

Hospital Violence Reduction Among High-Risk Patients

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We describe the success of one general hospital in reducing violent behavior among a group of repetitively disruptive patients. Following a pilot phase during which violent incidents at the medical center were characterized by location, type, and person responsible, a group of patients at high risk for repeated violence was identified (N = 48). Data were gathered for 1 year before and after the institution of a program designed to reduce violence, primarily in ambulatory care areas, among this group. Outcome assessment included comparison of the number of violent incidents and the number of visits to the medical center during the 12 months before and after the program was started. The number of incidents declined by 91.6%, and visits to the medical center for any reason decreased by 42.2%. The ratio of violent incidents to visits after the program was begun was less than one sixth the rate before the program. Components of the program are described, including staff resistance and management strategies.

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IN RECENT times, many hospital communities, like the community at large, have been disrupted by incidents of violence. Such incidents pose literal risk to patients and staff and sap morale. The cost of patient violence to health care institutions is measured not only in terms of lost productivity and high stress experienced by employees

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but also by real monetary risks as health care litigation escalates.¹ Despite a growing concern among hospital administrators and clinicians, training and policy to deal with such situations are frequently inadequate.²

The full extent of violence in health care settings is very difficult to measure. Separate studies in both psychiatric institutions and hospital emergency departments have shown that significant incidents are underreported by at least fivefold.³ Another survey has shown that as many as half of all human service professionals will be victims of assault sometime during their careers.⁴ Within the Veterans Administration

system of medical centers, there was a 32.9% increase in assault rates from 1978 to 1980.⁵ Violence is a problem in most types of hospitals, clinics, and nursing homes, public and private.^{6,9} Ordinarily, in medical units the extent is statistically small but noticeable; in psychiatric units and in emergency departments the problem is more pervasive.¹⁰ Reid et al⁷ surveyed 566 psychiatric and 898 nonpsychiatric beds in 16 different general and psychiatric hospitals for 1 year. The overall rates of assault were 2.54 assaults per bed per year among psychiatric units (range, 0.0 to 12.6) and 0.37 assaults per bed per year in nonpsychiatric units (range, 0.0 to 3.26). The highest rate among nonpsychiatric units was in intensive care. A recent National Safety Council study¹¹ found that patient assaults were the leading cause of injury for staff in psychiatric hospitals. Care of the sick must continue, however, even as a small minority of patients intimidate, threaten, assault, and even kill those trying to help them.

Efforts to contend with the problem of violence in health care facilities have attracted considerable attention in recent years. The use of video monitoring devices is commonplace, as is placement of silent alarms and "panic buttons."¹² Most hospitals and large clinics have security personnel, and staff training for "aggression management" is standard practice. Frequently, staff "flag" the medical records of disruptive patients with either obvious or subtle symbols; these warnings, however, may not

be known to house staff, who are often most vulnerable to attack and injury.^{4,13} The recent use of metal detectors and the prosecution of patients who have committed acts of violence while in the hospital are controversial responses.^{14,16} Finally, the clinical approach to prediction and management of violent behavior is reflected in an extensive literature that pertains to the identification of diagnostic, psychodynamic, and demographic risk factors.¹³

This report describes the success of one general hospital in reducing violent behavior among a group of repetitively disruptive patients. During a pilot phase, violent incidents were characterized by location, type, and person responsible. A group of patients at high risk for repeated violence was identified. Data were gathered for 1 year before and after the institution of measures designed to reduce violence among this group. Outcome assessment included comparison of the total number of violent incidents and number of visits to the medical center in the pretest and posttest periods.

PATIENTS AND METHODS

Measurements

The Portland (Ore) Veterans Administration Medical Center is a 708-bed major teaching hospital of the adjacent Oregon Health Sciences University. There are approximately 200 000 outpatient visits and 12 000 inpatient discharges per year, with significant patient clusters representing World War II and Vietnam-era veterans. The vast majority of patients are men.

