Insurance Status and Length of Stay for Involuntarily Hospitalized Patients

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Abstract

General and private psychiatric hospitals are becoming increasingly common as sites for involuntary hospitalization. Unlike the public facilities that these settings are supplanting, these hospitals must pay strict attention to issues associated with reimbursement, insurance status, and managed care. This article examines the effects of insurance status on length of stay for involuntarily hospitalized patients in general and private hospitals in Massachusetts. Using a two-stage sampling procedure, data on episodes of involuntary hospitalization were gathered and assessed using multiple regression. The primary effect was found between patients with Medicare, who had the longest stays, and individuals who were uninsured, who had the shortest. The data raise concerns that warrant closer scrutiny on the part of administrators and clinicians.

Introduction

Involuntary hospitalization has long been a feature of the treatment of persons with severe mental illness. The statutes regulating this practice in most states were promulgated in the late 1960s and early 1970s, when civil commitment most commonly occurred in public mental hospitals.

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As privatization of mental health services has proceeded, general hospitals and private psychiatric hospitals have replaced public facilities in many states as the principal sites in which involuntary hospitalizations occur. As managed care and reimbursement issues have come to play an increasingly important role in regulating the provision of all forms of health care, particularly hospital admission and length of stay, the effects of these factors have come to coexist with those of civil commitment. This study takes advantage of recent privatization and managed care initiatives in Massachusetts to examine whether and how the insurance status of civilly committed patients affects their length of stay in privately operated hospitals.

Background

In 1969 the California legislature passed the Lanterman-Petris-Short (LPS) Act, imposing dramatic restrictions on the practice of involuntary hospitalization of the mentally ill in that state.[1,2] Within a decade, every state in the nation would follow suit. While states differed with respect to the specifics of the statutes they passed,[3,4] the essential goals and remedies contained within them were the same.

The laws that these statutes replaced had been vague in many cases regarding the grounds on which a person could be committed and for how long. In many states the burden of proof had rested on the committed patient to prove that he or she no longer required hospitalization. Viewed as whole, as exemplified in the federal district court ruling in *Lessard v Schmidt*,[5] the commitment statutes that were in effect in most states inadequately protected the civil liberties of the mentally ill in the involuntary hospitalization process.[6]

The new generation of commitment statutes that began with the LPS statute introduced a number of significant changes, both to the process of civil commitment itself and to the continuation of involuntary hospitalization. The new grounds for commitment employed in most states required a demonstration that candidates for commitment have a serious mental disorder and be dangerous either to themselves or others or unable to provide self-care as a result of their mental illness. These statutes also stipulated a timetable for reviews of the status of committed patients. Each review, which in most states took the form of a formal court hearing, required a facility seeking to detain a patient to present evidence that he or she continued to meet commitment criteria.

State reform of civil commitment statutes can be viewed as part of a larger "deinstitutionalization" effort that sought to shift the locus of treatment from large state mental hospitals to community-based settings. One component of the plan to accomplish this shift, as articulated in the landmark *Action for Mental Health*,[7] included the substitution of local general hospitals for state institutions as the primary site of acute inpatient treatment. This preference was based on the belief that general hospitals were better integrated into the community, provided better quality care because of their need to meet certification criteria, had preexisting emergency capacity, were better able to integrate psychiatric and medical treatment, had better trained staff, and were less stigmatizing as places in which to receive care.[8]

But among the most attractive aspects of shifting the locus of inpatient treatment from state hospitals to general hospitals was the opportunity for cost savings such a shift presented to state mental health agencies. These savings would be achieved in two ways. First, a decrease in demand for state hospital services resulted in the downsizing of large state hospitals, the operation and maintenance of which had become enormously expensive. Second, because the number of beds maintained in almost any general hospital psychiatric unit comprised far less than half of the hospital's total bed complement, these units were not designated as "institutions for mental disorders" by the federal government. As such, up to one half of the cost of care provided to poor, psychiatrically disabled adults could be borne by the federal government through the Medicaid program, an option not available for treatment provided in state mental hospitals.[9,10]

By all accounts, the zeal with which at least some general hospitals embraced the role of primary caregiver for the severely mentally ill did not match that of the policy makers promulgating it.

