Work 51 (2015) 51–59
DOI 10.3233/WOR-141887
IOS Press

Using database reports to reduce workplace violence: Perceptions of hospital stakeholders

Judith E. Arnetz[a,b,*], Lydia Hamblin[a,c], Joel Ager[a], Deanna Aranyos[d], Lynnette Essenmacher[d], Mark J. Upfal[d,e] and Mark Luborsky[f,g]
[a]*Department of Family Medicine and Public Health Sciences, Wayne State University School of Medicine, Detroit, MI, USA*
[b]*Department of Public Health and Caring Sciences, Uppsala University, Uppsala, Sweden*
[c]*Department of Psychology, Wayne State University, Detroit, MI, USA*
[d]*Detroit Medical Center Occupational Health Services, Detroit, MI, USA*
[e]*Department of Emergency Medicine, Wayne State University School of Medicine, Detroit, MI, USA*
[f]*Institute of Gerontology, Wayne State University, Detroit, MI, USA*
[g]*Department of Neurobiology, Caring Sciences and Society, Karolinska Institutet, Stockholm, Sweden*

Received 12 February 2013
Accepted 12 October 2013

Abstract.
BACKGROUND: Documented incidents of violence provide the foundation for any workplace violence prevention program. However, no published research to date has examined stakeholders' preferences for workplace violence data reports in healthcare settings. If relevant data are not readily available and effectively summarized and presented, the likelihood is low that they will be utilized by stakeholders in targeted efforts to reduce violence.
OBJECTIVE: To discover and describe hospital system stakeholders' perceptions of database-generated workplace violence data reports.
PARTICIPANTS: Eight hospital system stakeholders representing Human Resources, Security, Occupational Health Services, Quality and Safety, and Labor in a large, metropolitan hospital system.
METHODS: The hospital system utilizes a central database for reporting adverse workplace events, including incidents of violence. A focus group was conducted to identify stakeholders' preferences and specifications for standardized, computerized reports of workplace violence data to be generated by the central database. The discussion was audio-taped, transcribed verbatim, processed as text, and analyzed using stepwise content analysis.
RESULTS: Five distinct themes emerged from participant responses: Concerns, Etiology, Customization, Use, and Outcomes. In general, stakeholders wanted data reports to provide "the big picture," i.e., rates of occurrence; reasons for and details regarding incident occurrence; consequences for the individual employee and/or the workplace; and organizational efforts that were employed to deal with the incident.
CONCLUSIONS: Exploring stakeholder views regarding workplace violence summary reports provided concrete information on the preferred content, format, and use of workplace violence data. Participants desired both epidemiological and incident-specific data in order to better understand and work to prevent the workplace violence occurring in their hospital system.

Keywords: Health care workers, occupational health, focus groups

*Corresponding author: Judith E. Arnetz, Department of Family Medicine and Public Health Sciences, Division of Occupational and Environmental Health, Wayne State University School of Medicine, 3939 Woodward Ave, Detroit, MI 48201, USA. Tel.: +1 313 577 2015; Fax: +1 313 577 3070; E-mail: jarnetz@med.wayne.edu.

1. Introduction

Healthcare workers have a five times greater risk of being a victim of violence compared to workers in all other industries combined [1]. From 2003–2007, approximately 60% of all nonfatal workplace assaults and violent acts occurred in the United States health care and social assistance industry, with 22% of these violent acts occurring in hospitals [1]. Hospital employees comprise 35% of all U.S. health care workers [2], and violence towards hospital workers has been associated with decreased employee health and safety [3], work productivity [4,5], quality of care [6–8], and increased intention to leave the organization [7,9].

Despite the persistence of this occupational hazard, hospitals today lack practical and sustainable systems for workplace violence surveillance, risk assessment, reduction, and prevention. In the first phase of an ongoing project that aims to develop such a system, we explored key stakeholders' perceptions of system wide database-generated workplace violence data reports.