An instrument was designed by the medical center's multidisciplinary Behavioral Emergency Committee (BEC) so employees could report incidents involving an act or threat of violence that disrupted patient care. Incidents include but are not limited to the following: (1) a patient's violent or assaultive behavior against another patient, an employee, a visitor, or Veterans Administration property; (2) a patient's use of a weapon or object with intent to harm another patient, an employee, or a visitor; (3) any code 5 incident (behavioral emergency, "overhead" page); (4)

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a patient's threat of violence against another patient, an employee, or a visitor; and (5) any situation in which a hospital or municipal police officer is present in a "standby" role. When completed properly, the report form provides information concerning the location, type, and seriousness of each incident. It also encourages the staff member to write a narrative description of the incident and to give suggestions for the prevention of similar incidents.

The BEC emphasized staff incident reporting. Even in this rather large hospital it became possible to verify the occurrence of disruptive incidents by reviewing hospital police reports, employee accident reports, and less formal routes—the "grapevine." The result was the gradual development of a reliable and credible incident reporting and review mechanism valued by hospital staff. This first phase of the project lasted nearly 2½ years.

Computerized Warnings

Through incident report analysis, the medical center's BEC began to identify patients at high risk for repeated violence. An early survey by the committee revealed that approximately 25% of disruptive patients were responsible for 38% of all incidents, including the great majority where injuries occurred or weapons were used. It was this small but disproportionately troublesome group of patients who became a focus of discussion in the monthly meeting of the BEC where the clinical and behavioral history of each patient was reviewed. If there was a pattern of seriously disruptive behavior and a consensus among committee members, a recurrent computer entry—a flag—was added to the patient's automated database within the medical center-wide computerized scheduling system. The flag was designed to alert medical staff to the patient's violence potential. When a patient who has been flagged is checked in by a clerk at a computer terminal or is scheduled for an appointment, an advisory note on the computer monitor appears, and a subtle audio signal is emitted. Clerks are trained to print these warnings and bring them to clinicians' attention before the patient is seen. The flag comprises a brief directive, eg, "Patient should be searched for weapons," "Hospital police should be asked to stand by until released by examining clinician," and, usually, a reference to a dated medical progress note that describes past difficulties with the patient. After the start of the program, interventions resulting from computerized warnings (eg, police standby) were not considered reportable incidents unless there was a disruption.

Because of the flag a nurse or physician now has the benefit of others' experience with the patient and may arrange for appropriate measures before walking into an examination room. Specific interventions may include security standby, patient confinement to one area of the hospital, a "show of force," and/or a search for weapons if justified by past weapons possession.^{5,16}

Many staff members have participated in the hospital's aggression management training and understand the importance of a coordinated team response, the principal component of successful behavioral interventions.¹⁰ Perhaps more important than any specific technique is the opportunity, provided by the flag, for the staff to develop and implement a plan.

Characteristics of High-Risk Patients

The study population consisted of 48 patients identified as high risks either before or during the 6-month inception of electronic flagging. (The BEC had been reviewing incidents for 14 months prior to initiating flagging.) All were men, with a mean age of 44.9 years (range, 28 to 73 years). The offenses that resulted in computerized warnings were categorized (Table 1). All but 3 incidents occurred in ambulatory care areas. Compared with patients who had created disturbances but were not flagged (171 patients), flagged patients were more likely to initiate a physical confrontation, carry a weapon, or both. They were also more likely to have created multiple disturbances (1.8 incidents per patient). Ordinarily, minor conduct disturbances or nonspecific verbal threats are insufficient reasons for the BEC to recommend a precautionary flag.

Most of the 44 patients with available clinical data had multiple diagnoses. Clinically, 29 (65.9%) had been given a psychiatric diagnosis, exclusive of substance abuse, within the past 3 years (Table 2). Eleven (25%) had a primary diagnosis of substance abuse and no other psychiatric diagnosis. Substance abuse was a primary or secondary diagnosis in 32 patients (72.7%). The 2 most prominent psychiatric diagnoses were schizophrenia (10 patients [22.7%]) and personality disorder (10 patients [22.7%]). There were only 4 patients (9.1%) with medical, neurologic, or surgical conditions exclusively. In the preceding 3 years, 17 (35.4%) of the high-risk patients had had no inpatient admissions. For 16 (51.6%) of the 31 patients who had been hospitalized, the most recent admission prior to flagging was to the inpatient psychiatry ward (includes substance abuse treatment). Another 8 (25.8%) were admitted to a

