

BRIEF REPORT

Patients Discharged Against Medical Advice from a General Medicine Service

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This study compares the demographic features and hospital course of all 472 patients discharged against medical advice from the general medicine service of an urban teaching hospital between 1984 and 1995 and 1,113 control patients discharged with physician approval. In the multivariate analysis, younger age (odds ratio [OR] 0.97 per year; 95% confidence interval [CI] 0.96, 0.98), male gender (OR 1.9; 95% CI 1.4, 2.4), lack of health insurance (OR 2.0; 95% CI 1.3, 3.1), Medicaid applicant or recipient status (OR 2.2; 95% CI 1.6, 3.1), admission through the emergency department (OR 2.2; 95% CI 1.4, 3.5), and lack of a personal attending physician at the time of admission (OR 2.1; 95% CI 1.6, 2.8) increased the odds of discharge against medical advice. Fifty-four percent of patients who left against medical advice were readmitted to the hospital during the study period; 98% were then discharged with physician approval. Patients who left the hospital against medical advice included many disadvantaged individuals without ongoing primary care.

KEY WORDS: discharge against medical advice; disadvantaged patients; Medicaid; readmission.

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Patients who leave the hospital against medical advice have interested physician researchers since the 1960s, when investigators documented rates of such discharge as high as 20% among psychiatric patients.¹⁻⁴ Among patients in acute care hospitals, researchers reported rates of discharge against medical advice of 0.4% to 4.4%, suggesting that there are at least 123,000 and possibly as many as 1.36 million such hospital discharges per year in the United States.^{5,6} Characterizing these patients is difficult; most previous studies have been restricted to small retrospective series or special populations that are difficult to generalize.⁵⁻¹⁰

Hospital discharge against medical advice may represent a failure of medical care. Though regarded widely as a problem of noncompliance, patients who leave against

medical advice include many financially disadvantaged individuals and those with a substantial burden of drug and alcohol use.⁶⁻¹³ Clinicians' frustration with patients' failure to follow treatment recommendations may be the result of underlying problems with access to medical care among disadvantaged groups.

To test the hypothesis that patients who leave the hospital against medical advice have limited access to care, we set out to describe the demographic and clinical characteristics of such patients. We sought to characterize the hospital course of patients who left against medical advice, to determine if the proportion of these patients changed over time, and to measure their recidivism.

METHODS

Study Site

Boston's Beth Israel Hospital is a community-based teaching hospital and tertiary care referral center that provides medical, surgical, psychiatric, obstetric, and gynecologic care to more than 25,000 patients admitted overnight annually. Renamed the Beth Israel Deaconess Medical Center following a 1996 merger, the hospital is served by a clinical computing system that stores a variety of administrative and clinical data on inpatient admissions since 1984.^{14,15}

Sample Selection

We identified 81,439 admissions to the Beth Israel Hospital medical service from January 1, 1984, to December 31, 1995. We excluded 4,777 patients who died in the hospital. Of the remaining 76,662 admissions, 472 case patients accounted for 579 discharges against medical advice. To prevent double-counting patients with multiple admissions resulting in discharge against medical advice, a single index discharge was selected at random for these patients. We chose the individual patient rather than hospital discharge as the unit of analysis to reflect our hypothesis that certain individuals are particularly vulnerable to be discharged against medical advice.

We selected 1.5% of the remaining 76,083 admissions to the medical service at random to create a control group of 1,141 patients representing 1,142 discharges with physician approval. Twenty-seven patients (accounting for 28 discharges) had a history of discharge against

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medical advice and had already been designated as case patients. One control was excluded because there was inadequate information to confirm that the patient left with approval. The final control group numbered 1,113 patients.

Data Elements

Data on age, gender, racial or ethnic background, admission and discharge date, type of insurance, and source of admission were downloaded from the computing system. Patients with no physician, patients cared for by housestaff at the hospital-based practice, and patients with physicians without admitting privileges to Beth Israel were classified at the time of admission as "house patients" and were cared for by the attending physician and housestaff teams assigned to the patient's ward.

Using standard classification criteria, *International Classification of Diseases, 9th edition, Clinical Modification* (ICD-9-CM) codes for the patient's principal discharge diagnosis are assigned by medical records staff after chart abstraction. Because the ICD-9-CM system includes many narrowly defined categories that include few patients each, we aggregated contiguous diagnosis codes in appropriate cases into higher-order diagnoses. For example, we included conduction disorders together with cardiac dysrhythmias (ICD-9-CM codes 426.0–427.9). Eighty-one distinct ICD-9-CM codes among case patients and 108 codes among control patients were aggregated into 20 higher-order diagnoses.

Statistical Analysis

We compared characteristics of case and control patients using χ^2 and Wilcoxon Rank-Sum Tests as appropriate. We used multivariate logistic regression to model the correlates of discharge against medical advice. We included in the analysis each characteristic that was significant ($p < .05$) in bivariate comparisons, and we constructed a final model using backward elimination. We report odds ratios (ORs) and confidence intervals (CIs) from this model.

