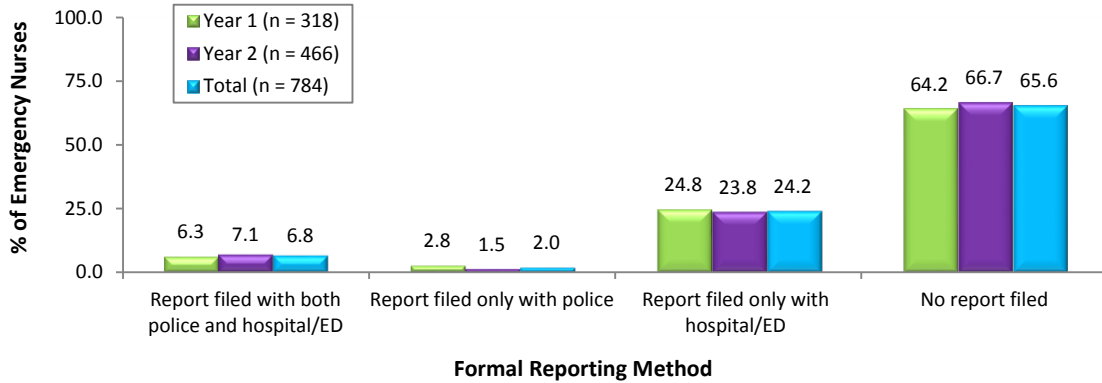
Across all rounds, the majority of the participants who were victims of workplace violence did not file a formal report for the physical violence (65.6%) or the verbal abuse (86.1%) that they experienced. Most participants who experienced physical violence, however, tended to notify security personnel (65.7%), an immediate supervisor (64.2%), other emergency nurses (63.2%), and/or emergency physicians (54.6%). Similarly, most participants who experienced verbal abuse tended to report it to other emergency nurses (58.1%), an immediate supervisor (45.4%), security personnel (44.9%), and/or emergency physicians (37.9%). Only 8.0% of the participants who reported experiencing physical violence during the past 7 days did not notify anyone of the physical incident, while 16.9% of the participants who reported experiencing verbal abuse did not notify anyone of the verbal incident (Table 8 and Figures 20-21).

**Table 8. Persons Informed of the Incidents of Workplace Violence†**

Physical violence	% of Emergency Nurses		
	Year 1 (n = 318)	Year 2 (n = 467)	Total (n = 785)
Campus police	3.5%	5.1%	4.5%
Emergency physicians	52.5%	56.1%	54.6%
Employee Assistance Program	0.0%	0.9%	0.5%
Employee health services	4.4%	5.1%	4.8%
Hospital/ED administration	23.9%	20.8%	22.0%
Human resources	0.6%	1.5%	1.1%
Immediate supervisor	61.6%	66.0%	64.2%
Local law enforcement	24.5%	22.5%	23.3%
Other emergency nurses	64.5%	62.3%	63.2%
Risk management	11.3%	10.1%	10.6%
Security personnel	65.7%	65.7%	65.7%
<b>No one notified</b>	6.3%	9.2%	8.0%
Verbal abuse	Year 1 (n = 1,453)	Year 2 (n = 1,771)	Total (n = 3,224)
Campus police	2.3%	2.7%	2.5%
Emergency physicians	38.4%	37.4%	37.9%
Employee assistance program	0.0%	0.1%	0.0%
Employee health services	0.1%	0.0%	0.0%
Hospital/ED administration	11.5%	11.1%	11.3%
Human resources	0.6%	0.5%	0.5%
Immediate supervisor	45.5%	45.3%	45.4%
Local law enforcement	8.7%	9.8%	9.3%
Other emergency nurses	60.2%	56.4%	58.1%
Risk management	4.4%	5.0%	4.7%
Security personnel	44.2%	45.4%	44.9%
<b>No one notified</b>	16.1%	17.5%	16.9%

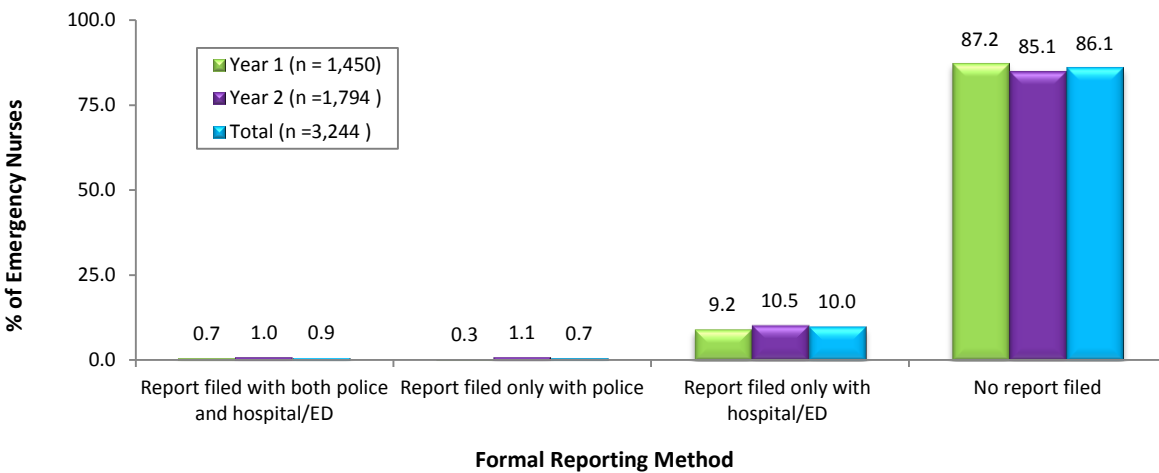
†Percentages do not equal 100% as respondents could select more than one response.

**Figure 20. Formal Reporting of Physical Violence by Emergency Nurses**



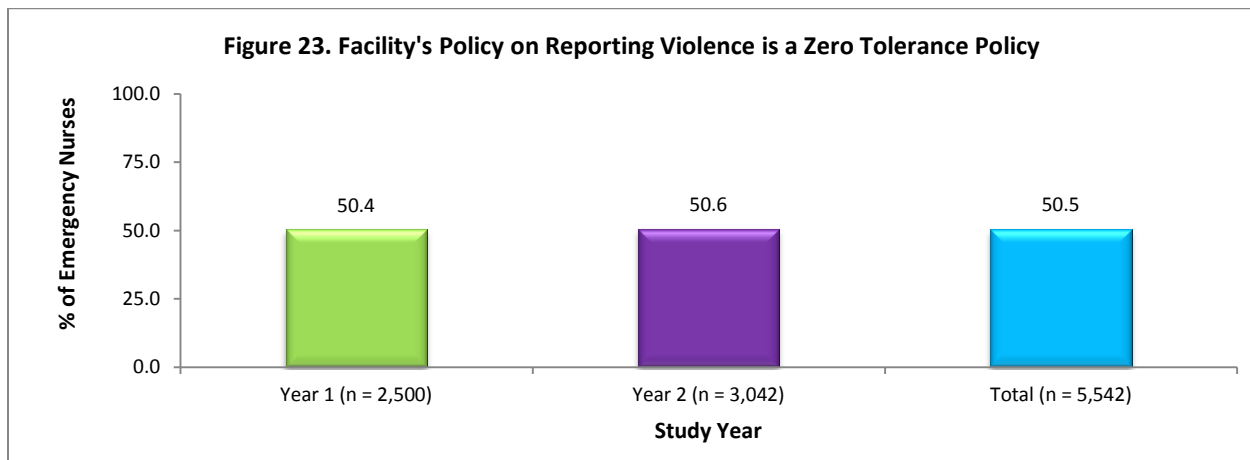
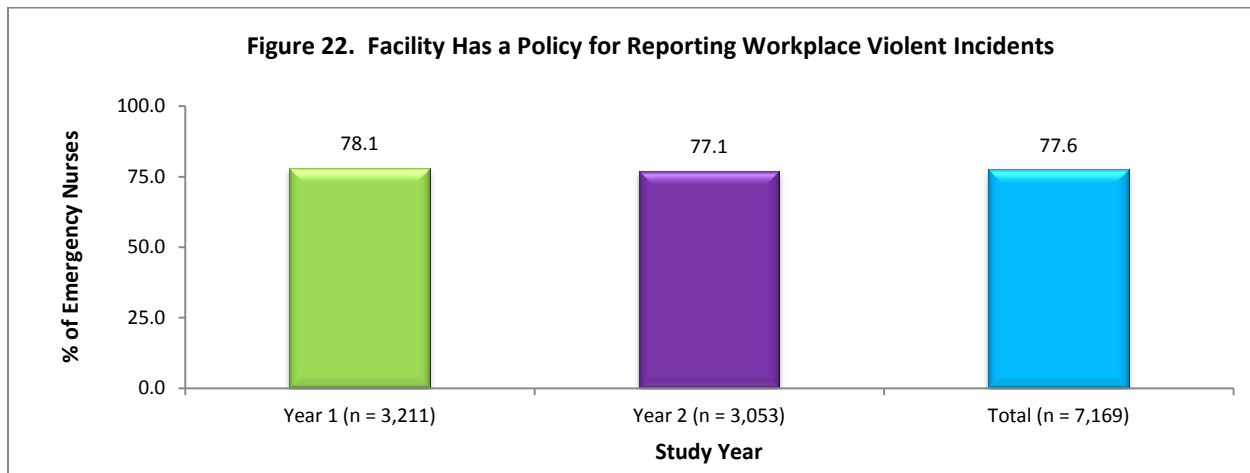
†Percentages do not equal 100% as respondents who reported in some other manner or their reporting method was unknown are not included.

**Figure 21. Formal Reporting of Verbal Abuse by Emergency Nurses**



†Percentages do not equal 100% as respondents who reported in some other manner or their reporting method was unknown are not included.

Overall, the majority of all participants (77.6%) reported that their facility had a policy in place for reporting incidents of workplace violence. Of those participants, half (50.5%) indicated that this policy was a zero-tolerance policy (Figures 21-23).



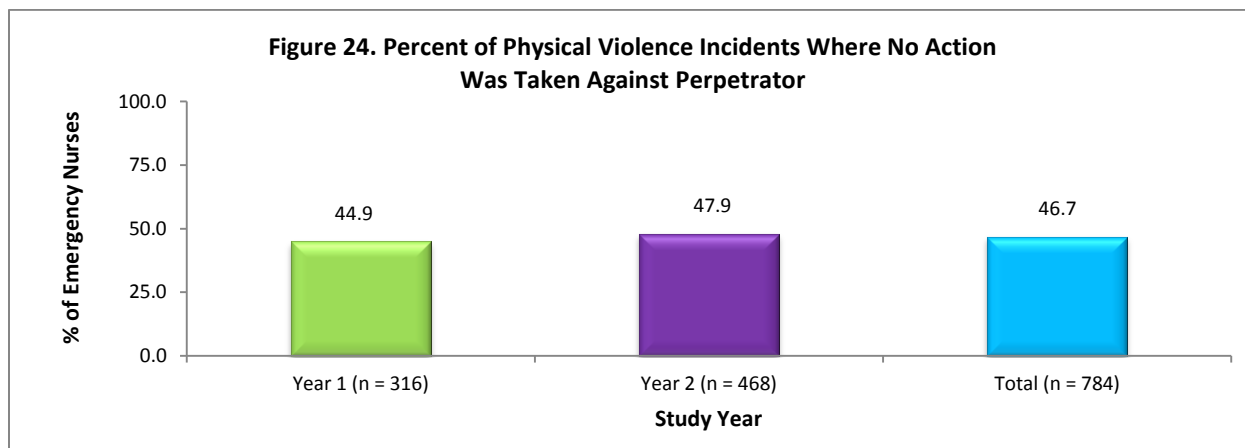
#### *D. Processes for Responding to Workplace Violence*

Nurses were asked what actions were taken against the perpetrator as a result of the workplace physical violence (Table 9 and Figures 24-25). About half (46.7%) of the participants who were victims of physical violence indicated that no action was taken, and less than a quarter (20.4%) reported that the perpetrator was given a warning. A small percentage of the perpetrators were transferred to a psychiatric facility (11.2%). When asked about the emergency department's response/recommendation to the nurse, almost three-quarters of the participants (71.8%) stated the hospital gave them no response concerning the physical violence they experienced. A few nurses (10.7%) stated that they did not know what the hospital's response was yet. Debriefing of the incident either at the individual level (6.0%) or at the team level (4.1%), was also very low. Eighty-one nurses (10.7%) reported that they were blamed for the incident of physical violence having occurred, and three respondents (0.4%) reported receiving a punitive response. This pattern holds true for all eight rounds.

**Table 9. Actions Taken Against Perpetrators of Workplace Violence†**

Physical Violence	% of Emergency Nurses		
	Year 1 (n = 316)	Year 2 (n = 468)	Total (n = 784)
Patient associated with the perpetrator was treated sooner/faster than other patients	2.8%	3.0%	2.9%
Perpetrator left before any action could be taken	3.5%	3.4%	3.4%
Perpetrator was arrested	8.5%	5.3%	6.6%
Perpetrator was asked to leave the ED	8.9%	8.3%	8.5%
Perpetrator was given a warning	23.4%	18.4%	20.4%
Perpetrator was transferred to a psychiatric facility	11.4%	11.1%	11.2%
Verbal Abuse	Year 1 (n = 1,459)	Year 2 (n = 1,758)	Total (n = 3,217)
Patient associated with the perpetrator was treated sooner/faster than other patients	6.6%	5.7%	6.2%
Perpetrator left before any action could be taken	8.4%	6.7%	7.5%
Perpetrator was arrested	1.6%	2.4%	2.1%
Perpetrator was asked to leave the ED	15.2%	14.5%	14.8%
Perpetrator was given a warning	29.6%	27.5%	28.5%
Perpetrator was transferred to a psychiatric facility	6.9%	6.5%	6.7%

†Percentages do not equal 100% as respondents could select more than one response.