1.1. Workplace violence prevention in hospitals

Prevention of workplace violence in hospitals faces multiple critical barriers. First, there is a lack of systematic surveillance of violent incidents. Many hospital administrators do not monitor workplace violence continuously due to the lack of practical and sustainable data collection systems [10]. The result is a lack of basic data that could inform administrators about the prevalence and incidence of violence and identify work sites and professional groups at increased risk. Secondly, while some hospital administrators collect reports about violent incidents, there is often no systematic summary, analysis, or graphic presentation of the events based on the population at risk [10], nor tailoring to the target audience (e.g., human resources, nursing, labor, etc.). As a result, violent events are often handled reactively on a case-by-case basis rather than through proactive, preventive measures [10].

1.2. The importance of stakeholder involvement

Involvement of stakeholders has been described in educational program planning and evaluation [11–13] as a key to program success, but has not been emphasized in occupational health research. In 1996, the Occupational Safety and Health Administration (OSHA) published guidelines for preventing workplace violence in the health care and social service sector, which have since been updated in 2004 [14]. These identified five main components of worker health and safety programs, including violence prevention efforts. The first of these was management commitment and employee involvement, followed by worksite analysis; hazard prevention and control; safety and health training; and documentation and program evaluation [14]. Yet early attempts to establish a research agenda for workplace violence prevention failed to include management and employees, i.e., key stakeholders. Instead, the focus was on defining violence and estimating the magnitude of the problem [15,16], and establishing strategies for prevention [17,18]. More than a decade ago, Runyan [16] cited key factors for moving research on workplace violence prevention forward, including assessment of the intervention process. However, stakeholder involvement *per se* was not emphasized.

More recently, researchers began to recognize the importance of incorporating stakeholders into violence prevention, perhaps due to the lack of successful, sustainable workplace violence interventions. In the healthcare sector, Lipscomb et al. [19] utilized joint labor-management advisory groups in developing violence prevention programs in mental health facilities. Gates et al. [20] used focus groups to collect information from employees, managers, and patients in implementing and evaluating a violence prevention program in hospital emergency departments. Both studies utilized a participatory action research strategy that includes collaborating with relevant members of the organization/community with the identified problem, testing new ideas, and implementing action for change [21]. However, while stakeholders in these two studies were involved in violence prevention programs, they were not asked for their input regarding workplace violence data reports. The foundation for any violence prevention program is the use of valid and reliable data, [10] but no published research to date has examined stakeholders' preferences for workplace violence data reports in healthcare settings. If relevant data are not readily available and effectively summarized and presented, the likelihood is low that they will be utilized by stakeholders in targeted efforts to reduce violence.

1.3. The current project

Since 2003, a large, metropolitan hospital system has continually collected employee reports of occupational injuries and hazardous exposures, including

incidents of workplace violence. The hospital system uses a broad definition of violence that encompasses physical assault, harassment, intimidation, threats, verbal aggression and unprofessional behavior [22]. All documented incidents are reviewed by data analysts and categorized as either Type I violence, i.e., criminal intent, where violence is perpetrated by an outsider; Type II, patient (or patient visitor)-to-worker violence; Type III, worker-to-worker violence; or Type IV, where the perpetrator has a personal relationship with an employee but is an outsider to the organization. [23]. Detailed descriptions of the standardized, central reporting system and calculation of population-based rates of workplace violence have been reported previously [10,22]. The hospital system has established procedures for collecting violent incident reports which provide the data needed to produce workplace violence rates. However, while the system addresses two critical barriers – standardized surveillance of violent incidents and data collection – the data on violent events are not being used optimally to identify high risk sites and develop strategies for reducing violence. Database reports summarizing data on documented workplace violence events are not standardized across the system's hospitals, nor are they readily available to management and labor representatives. In the current project, the objective was to develop standard methods for summarizing the information from employee-reported workplace violence incidents into user-friendly data reports. This is a key aspect in the ongoing development of the existing system for monitoring and analyzing workplace violence incidents. In the process, it is vital to include key hospital system stakeholders who are responsible for implementing violence intervention and prevention efforts. Developing data reports based on stakeholder preferences should increase the likelihood that reports are regularly reviewed and used in violence prevention efforts.