And while trends in utilization for various types of inpatient settings showed admissions to general hospitals rising while those at state hospitals fell,[11] it is not at all clear that these trends reflected an exchange either of patients or functions. Expanded inpatient psychiatric benefits in many private insurance plans had allowed general hospital psychiatric units to exercise considerable selectivity with regard to their choice of patients. This selectivity led many to deflect patients who were disruptive, homeless, legally involved, uninsured, or who were otherwise problematic in favor of less acute, fully insured patients.[10,12–15] In some states civilly committed patients were among those deflected by many hospitals (although many state statutes, including that of Massachusetts, now forbid such practice). In fact, avoidance of the problems attending the management of civilly committed patients became formal policy in some quarters. In 1980, for example, the Massachusetts Psychiatric Society published an official position paper in a national journal outlining a litany of legal, clinical, economic, architectural, and other factors mitigating against the acceptance of involuntarily hospitalized patients.[16]

By the 1990s, the mental health policy environment in many states had changed significantly. Managed care in the private insurance sector had reduced demand for inpatient services, creating low occupancy rates and in some cases severe cash flow problems for general hospital psychiatric units and private psychiatric specialty hospitals.[17] Proponents of privatization, as well as advocates for the civil rights of persons with mental illness, renewed efforts to close state mental hospitals; there was increased interest in enrolling psychiatrically disabled individuals in Medicaid to maximize the opportunity for cost shifting to the federal government. Ironically, these factors ultimately propelled the general hospital into the role advocated for it 30 years earlier—that of caregiver to the severely mentally ill.

This changing environment would be altered further by the introduction of managed care principles within the public sector. In many states, proprietary managed care organizations (MCOs) were hired to oversee Medicaid behavioral health reimbursements. This intervention was necessitated by the need to control behavioral health care expenditures, which had been increasing at a rate faster than those for general health care.[18–21] In Massachusetts, the first of many states to pursue such an agenda, one of the MCO's first steps was the formation of a statewide selective contracting network comprised of general and private psychiatric specialty hospitals that had been granted waivers by the Health Care Financing Administration allowing them to accept Medicaid reimbursement. These hospitals agreed to a negotiated daily rate in return for exclusive access to the Medicaid beneficiary population. Involvement of these hospitals in serving the severely mentally ill was further increased as a number of state hospitals closed and a substantial portion of the acute inpatient system was privatized to maximize the potential for cost shifting.[22]

These changing policy directions created a new environment for civil commitment as well. Because general hospitals had become the primary providers of inpatient treatment for Medicaid beneficiaries with severe mental illness as well as for persons with private insurance, they became obligated to accept committed patients. Indeed, substantial numbers of individuals were committed to general and private psychiatric specialty hospitals. In the first 6 months of 1998, the period on which this study focuses, 4,831 admissions, comprising 16.5% of all psychiatric hospitalizations in these facilities, occurred under the state's commitment law. As a result, the civil commitment statutes passed 20 years earlier, focusing on clinical/behavioral issues and due process and designed in part to curb the excesses that had been associated with commitment in state hospitals, would now be invoked in a new environment in which economic factors—insurance, managed care, utilization review, and reimbursement rates—had become key determinants of many treatment decisions.

It is well understood that hospitals operating in the contemporary mental health policy environment need to operate so as to maintain a delicate balance between offering quality clinical treatment, maximizing revenues, and coping with the challenges of utilization review and other practices of insurers and MCOs. What role, if any, reimbursement and other factors should play in determining access to or duration of inpatient psychiatric treatment is a matter of continuing debate. But that

question should, at least in theory, be a less open one in the case of involuntary patients. It is true that in *O'Connor v Donaldson*[23] the US Supreme Court declined to acknowledge any "right to treatment" as a quid pro quo for the deprivation of liberty associated with civil commitment. Nevertheless, given this deprivation and the coercion entailed in this process, as well as the exigency of the situations giving rise to involuntary hospitalization, it would seem to be incumbent on hospitals to provide as close to the optimal level of treatment as possible in such cases. It becomes a matter of concern, therefore, if the duration of such treatment is significantly affected by factors not related to patients' behavior or clinical status, such as insurance status or the nature of oversight exercised by the individual's insurer or MCO.

