

Workplace-Violence Investigations by the California Division of Occupational Safety and Health, 1993–1996

Corinne Peek-Asa, PhD
John Howard, MD, JD, MPH

In response to the growing recognition of violence in the workplace, government agencies who oversee workplace safety are beginning to incorporate security issues into comprehensive safety plans. The California Division of Occupational Safety and Health began conducting inspections in response to violence in 1993, and information from these security inspections was collected from January 1993 through January 1997. The inspections were examined by initiating source, industry, type of event, and citations issued and compared with distributions of known victimizations. The factors predicting whether a citation was issued were determined through logistic models. Over 200 inspections were conducted in 11 industries, with retail and health care establishments inspected most frequently. Employee complaints initiated 50.6% of events and accident reports initiated 40.1%. One third of inspections were initiated because of a fatal event, and 27.4% were initiated in response to a physical assault. Citations for security hazards were issued to 23.6% of businesses. Inspections initiated by employee complaints, in response to customer-related security issues, and involving non-fatal assaults were the most frequently cited reasons for inspection. The California Division of Occupational Safety and Health conducted security inspections in a large range of industries and for diverse issues, even though no specific security codes exist.

The emergence of workplace violence as a serious and common threat to employee safety has garnered attention from the business community, regulatory agencies, researchers, security professionals, and the media. Violent events in the workplace, once limited to sporadic events in few industries, now threaten workers in all industries and occupations. Assaults and violent acts cause 20% of occupational deaths nationwide, second only to transportation deaths.¹ In many states and metropolitan areas, homicide has surpassed transportation as the leading cause of occupational death.^{1,2} California was one of these states in 1993 but has since seen reductions in workplace homicide rates. Assaults are the leading cause of occupational death among women.^{2,3}

Information on non-fatal workplace assaults is less available than that for homicides but may occur as often as 50 to 100 times more frequently than fatal events.^{4–6} According to the National Crime Victimization Survey (NCVS), an average of 1.5 million workers were assaulted while on duty each year from 1992 through 1996.⁴

Nationally, the Bureau of Labor Statistics has identified the highest rates of workplace homicide in the occupations of transportation, retail, service, and security.⁷ The National Institute of Occupational Safety and Health has identified the riskiest workplaces as taxicabs, liquor stores, gas stations, protective agencies, and restaurants/bars.⁸ Industries at a high

From the Southern California Injury Prevention Research Center, UCLA School of Public Health, Los Angeles, Calif. (Dr Peek-Asa); and the Division of Occupational Safety and Health, California Department of Industrial Relations, San Francisco, Calif. (Dr Howard).

Address correspondence to: Corinne Peek-Asa, PhD, Southern California Injury Prevention Research Center, UCLA School of Public Health, Box 951772, Los Angeles, CA 90095-1772.

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risk for non-fatal events include health care, social service, law enforcement, and education.

The characteristics of violent events differ by industry. The most common type of violence (Type I) involves robberies and other criminal activity and accounts for almost 80% of homicides and at least 30% of non-fatal assaults.^{5-6,9} These events are most frequent in the retail and service industries, in which there is exchange of money and contact with the public. Type II events, which involve an assault by a customer, client, patient, or inmate, account for approximately 5% of homicides and 60% of non-fatal assaults. These events, found most frequently in health care, education, and institutional settings, occur more frequently than Type I events but are usually non-fatal. Violent acts between employees or past employees (Type III) receive the most media attention but represent fewer than 5% of fatal assaults. However, the number of unreported assaults and verbal or physical threats falling into this category is unknown, as is the distribution of these events by occupation and industry. Violent events in which the perpetrator has a non-business personal relationship with the victim (Type IV) represent less than 2% of events, but many events may also go unreported or are not related to the workplace.

Although much has been learned about workplace violence, it is far overshadowed by what has yet to be learned. Particularly lacking is evidence supporting the effectiveness of intervention measures and prevention programs. This lack of solid evidence about how to prevent and respond to workplace violence has led to confusion among employers and regulatory agencies about how to create a secure working environment.

The California Division of Occupational Safety and Health (Cal/OSHA) has recognized that the threat of violence cannot be ignored in any business setting and that the

system of recognizing, characterizing, and applying current knowledge about violence prevention in business settings is the first solid step in decreasing the incidence of workplace assaults. In response to the high incidence of workplace assault and the need for prevention, Cal/OSHA began to conduct inspections for workplace security throughout California in 1993. This article describes the industries in which these inspections occurred during a 4-year period, the types of events that led to inspections, and the frequency and types of citations issued.