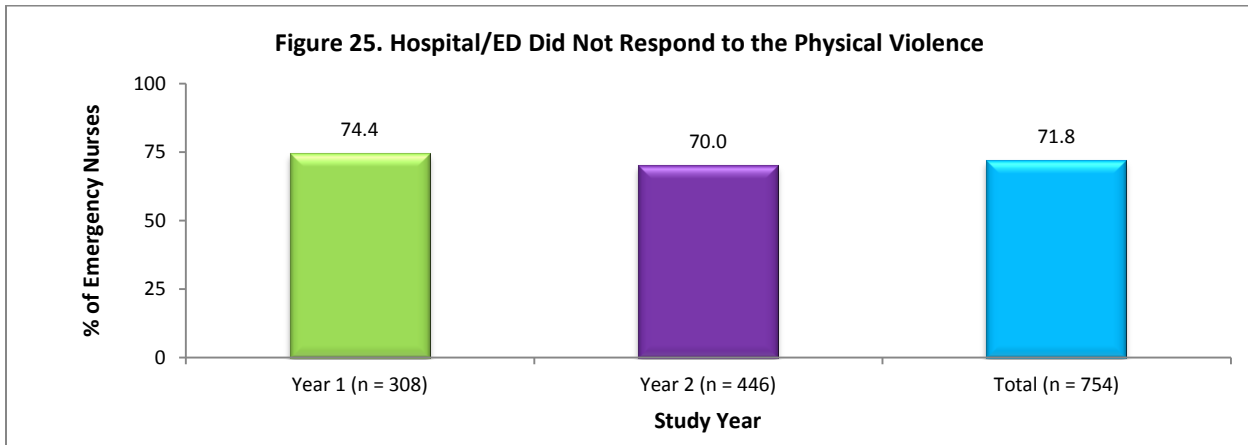
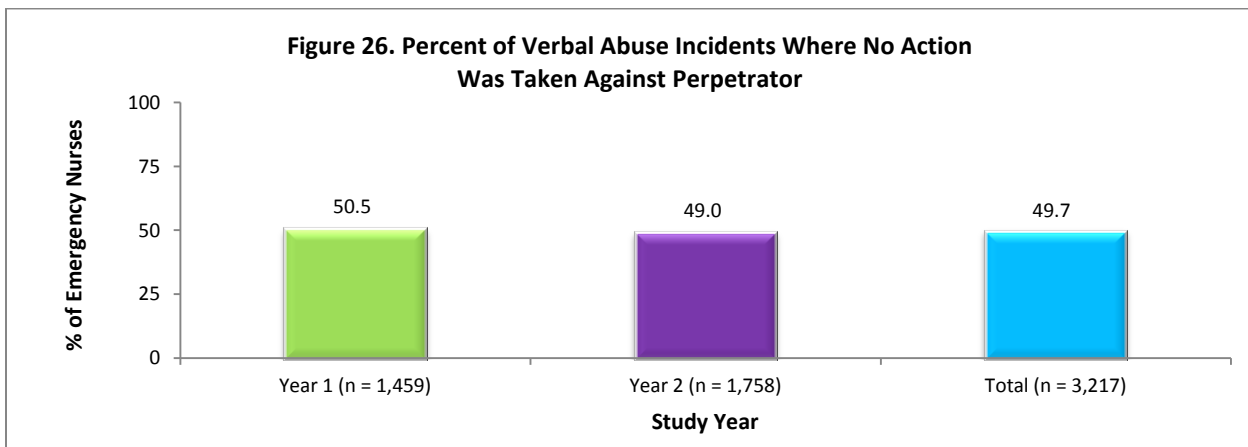
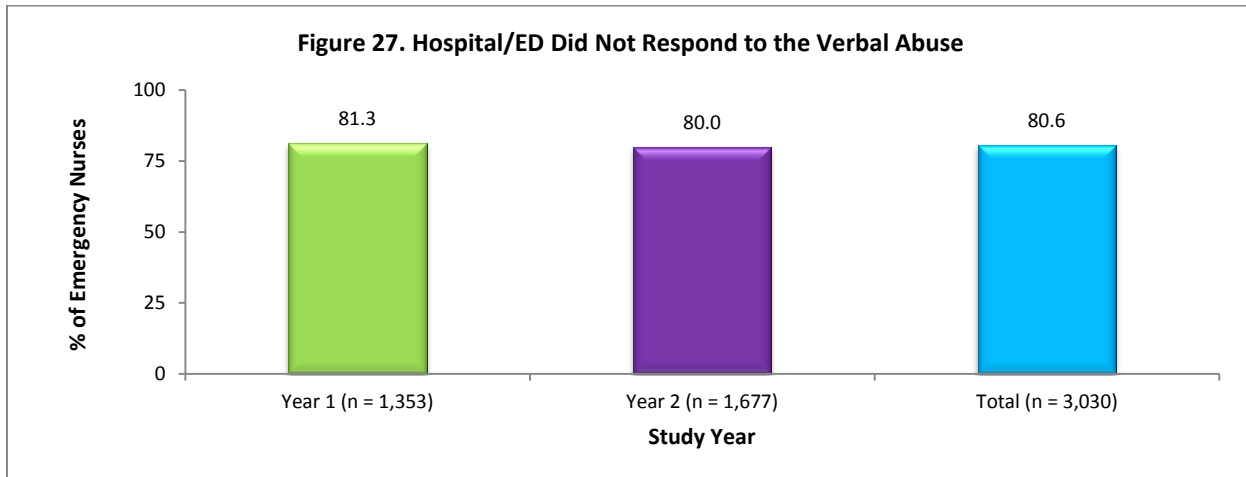
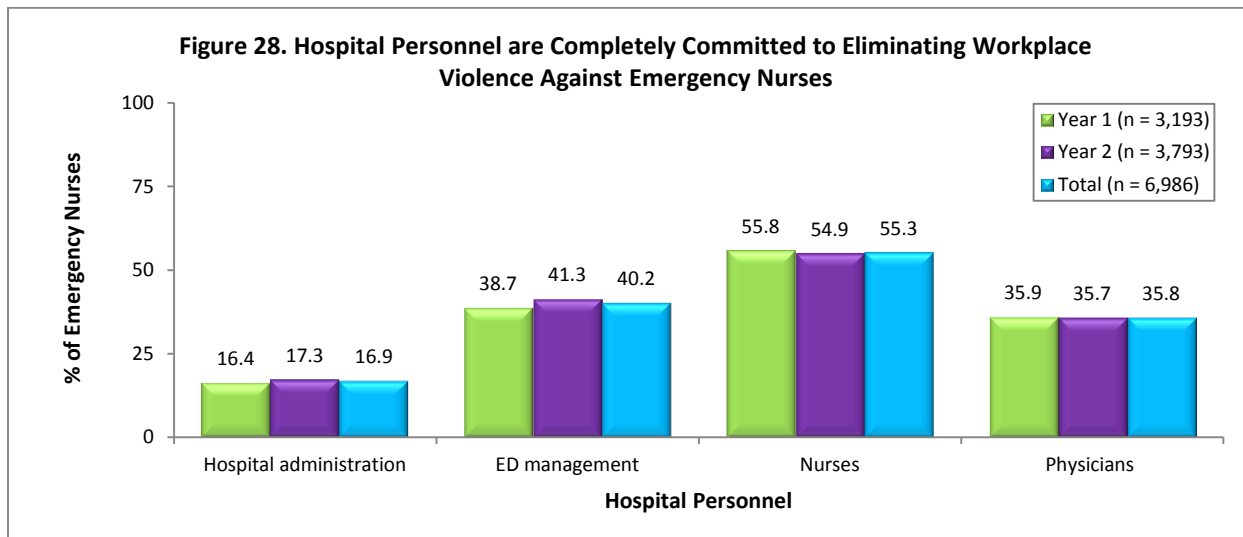


Table 9 and Figures 26-27 represent actions taken against the perpetrator and the ED’s response to the nurses who experienced verbal abuse. About half (49.7%) of the participants who were victims of verbal abuse indicated that no action was taken, and more than a quarter (28.5%) reported that the perpetrator was given a warning. 14.8% indicated that the perpetrator was asked to leave the emergency department, while 7.5% stated that perpetrator left before any action could be taken. One hundred ninety-eight participants (6.2%) indicated that the patient who was associated with the violence was treated sooner than other patients. Regarding the hospitals’ response to nurses who experienced verbal abuse, more than three-quarters (80.6%) of the nurses indicated that they did not yet receive a response from their hospital. A few participants (7.1%) stated that they did not know what the hospital’s response was yet, 3.7% reported that the hospital recommended individual or team debriefing for the verbal abuse incident. Similar to physical violence, 86 participants (2.8%) reported that they were blamed for the incident of verbal abuse having occurred, and 27 participants (0.9%) reported receiving a punitive response, with 17 (0.6%) having been instructed to write an apology letter to the patient/visitor. Again, this data pattern was similar across all rounds.





When asked to rate the level of commitment by hospital personnel toward eliminating workplace violence, just over half (55.3%) of the participants reported that nurses were completely committed to the issue, with nurses reporting that hospital administration were the least committed (Figure 28).



### *E. Factors Associated with Occurrence of Workplace Violence*

A series of logistic regression analyses were performed to identify factors that are predictive of ED violence. As described previously<sup>4</sup>, factors were conceptualized as falling within 10 blocks including Types of ED based on Population Served, Region Served, ED Capacity & Utilization, Facility Type, Security/Personnel Type, Environmental Control Measures, Safety Perception, Training, & Preparedness, Hospital Safety Commitment & Policy, Nurse Demographics, and Nurse

Role. Separate analyses were conducted identifying factors predicting (1) physical violence (PV) rates during the past seven days and (2) verbal abuse (VA) rates during the past seven days.

### ***Factors Associated with the Occurrence of Physical Violence***

#### **Block 1: PV Rate by Types of EDs Based on Population Served**

Table 10 contrasts 3 populations (Adult Only, Pediatric Only, and General ED) on PV rates. Overall, 0.5% of PV rate error was explained by population served ( $p < .001$ ). This was primarily due to the very low PV rate in pediatric only setting (4.2%) as contrasted with the PV rates in the full sample (12.1%).

**Table 10. Block 1: Physical Violence Rate by Population Served**

Population	Frq	PV Rate % (n)	Category (vs Other)				Category Set		
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
Adult Only	644	11.5% (74)	0.94	0.0%	0.22	.637	0.5%	17.03	<.001
<b>Pediatric Only</b>	214	4.2% (9)	<b>0.31</b>	<b>0.5%</b>	<b>11.54</b>	<b>.001</b>			
<b>General ED</b>	5,673	12.4% (705)	<b>1.33</b>	<b>0.2%</b>	<b>5.30</b>	<b>.021</b>			
ALL Valid	6,531	12.1% (788)							

r<sup>2</sup> = Nagelkerke "percent error explained" analog statistics  
Shaded cells indicate significant category effects in Year 1 analyses.

#### **Block 2: PV Rate by Region Served**

Table 11 lists PV rates for Rural, Suburban, Small Urban, and Large Urban regions. Overall, 0.8% of PV rate error was explained by Region Served ( $p < .001$ ). PV rates tended to increase as population density increases, rising from Rural (9.1%) to Large Urban (14.8%) settings with middling rates in suburban and small urban settings. The rate was significantly above average in large urban settings (OR=1.45,  $p < .001$ ), and significantly below average in rural settings (OR=0.69,  $p < .001$ ).

**Table 11. Block 2: Physical Violence Rate by Region Served**

Region Type	Frq	PV Rate % (n)	Category (vs Other)				Category Set		
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
<b>Large urban</b>	2,096	14.8% (311)	<b>1.45</b>	<b>0.6%</b>	<b>22.39</b>	<b>&lt;.001</b>	0.8%	27.15	<.001
Small urban	1,507	11.7% (176)	0.95	0.0%	0.26	.610			
Suburban	1,664	11.1% (185)	0.89	0.1%	1.84	.174			
<b>Rural</b>	1,262	9.1% (115)	<b>0.69</b>	<b>0.4%</b>	<b>12.64</b>	<b>&lt;.001</b>			
ALL Valid	6,529	12.1% (787)							

r<sup>2</sup> = Nagelkerke "percent error explained" analog statistics  
Shaded cells indicate significant category effects in Year 1 analyses.

#### **Block 3: PV Rate by ED Capacity and Utilization**

Table 12 lists the four capacity and utilization variables included as standardized predictors in zero-order and multi-predictor models. The block of 4 capacity and utilization items accounted for 2.5% of variation in PV rates ( $p < .001$ ). Overall, as Total ED Beds, Additional Treatment Space, Use of Added Space, and Total ED Visits increased, the odds of physical violence increased. 2 items (Use of Added Space, and Total Annual Visits) contributed 0.9% uniquely to the 2.5% error



reduction; however, most variation was accounted for in common by the set of 4 items (1.6%) and all items showed a significant zero-order relationship with the PV rate.

**Table 12. Block 3: Physical Violence Rate by ED Capacity and Utilization**

Predictor	Mean	SD	Zero-order				3 <sup>rd</sup> -order				Predictor Set		
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
Total ED Beds	30.7	18.2	<b>1.22</b>	<b>0.9%</b>	<b>32.82</b>	<b>&lt;.001</b>	1.03	0.0%	0.42	.516	2.5%	87.40	<b>&lt;.001</b>
Additional treatment spaces	6.4	3.8	<b>1.27</b>	<b>1.1%</b>	<b>38.30</b>	<b>&lt;.001</b>	1.05	0.0%	1.08	.299			
Use of added spaces	14.7	11.9	<b>1.31</b>	<b>1.5%</b>	<b>50.13</b>	<b>&lt;.001</b>	<b>1.20</b>	<b>0.5%</b>	<b>15.84</b>	<b>&lt;.001</b>			
Total annual ED visits	5.7	2.1	<b>1.36</b>	<b>1.8%</b>	<b>57.61</b>	<b>&lt;.001</b>	<b>1.23</b>	<b>0.4%</b>	<b>14.74</b>	<b>&lt;.001</b>			

ORs are based on standardized predictors (following mean fill for missing data, N=6,543).  
Shaded cells indicate significant zero and 3<sup>rd</sup>-order effects in Year 1 analyses.

Unique Var: 0.9%  
Common Var: 1.6%

### Block 4: PV Rate by Facility Type

Table 13 reports PV rates and tests for Facility Type, as defined by ownership status (private, not-for-profit, government) and trauma center certification/status. Overall, 1.0% of variation was accounted for by Facility Type (p<.001), but this effect was mainly due to the contrast of ACS trauma center certification (versus all other groups). Specifically, physical violence rates were substantially higher in ACS certified trauma centers (14.9%) versus the full sample rate (12.1%), OR=1.27, p<.001. In addition, the small subsample of Federal/Military/VA facilities had a very low rate of physical violence (6.1%) versus the full sample rate (12.1%), OR=.47, p=.028.

**Table 13. Block 4: Physical Violence Rate by Facility Type**

Facility Type	Frq	PV Rate % (n)	Category (vs Other)				Category Set		
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
Non-gov't, not-for-profit	4,773	11.6% (556)	0.87	0.1%	2.75	.097	0.3%	11.35	.010
Investor-owned, for-profit	1,045	13.6% (142)	1.18	0.1%	2.77	.096			
State or local gov't	539	14.3% (77)	1.24	0.1%	2.76	.097			
<b>Federal/Military/VA</b>	148	6.1% (9)	<b>0.47</b>	<b>0.2%</b>	<b>4.86</b>	<b>.028</b>			
ALL Valid	6,505	12.1% (784)							
<b>Not a trauma center</b>	3,065	11.0% (338)	<b>0.90</b>	<b>0.2%</b>	<b>5.95</b>	<b>.015</b>	0.7%	24.67	<b>&lt;.001</b>
<b>Trauma center</b>	3,423	13.0% (445)	<b>1.09</b>	"	"	"			
<b>ACS certified</b>	1,931	14.9% (287)	<b>1.27</b>	<b>0.6%</b>	<b>19.56</b>	<b>&lt;.001</b>			
State certified	2,293	13.0% (297)	1.08	0.1%	2.59	.108			
Self-designated	321	15.3% (49)	1.31	0.1%	3.04	.081			
ALL Valid	6,488	12.1% (783)							
Item	6 <sup>th</sup> -order					Predictor Set			
Inv.-owned, for-profit (vs NFP)	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p		R <sup>2</sup>	χ <sup>2</sup>	p	
State or local gov't (vs NFP)	1.20	0.1%	3.25	.072	1.0%	34.10	<b>&lt;.001</b>		
Fed/Military/VA (vs NFP)	0.52	0.1%	3.56	.059					
Trauma center	0.78	0.1%	2.82	.093					
<b>ACS certified</b>	<b>1.59</b>	<b>0.5%</b>	<b>16.40</b>	<b>&lt;.001</b>					
State certified	1.19	0.1%	2.28	.131					
Self-designated	1.29	0.1%	2.42	.120					

Trauma Center sub-categories are not mutually exclusive, 11 TCs denied all 3 subtype designations

Mean fill for multi-variable models

r<sup>2</sup> = Nagelkerke "percent variance" analog statistics

Shaded cells indicate significant df=1 effects in prior Year 1 analyses.

Unique Var: 1.1%  
Common Var: 0.0%

### Block 5: PV Rate by Security Type and Personnel

Table 14 reports PV rates and tests for Security Type and Personnel. All predictors were binary, and categories were not mutually exclusive. Overall, 0.7% of PV variation was accounted for by the predictor set (p=.002). With respect to zero-order relationships, PV rates were lower when



security was absent (6.0%), and higher given police/sheriff security (14.0%), and private security (14.4%). In the multi-variable model, the presence of hospital-employed, police/sheriff, campus police, and private security were each associated with a higher odds of physical violence (OR's = 1.29, 1.26, 1.35, and 1.55, respectively). Previously reported marginally significant effects associate with 24/7 security were not significant in the present analyses.

**Table 14. Block 5: Physical Violence Rate by Security Type and Personnel**

Security Type and Personnel	Frq	PV Rate % (n)	Category (vs Other)				6 <sup>th</sup> -order				Predictor Set							
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p					
<b>No security</b>	349	6.0% (21)	<b>0.45</b>	<b>0.4%</b>	<b>15.06</b>	<b>&lt;.001</b>												
Any security	6,194	12.4% (768)	2.21	"	"	"								0.7%	22.61	.002		
<b>Hospital-employed</b>	4,700	12.0% (566)	0.99	0.0%	0.00	.949	<b>1.29</b>	<b>0.2%</b>	<b>5.06</b>	<b>.024</b>								
<b>Police/sheriff</b>	1,046	14.0% (146)	<b>1.22</b>	<b>0.1%</b>	<b>4.09</b>	<b>.043</b>	<b>1.26</b>	<b>0.1%</b>	<b>5.15</b>	<b>.023</b>								
Campus police	429	14.2% (61)	1.23	0.1%	1.93	.165	<b>1.35</b>	<b>0.1%</b>	<b>4.05</b>	<b>.044</b>								
<b>Private Security</b>	1,114	14.4% (160)	<b>1.28</b>	<b>0.2%</b>	<b>6.45</b>	<b>.011</b>	<b>1.55</b>	<b>0.4%</b>	<b>12.22</b>	<b>&lt;.001</b>								
Other	138	9.4% (13)	0.75	0.0%	0.99	.320	0.93	0.0%	0.06	.803								
Security based in ED	3,649	13.0% (475)	1.15	0.1%	3.01	.083	1.14	0.1%	2.04	.153								
<b>24/7 security</b>	4,366	12.3% (536)	0.96	0.0%	0.25	.620	<b>0.87</b>	<b>0.1%</b>	<b>2.10</b>	<b>.148</b>								
ALL Valid	6,543	12.1% (789)																

For "Security Based in ED", 381 did not respond (Total N = 6,162); Mean fill employed for multi-variable models.

