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Homelessness and discharge delays from an urban safety net hospital

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Abstract

Objectives—Homelessness is associated with increased morbidity and mortality, as well as increased rates of hospitalizations. Once hospitalized, homeless patients have longer hospital stays than housed persons, and hospital costs have been found to be increased for homeless patients. We sought to describe hospital discharge delays for nonmedical reasons and their relationship to the housing status of participants.

Study Design—Retrospective chart review of admissions and discharges between January 1 and June 30, 2009 at a large, urban safety net hospital.

Methods—All inpatients who experienced discharge delays for nonmedical or external causes were participants, and the main measures included length of and reasons for discharge delay.

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Ethical considerations: This research is considered exempt by the Institutional Review Board of the University Of Minnesota

Conflict of interest: None of the authors have any COI to report.

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Results—Persons identified as homeless constituted 106 (42.9%) of the discharge delays. Homeless patients were younger, more likely to be male, and more likely to be uninsured than housed patients. The unadjusted median number of delay days was significantly longer for homeless (8 days) than housed patients (4 days) ($p<0.001$). Multivariate analyses demonstrated that homeless patients without a psychiatric diagnosis had 60.1% longer discharge delays than housed patients without a psychiatric diagnosis ($p=0.011$).

Discussion—Among patients without psychiatric diagnoses who are medically ready for discharge, homeless patients experience more frequent and longer discharge delays than housed patients. Medical respite care has the potential to decrease unnecessary hospitalization days and improve access to after-hospital services that have proven to be beneficial for this population. Further prospective study of discharge delays may help to establish the cost-effectiveness of respite care.

Keywords

homelessness; hospitalization; respite care; utilization

Homelessness in the United States is associated with increased morbidity and mortality¹, but relatively little data exist on the processes, structures, and outcomes of health care delivery in this vulnerable population. Individuals experiencing homelessness are hospitalized at higher rates than housed individuals² and have longer hospital stays attributed to greater morbidity, delayed presentation and need for acute inpatient services among this population². Not surprisingly, hospital costs are increased for homeless patients in the U.S.³ and Canada⁴. A Canadian study, however, correlated the greater hospital costs to longer stays while not needing acute inpatient services; their conclusions cited the lack of acceptable discharge options available⁴. The goal of this study was to determine whether homeless patients no longer in need of acute inpatient care had longer hospitalizations than domiciled patients no longer in need of acute inpatient care in the US, with a different system of care and coverage than Canada, but with the same lack of safe discharge options for homeless persons. A secondary aim was to identify causes of these delays. The study was a retrospective chart review of all admissions between January 1, 2009, and June 30, 2009, at a safety net hospital, which is the largest provider of healthcare to homeless persons in Minnesota. We examined all charts defined by the hospital as “discharge delays for external reasons,” out of a total of 12,794 discharges for the time period. “Discharge delays for external reasons” is an operational definition used by the hospital’s Department of Utilization Management to identify hospitalizations that no longer meet acute inpatient criteria or care needs. Housing status was extracted from the chart, and the main outcome variables of interest were days of discharge delay and reasons for this delay. The theoretical model underlying this study is the Gelberg-Andersen behavioral model for vulnerable populations⁵. Covariates included in our analyses (Table 1) were derived from the Gelberg-Andersen model as pre-disposing factors. Insurance status and psychiatric diagnosis were measured as independent variables and represent enabling and needs variables respectively in the Gelberg-Andersen model. Descriptive statistics were computed by housing status. A Mann-Whitney-Wilcoxon test was used to compare the medians of continuous variables between housed and homeless patients. A Pearson’s Chi-square test was used to test

independence between categorical variables and housing status. Multivariable linear regression was used to test whether patients' housing status was associated with discharge delay and whether this association differed by psychiatric diagnosis. After examining the distribution of the discharge delay days and the residuals from a linear regression on discharge delay days, a log transformation of the discharge delay days was used as the outcome in the linear regression. The multivariable model included housing status, age, age-squared, sex, race, insurance status, delay reason (as chemical dependency placement, other/unknown/non-placement, RTC/other inpatient, and group home/nursing home placement), and psychiatric diagnosis. In addition to these items, an interaction between housing status and psychiatric diagnosis was included in the model to test whether the association between housing status and discharge delay differed by psychiatric diagnosis. To address missing variables, means for the coefficients were computed, and no significant change was observed. A total of 247 charts were identified as having a discharge delay for nonmedical reasons based upon study inclusion criteria (2% of total admissions); of these, 106 charts (42.9% of discharge delays) were identified as homeless patients. Among homeless patients, 34% identified as African-American and 44% identified as Caucasian, compared to 23% and 50% of the housed patients, respectively ($p=0.135$, Table 1). Housed patients were more likely to have insurance than homeless patients (96% vs. 87%, $p=0.005$, Table 1). The most common reason for discharge delay for homeless patients was group or nursing home placement (50%), followed by other (20%), chemical dependency (CD) placement (17%), and awaiting regional treatment center (RTC) placement (12%) (Table 1); there was no statistically significant difference in delay reason for housed and homeless patients. The unadjusted median number of delay days was significantly longer for homeless (8 days, interquartile range [IQR] 4.0–15.0) than housed patients (4 days, IQR 2.0–9.0) respectively ($p<0.001$). Median length of stay was also longer for homeless patients (26 days, IQR 14–41) than housed patients (14 days, IQR 9.0–25.2, Table 1). Multivariable analysis demonstrated that, for patients without a psychiatric diagnosis, homeless patients had discharge delays that were 60.1% (0.47 log-delay days) longer than housed patients, after adjusting for age (including age-squared), race, sex, insurance status, private address, and delay reason ($p=0.011$). Length of delay was not significantly different for patients with a psychiatric diagnosis ($p=0.433$). In our study, we found that among patients whose discharge is delayed for nonmedical indications, homeless patients spend approximately four more days in the hospital. When adjusting for age, race, sex, insurance status, private address, and delay reason, discharge delays are 60.1% longer for homeless patients. We also found that “other” placements – a category that could include shelter placement, intensive medication management, post-discharge follow-up requirements, awaiting healthcare coverage/benefits, and transportation delays – lead to a shorter delay than waiting for CD, group home, or nursing home placement. Observed differences in delay days did not occur for inpatient admissions with a primary psychiatric diagnosis between homeless and housed patients. Previous studies have found homelessness to be associated with longer hospitalizations^{3,4}. However, we focused specifically on the increased hospital days that occurred after the patients were medically ready for discharge, and not simply total days in hospital. Our results support the findings from a Canadian study, which reported that homeless patients spend more time in alternate level of care (ALC) settings than housed patients on medical and surgical services⁴; ALC patients in that study were determined by their healthcare