Methods

Information from workplace security inspections conducted by Cal/OSHA were collected from January 1993 through January 1997. After each inspection, Cal/OSHA investigators completed an independent and anonymous form with information about the business, the violent situation, and the measures taken to solve the problem.

Inspections were initiated through several sources, including Cal/OSHA Accident Reports, employee complaints, events brought to the attention of Cal/OSHA through print or electronic media, or through other reports to Cal/OSHA of violent-related injuries or threats. Not all events led to inspections, and this is not meant to be a population-based sample. Cal/OSHA district managers applied procedures outlined in Cal/OSHA's Policy and Procedures Manual to determine which events and/or complaints would result in an inspection. This manual prioritizes inspections on the basis of such factors as the severity of the event, the type of hazard, and evidence of employer negligence.

The definition of violence was broad, including self-definition for complaints and from independent assessment by the district managers in response to incident and media reports. Thus the events include a diverse range of violence, from threatening situations to homicides. Although this

sample does not portray the incidence or proportional occurrence of these types of events, it does provide a good insight into the breadth of situations encountered in the workplace and which require response from regulatory agencies.

The records assembled from the Cal/OSHA inspection files were read by a text-string recognition program into a database management program. Inspections were classified by the severity of the event in the categories of fatal, non-fatal assault, threat, and no event. Inspections not based on an event were usually initiated because of an employee's expressing concern over safety conditions. Events were also classified into four categories describing the relationship of the perpetrator to the business. Type I events occur during criminal activity, such as a robbery or shoplifting. In Type II events, the perpetrator is a customer, client, patient, or inmate, and has a business relationship with the businesses being inspected. Type III events involve a perpetrator that is either an employee or former employee of the business. In Type IV events, the perpetrator is a personal acquaintance of an employee and does not have a relationship with the business. The standard Cal/OSHA taxonomy combines Type III and Type IV events, but this analysis has separated them because these types of violence have different incidence rates and risk factors.

The distributions of inspections by industry and type of event were compared with the national distributions of workplace homicide and non-fatal violence victimizations. Workplace homicide distributions were determined from the Census of Fatal Occupational Injuries in 1996; non-fatal violence victimizations by industry were determined from the NCVS.^{1,4} The NCVS does not include information about the type of event. Type of event for non-fatal victimizations was obtained from employer's reports filed with Cal/OSHA in 1996.⁵

TABLE 1
Investigations, by Initiating Source

Factor	Initiating Source							
	Accident Report		Complaint		Other		Total	
	n	Row %	n	Row %	n	Row %	n	% Total
Industry¹								
Health care	3	(7.1)	38	(90.5)	1	(2.4)	42	(17.2)
Retail	19	(45.2)	16	(38.1)	7	(16.7)	42	(17.2)
Security/police	19	(73.1)	4	(15.4)	3	(11.5)	26	(11.0)
Service	6	(27.3)	15	(68.2)	1	(4.6)	22	(9.3)
Restaurant	14	(66.7)	6	(28.6)	1	(4.8)	21	(8.9)
Manufacturing	10	(50.0)	7	(35.0)	3	(15.0)	20	(8.4)
Transportation	8	(50.0)	6	(37.5)	2	(12.5)	16	(6.8)
Education	7	(46.7)	8	(53.3)	0	(0.0)	15	(6.3)
Government	3	(20.0)	10	(66.7)	2	(13.3)	15	(6.3)
Professional	3	(21.4)	9	(64.3)	2	(14.3)	14	(5.9)
Property management	3	(75.0)	1	(25.0)	0	(0.0)	4	(1.7)
Type of violence²								
I: Criminal activity	53	(55.8)	28	(29.5)	14	(14.7)	95	(40.1)
II: Customer/client	21	(29.6)	47	(66.2)	3	(4.2)	71	(30.0)
III: Employee	14	(23.3)	42	(70.0)	4	(6.7)	60	(25.3)
IV: Personal acquaintance	4	(50.0)	3	(37.5)	1	(12.5)	8	(3.4)
Unknown	3	(100.0)	0	(0.0)	0	(0.0)	3	(1.3)
Severity of event¹								
No event	0	(0.0)	25	(100.0)	0	(0.0)	25	(10.5)
No injury	2	(3.0)	64	(95.5)	1	(1.5)	67	(28.3)
Non-fatal assault	35	(53.9)	28	(43.1)	2	(3.1)	65	(27.4)
Homicide	58	(72.5)	3	(3.4)	19	(23.8)	80	(33.8)
Total	95	(40.1)	120	(50.6)	22	(9.3)	237	

Odds ratios (ORs) comparing risk factors for citations were calculated through logistic regression, using the SAS program.³ Multivariate models were not determined because the small sample sizes led to non-convergence of models. Thus the results presented are crude odds ratios.

