

# Workplace Assaults on Minority Health and Mental Health Care Workers in Los Angeles

## ABSTRACT

Workplace violence is becoming increasingly recognized as a serious problem in health care settings. All 628 workers' compensation assaults claimed by minority Los Angeles County health care workers from 1986 through 1990 were abstracted. Population-at-risk data from county personnel computer tapes provided denominators by age, sex, race, job classification, and type of facility. Rates varied by type of facility (rate ratio = 38 for psychiatric hospitals vs public health facilities) and varied by job, with inpatient nursing attendants having the highest rate for caregivers. Most assaults were committed by patients (86%), followed by coworkers (8%). The average cost of an assault (\$4879) was relatively low but related to the costlier problem of work-related emotional illness. (*Am J Public Health*. 1995;85:1011-1014)

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### Introduction

The recent shooting of three physicians at a county hospital in Los Angeles underscores the need for comprehensive data describing workplace assaults upon health care workers.<sup>1</sup> Since data regarding nonfatal assaults among the general public are costly to obtain and limited in number,<sup>2,3</sup> such assaults are more easily studied in workplace settings. This is because the resulting injuries are reported to the employer's workers' compensation system, and the underlying population at risk is well defined.

Los Angeles County employs approximately 80 000 people. The county's general and mental health care workers (hereafter, health care workers) have been observed (through in-house reporting mechanisms) to have higher rates of workplace assaults than have most other county employee groups. In 1990, the county's overall assault rate (excluding the sheriff's department) was 7.1 per 1000 employees; within the Departments of Health Services and Mental Health, however, it was 8.8 and 10.3 per 1000 employees, respectively. These data come from workers' compensation reports, a source generally considered complete for acute injuries requiring medical assistance or resulting in lost work time.

The Injury Prevention Research Center of the University of California-Los Angeles School of Public Health is charged with studying and preventing injuries to minorities and underserved populations. Since others have shown that minorities experience more than twice the occupational homicide rate of Whites,<sup>3</sup> the center was interested in using the county's workers' compensation database to study nonfatal workplace assaults upon minority health care workers.

### Methods

All county employees, permanent and temporary, are covered for workers' compensation. All claims (medical only, indemnity, and denied) are entered into the county's computer. This database was

searched for health care employees with claims coded as injuries from having been assaulted or from restraining an individual. A total of 1025 such claims listing the date of injury between January 1, 1986, and December 31, 1990, were identified. Of the 1025 identified potential assaults, 730 had race/ethnicity designations of non-White, 289 were White, and 6 had missing codes.

For this study, an assault was defined as an intentional physical injury to a health care worker by another individual. Data elements describing where, when, by whom, and how the assault occurred were abstracted. The computerized workers' compensation data provided the costs associated with each claim.

Population-at-risk data for rate calculations were obtained from personnel tapes. Age, sex, job classification, and race-specific employment-day denominators were calculated. Ninety-five percent confidence intervals for rates were calculated with the method of Haenszel et al. based on the Poisson distribution.<sup>4</sup> Data management and analyses were performed on an IBM mainframe computer using the Statistical Analysis System programs.<sup>5</sup>

### Results

The 736 claims made by non-White or race-unknown employees were searched. Of the 705 claims that were located and abstracted, 12 were duplicates, and 65 (9.4%) of the 693 remaining claims were miscoded as assaults. This left a total of 628 verified assaults upon 530 individual minority health care workers. All but three were batteries; two were stabbings and one was a rape. The total

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**TABLE 1—Distributions and Average Annual Rates of Assault for Health Care Workers in Los Angeles County, by Select Characteristics**

