

Staff Injuries from Patient Attack: Five Years' Data

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We report on five years' experience of staff injuries from patient attack in a large state hospital. In 1984 to 1988, with a total of 6,225 staff person-years of exposure, 209 employees suffered 236 injuries from patient attack. Ward nursing staff sustained 185 of the injuries (5.7 injuries per hundred person-years), professional staff 17 (rate = 2.3), psychiatric technician trainees 27 (rate = 6.2), and nonclinical staff 7 (rate = 0.4). The annual rate of injury by attack was 50 percent higher among male nursing staff (6.9 injuries per hundred) than among females (4.5). The annual rate of injury by attack was slightly higher among psychiatrists (6.0 per hundred person-years) than among nursing staff. Two three-hour peak periods for injury from patient attack were identified: 8:00 am to 10:59 am and 4:00 pm to 6:59 pm. These six hours accounted for half the injuries. We observed more injuries on Mondays and Tuesdays (42.5 per day), compared with the rest of the week (30.4 per day). No difference in staff injuries was noted between Wednesday–Thursday–Friday and weekend days; 74 percent of staff injuries from attack occurred on the victim's own ward; 70.7 percent of injuries from patient attack were head injuries.

The risk of violence to staff in mental health settings is an important issue in modern mental health policy.¹ Such violence affects the atmosphere, programs, staff, and patients of hospitals caring for the mentally ill. It may be difficult to conduct therapeutic programs or retain effective staff in an environment colored by violence by patients. In the last sev-

eral years, excellent reviews have been published in this area.²⁻⁵ In addition, there are a number of excellent reviews of the general area of predicting dangerousness both inside the hospital and outside⁶ and of identifying and managing aggressive behavior.⁷⁻⁹

Most of the literature has examined the risk of violence only to psychiatrists and therapists.¹⁰⁻¹⁷ There has been relatively little study of the risks of violence to other staff.¹

Five recent American studies have examined violence against staff in psychiatric hospitals. In a previous report from Atascadero (CA) State Hospital, Carmel and Hunter¹ reported one year's experience of 135 staff injuries from inpatient violence. Forty-eight of the injuries were

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by patient attack. Among nursing staff the annual rate of injury by patient attack was 6.1 injuries per hundred staff. Among professional staff, including psychiatrists, no injuries by attack were recorded in the year studied. The annual rate of injury from containing violent behavior among nursing staff was 9.9 injuries per hundred (the rate for men was three times higher than the rate for women). Subsequent reports examined the relation between compliance with mandated training and rate of injury from patient violence¹⁸ and the costs of staff injuries from inpatient violence.¹⁹

This methodology was used in a one-year study of staff injuries in a Minnesota regional treatment center²⁰; 46 injuries from patient violence were reported, 31 of them from patient attack. All injuries but one were sustained by nursing staff—for a rate of 24.8 injuries from patient violence per hundred nursing staff and 16.5 injuries from patient attack per hundred nursing staff. The rate of injury among male nursing staff was three times higher than among female nursing staff. One psychiatrist was attacked by a patient, for a rate of 12.1 injuries per hundred person-years.

In a Maryland state hospital with approximately 800 nursing staff, Lion *et al.*²¹ estimated that 1,108 assaults against staff occurred in 1977. This yielded a rate of about 140 assaults per hundred staff per year.

Dietz and Rada^{22, 23} studied batteries in a maximum security hospital staffed by 204 correctional officers. Ninety-one battery incidents occurred in a year, for a rate of 44.6 batteries per hundred. Of

the batteries, 55 were by patient assault (for a rate of 27.0 per hundred per year) and 36 were sustained while containing patient violence (for a rate of 17.7). Five of 28 professional staff were struck by patients, for a rate of 17.9 batteries per hundred per year.

The other American study did not give the number of staff employed, so rates of violent events could not be determined.^{24, 25} In addition, a number of studies in England were conducted on single units, a small unit of analysis.²⁶⁻³¹

The purpose of this study was to expand on our previous work, providing five years of data—the largest such sample yet reported—on staff injuries from patient attack.

