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VIOLENCE IN THE WORKPLACE

**Risk Factors and
Prevention Strategies**



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

CDC
CENTERS FOR DISEASE CONTROL
AND PREVENTION

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Division of Safety Research

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FOREWORD

The purpose of the Occupational Safety and Health Act of 1970 (Public Law 91-596) is to assure safe and healthful working conditions for every working person and to preserve our human resources. In this Act, the National Institute for Occupational Safety and Health (NIOSH) is charged with recommending occupational safety and health standards and describing exposures that are safe for various periods of employment, including (but not limited to) the exposures at which no worker will suffer diminished health, functional capacity, or life expectancy as a result of his or her work experience.

Current Intelligence Bulletins (CIBs) are issued by NIOSH to disseminate new scientific information about occupational hazards. A CIB may draw attention to a formerly unrecognized hazard, report new data on a known hazard, or disseminate information about hazard control. CIBs are distributed to representatives of academia, industry, organized labor, public health agencies, and public interest groups as well as to Federal agencies responsible for ensuring the safety and health of workers.

Each week in the United States, an average of 20 workers are murdered and 18,000 are assaulted while at work. These staggering figures should not be an accepted cost of doing business in our society—nor should death or injury be an inevitable result of one's chosen occupation.

This CIB reviews what is known about fatal and nonfatal violence in the workplace, defines research gaps, and recommends general approaches to workplace violence prevention. The document also summarizes issues that need to be addressed when dealing with workplace violence in various settings such as offices, factories, warehouses, hospitals, convenience stores, and taxicabs. No definitive strategy will ever be appropriate for preventing violence in all workplaces, but we must begin to change the way work is done in certain settings to minimize the risk to American workers. We must work together to address the research and prevention challenges posed by the complex issue of workplace violence. This document serves as the foundation for developing a comprehensive strategy for reducing violence in U.S. workplaces.



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ABSTRACT

This document reviews what is known about fatal and nonfatal violence in the workplace to determine the focus needed for prevention and research. The document also summarizes issues to be addressed when dealing with workplace violence in various settings such as offices, factories, warehouses, hospitals, convenience stores, and taxicabs.

Violence is a substantial contributor to occupational injury and death, and homicide has become the second leading cause of occupational injury death. Each week, an average of 20 workers are murdered and 18,000 are assaulted while at work or on duty. Nonfatal assaults result in millions of lost workdays and cost workers millions of dollars in lost wages.

Workplace violence is clustered in certain occupational settings: For example, the retail trade and service industries account for more than half of workplace homicides and 85% of nonfatal workplace assaults. Taxicab drivers have the highest risk of workplace homicides of any occupational group. Workers in health care, community services, and retail settings are at increased risk of nonfatal assaults.

Risk factors for workplace violence include dealing with the public, the exchange of money, and the delivery of services or goods. Prevention strategies for minimizing the risk of workplace violence include (but are not limited to) cash-handling policies, physical separation of workers from customers, good lighting, security devices, escort services, and employee training. A workplace violence prevention program should include a system for documenting incidents, procedures to be taken in the event of incidents, and open communication between employers and workers. Although no definitive prevention strategy is appropriate for all workplaces, all workers and employers should assess the risks for violence in their workplaces and take appropriate action to reduce those risks.

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CONTENTS

Foreword	iii
Abstract	iv
Acknowledgments	v
Public Health Summary	ix
Introduction	1
Purpose and Scope	1
Homicide in the Workplace	3
NIOSH Data	3
Sex	3
Age	3
Race	5
Geographic Distribution	5
Method of Homicide	6
Industry and Occupation	6
Bureau of Labor Statistics Data	7
Discussion	8
Nonfatal Assaults in the Workplace	10
Victimization Studies	10
Estimated Magnitude of the Problem	10
Discussion	13
Risk Factors and Prevention Strategies	14
Risk Factors	14
Prevention Strategies	14
Environmental Designs	14
Administrative Controls	15
Behavioral Strategies	15
Developing and Implementing a Workplace Violence Prevention Program and Policy	15
Responding to an Immediate Threat of Workplace Violence	16
Dealing with the Consequences of Workplace Violence	17
Current Efforts and Future Directions: Research and Prevention	17
References Cited	18
Related Reading	20

PUBLIC HEALTH SUMMARY

Violence in the Workplace

What are the hazards?

An average of 20 workers are murdered each week in the United States. The majority of these murders are robbery-related crimes. In addition, an estimated 1 million workers are assaulted annually in U.S. workplaces. Most of these assaults occur in service settings such as hospitals, nursing homes, and social service agencies. Factors that place workers at risk for violence in the workplace include interacting with the public, exchanging money, delivering services or goods, working late at night or during early morning hours, working alone, guarding valuables or property, and dealing with violent people or volatile situations.

How can I be exposed or put at risk?

Anyone can become the victim of a workplace assault, but the risks are much greater in certain industries and occupations. For workplace homicides, taxicab drivers have the highest risk of any occupational group; for nonfatal workplace assaults, workers in health care, community services, and retail settings are at increased risk.

What recommendations has the Federal government made to protect my health?

A number of environmental, administrative, and behavioral strategies have the potential for reducing the risk of workplace violence. No single strategy is appropriate for all workplaces, but all workers and employers should assess the risk of violence in their workplaces and take appropriate action to reduce those risks. Collecting information about all incidents of workplace violence helps determine whether prevention strategies are necessary, appropriate, and effective.

Where can I get more information?

The references and related reading list at the end of this document provide a useful inventory of published reports and literature. A number of unions, employer groups, and professionals in occupational safety and health, human resources, and employee assistance have also developed materials regarding workplace violence. Any resource should be evaluated in light of the violence experienced in specific workplaces. Additional information from NIOSH can be obtained by calling the following number:

1-800-35-NIOSH (800-356-4674)

CURRENT INTELLIGENCE BULLETIN 57

VIOLENCE IN THE WORKPLACE Risk Factors and Prevention Strategies

INTRODUCTION

Recently, violence in the workplace has received considerable attention in the popular press and among safety and health professionals. Much of the reason for this attention is the reporting of data by the National Institute for Occupational Safety and Health (NIOSH) and others regarding the magnitude of this problem in U.S. workplaces. Unfortunately, sensational acts of coworker violence (which form only a small part of the problem) are often emphasized by the media to the exclusion of the almost daily killings of taxicab drivers, convenience store clerks and other retail workers, security guards, and police officers. These deaths often go virtually unnoticed, yet their numbers are staggering: 1,071 workplace homicides occurred in 1994. These homicides included 179 supervisors or proprietors in retail sales, 105 cashiers, 86 taxicab drivers, 49 managers in restaurants or hotels, 70 police officers or detectives, and 76 security guards [BLS 1995]. An additional 1 million workers were assaulted each year. These figures indicate that an average of 20 workers are murdered and 18,000 are assaulted each week while at work or on duty. Death or injury should not be an inevitable result of one's chosen occupation, nor should these staggering figures be accepted as a cost of doing business in our society.