The theoretical foundation for this work is the Social Marketing model [24,25] advocated by the Centers for Disease Control and Prevention (CDC) for effective public health promotion, communication, and intervention activities [26]. Social marketing applies marketing principles to create social change by striving to influence "... the acceptability of social ideas" in individuals and communities [24, p.5]. It builds on marketing management, which examines the desires, attitudes and behaviors of potential customers in an effort to optimize the design, promotion and distribution of a product [24,27]. Thus, involvement of hospital system stakeholders in the development of workplace violence data reports is considered fundamental to the future sustainability and success of data-driven violence prevention efforts. The aim of this study was to explore and describe hospital system stakeholder views regarding database-generated workplace violence data reports. These would provide the foundation for the development of prototype reports, based on stakeholder preferences.

2. Methods

This project utilizes a participatory action research approach [28]. The rationale for using an action research approach is that it involves collaboration with relevant members of the organization/community with the identified problem, testing new ideas, and implementing action for change. This approach enables local solutions to be transferred into knowledge, thus helping to make research results more generally applicable [21]. Working in close collaboration with key stakeholders, who "own the problem," the results of action research are more readily translated into effective and sustainable new practices. The current study employed a qualitative design using a focus group discussion.

2.1. Setting and participants

The setting for this project is a large, metropolitan hospital system with over 15,000 employees and a central database for reporting adverse workplace events, including incidents of violence. These adverse events are reported by employees to Occupational Health Services using a standardized, electronic reporting system that is accessible from any hospital computer. Employees report incident details, such as date, time, work shift, and location, and may also provide a description of what happened in a textbox. The hospital system has a policy requiring reports to be completed within 72 hours of the incident, to limit recall bias. Hospital policy also dictates that employees may not be reprimanded for filing a report, and management is held accountable for taking appropriate action to resolve issues reported [22]. A thorough description of this reporting system has been previously reported [10,22].

Eight key hospital system stakeholders representing Human Resources ($n = 2$), Security ($n = 2$), Occupational Health Services ($n = 1$), Quality and Safety ($n = 1$), and Labor ($n = 2$) participated in the focus group. None of these stakeholders were involved in di-

rect patient care. With the exception of the union representatives, these focus group members represented hospital system executive management. These individuals included several senior vice presidents and executive directors who had full knowledge and support of the incident reporting system. Each of these hospital system executive departments and the major labor unions had provided the research team with letters of support in the application for external funding of the project. Once funding was secured, stakeholders who had provided support (or representatives from their respective units) were asked to participate in the focus group. The final group consisted of four women and four men. At the focus group meeting, participants were given written information about the study describing the purpose, study procedures, benefits and risks. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time; that all data from the project would be de-identified; and that consent was given by agreeing to participate.

Ethical approval for the study was granted by the Human Investigation Committee at Wayne State University and the Research Review Council of the hospital system.

2.2. Data collection

Before convening the stakeholders, a structured question guide was developed for the focus group discussion. The question guide included four direct questions about the format of data reports and their use. Questions began broadly, addressing the needs of the entire hospital system in terms of the usefulness of the reports. Employing a funnel design, questions became narrower, next focusing on what information each stakeholder would find useful from the reports. Considering that the database reports will function as tools for developing and adapting violence intervention strategies, it was essential to hear the stakeholders discuss how they would use the information. Researchers asked the group to identify information that would be useful to their specific position in the hospital system. Finally, questions concerned report format and delivery.

The focus group was held on site at one of the hospitals and lasted approximately one hour. One researcher was responsible for facilitating the discussion while another researcher documented the reactions of the group. Before beginning, the facilitator reviewed the procedural ground rules for the focus group discussion. Participants were reminded that only one person may speak at a time. They were asked to keep their responses concise and to speak clearly, as the session was being audio recorded. To protect confidentiality, participants were asked not to repeat any of the comments that were shared during the discussion. The structured question guide was used to lead the group discussion and elicit thoughts about preferences and specifications for the content and format of the workplace violence data reports. Documentation was achieved through audio recordings, using two digital recorders at the center of the table, and shorthand notes taken during the discussion. The quality of the audio recordings was good, posing no difficulties with hearing what was said or distinguishing participants' individual voices.

