# Implementation of a Comprehensive Intervention to Reduce Physical Assaults and Threats in the Emergency Department

**Authors:** Gordon Lee Gillespie, PhD, PHCNS-BC, FAEN, Donna M. Gates, EdD, RN, FAAN, Terry Kowalenko, MD, Scott Bresler, PhD, and Paul Succop, PhD, Cincinnati, OH, Rochester, MI, Cincinnati, OH

CE Earn Up to 8.5 CE Hours. See page 637.

**Introduction:** The purpose of this study was to test the effectiveness of a comprehensive program to reduce the incidence of workplace violence (WPV) against ED providers by patients and visitors.

**Methods:** An intervention study was conducted with 3 intervention and 3 comparison emergency departments. Participants completed monthly surveys during an 18-month period to measure violent event rates before and after the WPV intervention implementation. Descriptive statistics were used to describe violent events. Analysis of variance was used to assess if the emergency departments participating in the WPV intervention experienced a significant reduction in violence rates compared with nonintervention emergency departments.

**Results:** On average, participants experienced more than 6 incidents of violence during the 18-month study period. Although the study hypothesis was not supported, 2 intervention sites had a significant decrease in violence.

**Discussion:** This study emphasizes the risk of WPV to ED workers and highlights the need for prevention programs. Future research needs to be conducted to test additional comprehensive WPV prevention interventions.

**Keywords:** Workplace violence; Violence prevention program; Intervention

Gordon Lee Gillespie, *Member, Greater Cincinnati Chapter ENA,* is Assistant Professor and Robert Wood Johnson Foundation Nurse Faculty Scholar, University of Cincinnati, College of Nursing, Cincinnati, OH.

Donna M. Gates is Professor Emerita, University of Cincinnati, College of Nursing, Cincinnati, OH.

Terry Kowalenko is Professor, Emergency Medicine, Oakland University William Beaumont School of Medicine, Rochester, MI.

Scott Bresler is Clinical Director/Division of Forensic Psychiatry, Department of Psychiatry and Behavioral Neuroscience, University of Cincinnati Medical Center, Cincinnati, OH.

Paul Succop is Statistician/Research Professor, Division of Epidemiology and Biostatistics, University of Cincinnati, Cincinnati, OH.

This research study was funded by grant No. R01-OH009544-01 from the Centers for Disease Control and Prevention–National Institute for Occupational Safety and Health (CDC-NIOSH). Its contents are solely the responsibility of the authors and do not necessarily represent the official view of the CDC-NIOSH.

For correspondence, write: Gordon Lee Gillespie, PhD, PHCNS-BC, FAEN, University of Cincinnati, College of Nursing, P.O. Box 210038, Cincinnati, OH 45221-0038; E-mail: kate.moore@emory.edugordon.gillespie@uc.edu.

J Emerg Nurs 2014;40:586–91.
Available online 4 March 2014

0099-1767



http://dx.doi.org/10.1016/j.jen.2014.01.003

Violence against health care workers has been recognized as a serious and growing problem by several professional, regulatory, and licensing organizations.[1] In fact, the Occupational Safety and Health Administration has been proactive in this area by fining health care employers when workplace violence (WPV) was recognized and nothing was done to prevent these events from occurring.[2]

Growing research shows that WPV in health care settings has negative consequences for employees, employers, and patients.[3-5] The negative consequences of WPV include physical injuries, acute stress reactions, or even posttraumatic stress symptoms. Not surprisingly, researchers found that the level of care provided after a health care worker has been threatened with physical harm or assaulted is often compromised.[3] Employers may be adversely affected by violence as a result of decreased productivity, staff turnover, worker's compensation claims, legal liabilities, and fines by professional and regulatory organizations.