PURPOSE AND SCOPE

The purpose of this document is to review what is known about fatal and nonfatal violence in

the workplace to determine the focus needed for prevention and research efforts. This document also summarizes issues to be addressed when dealing with workplace violence in various settings such as offices, factories, warehouses, hospitals, convenience stores, and taxicabs.

Although no definitive strategy will ever be appropriate for all workplaces, we must begin to change the way work is done in certain settings to minimize or remove the risk of workplace violence. We must also change the way we think about workplace violence by shifting the emphasis from reactionary approaches to prevention, and by embracing workplace violence as an occupational safety and health issue. This document examines these issues and proposes new strategies for prevention.

Defining workplace violence has generated considerable discussion. Some would include in the definition any language or actions that make one person uncomfortable in the workplace; others would include threats and harassment; and all would include any bodily injury inflicted by one person on another. Thus the spectrum of workplace violence ranges from offensive language to homicide, and a reasonable working definition of workplace violence is as follows: *violent acts, including physical assaults and threats of assault, directed toward persons at work or on duty*. Most studies to date have focused primarily on physical injuries, since they are clearly defined and easily measured. But this document examines data from

multiple sources and acknowledges differences in definitions and coverage to learn as much as possible from these varied efforts.

The circumstances of workplace violence also vary and may include robbery-associated violence; violence by disgruntled clients, customers, patients, inmates, etc.; violence by coworkers, employees, or employers; and domestic violence that finds its way into the workplace. These circumstances all appear to be related to the level of violence in communities and in society in general. Thus the question arises: why study workplace violence separately from the larger universe of all violence? Several reasons exist for focusing specifically on workplace violence:

- Violence is a substantial contributor to death and injury on the job. NIOSH data indicate that homicide has become the second leading cause of occupational injury death, exceeded only by motor-vehicle-related deaths [Jenkins 1996]. Estimates of nonfatal workplace assaults vary dramatically, but a reasonable estimate from the National Crime Victimization Survey is that approximately 1 million people are assaulted while at work or on duty each year; this figure represents 15% of the acts of violence experienced by U.S. residents aged 12 or older [Bachman 1994].
- The circumstances of workplace violence differ significantly from those of all homicides. For example, 75% of all workplace homicides in 1993 were robbery-related; but in the general population, only 9% of homicides were robbery-related, and only 19% were committed in conjunction with any kind of felony (robbery, rape, arson, etc.) [FBI 1994]. Furthermore, 47% of all murder victims in 1993 were related to or acquainted with their assailants [FBI 1994], whereas the majority of workplace homicides (because they are robbery-related) are believed to occur among persons not known to one another. Only 17% of female victims of workplace homicides were killed by a spouse or former spouse [Windau and Toscano 1994], whereas 29% of the female homicide victims in the general population were killed by a husband, ex-husband, boyfriend, or ex-boyfriend [FBI 1994].
- Workplace violence is not distributed randomly across all workplaces but is clustered in particular occupational settings. More than half (56%) of workplace homicides occurred in retail trade and service industries. Homicide is the leading cause of death in these industries as well as in finance, insurance, and real estate. Eighty-five percent of nonfatal assaults in the workplace occur in service and retail trade industries [BLS 1994d]. As the U.S. economy continues to shift toward the service sectors, fatal and nonfatal workplace violence will be an increasingly important occupational safety and health issue.
- The risk of workplace violence is associated with specific workplace factors such as dealing with the public, the exchange of money, and the delivery of services or goods. Consequently, great potential exists for workplace-specific prevention efforts such as bullet-resistant barriers and enclosures in taxicabs, convenience stores, gas stations, emergency departments, and other areas where workers come in direct contact with the public; locked drop safes and other cash-handling procedures in retail establishments; and threat assessment policies in all types of workplaces.

Long-term efforts to reduce the level of violence in U.S. society must address a variety of social issues such as education, poverty, and environmental justice. However, short-term

efforts must address the pervasive nature of violence in our society and the need to protect workers. We cannot wait to address workplace violence as a social issue alone but must take immediate action to address it as a serious occupational safety issue.

HOMICIDE IN THE WORKPLACE

NIOSH Data

Data from the National Traumatic Occupational Fatalities (NTOF) Surveillance System indicate that 9,937 workplace homicides occurred during the 13-year period from 1980 through 1992, with an average workplace homicide rate of 0.70 per 100,000 workers (Table 1) [NIOSH 1995]. Over the course of the 1980s, workplace homicides decreased; but in the 1990s, the numbers began to increase, surpassing machine-related deaths and approaching the number of workplace motor-vehicle-related deaths (Figure 1). Although the 1992 figure was lower than that for 1991, it exceeded the 1990 figure and did not include 1992 data for New York City and the State of Connecticut. NTOF is an ongoing, death-certificate-based census of traumatic occupational fatalities in the United States, with data from all 50 States and the District of Columbia. NTOF includes information for all workers aged 16 or older who died from an injury or poisoning and for whom the certifier noted a positive response to the *injury at work?* item on the death certificate. For additional discussion of the NTOF system and the limitations of death certificates for the study of workplace homicide, see Castillo and Jenkins [1994].

Sex

The majority (80%) of workplace homicides during 1980–92 occurred among male workers. The leading cause of occupational injury death varied by sex, with homicides accounting for 11% of all occupational injury deaths among

male workers and 42% among female workers [NIOSH 1995]. The majority of female homicide victims were employed in retail trade (46%) and service (22%) industries (Table 2). A large number of male homicide victims were employed not only in retail trade (36%) and service (16%) industries but in public administration (11%) and transportation/communication/public utilities (11%) (Table 2). Although homicide is the leading cause of occupational injury death among female workers, male workers have more than three times the risk of work-related homicide (Table 3).

Age

The age of workplace homicide victims ranged from 16 (the youngest reported in NTOF) to 93 during 1980–92. The largest number of workplace homicides occurred among workers aged 25 to 34, whereas the rate of workplace homicide increased with age (Table 3). The highest rates of workplace homicide occurred among workers aged 65 and older; the rates for these workers were more than twice those for workers aged 55–64 (Table 3). This pattern held true for both male and female workers.

Table 1. Workplace homicides in the United States, 1980–92*

Year	Number	Rate [†]
1980	929	0.96
1981	944	.94
1982	859	.86
1983	721	.72
1984	660	.63
1985	751	.70
1986	672	.61
1987	649	.58
1988	699	.61
1989	696	.59
1990	725	.61
1991	875	.75
1992	757	.64
Total	9,937	.70

Source: NIOSH [1995].

*Data not available for New York City and Connecticut.

[†]Per 100,000 workers.