	No.	%	Assault Rate per 1 000 000 Employment Days (95% CI)
<b>Year (n = 628)<sup>a</sup></b>			
1986	122	20	23.4 (19, 28)
1987	126	20	17.9 (15, 22)
1988	103	16	13.3 (11, 16)
1989	115	18	12.5 (10, 15)
1990	162	26	25.7 (22, 30)
<b>Age, y (n = 530)<sup>a</sup></b>			
20–29	114	22	12.8 (11, 16)
30–39	193	36	19.5 (17, 23)
40–49	125	24	22.0 (18, 26)
50–59	81	15	27.4 (22, 34)
60+	17	3	15.1 (9, 24)
<b>Sex (n = 530)</b>			
Female	357	67	12.9 (12, 15)
Male	173	33	17.0 (15, 20)
<b>Race/ethnicity (n = 530)</b>			
African American	272	51	16.9 (15, 19)
Hispanic	155	29	16.7 (14, 20)
Asian/Pacific islander	44	8	7.8 (6, 10)
Filipino	56	11	22.1 (17, 29)
Native American	3	1	NA
White (estimate)	NA	NA	12.1
<b>Workplace setting (n = 628)</b>			
Hospital	549		16.4 (15, 18)
Psychiatric	111	18	185.4 (153, 224)
General only	136	22	9.29 (8, 11)
General with psychiatric ward <sup>b</sup>	302	48	16.6 (15, 19)
Mental health department	43	7	18.4 (13, 25)
Public health programs	31	5	4.9 (3, 7)
Other	5	1	NA
<b>Job classification</b>			
<b>Patient care groups</b>			
Inpatient nursing attendants	247	39	48.9 (43, 55)
Community mental health technician	25	4	45.8 (30, 68)
Inpatient professional nurses	124	20	23.2 (19, 28)
Physicians' assistants	4	1	16.1 (4, 41)
<b>Noncare group</b>			
Custodial administration	4	1	406.1 (110, 1040)
Safety police	27	4	105.7 (70, 154)
<b>Total</b>			<b>14.7 (14, 16)</b>

Note. CI = confidence interval; NA = not available.

<sup>a</sup>Where n = 628, distributions are based on all claims; where n = 530, distributions are based on the individual employees who filed at least one claim.

<sup>b</sup>Some Los Angeles County general hospitals include psychiatric wards; these could not be separated out in population-at-risk denominators.

incurred cost for these claims exceeded \$3 000 000 as of June 30, 1992, with an average cost per claim of \$4879.

A recent 9-month survey of all claims occurring at the largest county hospital indicated that 2 claims in 1070 coded as other than assault were actually assaults. Using these figures, we estimate that such miscodes could have been responsible for an underestimate of approximately 3% in this study.

Distributions and rates of assaulted health care workers are shown in Table 1. We calculated an estimate for White

workers by assuming that the percentage of miscoded assaults found in the abstracted data set would be similar for claims made by White workers. The rate for psychiatric hospital workers was 10 times that for Department of Mental Health workers and 38 times that for Public Health program workers.

The job categories with the highest average annual assault rate are shown in Table 1. The high rate for custodial administration was owing to four assaults by coworkers. Many of the assaults upon community mental health technicians oc-

curred to those working on psychiatric evaluation teams, which make home visits to patients to evaluate suitability for inpatient placement.

The vast majority of assaults were committed by patients (Table 2). The only exception was among the workers assaulted while not involved in patient care in a nonpsychiatric facility; for these individuals, coworkers committed the largest proportion (55%) of assaults. Many of these workers were performing duties in ancillary service areas such as laboratories and laundry when they were assaulted.

When an assault was committed by another employee, much information was in the claim file regarding the assailant. All worker groups were represented among these assailants, including four physicians. The assailant:victim gender distributions for the 41 employee-upon-employee assaults were male:male (n = 13), male:female (n = 12), female:female (n = 13), female:male (n = 3).

Where there was information on patient-assailants in the files, the following categories were identified: head trauma patients (n = 9), maternity patients in labor (n = 4), and substance abuse patients (n = 6). Interestingly, 26 assaults by psychiatric patients occurred in nonpsychiatric facilities or wards. Most other patient-assailants were simply described as "combative" (n = 44) or "confused" (n = 10).

Table 3 further details worker activity at the time of assault by type of facility. Psychiatric workers were more likely to be restraining someone at the time of injury, whereas general hospital workers were more likely to be providing hands-on care.

Psychiatric hospitals had a greater percentage of assaults in the emergency room (where patients are held 72 hours for observation) than did general hospitals (21% vs 6%). Psychiatric hospitals also had a greater percentage of assaults in corridors (11.7% vs 5.5% for general hospitals). Another large proportion of assaults in psychiatric hospitals occurred in communal areas such as the dayroom or recreation yard (8.9%), whereas a large proportion of assaults in general hospitals occurred at bedside (23%).

Patient-assailants tended to use similar weapons of opportunity regardless of the type of treatment facility. Those weapons most commonly recorded were casts (6), restraints (4), food items and trays (3), chairs (3), oxygen tanks (2), telephones (2), eyeglasses (2), and shoes (2). Nonpatient-assailants used a wider variety of objects, including office items, tools, and construction materials.

We examined time of assault for hospital workers only, since they were the largest worker group and they generally work in three 8-hour shifts. More employees in nonpsychiatric units (24%) than psychiatric employees (13%) were attacked on nightshift (from 11:00 PM to 7:00 AM).