For "24/7 Security", 371 did not respond (Total N = 6,172); Mean fill employed for multi-variable models.

For "24/7 Security", responses were adjusted to "Yes" if item 12 sum indicated 24/7 Security.

Item 12 sum (Weekly Security Hours) excluded due to high multi-collinearity (with 24/7 Security).

Shaded cells indicate significant df=1 effects in Year 1 analyses.

Unique Var: 0.7%

Common Var: 0.0%

**Block 6: PV Rate by Environmental Control Measures (ECMs)**

The 19 ECM categories were binary categories, and not mutually exclusive. Multi-variable models included the full set of 19, dummy-coded. Overall, the set of Environmental Control Measures accounted for significant variation in physical violence rates (1.1%, p=.008). With respect to zero-order relationships, only 1 ECM was significantly associated with lower odds of physical violence – panic button/silent alarm (OR=0.81, p=.016). Controlling for other items, the effect for panic button was retained (OR=0.78, p=.005). This effect replicated the finding for panic button in the prior “Year 1” analyses.

The prior security baton effect was not replicated, and 2 new effects were detected (p<.05) – that is, the association of physical restraints and chemical restraints with higher PV rates (OR’s = 1.35 and 1.22, respectively). It is noted that given the large block of 19 predictors for this factor and marginal significance levels, the number of “significant” ECMs was consistent with chance expectations. In addition, with the exception of the panic button results, other significant ECMs were not consistently significant (comparing year 1 and 2 results) and did not yield significant unique effects. With the exception of the panic button results, the presence of particular ECMs was minimally related (or unrelated) to the presence of physical violence (Table 15).

**Table 15. Block 6: Physical Violence Rate by Environmental Control Measures**

Environmental Control Measures	Frq No	Frq Yes	PV Rate   Y % (n)	Yes (vs No)				18 <sup>th</sup> -order				Predictor Set		
				OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
Bullet-proof glass	5,530	615	10.2% (63)	0.81	0.1%	2.40	.121	0.82	0.1%	1.84	.175	1.1%	36.78	.008
Enclosed nurses’ station	5,694	689	10.4% (72)	0.84	0.1%	1.89	.169	0.88	0.0%	0.98	.323			
Handcuffs	4,928	1,280	12.3% (157)	1.01	0.0%	0.00	.946	1.09	0.0%	0.58	.445			
Security batons	5,150	911	10.6% (97)	<b>0.83</b>	<b>0.1%</b>	<b>2.78</b>	<b>.095</b>	0.78	0.1%	3.24	.072			
Pseudonym for call code	1,398	5,001	11.8% (591)	0.91	0.0%	0.99	.319	0.90	0.0%	1.23	.268			
Mace	5,289	637	11.5% (73)	0.90	0.0%	0.60	.440	0.94	0.0%	0.18	.669			
Limits on number of visitors	2,315	4,110	11.9% (488)	0.96	0.0%	0.22	.641	0.97	0.0%	0.14	.707			
Locked treatment spaces	4,709	1,621	11.8% (191)	0.97	0.0%	0.12	.731	0.98	0.0%	0.07	.791			
Locked/coded ED entry	1,160	5,279	11.8% (623)	0.87	0.1%	1.91	.167	0.88	0.0%	1.58	.209			
Mirrors for hidden spaces	4,291	1,991	11.7% (232)	0.94	0.0%	0.59	.444	0.95	0.0%	0.33	.567			
<b>Panic button/silent alarm</b>	1,551	4,848	11.4% (554)	<b>0.81</b>	<b>0.2%</b>	<b>5.77</b>	<b>.016</b>	<b>0.78</b>	<b>0.2%</b>	<b>7.94</b>	<b>.005</b>			
<b>Physical/leather restraints</b>	739	5,715	12.4% (707)	<b>1.35</b>	<b>0.2%</b>	<b>5.50</b>	<b>.019</b>	1.30	0.1%	3.81	.051			
Personal search	2,859	3,506	12.7% (444)	1.15	0.1%	3.08	.079	1.13	0.1%	1.94	.164			
<b>Chemical restraints</b>	1,477	4,839	12.5% (603)	<b>1.22</b>	<b>0.1%</b>	<b>4.57</b>	<b>.033</b>	1.18	0.1%	2.78	.095			
Safe for cash payments	1,660	4,004	12.5% (500)	1.12	0.1%	1.67	.197	1.11	0.0%	1.22	.269			
Security cameras	804	5,597	12.1% (676)	1.06	0.0%	0.27	.602	1.09	0.0%	0.43	.510			
Security signage	3,239	2,681	12.6% (339)	1.08	0.0%	0.99	.320	1.11	0.0%	1.46	.227			
Visitor tag/badge	3,423	2,930	12.6% (368)	1.09	0.0%	1.29	.256	1.11	0.0%	1.47	.225			
Well-lit areas in the ED	548	5,867	11.8% (693)	0.74	0.1%	2.28	.131	0.79	0.1%	2.96	.085			
All Valid	6,543	6,543	12.1% (789)											

Mean fill for multi-variable model.

Shaded cells indicate significant zero and 6<sup>th</sup>-order effects in Year 1 analyses.

Unique Var: 1.0%

Common Var: 0.1%



**Block 7: PV Rate by Safety Perception, Training, and Preparedness**

Table 16 lists PV rates, odds ratios, and inferential tests for zero-order models and a model including all predictors in this set. Safety and Preparedness ratings were standardized, and attendance and training variables were dummy coded in multi-predictor models. Overall, safety perception, training, and preparedness accounted for 6.0% of error variation ( $p < .001$ ). 5.6% was uniquely attributable to specific items, but almost all of this was due to one item, the Nurse Safety Rating. This rating (item 14) accounted for 5.2% of PV error alone ( $OR = 0.59, p < .001$ ), and 5.1% controlling for other items in the set ( $OR = .53, p < .001$ ). The Preparedness Rating (item 17) accounted for 0.6% of PV error variation alone ( $OR = .85, p < .001$ ), and only 0.4% uniquely ( $OR = 1.19, p < .001$ ). In general, higher safety ratings were associated with lower rates of physical violence (with odds of physical violence dropping approximately in half for every 1 standard deviation on the rating). Attending a training course, or providing training (mandatory or otherwise) showed no substantial impact on PV rates. The present inferential test results confirmed prior findings based only on year 1 data.

**Table 16. Block 7: Physical Violence Rate by Safety Perception, Training, and Preparedness**

Standardized Predictors	Frq	Mean	SD	Zero-order				6 <sup>th</sup> -order				Predictor Set		
				OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
Nurse safety rating	6,495	5.12	2.11	0.59	5.2%	171.30	<.001	0.53	5.1%	171.80	<.001	6.0%	208.00	<.001
Preparedness rating	6,495	5.41	2.18	0.85	0.6%	19.38	<.001	1.19	0.4%	12.86	<.001			
Categorical Predictors	Frq	PV Rate % (n)		Category (vs Other)										
Never attended training	1,303	10.8% (65)		1.00	0.0%	0.00	.977							
Attended training course	5,191	10.9% (248)		1.00	"	"	"							
Attended at current hospital	3,657	10.0% (161)		0.97	0.0%	0.13	.718	0.91	0.0%	0.59	.441			
Attended at other location	986	12.5% (55)		0.91	0.0%	0.78	.378	0.87	0.0%	0.96	.326			
Attended at both	548	13.3% (32)		1.26	0.1%	3.31	.069	1.14	0.0%	0.69	.405			
No training provided	455	10.9% (23)		1.03	0.0%	0.03	.867							
Mandatory training	3,440	10.8% (158)		1.09	0.0%	1.07	.300	1.20	0.0%	1.00	.316			
Training not mandatory	2,190	11.2% (116)		0.91	0.0%	1.35	.245	0.97	0.0%	0.03	.858			
All valid	6,543	11.0% (319)												

Categorical predictors are dummy-coded in multi-predictor models.  
 Mean fill used for multi-predictor models.  
 Shaded cells indicate significant zero and 6<sup>th</sup>-order effects in Year 1 analyses.

Unique Var: 5.6%  
 Common Var: 0.4%



**Block 8: PV Rate by Hospital Safety Commitment and Policy**

Table 17 reports PV rates, odds ratios, and inferential tests for zero-order models and a model including all predictors in this set. Commitment predictors (item 20 sub-categories) were standardized. Three tolerance policy categories were generated from items 18 and 19 – The presence of (1) No Reporting Policy, (2) No Identified Zero-Tolerance Reporting Policy, or (3) A Zero Tolerance Reporting Policy. Tolerance policy categories were mutually exclusive and dummy coded (versus NRP) in the multi-predictor model.

Overall, hospital safety commitment and policy accounted for 4.9% of error in physical violence rates ( $p < .001$ ). All items this set demonstrated significant zero-order effects, and much of the 4.9% (3.2% was common error) was attributed to shared effects of items. Overall, higher commitment and the presence of reporting policies (especially zero tolerance policies) was associated with a lower odds of physical violence. Hospitals with no reporting policy had an 18.3% PV rate, hospitals with a reporting policy not identified as zero tolerance had a 13.7% PV rate, and the lowest rate was in zero-tolerance settings (9.1%). Replicating prior findings, two commitment categories contributed uniquely to the multi-predictor model – Hospital Administration commitment ( $OR = .81, p < .001$ ) and ED Management commitment ( $OR = 0.77, p < .001$ ). A unique effect for nurse commitment was in the opposite direction of the zero-order effect and was marginally significant and inconsistent with prior findings (perhaps type I error). Overall, findings were quite similar to those demonstrated in prior analyses.

**Table 17. Block 8: Physical Violence Rate by Hospital Safety Commitment and Policy**

Standardized Predictors	Frq	Mean	SD	Zero-order				6 <sup>th</sup> -order				Predictor Set						
				OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p				
Commitment rating																		
Hospital administration	6,381	2.62	0.95	<b>0.66</b>	<b>3.7%</b>	<b>126.00</b>	<b>&lt;.001</b>	<b>0.81</b>	<b>0.4%</b>	<b>15.87</b>	<b>&lt;.001</b>	4.9%	169.70	<.001				
ED management	6,501	3.13	0.88	<b>0.66</b>	<b>3.8%</b>	<b>134.70</b>	<b>&lt;.001</b>	<b>0.77</b>	<b>0.8%</b>	<b>26.44</b>	<b>&lt;.001</b>							
Nurses	6,480	3.48	0.64	<b>0.89</b>	<b>0.3%</b>	<b>11.13</b>	<b>&lt;.001</b>	<b>1.16</b>	<b>0.2%</b>	<b>8.24</b>	<b>.004</b>							
Physicians	6,483	3.13	0.81	<b>0.81</b>	<b>1.0%</b>	<b>35.62</b>	<b>&lt;.001</b>	0.99	0.0%	0.04	.848							
Other healthcare workers	6,426	3.16	0.80	<b>0.79</b>	<b>1.3%</b>	<b>44.27</b>	<b>&lt;.001</b>	0.91	0.1%	2.95	.086							
Categorical Predictors	Frq	PV Rate % (n)	Category (vs Other)															
No reporting policy	717	18.3% (131)	<b>1.74</b>	<b>0.8%</b>	<b>0.00</b>	<b>&lt;.001</b>												
Reporting policy	5,075	11.4% (579)	0.58	"	"	"												
No identified zero tolerance	2,546	13.7% (348)	<b>1.26</b>	<b>0.3%</b>	<b>2.37</b>	<b>.156</b>	0.80	0.1%	1.45	.229								
Zero tolerance	2,529	9.1% (231)	<b>0.58</b>	<b>1.4%</b>	<b>1.41</b>	<b>&lt;.001</b>	<b>0.74</b>	<b>0.1%</b>	<b>2.07</b>	<b>.150</b>								
ALL valid	6,543	12.1% (789)																

Categorical predictors are dummy-coded in multi-predictor models.

Mean fill used for multi-predictor models.

Shaded cells indicate significant category, zero or 6<sup>th</sup>-order effects in Year 1 analyses.

Unique Var: 1.7%  
Common Var: 3.2%



**Block 9: PV Rate by Nurse Demographic Variables**

Table 8 lists PV rates and associated statistics for nurse sex (item 86) and age group (item 87). The 6 age group categories were reduced to 4 categories, collapsing low frequency categories at the extremes of the age distribution. All predictors were dummy coded in the multi-predictor model (Age reference category = 18 to 34).

Overall, the demographic variables accounted for 1.8% of PV rate variation ( $p < .001$ ). Both items contributed uniquely to the effect. Male nurses reported higher PV rates than female nurses (18.2% versus 11.0%,  $p < .001$ ). For older ages, PV rates tended to decline, from 15.6% in the youngest category (18 to 34) to 8.6% in the oldest category (55 or older). In the multiple predictor model, effects for both items were retained. The odds of physical violence were 1.91 times higher in the youngest category versus the oldest category, (OR=0.52,  $p < .001$ ), and men reported higher odds of physical violence than women (OR=1.77,  $p < .001$ ). All inferential results were consistent with prior analyses.

**Table 18. Block 9: Physical Violence Rate by Nurse Demographic Variables**

Categorical Predictors	Frq	PV Rate % (n)	Category (vs Other)				3 <sup>rd</sup> -order				Predictor Set						
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p				
Sex																	
Male	976	18.2% (178)	<b>1.81</b>	<b>1.1%</b>	<b>37.02</b>	<b>&lt;.001</b>	<b>1.77</b>	<b>1.0%</b>	<b>36.65</b>	<b>&lt;.001</b>	1.8%	63.29	<.001				
Female	5,511	11.0% (606)	0.55	"	"	"											
Age group																	
18-24	132	15.2% (20)	1.31	0.0%	1.21	.272											
25-34	1,091	15.7% (171)	<b>1.45</b>	<b>0.4%</b>	<b>15.98</b>	<b>&lt;.001</b>											
35-44	1,796	12.5% (224)	1.05	0.0%	0.40	.529											
45-54	2,297	11.7% (268)	0.94	0.0%	0.52	.472											
55-64	1,155	8.7% (101)	<b>0.65</b>	<b>0.5%</b>	<b>14.37</b>	<b>&lt;.001</b>											
65+	46	4.3% (2)	0.33	0.1%	2.35	.125											
Age group (collapsed)																	
18-34	1,223	15.6% (191)	<b>1.46</b>	<b>0.5%</b>	<b>17.79</b>	<b>&lt;.001</b>											
35-44	1,796	12.5% (224)	1.05	0.0%	0.40	.529	<b>0.76</b>	<b>0.2%</b>	<b>6.50</b>	<b>.011</b>							
45-54	2,297	11.7% (268)	0.94	0.0%	0.52	.472	<b>0.72</b>	<b>0.3%</b>	<b>10.43</b>	<b>.001</b>							
55+	1,201	8.6% (103)	<b>0.64</b>	<b>0.5%</b>	<b>16.61</b>	<b>&lt;.001</b>	<b>0.52</b>	<b>0.7%</b>	<b>24.75</b>	<b>&lt;.001</b>							
ALL Valid	6,543	12.1% (789)															

Categorical predictors are dummy-coded in multi-predictor models.  
 Mean fill used for multi-predictor models.  
 Shaded cells indicate significant category or 3<sup>rd</sup>-order effects in Year 1 analyses.