Results

Inspections

A total of 237 investigations were conducted during the 4-year period. Investigations were conducted in all four Cal/OSHA regions, although over 75% were conducted in metropolitan areas. Sixty-two percent of the investigations were conducted in southern California and 38% in northern California.

Employee complaints were the leading initiating source of inspections (50.6%), followed by accident reports (40.1%) (Table 1). The me-

dia, employer requests, and other initiating sources accounted for less than 10% of inspections. Health care and retail organizations were the most common industries inspected, followed by security/police, service, and restaurants.

Over 90% of inspections in the health care industry were initiated by employee complaints, and employee complaints were the initiating source for more than 50% of inspections in the industries of service, government, professional, and education (Table 1). Accident reports were the initiating source in at least 50% of inspections in the industries of security/police, restaurants, manufacturing, transportation, and property management. Inspections of retail establishments, which were among the most frequently inspected workplaces, were most commonly initiated by accident reports (45.2%) but were also commonly initiated by em-

ployee complaints (38.1%) and other sources (16.7%).

Type I events (those related to criminal activity) accounted for 40.1% of inspections (Table 1); Type II events (instigated by a customer/client) accounted for 30%; Type III (instigated by an employee or past employee) for 25.3%; and Type IV (instigated by a personal acquaintance of the victim) for 3.4%. Investigations in response to Type I events were more likely to be initiated by an accident report, but Type II and Type III inspections were more likely to be initiated by employee complaints. Investigations for events involving personal acquaintances of employees were most likely the result of an accident report (50.0%) but were also frequently initiated by employee complaints (37.5%).

Over one third of inspections were initiated because of fatal events, and 72.5% of these were initiated by accident reports. Inspections for fatal events were initiated by other sources in 23.8% of all inspections, and these sources were predominantly the media. Inspections after a non-fatal assault were initiated by accident reports (53.9%) and employee complaints (43.1%). Inspections for non-injury events, which are not routinely reported, were initiated by complaints in 95.5% of inspections. These comprised almost exclusively threats and intimidation. Inspections that did not follow a specific event were always initiated by employee complaints, which included complaints of unsafe environments, witnessing employees carrying weapons, or other general concerns.

Inspections in the health care industry were performed primarily in response to Type II events (69.1%), and most of these were in response to patient assaults (Table 2). Inspections in retail and restaurant establishments, which are at very high risk for robbery-related homicides, were most likely to be in response to a Type I event. Inspections in the transportation industry, which included delivery services, and prop-

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TABLE 2
Industry of Investigation, by Type of Violence

Industry	Type of Violence									
	Type I		Type II		Type III		Type IV		Unknown	
	n	(Row %)	n	(Row %)	n	(Row %)	n	(Row %)		
Health care	6	(14.3)	29	(69.1)	5	(11.9)	2	(4.8)	0	(0.0)
Retail	29	(69.1)	7	(16.7)	4	(9.5)	1	(2.4)	1	(2.4)
Service	9	(40.9)	5	(22.7)	7	(31.8)	1	(0.0)	1	(4.6)
Restaurant	14	(66.7)	3	(14.3)	3	(14.3)	1	(4.8)	0	(0.0)
Manufacturing	2	(10.0)	3	(15.0)	13	(65.0)	2	(10.0)	0	(0.0)
Security/police	8	(30.8)	11	(42.3)	5	(19.2)	1	(3.9)	1	(3.9)
Education	4	(26.7)	7	(46.7)	4	(26.7)	0	(0.0)	0	(0.0)
Delivery/transport	13	(81.3)	1	(6.3)	2	(12.5)	0	(0.0)	0	(0.0)
Professional	3	(21.4)	1	(7.1)	9	(64.3)	1	(7.1)	0	(0.0)
Property management	4	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Total	95	(40.1)	71	(30.0)	60	(25.3)	8	(3.4)	3	(1.3)