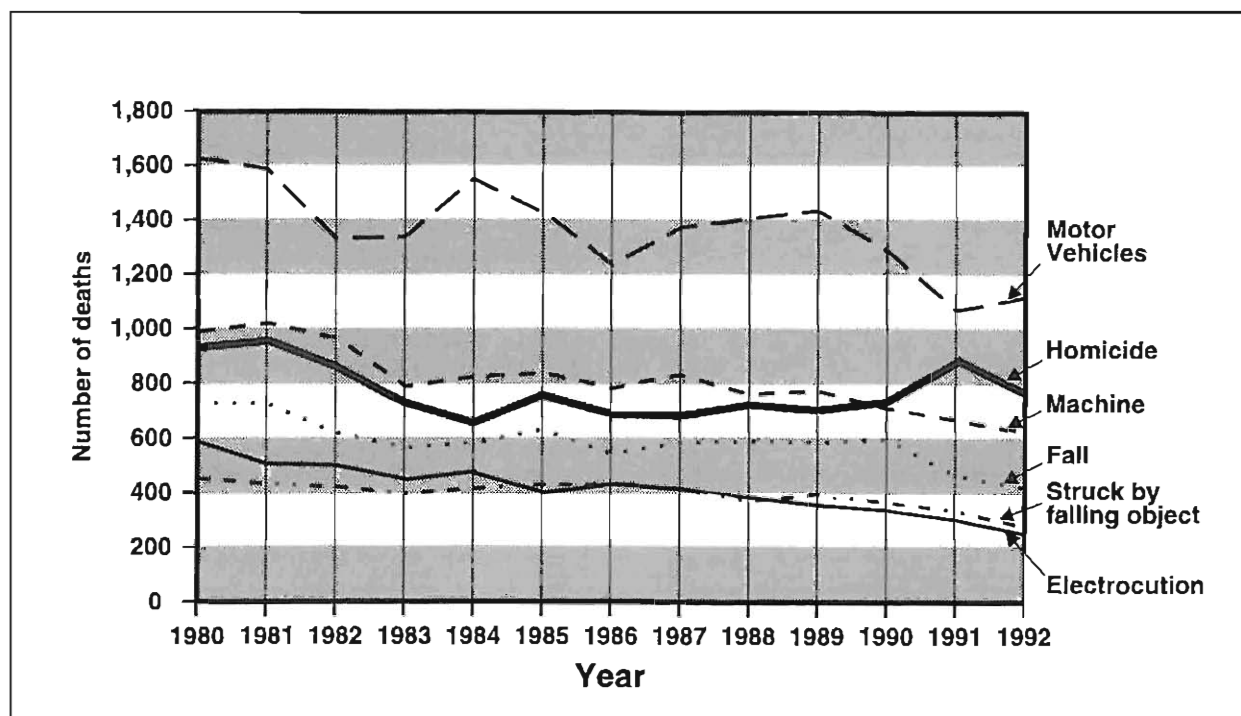


Figure 1. Leading causes of occupational injury deaths—United States, 1980–1992. Data were not available for New York City and Connecticut. (Source: Jenkins [1996].)

Table 2. Workplace homicides by industry and sex—United States 1980–92*

Industry	Homicides (% of total) [†]	
	Male workers	Female workers
Retail trade	36.1	45.5
Services	16.0	22.2
Public administration	10.5	2.9
Transportation/communication/public utilities	10.6	3.8
Manufacturing	7.0	4.9
Construction	4.1	.6
Agriculture/forestry/fishing	2.7	.6
Finance/insurance/real estate	2.4	6.8
Wholesale trade	1.7	1.1
Mining	.6	.1
Not classified	8.5	11.7

Source: NIOSH [1995].

*Data for New York City and Connecticut were not available for 1992.

[†]Percentages add to more than 100% because of rounding.

Table 3. Workplace homicides by age group and sex—United States, 1980–92*

Age group	Male workers		Female workers		All workers	
	Number	Rate [†]	Number	Rate	Number	Rate
16–19	242	0.55	102	0.25	344	0.41
20–24	796	.87	285	.35	1,081	.62
25–34	2,020	.89	591	.33	2,611	.65
35–44	1,841	.99	423	.28	2,265	.68
45–54	1,344	1.04	293	.29	1,637	.71
55–64	1,055	1.22	191	.31	1,246	.84
65+	620	2.59	115	.71	735	1.83
Total [‡]	7,935	—	2,001	—	9,937	—
Average	—	1.01	—	.32	—	.70

Source: NIOSH [1995].

*Data from New York City and Connecticut were not available for 1992.

†Rates are per 100,000 workers.

‡Totals include victims for whom age data were missing (17 male workers) and 1 worker whose sex was not reported.

Race

Although the majority of workplace homicide victims were white (73%), black workers (1.39/100,000) and workers of other races (1.87/100,000) had the highest rates of work-related homicide (Table 4).

Geographic Distribution

During 1980–92, the largest number of homicides and the highest rates per 100,000 workers occurred in the South (N=4,819; rate=1.02/100,000) and the West (N=2,278; rate=0.79/100,000) (Table 5). Note that during the early years of the NTOF data collection effort, four States—Louisiana, Nebraska, Oklahoma, and New York—were unable to provide data on work-related homicides. In addition, data for 1992 were unavailable from New York City and Connecticut.

Homicide was the leading cause of occupational injury death over the 13-year period in Alabama, Connecticut, the District of Columbia, Michigan, and South Carolina. Although complete data for the period are not available for New York, estimates and data for recent years

indicate that homicide was also the leading cause of occupational injury death in that State.

In the document *Fatal Injuries to Workers in the United States, 1980–1989: A Decade of Surveillance* [Jenkins et al. 1993], all occupational injury deaths were analyzed for 1980 through 1989. Geographic differences in the leading causes of death were examined by mapping the State-specific, cause-specific rates in relation to the average cause-specific rate for all States combined. This analysis revealed that most (N=45) States had workplace homicide rates within one standard deviation above or below the average workplace homicide rate [Jenkins et al. 1993].

Table 4. Workplace homicides by race—United States, 1980–92*

Race/ethnicity of victims	Number	% of total	Rate [†]
White (includes Hispanic)	7,239	72.8	0.59
Black	1,938	19.5	1.39
Other	760	7.6	1.87

Source: NIOSH [1995].

*Data for New York City and Connecticut were not available for 1992.

†Per 100,000 workers.

Table 5. Workplace homicides by Bureau of the Census geographic region—United States, 1980–92*

Region	Number	% of total	Rate [†]
North Central	1,797	18.1	0.50
North East	1,043	10.5	.35
South	4,819	48.5	1.02
West	2,278	22.9	.79

Source: NIOSH [1995].

*Data for New York City and Connecticut were not available for 1992.

[†]Per 100,000 workers.

Method of Homicide

Between 1980 and 1992, 76% of work-related homicides were committed with firearms, and another 12% resulted from wounds inflicted by cutting or piercing instruments (Table 6). During this period, the number of firearm-related homicides declined then gradually increased, with the number of firearm-related workplace homicides in 1991 exceeding that in 1980 (Figure 2). The number declined slightly in 1992, but data for this year are incomplete. Firearms accounted for an increasing percentage of the

total workplace homicides over the 13-year period: 74% in 1980 and 84% in 1991. Firearms were used in 79% of the workplace homicides in 1992, but data are missing for New York City and Connecticut for this year.

Table 6. Workplace homicides by method—United States, 1980–92*

Method	Number	% of total
Firearm	7,590	76.4
Cutting or piercing instrument	1,231	12.4
Strangulation	185	1.9
All other methods	931	9.4

Source: NIOSH [1995].