Table 1.—Incidents Associated With High-Risk Flagged Patients (N = 48)

Type of Incident	No. (%)
Physical assault (battery)	14 (29.2)
Physical assault with a weapon	11 (22.9)
Repeated verbal threats	8 (16.7)
Possession of firearms and/or explosives	7 (14.6)
Suicide attempt	3 (6.3)
Hostage taking	3 (6.3)
Repeated disruption	2 (4.2)

Table 2.—Diagnoses of High-Risk Patients (N = 44)

Diagnosis	No. (%) of Patients*
Substance abuse	
Substance abuse plus other psychiatric disorder(s)	21 (47.7)
Substance abuse (no other psychiatric diagnosis)	11 (25.0)
Psychiatric	
Personality disorder	10 (22.7)
Schizophrenia	10 (22.7)
Manic-depressive disorder	6 (13.6)
Posttraumatic stress disorder	4 (9.1)
Affective disorder	3 (6.8)
Other psychiatric disorder	3 (6.8)
Medical	
Gastrointestinal disorder	7 (15.9)
Cardiovascular disorder	6 (13.6)
Other medical disorder	8 (18.2)
Neurologic	
Seizure disorder	4 (9.1)
Other neurologic disorder	2 (4.5)
Surgical	
Trauma	5 (11.4)
Other surgical condition	2 (4.5)
Medical/surgical/neurologic disorder only (no psychiatric disorder)	4 (9.1)

*Most patients have multiple diagnoses.

medicine ward, and the remaining 7 (22.6%) were admitted to a surgery ward. For the hospital as a whole during fiscal year 1988, relative admissions to these services were approximately 7% for inpatient psychiatry, 60% for medicine, and 33% for surgery. High-risk patients, therefore, were 7.6 times more likely to have been psychiatric inpatients. At the time of flagging, however, only 9 patients (18.8%) were in psychiatric outpatient treatment. The high-risk group averaged 7.06 ambulatory visits to the medical center during the year before flagging compared with an overall medical center mean of 6.24 ambulatory visits per veteran that year.

Data Collection

For each high-risk patient, both the number of hospital or clinic visits and the number of disruptive incidents were determined for two periods: 1 year prior to flagging and 1 year after flagging. A review of each patient's medical record provided data on the diagnosis, number, and type of hospital visit; incident reports provided data profiling disruptive episodes. The range of incidents was one to five pretest and zero to two posttest. Six patients were excluded from the study because they had been flagged due to dangerous behavior that occurred prior to the project and had no visits during the study period. An addi-

Table 3.—Change in Incident Rates for High-Risk Patients (N=36)

	12 mo Before Flagging	12 mo After Flagging	Change	P
No. of visits				
Outpatient	226	137		
Inpatient	28	10*		
Total	254	147		
Mean	7.06†	4.08‡	Decreased 42.2%	<.05
No. of incidents				
Outpatient	44	3		
Inpatient	3	1		
Total	47	4		
Mean	1.31	0.11	Decreased 91.6%	<.001
Incidents per visit	0.185	0.027	Decreased 85.4%	<.001

*One patient had six admissions for radiation therapy.

†The medical center mean for 1986 was 6.24 visits per veteran.

‡The medical center mean for 1987 was 5.90 visits per veteran.

tional 6 medical records were not available for review, leaving 36 subjects in the study. Data were analyzed using a *t* test for related measures and a two-tailed test of significance for proportions.

RESULTS

Table 3 describes both inpatient and outpatient visits and incidents during the pretest and posttest periods. The mean number of visits to the medical center for any reason by patients at high risk for violence declined from 7.06 to 4.08 (42.2%, $P < .05$), and the mean number of incidents declined from 1.31 to 0.11 (91.6%, $P < .001$). Although 10 of these posttest visits were inpatient episodes, 6 were for a single patient who received a series of radiation treatments. The remaining 4 were equally divided between the medicine and psychiatry wards. There were no admissions to the surgery ward.