TABLE 3
Industry, by Severity of Violence

Industry	Severity of Violence							
	Fatal		Non-Fatal Assault		Threat		No Event	
	n	(Row %)	n	(Row %)	n	(Row %)	n	(Row %)
Health care	2	(4.8)	16	(38.1)	15	(35.7)	9	(21.4)
Retail	18	(42.9)	9	(21.4)	9	(21.4)	6	(14.3)
Service	6	(27.3)	7	(31.8)	8	(36.4)	1	(4.6)
Restaurant	11	(42.4)	5	(23.8)	3	(14.3)	2	(9.5)
Manufacturing	7	(35.0)	7	(35.0)	5	(25.0)	1	(5.0)
Security/police	14	(53.9)	10	(38.5)	0	(0.0)	2	(7.7)
Education	3	(20.0)	3	(20.0)	7	(46.7)	2	(13.3)
Delivery/transport	8	(50.0)	5	(31.3)	3	(18.8)	0	(0.0)
Professional	5	(35.7)	1	(7.1)	7	(50.0)	1	(7.1)
Property management	2	(50.0)	1	(25.0)	1	(25.0)	0	(0.0)
Total	80	(33.8)	65	(27.4)	67	(28.3)	25	(10.5)

TABLE 4
Severity, by Type of Violence

Type of Violence	Severity of Violence							
	Fatal		Non-Fatal Assault		Threat		No Event	
	n	(Row %)	n	(Row %)	n	(Row %)	n	(Row %)
I: Criminal activity	48	(50.3)	28	(29.5)	13	(13.7)	6	(6.3)
II: Customer/client	14	(19.7)	25	(35.2)	22	(31.0)	10	(14.0)
III: Employee	11	(18.3)	10	(16.7)	32	(53.3)	7	(11.7)
IV: Personal acquaintance	4	(50.0)	2	(25.0)	0	(0.0)	2	(25.0)
Unknown	3	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)

erty management were almost always in response to a Type I event but were not a frequent industry of inspection. Manufacturing and professional industries, which are at very low risk of either robberv-

related or customer violence, were most likely to be inspected because of Type III employee-on-employee events. These inspections were usually due to threats rather than injuries.

Inspections in response to a homicide comprised at least 50% of inspections in the security/police, transportation, and property management industries and were also frequent in retail (42.9%) and restaurant (42.4%) establishments (Table 3). Inspections in health care were not likely to be in response to a homicide (4.8%) but were likely to be in response to a non-fatal assault (38.1%) or a threat (35.7%) and were the most likely of any industry not to be in response to a violent event (21.4%). Inspections in the service industry were fairly evenly distributed by severity. The education and professional industries were more likely to have inspections as a result of a threat than of an injury of any severity.

More than half of the inspections in response to Type I events were performed after a homicide (Table 4). Inspections in response to Type III events were the least severe, with 53.3% performed in response to threats. Inspections for Type IV events, which were not frequent, were performed in response to a fatality in half of the inspections, a non-fatal assault in 25%, and no event in 25%.

Distribution of Inspections, Compared With Violent Events in the Workplace

The distribution of investigations by industry and type of event for fatal and non-fatal workplace violence was significantly different than the distributions of national workplace homicides and reported victimizations (Table 5). Compared with the distribution of workplace homicides nationally, inspections overrepresented the security/police, restaurant, manufacturing, and education industries. Retail and service industries were underrepresented by inspections. Inspections for non-fatal events overrepresented health care but greatly underrepresented security/police and government establishments. The security/police industry

TABLE 5
Percent Distribution of Cal/OSHA Investigations, Compared With National Workplace Homicides and Victimitations by Industry, Type, and Severity of Event*

Factor	Fatal Investigations	Workplace Homicides†	Non-Fatal Investigations	Estimated Victimitations‡
Industry§				
Health care	2.5	1.3	25.5	8.0
Retail	22.5	35.4	15.3	16.5
Security/police	17.5	5.4	7.6	21.5
Service	7.5	14.2	10.2	N/A
Restaurant	13.8	8.4	6.4	N/A
Manufacturing	8.8	4.3	8.3	N/A
Transportation	10.0	8.2	5.1	3.8
Education	2.8	0.6	7.6	7.4
Government	5.0	7.7	7.0	33.7
Professional	6.3	4.4	5.7	N/A
Property management	2.5	2.0	1.3	N/A
	<i>P</i> = 0.038		<i>P</i> < 0.001	
Type of violence				
I: Criminal activity	60.0	79.6	29.9	29.7
II: Customer/client	17.5	8.2	36.3	62.5
III: Employee	13.8	5.9	31.2	5.6
IV: Personal acquaintance	5.0	6.3	2.6	0.2
Unknown	3.8	0.0	0.0	2.0
	<i>P</i> = 0.019		<i>P</i> < 0.001	
Total	80	912	157	2,009,777

* Cal/OSHA, California Division of Occupational Safety and Health. N/A, not available.