*Data for New York City and Connecticut were not available for 1992.

Industry and Occupation

During the 13-year period 1980–92, the greatest number of deaths occurred in the retail trade (3,774) and service (1,713) industries, whereas the highest rates per 100,000 workers occurred

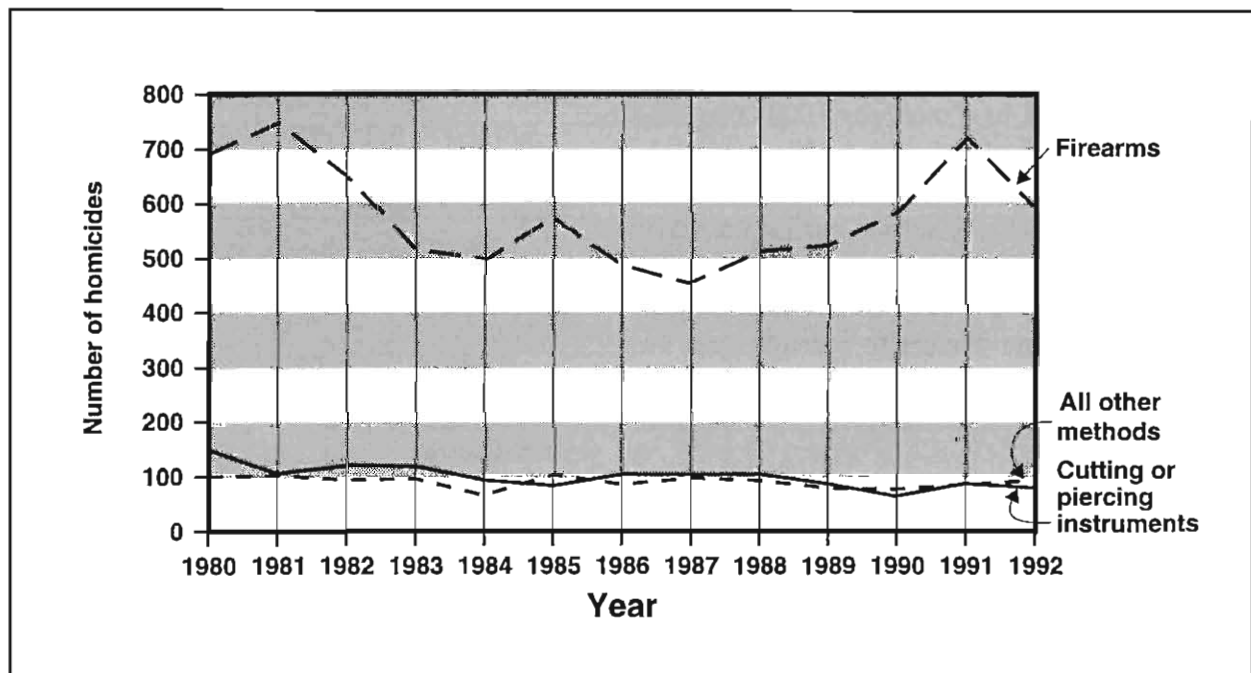


Figure 2. Work-related homicides by method and year. Data were not available for New York City and Connecticut. (Source: NIOSH [1995].)

in retail trades (1.6), public administration (1.3), and transportation/communication/public utilities (0.94) (Table 7).

At the more detailed levels of industry (Table 8), the largest number of deaths occurred in grocery stores (N=330), eating and drinking places (N=262), taxicab services (N=138), and justice/public order establishments (N=137). Taxicab services had the highest rate of work-related homicide during the 3-year period 1990–92 (41.4/100,000). This rate was nearly 60 times the national average rate of work-related homicides (0.70/100,000). This figure was followed by rates for liquor stores (7.5), detective/protective services (7.0), gas service stations (4.8), and jewelry stores (4.7) (Table 8). The rates show an increase from the previously published rates for 1980–89 for taxicab services, detective/protective services, grocery stores, and jewelry stores. Rates decreased in liquor stores, gasoline service stations, justice/public order establishments, and hotels/motels; they remained the same in eating and drinking places.

When detailed occupations were analyzed for 1990–92 (Table 9), the highest homicide rates were found for taxicab drivers/chauffeurs (22.7), sheriffs/bailiffs (10.7), police and detectives—public service (6.1), gas station/garage workers (5.9), and security guards (5.5). Compared with previously published data for the 7-year period 1983–89, these data indicate that rates increased more than two and a half times for sales counter clerks and nearly two times for motor vehicle and boat sales workers and sales workers in other commodities (includes workers in jewelry, food, sporting goods, book, coin, and other retail stores). Homicide rates for taxicab drivers and security guards were one and a half times higher during the early 1990s than they had been during 1983–89. However, some rates decreased: for 1990–92, the rate for hotel clerks was less than half the 1983–89 rate, and the rate for police and detectives was two-thirds the 1983–89 rate. During 1990–92, an extraordinary number of homicides (N=372) occurred among sales supervisors and proprietors, who had double the number of deaths in any other single category during both periods.

Table 7. Workplace homicides by industry—
United States, 1980–92*

Industry	Number	% of total	Rate [†]
Retail trade	3,774	38.0	1.60
Public administration	889	8.9	1.30
Transportation/ communication/ public utilities	917	9.2	.94
Agriculture/forestry/ fishing	222	2.2	.50
Mining	45	0.5	.4
Service	1,713	17.2	.38
Construction	335	3.4	.37
Finance/insurance/ real estate	327	3.3	.35
Wholesale trade	155	1.6	.27
Manufacturing	650	6.5	.24
Not classified	910	9.1	—

Source: NIOSH [1995].

*Data for New York City and Connecticut were not available for 1992.

[†]Per 100,000 workers.

Bureau of Labor Statistics Data

Information from the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI) Program identifies the same high-risk demographic and occupational groups as NIOSH NTOF data and allows description of the circumstances of workplace homicides for the period 1992–94. According to the BLS data, 73% to 82% of the homicides occurred during a robbery or other crime, whereas only 9% to 10% were attributed to business disputes, and only 4% to 6% were attributed specifically to coworkers or former employees (Table 10). A shift occurred in the *robbery and other crimes* category with the creation of the new *security guard in line of duty* category, but the distribution of the circumstances has remained fairly

stable during the 3 years in which data have been collected. The CFOI system uses multiple sources, including administrative documents from Federal and State agencies (e.g., death certificates, medical examiner records, workers' compensation reports, and regulatory agency reports) as well as news reports and followup questionnaires to business establishments [Windau and Toscano 1994].

The BLS described a number of the robberies as occurring while workers were locking up at night or making money drops or pickups, but these were not specifically quantified. Also, homicide appeared to be primarily an urban problem, with eight of the largest metropolitan areas accounting for nearly half of the workplace homicides in 1993 [Toscano and Weber 1995]. The self-employed accounted for 24% to 27% of the homicides documented by the CFOI program for 1992–94, whereas this group accounted for only about 9% of the workforce during those years [BLS 1993, 1994b, 1995].