RESULTS

Patient Profile

Compared with controls, patients who left the hospital against medical advice were younger, more often African American, and included a greater proportion of males, individuals without insurance, Medicaid applicants or recipients, and individuals with no personal attending physician (see Table 1). The most frequent principal diagnoses for patients discharged against medical advice were chest pain ($n = 31$), pneumonia ($n = 29$), and alcohol-related diagnoses ($n = 28$). Physicians obtained a blood alcohol level on 44 (9.3%) of the patients discharged against medical advice and 9 (0.7%) of the controls.

Table 2 presents the results of the multivariate analysis. Male gender, Medicaid status, self-insurance, emergency department admission, and lack of a personal attending physician all conferred an increased odds of discharge

Table 1. Selected Characteristics of Patients Discharged Against Medical Advice, Beth Israel Hospital Medical Service, 1984–1995

Patient Characteristics	Against Medical Advice (n = 472)	With Approval (n = 1,113)	p Value*
Age, median years (25–75th percentile)	43 (33–59)	67 (45–81)	<.001
Gender, n (%)			<.001
Male	311 (65.9)	513 (46.1)	
Female	161 (34.1)	600 (53.9)	
Race/ethnicity, n (%)			<.001
White	317 (67.2)	856 (76.9)	
African American	119 (25.2)	133 (11.9)	
Hispanic	4 (0.8)	12 (1.1)	
Asian	11 (2.3)	15 (1.3)	
Unknown/other	21 (4.4)	97 (8.7)	
Payer status, n (%)			<.001
Blue Cross	56 (11.9)	155 (13.9)	
Commercial insurance	57 (12.1)	143 (12.8)	
Medicare	138 (29.2)	594 (53.4)	
Medicaid or Medicaid pending	126 (26.7)	106 (9.5)	
Self-pay	84 (17.8)	50 (4.5)	
Other	11 (2.3)	65 (5.8)	
No personal attending physician, n (%)	229 (48.5)	196 (17.6)	<.001
Admitted to emergency department, n (%)	445 (94.3)	896 (80.5)	<.001
Length of stay in hospital, median days (25–75th percentile)	2 (1–4)	5 (2–9)	<.001
Blood alcohol level measured, n (%)	44 (9.3)	8 (0.7)	<.001

*Tests were χ^2 for categorical variables and Wilcoxon Rank-Sum for continuous variables.

against medical advice. The odds of such discharge decreased with advancing age. Patients whose principal discharge diagnoses were syncope or fever of unknown origin were at increased risk for such discharge. The association of discharge status with racial background or alcohol-related diagnoses was not significant after adjusting for other factors.

Hospital Course

Median length of stay was 2 days for case patients and 5 days for control patients. Forty percent of patients discharged against medical advice left the hospital within 1 day of arrival, compared with 14.7% of control patients; 87% of case patients and 67.5% of control patients left within 7 days. Nevertheless, 43 patients discharged against medical advice were readmitted to the hospital within 1 day (9.1%), compared with 14 control patients (1.3%); 66 (14.0%) of the case patients and 81 (7.3%) of the control patients returned within 7 days ($p < .001$).

Secular Trends

Patients discharged against medical advice were no more likely than patients discharged with approval to be admitted or discharged during any given day of the week, season, or month of the year. The proportion of patients discharged against medical advice increased from 0.4% in 1984 to 0.8% in 1995. Though there was a statistically significant trend in the number of such discharges by year (OR 1.1; 95% CI 1.0, 1.1) in the univariate analysis, this trend was not statistically significant in the multivariate model. The average rate of discharge against medical advice from the medicine service (0.8%) was greater than that from every other clinical service with the exception of psychiatry (2.9%).

Recidivists

Of the 472 patients discharged against medical advice during the study period, 73 patients left against med-

ical advice on two or more occasions. These recidivists accounted for 15.4% of the 472 patients discharged against medical advice and 33.2% of the 598 discharges against medical advice. Patients who left against medical advice on the index admission were overwhelmingly likely to be discharged *with* approval on the next subsequent admission (91.7% of recidivists and 98.7% of nonrecidivists). There was no difference in gender, age, race, or personal attending physician between recidivists and patients with a single discharge against medical advice. Medicaid recipient status was the only statistically significant association with recidivism (OR 2.6; 95% CI 1.3, 5.0).

DISCUSSION

This case-control study presents the largest longitudinal series to date of patients discharged against medical advice from the medical service of an acute care hospital. We found that important correlates of leaving the hospital against medical advice were being young, male, not having an attending physician, having received or applied for Medicaid, and having no health insurance. Hospital utilization by these patients was characterized by abbreviated lengths of stay and frequent readmission to the same hospital within 1 week of discharge. Patients with single and multiple discharges against medical advice differed only in the higher proportion of recidivists who received or applied for Medicaid.

