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# SUICIDE ATTEMPTS BY HOSPITALIZED MEDICAL AND SURGICAL PATIENTS

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**Abstract** To characterize suicidal behavior among hospitalized medical and surgical patients, all suicide attempts in the Peter Bent Brigham Hospital were surveyed for seven years. Seventeen attempts occurred, none of them fatal. Only four patients were seriously ill, two with neoplasia. All the attempts were impulsive and were associated with stress and disturbances of impulse control. Anger, not depression, was the affect most often seen before the attempts. In all cases the precipitating stress was loss of emotional support. However, patient vulnerability to suicide seemed to be the key determinant. Fifteen patients had mental disorders, including eight with personality disorders, three with schizophrenia, three with organic brain syndromes, and one with manic depressive psychosis. Seven were psychotic, and six had made prior suicide attempts.

These findings suggest that the characteristics of impulsive suicide should be considered when a suicide prevention program is being developed for a general hospital. (N Engl J Med 294:298-301, 1976)

TO study the nature of the suicidal behavior that occurs among hospitalized medical and surgical patients, we surveyed the suicide attempts made by patients in the Peter Bent Brigham Hospital during the seven years from 1967 through 1973. In reconstructing each incident, we used observations and facts that were readily available at the time of the suicide attempt and that might have served as clues to the identification of the suicidal patient. We report our findings with the hope that they may contribute to suicide prevention in a general hospital.

We used four sources in our search for instances of suicidal behavior: the daily incident reports submitted by the nursing service; the records of our psychiatric consultations; the computerized file of discharge diagnoses; and the recollections of key clinical personnel. The incident reports revealed all the suicide attempts found by the other three methods. When an incident was suggestive of suicidal behavior, the records were reviewed, and staff members were interviewed. As psychiatric consultants, we were involved clinically with most of the cases and were able to supply many of the details from our own records.

A suicide attempt was defined as a willful self-destructive act. Other forms of self-destructive behavior, such as the refusal to eat or to co-operate with medical care, or the random acts of a patient with clouded sensorium, could be distinguished unambiguously from willful suicide attempts when specific cases were reviewed.

There are no psychiatric beds in the hospital. Its 330 beds are devoted exclusively to the acute care of adult medical and surgical patients. During the seven years of the study, there were 70,404 admissions and 3103 deaths.

## RESULTS

Seventeen suicide attempts occurred during the seven years of the study. None were fatal, although one attempt by jumping resulted in severe injuries. Table 1 presents data on each case.

In the overall hospital population, the sexes are evenly divided, and the average age of both male and female patients is approximately 54 years. In the series of patients who made suicide attempts, the women (average age of 32 years) were considerably younger than the men (average age of 68 years) and outnumbered the men by 13 to four. Both these trends are consistent with national statistics on suicide attempts.[1]

Ingestion and slashing were the most common forms of suicidal behavior, with seven cases of each. Six ingestions involved sedatives or hypnotics that had been used habitually by the patients before admission. The other ingestion was of povidone-iodine (Betadine) solution. Objects used for slashing included razor blades, scissors, and broken glass. Although jumping is known to be a common means of in-hospital suicide,[2] it occurred only once, possibly because the hospital is a group of low buildings.

All the attempts took place during busy times of day. Sixteen occurred between 8 a.m. and 10 p.m., with 10 of

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Table 1. Suicide Attempts at Peter Bent Brigham Hospital, 1967-1973.*