Conceptual Framework

Drawing on the Massachusetts experience with civil commitment in privately operated general and psychiatric specialty hospitals, this study examines whether and how the economic factors cited above affect the length of stay (LOS) of persons whose hospitalizations occur under the state's commitment statute. This is accomplished within the context of a conceptual model that assumes that LOS is a function chiefly of clinical and situational factors that, to at least some extent, are captured in variables measuring diagnosis and reason for commitment. This assumption flows from the substance and purpose of the commitment laws themselves. The conceptual model also takes into account features of the "new environment" in which involuntary hospitalization takes place. In this environment, privately operated hospitals, even those that are not for profit, must take economic factors into account in their operations if they are to remain fiscally solvent and viable. Hospitals therefore must operate so as to ensure that (1) revenues are sufficient and (2) losses and opportunity costs, as well as conflicts with health maintenance organizations (HMOs), MCOs, and insurers, are minimized. Based on this assumption, the study's hypotheses with regard to the relationship between insurance status and length of stay are as follows:

- Hypothesis 1. Overall, payer source/insurance status will determine a significant amount of variation in length of stay for committed patients.
- Hypothesis 2. Committed patients who are insured but whose care is managed through concurrent review by insurer will have shorter lengths of stay than beneficiaries of insurance plans that do not perform such reviews.
- Hypothesis 3. Committed patients who are uninsured will have shorter lengths of stay than those with insurance.

The alternative to this set of hypotheses, which flows from the conceptual framework laid out above, is the argument that the unique nature of the civil commitment process renders it immune from the effects of insurance. Instead, the LOS of involuntary patients is dictated by clinical issues and by the regulatory framework embodied in civil commitment statutes, rather than by the exigencies of cash flow and the dictates of managed care. If this is the case, insurance status will have no effect on LOS in this population, and only the first part of the conceptual framework, which includes diagnosis and reason for commitment as predictors of LOS, will have been validated.

Methods

Legal context: The Massachusetts civil commitment statute

This study examines the use of the Massachusetts civil commitment statute, Chapter 123, Section 12b of the Massachusetts General Laws. Paraphrasing this law, individuals can be detained on an emergency basis if, due to their mental illness, they are at a substantial risk of harm to themselves or others, or so disorganized as to be at a very substantial risk of harm to themselves. An emergency

detention can be for a period of up to 10 days. Thereafter, a patient may be held for an additional 14 days before a court hearing takes place. Thus the total period of time during which detention is possible prior to a hearing regarding the patient's commitability is 24 days.

Massachusetts is one of several states where all involuntary patients must be offered the opportunity to accept a "conditional voluntary" instead of involuntary status, either at admission or at any point during their hospitalization (Chapter 123, Sections 10, 11, Massachusetts General Laws.) A patient electing this option may petition the hospital for discharge at any point. The hospital is then given 3 working days to petition the court for the patient's retention, if that is deemed appropriate, after which the patient must be discharged. Hospitals seek to retain patients who pose a risk of harm to themselves or others, are deemed not competent to request voluntary status, or refuse to participate in treatment.

It also should be noted that in Massachusetts the obligation of insurers to reimburse hospitals for beneficiaries' treatment is unrelated to the legal status under which hospitalization occurs. Thus, whether patients are voluntary, conditional voluntary, or involuntary has no effect on insurers' liability or hospitals' expectation of reimbursement. Thus there is no economic incentive for hospitals, insurers, or MCOs to manipulate patients' legal status.

Sample

Patient inclusion criteria

The analyses used to test the above hypotheses focus on adults (ie, persons 18 years of age and older) admitted to general and private psychiatric specialty hospitals during March 1998 under the Massachusetts commitment law described above. Because admission under "conditional voluntary" status alluded to above triggers a very different type of decision making around discharge and other factors, only "true involuntary" patients (ie, those committed under Section 12b and remaining under that status for at least 24 hours before accepting a conditional voluntary status) were included in the study.

Sampling design and procedures

The Massachusetts Department of Mental Health licenses privately operated psychiatric facilities; under the terms of these agreements, facilities are obligated to comply with requests for reviews of their patient records. As a result, the research team had full access to all such facilities and their records. However, the substantial number of licensed hospitals, their distribution across the state, and the limited resources available for chart reviews necessitated the restriction of data collection to a sample of hospitals and of charts within hospitals.