This study has several limitations. As a single-institution study, its generalizability may be limited to similar hospitals. We could not identify patients who left the hospital against medical advice and later were admitted to another hospital, or patients who left our institution with approval after discharge against advice elsewhere. A related problem was our inability to identify individuals who threatened to leave against medical advice and were discharged with approval, or those who threatened to leave and were convinced successfully to remain. In addition, as the criteria for discharge against medical advice may be applied inconsistently, the use of this discharge status may vary among health care providers. Finally, an analysis restricted to patients' primary (but not secondary) diagnosis codes may have underestimated the number of patients with alcoholism, drug abuse, and comorbid psychiatric illness reported in earlier studies.^{6,7,10,12,16}

The study raises two important issues. First, interventions to reduce the incidence of patient discharge against medical advice^{17,18} may be difficult to design given the abbreviated hospital course of these patients. It will be difficult to develop targeted interventions because the only distinguishing feature among patients with multiple discharges against medical advice is that a higher proportion received or applied for Medicaid. Second, the assumption that patients who leave against advice reject medical care merits critical examination. These patients are frequently readmitted to the same hospital. Clinicians

Table 2. Multivariate Analysis, Beth Israel Hospital Medical Service, 1984–1995

Variable	Odds Ratio (95% CI)
Age (per year increase)	0.97 (0.96, 0.98)
Male gender	1.9 (1.4, 2.4)
Payer status*	
Medicaid or Medicaid pending	2.2 (1.6, 3.1)
Self-pay	2.0 (1.3, 3.1)
No personal attending physician	2.1 (1.6, 2.8)
Admitted to emergency dept.	2.2 (1.4, 3.5)
Diagnoses	
Syncope	3.7 (1.7, 7.8)
Fever of unknown origin	3.0 (1.1, 7.9)

*Referent group is Medicare.

who dismiss or reject patients who leave against medical advice are potentially misinformed about this phenomenon and liable to misjudge these patients' motivations and needs. A patient who leaves the hospital against medical advice may be unable to accept hospital care at the time, but may be able to do so after addressing other needs. The challenge for health care professionals is to broaden the terms of engagement in a way that both preserves professional standards of care and increases the access of patients with limited personal or financial resources. Ironically, these difficult-to-care-for patients may be precisely those most in need of care.

REFERENCES

1. Muller DJ. The "missing" patient: a survey of 210 instances of absconding in a mental hospital. *BMJ*. 1962;1:177-9.
2. Meyer GG, Margolis PM, Daniels RS. Hospital discharges against medical advice, II: outcome. *Arch Gen Psychiatry*. 1963;8:131-8.
3. Daniels RS, Margolis PM, Carson RC. Hospital discharges against medical advice, I: origins and prevention. *Arch Gen Psychiatry*. 1963;8:1-130.
4. Withersty DJ. Patient responsibility and the AMA discharge: a one-year follow-up study. *Am J Psychiatry*. 1977;134:1442-4.
5. Jeffer EK. Against medical advice, part I and II. *Mil Med*. 1993;158:69-76.
6. Jones AA, Himmelstein DU. Leaving a county hospital against medical advice. *JAMA*. 1979;242:2758. Letter.
7. Schlauch RW, Reich P, Kelly MJ. Leaving the hospital against medical advice. *N Engl J Med*. 1979;300:22-4.
8. Corley MC, Link K. Men patients who leave a general hospital against medical advice: mortality rate within six months. *J Stud Alcohol*. 1981;42:1058-61.
9. Long JP, Marin A. Profile of patients signing against medical advice. *J Fam Pract*. 1982;15:551-6.
10. Letterie GS, Markenson GR, Markenson MM. Discharge against medical advice in an obstetric unit. *J Reprod Med*. 1993;38:370-4.
11. Jankowski CB, Drum DE. Diagnostic correlates of discharge against medical advice. *Arch Gen Psychiatry*. 1977;34:153-5.
12. Jeremiah J, O'Sullivan P, Stein MD. Who leaves against medical advice? *J Gen Intern Med*. 1995;10:403-5.
13. Link K, Brody CE, Chan J. Leaving a medical service against medical advice. *Virginia Medical*. 1983;110:100-2.
14. Bleich HL, Beckley RF, Horowitz GL, et al. Clinical computing in a teaching hospital. *New Engl J Med*. 1985;312:756-64.
15. Safran C, Porter D, Lightfoot J, et al. Clinquery: a system for on-line searching of data in a teaching hospital. *Ann Intern Med*. 1989;111:751-6.
16. Ochitill HN, Havassy B, Byrd RC, et al. Leaving a cardiology service against medical advice. *J Chron Dis*. 1985;38:79-84.
17. Holden P, Vogtsberger KN, Mohl PC, et al. Patients who leave the hospital against medical advice: the role of the psychiatric consultant. *Psychosomatics*. 1989;30:396-404.
18. Targum SD, Capodanno AE, Hoffman HA, et al. An intervention to reduce the rate of hospital discharges against medical advice. *Am J Psychiatry*. 1982;139:657-9.