The lost workdays variable was censored, so, this outcome was dichotomized into 1 week or less versus more than 1 week. Factors associated with this dichotomized outcome measure were the victim's having struck against an object during the attack and the victim being attacked from behind (although occurring in only 5% of assaults), as well as employee age at time of assault (Table 4). Incurring a head, back, or emotional illness as a result of the assault was associated with losing more than 1 week of time.

Since litigation status of a claim is clearly related to lost work time, we controlled for this factor by stratification in the analysis.<sup>6</sup> With removal of the litigated claims (since the vast majority are not litigated), the effect of confounding appears in the reduced odds ratios for most factors (Table 4); only a few of the previously mentioned factors (back injury, victim struck against an object, emotional illness) remain as significant predictors of lost time.

## Discussion

To our knowledge, this is the first study of assaults upon all types of public sector health care workers. Although funding priorities prevented us from including anyone but minority health care workers, we believe the results would not have been different had White workers been included. Indeed, in this population, minority workers constitute 60 to 70% of all employees. Additionally, race/ethnicity was a weak predictor of assault compared with type of facility and job classification. Further, our assault rate estimate for Whites fell within the range of that for other race/ethnicity groups. Therefore, generalizations from this study to all Los Angeles County health care workers are appropriate and justified.

Overwhelmingly, the facilities where risk of assault was highest were psychiatric hospitals. Although others have described the assault risk posed by working with psychiatric patients, this is the first study to separate and compare the risk between acute psychiatric and general hospital workers.<sup>7,8</sup> One other study presented the assault risk for general hospital workers,

**TABLE 2—Distribution (%) of Assaults on Health Care Workers, by Worker Activity at Time of Assault, Type of Hospital Facility, and Assailant**

Assailant	Not Involved in Patient Care		Involved in Patient Care or in Restraining an Individual		Total (n = 612) <sup>a</sup>
	On Psychiatric Unit (n = 41)	Not on Psychiatric Unit (n = 74)	On Psychiatric Unit (n = 254)	Not on Psychiatric Unit (n = 243)	
	Patient Employee	85 <sup>b</sup>	11	100	
Visitor	12	55 <sup>c</sup>	0	1	8
Other, unknown	0	4	0	2	1
	2	30	0	2	5

<sup>a</sup>Of the 628 assault claim files, 612 had complete data for cross-classification.

<sup>b</sup>Odds ratio = 48.1 (95% confidence interval = 15.5, 149.7) for being assaulted by a patient while not involved in patient care in a psychiatric facility versus being assaulted by another type of assailant while not involved in patient care in a nonpsychiatric facility.

<sup>c</sup>Odds ratio = 8.9 (95% confidence interval = 3.4, 23.3) for being assaulted by another employee while not involved in patient care in a nonpsychiatric facility versus being assaulted by another type of assailant (patient, visitor, etc.) while not involved in patient care in a psychiatric facility.

**TABLE 3—Distribution (%) of Assaults on Health Care Workers, by Patient Care Activity at Time of Assault and Type of Workplace Facility**

Worker Activity at Time of Assault	Type of Facility				Total (n = 601) <sup>a</sup>
	Hospital, Psychiatric Unit (n = 247)	Hospital, General Unit (n = 283)	Department of Mental Health (n = 41)	Public Health Programs (n = 30)	
Not involved in patient care	15	22	10	7	18
Providing minimal care	25	11	27	53 <sup>b</sup>	20
Providing hands-on care	15	39 <sup>c</sup>	12	3	25
Restraining persons	45 <sup>d</sup>	28	51 <sup>d</sup>	37	37

<sup>a</sup>Of the 628 assault claim files, 601 had complete data for cross-classification.

<sup>b</sup>Odds ratio = 5.2 (95% confidence interval (CI) = 2.4, 11.0) for workers involved in providing minimal care in a public health facility versus all other types of activities and facilities.

<sup>c</sup>Odds ratio = 4.2 (95% CI = 2.8, 6.3) for workers providing hands-on care in general hospital units versus all other types of activities and facilities.

<sup>d</sup>Odds ratio = 2.1 (95% CI = 1.5, 2.9) for workers restraining persons in hospital psychiatric units or in the Department of Mental Health versus all other types of activities and facilities.

which was much lower than that for many other worker groups.<sup>9</sup> In that study, however, the ratio of homicides to other assaultive injuries for hospital workers was second highest after that for hotel/motel workers. Unfortunately, those investigators could not provide data on the killers; it would be important to know if those assailants were psychiatric patients being treated in general hospitals.