2.3. Data analysis

Audio recordings were transcribed verbatim by the researcher responsible for documentation. The transcript was analyzed using stepwise content analysis [29], exploring themes relevant to content and format of the incident reports. One researcher read through the transcript and assigned codes for each type of response. This was repeated until the themes of response were distinct and no new themes appeared, reaching data saturation [30]. A second researcher employed the same method, and themes were discussed until agreement was reached about the number and content of themes. Both researchers then recoded the transcript, applying the agreed-upon code structure [31]. Finally, a third researcher repeated this method and reviewed conclusions from the first two researchers, validating their thematic findings.

2.4. Qualitative rigor

To maintain integrity using qualitative methods, the consolidated criteria for reporting qualitative research (COREQ [32]) were used when planning the focus group study. In addition, Guba and Lincoln's [33] criteria for judging the quality of qualitative evaluation were followed. The criteria they outline are *credibility, transferability, dependability,* and *confirmability. Credibility* is parallel to internal validity and was achieved through building rapport with the stakeholders and using audio recordings of their responses. *Transferability* is parallel to external validity, which must be evidenced in future studies, but was accommodated by using stakeholders from a wide sample of representative areas. *Dependability* is parallel to reli-

ability, concerned with stable data over time. By outlining the data collection methods, replication may be achieved and *dependability* is supported. Finally, *confirmability* is parallel to the criterion of objectivity and was achieved through the use of audio recordings and direct quotes displayed in the Findings section.

3. Findings

Five distinct recurrent themes emerged from the responses of the hospital stakeholders: Concerns, Etiology, Customization, Use, and Outcomes. While the main discussion of the focus group concerned content and format of incident reports, stakeholders brought up other points they were invested in, such as their concerns about this system and outcomes of the incidents. Each theme is further explained below with verbatim examples of participant comments. An overview including sub-theme definitions is provided in Table 1.

3.1. Concerns

The first theme from the focus group discussion developed from the concerns stakeholders expressed, focusing on the incident reporting system as well as legality issues. This theme provided the researchers with insight into how the stakeholders perceived the current project of developing data reports from their incident database, including predicted barriers to the project. Two sub-themes emerged: Legal Concerns and Obstacles.

Legal Concerns included confidentiality of data and safeguarding not only employees but the image of the hospital system as well. As stakeholders share the responsibility of protecting their organization, there was some apprehension as to how the data might be used or misconstrued. They wanted assurance from the research team that the interests and reputation of the employees and the organization were protected. Examples of legal concerns include the following:

> *"We have another responsibility to safeguard the image of our organization and how we represent the findings of our data."*
> *"The information, despite what it looks like and reads like to us, can be spun and manipulated to create great headlines that... get everybody watching and they say: you know they just released a study at [this hospital system] that says X. Well that's possibly what it says, but again out of context it's potentially ruinous."*

Obstacles as a sub-theme included issues related to data collection. For example, stakeholders questioned how workplace violence should be defined, and both under- and over-reporting were concerns.

> *"What is your definition of workplace violence? I mean is it threatening tones, employee to employee, is that workplace violence? Is it physical altercations? Where's the line that we're gonna draw here? Because some things don't get reported."*
> *"We'd like to verify that [the incident] actually happened."*

3.2. Etiology

The Etiology theme focused on the cause of the actual incident. Stakeholders were interested in which individuals were involved in workplace violence incidents and the reasons behind the violence. The first sub-theme was Parties Involved, which included the identities of the perpetrator and victim, as well as who reported the incident.

> *"So if it involved a registered nurse and a physician in a verbal conflict, you know it's a nurse and a physician in a staff member to staff member conflict."*

The second sub-theme, Description, encompassed details of why and how the incident occurred. For example, was the violence physical, and was there a clear motive?