Unique Var: 1.8%  
 Common Var: 0.0%

## Block 10: PV Rate by Nurse Role

Table 19 lists PV rates and associated statistics for categories defined by primary nurse role (9 mutually exclusive categories based on item 88). In multi-predictor models, role categories were dummy coded and contrasted with the largest category – Staff Nurse. Overall Nurse Role accounted for 2.3% of PV variation ( $p < .001$ ). Staff Nurses and Charge Nurses reported the highest rates (13.3% and 15.8%, respectively), and the lowest rates were reported by Clinical Nurse Specialists (3.8%), Clinical Educators (4.5%), and Directors/Managers (6.3%). Dummy coded contrasts for the above categories were significant in the multi-predictor model. Specifically, Charge Nurses reported higher odds of physical violence than Staff Nurses ( $OR = 1.22$ ,  $p = .033$ ). Clinical Coordinators, Director/Managers, Clinical Educators, and Clinical Nurse Specialists reported lower odds of physical violence than Staff Nurses ( $OR$ 's = 0.57, and 0.44, 0.31, and 0.26, respectively, all  $p < .05$ ). Overall, these findings were similar to those previously reported, but significance levels have been enhanced for a number of categories in the present analyses.

**Table 19. Block 10: Physical Violence Rate by Nurse Role**

Categorical Predictors	Frq	PV Rate % (n)	Category (vs Other)				8 <sup>th</sup> -order				Predictor Set							
			OR	r <sup>2</sup>	$\chi^2$	p	OR	$\Delta r^2$	$\chi^2$	p	R <sup>2</sup>	$\chi^2$	p					
Nurse primary role																		
<b>Staff nurse</b>	3,735	13.3% (495)	<b>1.31</b>	<b>0.3%</b>	<b>11.66</b>	<b>&lt;.001</b>												
<b>Charge nurse</b>	1,130	15.8% (178)	<b>1.47</b>	<b>0.5%</b>	<b>17.40</b>	<b>&lt;.001</b>	<b>1.22</b>	<b>0.1%</b>	<b>4.53</b>	<b>.033</b>								
<b>Clinical coordinator</b>	187	8.0% (15)	0.63	0.1%	2.91	.088	<b>0.57</b>	<b>0.1%</b>	<b>14.20</b>	<b>.040</b>								
<b>Clinical educator</b>	247	4.5% (11)	<b>0.33</b>	<b>0.5%</b>	<b>12.68</b>	<b>&lt;.001</b>	<b>0.31</b>	<b>0.6%</b>	<b>14.46</b>	<b>&lt;.001</b>								
<b>Clinical nurse specialist</b>	78	3.8% (3)	<b>0.29</b>	<b>0.2%</b>	<b>4.43</b>	<b>.035</b>	<b>0.26</b>	<b>0.2%</b>	<b>5.15</b>	<b>.023</b>								
<b>Director/manager</b>	775	6.3% (49)	<b>0.46</b>	<b>0.9%</b>	<b>26.04</b>	<b>&lt;.001</b>	<b>0.44</b>	<b>1.0%</b>	<b>27.68</b>	<b>&lt;.001</b>								
Nurse practitioner	81	7.4% (6)	0.58	0.1%	1.63	.201	0.52	0.1%	2.30	.130								
Trauma coordinator	80	6.3% (5)	0.48	0.1%	2.47	.116	0.44	0.1%	3.19	.074								
Others (48) or Missing (14)	230	11.7% (27)	0.97	0.0%	0.02	.880	0.87	0.0%	0.43	.510								
ALL Valid	6,543	12.1% (789)																

Categorical predictors are dummy-coded in multi-predictor models (vs staff nurse).

Mean fill used for multi-predictor models.

Shaded cells indicate significant category, zero or 8<sup>th</sup>-order effects in Year 1 analyses.

Unique Var: 2.3%

Common Var: 0.0%

## Relative Contribution of 10 Predictor Blocks to PV Rates

Table 20 lists analog multiple R-squared statistics for each block alone, and the change in Nagelkerke R-squared associated with including each predictor block after controlling for all items from other blocks. Overall, 14.6% of variation in PV rates was explained by the full set of predictors from all blocks ( $p < .001$ ), with substantial unique contributions from individual blocks (9.1% unique error versus 5.5% shared among predictor blocks). This estimate is somewhat lower than the 17.3% rate previously reported based on Year 1 data alone, but the relative contribution of blocks was similar (previously, 10.7% unique error versus 6.6% shared).

With respect to zero-order tests, all blocks (including Environmental Control Measures) explained significant variation in physical violence rates. With respect to the full standard model, the 5 blocks with substantial and significant unique contributions to the predictive model, in descending order of effect size, were – Safety Perception, Training, and Preparedness ( $\Delta R^2 = 2.7\%$ ), Hospital Safety Commitment and Policy ( $\Delta R^2 = 1.4\%$ ), Nurse Demographics ( $\Delta R^2 = 1.1\%$ ), ED Capacity and Utilization ( $\Delta R^2 = 1.0\%$ ), and Nurse Role ( $\Delta R^2 = 1.0\%$ ).



In the present analyses, the unique contribution of Security/Personnel Type (0.3%) was weaker than observed previously, and the unique effects of Nurse Demographics and Role were greater. In these and prior analyses, 3 blocks with consistent and substantial unique contributions to the predictive model were – Safety Perception, Training, and Preparedness, Hospital Safety Commitment and Policy, and ED Capacity and Utilization.

**Table 20. Relative Contribution of 10 Predictor Blocks to Physical Violence Rates**

Block	Predictor Block	Zero Order Block Effect			Unique Block Effect			Overall Model		
		R <sup>2</sup>	χ <sup>2</sup>	p	ΔR <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
Block 1	<b>Population served</b>	<b>0.5%</b>	<b>17.04</b>	<b>&lt;.001</b>	<b>0.4%</b>	<b>15.43</b>	<b>&lt;.001</b>	14.6%	516.99	<.001
Block 2	<b>Region served</b>	<b>0.8%</b>	<b>27.14</b>	<b>&lt;.001</b>	0.1%	2.19	.534			
Block 3	<b>ED capacity and utilization</b>	<b>2.5%</b>	<b>87.40</b>	<b>&lt;.001</b>	<b>1.0%</b>	<b>35.83</b>	<b>&lt;.001</b>			
Block 4	<b>Facility type</b>	<b>1.0%</b>	<b>34.10</b>	<b>&lt;.001</b>	0.2%	7.72	.358			
Block 5	<b>Security/Personnel type</b>	<b>0.7%</b>	<b>22.61</b>	<b>.002</b>	0.3%	12.23	.093			
Block 6	<b>Environmental control measures</b>	<b>1.1%</b>	<b>36.78</b>	<b>.008</b>	<b>0.9%</b>	<b>33.86</b>	<b>.019</b>			
Block 7	<b>Safety perception, training, and preparedness</b>	<b>6.0%</b>	<b>207.97</b>	<b>&lt;.001</b>	<b>2.7%</b>	<b>98.20</b>	<b>&lt;.001</b>			
Block 8	<b>Hospital safety commitment and policy</b>	<b>4.9%</b>	<b>169.71</b>	<b>&lt;.001</b>	<b>1.4%</b>	<b>49.76</b>	<b>&lt;.001</b>			
Block 9	<b>Nurse demographics</b>	<b>1.8%</b>	<b>63.29</b>	<b>&lt;.001</b>	<b>1.1%</b>	<b>41.00</b>	<b>&lt;.001</b>			
Block 10	<b>Nurse role</b>	<b>2.3%</b>	<b>78.70</b>	<b>&lt;.001</b>	<b>1.0%</b>	<b>38.10</b>	<b>&lt;.001</b>			

*Shaded rows indicate blocks with significant unique effects in Year 1 analyses.*

### *Unique Item Effects (Controlling for All Items from All Blocks)*

Table 21 lists odds ratios with confidence intervals and test statistics evaluating the unique contribution of each item (68 predictors) controlling for all other predictors. Whereas previously only 8 predictors demonstrated significant unique effects, 18 predictors yielded significant unique effects in the present analyses. This is to be expected given the enhanced statistical power consequent to including a full additional year of surveys (total n = 6543).

As in the prior model, the Nurse Safety Rating had a particularly large effect (OR=0.59, p<.001). For every 1 standard deviation lower on the rating (approximately 2 points), the odds of physical violence increased 1.69 times. The preparedness rating also yielded a significant effect (OR=1.14, p=.013), but this effect was marginally significant and in the opposite direction when compared with the zero-order model for preparedness (i.e., a “suppressor” effect).

The largest single item effect was found for the nurse Sex variable. In the present update, Nurse Demographic variables had a somewhat greater unique impact than was previously estimated. Controlling for other factors, male nurses were 1.74 times more likely to report physical violence (p<.001). As in prior analyses, nurse Age was also a powerful single item predictor, with nurses younger than 34 being 1.58 times more likely to report violence than those 55 or older (p<.001).

Consistent with prior analyses, the next largest unique effect was for ED Management Safety Commitment – for each standard deviation of heightened commitment the odds of physical violence dropped by 18% (OR=0.82, p<.001).





The next largest single item effect was for an ED capacity and utilization (standardized) item – Total Annual ED visits. Specifically, controlling for other items, for every 1 standard deviation increase (approximately 2 ED visits), the odds of physical violence go up by 21% (OR=1.21,  $p<.001$ ).

Other significant unique effects were detected for population-served items, use of added bed space, ACS certification, police/sheriff security, 24/7 security, zero-tolerance policies, and various nurse role effects. All these significant unique effects were in a direction consistent with previously described within block effects.

**Table 21. Standard Logistic Model – Predicting Physical Violence from All Predictors**

Block	Item	OR	OR 95% CI		$\chi^2$	p
			LB	UB		
Population served	Adult Only (vs General ED)	0.65	0.48	0.87	8.31	.004
	Pediatric Only (vs General ED)	0.41	0.20	0.82	6.36	.012
Region served	Large urban (vs Rural)	1.06	0.79	1.42	0.16	.694
	Small urban (vs Rural)	0.91	0.68	1.20	0.47	.495
	Suburban (vs Rural)	0.95	0.72	1.25	0.16	.692
ED capacity and utilization	Total licensed beds (z)	1.06	0.95	1.18	0.97	.324
	Additional treatment spaces (z)	1.02	0.92	1.13	0.17	.682
	Use of added spaces (z)	1.15	1.05	1.26	8.35	.004
	Total annual ED visits (z)	1.21	1.08	1.36	10.68	.001
Facility type	Investor-owned, for-profit (vs not-for-profit)	1.09	0.88	1.35	0.59	.441
	State or local gov't (vs not-for-profit)	1.01	0.76	1.35	0.01	.932
	Federal/Military/VA (vs not-for-profit)	0.63	0.30	1.32	1.49	.222
	Trauma center	0.79	0.58	1.07	2.34	.126
	ACS certified	1.28	1.00	1.63	3.86	.050
	State certified	1.12	0.88	1.43	0.91	.341
Security/Personnel type	Self-designated	1.27	0.90	1.79	1.80	.179
	Hospital-employed security	0.96	0.74	1.25	0.08	.781
	Police/sheriff	1.27	1.02	1.59	4.64	.031
	Campus police	1.09	0.78	1.53	0.27	.605
	Private security	1.12	0.85	1.48	0.64	.421
	Other security	0.92	0.49	1.73	0.06	.799
Environmental control measures	Security based in ED	1.13	0.93	1.73	1.43	.231
	24/7 security	0.80	0.66	0.98	4.48	.034
	Bullet-proof glass	0.86	0.64	1.16	0.95	.329
	Enclosed nurses' station	1.21	0.92	1.59	1.80	.179
	Handcuffs	0.96	0.76	1.22	0.12	.728
	Security batons	0.92	0.70	1.21	0.33	.563
	Pseudonym for call code	1.06	0.88	1.29	0.38	.538
	Mace	0.94	0.69	1.27	0.16	.688
	Limits on number of visitors	1.10	0.92	1.32	1.08	.299
	Locked treatment spaces	1.08	0.89	1.31	0.67	.413
	Locked/coded ED entry	0.99	0.80	1.23	0.00	.948
	Mirrors for hidden spaces	1.08	0.90	1.29	0.63	.426
	Panic button/silent alarm	0.83	0.69	1.00	3.79	.051
	Physical/leather restraints	1.26	0.95	1.67	2.68	.102
	Personal search	1.20	1.00	1.44	3.95	.047
	Chemical restraints	1.08	0.88	1.33	0.55	.460
	Safe for cash payments	1.09	0.89	1.33	0.74	.388
Security cameras	1.20	0.93	1.55	1.89	.169	
Security signage	1.26	1.04	1.51	5.84	.016	
Visitor tag/badge	1.02	0.85	1.21	0.03	.862	
Well-lit areas in the ED	1.06	0.80	1.40	0.16	.685	
Safety perception, training, and preparedness	Nurse safety rating (z)	0.59	0.53	0.66	81.98	<.001
	Preparedness rating (z)	1.14	1.03	1.26	6.19	.013
	Attended at current hospital (vs no training)	1.06	0.81	1.38	0.17	.683
	Attended at other location (vs no training)	0.97	0.73	1.28	0.05	.817
	Attended at both (vs no training)	1.27	0.89	1.81	1.70	.193
	Mandatory training (vs no training)	1.20	0.83	1.74	0.96	.326
	Training not mandatory (vs no training)	1.04	0.75	1.44	0.05	.821
Hospital safety commitment and policy	Hospital administration commitment (z)	0.89	0.80	1.00	3.80	0.51
	ED management commitment (z)	0.82	0.74	0.92	12.27	<.001
	Nurses commitment (z)	1.05	0.95	1.17	0.86	.353
	Physicians commitment (z)	1.05	0.94	1.17	0.65	.420
	Other healthcare workers commitment (z)	0.92	0.83	1.03	2.11	.146
	No zero tolerance policy (vs no reporting policy)	0.81	0.64	1.04	2.74	.098
Nurse sex and age	Zero tolerance policy (vs no reporting policy)	0.70	0.53	0.91	6.83	.009
	Male (vs Female)	1.74	1.43	2.13	29.85	<.001
	Age 35-44 (vs 18-34)	0.78	0.62	0.97	5.00	.025
	Age 45-54 (vs 18-34)	0.82	0.66	1.02	3.21	.073
	Age 55+ (vs 18-34)	0.63	0.48	0.83	10.96	<.001
Nurse role	Charge nurse (vs Staff nurse)	1.37	1.12	1.68	9.58	.002
	Clinical coordinator (vs SN)	0.72	0.41	1.26	1.32	.250
	Clinical educator (vs SN)	0.38	0.20	0.71	9.11	.003
	Clinical nurse specialist (vs SN)	0.31	0.09	1.00	3.85	.050
	Director/manager (vs SN)	0.77	0.55	1.07	2.44	.118
	Nurse practitioner (vs SN)	0.53	0.22	1.27	2.00	.157
	Trauma coordinator (vs SN)	0.57	0.22	1.45	1.40	.236
	Others (48) or Missing (14) (vs SN)	1.03	0.67	1.59	0.02	.877

Shaded rows indicate significant item effects in Year 1 analyses.

## Factors Associated with Occurrence of Verbal Abuse

### Block 1: VA Rate by Types of EDs based on Population Served

Table 22 contrasts 3 populations (Adult Only, Pediatric Only, and General ED) on VA rates. Overall, 0.9% of VA rate variation was explained by population served ( $p < .001$ ). As with PV rates, this was primarily due to the relatively low VA rate in pediatric only setting as contrasted with the VA rate in the full sample (33.2% vs. 53.7%, respectively). VA rates were above average in Adult Only settings (59.6%). The estimated VA rates for the 8 survey samples were quite consistent with rates estimated in the first year of data collection (samples 1 to 4).

**Table 22. Block 1: Verbal Abuse Rate by Population Served**

Population	Frq	VA Rate % (n)	Category (vs Other)				Category Set		
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
Adult Only	644	59.6% (384)	1.31	0.2%	10.01	.002	0.9%	45.76	<.001
<b>Pediatric Only</b>	214	33.2% (71)	<b>0.42</b>	<b>0.8%</b>	<b>35.42</b>	<b>&lt;.001</b>			
General ED	5,673	53.8% (3,053)	1.03	0.0%	0.19	.667			
All Valid	6,531	53.7% (3,508)							

r<sup>2</sup> = Nagelkerke "percent error explained" analog statistics.

Shaded cells indicate significant category effects in Year 1 analyses.