Discussion

Despite differences in data collection and the resulting total number of homicides reported

by the NTOF and CFOI fatality surveillance systems, the ranking of high-risk industries and occupations is consistent, with taxicab drivers/chauffeurs, law enforcement and security personnel, and retail trade workers experiencing the greatest risks and the largest numbers of workplace homicides. Findings about the distributions by demographic characteristics are also remarkably similar [Windau and Toscano 1994; Toscano and Weber 1995; Castillo and Jenkins 1994].

Differences in leading causes of occupational injury death by sex can be attributed at least in part to variations in employment patterns [Jenkins 1994]. For example, homicide is the leading cause of occupational injury death for female workers because they are exposed less frequently than male workers to hazards such as heavy machinery and work at elevations. The same is also true for differences among industries in leading causes of death. Workers in retail trade, services, and finance/insurance/real estate are not exposed to the same kinds of hazards as workers in construction, agriculture/forestry/ fishing, mining, or transportation/communication/public utilities. These factors are

Table 8. Workplace homicides in high-risk industries—United States, 1980–89 and 1990–92^{*}

Industry	1980–89		1990–92	
	Number	Rate [†]	Number	Rate
Taxicab services	287	26.9	138	41.4
Liquor stores	115	8.0	30	7.5
Gas service stations	304	5.6	68	4.8
Detective/protective services	152	5.0	86	7.0
Justice/public order establishments	640	3.4	137	2.2
Grocery stores	806	3.2	330	3.8
Jewelry stores	56	3.2	26	4.7
Hotels/motels	153	1.5	33	0.8
Barber shops	14	1.5	4	‡
Eating/drinking places	734	1.5	262	1.5

Source: NIOSH [1995] (data for 1980–89 from Castillo and Jenkins [1994]).

^{*}Data for New York City and Connecticut were not available for 1992.

[†]Rates are per 100,000 workers.

[‡]Rate was not calculated because of the instability of rates based on small numbers.

Table 9. Workplace homicides in high-risk* occupations—United States, 1983–89 and 1990–92†

Occupation	1983–89		1990–92	
	Number	Rate‡	Number	Rate
Taxicab driver/chauffeur	197	15.1	140	22.7
Sheriff/bailiff	73	10.9	36	10.7
Police and detective—public service	267	9.0	86	6.1
Hotel clerk	29	5.1	6	2.0
Gas station/garage worker	83	4.5	37	5.9
Security guard	160	3.6	115	5.5
Stock handler/bagger	189	3.1	95	3.5
Supervisor/proprietor, sales	662	2.8	372	3.3
Supervisor, police and detective	12	2.2	0	§
Barber	14	2.2	4	§
Bartender	49	2.1	20	2.3
Correctional institution officer	19	1.5	3	§
Salesperson, motor vehicle and boat	21	1.1	17	2.0
Salesperson, other commodities	98	1.0	73	1.7
Sales counter clerk	13	1.2	18	3.1
Fire fighter	18	1.4	8	1.3
Logging occupation	4	§	6	2.3
Butcher/meatcutter	11	.6	12	1.5

Source: NIOSH [1995] (data for 1988–89 from Castillo and Jenkins [1994]).

*High-risk occupations have workplace homicide rates that are twice the average rate during one or both time periods.

†Data for New York City and Connecticut were not available for 1992.

‡Rates are per 100,000 workers.

§Rate was not calculated because of the instability of rates based on small numbers.

extremely important to the future direction of occupational safety and health as employment patterns shift from traditional heavy industry to retail trade and service sectors. Workplace homicide must be addressed to continue the trends of decreasing numbers and rates of occupational injury deaths [Jenkins et al. 1993; Stout et al. 1996].

Elevated rates of workplace homicide among workers aged 65 and older may be attributable to a number of factors, including a decreased ability to survive injury or the perception that such workers are *softer* targets [Jenkins et al. 1992].

Regional data for homicides in the general population show a similar pattern to those in the workplace, with crude homicide rates being highest in the South and the West [O'Carroll and Mercy 1989].

Table 10. Circumstances of Workplace Homicides—United States, 1992–94

Circumstance	Homicides (% of total)*		
	1992 (N=1,004)	1993 (N=1,063)	1994 (N=1,071)
Robbery and other crime	82	75	73
Business dispute/ work associate	9	10	9
Coworker/ former coworker	4	6	5
Customer/client	5	4	4
Police in line of duty	6	6	7
Security guard in line of duty	†	5	7
Personal dispute/ acquaintance	4	4	4

Source: BLS [1994b, 1995], Windau and Toscano [1994].

*Percentages add to more than 100% because of rounding.

†This category was not included in 1992.

The percentage of work-related homicides attributed to firearms (76%) is slightly higher than

that found in the general population, where 71% of the 1993 murders with victims aged 18 or older were committed with firearms [FBI 1994].

Changes in the risk of workplace homicide in specific industry and occupation groups between the 1980s and the early 1990s may be attributable to a number of factors, including increased recognition and recording of cases as work-related, changes in training or other work practices, increased levels of crime in certain settings, and the distribution of resources in response to perceived levels of crime. The shift in risk for public police officers and private security guards is particularly noteworthy, as the data indicate a decline in rates among public police officers and a dramatic increase among private security guards. We do not know the extent to which these findings are attributable to efforts among public police forces to reduce risks through training and use of protective equipment, the employment of private security guards by businesses and communities that had previously relied solely on public safety personnel, and the level of training and background of private security officers. However, further research is warranted.

The circumstances of workplace homicides differ substantially from those portrayed by the media and from homicides in the general population. For the most part, workplace homicides are not the result of disgruntled workers who take out their frustrations on coworkers or supervisors, or of intimate partners and other relatives who kill loved ones in the course of a dispute; rather, they are mostly robbery-related crimes.

NONFATAL ASSAULTS IN THE WORKPLACE

Victimization Studies

Limited information is available in the criminal justice and public health literature regarding the

nature and magnitude of nonfatal workplace violence. The criminology literature contains a few victimization studies that include designation of victimizations that occurred at work. Using the 1982 Victim Risk Supplement to the National Crime Victimization Survey, Lynch [1987] used log linear modeling to examine workplace victimizations with regard to demographic variables as well as features of the workplace. Features of the workplace included exposure to and public access to the workplace, local travel, overnight trips, perceived dangerousness of the neighborhood and the workplace, and the frequency with which money was handled on the job. These analyses indicated that the risk of workplace victimization was related more to the task performed than to the demographic characteristics of the person performing the job. Factors related to an increased risk for workplace victimization included routine face-to-face contact with large numbers of people, the handling of money, and jobs that required routine travel or that did not have a single worksite. Using a 1983 crime survey in the metropolitan Washington, D.C., area, Collins and Cox [1987] found results similar to those of Lynch; the delivery of passengers or goods and dealing with the public were the factors associated with an increased risk for workplace assault. State-specific studies of workplace assaults using workers' compensation data have also been conducted, as have industry- and occupation-specific studies; a summary of these appears in Castillo [1994].