| Case No. | Age (Yr) | Sex | Medical Problem | Nature of Suicide Attempt | Psychiatric Diagnosis | Clinical Setting |
|---|---|---|---|---|---|---|
| 1 | 25 | F | Breast cancer | Overdose | ND | Treatment crisis |
| 2 | 61 | F | Myeloma | Overdose | ND | Treatment crisis |
| 3 | 71 | M | Congestive heart failure | Overdose | MD† | Surgical emergency |
| 4 | 28 | F | SLE | Jump | S†‡ | Admission |
| 5 | 20 | F | Barbiturate overdose | Slashing | S†‡ | Family visit |
| 6 | 23 | F | Burns | Ingestion | S†‡ | Staff holiday |
| 7 | 65 | M | Alcoholism | Slashing | OBS† | Dispute with staff |
| 8 | 50 | F | SLE | Hanging | OBS† | Treatment crisis |
| 9 | 70 | M | Renal failure | Slashing | OBS† | Dispute with staff |
| 10 | 31 | F | Addiction | Slashing | PD | Imminent discharge |
| 11 | 22 | F | Abdominal pain | Slashing | PD‡ | Imminent discharge |
| 12 | 23 | F | Gastrointestinal bleeding | Inhalation | PD† | Imminent discharge |
| 13 | 43 | F | Seizures | Overdose | PD | Imminent discharge |
| 14 | 38 | F | Headache | Overdose | PD | Imminent discharge |
| 15 | 21 | F | Ulcerative colitis | Overdose | PD‡ | Imminent discharge |
| 16 | 52 | F | Peptic ulcer | Slashing | PD | Dispute with staff |
| 17 | 67 | M | Arterio-sclerosis | Slashing | PD | Dispute with staff |

*SLE denotes systemic lupus erythematosus, ND no disorder, MD manic depressive, S schizophrenia, OBS organic brain syndrome & PD personality disorder.

†Psychotic at time of attempt. ‡History of previous suicide attempt.

these clustered between 3:40 p.m. and 10:00 p.m. The only night-time incident occurred at 3 a.m., during a flurry of activity focused on the sudden death of a neighboring patient.

Bed arrangements appeared to have no relation to the occurrence of suicidal behavior. Attempts were made on open wards, in double rooms, and in single rooms. Six occurred on the private service, seven on ward medicine, and four on ward surgery; none took place in specialty units, such as intensive care or coronary care.

Only four patients were gravely ill at the time they made suicide attempts. These included two with terminal cancer, one with advanced systemic lupus erythematosus, and one with renal failure. The others were in mild distress and had relatively benign medical conditions. Four had chronic problems that were not life threatening, four were undergoing diagnostic evaluations of vague functional complaints, two had addictions, one had early systemic lupus erythematosus, and two were recovering from previous suicide attempts.

Fifteen of the 17 patients had mental disorders as evidenced by history, behavior, and mental status.[3] This group included eight with personality disorders, four with major functional psychoses, and three with psychoses secondary to organic brain syndromes. The only patients without mental disorders were the two with terminal cancer. When the events preceding each incident were reconstructed, the clinical characteristics of the suicide attempts appeared to vary with the psychiatric diagnosis.

The patients with personality disorders all made suicide attempts when the validity of their medical symptoms was being challenged. Five of them had been hospitalized for the evaluation of vague complaints. As negative findings emerged, the patients' demands escalated, and the staff became increasingly rejecting. The patients had been told that there was no physical basis for their problems and were being prepared for discharge when the suicide attempts occurred. One of these patients had been discovered to be a meperidine addict. Two other patients with personality disorders had been admitted for the management of pain. They both slashed their wrists when staff members expressed disbelief of the reality of their pain and of their need for medications. A patient with ulcerative colitis had been struggling with the staff in an effort to get special care, although her disorder was improving. She was on the verge of discharge after an angry confrontation when she took an overdose of aspirin. All these patients had become adversaries of the ward staff and of their physicians. At the same time, as indicated by their past behavior, they were unusually dependent on medical relationships for emotional support. Three of them had made previous suicide attempts during similar struggles with medical personnel.

The patients with major functional psychoses attempted suicide during periods of agitation and acute psychosis. Each patient appeared to be reacting to an interpersonal disturbance, and each suicide attempt was associated with anger. A young woman with a three-year history of schizophrenia was being hospitalized for incipient systemic lupus erythematosus. Her husband interpreted this diagnosis to mean that she had no mental disorder. In a rage he fired her psychiatrist and announced that he would seek a divorce. During the week before admission, she made six minor suicide attempts. Upon admission, she was tense and agitated. While being interviewed by the house officer, she suddenly jumped through an open window. Another young woman with schizophrenia smashed a window and slashed her wrist shortly after an angry interview with her mother. She had been admitted three days previously for a barbiturate overdose. After her mother left, she became increasingly agitated. While talking to a nurse, she suddenly lunged at the window. The third young woman with schizophrenia was recuperating from self-inflicted burns incurred two months previously. She had made close relationships with members of the ward staff. On July 4, when her favorite staff members were away, she expressed feelings of abandonment and anger. Auditory hallucinations recurred as voices telling her to die. While a nurse was attending her dressings, she drank from a basin of povidone-iodine. All three of these patients had made previous suicide attempts. The man with manic depressive psychosis had been admitted for mild congestive heart failure. On the third hospital day, after he had received amitryptiline for chronic, mild depression, acute urinary retention developed. Upon learning that the emergency was probably due to his medications, he became delusional and expressed the belief that the hospital