WPV risk varies across health care occupational groups and work settings. ED workers have consistently been found to have one of the highest rates of workplace assaults.[5-7] Despite the risk of WPV and the increased regulatory and professional group attention to the problem, few emergency departments have comprehensive programs

that include the triad of policies, procedures, and environmental approaches.[8,9] Although a growing body of literature supports the need for WPV prevention training, studies are lacking regarding the implementation of comprehensive WPV prevention programs to reduce violence against ED workers.[10]

The primary aim of this study was to test the effectiveness of a comprehensive program to reduce the incidence of assaults and physical threats against ED workers. The study hypothesis was that ED workers receiving a multifaceted intervention would have a significant decrease in assaults and physical threats compared with ED workers not receiving the multifaceted intervention. Secondary aims were to describe the rate of WPV by participants' gender, occupation, and type of emergency department where they work; perpetrators' chief complaints, age, and gender; time of events; and reporting rates of WPV. Findings from this study can be used by ED leaders as they develop and implement their own WPV programs.

## Methods

A quasi-experimental, repeated measures design was used to collect survey data from ED workers for 9 months before the intervention and 9 months after the intervention. The study was approved by university and hospital Institutional Review Boards.

### SETTING AND SAMPLE

The settings included 2 emergency departments verified by the American College of Surgeons as level I trauma centers, 2 urban tertiary care emergency departments, and 2 community-based suburban emergency departments. The sites were matched by type and then randomly assigned as intervention or comparison sites.

A stratified sample with a minimum of 160 participants was needed to obtain sufficient power (80%) to test the effectiveness of the intervention. All employees meeting inclusion criteria—that is, being a direct patient care provider and working at least 20 hours per week— were invited to participate. A total of 220 employees volunteered and were screened for eligibility; 213 met the inclusion criteria and completed a baseline survey. Four participants were lost to attrition, and thus data from 209 participants were used for the statistical analyses.

### INSTRUMENTATION

Data were collected using 3 surveys developed for this study: a Baseline Demographic Survey, Monthly Survey, and Violent Event Survey. The Baseline Demographic Survey was used to collect information about participants' occupation, age, gender, and previous experience with WPV. The Monthly Survey was used to determine the number of assaults and physical threats experienced during the previous month. Assaults included hitting with a body part, slapping, kicking, punching, pinching, scratching, biting, pulling hair, hitting with an object, throwing an object, spitting, beating, shooting, stabbing, squeezing, and twisting. Physical threats included actions, statements, and written or nonverbal messages conveying threats of physical injury, which were serious enough to be unsettling, as well as expressions of intent to inflict pain, injury, or punishment. For 9 months before the intervention (September 2009 to May 2010) and 9 months after the intervention (September 2010 to May 2011), participants received an e-mail message asking them to complete the Monthly Survey. Reminder e-mail messages were sent as needed.

For each assault or physical threat identified in the Monthly Surveys, participants were asked to complete a Violent Event Survey. This survey asked for the date of the violent event, whether the perpetrator was a patient or visitor, the patient's chief complaint, the perpetrator's gender and age, if the participant recorded the incident with his or her department (via an incident report or another mechanism), and if he or she received a formal or informal debriefing after the event.

### THE INTERVENTION

The researchers partnered with employees, managers, and hospital administrators at the 3 intervention emergency departments to develop the WPV intervention.[11] Partners included nurses, physicians, security officers, social workers, registrars, risk managers, and psychologists. The intervention had 3 components: environmental changes, policies and procedures, and education and training. Implementation of the intervention took place over a 3-month period (June 2010 to August 2010). The 3 comparison emergency departments agreed to not implement new WPV-related policies, procedures, training, or environmental changes during the study period. The research team met with intervention hospital employees and managers regularly during intervention planning and implementation. The researchers conducted walk throughs with the hospital personnel and recommended environmental changes.

The research team drafted initial policies and procedures for each hospital based on stakeholder discussions. The policies and procedures were reviewed and revised several times based on feedback from employees, managers, and administrators. All policy and procedural changes were ultimately reviewed and approved by the chief nursing

officers, security administrators, hospital medical directors, and risk managers. Key elements of the WPV policies were uniform across the intervention sites. The ED managers and staff were responsible for "rolling out" the policies and procedures with assistance from the research team. The research team's project manager conducted monthly visits at the intervention sites during the postintervention period to evaluate the degree of compliance with the intervention components.