† Estimated workplace homicides from the Census of Fatal Occupational Injuries, 1997.

‡ Estimated victimizations by industry and severity from the National Crime Victimitation Survey, 1992-1996. Estimated victimizations by type of violence from California Employer's Reports, 1996.

§ Totals might not add to 100% because of industries not represented by inspections.

represented 21.5% of reported victimizations but only 7.6% of inspections, and government represented 33.7% of reported victimizations but only 7.0% of inspections.

Nationally, 79.6% of workplace homicides were Type I events and 60.0% of inspections were in response to Type I fatal events. Type II and Type III events, however, were overrepresented in investigations, compared with actual events. Inspections for Type II events, which comprised 8.2% of homicides, comprised 17.5% of investigations. Type III events comprised 5.9% of homicides but 13.8% of inspections. Non-fatal workplace violence victimizations were more likely to be due to Type II events (62.5%) and were underrepresented among investigations (36.3%). Employee-on-employee events, which comprised only 5.6% of victimizations, comprised 31.2% of investigations. The distribution of non-fatal Type I events was similar between reported victimizations (29.7%) and investigations (29.9%).

Citations Issued

Citations were issued to 82 (34.6%) of the businesses inspected, and 56 (23.6%) were related to workplace security (Table 6). Six businesses received citations for both workplace security and non-workplace security hazards. Twelve (5.1%) of the businesses were issued citations that were not related to workplace security, and ten (4.2%) of the citation types were not available in the database but were stated as pending.

The most common citation for workplace security was Section 3202(a) of Title 8 of the California Code of Regulations, which requires the implementation and maintenance of an Injury and Illness Prevention Program (IIPP). Businesses that did not have any organized IIPP or that did not have specific sections related to security received citations. Other citations included those requiring employers to maintain and report injuries; to maintain adequate envi-

TABLE 6
Citations and Responses to Cal/OSHA Workplace Violence Investigations, 1993-1996

	<i>n</i>	(%)
Total inspected businesses	237	(100.0)
Citations		
Businesses not issued a citation	155	(65.1)
Total businesses cited	82	(34.6)
Citations related to workplace violence	56	(23.6)
Citations given (one business may have more than one citation):		
14301 (a)—Requirement to maintain log of injuries and illnesses	1	
3202 (a)—Requirement to implement and maintain an Injury and Illness Prevention Program	51	
	1	
3203 (b)—Defines records that must be kept about the implementation and maintenance of an Injury and Illness Prevention Program	1	
3219—Maintenance of exits	1	
3220—Requirement for emergency action plan	1	
3317—Maintenance of adequate illumination	1	
340—Requirement to post notices of Employee Protections and Obligations	1	
	1	
342 (a)—Requirement to report fatal and serious injuries	2	
6184—Requirement for employee alarm systems	1	
Citation type not stated	10	(4.2)
Citation—not related to workplace violence	12	(5.1)
Businesses issued a security-related Special Order 6305(b)	4	(1.7)
Businesses issued a security-related Information Memo	11	(4.6)

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ronmental conditions, including lighting and exit control; and obligations to notify employees about risks and procedures.

Four businesses were issued security-related Special Orders. A Special Order is issued when a specific condition that poses a threat cannot be made safe under current Safety Orders. In each case, the Special Order applied to the lack of specific security measures, such as communication or alarm devices, that are not required under the Code of Regulations. Eleven (4.6%) businesses were issued an Information Memo, which is used when a specific violation has not been identified but the potential for one is evident. An example would be a business that has just purchased a piece of equipment which violates safety codes but has not yet been used by employees. In this example, the Information Memo would alert the employer that the equipment will violate safety codes if put into place without alterations bringing it up to code.

Businesses with workplace security inspections initiated by employee complaints were slightly more likely to be cited than were inspections initiated by other sources (OR = 1.90; 95% confidence interval [CI], 1.03 to 3.52) (Table 7). Inspections for Type II events were slightly more likely to result in a citation than were inspections for Type I events. Although they were not statistically significant, inspections for Type III events were slightly more likely and inspections for Type IV events slightly less likely to result in citations than were Type I events. No industry showed a significantly higher or lower likelihood of citation, but health care, security/police, and professional industries were most likely to be cited. Compared with inspections for threats, inspections for non-fatal assaults were more likely (OR = 2.15; 95% CI, 1.15 to 4.02) and inspections for fatal events less likely (OR = 0.46; 95% CI, 0.23 to 0.93) to receive citations.