### Block 2: VA Rate by Region Served

Table 23 lists VA rates for Rural, Suburban, Small Urban, and Large Urban regions. Overall, 2.2% of VA rate error was explained by Region Served ( $p < .001$ ). As with physical violence, verbal abuse rates tended to increase with population density, rising from Rural (44.3%) to Large Urban (61.5%) settings with middling rates in suburban and small urban settings. As with the year 1 report, the VA rate was significantly above average in large urban settings (OR=1.60,  $p < .001$ ), and significantly below average in suburban settings (OR=0.80,  $p < .001$ ) and rural settings (OR=0.63,  $p < .001$ ).

**Table 23. Block 2: Verbal Abuse Rate by Region Served**

Region Type	Frq	VA Rate % (n)	Category (vs Other)				Category Set		
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
<b>Large urban</b>	2,096	61.5% (1,290)	<b>1.60</b>	<b>1.6%</b>		<b>&lt;.001</b>	2.2%	110.78	<.001
Small urban	1,507	55.3% (833)	1.09	0.0%		.158			
<b>Suburban</b>	1,664	49.5% (823)	<b>0.80</b>	<b>0.3%</b>		<b>&lt;.001</b>			
<b>Rural</b>	1,262	44.3% (559)	<b>0.63</b>	<b>1.1%</b>		<b>&lt;.001</b>			
ALL Valid	6,529	53.7% (3,505)							

r<sup>2</sup> = Nagelkerke "percent error explained" analog statistics.

Shaded cells indicate significant category effects in Year 1 analyses.

### Block 3: VA Rate by ED Capacity and Utilization

Table 24 lists the four capacity and utilization variables included as standardized predictors in zero-order and multi-predictor models. The block of 4 capacity and utilization items accounted for 5.1% of variation in VA rates ( $p < .001$ ). Overall, as Total ED Beds, Additional Treatment Space, Use of Added Space, and Total ED Visits increased, the odds of physical violence increased. Three items (Availability of Additional Treatment Spaces, Use of Added Space, and Total Annual Visits) contributed 1.7% uniquely to the 5.1% error reduction; however, most variation was accounted for in common by the set of 4 items (3.4%) and all items showed a significant and substantial zero-order relationship with the VA rate. The pattern of results was consistent with that described in the Year 1 report.

**Table 24. Block 3: Verbal Abuse Rate by ED Capacity and Utilization**

Predictor	Mean	SD	Zero-order				3 <sup>rd</sup> -order				Predictor Set		
			OR	r <sup>2</sup>	$\chi^2$	p	OR	$\Delta r^2$	$\chi^2$	p	R <sup>2</sup>	$\chi^2$	p
Total ED Beds	30.7	17.8	1.25	1.5%	73.87	<.001	1.01	0.0%	0.03	.871	5.1%	253.5	<.001
Additional treatment spaces	6.4	3.8	1.40	3.6%	175.40	<.001	1.20	1.7%	34.05	<.001			
Use of added spaces	14.7	11.6	1.34	2.8%	136.60	<.001	1.16	0.5%	23.90	<.001			
Total annual ED visits	5.7	2.0	1.353	2.9%	139.80	<.001	1.20	0.5%	26.77	<.001			

ORs are based on standardized predictors (following mean fill for missing data, N=6,543).  
Shaded cells indicate significant zero and 3<sup>rd</sup>-order effects in Year 1 analyses.

Unique Var: 1.7%  
Common Var: 3.4%

### Block 4: VA Rate by Facility Type

Table 25 reports VA rates and tests for Facility Type, as defined by ownership status (private, not-for-profit, government) and trauma center certification/status. Overall, 1.9% of variation was accounted for by Facility Type ( $p < .001$ ). With respect to zero-order correlations with ownership status, Investor-owned facilities and State/local facilities reported significantly above average VA rates (56.7% and 58.1%, respectively). Non-government, not-for-profit facilities and Federal/Military/VA facilities reported below average VA rates (52.8% and 46.6%, respectively). With respect to zero-order trauma center effects, non-trauma centers showed significantly lower VA rates than trauma centers (50.4% vs. 56.9%, respectively,  $p < .001$ ). Compared with non-trauma centers, VA rates were significantly higher in ACS certified trauma centers (61.3%,  $p < .001$ ), State certified trauma centers (56.8%,  $p < .001$ ), and self-designated trauma centers (64.5%,  $p < .001$ ). In the multi-predictor model, unique effects for ACS certification, state certification, and self-designated trauma centers remained significant (OR's = 1.71, 1.30, and 1.60, respectively). With respect to ownership status, controlling for other block predictors, the contrast of Investor-owned versus Not-for-profit facilities remained significant, with odds of verbal abuse being 1.19 times higher in Investor-owned facilities,  $p = .012$ . Overall, the pattern of results was quite similar to that described after the first year of survey data was analyzed.

**Table 25. Block 4: Verbal Abuse Rate by Facility Type**

Facility Type	Frq	VA Rate % (n)	Category (vs Other)				Category Set		
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
<b>Non-gov't, not-for-profit</b>	4,773	52.8% (2,520)	<b>0.87</b>	<b>0.1%</b>	<b>6.24</b>	<b>.012</b>	0.3%	12.61 (df=3)	.006
<b>Investor-owned, for-profit</b>	1,045	56.7% (593)	<b>1.16</b>	<b>0.1%</b>	<b>4.56</b>	<b>.033</b>			
<b>State or local gov't</b>	539	58.1% (313)	<b>1.21</b>	<b>0.1%</b>	<b>4.45</b>	<b>.035</b>			
Federal/Military/VA ALL Valid	148	46.6% (69) 53.7% (3,495)	0.75	0.1%	3.06	.080			
<b>Not a trauma center</b>	3,065	50.4% (1,545)	<b>0.87</b>	<b>0.6%</b>	<b>27.26</b>	<b>&lt;.001</b>	1.7%	83.62 (df=4)	<.001
<b>Trauma center</b>	3,423	56.9% (1,947)	<b>1.13</b>	"	"	"			
<b>ACS certified</b>	1,931	61.3% (1,183)	<b>1.36</b>	<b>1.3%</b>	<b>61.70</b>	<b>&lt;.001</b>			
<b>State certified</b>	2,293	56.8% (1,303)	<b>1.13</b>	<b>0.3%</b>	<b>12.89</b>	<b>&lt;.001</b>			
<b>Self-designated</b>	321	64.5% (207)	<b>1.56</b>	<b>0.3%</b>	<b>15.73</b>	<b>&lt;.001</b>			
ALL Valid	6,488	53.8% (3,492)							
Item	6 <sup>th</sup> -order					Predictor Set			
	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p		R <sup>2</sup>	χ <sup>2</sup>	p	
<b>Inv.-owned, for-profit (vs NFP)</b>	<b>1.19</b>	<b>0.1%</b>	<b>6.25</b>	<b>.012</b>		1.9%	92.80	<.001	
State or local gov't (vs NFP)	1.15	0.0%	2.29	.130					
Fed/Military/VA (vs NFP)	0.85	0.0%	0.95	.329					
<b>Trauma center</b>	<b>0.77</b>	<b>0.1%</b>	<b>6.62</b>	<b>.010</b>					
<b>ACS certified</b>	<b>1.71</b>	<b>0.9%</b>	<b>46.01</b>	<b>&lt;.001</b>					
<b>State certified</b>	<b>1.30</b>	<b>0.2%</b>	<b>9.94</b>	<b>.002</b>					
<b>Self-designated</b>	<b>1.60</b>	<b>0.3%</b>	<b>13.56</b>	<b>&lt;.001</b>					

Trauma Center sub-categories are not mutually exclusive, 11 TCs denied all 3 subtype designations  
 Mean fill for multi-variable models.  
 r<sup>2</sup> = Nagelkerke "percent variance" analog statistics.  
 Shaded cells indicate significant df=1 effects in Year 1 analyses.

Unique Var: 1.8%  
 Common Var: 0.1%

**Block 5: VA Rate by Security Type and Personnel**

Table 26 reports VA rates and tests for Security Type and Personnel. All predictors were binary, and categories were not mutually exclusive. Overall, 1.0% of VA variation was accounted for by the predictor set (p<.001). With respect to zero-order relationships, VA rates were lower when security was absent (39.0%, p<.001), and higher when various security types were present – specifically, Hospital-Employed Security (54.7%, p=.010), Campus Police (59.2%, p=.017), and Private Security (56.9%, p=.018). Controlling for all block predictors, Hospital-Employed Security, Police/Sheriff, Campus Police, and Private Security were each uniquely and significantly associated with a higher odds of verbal abuse (OR's = 1.51, 1.16, 1.51, and 1.61, respectively). The pattern of results was quite consistent with those described in the Year 1 report.

**Table 26. Block 5: Verbal Abuse Rate by Security Type and Personnel**

Security Type and Personnel	Frq	VA Rate % (n)	Category (vs Other)				6 <sup>th</sup> -order				Predictor Set		
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
<b>No security</b>	349	39.0% (136)	<b>0.53</b>	<b>0.7%</b>	<b>32.14</b>	<b>&lt;.001</b>					1.0%	49.50	<.001
Any security	6,194	54.5% (3,377)	1.88	"	"	"							
<b>Hospital-employed</b>	4,700	54.7% (2,570)	<b>1.15</b>	<b>0.1%</b>	<b>6.57</b>	<b>.010</b>	<b>1.51</b>	<b>0.6%</b>	<b>31.42</b>	<b>&lt;.001</b>			
<b>Police/sheriff</b>	1,046	55.3% (578)	1.08	0.0%	1.23	.267	<b>1.16</b>	<b>0.1%</b>	<b>4.62</b>	<b>.032</b>			
<b>Campus police</b>	429	59.2% (254)	<b>1.27</b>	<b>0.1%</b>	<b>5.66</b>	<b>.017</b>	<b>1.51</b>	<b>0.3%</b>	<b>15.01</b>	<b>&lt;.001</b>			
<b>Private Security</b>	1,114	56.9% (634)	<b>1.17</b>	<b>0.1%</b>	<b>5.62</b>	<b>.018</b>	<b>1.61</b>	<b>0.6%</b>	<b>30.18</b>	<b>&lt;.001</b>			
Other	138	46.4% (64)	0.74	0.1%	3.02	.082	0.97	0.0%	0.03	.853			
Security based in ED	3,649	54.4% (1,985)	0.98	0.0%	0.09	.759	0.94	0.0%	0.96	.327			
24/7 security	4,366	54.3% (2,372)	0.97	0.0%	0.30	.583	0.95	0.0%	0.84	.360			
ALL Valid	6,543	53.7% (3,513)											

For "Security Based in ED", 381 did not respond (Total N = 6,162); Mean fill employed for multi-variable models.  
 For "24/7 Security", 371 did not respond (Total N = 6,172); Mean fill employed for multi-variable models.  
 For "24/7 Security", responses were adjusted to "Yes" if item 12 sum indicated 24/7 Security.  
 Item 12 sum (Weekly Security Hours) excluded due to high multi-collinearity (with 24/7 Security).  
 Shaded cells indicate significant df=1 effects in Year 1 analyses.

Unique Var: 1.0%  
 Common Var: 0.0%



### Block 6: VA Rate by Environmental Control Measures (ECMs)

The 19 ECM categories were binary categories, and not mutually exclusive. Multi-variable models included the full set of 19, dummy-coded. Overall, the set of Environmental Control Measures accounted for 1.8% of verbal abuse variation ( $p < .001$ ). This effect was attributable to 7 items and 5 of these also showed significant unique effects. The presence of an enclosed nurses' station, call code pseudonyms, locked ED entry, security signage, and well-lit areas were associated with significantly lower VA rates (45.1%, 53.1%, 53.0%, 52.5% and 52.7%, respectively, versus the full sample average of 53.7%). Handcuffs and chemical restraints were associated with significantly higher VA rates (57.9% and 55.1%, respectively). Except for pseudonyms and locked entry, these ECMs retained significant unique effects controlling for other ECMS. All effects that were significant in prior analyses were retained as significant in this update (Table 27).

**Table 27. Block 6: Verbal Abuse Rate by Environmental Control Measures**

Environmental Control Measures	Frq No	Frq Yes	VA Rate   Y % (n)	Yes (vs No)				18 <sup>th</sup> -order				Predictor Set		
				OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
Bullet-proof glass	5,530	615	53.0% (326)	0.94	0.0%	0.51	.475	1.01	0.0%	0.00	.948	1.8%	86.85	<.001
<b>Enclosed nurses' station</b>	5,694	689	45.1% (311)	<b>0.68</b>	<b>0.5%</b>	<b>23.24</b>	<b>&lt;.001</b>	<b>0.70</b>	<b>0.4%</b>	<b>18.48</b>	<b>&lt;.001</b>			
Handcuffs	4,928	1,280	57.9% (741)	<b>1.20</b>	<b>0.2%</b>	<b>8.56</b>	<b>.003</b>	<b>1.29</b>	<b>0.2%</b>	<b>11.46</b>	<b>&lt;.001</b>			
Security batons	5,150	911	54.8% (499)	1.02	0.0%	0.05	.829	0.93	0.0%	0.73	.393			
<b>Pseudonym for call code</b>	1,398	5,001	53.1% (2,656)	<b>0.87</b>	<b>0.1%</b>	<b>5.09</b>	<b>.024</b>	0.89	0.1%	3.49	.062			
Mace	5,289	637	56.2% (358)	1.06	0.0%	0.55	.460	1.02	0.0%	0.06	.809			
Limits on number of visitors	2,315	4,110	53.0% (2,180)	0.92	0.1%	2.57	.109	0.97	0.0%	0.35	.553			
Locked treatment spaces	4,709	1,621	52.3% (848)	0.92	0.0%	2.30	.129	0.94	0.0%	1.08	.299			
<b>Locked/coded ED entry</b>	1,160	5,279	53.3% (2,798)	<b>0.86</b>	<b>0.1%</b>	<b>5.07</b>	<b>.024</b>	0.91	0.0%	1.69	.193			
Mirrors for hidden spaces	4,291	1,991	52.5% (1,045)	0.91	0.1%	2.67	.102	0.96	0.0%	0.55	.460			
Panic button/silent alarm	1,551	4,848	53.9% (2,611)	1.00	0.0%	0.00	.953	1.00	0.0%	0.00	.968			
Physical/leather restraints	739	5,715	54.2% (3,097)	1.13	0.1%	2.43	.119	1.07	0.0%	0.67	.413			
Personal search	2,859	3,506	54.1% (1,895)	1.02	0.0%	0.10	.753	1.01	0.0%	0.07	.798			
<b>Chemical restraints</b>	1,477	4,839	55.1% (2,665)	<b>1.24</b>	<b>0.3%</b>	<b>12.81</b>	<b>&lt;.001</b>	<b>1.26</b>	<b>0.3%</b>	<b>13.24</b>	<b>&lt;.001</b>			
Safe for cash payments	1,660	4,004	54.3% (2,173)	1.00	0.0%	0.00	.970	1.03	0.0%	0.27	.603			
Security cameras	804	5,597	53.7% (3,004)	0.95	0.0%	0.48	.488	1.01	0.0%	0.02	.898			
<b>Security signage</b>	3,239	2,681	52.5% (1,407)	<b>0.87</b>	<b>0.2%</b>	<b>7.47</b>	<b>.006</b>	<b>0.88</b>	<b>0.1%</b>	<b>5.22</b>	<b>.022</b>			
Visitor tag/badge	3,423	2,930	54.0% (1,582)	1.02	0.0%	0.18	.672	1.08	0.0%	1.89	.170			
<b>Well-lit areas in the ED</b>	548	5,867	52.7% (3,091)	<b>0.66</b>	<b>0.4%</b>	<b>21.56</b>	<b>&lt;.001</b>	<b>0.67</b>	<b>0.4%</b>	<b>17.69</b>	<b>&lt;.001</b>			
ALL Valid		6,543	53.7% (3,513)											

Mean fill for multi-variable models.

Shaded cells indicate significant zero or 6<sup>th</sup>-order effects in Year 1 analyses.