Atascadero State Hospital

This article is part of an ongoing study of staff injuries from patient violence at Atascadero State Hospital, a 973-bed forensic hospital located on California's central coast. The characteristics of the hospital and its staff are described elsewhere.^{1, 32}

Briefly, hospital employees include three categories: ward nursing staff, professional staff, and nonclinical staff. Professional staff include psychiatrists, general physicians, psychologists, social workers, and rehabilitation therapists providing clinical services in the hospital.

Nonclinical employees are hospital staff without direct clinical involvement. Included in this group are hospital peace officers (HPOs), ward janitors, food service, plant operations, office and support staff who work inside the secure

Staff Injuries from Patient Attack

patient area with varying degrees of patient contact. HPOs are unarmed, uniformed Department of Mental Health officers.

It should be noted that this study was conducted at a single hospital with an all-male maximum security forensic patient population. Therefore, caution is required before attempting to generalize these findings.

Methods

We observed 6,225 person-years of experience in the five years between 1984 and 1988. This includes 3,258 person-years of experience for nursing staff, 736 person-years for professional staff, 435 person-years for psychiatric technician trainees, and 1,511 person-years for nonclinical staff.

As in our previous work,^{1,18} we counted injuries as defined in OSHA-mandated reports, a standard occupational health measure: an event causing "one or more of the following: lost work-days, loss of consciousness, restriction of work or motion, termination of employment, transfer to another job, or medical treatment (other than first aid)." In this study, we counted only staff injuries from direct patient attack. Other work-related injuries, such as injuries from containing patient violence¹ or falls while responding to an episode of patient violence, were excluded from this study. All staff injuries from patient attack that occurred during the five years studied were recorded and analyzed. Results are given in number of injuries per hundred employees per year.

Results

Injuries by Patient Attack In the five years, 209 staff suffered 236 injuries from patient attack. Of these, 185 occurred to nursing staff (5.7 injuries per hundred person-years), 17 to professional staff (2.3 injuries per hundred), 27 to psychiatric technician trainees (6.2 injuries per hundred), and 7 to non-clinical staff (including 3 to hospital peace officers, for a rate of 1.1 injuries per hundred; and 4 to other non-clinical staff, for a rate of 0.3) (chi-square = 12.2, $df = 3$, $p < .003$) (see Tables 1 through 4).

The annual rate of injury by attack was 50 percent higher among male nursing staff (6.9 injuries per hundred) than among females (4.5) (Fisher exact test = .0035).

Twenty-five employees were injured by attack more than once during the five-year study period. Of these, 23 were injured twice and 2 were injured three

Table 1
Injuries from Patient Attack: Clinical Staff,
Atascadero State Hospital, 1984 to 1988

	Number	Injuries	Rate
Ward nursing			
Total	3,258	185	5.7
Male	1,559	108	6.9
Female	1,699	77	4.5
PTT			
Total	435	27	6.2
Male	222	14	6.3
Female	213	13	6.1
Professional			
Total	736	17	2.3
Male	457	13	2.8
Female	279	4	1.4

Number = the number of staff person-years in each category; Rate = the number of injuries per hundred staff per year; PTT = psychiatric technician trainees. (The 20 injuries to non-clinical staff are excluded.)

Table 2
Injuries from Patient Attack: Ward Nursing Staff, Atascadero State Hospital, 1984 to 1988

	Number	Injuries	Rate
Psychiatric technicians			
Total	2,129	128	6.0
Male	1,031	71	6.9
Female	1,098	57	5.2
Registered nurses			
Total	607	26	4.3
Male	123	10	8.1
Female	484	16	3.3
Senior psychiatric technicians			
Total	375	26	6.9
Male	286	23	8.0
Female	89	3	3.4
Unit supervisors			
Total	147	5	3.4
Male	119	4	3.4
Female	28	1	3.6

Number = the number of staff person-years in each category; Rate = the number of injuries per hundred staff per year.

times. This group, representing only a small portion of the total number of hospital staff at risk, accounted for 22 percent of all injuries by patient attack.