TABLE 7
Factors Predicting Citations

Factor	Odds Ratio	95% CI*
Initiated by complaint	1.90	1.03 to 3.52
Industry ³		
Health care	1.83	0.89 to 3.79
Retail	0.38	0.14 to 1.03
Security/police	1.86	0.78 to 4.44
Service	0.70	0.23 to 2.16
Restaurant	0.52	0.15 to 1.82
Manufacturing	0.55	0.16 to 1.95
Transportation	0.74	0.20 to 2.68
Education	1.20	0.37 to 3.91
Government	1.67	0.55 to 5.16
Professional	1.89	0.61 to 5.88
Property management	1.09	0.11 to 10.64
Type of event		
Type I: Criminal activity	1.00	
Type II: Customer/client	2.34	1.14 to 4.08
Type III: Employee vs employee	1.40	0.63 to 3.09
Type IV: Personal acquaintance	0.67	0.08 to 5.63
Severity of event		
Threat	1.00	
Non-fatal assault	2.15	1.15 to 4.02
Fatality	0.46	0.23 to 0.93

* CI, confidence interval.

Conclusion

Cal/OSHA has responded to a highly diverse group of workplace violence events and encountered many different types of security hazards. These inspections have addressed a large range of situations, most industries, and all four types of workplace violence. For both fatal and non-fatal events, the inspections followed different patterns of victimization than those stated in the research literature for industry and type of violence. However, Cal/OSHA inspectors responded to many threats and/or complaints about unsafe environments that are not usually included in fatality and injury statistics.

No clear patterns predicting which businesses received citations were present, but citations generally addressed an employer's failure to identify and inform employees about potential violence risks. California mandates that all employers maintain a safe, healthful, and secure working environment for their employees. All businesses are required under the

California Labor Code Title 8 Section 3203 to maintain an IPPP, which identifies and informs employees about all work hazards, including the risk for violence. However, no standards exist which mandate that specific risk-reduction strategies be followed to reduce violence. Lacking such specific measures, investigators issued citations based on the premise that workplace security must be part of a comprehensive safety and health plan. Citations thus focused on the incorporation of security issues into the IPPP, which included recommendations to develop a written program, train and inform employees about risks for violence, and to include assault in surveillance and reporting activities. Although some research has suggested that these changes will reduce the risk and consequences of workplace violence, solid evidence has yet to be collected. One major challenge to the development standards that apply specifically to security issues is the lack of scientific evidence supporting their effectiveness in different business settings.

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The lack of specific regulations for security does not imply that workplace security inspections are without merit. Evaluation theory suggests that inspections can be successful through several routes, including the rectification of specific violations, creation of a general increase in the awareness of workplace safety issues initiated by inspection activity, and through facilitation of cooperative solutions to safety issues among employees and management.¹¹⁻¹³ The first of these, termed specific deterrence, cannot be a mechanism for workplace security inspections because there are no specific standards. The second two mechanisms represent a more general deterrence effect and are potential and plausible mechanisms in Cal/OSHA's security inspections.

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Studies of specific deterrence have focused primarily on inspections conducted in manufacturing plants and have found mixed results. Several studies have found that OSHA inspections are related to decreases in injuries, although sometimes the decrease was small and unsustainable,^{11,15,16} and other studies have found no persistent decrease.^{17,18} One of the most comprehensive studies found that inspections initiated by workers reduced the number of injuries regardless of penalty but that regular inspections reduced the number of injuries only when a penalty was imposed.¹³ This first finding greatly supports the effects of general deterrence. Thus, although workplaces that were inspected and even cited may not be required to implement any specific security measure, their attention and awareness to the issue was likely increased. Through this examination, we were not able to determine actual changes in workplace violence as a result of inspections.

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The federal Occupational Safety and Health Administration has re-

sponded to the risk of violence by issuing guidelines outlining known risk factors and approaches to prevention. Such guidelines were issued for health care establishments in 1996 and night-hour retail establishments in 1998. Cal/OSHA has also issued guidelines for health care establishments in 1993 and for all other establishments in 1995. The effects of these guidelines, which do not require changes but suggest approaches to decreasing risk, are unknown.

It is likely that Cal/OSHA, as well as other agencies charged with maintaining safe working conditions, will continue to respond to an increasing number of workplace violence events and complaints. Systematic study of the risk factors leading to violent events, the types of prevention programs that mitigate these risks, and the effectiveness of investigation activities will be crucial to improving these efforts.

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