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Features

WORKPLACE VIOLENCE PREVENTION: IMPROVING FRONT-LINE HEALTH-CARE WORKER AND PATIENT SAFETY

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ABSTRACT

There is perhaps no workplace hazard for which front-line health-care workers and patient safety are more closely linked than workplace violence. When workplace violence occurs, there are direct and indirect consequences for both staff and patients, including compromised patient care. The purpose of this article is to review risk factors for and interventions to reduce front-line health-care worker risk of injury, as well as overall strategies to improve worker and patient safety through comprehensive and participatory workplace violence-prevention programs. Numerous studies have documented risk factors and preventive factors for violence in the health-care setting. Considerably fewer have evaluated interventions designed to reduce these risks and subsequent injury. Front-line health-care workers should actively participate in developing and implementing programs to reduce the risk of injury to staff and patients.

Keywords: workplace violence, occupational health, front-line health-care workers

There is perhaps no workplace hazard for which front-line health-care workers and patient safety are more closely linked than workplace violence. Workplace violence is unique among occupational exposures and does not fit into the classic

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exposure categories of chemical, physical, biological, or psychosocial. Instead the exposure is another individual, most often the patient within the physical work setting [1]. As such, anyone who has the opportunity for contact with a potentially violent individual is at risk, including other patients. In the acute care setting, patients' contact is primarily with health-care staff but they are in contact with other patients and visitors in non-private rooms, hallways outside patient rooms, the emergency department (ED), and waiting and holding areas. When a patient suffers an injury at the hands of another patient (or staff), the organization may incur legal liability, damaged public relations, and numerous related costs [2].

Patients also experience indirect consequences of workplace violence. The quality of patient care suffers when staff are injured and unable to work. Lost-time injuries may result in the use of per diem or "float staff" who may be less familiar with the unit and/or patients. In addition, staff who float to another unit have been found to experience three times the rate of assaults compared to staff permanently assigned to their work unit [1]. Exposure to work-related aggression and violence may also increase the risk of non-therapeutic and/or negative responses by staff, ultimately leading to diminished quality of care. Results from a longitudinal study indicate that violence experienced by health-care staff was associated with lower patient ratings on quality of care [3].

The purpose of this article is to summarize the literature describing the risk of workplace violence to front-line health-care workers, including nursing assistants and home personal care attendants. Interventions designed to reduce worker risk of injury will be reviewed, as well as overall strategies to improve worker and patient safety through comprehensive and participatory workplace violence-prevention programs.

WORKPLACE VIOLENCE: CONCEPTUALIZATION AND SCOPE OF THE PROBLEM

A number of theories and models have been used to conceptualize and explain the mechanism of workplace violence prevention, including the Haddon Matrix, the Job Demand Control model, other work stress models, the NIOSH Work Organization Framework, and Perceived Violence Climate [4-10]. The Irish Health Service Executive's Strategy for Managing Work-related Aggression and Violence, entitled *Linking Services and Safety: Together Creating Safer Places of Service*, provides a contextual perspective for this article. The authors of the report recommend a contextual perspective which considers the complex interaction among 1) the service user/other (i.e., patient); 2) the staff/service provider (i.e., front-line health-care worker); 3) the interaction involved; and 4) the environment in which the service is provided [11]. In the United States these interactions are moderated by professional/clinical practice and by organizational and legal/regulatory policies and structures [5].

Patient characteristics associated with workplace violence include having a history of violent behavior, certain psychotic disorders, substance abuse, dementia, and other conditions limiting cognition and impulse control [12]. While acts of aggression and violence in the health-care environment are often a function of the underlying pathology and are not intended by the perpetrator, neither are they deserved by the staff. Patients who suffer from mental illness and/or those being seen in the ED often have other risk factors that increase their risk for perpetrating violence, including substance abuse, a history of trauma, unemployment, homelessness, and/or experience in the criminal justice system.

Staff-related factors that may be associated with violence include a lack of training in de-escalation techniques and a lack of training in the etiology and treatment of various pathologies associated with violent behavior. Gates et al. [13] reported that among nursing assistants working in nursing homes, "state anger" (i.e., negative mood) was related to the number of assaults they experienced [13]. The use of physical restraints, which involves the interaction between patient and worker, has been associated with injury to both [14].