A two-stage sampling design was employed for this purpose. The first stage identified hospitals from the pool of 55 general and private psychiatric specialty hospitals in Massachusetts licensed by the Department of Mental Health to accept involuntary admissions. This sample would constitute the facilities within which records would be examined. A hospital sampling design was employed aimed at ensuring representativeness with respect to three main hospital characteristics. First, because there is great geographic variability in the state, particularly with regard to the contrast between the metropolitan Boston area and the more rural western Massachusetts, it was important to ensure adequate geographic dispersion. Second, because both general and private psychiatric specialty hospitals now accept involuntary patients in Massachusetts, it was essential that both types be adequately represented. Finally, because there is great variability in involuntary admission rates among hospitals, the hospital sampling strategy was designed to include the full range of involuntary hospitalization levels. Based on these criteria, a statewide sample of 25 (45.5%) of the 55 possible sites was selected, including 17 general hospitals and 8 private psychiatric specialty hospitals. Inspection of the sample realized through this process indicated that the three criteria had been met.

In the second stage of sampling, cases were selected within the 25 identified hospitals. Each hospital's record room was asked to provide the research team with the number of admissions occurring under Section 12b in March 1998. (Department of Mental Health data on commitment patterns indicated that those observed for March were typical of the pattern observed across hospitals during 1998.) A stratified sampling design was used for this process. In hospitals that reported fewer than 20 commitments, the charts for all 12b admissions were reviewed. For hospitals reporting 21 to 39 involuntary admissions 20 charts were reviewed. Finally, for hospitals that reported 40 or more involuntary admissions, 30 charts were reviewed. To construct the samples for the last two types of hospitals, record rooms were asked to provide medical record numbers for all March 1998 admissions meeting the above inclusion criteria. A table of random numbers was then used to select the charts to be reviewed. Three additional charts were identified at each site to serve as replacements for any selected charts that might have been inappropriately included. This process yielded a sample of 299 cases, which constitutes approximately 33% of the 12b admissions to general and private psychiatric hospitals across the state in March 1998.

Data collection and variable construction

With the assistance of record room personnel at each hospital, data were extracted from patient records and coded on a structured data collection instrument. Prior to being employed in the field this protocol was pretested in two hospitals in order to assess its appropriateness as the data collection instrument. The final version contained fields for four main domains of interest to this analysis: (1) patient demographics, (2) diagnostic characteristics, (3) behavioral grounds for commitment, and (4) payer source, which is the variable of primary interest in this study.

Analytic approach

The three hypotheses listed above were tested controlling for demographics, diagnosis, and commitment grounds using a multiple regression model that included a set of dummy variables measuring several payer source/MCO characteristics. These included (1) Medicare, which is "unmanaged" in the sense that beneficiaries' hospitalizations are neither prescreened at admission nor monitored through concurrent review; (2) Medicaid, which in Massachusetts conducts prescreening and concurrent review of the inpatient treatment episodes of some, but not all, beneficiaries; (3) private indemnity insurance in which insurers reimburse care but in most cases conduct neither prescreening nor concurrent review and therefore exercise less management oversight than insurers that fully manage care; (4) private insurance/managed care, in which an MCO oversees both admission and discharge decisions; and (5) free care provided to individuals who are uninsured. (It should be noted that some patients had more than one insurer. This was most common in the case of individuals having both Medicaid and Medicare. Since it is general practice to seek federal reimbursement first, it would be Medicare that would likely be billed for the cost of care; consequently these individuals were considered to be Medicare beneficiaries.)

The set of dummy variables thus allows the comparison of reimbursement with no managed care, reimbursement with managed care, and no reimbursement. If Hypothesis 1 is correct, the combination of these variables should explain a significant proportion of variance in LOS. If Hypothesis 2 is correct, patients with Medicare and private indemnity insurance should have the longest LOSs since these forms of insurance, particularly Medicare, provide reimbursement but are not "managed." Hypothesis 3 will be confirmed if uninsured patients have the shortest LOS.