The research team developed educational content for online and classroom delivery based on earlier input from employee and manager focus groups.[10] The program was revised based on feedback from consultants with expertise in WPV prevention and management. All ED employees (study participants and nonparticipants) were required by employers to complete the education. The online training was managed by the study team with completion reports provided to ED educators weekly during the implementation period. The research team also trained staff at the intervention emergency departments to conduct the classroom education. A research team member attended the classroom sessions to monitor fidelity of the content delivery to ensure that desired learning outcomes were achieved.

### STATISTICAL ANALYSES

Descriptive analysis of the assaults and threats included the use of percentages, frequencies, means, and ranges to describe the sample and WPV incidents. Incident rates of WPV were calculated based on participants' gender, occupation, and ED type. A mixed model analysis of variance (ANOVA) was used to calculate differences in WPV incident rates based on participants' gender, occupation, and ED type. Chi-square analysis was performed to examine any significant differences in the percentage of WPV incidents by perpetrators' chief complaint, age, gender, and time of event. ANOVA was used to test the hypothesis that intervention sites would have a significant decrease of assault and physical threat rates compared with comparison sites. All statistical analyses were performed using the Statistical Analysis System for the PC, version 9.2 (SAS; SAS Institute Inc, Cary, NC). Alpha was set at 0.05.

## Results

Participants were primarily female (n = 149; 71.3%), nurses (n = 117; 56%), and working in level I trauma centers (n = 130; 62.2%). The average age of participants was 37.3 years (SD = 10.5; range 20-65 years). Most participants (n = 179; 86%) had been either threatened or assaulted at least once during the 18 months of data collection. A total of 1333 events were reported on the Monthly Surveys: 346 physical assaults (26%) and 987 physical threats (74%). In addition, 832 Violent Event Surveys were completed, with reports of 252 physical assaults (30.3%) and 580 physical threats (69.7%).

### DESCRIPTION OF ED WORKERS' VICTIMIZATIONS

The mean monthly incident rate was 0.11 for assaults and 0.31 for physical threats (see the Table 1). The mean rate for 18 months was 1.66 for assaults and 4.72 for physical threats. The number of assaults experienced by the 209 participants during the 18-month period ranged from 0 to 17, with 55% (n = 116) having experienced at least one assault. The number of physical threats experienced by the 209 participants during the same period ranged from 0 to 59, with 83% (n = 175) having experienced at least one physical threat. ANOVA computations found no significant differences in assault or physical threat rates based on gender, occupation, and ED type. For gender, the *P* values were .31, .78, and .24 for total events, assaults, and threats, respectively, and for ED type, *P* values were .24, .74, and .08 for total events, assaults, and threats, respectively. Although *P* values were initially significant for job title (.02, .07, and .04 for total events, assaults, and threats, respectively), none remained significant after adjustment for multiple comparisons.

### DESCRIPTION OF PERPETRATORS OF WPV

Ninety-six percent (n = 240) of assaults and 86.3% (n = 499) of physical threats were committed by patients. Four percent (n = 10) of the assaults and 13.7% (n = 79) of the physical threats were committed by visitors. Both assaults and physical threats most commonly occurred when a patient was being treated for a psychiatric condition (n = 85 [34%] for assaults and n = 164 [28%] for physical threats) or substance abuse (n = 46 [18%] for assaults and n = 136 [23%] for physical threats). Threats also were common for chief complaints related to nontraumatic pain (n = 106 [18%]), such as abdominal or chest pain.

Chi-square computations found that the chief complaint of patients (for both patient and visitor perpetrators) was significant ($P < .0001$), with pain diagnosis having a lower percentage of assaults than expected and altered mental status having a higher percentage of assaults than expected. The age of the perpetrator was significant ($P < .0001$), with perpetrators 70 years and older accounting for a higher percentage of assaults than expected but fewer threats than expected. The gender of the