The posttest ratio of incidents to visits was less than one sixth the pretest ratio ($P < .001$). Furthermore, of the four incidents that occurred in the posttest period, only one involved patient violence. It was also the only incident involving an inpatient. A second incident occurred when an outpatient, previously flagged because of a concealed firearm, was searched and found to have a firearm. The other two incidents involved flagged outpatients who became verbally abusive. They were examined, given necessary treatment, and escorted from hospital grounds by previously alerted security staff.

We were surprised at the magnitude of the decline in reported incidents because we expected hospital staff to have greater vigilance for disruption on the part of flagged patients, and, therefore, be more likely to report an incident. Thus far, there have been no assaults on hospital staff members by any of the high-risk patients despite the fact that some patients had never previously visited the emergency department without

physically attacking a health care worker. The overall number of reported incidents throughout the medical center for the 12-month posttest period (153 overall incidents, 72 inpatient incidents) was higher than for the 12-month pretest period (114 overall incidents, 48 inpatient incidents). We attribute the overall rise primarily to increased staff familiarity with reporting procedures. There was an actual and proportional increase (12.4%) in inpatient incidents. There are several possible explanations for this. First, the inpatient areas were slower to become aware of and to use reporting forms. In comparison with high-traffic areas such as the emergency department, violence in individual inpatient wards is relatively rare. Second, we began to get frequent reports from our newly opened nursing home care unit. Finally, the computerized warning system, a major component of the violence reduction program, is only effective for previously identified high-risk outpatients.

COMMENT

Although prediction of dangerousness is difficult under most circumstances, prediction of repeated violence by a given patient in a given setting may have a higher level of certainty.¹⁷ This project first developed a mechanism for carefully tracking incidents of dangerous behavior within our hospital and clinics and then used these setting-specific data for the identification and management of high-risk patients in the same setting. Although circumstances and ethical considerations did not allow for the use of an unflagged control group, the magnitude of decrease in disruptive behavior suggests that the project had a marked beneficial effect.

Each phase of the plan entailed technical and, more importantly, social and psychological education of health care professionals. Incident reporting is essential to the identification of disruptive patients, but resistance is considerable.

Most health care workers would like to simply forget an unpleasant experience with a patient. Some staff members viewed incident reporting as an implicit admission of professional failure—particularly if they worked in an area where violence by patients was uncommon—or as disloyalty to supervisors and coworkers. Refusal to complete report forms can be psychological denial of violence expressed at an organizational level.¹⁸ The crucial antidote to denial and resistance to incident reporting was a continual effort to learn from incidents and to provide timely feedback. Follow-up of each incident, whether or not it was formally reported, provided an opportunity to solicit the opinions of those involved. When the incident was fresh in their minds, staff were more amenable to constructive suggestions or reassurance. Hospital staff are usually appreciative of the personal contact and of the opportunity to explain their perspective on the incident.

The reports are considered part of ongoing quality assurance monitoring of patient dangerousness, and completed forms are sent to the medical center's quality assurance coordinator. Because they are quality assurance documents, the report forms are protected from disclosure to a greater degree than other documents and are kept in a central location apart from the patient's permanent medical record.¹⁹ This practice facilitates data collection and confidentiality. Incident summaries, however, are also rigorously documented in patients' medical records as dated progress notes.

Like most medical information, precautionary flags are protected from general disclosure but are not concealed from patients. Some patients learn about their flags by asking clerks, physicians, or other staff members. Disgruntled patients may appeal to the medical center's patient representative or directly to the chief of staff, under whose authority flags are instituted. The warnings do not lessen a patient's medical evaluation or reduce benefits. On the contrary, patients who are violence-prone receive better and more complete medical care when their behavior is under control. The BEC has emphasized that patients are not flagged to be punished but to enable treatment to proceed in an orderly manner. Each patient flag is periodically reviewed by the BEC and may be removed if there is clear evidence of cooperative behavior.