Environmental risk factors include a lack of security in high-risk areas, the presence of weapons in EDs, unsecured furnishings that can be used as weapons, hallways and patient care areas which have blind spots or do not allow passive surveillance, and poor lighting in outdoor areas. Work organization factors identified as contributing to an environment in which violence can flourish including inadequate staffing, long patient waiting times, poor safety culture [15], and a lack of staff empowerment and shared governance.

Despite the recognition of these factors, efforts to reduce workplace violence have been hampered by a number of complex social and political factors. The complexities arise, in part, from a society oblivious to workers' risk of patient-related violence combined with the attitude that violence for those working with patients, in particular mental health patients, "is part of the job" [16, 17]. The dangers arise from the exposure to violent individuals in combination with a lack of strong violence-prevention programs and protective regulations. These factors, together with organizational realities such as staffing shortages and more complex and acutely ill patients, create substantial barriers to eliminating violence in today's health-care workplace. Finally, government, certifying and/or licensing bodies, managers, and community organizations have historically prioritized patient safety over worker safety, without recognizing that patient and staff safety are inextricably linked [18].

Workplace violence is defined as "violent acts, including physical assaults and threats of assault, directed toward persons at work or on duty" [19]. Workplace violence has been classified into four types based on the perpetrator and victim/worker relationship: Type I (Stranger/Criminal Intent), Type II (Customer/Client), Type III (Worker-on-Worker), and Type IV (Personal Relationship) [20]. Our best estimate of the magnitude of workplace violence comes

from a national household survey of crime victims. In 2009, approximately 572,000 nonfatal crimes (rape/sexual assault, robbery, and aggravated and simple assault) occurred among workers 16 years or older while at work or on duty, according to the U.S. Department of Justice's National Crime Victimization Survey (NCVS) [21]. Rates among private and public sector workers vary greatly, with rates of 9.9, 12.1, and 33.0 per 1,000 employees for private; federal; and state, county, and local government workers, respectively [22].

In 2011, the incidence of injuries and illnesses resulting in days away from work from a nonfatal assault was 14.6 per 10,000 workers in health-care and social assistance compared with 3.8 per 10,000 workers in all private sector workplaces [23]. The majority of these injuries result from Type II violence, which occurs when the person who commits the act of workplace violence is either the recipient or object of service (current or former client, patient, customer, etc.) provided in the workplace by the health-care worker or victim [20].

Despite the magnitude of the problem of workplace violence across a range of worksites, high-risk U.S. employers report little attention to workplace violence prevention, even after a violent incident. Over 80 percent of U.S. employers report "no change" in their workplace violence programming after a significant violence event, even though over 35 percent of these employers cite negative effects such as absenteeism and reduced productivity in the wake of a violent incident [24].

Estimates of the cost of workplace violence injuries involving staff include a study by Hashemi and Webster [25] in which they reviewed a random sample of non-fatal workplace violence claims filed with a single workers' compensation insurance carrier and calculated $26.5 million in annual costs. Biddle and Hartley [26] studied the costs of homicides in the workplace in the United States and estimated an annual cost of $970 million. When estimating the true cost of workplace violence to employers, workers, and society in general, the figures are much higher. If true patient-related costs were included in these estimates, they would undoubtedly be considerably higher.

RISK FACTORS FOR TYPE II WORKPLACE VIOLENCE IN HEALTH CARE

The National Institute for Occupational Safety and Health (NIOSH) has identified and published a list of risk factors for workplace violence, including "working with unstable or volatile persons in health-care, social service, or criminal justice settings" and "working in community-based settings" (see Table 1) [20]. The Occupational Safety and Health Administration (OSHA) enumerated additional specific risk factors for those settings, including: the use of hospitals for the care of acutely disturbed, violent individuals; the increased number of mentally ill patients who have been "de-institutionalized" or released from psychiatric hospitals with inadequate follow-up care; isolated

Table 1. Risk Factors for Workplace Violence in Hospitals

• Working directly with volatile people, especially, if they are under the influence of drugs or alcohol or have a history of violence or certain psychotic diagnoses
• Working when understaffed—especially during meal times and visiting hours
• Transporting patients
• Long waits for service
• Overcrowded, uncomfortable waiting rooms
• Working alone
• Poor environmental design
• Inadequate security
• Lack of staff training and policies for preventing and managing crises with potentially volatile patients
• Drug and alcohol abuse
• Access to firearms
• Unrestricted movement of the public
• Poorly lit corridors, rooms, parking lots, and other areas

work with clients; lack of staff training; and inadequate staffing during off-shifts and at times of increased activities, such as mealtime [27, 28].