Consistent with the literature, two of the high-risk occupations identified in this study (security guard, custodian) have also been shown elsewhere to carry a high risk for on-the-job homicide.<sup>10</sup>

We abstracted from the actual claim file and therefore collected information not obtainable from state data. Additionally, we included minor injuries that resulted in no lost time, which typically are excluded from state workers' compensation sources.<sup>9,11</sup> Therefore, this is a more complete study than usually encountered in investigations using workers' compensation data. However, because such data are not collected for the primary purpose of conducting health-related research, much information is not captured or is captured inconsistently, leading to misclassification due to missing

**TABLE 4—Odds Ratios for Lost Work Time, by Assailant, Victim, and Injury Factors**

Factors	All Injuries			Nonlitigated Claims		
	No. <sup>a</sup>	OR <sup>b</sup>	95% CI <sup>c</sup>	No. <sup>a</sup>	OR <sup>b</sup>	95% CI <sup>c</sup>
<b>Assailant utilized</b>						
An object as weapon	61	0.91	0.49, 1.71	51	0.68	0.28, 1.65
Hands	358	1.27	0.87, 1.85	297	0.84	0.53, 1.34
Feet	114	0.96	0.59, 1.53	107	1.50	0.88, 2.57
Teeth	57	0.27	0.11, 0.66	53	0.29	0.08, 0.90
Assailant was patient	521	0.35	0.22, 0.54	468	0.51	0.28, 0.93
Assailant was employee	47	2.05	1.11, 3.77	31	0.77	0.26, 2.26
<b>Assault factors</b>						
Victim struck against object	74	3.31	2.05, 5.36	50	2.55	1.35, 4.82
Victim was attacked from behind	34	2.59	1.31, 5.12	25	2.15	0.89, 5.22
<b>Victim factors</b>						
Age > 60	16	4.16	1.64, 10.58	10	2.32	0.61, 8.83
Male	213	0.51	0.34, 0.78	192	0.62	0.37, 1.03
Was restraining a person	192	0.73	0.49, 1.10	179	1.07	0.66, 1.75
Worked in psychiatric facility	292	0.86	0.59, 1.24	256	0.97	0.61, 1.54
<b>Injury</b>						
Head <sup>d</sup>	9	3.95	1.15, 13.59	5	3.59	0.66, 19.50
Back	40	3.41	1.84, 6.33	31	3.74	1.82, 7.68
Emotional illness	29	17.46	8.25, 36.94	6	11.09	12.80, 43.96

<sup>a</sup>No. = number with factor.

<sup>b</sup>OR = odds ratio, comparing lost work time of more than 1 week with that of 1 week or less.

<sup>c</sup>95% CI = test-based 95% confidence intervals.

<sup>d</sup>Head injuries exclude superficial lacerations and contusions.

data being classified as "not exposed." Such misclassification could be avoided if a standardized questionnaire were administered soon after the incident. Future research should be done in this manner and should include interviews with appropriate control employees. Factors not recorded in claim files, such as the diagnoses of patient-assailants and assailant's substance usage, could be analyzed and used in developing assault avoidance training.

Recent studies have demonstrated the effectiveness of incorporating specific study findings into assault prevention training programs.<sup>12,13</sup> Therefore, results of this study have been shared with safety personnel of the concerned departments.

There has been much interest lately in violence in hospital emergency departments.<sup>14,15</sup> We did not find a large percentage of assaults to have occurred in that area of the hospital, but this finding could be subject to the same potential misclassification error described above. Also, without the underlying denominator of workers in the emergency departments compared with those in other areas of the hospital, we cannot assess and compare the actual rate of assault in the two locations.

Assaults by coworkers have also been receiving much attention of late. Although these are important, they are clearly much less frequent than other types of assault in health care settings.

Examining Los Angeles County data through in-house reporting mechanisms, we have observed that units having high assault rates also have high rates of work-related emotional illness, a much costlier problem. In one instance in which an employee was murdered on the job, several coworkers filed emotional illness claims specifically related to that incident. These associated claims currently total more than \$500 000. This related emotional illness cost is not included as an indirect cost resulting from workplace assaults, which thereby minimizes estimates of their adverse impact. If total costs could be assessed, employers would have powerful justification for investing financial resources in the implementation of recommended training and environmental controls for the prevention of workplace assaults.<sup>16</sup> □

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