Unique Var: 1.6%

Common Var: 0.2%

## Block 7: VA Rate by Safety Perception, Training, and Preparedness

Table 28 lists VA rates, odds ratios, and inferential tests for zero-order models and a model including all predictors in this set. Overall, safety perception, training, and preparedness accounted for 10.4% of error variation ( $p < .001$ ). 8.3% was uniquely attributable to specific items, but almost all of this was due to one item, the Nurse Safety Rating. This rating (item 14) accounted for 9.7% of VA error alone ( $OR = 0.56$ ,  $p < .001$ ), and 7.9% controlling for other items in the set ( $OR = 0.52$ ,  $p < .001$ ). The Preparedness Rating (item 17) accounted for 2.0% of VA error variation alone ( $OR = .78$ ,  $p < .001$ ), and only 0.2% uniquely ( $OR = 1.11$ ,  $p = .002$ ). In general, higher safety ratings were associated with lower rates of verbal abuse (with odds of verbal abuse dropping approximately in half for every 1 standard deviation on the rating). Attending a training course (item 15) was associated lower odds of verbal abuse ( $OR = 0.87$ ,  $p = .031$ ). Attending at both the current hospital and other locations was associated with a higher VA odds ( $OR = 1.23$ ,  $p = .021$ ), but attending at only the Other location was associated with lower VA odds ( $OR = 0.85$ ,  $p = .022$ ). Except the effect of attending at the Other location, these modest effects for attendance dropped to non-significance after controlling for other block components. The absence of training (item 16) was associated with a higher odds of verbal abuse ( $OR = 1.23$ ,  $p = .040$ ), but had no significant unique impact when controlling for other block variables.

**Table 28. Block 7: Verbal Abuse Rate by Safety Perception, Training, and Preparedness**

Standardized Predictors	Frq	Mean	SD	Zero-order				6 <sup>th</sup> -order				Predictor Set						
				OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p				
<b>Nurse safety rating</b>	6,495	5.12	2.11	<b>0.56</b>	<b>9.7%</b>	<b>451.20</b>	<b>&lt;.001</b>	<b>0.52</b>	<b>7.9%</b>	<b>371.40</b>	<b>&lt;.001</b>	10.4%	529.4	<.001				
<b>Preparedness rating</b>	6,495	5.41	2.18	<b>0.78</b>	<b>2.0%</b>	<b>97.89</b>	<b>&lt;.001</b>	<b>1.11</b>	<b>0.2%</b>	<b>9.86</b>	<b>.002</b>							
Categorical Predictors	Frq	VA Rate % (n)		Category (vs Other)														
<b>Never attended training</b>	1,303	56.36% (734)		<b>1.14</b>	<b>0.1%</b>	<b>4.66</b>	<b>.031</b>											
<b>Attended training course</b>	5,191	53.0% (2,751)		<b>0.87</b>	"	"	"											
Attended at current hospital	3,657	52.9% (1,935)		0.93	0.0%	1.91	.167	0.89	0.0%	1.97	.160							
<b>Attended at other location</b>	986	50.3% (496)		<b>0.85</b>	<b>0.1%</b>	<b>5.27</b>	<b>.022</b>	<b>0.78</b>	<b>0.1%</b>	<b>7.56</b>	<b>.006</b>							
<b>Attended at both</b>	548	58.4% (320)		<b>1.23</b>	<b>0.1%</b>	<b>5.37</b>	<b>.021</b>	1.16	0.0%	1.54	.214							
<b>No training provided</b>	455	58.7% (267)		<b>1.23</b>	<b>0.1%</b>	<b>4.23</b>	<b>.040</b>											
Mandatory training	3,440	53.7% (1,847)		0.97	0.0%	0.41	.522	0.98	0.0%	0.03	.861							
Training not mandatory	2,190	53.7% (1,175)		0.98	0.0%	0.22	.640	0.85	0.0%	2.13	.144							
ALL valid																		

Categorical predictors are dummy-coded in multi-predictor models.

Mean fill used for multi-predictor models.

Shaded cells indicate significant zero or 6<sup>th</sup>-order effects in Year 1 analyses.

Unique Var: 8.3%

Common Var: 2.0%





**Block 8: VA Rate by Hospital Safety Commitment and Policy**

Table 29 reports VA rates, odds ratios, and inferential tests for zero-order models and a model including all predictors in this set. Commitment predictors (item 20 sub-categories) were standardized. As with physical violence models, 3 tolerance policy categories were generated from items 18 and 19 – The presence of (1) No Reporting Policy, (2) No Identified Zero-Tolerance Reporting Policy, or (2) A Zero Tolerance Reporting Policy. Tolerance policy categories were mutually exclusive and dummy coded (versus NRP) in the multi-predictor model.

Overall, hospital safety commitment and policy accounted for 9.7% of error in verbal abuse rates ( $p < .001$ ). All items in this set demonstrated significant zero-order effects, and much of the 9.7% (5.8% was common error) was attributed to shared effects of items. Overall, the pattern of effects was similar to that reported for physical violence. Higher commitment and the presence of reporting policies (especially zero tolerance policies) were associated with lower odds of verbal abuse. Hospitals with no reporting policy averaged a 69.2% VA rate, hospitals with a non-zero tolerance reporting policy had a 57.3% VA rate, and the lowest rate by far was in zero-tolerance settings (45.4%). Four commitment categories contributed uniquely to the multi-predictor model, but Hospital Administration commitment had the distinctly largest unique effect ( $OR = 0.66, \Delta r^2 = 2.5\%, p < .001$ ). Other commitment ratings showed significant but weaker unique effects, but again, zero-order effects were substantial for all, suggesting a generally positive impact of safety commitment from any source. Unique effects for tolerance policy categories were also retained in the multi-predictor model.

**Table 29. Block 8: Verbal Abuse Rate by Hospital Safety Commitment and Policy**

Standardized Predictors	Frq	Mean	SD	Zero-order				6 <sup>th</sup> -order				Predictor Set							
				OR	r <sup>2</sup>	$\chi^2$	p	OR	$\Delta r^2$	$\chi^2$	p	R <sup>2</sup>	$\chi^2$	p					
Commitment rating																			
Hospital administration	6,381	2.62	0.95	<b>0.58</b>	<b>8.6%</b>	<b>401.30</b>	<b>&lt;.001</b>	<b>0.66</b>	<b>2.5%</b>	<b>128.40</b>	<b>&lt;.001</b>								
ED management	6,501	3.13	0.88	<b>0.66</b>	<b>5.2%</b>	<b>242.10</b>	<b>&lt;.001</b>	<b>0.88</b>	<b>0.2%</b>	<b>10.87</b>	<b>&lt;.001</b>								
Nurses	6,480	3.48	0.64	<b>0.88</b>	<b>0.5%</b>	<b>25.44</b>	<b>&lt;.001</b>	<b>1.22</b>	<b>0.5%</b>	<b>27.47</b>	<b>&lt;.001</b>								
Physicians	6,483	3.13	0.81	<b>0.76</b>	<b>2.3%</b>	<b>110.50</b>	<b>&lt;.001</b>	0.93	0.1%	3.59	.058								
Other healthcare workers	6,426	3.16	0.80	<b>0.76</b>	<b>2.4%</b>	<b>112.70</b>	<b>&lt;.001</b>	<b>0.90</b>	<b>0.1%</b>	<b>6.65</b>	<b>.010</b>								
Categorical Predictors	Frq	VA Rate % (n)		Category (vs Other)															
No reporting policy	717	69.2% (496)		<b>2.12</b>	<b>1.9%</b>	<b>77.48</b>	<b>&lt;.001</b>												
Reporting policy	5,075	51.8% (2,607)		<b>0.47</b>	"	"	"												
No identified zero tolerance	2,546	57.3% (1,458)		<b>1.30</b>	<b>0.6%</b>	<b>24.86</b>	<b>&lt;.001</b>	<b>0.78</b>	<b>0.1%</b>	<b>7.02</b>	<b>.008</b>								
Zero tolerance	2,529	45.4% (1,149)		<b>0.56</b>	<b>2.7%</b>	<b>118.70</b>	<b>&lt;.001</b>	<b>0.68</b>	<b>0.3%</b>	<b>15.77</b>	<b>&lt;.001</b>								
ALL valid	6,543	53.7% (3,513)																	

Categorical predictors are dummy-coded in multi-predictor models.

Mean fill used for multi-predictor models.

Shaded cells indicate significant category, zero or 6<sup>th</sup>-order effects in Year 1 analyses.

Unique Var: 3.9%

Common Var: 5.8%





### Block 9: VA Rate by Nurse Demographic Variables

Table 30 lists VA rates and associated statistics for nurse sex (item 86) and age group (item 87). Again, the 6 age group categories were reduced to 4 categories, collapsing low frequency categories at the extremes of the age distribution. All predictors were dummy coded in the multi-predictor model (Age reference category = 18 to 34).

Overall, the demographic variables accounted for 2.1% of VA rate variation ( $p < .001$ ). Effects for verbal abuse were similar to those reported for physical violence. Both items contributed uniquely to the effect. Male nurses reported higher VA rates than female nurses (61.4% versus 52.3%,  $p < .001$ ). For older nurse ages, VA rates tended to be lower, declining from 61.4% in the youngest category (18 to 34) to 44.9% in the oldest category (55 or older). In the multi-predictor model, effects for both items were retained. The odds of verbal abuse were about 2 times higher in the youngest category versus the oldest category, (OR=1.92,  $p < .001$ ), and men reported higher odds of physical violence than women (OR=1.41,  $p < .001$ ).

**Table 30. Block 9: Verbal Abuse Rate by Nurse Demographic Variables**

Categorical Predictors	Frq	VA Rate % (n)	Category (vs Other)				3 <sup>rd</sup> -order				Predictor Set						
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p				
Sex																	
Male	976	61.4% (599)	1.45	0.6%	27.64	<.001	1.41	0.5%	22.62	<.001	2.1%	103.20	<.001				
Female	5,511	52.3% (2,883)	0.69	"	"	"											
Age group																	
18-24	132	65.9% (87)	1.68	0.2%	7.90	.005											
25-34	1,091	60.9% (664)	1.42	0.6%	26.82	<.001											
35-44	1,796	57.2% (1,027)	1.21	0.2%	12.04	<.001											
45-54	2,297	51.5% (1,183)	0.87	0.1%	6.93	.008											
55-64	1,155	45.1% (521)	0.66	0.9%	41.39	<.001											
65+	46	39.1% (18)	0.55	0.1%	3.85	.050											
Age group (collapsed)																	
18-34	1,223	61.4% (751)	1.47	0.7%	35.66	<.001											
35-44	1,796	57.2% (1,027)	1.21	0.2%	12.04	<.001	0.84	0.1%	5.65	.017							
45-54	2,297	51.5% (1,183)	0.87	0.1%	6.93	.008	0.67	0.6%	30.91	<.001							
55+	1,201	44.9% (539)	0.65	0.9%	45.74	<.001	0.52	1.3%	62.47	<.001							
ALL Valid	6,543	53.7% (3,513)															

Categorical predictors are dummy-coded in multi-predictor models.

Mean fill used for multi-predictor models.

Shaded cells indicate significant category or 3<sup>rd</sup>-order effects in Year 1 analyses.

Unique Var: 2.1%

Common Var: 0.0%



### Block 10: VA Rate by Nurse Role

Table 31 lists VA rates and associated statistics for categories defined by primary nurse role (9 mutually exclusive categories based on item 88). In multi-predictor models, role categories were dummy coded and contrasted with the largest category – Staff Nurse. Overall, Nurse Role accounted for 4.7% of VA variation ( $p < .001$ ).

As with physical violence, Staff Nurses and Charge Nurses reported significantly above average verbal abuse rates (56.7% and 63.8%, respectively). VA Rates for Clinical Educators (29.6%), Clinical Nurse Specialists (32.1%), Director/managers (38.1%), and Trauma Coordinators (28.8%) were significantly below average. Charge Nurses reported odds of verbal abuse 35% higher than Staff nurses ( $OR = 1.35$ ,  $p < .001$ ), while Clinic Coordinators, Clinic Educators, CNS's, Director/managers, and Trauma Coordinators reported significantly lower odds of verbal abuse compared with Staff Nurses ( $OR$ 's = 0.73, 0.32, 0.36, 0.47, and 0.31, respectively). Results were quite similar to those estimated from Year 1 data alone.

**Table 31. Block 10: Verbal Abuse Rate by Nurse Role**

Categorical Predictors	Frq	VA Rate % (n)	Category (vs Other)				8 <sup>th</sup> -order				Predictor Set		
			OR	r <sup>2</sup>	χ <sup>2</sup>	p	OR	Δr <sup>2</sup>	χ <sup>2</sup>	p	R <sup>2</sup>	χ <sup>2</sup>	p
Nurse primary role											4.7%	233.0	<.001
<b>Staff nurse</b>	3,735	56.7% (2,116)	<b>1.32</b>	<b>0.6%</b>	<b>30.66</b>	<b>&lt;.001</b>							
<b>Charge nurse</b>	1,130	63.8% (721)	<b>1.65</b>	<b>1.2%</b>	<b>55.50</b>	<b>&lt;.001</b>	<b>1.35</b>	<b>0.4%</b>	<b>18.19</b>	<b>&lt;.001</b>			
<b>Clinical coordinator</b>	187	48.7% (91)	0.81	0.0%	1.95	.163	<b>0.73</b>	<b>0.1%</b>	<b>4.59</b>	<b>.032</b>			
<b>Clinical educator</b>	247	29.6% (73)	<b>0.35</b>	<b>1.2%</b>	<b>55.37</b>	<b>&lt;.001</b>	<b>0.32</b>	<b>1.4%</b>	<b>62.88</b>	<b>&lt;.001</b>			
<b>Clinical nurse specialist</b>	78	32.1% (25)	<b>0.40</b>	<b>0.3%</b>	<b>13.91</b>	<b>&lt;.001</b>	<b>0.36</b>	<b>0.4%</b>	<b>17.32</b>	<b>&lt;.001</b>			
<b>Director/manager</b>	775	38.1% (295)	<b>0.49</b>	<b>1.8%</b>	<b>83.82</b>	<b>&lt;.001</b>	<b>0.47</b>	<b>1.8%</b>	<b>86.74</b>	<b>&lt;.001</b>			
Nurse practitioner	81	51.9% (42)	0.93	0.0%	0.11	.738	0.82	0.0%	0.74	.389			
<b>Trauma coordinator</b>	80	28.8% (23)	<b>0.34</b>	<b>0.4%</b>	<b>18.50</b>	<b>&lt;.001</b>	<b>0.31</b>	<b>0.5%</b>	<b>22.24</b>	<b>&lt;.001</b>			
Others (48) or Missing (14)	230	55.2% (127)	1.07	0.0%	0.22	.637	0.94	0.0%	0.18	.670			
ALL Valid	6,543	53.7% (3,513)											

Categorical predictors are dummy-coded in multi-predictor models (vs staff nurse).

Mean fill used for multi-predictor models.

Shaded cells indicate significant category or 8<sup>th</sup>-order effects in Year 1 analyses.

Unique Var: 4.5%

Common Var: 0.2%

## Relative Contribution of 10 Predictor Blocks to VA Rates

Table 32 lists analog multiple R-squared statistics for each block alone, and the change in Nagelkerke R-squared associated with including each predictor block after controlling for all items from other blocks. Overall, 23.9% of variation in VA rates was explained by the full set of predictors from all blocks ( $p < .001$ ), with substantial unique contributions from individual blocks (12.3% unique error versus 11.6% shared among predictor blocks). With respect to zero-order tests, all blocks explained significant variation in VA rates. With respect to the full standard model, all blocks except for Security/Personnel Type contributed uniquely.

Four blocks contributed most substantially to both zero-order and higher order models. Safety Perception, Training, and Preparedness accounted for 10.4% of VA error (3.7% uniquely), and Hospital Safety Commitment and Policy accounted for 9.7% of VA error (2.2% uniquely). ED Capacity and Utilization accounted for 5.1% of VA variation (1.6% uniquely), and Nurse Primary Role accounted for 4.7% of variation (2.1% uniquely). Other predictor blocks had relatively more modest contributions to the predictive model, accounting for 0.4% to 0.7% of unique error variation each. The present analyses and prior analyses only considering the 1<sup>st</sup> 4 rounds yielded a very similar pattern of relative influence for the 10 blocks.