Twenty-four of those suffering more than one injury (96%) were nursing staff. As a result, the annual risk of injury to nursing staff (the proportion of injured staff) was lower than the annual rate of injury (the number of injuries per hundred person-years); 4.9 percent of nursing staff were injured per year, for a rate of 5.7 injuries per hundred person-years. Among women nursing staff, 4.0 percent were injured annually, for a rate of 4.5 injuries per hundred person-years; among men, 5.8 percent were injured annually, for a rate of 6.9.

The rate of injury by attack among professional staff was 2.3 injuries per hundred, almost half the rate for nursing

Table 3
Injuries from Patient Attack: Professional Staff, Atascadero State Hospital, 1984 to 1988

	Number	Injuries	Rate
Psychiatrists			
Total	134	8	6.0
Male	106	7	6.6
Female	28	1	3.6
Nonpsychiatrist physicians			
Total	34	0	0
Psychologists			
Total	136	2	1.5
Male	101	2	2.0
Female	35	0	0
Social workers			
Total	241	4	1.7
Male	139	3	2.2
Female	102	1	1.0
Rehabilitation therapists			
Total	191	3	1.6
Male	77	1	1.3
Female	114	2	1.8

Number = the number of staff person-years in each category; Rate = the number of injuries per hundred staff per year.

Table 4
Injuries from Patient Attack: Nonclinical Staff, Atascadero State Hospital, 1984 to 1988

	Number	Injuries	Rate
Hospital peace officers			
Total	285	3	1.1
Male	241	3	1.2
Female	44	0	0
Other nonclinical staff			
Total	1,511	4	0.3
Male	751	4	0.5
Female	783	0	0

Number = the number of staff person-years in each category; Rate = the number of injuries per hundred staff per year.

staff. Half the injuries by attack were sustained by psychiatrists, whose rate of injury by patient assault was 6.0, which was higher than the rate among nursing staff. No general physicians were injured

Staff Injuries from Patient Attack

by patient violence in the five years studied.

High Risk Times, Days, Locations

Two three-hour peak periods for injury from patient attack were identified: 8:00 a.m. to 10:59 a.m. and 4:00 p.m. to 6:59 p.m. (see Fig. 1). These six hours accounted for half the injuries.

We observed more staff injuries from patient attack on Mondays and Tuesdays (42.5 per day) compared with the rest of the week (30.4 per day). No difference in staff injuries was noted between Wednesday–Thursday–Friday and weekend days.

The majority—74.2 percent—of staff

injuries from patient attack occurred on the victim's own ward. Lower numbers of injuries (5 to 6% each) occurred on another ward, the dining room, or the main hallway.

Part of Body Injured Information on the part of the body injured was available for 225 injuries. Of these, 159 (70.7%) affected the head, 30 (13.3%) affected the spine, 21 (9.3%) affected extremities, and 16 (6.7%) affected the trunk.