An extensive literature documents the risk of violence to nurses and physicians. Other front-line health-care workers, such as nursing assistants, environmental service workers, and ward clerks, have been the focus of many fewer studies. Those studied include workers in home care [29-31], long-term care [32], the Veterans Health Administration (VHA) health system [1, 33] and in one major midwestern health-care system [34]. In the absence of research focused on these worker populations, extrapolation of known risk factors from nurses may inform prevention and policy across disciplines within health care. It should be noted, however, that if one applies standard occupational health and industrial hygiene theories of exposure, it is likely that nursing assistants and patient care assistants who spend the majority of their work shifts providing direct patient care, and who have less control over their work environment, are likely to be at greater risk of assaults than registered nurses.

Welch et al. reported on eight years of standardized assault incidence data among nursing staff working across VHA health-care facilities. They found that female nursing assistants and practical nurses experienced assaults at a rate

6.0 and 2.3 times higher risk than registered nurses; male nursing assistants and practical nurses also were at increased risk [33].

Findorff [34] conducted a mail survey of current and former employees of a major midwestern health-care system. The 1,751 employees who completed the survey held a variety of jobs ranging from clinical positions to clerical and technical positions. The odds of physical violence were higher for patient care assistants (OR = 2.5) and nurses (OR = 3.8) and lower for clerical workers (OR = 0.1) compared with medical specialists including physical and respiratory therapists and medical technicians. Adjusting for patient contact resulted in increased odds of physical and non-physical violence for patient care assistants, but not nurses. Increased supervisor support decreased the odds of both physical (OR = 0.7) and non-physical violence (OR = 0.5), adjusting for job, family, and demographic characteristics [1, 34].

In a large survey by this same research group, a sample of 6,300 randomly selected nurses in the state of Minnesota and a subsequent nested case-control study found annual rates of physical and non-physical assault of 13.2 and 38.8 per 100 nurses, respectively. Cases were more likely than controls to report higher levels of work stress; that assault was an expected part of the job; having witnessed all types of patient-perpetrated violence in the previous month; and having taken corrective measures against work-related assault [17]. The odds of assault were significantly increased in nursing homes/long-term care facilities (OR = 2.6), EDs (OR = 4.2), and psychiatric departments (OR = 2.0) compared with acute care hospital units. The odds of assault were decreased among those carrying cellular telephones or personal alarms (OR = 0.3) [20]. Controls were more likely to perceive higher levels of morale, respect, and trust among personnel, and that administrators took action against assaults [17].

INTERVENTIONS TO PREVENT WORKPLACE VIOLENCE

Published intervention research on voluntary workplace violence safety measures is limited. In 2002, Runyan systematically examined workplace violence intervention studies and found five that evaluated violence-prevention training interventions, two that examined post-incident psychological debriefing programs, and two that evaluated administrative controls to prevent violence [35]. Findings from the studies were mixed, with six reporting a positive impact and three reporting no impact. Since that review, Arnetz et. al. reported on a randomized control trial of 47 health-care workplaces where intervention facilities' employees received "structured feedback" from supervisors following incidents. In comparison facilities, incidents were reported without structured discussion. They found that staff in the intervention workplaces reported better awareness of risk situations for violence, of how potentially violent situations could be avoided, and of how to deal with aggressive patients. However, there

were significantly more (50% more) violent incidents reported in the intervention facilities compared with the control group workplaces. The authors attributed this finding to an increased awareness of workplace violence incidents on the part of staff and improved supervisory support at the intervention facilities [36, 37].

A more recent review conducted by Wassel et al. [38] examined the literature published since 1992 to determine the effectiveness of interventions in preventing workplace violence and concluded that existing evaluation research is still inadequate [38]. Additional studies have described approaches to workplace violence prevention including environmental controls [39], training [40], and/or participatory action approaches [41]; however, evidence for the impact of such individual program elements on the rate of assaults has been lacking.