In addition to these insurance-related variables, a range of demographic, diagnostic, and "reason for referral" variables were included in the analysis to control for differences in payer status due to patient characteristics. Demographic variables included gender and age at admission. Diagnostic variables were based on those recorded at discharge; they included adjustment disorder, anxiety/panic disorder,

substance abuse, bipolar disorder, depression, and schizophrenia/other psychosis. Behavioral grounds for commitment included poor self-care, danger to others, danger to self, assaultiveness, suicidal threat, and suicidal behavior. Both diagnostic and grounds for commitment factors were treated as "yes/no" variables because many patients' records included multiple discharge diagnoses and multiple grounds for commitment. LOS, the dependent variable, was computed as the number of days between the admission date and the date on which the hospitalization ended, either through discharge or transfer to another inpatient facility. (The time transferred patients spent at a second facility could be included as part of their LOS. The investigators did not have data on these episodes, however, and therefore could not include them as an extension of the original LOS measure.) Because of the non-normal distribution of LOS, a logged version (ln) was used as the dependent variable in statistical analyses.

Statistical analysis

Because these analyses were based on weighted data, as required by the complex sampling design described above, all analyses were conducted using SUDAAN, a program that employs Taylor Series methods to adjust standard errors in analyzing data obtained from such designs.[24] This adjustment is necessitated by the fact that multistage sampling designs inflate the standard errors on which tests of significance are based. Ordinary statistical packages do not adjust for these effects, thus leaving estimates of significance prone to type II errors in assessing the validity of hypotheses.

To control for the possibility that insurance status differences might be associated with other patient-level factors, an ordinary least squares (OLS) regression model was developed that allowed comparison of LOS across insurance statuses controlling for gender, age, diagnosis, and commitment grounds. In the set of insurance variables, Medicare was selected as the excluded category to which other insurance statuses were compared because, as described earlier, it represents one of the insurance statuses whose beneficiaries should have the longest average LOS. In order to examine the contributions to explained variance in LOS made by insurance factors, a stepwise regression model was estimated in which the dummy variables for insurance status were entered first, followed by the remaining variables. Also, as explained below, because of peculiarities noted in the LOS distribution, a separate analysis was conducted on a truncated form of the LOS variable with a portion of the sample removed in order to test the robustness of the model in the absence of this subpopulation. Finally, additional analyses were undertaken to determine whether findings were robust to whether a patient had accepted a conditional voluntary status.

Results

Sample characteristics

Characteristics of the sample, including age, gender, diagnosis, insurance, and reason for commitment, are reported in Table 1. It provides the unweighted frequencies as well as the weighted frequencies generated by SUDAAN and used in the regression analyses. Noteworthy among the characteristics of the sample was the age distribution, which ranged from 19 to 100 years, with individuals aged 65 and over representing roughly 30% of the sample.

A grouped version of the LOS distribution is shown in Figure 1. LOS ranged from 1 day (indicating that the hospitalization terminated on the day of admission) to 77 days, with a median of slightly less than 7 days. Of particular note in this distribution is that 20% of patients were discharged within 3 days or less of admission.

Tests of hypotheses

A preliminary assessment of "between insurance status" LOS differences was provided by examining the means of the unlogged LOS variable for each type of insurance. As shown in Table 2, these

Table 1

Unweighted and weighted frequencies and measures of central tendency for variables in the regression model

	Unweighted ($n = 299$)		Weighted ($n = 368$)	
	n	%	*n*	%
Demographic variables				
Gender				
Male	119	39.80	149	40.49
Female	180	60.20	219	59.51
Age				
Mean	51.43		51.50	
Standard deviation	21.99		22.19	
Median	47		47	
Diagnosis*				
Adjustment disorder	20	6.69	24	6.52
Anxiety disorder	23	7.69	27	7.34
Substance abuse	60	20.07	78	21.20
Depression	72	24.08	86	23.37
Bipolar disorder	68	22.74	85	23.10
Schizophrenia/psychosis	102	34.11	126	34.24
Reasons for commitment*				
Poor self-care	120	40.13	149	40.49
Assaultiveness	61	20.40	76	20.65
Danger to self	113	37.79	141	38.32
Suicide attempt	39	13.04	47	12.77
Suicidal ideation	69	23.08	87	23.64
Threatening behavior	115	38.46	143	38.86
Insurance status*				
Uninsured	33	11.04	44	11.96
Insured	258	86.29	313	85.05
Medicare	137	45.82	169	45.92
Medicaid	74	24.75	89	24.18
Private indemnity	15	5.02	17	4.62
Private managed	32	10.70	38	10.33
Missing	8	2.68	11	2.99