Estimated Magnitude of the Problem

A number of recent estimates have been made of the current magnitude of nonfatal assaults in U.S. workplaces. The first comes from the BLS Annual Survey of Occupational Injuries and Illnesses (ASOII). The ASOII is an annual survey of approximately 250,000 private establishments. This survey excludes the self-employed, small farmers, and government workers. These data indicate that 22,400 workplace assaults

occurred in 1992; these represented 1% of all cases involving days away from work [BLS 1994d]. Unlike homicides, nonfatal workplace assaults are distributed almost equally between men (44%) and women (56%). The majority of the nonfatal assaults reported in the ASOII occurred in the service (64%) and retail trade (21%) industries. Of those in services, 27% occurred in nursing homes, 13% in social services, and 11% in hospitals. In retail trade, 6% occurred in grocery stores, and another 5% occurred in eating and drinking places (Table 11). The source of injury in 45% of the cases was a health care patient (Figure 3), with another 31% described as *other person* and 6% as *coworker* or *former coworker*. The BLS coding system requires that the object or substance that directly inflicted the injury be coded as the source of the injury; thus 5% of the assaults are coded as *structures and surfaces* (these are likely events where workers were pushed into walls or to floors), and another 4% are categorized as *tools* (these include events in which knives or other weapons were used). Nearly half (47%) of the workplace assaults were described as incidents involving hitting, kicking, or beating; there were also cases of squeezing, pinching, scratching, biting, stabbing, and shooting, as well as rapes and threats of violence (Table 12). The median days away from work as the result of an assault was 5, but this figure varied by type of assault (Table 12).

Another estimate of the magnitude of nonfatal workplace assaults comes from a survey by the Northwestern National Life Insurance Company, which indicates that 2.2 million workplace assaults (defined as physical attacks) occurred between July 1992 and July 1993 [Northwestern National Life 1993]. This estimate and the findings from this survey must be used with caution, as the estimate for assaults was based on only 3% of the sample of 600, or 15 workers who reported having been attacked. In addition, the respondents to this survey did not

accurately represent the actual distribution of the workforce [Castillo 1994].

Table 11. Violent acts resulting in days away from work in 1992, by industry

Industry	Violent acts resulting in days away from work (% of total)
Services	64
Nursing homes	27
Social services	13
Hospitals	11
Other services	13
Retail Trades	21
Grocery stores	6
Eating and drinking places	5
Other retail	10
Transportation/communication/ public utilities	4
Finance/insurance/real estate	4
Other	4
Manufacturing	3

Source: BLS [1994d].

Table 12. Violent acts resulting in days away from work—private industry, 1992

Type of violent act	Number of cases	Median days away from work
Hitting, kicking, beating	10,425	5
Squeezing, pinching, scratching, twisting	2,457	4
Biting	901	3
Stabbing	598	28
Shooting	560	30
All other specified acts (e.g., rape, threats)	5,157	5

Source: BLS [1994c].

A final estimate of assaults in the workplace comes from the National Crime Victimization Survey (NCVS)—an annual, national, household-based survey of more than 100,000 individuals aged 12 or older. NCVS data for 1987–92 indicate that each year, nearly 1 million persons

were assaulted while at work or on duty (Table 13); this figure represents 15% of the 6.5 million acts of violence experienced by Americans [Bachman 1994]. Sixteen percent of workplace victimizations resulted in injuries.

When the Bureau of Justice Statistics (BJS) analyzed the relationship of the victim to the offender for these events by sex, female workers appeared to be most likely to be attacked by someone they knew, although only 5% of victimizations were attributed to an *intimate* (defined as a husband, ex-husband, boyfriend, or ex-boyfriend) (Table 14). Probably a customer, client, or patient with whom the victim had an ongoing professional relationship would have been coded to the *acquaintance* or *well-known* categories, so these findings by sex may be

misleading and may reflect the distribution of the workforce in service sectors more than real sex differences in victimization.

BJS also analyzed workplace victimizations by type of work setting and found that 61% occurred in private companies, 30% occurred among government employees, and 8% of the victims were self-employed [Bachman 1994]. BJS points out in its report that government workers make up only 18% of the workforce and thus appear to be suffering a disproportionate share of the attacks; it should also be noted that risk factors such as dealing with the public and delivery of services are common among government employees. In addition, all local, State, and Federal police are included in this category.

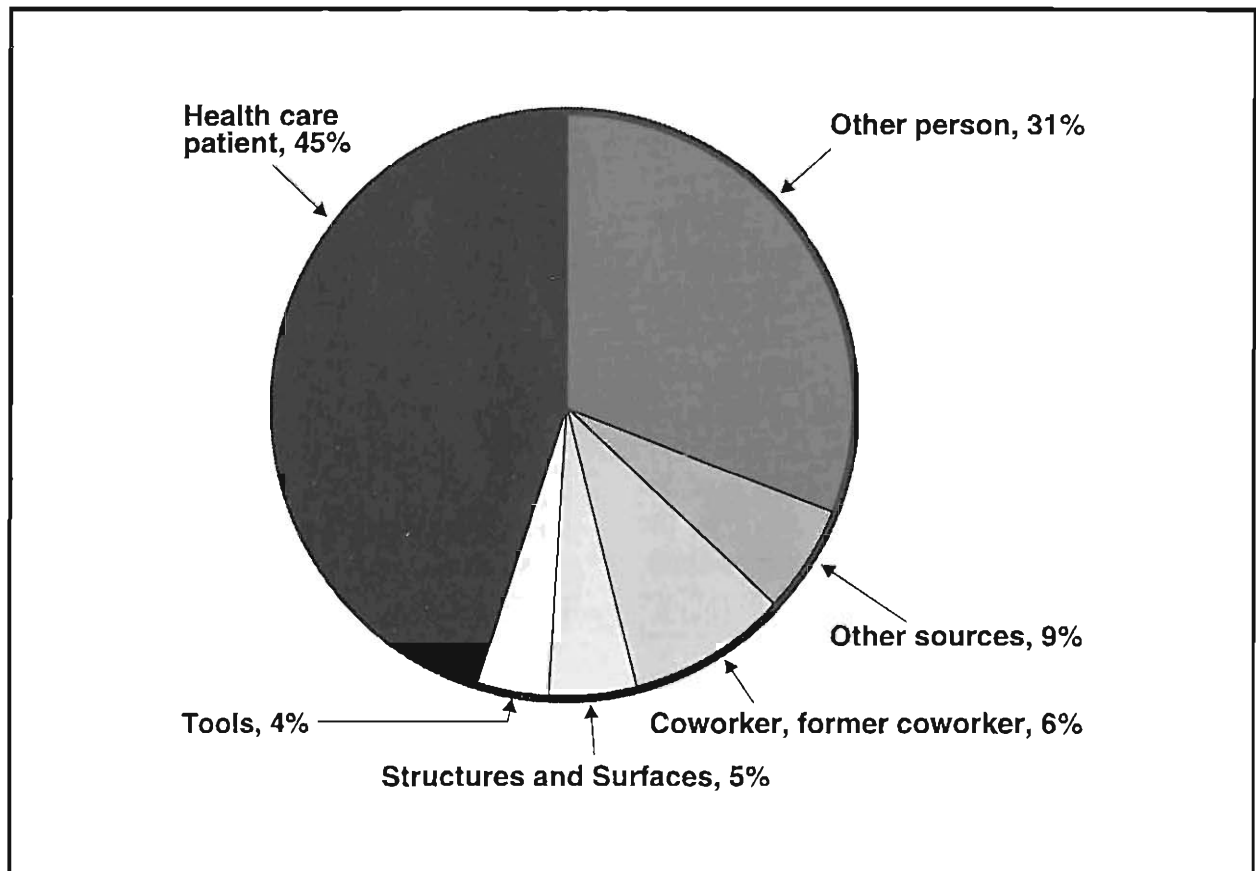


Figure 3. Violent acts resulting in days away from work, by source of injury—United States, 1992. (Source: BLS [1994a].)