One of the most definitive studies of an administrative control to prevent workplace violence was conducted by the VHA system. Its electronic mechanism for "flagging" the file of a patient who has committed violence against a staff person within the past two years led to a 90 percent reduction in assaults by these high-risk patients [42, 43]. The patient flag allowed workers to benefit from others' experience with the patients and take measures such as security stand-by, search for weapons, or patient confinement to one area of the hospital [42]. These patients are frequently required to have a security escort with them whenever they are in a facility for treatment [44]. Hodgson et al. recently reported on the impact of a comprehensive risk assessment and management system which included electronic record requirements and "flagging." In a cross-sectional survey of Chiefs of Staff at 140 VA hospitals, the presence and perceived effectiveness of these systems were associated with a reduction in assault-related incident rates [15].

TRAINING

Most health-care organizations rely on worker training as their primary or sole strategy for violence prevention. Although training is a necessary element of a comprehensive approach to address workplace violence, it is not sufficient to prevent staff and patient workplace violence. More importantly, little empirical evidence exists to support its impact on staff and patient injury. More than 20 commercial workplace violence training curricula/systems are available from a range of vendors, and many large organizations have developed their own training curricula.

While some evidence exists to suggest that training may reduce risks to staff, improve their clinical effectiveness, and result in cost savings, research into what training content and processes ensure safe, effective, and acceptable practice is severely limited [11]. The Irish National Health Service has developed a highly structured approach to personal safety skills and is in the process of documenting its effectiveness. They recommend that in the absence of national (or international) guidance on evidence-based education, training at all levels of

prevention should be participant-centered and include learning outcomes that are informed by a thorough risk assessment about the patient population, the staff/provider population, and the physical and social environment in which the interaction between them takes place [11].

A web-based, NIOSH-supported training on the prevention of workplace violence in health care will be available online in late 2013 on the NIOSH website. The three-hour training was developed with input from a broad group of stakeholders including many nurses and health and safety specialists.

COMPREHENSIVE WORKPLACE VIOLENCE-PREVENTION PROGRAM

Most experts in the field of workplace violence prevention, as well as government, professional, and certifying bodies strongly recommend a comprehensive workplace violence-prevention program (WVPP) modeled after the 1993/96 OSHA Guidelines for Preventing Workplace Violence for Healthcare and Social Service Workers (and codified into law in several states [5, 45, 46]. A WVPP is another name for a comprehensive illness and injury prevention process focused on the risk of violence. Such a program has as its foundation strong management commitment and worker involvement. These foundational elements then support the other program elements, namely hazard analysis, hazard control, training, and evaluation/recordkeeping. Worker involvement is important in any comprehensive illness and injury prevention program but particularly in developing a WVPP. Front-line health-care workers are skilled in recognizing patients who may be at risk of violence, as well as strategies to minimize the risk.

Additional support for a WVPP comes from nonregulatory certifying bodies, such as The Joint Commission and the American Nurses Credentialing Center (ANCC) Magnet designation, which address the work environment, disruptive clinician behavior, patient behavior, security, and safety [47-49]. In its June 2010 Sentinel Event Alert [50], The Joint Commission addressed assault, rape, or homicide of patients and visitors, perpetrated by staff, visitors, other patients, and intruders to the institution. Consistent with The Joint Commission's focus on patient safety, it approached the problem from the perspective of patient (and visitor) safety, yet the Alert describes a process for reducing violence towards patients which includes elements of a WVPP. The Alert also highlights The Joint Commission's Environment of Care standards, which require health-care facilities to develop and maintain a written plan describing how an institution provides for the security of patients, staff, and visitors; conducts risk assessments to determine the potential for violence; provide strategies for preventing instances of violence; and establishes a response plan that is enacted when an incident occurs [50]. In contrast, the Magnet designation process does not address workplace violence directly but instead provides a model and standards

that focus on the structures and processes used by the organization to improve workplace safety for staff and to support a culture of patient safety [49].