providers to no longer need inpatient care. This study illustrates that discharge delays can occur after hospitalization is no longer medically necessary -- at both higher rates and for longer periods -- among homeless persons in one Midwestern urban safety net hospital in a country without universal coverage (the U.S.), as well as one hospital in a country with universal coverage (Canada). One might expect that the pressures to find alternatives to continued hospitalization for those no longer needing acute services might be greater in the U.S. than in Canada; however, we did not find this to be the case. Our observation that discharge delays are similar for both homeless and housed patients with primary psychiatric admissions parallels the findings in a Canadian hospital⁴. It also complements prior literature showing that hospitalization for mental illness results in a longer average length of stay, and that psychiatric admissions result in higher rates of inappropriate bed use⁶. The discharge difference in our study between homelessness and being housed did persist for those with psychiatric diagnoses, perhaps reflecting greater difficulties in finding adequate placement for all patients with psychiatric diagnoses. Our results support a growing body of literature that demonstrates the need for a safe discharge alternative for homeless patients. Health care providers taking care of homeless patients may often face a host of unpalatable and unsafe options when discharging patients no longer in need of acute services. One study, for example, found homeless persons were frequently discharged to shelters or the streets, often after dark with no transportation⁷— these would not be considered safe options in the vulnerable period after acute hospitalization. Our study demonstrated that among nonpsychiatric hospitalized patients, homeless persons no longer in need of acute services had more frequent and longer discharge delays, perhaps because of this lack of suitable discharge options. One option frequently discussed is medical respite care, which is broadly defined as “acute and post-acute medical care for homeless people too ill or frail to recover from illness or injury on the street, but not ill enough to be in a hospital”⁸. Medical respite has been shown to decrease inpatient days⁹ and to equalize length of hospitalization with that of housed patients¹⁰, but these results may reflect greater morbidity and need for acute inpatient care in those studies. It is not clear whether availability of appropriate respite care would necessarily address the concern identified by our study – longer hospitalizations among individuals no longer needing inpatient care - by providing a safe alternate to discharging to the streets or to a shelter, but our data would appear to demand further study on respite care to address this discharge disparity. We were also able to identify specific reasons for discharge delays in our study. One important finding is that “other” reasons for delay in our study (e.g., shelter placement, awaiting healthcare coverage/benefits, transportation delays) resulted in a shorter discharge delay than group home or nursing home placement. The major limitation of this study is our limited geographic range, as these results may not be applicable to other locations. Another limitation was the significant demographic differences between the control and study groups, though we controlled for those differences in the multivariate analysis. One strength of this study is that the medical team did not determine the categorization of patients as discharge delayed, and thus was not likely to influence the length of delay measured.

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Table 1

Descriptive statistics for cohort and by housing status.

	Overall	Homeless	Housed	P-value
N	247	106	141	
Age, y	49 [36, 60] 47.9±16.1	43.5 [29.2, 51.8] 42.3±13.9	53.0 [39.0, 65.0] 52.0±16.4	<0.001 --
Female	39% (97)	27% (29)	48% (68)	<0.001
Ethnicity				0.135
African American	28% (68)	34% (36)	23% (32)	
Caucasian	47% (117)	44% (47)	50% (70)	
Other	25% (62)	22% (23)	28% (39)	
Insured	92% (226)	87% (92)	96% (134)	0.005
Private Address	81% (190)	73% (72)	86% (118)	0.015
Delay Reason				0.445
Group Home/NH Placement	52% (126)	50% (52)	52% (74)	
CD Placement	14% (34)	17% (18)	11% (16)	
Other/Unknown/Non-placement	24% (58)	20% (21)	26% (37)	
RTC/Other Inpatient	11% (26)	12% (12)	10% (14)	
Psychiatric Diagnosis	43% (107)	62% (66)	29% (41)	
Delay Days	7 [2, 12] 9.1±10.0	8 [4, 15] 11.4±10.6	4 [2, 9] 7.5±9.2	<0.001 --
Length of Stay	18 [10, 32] 24.2±19.7	26 [14, 41] 30.7±22.5	14 [9, 25.2] 19.3±15.6	<0.001 --
Encounters within 90 days	0 [0, 1] 1.0±1.6	0 [0, 1] 1.0±1.7	0 [0, 1] 1.0±1.4	0.683 --

* Continuous measures are median [quartile 1, quartile 3] along with the mean ± standard deviation. Categorical measures are percents (counts). Medians were compared using a Mann-Whitney-Wilcoxon Test and frequencies were compared using Pearson's Chi-Square Test.