> *"What created the interaction? ...A discontent with the service, so to speak, so that would be on that patient or patient/family aspect of things. Or is it... me and my co-worker are talking about something completely outside of the workplace and then it becomes an internal struggle as well?"*

Participants emphasized the importance of understanding incident etiology, noting that details describing the incident could inform the development of prevention strategies. One participant referred to this as "peeling back the onion:"

> *"... We have an act of violence in the lobby with a patient and the family. I may want to say, 'Why are we allowing patients to go downstairs to the lobby with [an intravenous] pole?' Maybe that's a preventative measure to say, 'Okay we don't allow patients to leave the floor, especially if they're mad about family members.' You know you look at those types of things when you peel back the onion."*

Table 1
Overview of themes and sub-themes and respective definitions

Themes and sub-themes	Definitions
Concerns	
Legal concerns	Safeguards for employees and the organization against misuse of the reporting system.
Obstacles	Issues that may threaten the function of the workplace violence reporting system.
Etiology	
Parties involved	How individuals involved in each incident are related to the hospital system and each other.
Description	Details from the incident that provide information regarding why and how the incident occurred.
Customization	
Format	A description of information the reports should contain and how they should be structured.
Delivery	Through what medium the incident reports should be available and presented.
Use	
Identification	Using rates of occurrence to highlight and compare high risk work sites.
Strategy	Using identification of problem areas in order to intervene or prevent workplace violence at these sites.
Outcomes	
Consequences	Outcomes for both the perpetrator and victim, including discipline and care.
Severity	Whether injuries were sustained and compensation costs, including time off and medical care.

3.3. Customization

The third theme, Customization, emerged through discussion of how stakeholders would receive the data. This concerned how the data reports should look and what information they should contain. A common theme that emerged among the stakeholders was the idea of an electronic database that could be accessed by designated users to create custom reports. Each end-user had varying specifications for what information they wanted, depending on their department, hospital, or specific unit. However, some specifications were uniform and formed the two sub-themes, Format and Delivery. Format included what details they wanted from the data, such as location, time of the incident, and time of the report.

> *"You might want to see this month, this point in time, on a pie chart: this is where all the issues happened. You might want to see bar charts or comparisons between the hospitals."*

Delivery was based on how they wanted their reports to be presented, consensus being electronic delivery via an Access Database where stakeholders could create their own, customized reports.

> *"General, standardized reports that get sent to you are fine; but the ability to go in and maybe hit some custom screens so I can go do whatever I need, to extrapolate what I need, is great."*

3.4. Use

The group discussed how content would depend on the use of the data, and Use developed as a theme, forming two sub-themes: Identification and Strategy. Identification stemmed from the need to know about patterns and trends that were apparent among the hospitals and its units, including comparisons between them. Understanding the trends and differences, stakeholders can then adapt and employ intervention and prevention strategies.

> *"I will want to know the location because if it's down, this issue or this theme, is down at [Hospital X] and it's up at [Hospital Y], I want to look at: what's the difference? What is [Hospital X] doing that I can take from here and go over to [Hospital Y] and educate?"*

The Strategies sub-theme reflected the shared idea that information about violence in the hospital system needs to precipitate action, i.e., intervention or prevention. For example, understanding that one hospital's pediatric unit has a consistently low rate for violence could lead to education for other pediatric units that experience higher rates. Hearing the group's remarks about their ideas for using the reports was essential for informing the researchers about the preferred format and content of the database reports.

> *"And this tells me that at [Hospital Y], obviously, security is the main target. Maybe some de-escalation training might be in order for my people."*

3.5. Outcomes

Outcomes of the incidents themselves emerged as a theme, with Consequences and Severity as the emergent sub-themes. Consequences included medical care

and time lost for the victim and disciplinary action for the perpetrator. Stakeholders wanted the ability to determine how their system was working to reduce workplace violence. By following through on deterrence for the instigators, workplace violence may decrease by raising awareness that certain behaviors are not tolerated by the organization.

> *"This is the victim, this is the perpetrator; victims typically get some type of care, perpetrators usually get some type of discipline."*
> *"Because you have to issue discipline, so you need to know the details of the incident, the severity of it."*

Severity factors included whether an injury was reported and the extent of the cost, such as time off work or medical attention.