Discussion

This report documents the rate of staff injury from patient attack among nurs-

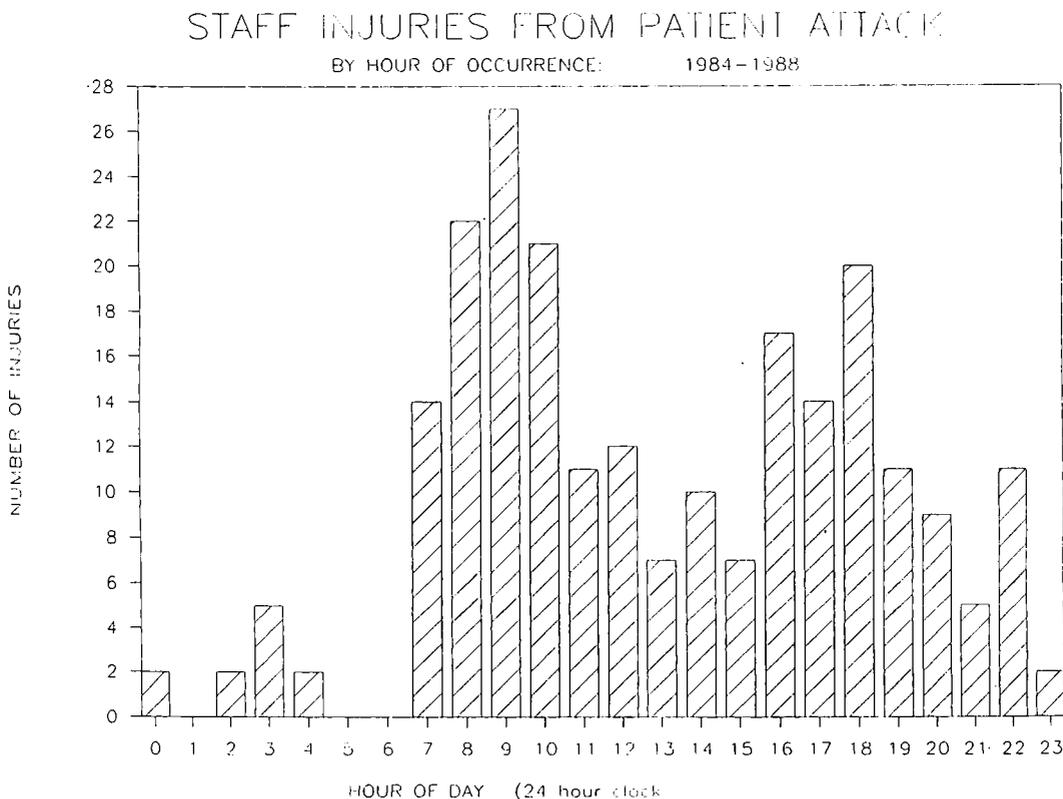


Figure 1. Staff injuries by patient attack.

ing and professional staff in a large state hospital. Both in terms of duration of study and size of population studied, this is the largest report of its kind yet presented in the literature.

There are important issues of methodology in studying patient violence against staff: specifying the definition of violent event, assuring that all violent events are counted, and reporting the count in a useful form (in our work, the statistic of events per hundred person-years).¹ In this report, we have attended to these issues. We used a relatively narrow definition of violent event: we have estimated that in one year approximately five times as many physical assaults against staff as injuries from patient attack were recorded (Carmel H, Hunter M: unpublished data). Therefore, the definition of violent event selected will largely determine the rate of violence observed.

As might be expected, the ward nursing staff (including psychiatric technician trainees) experienced a higher rate of injury from patient attack than professional staff. The nursing staff has the most sustained clinical contact with patients. The psychiatrist technician trainee population, on the other hand, has patient contact for only part of the time; their higher rate of injury may reflect relative inexperience with patients.

In our study, 12 percent of the staff who were injured by patient attack were injured more than once, suffering 22 percent of all injuries. However, over half of these multiply-injured staff worked on four "higher risk" acute psy-

chiatric wards. Therefore, it is possible that staff who are multiply attacked are placed at risk by working in "high risk" areas and/or by individual styles contributing to patient violence.

The rate of injury among psychiatrists was slightly higher than the rate among nursing staff. In part, this may reflect the increasingly active treatment role of psychiatrists in the hospital. At the same time, one would expect that the high status of the psychiatrist in the ward environment might provide some protection from patient attack. In the absence of comparable studies from other centers, it is difficult to judge to what extent this represents a trend. In a related paper, we compare some characteristics of psychiatrists injured by patient attack to the psychiatrists who were not injured.³³

In our previous report,¹ we observed no injuries from patient attack upon psychiatrists. Our findings in this report illustrate the advantages of longer periods of observation, with greater numbers of person-years.