Research efforts to demonstrate the effectiveness of a comprehensive WVPP in preventing staff assaults have been limited by numerous challenges inherent in studying complex organizational-level interventions. As stated earlier, many factors, individually and in combination, contribute to physical assaults in general and high-risk health-care settings, particularly mental health and EDs. Measures of individual patient and staff characteristics that undoubtedly contribute to the occurrence of assaults are rarely included, with most studies relying on ecologic measures of risk, namely type of hospital unit (e.g., ED or psychiatric unit). Yet, it is recognized that a small subset of the patients in mental health settings are responsible for a large percentage of violence toward staff [51, 52]. As such, the ability to measure the risk associated with this subset of patients in a particular unit or facility is critical to the study of the effectiveness of organizational-level interventions. Studies that have attempted to measure the impact of comprehensive programs have shown modest or mixed results, in part because of the challenge of controlling for unmeasured confounding variables.

Lipscomb et al. [45, 46] studied the feasibility and impact of implementing the OSHA Guidelines in public-sector institutional mental health settings and in residential addiction treatment centers in New York State. In close partnership with labor and management representatives, they developed and implemented a proactive violence-prevention program that included an extensive worksite analysis, staff focus groups, and a baseline and post-intervention survey of changes in staff perception of the quality of the program's elements. They also tracked physical assault before and following program implementation. A comparison of pre- and post-intervention survey data indicated an improvement in staff perception of the quality of the facility's violence-prevention program in both intervention and comparison facilities over the course of the project, but did not detect a reduction in the rates of staff-reported physical assaults following program implementation [46]. Overall, the authors provide evidence for the feasibility and positive impact of a comprehensive violence-prevention program on staff perception of the quality of management commitment and employee involvement in violence prevention.

Mohr et al. [53] examined the extent of workplace violence-prevention program (WVPP) implementation on rates of workplace violence in 138 Veterans Administration (VA) facilities. Data on WVPP implementation were assessed for each facility by a three-person team. Program implementation was scored on three dimensions: training, workplace practices, and environmental control. Mohr et al. analyzed six years of assault data from the national injury system, controlling for time and organizational characteristics and observed that 49 (34%) health-care facilities experienced reduced assault rates since 2004. The average improvement was 42 percent (SD = 31%) or a 34.86 lower standardized incidence rate per 10,000 full-time employees. Health-care facilities that did not

experience a reduction in assault rates saw an average increase of 125 percent (SD = 165%) or a 39.86 increase in standardized incidence rate per 10,000 full-time employees. Study results showed no significant effects of organizational characteristics such as size, teaching affiliation, region, or level of implementation for either the training dimension or the environmental control and security dimension. The researchers found that full implementation of the training dimension was associated with a modest 3.3-unit reduction in the standardized incident rate, or approximately 5 percent of the all-years facility standardized incident rate. Study limitations and possible explanations for the modest impact of the program on assault rates included mixed results across regions and hospitals, the inability to examine program implementation and assault rates at the unit level, possible increased reporting following program implementation, changes in patient population over the study period, and inability to assess changes in injury severity over the study period [50].

WORKPLACE VIOLENCE-PREVENTION LEGISLATION

At least nine states to date have enacted legislation to mitigate the problem of workplace violence in high-risk health-care and/or public sector workplaces. Elements of these state laws include risk assessment, planning, documenting and reporting, training, and more recently, employee involvement in the prevention and reduction of workplace violence.

California was the first state to pass legislation mandating workplace violence-prevention programs, and the impact of the 1993 California Hospital and Security Act on violence-prevention programming has been evaluated. Peek-Asa [54, 55] conducted a cross-sectional survey of a representative sample of hospitals in California and New Jersey, a state without workplace violence legislation and under federal OSHA jurisdiction. Data were collected during on-site visits between 2002 and 2005 in psychiatric units and facilities and high-risk EDs in California and New Jersey. Investigators conducted interviews with nurse managers and staff, conducted a facility walk-through, and reviewed written policies and training material. They found that among psychiatric units and facilities, a similar proportion of hospitals in both states had WVPP training programs (96% in California and 93% in New Jersey). A higher proportion of California hospitals (98%) than New Jersey hospitals (80%) had written WVPP policies ($p = 0.004$). By contrast, a higher proportion of New Jersey hospitals had implemented environmental and security modifications to reduce violence (mean score 2.12 vs. 2.97, $p < 0.001$) [55]. California EDs included in the survey had significantly higher scores for training and policies and procedures compared with New Jersey EDs, but there was no difference for security and environmental approaches [56]. Most hospitals in both California and New Jersey had implemented a workplace violence-prevention program, but important gaps in programming were found.