> *"And if you have an injury that needed medical attention and time off from work, that is also on your OSHA [Occupational Safety and Health Act] report, so OSHA recordability might be another measure of severity."*

4. Discussion

The aim of this study was to explore and describe hospital system stakeholders' views regarding introduction of routine, database-generated workplace violence data reports. The focus group discussion provided the researchers with concrete guidelines for the preferred content, format, and use of the data reports that they are working to create. The five themes that emerged from the qualitative analysis reflected the stakeholders' overall views of workplace violence as a health and safety issue for hospital system employees. Findings identified new domains of interest not anticipated by researchers at the outset. While participants expressed an interest in seeing rates of violence occurrence across hospitals and work sites and trends over time, they further expressed desire for additional details: what sparked an individual incident? Who were the involved parties? Not surprisingly, the stakeholders approached workplace violence from an organizational perspective, wanting to know the outcome of an incident, e.g., were there injuries; was medical attention or time off from work required; were disciplinary actions carried out? Thus, we discovered stakeholders' preferences for the content and format of the data reports were contextualized in and amplified by their long-term intentions to use the information that the reports provide. The more useful the information provided, the better equipped participants felt they would be to intervene and establish preventive measures. One participant referred to the ability to compare violence rates, or perhaps types of incidents, across similar types of hospital units. This would give both management and labor insight into worksites that were problematic or that represented "best practice" with regard to workplace violence. They saw the potential in being able to learn from the data and in this way work to improve hospital safety for both employees and patients with regard to violence.

Stakeholders expressed a desire for the database reports to allow them to see the entire workplace violence experience. This encompassed everything from the catalyst for an incident to repercussions for the individuals involved as well as the workplace/organization. Etiology was one of the key themes that emerged, and one participant described this process as "peeling back the onion." Stakeholders expressed a belief that understanding what sparks different kinds of incidents will help them to develop suitable and effective prevention strategies. This is in line with our underlying social marketing theory which, when effective, offers products, services, or ideas that the target audience perceives as directly beneficial and helpful [27]. However, while all participants saw the benefits and uses of database reports, they also wanted the option to request customized reports that would answer questions specific to their respective hospital system roles. Preferences such as these are extremely important to the research team, who are working to create a database that can generate reports that fulfill these end-user specifications.

The "Concerns" theme that emerged was not directly related to the focus group questions posed by the researchers, but this theme seemed fundamental to stakeholder perceptions. They were all aware that workplace violence is a serious occupational health issue that exists within their hospital system. At the same time, they were concerned for their organization's reputation and for any legal repercussions that might result from violent events. These concerns were also related to an interest in the quality of the reporting system. They wanted to know if they could rely on the data, and whether the reporting system was in any way being abused by employees in the form of under- or over-reporting. All of these are valid concerns that also serve to guide the research team in fine-tuning the database reports.

Stakeholder involvement has been studied in reference to return-to-work interventions [34] and in

community-based participatory research of health disparities in occupational and environmental health [35]. To our knowledge, little previous research has examined stakeholder preferences for occupational health or injury data in the healthcare sector. In a study of violence prevention in three mental health facilities, management was involved in discussing violence-related injury data, but did not influence its content or format [19]. In another study, employees, managers and patients of three hospital emergency departments were asked their views regarding the feasibility and relevance of proposed violence interventions, but not of the violence data reports themselves [20]. The current study is unique in that it offers insight into what hospital stakeholders consider important with regards to the collection, reporting, and use of workplace violence data. Utilizing their valuable perspectives not only serves to develop more efficient reports, but increases the likelihood of the continued use of reports by stakeholders after completion of the active project.

It is interesting to note that the focus group discussion benefitted both the research team and the stakeholders. Researchers gained an increased understanding of stakeholder perceptions and preferences for using the data in the workplace violence database. At the same time, the discussion served to inform the stakeholders of the possible usefulness of the reporting system. Although all participants were aware of the system, which had been implemented in 2003 [10], many did not understand the wealth of information included in the database. In this case, the use of qualitative methodology using a participatory action research approach enhanced each party's understanding of the issue at hand [35]. A social marketing framework guided the inclusion of stakeholder input in this first project phase and will be utilized in all subsequent phases of the action research process, including application of the research findings [28].