Clinical and clerical staff have been enthusiastic about precautionary flags because the system is reliable and fast. The flags have been activated in the medical center as often as five times in a

day, most frequently in the emergency department. The "edges" provided by flags permits hospital security and other staff to be marshaled and allows a plan for averting problems to be activated. This is important because the first few minutes of patient contact are crucial in preventing later difficulties.²⁰ The mere presence of security resources, training, etc, may be insufficient unless there is the actual development and implementation of a plan.²¹

Physical violence in medical settings has been reported by others,^{7,9} but we were quite surprised by the large number of incidents involving weapons. Data provided by the Veterans Administration revealed that possession of weapons in Veterans Administration medical centers across the country was up 51.7% from 1982 (2756 incidents) to 1985 (4182 incidents).²² Total visits and admissions for this same period increased by only 10.6%. Since its inception, the precautionary warning system has resulted in the detection and confiscation of numerous knives and firearms from patients who had a history of carrying them.

Although our results may be generalizable to other medical centers, our study has some limitations. The Portland Veterans Administration Medical Center is an urban hospital with a predominantly male patient population of low to middle socioeconomic status. There may be less patient violence in other types of hospital settings or, at least, fewer patients who repeatedly create disruption. Also, since we did not establish a control group (violence-prone unflagged patients), factors other than flagging may be related to the reduction in violence. We believe this is unlikely, however, because of the lack of overall incident reduction at the medical center and because of the magnitude of decline in the high-risk patient incident rate.

The mean number of posttest ambulatory visits was less than pretest visits but was not substantially less than the medical center mean of 5.90 visits per veteran that year (1987). Perhaps some of the high-risk patients, hoping to receive scheduled drugs, priority attention in the emergency department, or another gain, had been overusing the system prior to flagging. A planned approach to these patients may have reduced an inappropriate incentive to come to the medical center. We have the clinical impression that many disruptive patients believe they are powerful and special people.²³ The personal identification created by staff response to precautionary flags may satisfy their need to be recognized without resorting to violence. They seem to prefer negative at-

tention to no recognition.

Another explanation for the decline in posttest visits is that high-risk patients were finally able to receive necessary medical treatment because their behavior was in better control. Previously, their disruptive behavior had precluded effective triage and evaluation. Consequently, they were forced to return to the hospital, perhaps many times, for treatment for the same medical problem. For the entire hospital in fiscal year 1988, the rate of rehospitalization was 1.03. For the high-risk group, the rate was 1.55 pretest and 1.0 posttest (excluding a single patient who had six admissions for radiation therapy). Thus, after flagging, rehospitalization rates for the high-risk group approximated rates for all hospital patients.

A third explanation for the decline in hospital visits is that high-risk patients, once they become aware of the flag, usually at the first visit, may simply go elsewhere for medical care. To test this, we considered a subgroup of 6 high-risk patients who made a single visit to the medical center in the posttest phase. Only 2 of the 6 did not come back. The other 4 patients have since returned 24 times. Overall, 29 (80.6%) of the high-risk patients have continued to regularly or periodically use the medical center's services.

Diffusion of responsibility for preventing and managing violence and the organizational ambiguity reflected by conflicting philosophies and procedures are themselves dangerous.²⁴ Without clear and unambiguous policies and a supportive hospital management, staff members tend to be overly concerned about unfavorable reactions of supervisors to reports of violent incidents. The prevention and management of violent behavior is a social control role that is unfamiliar, uncomfortable, and usually avoided by clinicians and administrators. Nevertheless, this study demonstrates that violence among high-risk patients may be significantly reduced in ambulatory care areas when addressed at a systems level.

Incident tracking and high-risk patient identification are only two components of our larger violence reduction initiative, described elsewhere.¹⁰ Without an organizational commitment to coordination of these components, however, the effort will be less than effective. One may track incidents for the benefit of various hospital review bodies, but without feedback to clinical staff managers who could benefit from analysis of the incidents, one only chronicles chaos. Similarly, a few hours of mandated annual staff training on techniques of restraining patients may be enlightening, but without a proactive policy that pro-

notes violence prevention and the identification of high-risk patients, these measures may prove futile or even dangerous. The entire hospital community must work together to establish an ethos that violence at the medical center is unacceptable.

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