To study the impact of a 1993 legislative mandate on assaults, Casteel et al. [57] examined changes in hospital employees' violent event rates before and after enactment of the law, using New Jersey as a comparison. The focus was again on EDs and psychiatric units. Employee assault rates in California hospital EDs decreased from 0.68 assaults per 100,000 employee-hours per year in the pre-enactment period to 0.60 in the post-enactment period, whereas employee assault rates in New Jersey hospital EDs increased from 0.55 assaults per 100,000 employee-hours pre-enactment to 0.62 in the post-enactment period. In both California and New Jersey psychiatric units, employee assault rates increased from the pre-enactment period to the post-enactment period. In California, the assault rate increased from 2.06 to 2.31 assaults per 100,000 employee-hours per year, whereas in New Jersey, the assault rates increased from 0.42 to 1.09 assaults per 100,000 employee-hours per year. The increase in assault rates in California was smaller than the increase in New Jersey (RR = 0.6, 95% CI: 0.26–1.52). Psychiatric units in all hospital types in California and New Jersey experienced an increase in employee assault rates between the pre- and post-enactment periods, with the exception of psychiatric units in California trauma facilities, where a decrease from 3.57 to 2.75 assaults per 100,000 employee hours per year was found. The authors concluded that although they were unable to reliably measure hospital compliance with the legislation, they did measure the presence of the components required by the legislation up to 10 years after the enactment of the legislation. This series of studies, despite the complex and mixed findings, provide beginning evidence for the impact of a legal mandate for a WVPP on both program implementation and assault rates.

PARTICIPATORY ACTION

Several studies strongly suggest that a comprehensive and participatory approach to violence prevention in health care is necessary to reduce workplace violence [41, 45, 46, 59]. The importance of including front-line workers in violence-prevention programming and research cannot be underestimated. Patient behaviors may change from hour to hour and in response to various clinical, environmental, and interpersonal factors. Front-line workers spend the greatest amount of time with patients, and therefore they are often in the best position to assess and evaluate behaviors and individual patient triggers. Their expertise is needed and therefore they should be actively recruited to serve on violence-prevention and health and safety committees. In addition, their involvement in such activity improves communication among treatment team members and encourages the reporting of violent incidents or near misses. Evidence suggests that when staff are provided the opportunity to use their expertise to impact the development, implementation, monitoring, and evaluation of programs, they perform at a higher level and are overall more satisfied with work [55]. Patient care is also likely to improve.

CONCLUSION

A large body of research exists characterizing the risk factors and preventive factors for violence in the health-care setting. The majority of this research has focused on registered nurses, yet there is clear evidence that the risk to nursing assistants and other patient care assistants is at least as great as that to nurses. Therefore, efforts are needed to engage this group of workers to participate in developing and implementing programs to reduce the risk of injury to staff and their patients.

Research evaluating the impact of various interventions designed to reduce workplace violence provide only modest evidence of reduced physical assaults, in part due to the challenges in the research designs and limitations of studies conducted to date. However, evaluation of the 1993 California Hospital and Security Act did demonstrate the impact of this state law in increasing violence-prevention programming and reducing staff assault rates over time. In addition, the ongoing work of the Department of Veterans Affairs VA health-care system to evaluate its program for prevention and management of disruptive behaviors has provided evidence of the impact of a thorough risk assessment and electronic patient tracking system. This body of work should serve as a blueprint for other health-care systems that are serious about addressing the risk of workplace violence. Finally, the Irish Health Service Executive's 2008 strategy for managing work-related aggression and violence provides thoughtful and comprehensive guidance on designing programs linking patient services and worker safety.

In conclusion, health-care organizations must embrace a comprehensive approach to workplace violence prevention as a core element of their efforts to reduce patient injuries and adverse patient outcomes, and to improve patient care. An empowered workforce is essential to this effort. Without workers' genuine engagement, health-care organizations will be seriously limited in their ability to design and implement the type of comprehensive approach needed to prevent violence.

AUTHORS' BIOGRAPHIES

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