4.1. Limitations

This study utilized a purposeful sample of eight stakeholders and the views and perceptions that they expressed are not necessarily reflective of corresponding hospital stakeholders in other hospital systems. However, our sample included representatives of management, labor, human resources, security, and patient care (quality and safety), all of which play a major role in hospitals generally. Focus groups are utilized to capitalize on the group process in data collection, but the process is not without its disadvantages, such as difficult group dynamics and/or power imbalances [36]. Our focus group deliberately combined representatives of both management and labor in an effort to elicit their perceptions simultaneously and to stimulate discussion. However, although all eight participants expressed their views and posed questions, certain individuals spoke more than others.

4.2. Implications for research and practice

The communication that took place during this focus group increased the researchers' understanding of stakeholder perceptions of the incident reporting system, at the same time serving to inform the stakeholders of the system's usefulness. The application of this qualitative research methodology within an action research framework aims to increase the likelihood that the workplace violence data reports will continue to be used after completion of the ongoing research study.

5. Conclusion

Exploring stakeholder views regarding workplace violence data reports provided concrete information on the preferred content, format, and use of these reports. Findings revealed that participants desired both epidemiological and incident-specific data in order to better understand and work to prevent workplace violence in their hospital system. Moreover, they wanted assurance that the reporting system and data reports were secure and valid. Database reports that are attuned to end-user specifications are more likely to be used by the stakeholders as the foundation for workplace violence risk assessment and prevention efforts. Once they have been developed, reports generated by the hospital-system database will provide the foundation for hazard and risk assessment and violence prevention efforts in the next project phases.

Acknowledgements

All authors were partly supported by grant number 1R01OH009948 from the Centers for Disease Control-National Institute for Occupational Safety and Health (CDC/NIOSH). The content of this paper is solely the responsibility of the authors and does not necessarily represent the official views of CDC/NIOSH. Portions of this paper were presented at the National Conference for Workplace Violence Prevention & Management in Healthcare Settings, May 11–13, 2012, Cincinnati, Ohio, where it was awarded Best Paper Abstract.

References

[1] Janocha JA, Smith RT. Workplace safety and health in the health care and social assistance industry, 2003-07 [Internet]. 2010 [updated 2010 Aug 30; cited 2010 Sep 15]. Available from: http://www.bls.gov/opub/cwc/print/sh20100825ar01p1.htm.

[2] U.S. Department of Labor, Bureau of Labor Statistics. Career Guide to Industries, 2010-11 Edition [Internet]. Washington, DC: 2012 [updated 2010 Feb 2; cited 2010 Mar 20]. Available from: http://www.bls.gov/oco/cg/cgs035.htm.

[3] Centers for Disease Control and Prevention (CDC) / National Institute for Occupational Safety and Health (NIOSH). Guide to evaluating the effectiveness of strategies for preventing work injuries No. 2001-119 [pamphlet]. Cincinnati: CDC/NIOSH; 2002.

[4] Berry PA, Gillespie GL, Gates D, Schafer J. Novice nurse productivity following workplace bullying. J Nurs Scholarship. 2012;44(1):80-7.

[5] Gates DM, Gillespie GL, Succop P. Violence against nurses and its impact on stress and productivity. Nurs Econ. 2011;29(2):59-67.

[6] Arnetz JE, Arnetz BB. Violence towards health care staff and possible effects on the quality of patient care. Soc Sci Med. 2001;52:417-27.

[7] Sofield L, Salmond SW. Workplace violence: A focus on verbal abuse and intent to leave the organization. Orthop Nurs. 2003;22(4):274-83.

[8] Roche M, Diers D, Duffield C, Catling-Paull C. Violence toward nurses, the work environment, and patient outcomes. J Nurs Scholarship. 2010;42(1):13-22.

[9] Jackson D, Clare J, Mannix J. Who would want to be a nurse? Violence in the workplace – a factor in recruitment and retention. J Nurs Manage. 2002;10:13-20.

[10] Arnetz JE, Aranyos, D, Ager, J, Upfal, MJ. Development and application of a population-based system for workplace violence surveillance in hospitals. Am J Ind Med. 2011a;54:925-34.

[11] Cousins JB, Earl LM. The case for participatory evaluation. Educ Eval Policy An. 1992;14(4):397-418.