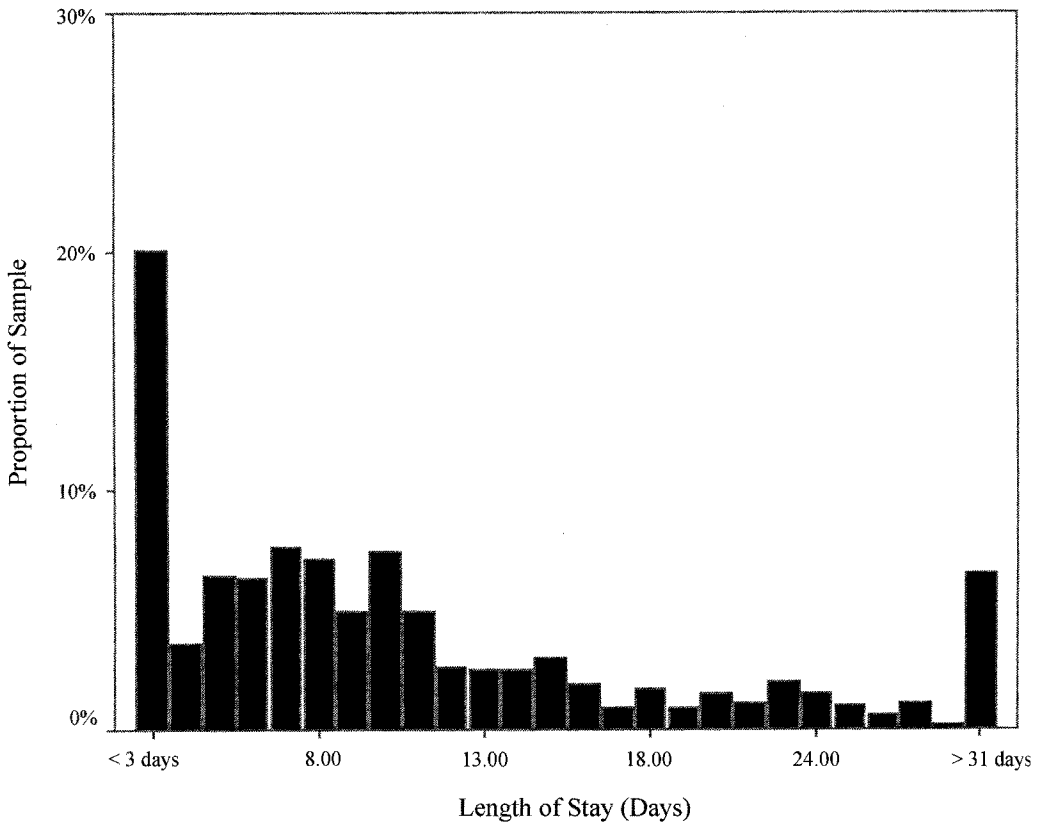
*Percentages do not sum to 100% since categories of this variable are not mutually exclusive.

differences are substantial and in the direction hypothesized. Notably, the mean LOS of Medicare recipients was roughly twice that of patients who were uninsured.

To provide an initial test of Hypothesis 1, a model was developed containing the intercept and four of the insurance dummy variables (Medicaid, indemnity, managed care, and uninsured), with Medicare as the excluded category (or in this case as the intercept). The coefficients of all of the insurance variables were negative, indicating that all were associated with shorter LOS in comparison with Medicare. However, significant coefficients were obtained only for the managed care and uninsured variables. This "insurance only" model explained a small but nevertheless statistically significant amount of the variance in LOS (multiple $R^2 = 5.6$, Wald $F = 76.75$, $df = 5$, $p = .0005$).

Figure 1

Length of stay distribution.