It is noteworthy that no injuries were experienced by general physicians during this period. These physicians have patient contact generally equal to that of the psychiatrists, but do not have direct responsibility for a case, unless the patient is admitted to the medical-surgical ward of the hospital. While because of the low number of general physician person-years in this study it is difficult to generalize, the nature of the relationship of psychiatrists to patients in this setting may be related to the psychiatrists' rate of injury. In a related article,³⁴

Staff Injuries from Patient Attack

we report on the relation between physician staffing—both psychiatrist and nonpsychiatrist—and levels of patient violence.

The other professional staff experienced lower rates of injury than the nursing staff and psychiatrists. Nonclinical staff had the lowest rates of injury. In many instances, this reflected low levels of direct patient contact. In other instances, unlike ward nursing and psychiatric staff whose contacts with patients occur in the context of direct clinical responsibility, nonclinical staff work closely with patients, but in roles that apparently do not lead to conflict and attack. These data imply that physical proximity to patients is not necessarily a major risk factor for patient attack in itself; it is the set of interventions implicit in the management of the patient's psychiatric condition that poses risks of patient attack. For this reason, psychiatrists may be at higher risk than general physicians, nursing staff are at higher risk than hospital security officers, and psychiatric technicians are at higher risk than food service workers.

In almost all job categories male staff experienced a higher rate of injury from patient attack than female staff. This implies that the male staff's patient interactions (in our hospital, all the patients are male) are more likely to result in patient attack than female-male interactions in this setting.

The relation of gender to aggression in psychiatric settings is an open and complex question. Our study occurred in a hospital without female patients; therefore, we could not examine staff

injuries from patient attacks by females. Depp³⁵ reported fewer patient attacks across gender lines, which may account for some of our gender differences in rate of injury. In many settings, there is a belief that male staff rather than female staff should be involved in clinical situations with the potential for violence. As a result, male staff may experience a higher rate of injury from patient violence, including attack. In addition, for cultural reasons patients and staff may behave differently in potentially violent situations when male staff rather than female staff are involved. In our hospital, further study is required to determine the extent to which differences in rates of injury from patient attack by gender are due to staff or patient characteristics.

We identified high risk times and days for staff injury from patient attack. Of necessity, these reflect the practices of this particular hospital. Our high-risk times paralleled the start of the morning and afternoon work shifts. Some, but not all, high activity times, such as meals and medication administrations, were included. The morning period included patient wake-up and ward clean-up, which are periods of particularly high demanded activity.³⁵ Our finding that more staff injuries occurred on Mondays and Tuesdays, while not statistically significant, may reflect the increase in demanded activity that may occur at the beginning of the work week.

The majority of the injuries from patient attack were head injuries. We had observed this in our previous report, which found that injuries from patient

attack were more severe than injuries from patient containment.¹ The risk of head injury from patient attack is a substantial occupational hazard in hospital staff. Furthermore, as we discuss in a related article¹⁹ in one of the years under study (calendar year 1988), hospital staff sustained 4,291.5 lost work-days, 1,445 limited work-days and \$766,290 in Enhanced Industrial Disability Leave and State Compensation Insurance Fund costs related to injuries from patient aggression (both from attack and from containing patient violence). Ten of the 134 injuries sustained in that year were career-ending.

Seventy-four percent of injuries from attack occurred on the staff member's own ward. In our hospital, almost all the wards are unlocked, with many patients and staff sharing common indoor hospital space. This implies that staff are at relatively less risk from attack by patients unknown to them, and that the majority of attacks are inflicted by patients known to the staff member.

Our findings indicate that hospital staff not directly involved in the ward clinical management of a patient's psychiatric care have a relatively low risk of injury from patient attack. This contradicts the beliefs and fears of many non-clinical hospital employees.

As we show in this report, there is a significant risk of injury to clinical staff from patient attack in public psychiatric hospitals. Such a risk cannot help but affect the treatment programs, the patients, and the staff of these hospitals. Measures designed to reduce the risk of staff injury need to be explored and de-

veloped.¹⁸ Studies such as this, which characterize some of the factors related to staff injury from patient attack, are a useful step in developing such strategies.

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Staff Injuries from Patient Attack

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