[12] O'Sullivan RG. Collaborative evaluation within a framework of stakeholder-oriented evaluation approaches. Eval Program Plann. 2012;35(4):518-22.

[13] Greene JG. Stakeholder participation and utilization in program evaluation. Evaluation Rev. 1988;12(2):91-116.

[14] U.S. Department of Labor, Occupational Safety and Health Administration. Guidelines for Preventing Workplace Violence for Health Care & Social Service Workers [Internet]. Washington, DC: 2004 [cited March 26, 2012]. Available from: http://www.osha.gov/Publications/OSHA3148/osha3148.html.

[15] Merchant JA, Lundell JA. Workplace violence intervention research workshop, April 5-7, 2000, Washington, DC: Background, rationale, and summary. Am J Prev Med. 2001;20(2):135-40.

[16] Runyan CW. Moving forward with research on the prevention of violence against workers. Am J Prev Med. 2001;20(2):169-72.

[17] Runyan CW, Zakocs RC, Zwerling C. Administrative and behavioral interventions for workplace violence prevention. Am J Prev Med. 2000;18(4S):116-27.

[18] Peek-Asa C, Runyan CW, Zwerling C. The role of surveillance and evaluation research in the reduction of violence against workers. Am J Prev Med. 2001;20(2):141-8.

[19] Lipscomb J, McPhaul K, Rosen J, Brown J, Choi M, Soeken K, et al. Violence prevention in the mental health setting: The New York state experience. Can J Nurs Res. 2006;38(4):96-117.

[20] 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(1):32-9.

[21] Lingard L, Albert M, Levinson W. Grounded theory, mixed methods, and action research. BMJ. 2008;337:a567.

[22] Arnetz JE, Aranyos, D, Ager, J, Upfal, MJ. Worker-on-worker violence among hospital employees. Int J Occup Env Heal. 2011;17:328-35.

[23] Injury Prevention Research Center (IPRC). Workplace violence: A report to the nation. Iowa City: IPRC; 2001.

[24] Kotler P, Zaltman G. Social marketing: An approach to planned social change. J Marketing. 1971;35(3):3-12.

[25] Kotler P, Lee N. Social Marketing: Influencing Behaviors for Good, 3rd ed. Thousand Oaks, CA: Sage Publications; 2008.

[26] Centers for Disease Control and Prevention. Gateway to Health Communication & Social Marketing Practice [Internet]. 2011 [updated 2011 May 10; cited 2012 Aug 8]. Available from: http://www.cdc.gov/healthcommunication/HealthBasics/WhatIsHC.html.

[27] Glassman TJ, Braun RE. Confusion surrounding social marketing strategies and social norm theory: To prevent high-risk drinking among college students. Soc Mar Q. 2010;16(2):94-103.

[28] Ozanne JL, Saatcioglu B. Participatory action research. J Consum Res. 2008;35(3):423-39.

[29] Graneheim UH, Lundman B. Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. Nurs Educ Today. 2004;24:105-12.

[30] Glaser BG. The constant comparative method of qualitative analysis. Soc Probl. 1965;12(4):436-45.

[31] Bradley EH, Curry LA, Devers KJ. Qualitative data analysis for health services research: Developing taxonomy, themes, and theory. Health Serv Res. 2007;42(4):1758-72.

[32] Tong A, Sainsbury P, Craig J. Consolidated criteria or reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. Int J Qual Health C. 2007;19(6):349-57.

[33] Guba E, Lincoln YS. Fourth Generation Evaluation. Newbury Park, London, and New Delhi: Sage Publications; 1989.

[34] Franche RL, Baril R, Shaw W, Nicholas M, Loisel P. Workplace-based return-to-work interventions: Optimizing the role of stakeholders in implementation and research. J Occup Rehabil. 2005;15(4):525-42.

[35] Cook WK. Integrating research and action: A systematic review of community-based participatory research to address health disparities in environmental and occupational health in the USA. J Epidemiol Commun H. 2008;62(8):668-76.

[36] Höglund AT, Winblad U, Arnetz B, Arnetz JE. Patient participation during hospitalization for myocardial infarction: Perceptions among patients and personnel. Scand J Caring Sci. 2010;24(3):482-9.