The results obtained for the full model are shown in Table 3. As indicated, when the age, gender, diagnostic, and reason for commitment variables were included in the model, the pattern of significance of the insurance coefficients changed. Of particular importance to the present analysis, when all factors were entered into the model, the coefficient for the managed care variable was

Table 2

Mean length of stay (in days) by patient insurance status

Insurance status	Mean*	Standard deviation
Medicare	13.95	13.18
Medicaid	11.96	13.66
Private indemnity	10.33	9.71
Private managed	8.49	8.08
Uninsured	6.55	5.50
Total	11.77	12.13

*Means and standard deviations are based on weighted, unlogged length of stay (LOS) values.

Table 3

Ordinary least squares (OLS) regression of logged length of stay on insurance factors and covariates ($n = 368$)

Variables	Coefficient (b)	t^*	p value
Demographic variables			
Gender (male = 1; female = 0)	0.02	0.17	.8660
Age	0.00	−0.17	.8638
Diagnosis†			
Adjustment disorder	−0.85	−4.36	.0000
Anxiety disorder	0.05	0.22	.8298
Substance abuse	−0.50	−3.74	.0002
Depression	−0.02	−0.18	.8586
Bipolar disorder	0.27	1.79	.0743
Schizophrenia/psychosis	0.24	1.82	.0700
Reasons for commitment†			
Poor self-care	0.25	2.07	.0397
Assaultiveness	0.00	0.03	.9798
Danger to self	−0.22	−1.36	.1739
Suicide attempt	−0.22	−1.42	.1568
Suicidal gesture	0.18	1.21	.2272
Threatening behavior	0.08	0.58	.5656
Insurance status‡			
Medicaid	−0.13	−0.82	.4105
Private indemnity	−0.21	−0.82	.4129
Private managed care	−0.38	−1.83	.0683
Uninsured	−0.46	−2.61	.0094
Intercept	2.13	6.13	.0000
$R^2 = .266$, Wald $F = 125.48$, $df = 19$, $p = .0000$			

*Standard errors estimated by SUDAAN.
†Category is not mutually exclusive; therefore there is not an excluded category for these variables.
‡Medicare is the excluded category.

no longer significantly different from Medicare at the .05 level. Discharge diagnoses of substance abuse and adjustment disorder were associated with significantly lower LOS. Only one of the "reason for commitment" factors—"poor self-care"—was statistically significant, and predicted longer LOS. The model containing all variables had a multiple R^2 of .266, (Wald $F = 125.48$, $df = 19$, $p = .0000$).

As these findings suggest, the insurance effect in the model was reduced to the difference between a patient's having insurance or being uninsured. In a re-estimation of the model, a dummy variable comparing the insured with the uninsured was found to be statistically significant ($b = .29$, $t = 2.03$, $p = .0434$, two-tailed test). This indicates that, adjusting for other factors in the model, an insured committed patient stayed an average of 3.36 (±1.15) more days than an uninsured patient.

Because of the unusual clustering of LOS at 3 days or less, a second OLS regression model was developed predicting LOS for that proportion of the sample having an LOS of 4 days or greater to determine whether the findings for the original model were valid for this portion of the sample. This

was done to ensure that findings reported for the full model were not disproportionately determined by the characteristics of individuals with the shortest LOS. Briefly, the findings of this analysis were highly consistent with those of the model developed from the full sample, with the exception that the adjusted R^2 was slightly lower due to the smaller sample size. This suggests that while this subgroup experienced earlier discharge than most patients in the sample, the pattern of relationships between insurance status and LOS observed in the full sample was not a function of their inclusion. In fact, a logistic regression model predicting an LOS of greater than 3 days found that the pattern of significant predictors of this outcome was the same as those predicting LOS in the OLS regression models developed for the full sample. This further suggests that, while this sample displayed an anomalous LOS pattern, it was not a distinct subpopulation with respect to any of the factors included in these analyses.

Finally, while 56.5% of the patients in the sample accepted a conditional voluntary status at some point after the first 24 hours of their stay, this factor did not have any effect on LOS.

Discussion

Before discussing the findings of this study, two important caveats should be issued. Commitment laws and their implementation vary considerably from state to state. The use of emergency detention, the schedule of required hearings, the periods of time for which patients can be held, and other features of the civil commitment process may compromise somewhat the cross-state generalizability of these findings. Clearly, parallel analyses should be conducted in other states to determine whether the effects of insurance status noted here would be obtained in settings where commitment statutes and practices are substantially different.