**Table 32. Relative Contribution of 10 Predictor Blocks to Verbal Abuse Rates**

Block	Predictor Block	Zero Order Block Effect			Unique Block Effect			Overall Model			
		R <sup>2</sup>	$\chi^2$	p	$\Delta R^2$	$\chi^2$	p	R <sup>2</sup>	$\chi^2$	p	
Block 1	Population served	0.9%	45.76	<.001	0.4%	26.28	<.001	23.9%	1290.30	<.001	
Block 2	Region served	2.2%	110.78	<.001	0.3%	18.95	<.001				
Block 3	<b>ED capacity and utilization</b>	5.1%	253.46	<.001	1.6%	93.13	<.001				Unique Error 12.3%
Block 4	Facility type	1.96%	92.80	<.001	0.5%	29.00	<.001				
Block 5	Security/Personnel type	1.0%	49.50	<.001	0.2%	13.28	.066				Common Error 11.6%
Block 6	Environmental control measures	1.8%	86.85	<.001	0.5%	30.38	.047				
Block 7	<b>Safety perception, training, and preparedness</b>	10.4%	529.45	<.001	3.7%	217.05	<.001				
Block 8	<b>Hospital safety commitment and policy</b>	9.7%	495.55	<.001	2.2%	130.89	<.001				
Block 9	Nurse demographics	2.1%	103.23	<.001	0.7%	41.43	<.001				
Block 10	<b>Nurse role</b>	4.7%	233.00	<.001	2.1%	124.91	<.001				

*Shaded rows indicate blocks with significant unique effects in Year 1 analyses.*

## Unique Item Effects (controlling for all items from all blocks)

Table 33 lists odds ratios with confidence intervals and test statistics evaluating the unique contribution of each item (68 predictors). Twenty-six predictors demonstrated significant unique effects.

As with physical violence, the largest unique effect size for a single item predictor of verbal abuse was for the Nurse Safety Rating (OR=0.60,  $p < .001$ ). For every 1 standard deviation lower on the rating (approximately 2 points), the odds of verbal abuse increased 1.68 times. Included within the same block, the preparedness rating yielded a significant effect (OR=1.09,  $p = .017$ ), but this effect was marginally significant and in the opposite direction when



compared with the zero-order model for preparedness (i.e., a “suppressor” effect). Attending Training at both current and other hospital locations was associated with a higher odds of verbal abuse, controlling for all other items (OR=1.35, p=.021).

Within the Hospital Safety Commitment and Policy block, Hospital Administration Commitment was the most substantial predictor of VA rates, controlling for all other items (OR=0.74, p<.001). Also within this block, the presence of a Zero Tolerance Reporting Policy was associated with 36% lower odds of verbal abuse (OR=0.64 versus No Reporting Policy, p<.001). The presence of a Non-Zero Tolerance Reporting Policy was also associated with lower odds versus No Reporting Policy (OR=0.70, p<.001). Nurse and Other HC Worker Commitment ratings also yielded weaker but significant unique effects.

Within the ED Capacity and Utilization block, the availability of Additional Treatment Spaces (OR=1.19, p<.001), the Use of Added Spaces (OR=1.09, p=.007), and Total Annual Visits (OR=1.15, p<.001) each contributed uniquely to the full standard model. Within the Primary Nurse Role block, several effects remained significant controlling for all other items. Specifically, Charge Nurses had a higher odds of reporting verbal abuse (OR=1.45 vs. Staff Nurse, p<.001). Clinical Educators (OR=0.34, p<.001), Clinical Nurse Specialists (OR=.39, p<.001), Director/managers (OR=0.75, p=.002), and Trauma Coordinators (OR=0.36, p<.001) all reported lower odds of verbal abuse versus Staff Nurses.

With respect to population served, once again pediatric populations showed a lower odds of verbal abuse (OR=0.43, p<.001). With respect to region type, consistent with PV findings, Large Urban (OR=1.35, p=.003) centers had higher VA rates contrasted with Rural settings. With respect to facility type, each of ACS certified, State certified, and Self-designated trauma centers showed significantly higher VA rates than non-trauma centers, controlling for all other predictors (OR's=1.35, 1.27, and 1.61, respectively, all p<.01).

Finally, with respect to Nurse Demographics, male nurses were more likely to report higher VA rates controlling for all other items (OR=1.38, p<.001). The two older age groups (45-54, and 55 or more) reported lower verbal abuse rates than the youngest age range (18-34), controlling for all other items (OR's = 0.76 and 0.65, respectively).

All significant unique effects were in a direction consistent with previously described within block effects

**Table 33. Standard Logistic Model – Predicting Verbal Abuse from All Predictors**

Block	Item	OR	OR 95% CI		$\chi^2$	p	
			LB	UB			
Population served	Adult Only (vs General ED)	0.92	0.75	1.13	0.66	.416	
	<b>Pediatric Only (vs General ED)</b>	<b>0.43</b>	<b>0.31</b>	<b>0.60</b>	<b>25.07</b>	<b>&lt;.001</b>	
Region served	Large urban (vs Rural)	1.35	1.11	1.65	8.64	.003	
	<b>Small urban (vs Rural)</b>	1.15	0.96	1.38	2.20	.138	
	Suburban (vs Rural)	0.96	0.80	1.15	0.21	.647	
ED capacity and utilization	Total licensed beds (z)	1.02	0.95	1.11	0.35	.554	
	<b>Additional treatment spaces (z)</b>	<b>1.19</b>	<b>1.11</b>	<b>1.27</b>	<b>24.86</b>	<b>&lt;.001</b>	
	<b>Use of added spaces (z)</b>	<b>1.09</b>	<b>1.02</b>	<b>1.17</b>	<b>7.19</b>	<b>.007</b>	
	<b>Total annual ED visits (z)</b>	<b>1.15</b>	<b>1.06</b>	<b>1.24</b>	<b>12.18</b>	<b>&lt;.001</b>	
Facility type	Investor-owned, for-profit (vs not-for-profit)	1.11	0.96	1.30	1.91	.167	
	State or local gov't (vs not-for-profit)	1.03	0.83	1.27	0.06	.800	
	Federal/Military/VA (vs not-for-profit)	0.84	0.56	1.25	0.75	.387	
	<b>Trauma center</b>	<b>0.79</b>	<b>0.64</b>	<b>0.99</b>	<b>4.20</b>	<b>.040</b>	
	<b>ACS certified</b>	<b>1.35</b>	<b>1.13</b>	<b>1.66</b>	<b>11.08</b>	<b>&lt;.001</b>	
	<b>State certified</b>	<b>1.27</b>	<b>1.06</b>	<b>1.53</b>	<b>6.76</b>	<b>.009</b>	
Security/Personnel type	<b>Self-designated</b>	<b>1.61</b>	<b>1.23</b>	<b>2.12</b>	<b>11.80</b>	<b>&lt;.001</b>	
	Hospital-employed security	1.16	0.97	1.39	2.67	.102	
	Police/sheriff	1.05	0.90	1.23	0.44	.509	
	Campus police	1.02	0.80	1.31	0.03	.870	
	<b>Private security</b>	<b>1.22</b>	<b>1.00</b>	<b>1.49</b>	<b>3.89</b>	<b>.049</b>	
	Other security	0.87	0.59	1.29	0.50	.480	
	Security based in ED	0.90	0.79	1.03	2.42	.120	
	24/7 security	0.88	0.77	1.02	2.96	.085	
	Environmental control measures	Bullet-proof glass	1.04	0.86	1.26	0.17	.678
		Enclosed nurses' station	0.93	0.78	1.11	0.62	.432
<b>Handcuffs</b>		<b>1.24</b>	<b>1.05</b>	<b>1.47</b>	<b>6.54</b>	<b>.011</b>	
Security batons		1.02	0.84	1.22	0.03	.871	
Pseudonym for call code		1.06	0.92	1.21	0.63	.427	
Mace		1.05	0.85	1.29	0.20	.654	
Limits on number of visitors		1.11	0.98	1.25	2.53	.111	
Locked treatment spaces		1.02	0.90	1.16	0.11	.741	
Locked/coded ED entry		1.00	0.86	1.17	0.00	.997	
Mirrors for hidden spaces		1.10	0.97	1.25	2.43	.119	
Panic button/silent alarm		1.10	0.96	1.25	1.78	.183	
Physical/leather restraints		0.99	0.83	1.19	0.01	.933	
Personal search		1.03	0.91	1.17	0.25	.620	
<b>Chemical restraints</b>		<b>1.15</b>	<b>1.00</b>	<b>1.31</b>	<b>3.85</b>	<b>.050</b>	
Safe for cash payments		1.00	0.87	1.14	0.00	.969	
Security cameras		1.10	0.92	1.31	1.09	.296	
Security signage		1.02	0.90	1.16	0.10	.757	
Visitor tag/badge		0.98	0.87	1.11	0.11	.743	
Well-lit areas in the ED	0.91	0.74	1.12	0.75	.387		
Safety perception, training, and preparedness	<b>Nurse safety rating (z)</b>	<b>0.60</b>	<b>0.55</b>	<b>0.64</b>	<b>172.82</b>	<b>&lt;.001</b>	
	<b>Preparedness rating (z)</b>	<b>1.09</b>	<b>1.02</b>	<b>1.18</b>	<b>5.65</b>	<b>.017</b>	
	Attended at current hospital (vs no training)	1.04	0.86	1.24	0.14	.707	
	Attended at other location (vs no training)	0.87	0.72	1.05	2.21	.137	
	<b>Attended at both (vs no training)</b>	<b>1.35</b>	<b>1.05</b>	<b>1.73</b>	<b>5.31</b>	<b>.021</b>	
	Mandatory training (vs no training)	1.00	0.77	1.29	0.00	.981	
Hospital safety commitment and policy	Training not mandatory (vs no training)	0.92	0.73	1.16	0.52	.469	
	<b>Hospital administration commitment (z)</b>	<b>0.74</b>	<b>0.68</b>	<b>0.80</b>	<b>54.11</b>	<b>&lt;.001</b>	
	ED management commitment (z)	1.00	0.92	1.08	0.01	.922	
	<b>Nurses commitment (z)</b>	<b>1.12</b>	<b>1.04</b>	<b>1.22</b>	<b>7.89</b>	<b>.005</b>	
	Physicians commitment (z)	0.97	0.89	1.05	0.57	.449	
	<b>Other healthcare workers commitment (z)</b>	<b>0.91</b>	<b>0.84</b>	<b>0.99</b>	<b>4.38</b>	<b>.036</b>	
Nurse sex and age	<b>No zero tolerance policy (vs no reporting policy)</b>	<b>0.70</b>	<b>0.58</b>	<b>0.86</b>	<b>12.01</b>	<b>&lt;.001</b>	
	<b>Zero tolerance policy (vs no reporting policy)</b>	<b>0.64</b>	<b>0.52</b>	<b>0.78</b>	<b>18.00</b>	<b>&lt;.001</b>	
	<b>Male (vs Female)</b>	<b>1.38</b>	<b>1.18</b>	<b>1.62</b>	<b>16.18</b>	<b>&lt;.001</b>	
	Age 35-44 (vs 18-34)	0.86	0.73	1.02	2.95	.086	
	<b>Age 45-54 (vs 18-34)</b>	<b>0.76</b>	<b>0.64</b>	<b>0.89</b>	<b>11.40</b>	<b>&lt;.001</b>	
Nurse role	<b>Age 55+ (vs 18-34)</b>	<b>0.65</b>	<b>0.54</b>	<b>0.79</b>	<b>20.24</b>	<b>&lt;.001</b>	
	<b>Charge nurse (vs staff nurse)</b>	<b>1.45</b>	<b>1.25</b>	<b>1.69</b>	<b>22.86</b>	<b>&lt;.001</b>	
	Clinical coordinator (vs staff nurse)	0.92	0.67	1.27	0.24	.625	
	<b>Clinical educator (vs staff nurse)</b>	<b>0.34</b>	<b>0.25</b>	<b>0.46</b>	<b>48.16</b>	<b>&lt;.001</b>	
	<b>Clinical nurse specialist (vs staff nurse)</b>	<b>0.39</b>	<b>0.23</b>	<b>0.65</b>	<b>12.72</b>	<b>&lt;.001</b>	
	<b>Director/manager (vs staff nurse)</b>	<b>0.75</b>	<b>0.62</b>	<b>0.90</b>	<b>9.14</b>	<b>.002</b>	
	Nurse practitioner (vs staff nurse)	0.94	0.57	1.55	0.05	.816	
	<b>Trauma coordinator (vs staff nurse)</b>	<b>0.36</b>	<b>0.21</b>	<b>0.61</b>	<b>14.29</b>	<b>&lt;.001</b>	
Others (48) or Missing (14) (vs staff nurse)	1.07	0.80	1.44	0.23	.631		

Shaded rows indicate significant item effects in Year 1 analyses.

## F. Additional Workplace Violence Data

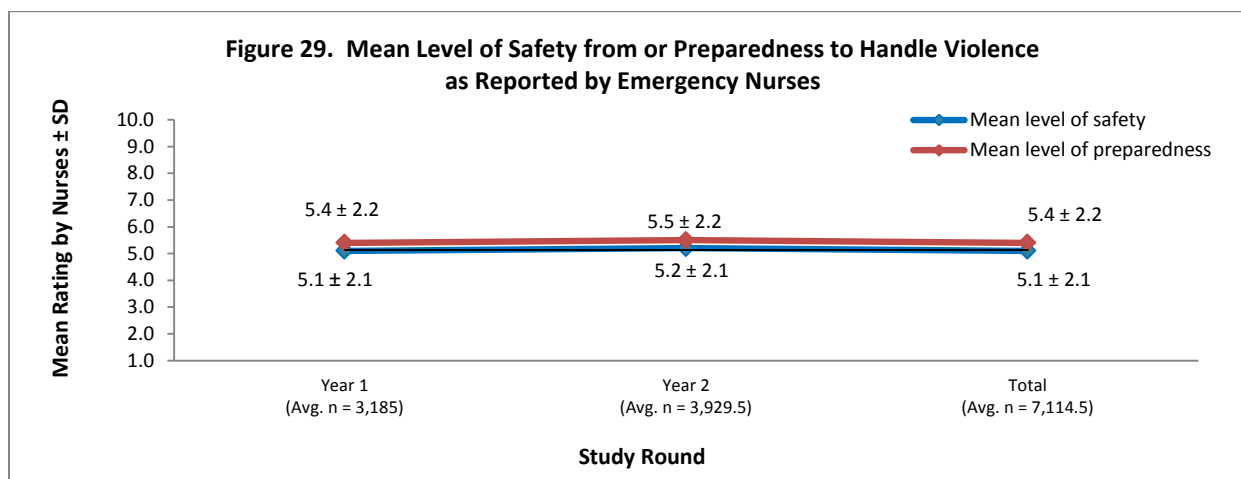
Almost all of the emergency nurses (96.2%) in the study believed that the level of workplace violence in their ED had remained the same or increased over the past year. Due to the level of ED workplace violence, a quarter of participants (27.2%) had considered leaving their current ED for either another unit in the same hospital or another hospital altogether (all units). Yet despite the high rate of workplace violence, only 9.5% of participants reported having considered leaving the nursing profession entirely, and the overwhelming majority (72.9%) had not considered leaving their current ED (Table 34).