was contaminated. With this development, his usual dependent, obsequious manner changed suddenly to open anger at his doctors. His agitation increased, and shortly after seeing the doctors on rounds, he took an overdose of sodium pentobarbital.

The suicide attempts by the three patients with psychoses secondary to organic brain syndromes also occurred while the patients had signs of increasing psychic turmoil. In each case the turmoil was related both to physical distress and to a disturbing interaction with the medical staff. A man with psychosis secondary to chronic alcoholism complained of abdominal pain, insisted he had a liver abscess, and demanded immediate surgical drainage. When his physician tried to calm him down, he became increasingly angry, and a few moments later slashed his abdomen with a razor blade in an apparent attempt to perform the operation himself. A woman with advanced systemic lupus erythematosus became psychotic as her condition worsened. Her physicians decided to reduce her steroids, although they told her they could not decide whether her psychosis was due to lupus encephalopathy or to the steroids themselves. Later, she told the nurse she was being abandoned because her case was hopeless. Then, she attempted to hang herself in the bell cord. A man with chronic renal failure acquired a toxic psychosis and refused to go on with hemodialysis because of delusional concepts about the treatment. When his angry protests were ignored, he made cuts around his shunt with a razor blade.

The two patients without mental disorder had terminal cancer. Both made suicide attempts when they found that specific treatment programs were failing and when staff attitudes changed from optimism to discouragement. Although each knew her prognosis was hopeless, both had been stoical and cheerful until just before the suicide attempts, when both showed sudden changes of mental status. The young woman with breast cancer had maintained a cheerful relationship with the staff in spite of her discomfort. On the day she learned that her chemotherapy regimen was not working, she became withdrawn and took a large overdose of diazepam. The woman with myeloma was known for her bravery. She had been admitted because of back pain. When she was told that radiotherapy was to be started because the chemotherapy program she had been on was not working, she suddenly changed from being friendly and co-operative to being angry, accusatory, and resistant. Much to the surprise of the nurses, she struggled with them when they attempted to take her to the radiotherapy department. While they went for help, she took an overdose of methyprylon (Noludar).

## Discussion

All the suicide attempts that occurred in the hospital during the seven years of our study were impulsive acts; none of the patients gave warnings, left notes, expressed suicidal thoughts, or appeared to be seriously depressed. In none of the cases was immediate suicide risk suspected by the staff, perhaps because the factors often thought to be associated with suicide risk were not evident.

Impulsive suicide is usually associated with stress and with conditions that impair impulse control. In most cases, a pre-existing susceptibility makes a patient vulnerable to suicidal impulses during stressful situations and even under extreme circumstances only certain patients will resort to suicidal behavior. Instead of depression, impulsive suicide is preceded by increased psychic tension, leading to the breakdown of controls and the emergence of impulsive behavior.

In each of the suicide attempts that we studied, the patient gave signs of rising tension, as anger, agitation, acute psychosis, or sudden change of mood, and each episode was associated with stress. Instead of the stresses directly related to illness, such as pain, disability, or hopelessness, the suicide attempts seemed to be precipitated acutely by loss of emotional support. In 15 cases this loss involved disruptions in relations with medical personnel; in two there was overt conflict with key family members.

However, the susceptibility of the patient appeared to be the key determinant of suicidal behavior. In our series, the most frequent source of vulnerability was the presence of a mental disorder. Each of the three classes of mental disorders found among these cases is associated with diminished impulse control and with increased sensitivity to interpersonal stress.

Patients with personality disorders, the largest group in our series, characteristically have lifelong histories of unsatisfactory relationships, low frustration tolerance, and poor impulse control. They often turn to the medical world for stability and gratification; thus, their medical relations become charged with emotional tension. Their demands and physical symptoms may hide desperate needs, and when the validity of their status as patients is questioned, they may react impulsively.