TABLE 1
**Violent event rates for 18 months by participants' gender, occupation, and type of emergency department**

| Variable | Assaults | | Physical threats | | Total events | |
|---|---|---|---|---|---|---|
| | Mean (SD) | Range | Mean (SD) | Range | Mean (SD) | Range |
| Gender (participant) | | | | | | |
| Male (n = 60) | 1.58 (2.43) | 0-12 | 3.90 (5.05) | 0-28 | 5.48 (7.19) | 0-40 |
| Female (n = 149) | 1.68 (2.30) | 0-17 | 5.05 (6.90) | 0-59 | 6.74 (8.32) | 0-63 |
| Occupation (participant) | | | | | | |
| Physician (n = 42) | 0.90 (1.14) | 0-4 | 2.29 (2.66) | 0-12 | 3.19 (3.34) | 0-16 |
| Physician assistant (n = 5) | 0.20 (0.45) | 0-1 | 0.60 (0.55) | 0-1 | 0.80 (0.84) | 0-2 |
| Nurse practitioner (n = 8) | 1.00 (1.41) | 0-4 | 3.75 (4.23) | 0-12 | 4.75 (4.83) | 0-14 |
| Registered nurse (n = 117) | 1.90 (2.60) | 0-17 | 5.89 (7.54) | 0-59 | 7.79 (9.18) | 0-63 |
| Licensed practical nurse (n = 2) | 0.50 (0.71) | 0-1 | 1.50 (0.71) | 1-2 | 2.00 (0.00) | 2-2 |
| Paramedic (n = 13) | 1.62 (1.85) | 0-5 | 3.77 (3.44) | 0-9 | 5.38 (4.98) | 0-14 |
| Patient care assistant (n = 22) | 2.50 (2.91) | 0-12 | 5.32 (6.59) | 0-28 | 7.82 (9.14) | 0-40 |
| Type of emergency department | | | | | | |
| Trauma center (n = 130) | 1.74 (2.23) | 0-12 | 5.40 (7.04) | 0-59 | 7.11 (8.51) | 0-63 |
| Urban tertiary care center (n = 41) | 1.41 (1.88) | 0-7 | 3.88 (5.93) | 0-31 | 5.29 (7.41) | 0-37 |
| Suburban community based (n = 38) | 1.63 (3.08) | 0-17 | 3.42 (4.21) | 0-21 | 5.05 (6.66) | 0-38 |
| Total (n = 209) | 1.66 (2.34) | 0-17 | 4.72 (6.44) | 0-59 | 6.38 (8.02) | 0-63 |

perpetrator also was significant ($P < .0001$), with females accounting for more assaults than expected and males accounting for more threats than expected. The time of the incident was not significant. Of note was that 70% of assaults (n = 176) and 63% of threats (n = 363) occurred between noon and midnight.

### OUTCOMES OF VIOLENT EVENTS

Participants did not complete a formal report for 60% of the assaults or 62% of the physical threats. Participants did not receive any formal or informal debriefing for 88% of assaults and 89% of physical threats. Of those who did receive debriefing, nearly all (98%) were informal. Twenty percent of assaults reported (n = 50) resulted in injury. Although the injury rate decreased in both intervention and comparison emergency departments, this finding was not significant.

### HYPOTHESIS TESTING

Intervention groups experienced a significant decrease in the rate of assaults (from 0.17 to 0.13, $P < .01$) and in threats (from 0.49 to 0.37, $P < .01$) from preintervention to postintervention. Comparison groups also had a significant decrease in the rate of assaults (from 0.10 to 0.06, $P < .05$) and threats (from 0.27 to 0.19, $P < .01$) from preintervention to postintervention. Therefore the hypothesis that the intervention sites would have a significantly greater decrease in WPV events compared with the comparison sites was not supported. However, during post hoc analysis, 2 of the intervention sites demonstrated a significant decrease in violence, and no individual comparison site had any significant change in assaults or threats. Specifically, the community-based intervention site demonstrated a significant decrease in the rate of assaults (from 0.20 to 0.11, $P < .05$) and the intervention trauma center site had a significant decrease in physical threats (from 0.60 to 0.47, $P = .002$).