A BJS analysis of the location where victimizations occurred includes both specific and generic categories (Table 15).

In 32% of the workplace assaults, the victim faced an armed assailant, whereas 62% of the perpetrators had no weapon; weapon use was not ascertained for 6% of the cases [Bachman 1994].

When individuals in the NCVS were asked whether this workplace victimization was reported to the police, 56% indicated that it was not. For 40% of respondents, the reason cited for not reporting to the police was that the event was believed to be a minor or private matter. Another 27% did not report to the police because the incident was reported to another official such as a company security guard [Bachman 1994].

The NCVS also solicits information about days away from work and lost wages due to the victimization. As a result of workplace victimizations, approximately half a million workers lost 1.75 million days of work annually (an average of 3.5 days per crime) and victims lost more than \$55 million in wages, not including days covered by sick or annual leave. As a result of the 16% of victimizations in which injuries were incurred, 876,800 workdays were lost annually and \$16 million were lost in wages, not including days covered by sick or annual leave [Bachman 1994].

Table 13. Crimes of violence against persons at work or on duty, 1987-92

Type of crime	Average annual number	
	Victims	Injuries*
Simple assault	615,160	89,572
Aggravated assault	264,174	48,180
Robbery	79,109	17,904
Rape	13,068	3,438*
Total	971,517	159,094

Source: Bachman [1994].

*Injuries are those in addition to the rape.

Table 14. Workplace victimizations by victim-offender relationship and sex—United States, 1987-92

Victim-offender relationship	% of workplace victimizations	
	Male workers	Female workers
Stranger	58	40
Acquaintance	30	35
Well-known person	10	19
Relative	1	1
Intimate (spouse, ex-spouse)	1	5

Source: Bachman [1994].

Table 15. Workplace victimizations by location—United States, 1987-92

Location where victimization occurred	% of total victimizations
Office, factory, warehouse	14
Restaurant, bar, nightclub	13
Parking lot/garage	11
School property	9
Other commercial establishment	23
Public property (streets, parks, etc.)	22
Other	8

Source: Bachman [1994].

Discussion

Nonfatal assaults in the workplace clearly affect many workers and employers. Although groups at high risk for workplace homicide and nonfatal workplace assaults share similar characteristics such as interaction with the public and the handling of money, there are also clear differences. For example, groups such as health care workers are not at elevated risk of workplace homicide, but they are at greatly increased risk of nonfatal assaults. Castillo [1994] suggests that some of the distinctions between fatal and nonfatal workplace assaults can be attributed to differences between robbery-related violence and violence resulting from the anger or frustration of customers, clients, or coworkers, with robbery-related violence being more likely to result in a fatal outcome. The premeditated

use of firearms to facilitate robberies is also likely to influence the lethality of assaults in the workplace.

RISK FACTORS AND PREVENTION STRATEGIES

Risk Factors

A number of factors may increase a worker's risk for workplace assault, and they have been described in previous research [Collins and Cox 1987; Davis 1987; Davis et al. 1987; Kraus 1987; Lynch 1987; NIOSH 1993; Castillo and Jenkins 1994]. These factors include the following:

- Contact with the public
- Exchange of money
- Delivery of passengers, goods, or services
- Having a mobile workplace such as a taxicab or police cruiser
- Working with unstable or volatile persons in health care, social services, or criminal justice settings
- Working alone or in small numbers
- Working late at night or during early morning hours
- Working in high-crime areas
- Guarding valuable property or possessions
- Working in community-based settings

Prevention Strategies

Environmental Designs

Commonly implemented cash-handling policies in retail settings include procedures such as using locked drop safes, carrying small amounts of cash, and posting signs and printing notices that limited cash is available. It may also be useful to explore the feasibility of cashless

transactions in taxicabs and retail settings through the use of machines that accommodate automatic teller account cards or debit cards. These approaches could be used in any setting where cash is currently exchanged between workers and customers.

Physical separation of workers from customers, clients, and the general public through the use of bullet-resistant barriers or enclosures has been proposed for retail settings such as gas stations and convenience stores, hospital emergency departments, and social service agency claims areas. The height and depth of counters (with or without bullet-resistant barriers) are also important considerations in protecting workers, since they introduce physical distance between workers and potential attackers. Consideration must nonetheless be given to the continued ease of conducting business; a safety device that increases frustration for workers or for customers, clients, or patients may be self-defeating.

Visibility and lighting are also important environmental design considerations. Making high-risk areas visible to more people and installing good external lighting should decrease the risk of workplace assaults [NIOSH 1993].

Access to and egress from the workplace are also important areas to assess. The number of entrances and exits, the ease with which nonemployees can gain access to work areas because doors are unlocked, and the number of areas where potential attackers can hide are issues that should be addressed. This issue has implications for the design of buildings and parking areas, landscaping, and the placement of garbage areas, outdoor refrigeration areas, and other storage facilities that workers must use during a work shift.

Numerous security devices may reduce the risk for assaults against workers and facilitate the

identification and apprehension of perpetrators. These include closed-circuit cameras, alarms, two-way mirrors, card-key access systems, panic-bar doors locked from the outside only, and trouble lights or geographic locating devices in taxicabs and other mobile workplaces.

Personal protective equipment such as body armor has been used effectively by public safety personnel to mitigate the effects of workplace violence. For example, the lives of more than 1,800 police officers have been saved by Kevlar® vests [Brierley 1996].

Administrative Controls

Staffing plans and work practices (such as escorting patients and prohibiting unsupervised movement within and between clinic areas) are included in the California Occupational Safety and Health Administration *Guidelines for the Security and Safety of Health Care and Community Service Workers* [State of California 1993]. Increasing the number of staff on duty may also be appropriate in any number of service and retail settings. The use of security guards or receptionists to screen persons entering the workplace and controlling access to actual work areas has also been suggested by security experts.

Work practices and staffing patterns during the opening and closing of establishments and during money drops and pickups should be carefully reviewed for the increased risk of assault they pose to workers. These practices include having workers take out garbage, dispose of grease, store food or other items in external storage areas, and transport or store money.