Psychotic patients are highly vulnerable to the effects of interpersonal conflict, especially when loss of support is involved. They also have impaired impulse control. Acute functional psychoses reflect intense inner tension, and apparently minor events may trigger precipitous action. In the psychoses secondary to organic brain syndromes, impulse control is impaired as the direct result of the disturbance of sensorium. However, the sensitivity of such patients to interpersonal events, even when they are suffering from dementia, is often underestimated.

Other reports indicate that terminal cancer may increase the risk of suicide.[4] However, we were impressed to find only two patients with cancer in our series, although many with hopeless conditions or intractable suffering were managed in the hospital during the seven years of the study. Apparently, there was something unusual about these two patients, although their specific vulnerabilities to suicidal impulses were not clear from our data. In retrospect, their use of denial seemed extreme. Perhaps the cheerful, stoical states that both patients had maintained in the face of hopeless reality had isolated them from the emotional supports that would otherwise have been available from staff and family, and thus actually made them more vulnerable to the impact of despair and rage when the denial was suddenly broken.

There may be other vulnerable groups within a hospital population. Specific medical conditions have been associated with suicide risk, including hemodialysis,[5] urologic operations,[6] hyperadrenal syndromes[7] and others.[8] Our series included two patients with systemic lupus erythematosus, a relatively rare disease in our hospital. Perhaps such factors as central-nervous-system involvement, steroid therapy, and the depressive implications of a chronic disease combine in that disorder to create suicide risk. It is well known that prior suicide attempts indicate suicide risk,[1] and the six patients in our series who had made prior suicide attempts constitute another vulnerable population.

Our findings have implications for suicide prevention in a general hospital. Effective prevention depends upon the early recognition of suicidal patients. In our series, suicide risk was associated with vulnerability, especially impaired impulse control, stress, especially loss of emotional support, and increased psychologic tension. These risk factors suggest some specific preventive measures.

The proper management of mental disorders can reduce suicide risk. Psychoses are often undertreated in a general hospital. Antipsychotic medications can be used safely in most medical situations, and the value of interpersonal treatment, even for psychoses secondary to organic brain syndromes, is often underestimated by the medical staff. Patients with personality disorders are likely to present management problems during hospitalization. The risk of impulsive behavior can be reduced if confrontation with the patient is avoided and if continuity of care is ensured in spite of interpersonal difficulties between the medical staff and the patient.

The association between disruptions of therapeutic relations and suicidal behavior seen in our series suggests that attention to the alliance between the patient and the medical staff is an important preventive measure. It also follows that the quality of the patient's relationships is a sensitive sign of risk.

Emergency suicide precautions are indicated whenever a vulnerable patient shows a sudden change in mental status, especially when in a previously compliant patient, anger or paranoid attitudes toward the staff develop. Jumping is one of the most dangerous forms of impulsive behavior available to patients in a hospital. All suicidal patients should be removed to a safe area. It is more difficult to eliminate the possibility of overdose or slashing without compromising medical care and rights to privacy. Acute tension states respond well to antipsychotic medications. The presence of a protective person during acute suicidal tension is essential, not only to monitor the patient but to supply emotional support.

In reporting our survey, we have not attempted to explain in depth the specific reasons for individual suicide attempts. The dynamics of suicide are often enigmatic, even when extensive data are available. Instead, we have tried to identify patterns of behavior that will help alert the staff of a general hospital to the patients who are at risk. Because such patterns may vary with the institution and with the patient population, it might be useful for general hospitals to keep registries of suicide attempts, much as they do for other untoward events that reflect problems in the hospital environment and in the system of care.

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"All SA's were impulsive. (They) seemed to be precipitated acutely by loss of emotional support.

"Susceptibility of the pt appeared to be the key determinant -- the most frequent source of vulnerability was the presence of a mental disorder (1-manic-depressive, 3-schizophrenic 3-organic brain synd, 8-personality disorder, 2-no disorder)

Precipitants: 3 - Treatment crisis
4 - Dispute ē staff
6 - Imminent discharge
1 - Staff holiday
3 - Family visit, admission, surgery