## Discussion

The purpose of this study was to test the effectiveness of a comprehensive WPV intervention. Although the study hypothesis was not supported, it is important to note that 2 of the intervention sites had a significant decrease in violent events. Of particular note was the intervention community-based emergency department, which had a significant, 50% decrease in assaults. Of the intervention sites, this facility enthusiastically supported, adopted, and took ownership of the WPV prevention program.[12] This site also had the highest rate of training participation for both the study participants and other employees. In addition, management at this site was the most effective at implementing other program elements,

including environmental changes and policies/procedures. This result emphasizes that the effectiveness of WPV prevention programs is predicated not only on strategies examining risk factors related to patients, employees, and the employer but on programs with employee involvement and management commitment and endorsement.[13,14]

The intervention trauma center emergency department, which had the highest rate of physical threats before the intervention, was the only site to show a significant decrease in threats after the intervention. This result may have been due to the increased focus on early prevention. The new WPV prevention training stressed the need to recognize patients and visitors exhibiting early signs of anxiety or stress. For example, the ED receptionist was trained to continuously survey the lobby for signs of agitated persons, explain the triage process to those waiting for long periods, and provide comfort measures as indicated. Additionally, whereas patients whose behavior continued to escalate often were previously dealt with in the lobby, new procedures had these patients brought to the treatment area for focused de-escalation. This procedure was a change for employees who earlier voiced that doing so would "give in" to the patient and support antisocial behaviors.

Several historical events likely contributed to the study hypothesis for the intervention effectiveness not being supported. During the postintervention measurement period, a comparison site was required by the Centers for Medicare and Medicaid Services to immediately implement WPV prevention training for all ED staff. Also, several national and regional organizations brought attention to the problem of ED WPV. For example, ENA, through its WPV tool kit and communications to its members, brought attention and solutions for WPV to ED workers.[13,15] In addition, the regional health council initiated a regional effort to decrease WPV in regional hospitals and nursing homes.

## Limitations

The study had several limitations. The quasi-experimental design did not allow for randomization of participants; all eligible participants were included on a first-come basis, and thus the study participants may have generated findings that would have been different had other employees participated. In addition, reporting bias likely occurred at comparison sites. The employees and managers at these 3 sites frequently alluded to the fact that they were becoming more aware of and concerned about increasing WPV. Efforts were made to maintain reporting at all study sites; however, it was possible that participants at comparison sites became fatigued with reporting when they did not see any demonstrable changes to their work environment during the study period (with the exception of the emergency department that made changes near the middle of the postintervention period). Despite the threats to the study, the data from the Monthly Surveys and Violent Event Surveys possibly provide the most accurate picture of the incidence rates of WPV in the current literature given the longitudinal design and minimal recall bias in the study. The vast majority of the current published literature relies on employees to recall events up to a year earlier.

## Implications for Emergency Nurses

As reported by several other researchers, ED workers in our study did not report the vast majority of violent events, likely because of time constraints, fear of being blamed, and belief that doing so is a "waste of time."[13,16-18] Also, the victims for a majority of violent events were not offered a debriefing, either formally or informally. These two findings together are consistent with other research findings that suggest that the ED culture accepts violence as "part of the job."[18] A serious reduction in ED WPV is unlikely to occur until ED workers and leaders embrace the significance of their role in preventing and managing WPV.[13] ED leaders can convey the importance of reporting all violent events by communicating the positive violence prevention initiatives enacted as a result of employee reporting.

The study site with the greatest degree of commitment achieved a significant reduction in WPV. This finding reflects the discussion by Peek-Asa et al[9] of the impact that a single champion can have for the adoption of an effective WPV prevention program. However, even with supportive ED workers in place, a lack of reporting and deficiencies in environmental and security program components remain possible.[9] Van Leeuwan and Harte[19] offered the following rationales for lack of reporting of WPV by health care providers: the preclusion of responsibility for patients with mental health diagnoses, the perception of violating the provider-patient relationship, the ethical dilemma of being a treatment provider and accuser, guilt and self-blame regarding the occurrence of the event, concern about negative publicity for the hospital, lack of consistent handling by law enforcement, and low conviction rates.

## Conclusions

Despite our efforts to intervene, WPV by patients and visitors against ED workers continues to be prevalent. Given the diversity in the victims and perpetrators of ED WPV, ED leaders may need to adopt a universal

precautions approach for the prevention and management of WPV prevention: assuming that all employees are at risk for victimization and that all patients and visitors could enact WPV. The lack of WPV reporting, program implementation, and postviolence care suggests that ED providers and leaders have not fully embraced the significance of their roles in preventing WPV. Successful outcomes (ie, a decrease in WPV) are predicated on programs implemented with full participation and support from all stakeholders, including a cyclical process that provides continuous evaluation, feedback and revision, and most importantly, are supported by a work culture endorsing employee safety as a top priority. Future research needs to be conducted to evaluate the adoption and support of WPV intervention programs, as well as program effectiveness, to positively reduce the problem of WPV.