Second, it is likely that there are differences among individuals with different insurance statuses in areas such as employment status, family involvement, and so forth that were not considered in the study model. Some of these factors may influence LOS, and they might potentially mediate the relationships reported here. However, given the lack of significant differences in LOS observed between private insurance and Medicaid beneficiaries—two groups that presumably differ in a number of important ways on these social and economic factors—the inclusion of such factors in the model would likely not change the observed relationships substantially.

This study has attempted to identify what, if any, role is played by insurance factors in determining the LOS of individuals who are involuntarily hospitalized. The analysis of that role presented here suggests that economic factors do have a significant effect on LOS; insurance status accounted for a relatively small but nevertheless statistically significant amount of variance in LOS, thus confirming Hypothesis 1.

Variations in type of insurance and whether or not it was managed were not significant factors. Hypothesis 2, therefore, was not supported. It should be noted, however, that in the model containing only insurance factors, the regression coefficient for the managed care variable was significant beyond the .05 level, and it was nearly so in the full model. This raises the question of whether the observed non-significance of this variable is due to the true absence of any "real managed care effect" or is simply the result of insufficient power to identify what may be a potentially significant effect. Further investigation of this relationship with a larger sample is warranted, although the size of the sample used in this study should have been adequate for detecting at least moderate-sized effects. Thus whatever the true effect of managed care on LOS for committed patients might be, it is likely not large.

Hypothesis 3, asserting that uninsured patients would be discharged more rapidly than those with insurance, was confirmed by the full model. One interpretation of the significant effect observed for insurance status is that hospitals wish to avoid both the financial losses associated with providing care for which there will be no reimbursement and the opportunity costs that could derive from providing a bed to an uninsured patient when that bed might be filled by a patient with insurance.

Implications for Behavioral Health Services

The proposed alternative to the above three hypotheses—that the special status of committed patients would render their LOS immune from the effects of insurance factors—was obviously not supported, and the sensitivity of LOS to insurance status in the involuntary patient population raises a number of questions regarding the discharge decisions of hospitals. If it is assumed that patients' clinical status is not strongly correlated with their insurance status, then it must be asked whether the length of time insured patients are involuntarily hospitalized is excessively long, or conversely, whether that observed for the uninsured is excessively short.

These questions become particularly significant when this relationship is viewed in the broader context of the practice of involuntary hospitalization itself. The individual who is mentally ill and whose clinical status creates a likelihood of serious harm represents one of the few cases in which the state can exercise its police power to deprive an individual of his or her liberty. As was noted earlier, the courts have not found that committed patients have an explicit right to treatment. But few would contest the proposition that involuntary hospitalization should be undertaken with the intention of providing treatment that will improve the patient's clinical status and substantially reduce the likelihood of serious harm to the greatest extent possible. At the same time, however, a decade-long reform effort sought to ensure that involuntary hospitalization be as brief as possible. The data presented here raise questions as to how these principles comport with the new realities of an economically sensitive service delivery system. They also point to the need for further exploration of the dynamics of this relationship.

It also should be noted that the analysis presented here is a "demand side" model of LOS, focusing on characteristics of patients receiving services as a result of being involuntarily hospitalized. It is possible, however, that "supply side" factors—characteristics of hospitals and their fiscal climates—also exert an effect on LOS, and they also may interact with the demand side factors examined here. Data to investigate these possibilities were not available for this study, but questions about the effects of these factors should be pursued.

Civil commitment practices are known to be sensitive to the effects of myriad exogenous factors. Previous research[25,26] has shown that variables such as race and gender may play significant causal roles in commitment decisions, and sensational news stories reporting acts of violence and other forms of criminal behavior committed by persons with mental illness have been shown in the past to increase rates of commitment, at least in the short term, without statutory change.[27,28] Whether or how economic factors affected commitments in the era when this process took place primarily in state hospitals is not known. But these factors appear to affect that process now in the new, privatized service delivery system. As such, the public, as well as those at risk for involuntary hospitalization, have a right to be assured that decisions regarding the admission and discharge of committed patients are driven not by their insurance status but by what is clinically and legally best for them and for society as a whole. State mental health administrators and mental health advocates therefore need to ensure that this is and remains the case.

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