Policies and procedures for assessing and reporting threats allow employers to track and assess threats and violent incidents in the workplace. Such policies clearly indicate a zero tolerance of workplace violence and provide

mechanisms by which incidents can be reported and handled. In addition, such information allows employers to assess whether prevention strategies are appropriate and effective. These policies should also include guidance on recognizing the potential for violence, methods for defusing or de-escalating potentially violent situations, and instruction about the use of security devices and protective equipment. Procedures for obtaining medical care and psychological support following violent incidents should also be addressed. Training and education efforts are clearly needed to accompany such policies.

Behavioral Strategies

Training employees in nonviolent response and conflict resolution has been suggested to reduce the risk that volatile situations will escalate to physical violence. Also critical is training that addresses hazards associated with specific tasks or worksites and relevant prevention strategies. Training should not be regarded as the sole prevention strategy but as a component in a comprehensive approach to reducing workplace violence. To increase vigilance and compliance with stated violence prevention policies, training should emphasize the appropriate use and maintenance of protective equipment, adherence to administrative controls, and increased knowledge and awareness of the risk of workplace violence.

DEVELOPING AND IMPLEMENTING A WORKPLACE VIOLENCE PREVENTION PROGRAM AND POLICY

The first priority in developing a workplace violence prevention policy is to establish a system for documenting violent incidents in the workplace. Such data are essential for assessing the nature and magnitude of workplace violence in a given workplace and quantifying risk. These data can be used to assess the need for

action to reduce or mitigate the risks for workplace violence and implement a reasonable intervention strategy. An existing intervention strategy may be identified within an industry or in similar industries, or new and unique strategies may be needed to address the risks in a given workplace or setting. Implementation of the reporting system, a workplace violence prevention policy, and specific prevention strategies should be publicized company-wide, and appropriate training sessions should be scheduled. The demonstrated commitment of management is crucial to the success of the program. The success and appropriateness of intervention strategies can be monitored and adjusted with continued data collection.

A written workplace violence policy should clearly indicate a zero tolerance of violence at work, whether the violence originates inside or outside the workplace. Just as workplaces have developed mechanisms for reporting and dealing with sexual harassment, they must also develop threat assessment teams to which threats and violent incidents can be reported. These teams should include representatives from human resources, security, employee assistance, unions, workers, management, and perhaps legal and public relations departments. The charge to this team is to assess threats of violence (e.g., to determine how specific a threat is, whether the person threatening the worker has the means for carrying out the threat, etc.) and to determine what steps are necessary to prevent the threat from being carried out. This team should also be charged with periodic reviews of violent incidents to identify ways in which similar incidents can be prevented in the future. Note that when violence or the threat of violence occurs among coworkers, firing the perpetrator may or may not be the most appropriate way to reduce the risk for additional or future violence. The employer may want to retain some control over the perpetrator and require or provide counseling or other care, if appropri-

ate. The violence prevention policy should explicitly state the consequences of making threats or committing acts of violence in the workplace.

A comprehensive workplace violence prevention policy and program should also include procedures and responsibilities to be taken in the event of a violent incident in the workplace. This policy should explicitly state how the response team is to be assembled and who is responsible for immediate care of the victim(s), re-establishing work areas and processes, and organizing and carrying out stress debriefing sessions with victims, their coworkers, and perhaps the families of victims and coworkers. Employee assistance programs, human resource professionals, and local mental health and emergency service personnel can offer assistance in developing these strategies.

Responding to an Immediate Threat of Workplace Violence

For a situation that poses an immediate threat of workplace violence, all legal, human resource, employee assistance, community mental health, and law enforcement resources should be used to develop a response. The risk of injury to all workers should be minimized. If a threat has been made that refers to particular times and places, or if the potential offender is knowledgeable about workplace procedures and time frames, patterns may need to be shifted. For example, a person who has leveled a threat against a worker may indicate, "I know where you park and what time you get off work!" In such a case, it may be advisable to change or even stagger departure times and implement a buddy system or an escort by security guard for leaving the building and getting to parking areas. The threat should not be ignored in the hope that it will resolve itself or out of fear of triggering an outburst from the person who has lodged the threat. If someone

poses a danger to himself or others, appropriate authorities should be notified and action should be taken.

Dealing with the Consequences of Workplace Violence

Much discussion has also centered around the role of stress in workplace violence. The most important thing to remember is that stress can be both a cause and an effect of workplace violence. That is, high levels of stress may lead to violence in the workplace, but a violent incident in the workplace will most certainly lead to stress, perhaps even to post-traumatic stress disorder. The data from the National Crime Victimization Survey [Bachman 1994] present compelling evidence (more than a million work-days lost as a result of workplace assaults each year) for the need to be aware of the impact of workplace violence. Employers should therefore be sensitive to the effects of workplace violence and provide an environment that promotes open communication; they should also have in place an established procedure for reporting and responding to violence. Appropriate referrals to employee assistance programs or other local mental health services may be appropriate for stress debriefing sessions after critical incidents.

CURRENT EFFORTS AND FUTURE DIRECTIONS: RESEARCH AND PREVENTION

Although we are beginning to have descriptive information about workplace violence, a number of research questions remain:

What are the specific tasks and environments that place workers at greatest risk?

What factors influence the lethality of violent incidents?

What are the relationships of workplace assault victims to offenders?

Are there identifiable precipitating events?

Were there any safety measures in place?

What were the actions of the victim and did they influence the outcome of the attack?

What are the most effective prevention strategies?

These questions should also be addressed in developing violence prevention strategies for specific workplaces.

A number of these questions were raised in 1990 at a workshop convened by NIOSH. They continue to require attention through the collaborative research and prevention efforts of public health, human resource, and criminal justice professionals. A number of other recommendations were made by a panel of experts in interpersonal violence on directions for NIOSH in this area [NIOSH 1992]. These recommendations have been implemented or initiated and include efforts to

- improve the quality of death certificate data,
- compare findings from NTOF, the National Center for Health Statistics, and the Federal Bureau of Investigation,
- conduct evaluation research to determine the effectiveness of various prevention strategies,
- disseminate information on workplace homicide risk,
- examine possibilities for collection and analysis of data on nonfatal workplace violence, and
- increase collaboration between public health and criminal justice agencies.

In the fall of 1993, NIOSH released an Alert on preventing homicide in the workplace [NIOSH 1993] and encouraged employers, workers, unions, and others with a vested interest to look at their workplaces and take immediate action to reduce the risk for workplace homicide. In related efforts, NIOSH responded to numerous requests from the media, resulting in print, radio, and television coverage of the data and the NIOSH prevention message: Although no single intervention strategy is appropriate for all workplaces and no definitive strategies can be recommended at this time, immediate action should be taken to reduce the toll of workplace homicide on our Nation's workforce. This message still holds true and applies not only to workplace homicide, but to all workplace violence. Clearly, violence is pervasive in U.S. workplaces, accounting for 1,071 homicides in 1994 and approximately a million nonfatal assaults each year. NIOSH continues to pursue research and prevention efforts to reduce the risk of workplace violence for the Nation's workers. The murder of an average of 20 workers each week is unacceptable and should not be considered the cost of doing business in our society.

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