## REFERENCES


1. The Joint Commission. Preventing violence in the healthcare setting. http://www.jointcommission.org/assets/1/18/sea_45.pdf. Published June 3, 2010. Accessed January 30, 2014.
2. US Department of Labor Office of Public Affairs. US Labor Department's OSHA fines ResCare Ohio for inadequate workplace violence safeguards at residential care facility in Fairfield, Ohio. http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=23088. Published October 3, 2012. Accessed January 30, 2014.
3. Gates DM, Gillespie GL, Succop P. Violence against nurses and its impact on stress and productivity. *J Nurs Econ.* 2011;29:59-66.
4. Gillespie GL, Bresler S, Gates DM, Succop P. Posttraumatic stress symptomatology in emergency department workers following workplace aggression. *Workplace Health Safety.* 2013;61:247-54.
5. Kowalenko T, Gates DM, Gillespie GL, Succop P, Mentzel T. Prospective study of violence against ED workers. *Am J Emerg Med.* 2013;31:197-205.
6. Kowalenko T, Walters BL, Khare RK, Compton S. Workplace violence: a survey of emergency physicians in the state of Michigan. *Ann Emerg Med.* 2005;46:142-7.
7. Gates DM, Gillespie GL, Kowalenko T, Succop P, Farra S, Sanker M. Occupational and demographic factors associated with violence in the emergency department. *Adv Emerg Nurs J.* 2011;33:303-13.
8. Martinelli D. Survey of emergency department practices in Pennsylvania hospitals to protect patients and staff. *Patient Safety Advisory.* 2011;8:126-30.
9. Peek-Asa C, Casteel C, Allareddy V. Workplace violence prevention programs in hospital emergency departments. *Occup Environ Med.* 2007;49:756-63.
10. Gillespie GL, Gates DM, Mentzel T. An educational program to prevent, manage, and recover from workplace violence. *Adv Emerg Nurs J.* 2012;34:325-32.
11. Gates D, Gillespie G, Smith C, Rode J, Kowalenko T, Smith B. Using action research to plan a violence prevention program for emergency departments. *J Emerg Nurs.* 2011;37:32-9.
12. Gillespie GL, Gates DM, Mentzel T, Al-Natour A, Kowalenko T. Evaluation of a comprehensive ED violence prevention program. *J Emerg Nurs.* 2013;39:376-83.
13. Gacki-Smith J, Juarez AM, Boyett L, Homeyer C, Robinson L, MacLean SL. Violence against nurses working in US emergency departments. *J Nurs Adm.* 2009;39:340-9.
14. US Department of Labor Occupational Safety and Health Administration. . Guidelines for preventing workplace violence for health care & social service workersOccupational Safety and Health Administration; 2004. OSHA publication 3148-01R.
15. Emergency Nurses Association. ENA workplace violence toolkit. http://www.ena.org/practice-research/Practice/ViolenceToolKit/Documents/toolkitpg1.htm. Published 2010. Accessed January 30, 2014.
16. Chapman R, Styles I, Perry L, Combs S. Examining the characteristics of workplace violence in one non-tertiary hospital. *J Clin Nurs.* 2010;19:479-88.
17. Kitaneh M, Hamdan M. Workplace violence against physicians and nurses in Palestinian public hospitals: a cross-sectional study. *BMC Health Serv Res.* 2012;12:469.
18. Sato K, Wakabayashi T, Kiyoshi-Teo H, Fukahori H. Factors associated with nurses' reporting of patients' aggressive behavior: a cross-sectional survey. *Int J Nurs Studies.* 2013;50:1368-76.
19. van Leeuwen ME, Harte JM. Violence against care workers in psychiatry: is prosecution justified? *Int J Law Psychiatry.* 2011;34:317-23.