**Table 34. Nurses' Desire to Leave the ED Due to Workplace Violence†**

	% of Emergency Nurses		
	Year 1 (n = 3,192)	Year 2 (n = 3,906)	Total (n = 7,098)
Have not considered leaving ED	72.9%	72.9%	72.9%
Considered looking for employment in non-emergency nursing	17.4%	17.9%	17.7%
Considered looking for employment in emergency nursing with another hospital	9.2%	9.6%	9.5%
Considered leaving the nursing profession entirely	9.5%	9.5%	9.5%

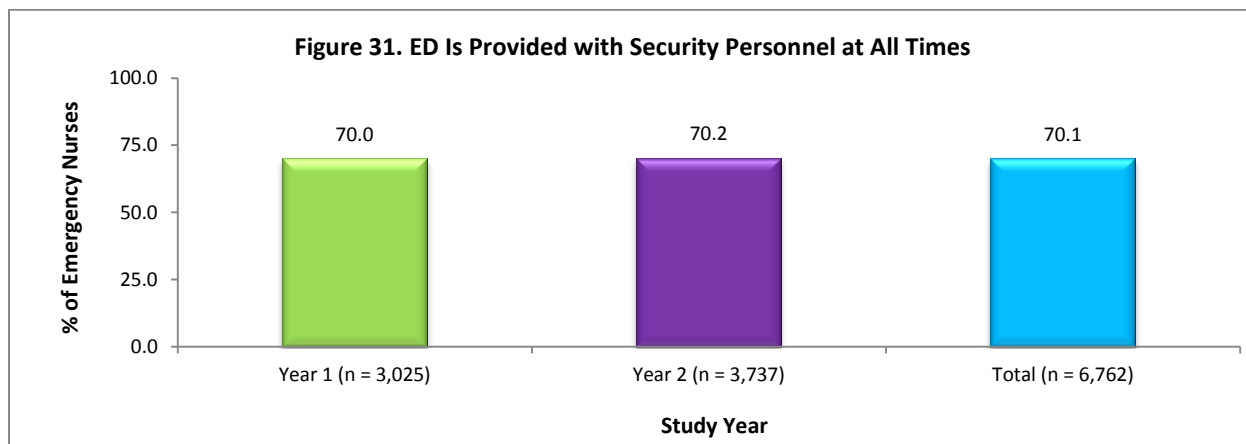
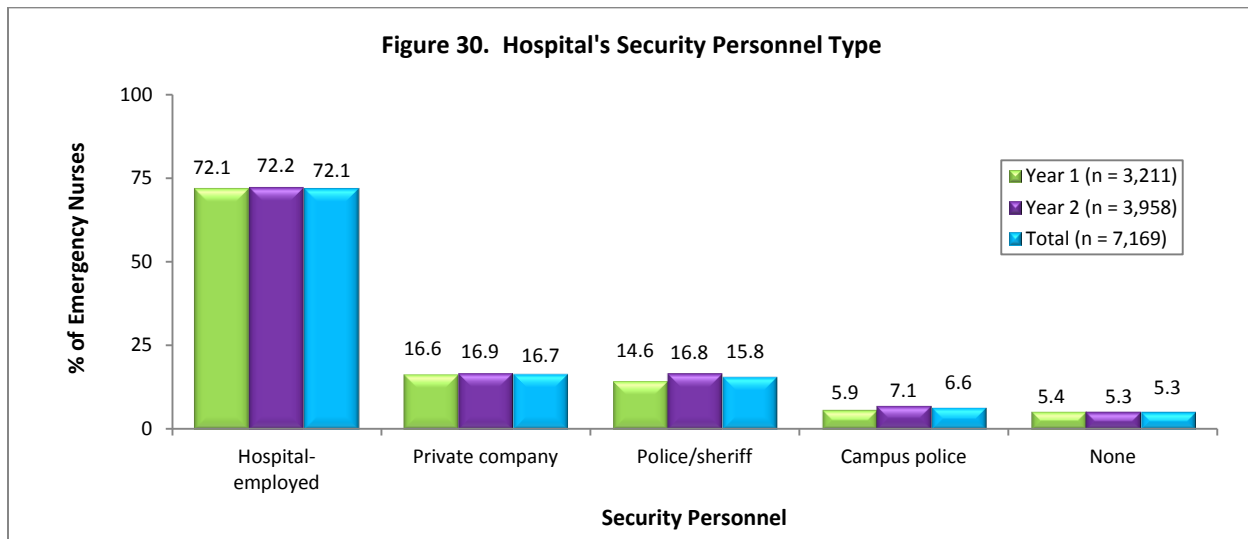
†Percentages do not equal 100% as respondents could select more than one response.

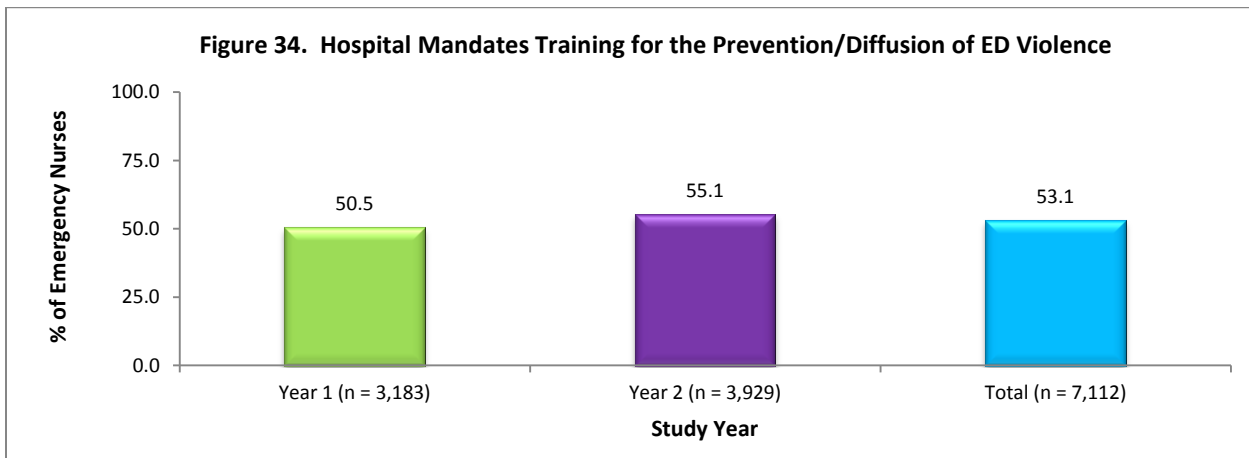
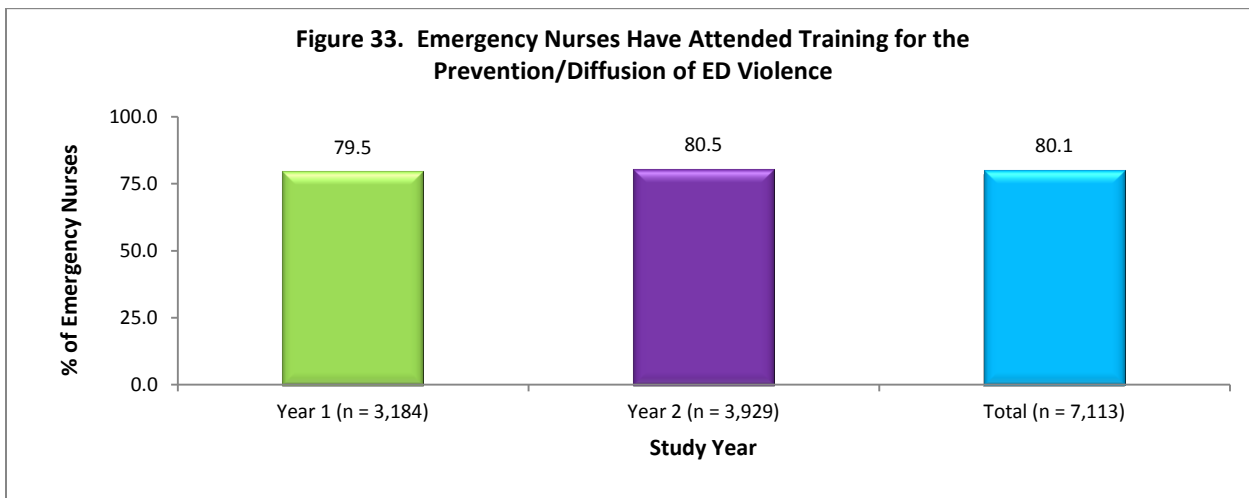
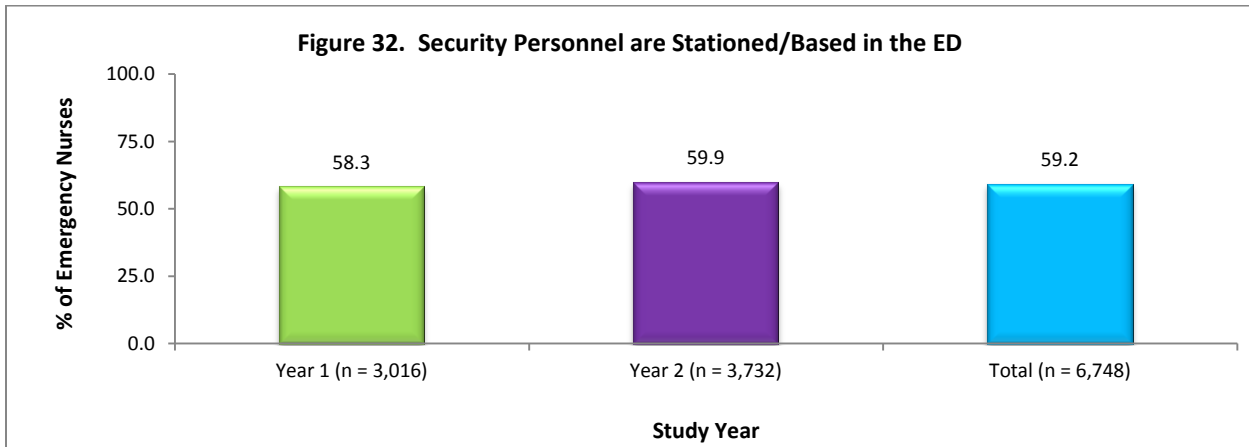
When asked whether the state in which they worked had a law to protect health care workers from workplace violence, 32.0% reported that the state did have this type of legislation in place, 23.3% reported the state did not, and almost half (44.7%) did not know. Over half (57.7%) of participants reported that they did not feel safe from workplace violence while at work in the ED (mean =  $5.1 \pm 2.1$ ) and 52.3% felt unprepared to handle violence from ED patients and/or visitors (mean =  $5.4 \pm 2.2$ ) (Figure 29).



According to the emergency nurse participants, the five most commonly reported factors that precipitate incidents of ED workplace violence were: 1) caring for psychiatric patients in the ED (89.4%); 2) drug-seeking behavior by patients/visitors (87.9%); 3) patients/visitors under the influence of alcohol (80.4%); 4) ED crowding (79.9%); and 5) patients/visitors under the influence of illicit drugs (77.1%).

Figures 30-32 represent data on ED security personnel. Approximately three-quarters of nurses reported that their facility had hospital-employed security personnel (72.1%) and that security was provided to the ED at all times (70.1%). For those EDs without continuous availability of security personnel (29.9%), they averaged 7.2±7.2 hours of security personnel coverage per day. While 19.9% of emergency nurses reported that they had never attended training for handling ED workplace violence prevention/diffusion, half of emergency nurses (53.1%) reported that training for the prevention/diffusion of workplace violence is mandatory within their hospital (Figures 33-34).









The five most commonly reported environmental controls used in the emergency department to prevent violence from patients/visitors were making sure areas were well-lit (91.5%), physical/leather restraints (88.2%), security cameras (86.1%), locked/coded ED entries (81.9%), and a pseudonym to call a code to alert other staff to a situation (77.8%) (Table 35).

**Table 35. Environmental Controls Used in EDs<sup>†</sup>**

Environmental Control	% of Emergency Nurses		
	Year 1	Year 2	Total
	(Average n = 3,148)	(Average n = 3,874)	(Average n = 3,511)
Bullet-proof glass	10.0%	9.3%	9.6%
Chemical restraints	74.3%	76.2%	75.4%
Enclosed nurses' station	11.4%	10.8%	11.1%
Handcuffs	20.0%	20.2%	20.1%
Limits on number of visitors	62.0%	65.4%	63.9%
Lock box/safe for cash	61.6%	63.1%	62.4%
Locked treatment room	24.7%	26.1%	25.5%
Locked/coded ED entries	80.6%	82.9%	81.9%
Mace	9.5%	10.4%	10.0%
Mirrors to show hidden spaces	29.9%	32.5%	31.3%
Panic button/silent alarm	73.6%	75.5%	74.7%
Personal belongings search	53.3%	55.4%	54.5%
Physical/leather restraints	88.0%	88.4%	88.2%
Pseudonym to call a code	77.5%	78.0%	77.8%
Security batons	14.6%	14.2%	14.4%
Security cameras	85.3%	86.8%	86.1%
Security signage	42.4%	42.2%	42.3%
Visitor tag/badge	44.4%	47.0%	45.8%
Well-lit areas in the ED	91.0%	91.8%	91.5%

<sup>†</sup>Percentages do not equal 100% as respondents could select more than one response.



## IV. Summary

This report represents analysis of the eight rounds of data collected approximately three months apart, from May 2009 to January 2011. A total of 7,169 ED nurses participated in the study.

- With respect to overall physical violence verbal abuse trends across the eight rounds of data, no linear trend component was detected (OR = 1.03).
- The overall frequency of physical violence and verbal abuse during a seven-day period (during which the participants worked an average of 36.9 hours in an emergency department) was fairly high (54.5%) across all rounds. The overall frequency is primarily a function of verbal abuse. Physical violence rarely occurred without verbal abuse (55 cases [0.8%]).
- The occurrence of physical violence and verbal abuse remained high across all rounds with minimal variation. Specifically, participants reported experiencing physical violence (with/without verbal abuse) (12.1%) and verbal abuse only (42.5%) respectively.
- The majority of the participants who were victims of workplace violence did not file a formal event report for the physical violence (65.6%) or the verbal abuse (86.1%).
- The most prevalent types of physical violence and verbal abuse were having been grabbed/pulled by a person (48.3%) and having been yelled/shouted at or cursed/sworn at (89.0%).
- The majority of the participants who were victims of workplace violence did not file a formal event report for the physical violence (65.6%) or the verbal abuse (86.1%).
- Over three-quarters (82.0%) of incidents of physical violence against emergency nurses occurred in a patient's room, 24.0% in a corridor/hallway/stairwell/elevator, and 14.6% at the nurses' station.
- The most frequently reported activities that the emergency nurses were involved in at the time of a physically violent incident were triaging a patient (40.2%), restraining/subduing a patient (34.8%), and performing an invasive procedure (29.4%).
- Patients were the main perpetrators in all incidents of physical (97.8%) and verbal violence (92.3%).
- 13.4% of emergency nurses in the study who indicated being victims of workplace physical violence sustained a physical injury, with the most common type of injury being a bruise/contusion/blunt trauma (60.0%).
- Of the emergency nurses who indicated experiencing physical violence, almost half (46.7%) reported that no action was taken against the perpetrator as a result of the violence, and less than (20.4%) reported that the perpetrator was given a warning. When asked about the hospital's response/recommendation to the nurse, nearly three-quarters of nurses (71.8%) stated that the hospital gave them no response concerning the physical violence they experienced. Similarly, half (49.7%) of the nurses who indicated being victims of verbal abuse responded that no action was taken against the perpetrator(s), and just over a quarter (28.5%) reported that the perpetrator was given a warning. In regard to the hospitals' responses to the nurses who experienced verbal abuse, more than three-quarters (80.6%) indicated that the hospital gave them no response.

- Physical violence rates tended to increase as population density increased, rising from Rural (9.1%) to Large Urban (14.8%) settings with middling rates in Suburban and Small Urban settings. The rate was significantly above average in Large Urban settings (OR=1.45,  $p<.001$ ), and significantly below average in Rural settings (OR=0.69,  $p<.001$ ). The same pattern holds true for verbal abuse.
- Nurses working in a Pediatric Only ED are less likely (OR=0.31) to experience physical violence compared to nurses working in General and/or Adult EDs. Again, the same pattern holds true for verbal abuse.
- Overall, as Total ED Beds, Additional Treatment Space, Use of Added Space, and Total ED Visits increased, the odds of physical violence and verbal abuse increased.
- The use of a panic button/silent alarm is associated with lower physical violence rates while the presence of an enclosed nurses' station, locked/coded ED entry, security signage and well-lit areas were associated with significantly lower verbal abuse rates.
- In general, higher perceived safety ratings and preparedness ratings by nurses were associated with lower rates of physical violence and verbal abuse.
- The odds of physical violence were 1.91 times higher in the youngest age category of nurses versus the oldest category (OR=0.52,  $p<.001$ ), and male nurses had higher odds of experiencing physical violence compared to female nurses (OR=1.77,  $p<.001$ ). Again, the same pattern holds true for verbal abuse.
- Higher commitment to violence mitigation from hospital administration and ED management and the presence of reporting policies (especially zero-tolerance policies), were associated with a lower odds of physical violence and verbal abuse. Specifically, hospitals with no reporting policy had an 18.3% physical violence rate, hospitals with a non-zero tolerance reporting policy had a 13.7% physical violence rate, and the lowest rate was in settings with a zero-tolerance reporting policy (9.1%).
- Nurses whose hospital administration (OR = 0.81) and ED management (OR = 0.77) are committed to workplace violence control are less likely to experience workplace violence.

Ongoing research is needed to further determine the extent of underreporting, the incidence and prevalence of workplace violence, and the factors associated with the occurrence of workplace violence against emergency nurses. The continued collection of data through the EDVS study will provide further insight toward addressing these research needs.

## V. Limitations

As is true for most studies based on self-report, this study is limited by the potential inaccuracy of self-reported data. No self-report study can conclusively identify factors related to ED workplace violence. Because all participants were ENA members, the generalizability of the study is limited. Despite these limitations, the results indicate the extent and severity of workplace violence experienced by emergency nurses and the need to continue to address the issues of preventing, mitigating and reporting ED violence.



## VI. References

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