Access to Insurance and Length of Psychiatric Stay Among Adolescents and Young Adults Discharged from General Hospitals

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ABSTRACT. This study examines the characteristics of over 100,000 young people hospitalized in short-term, general hospitals throughout the United States between 1986 and 1988 for psychiatric and substance abuse diagnoses. Adolescent patients (ages 13-17) are compared with young adults (ages 18-22) in terms of demographic characteristics, diagnosis, source of payment, and length of stay. The study focuses on the relationship between the patients' access to private insurance and length of stay.

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The data used in this study were supplied by Healthcare Knowledge Systems, Inc., (HKS) of Ann Arbor, MI from the data bases of the Commission on Professional and Hospital Activities (CPHA). The data were supplied only at the request and upon the authorization of the hospital(s) whose data were used. Any analyses, interpretations, or conclusion based on these data are solely those of the authors, and HKS/CPHA specifically disclaims responsibility for any such analyses, interpretations, or conclusions. Portions of these data were presented previously at a conference sponsored by the Commission of Professional and Hospital Activities, and the Center for Study of Youth Policy in Ann Arbor, MI, November, 1989.

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INTRODUCTION

Interest in the psychiatric hospitalization of adolescents has been growing among policy makers, practitioners, and researchers. There are mounting concerns about the increasing number of admissions to inpatient facilities. Questions have been raised about the appropriateness of many admissions, the length of hospitalization, and its cost—especially considering the lack of evidence to suggest hospitalization is any more effective than outpatient interventions for the mental health and substance abuse problems of most young people.

The following analysis examines the characteristics of more than 100,000 young people hospitalized for psychiatric and substance abuse diagnoses in general hospitals between 1986 and 1988. It surveys a large proportion of the population of young people being treated for mental health problems in general hospitals and suggests the type of research and policy initiatives that will be needed in coming years. In particular, it suggests there are economic and social factors which are unrelated to diagnosis and treatment, but that influence the duration of adolescent psychiatric hospitalization.

PSYCHIATRIC HOSPITALIZATION

There is little debate anymore about whether psychiatric hospitalization has increased in recent years. Uncertainty remains, however, about exactly how much it has increased, which hospital sectors contributed to the increase, and why an increase has occurred.[1] Reasons for the growth in inpatient psychiatric treatment among children and adolescents are numerous. Rodriguez (1985:343) described an "evolving crisis" in psychiatric services due to: rising expenditures on all types of health care; increasing awareness and acceptance by both the public and government of the need to address mental health problems; larger numbers of mental health professionals actively marketing their services; and more comprehensive employee health benefits. From this perspective, increasing adolescent psychiatric hospitalizations may simply reflect growth in the medical industry as a whole.

Others point out that the impact on children and adolescents has

been especially pronounced as the courts have given parents relatively free reign to commit their minor children to psychiatric hospitals (Melton, 1984; Weithorn, 1982 & 1988), while parents have shown a greater "acquiescence" to mental health expertise regarding troublesome children (Lerman, 1990:7). A growing supply of "voluntary" admissions of children by their parents may have encouraged inpatient facilities to be more aggressive in marketing treatments for a broader range of adolescent and family troubles (Schwartz, 1989).

Evidence of the effectiveness of inpatient treatment cannot be a reason for increasing psychiatric hospitalization. There are still no definitive studies that show hospitalization to be superior to outpatient interventions for most children and adolescents with mental health troubles (Braun et al., 1981; Kiesler, 1982; Goldfine et al., 1985; U.S. Congress, Office of Technology Assessment, 1986; Dalton, Miller, & Forman, 1989). Studies on adults have found that outpatient services can be just as effective for a wide range of mental health disorders, and can often prevent hospitalization (Wilder, Levin, & Zwerling, 1966; Langsley, Machotka, & Flomenhaft, 1971; Stein, Test, & Marx, 1975). The best studies on alternatives to psychiatric hospitalization seem to indicate that "given a competent staff, any reasonable, well-motivated attempt to avoid hospitalization will likely be successful for many, perhaps most, psychiatric patients," and that although some patients will continue to need supportive care, "much of it can be administered outside a hospital" (Mattes, 1982:827).

LENGTH OF STAY

Length of stay is one of the principal factors in psychiatric hospitalization costs, and has been the focus of many efforts to control the costs of mental health care. Using diagnosis and other patient characteristics to predict length of stay is desirable from a management perspective because it allows hospitals to estimate the costs likely to result from the admission of an individual patient. From a policy perspective, reducing the uncertainty about how lengths of stay may vary among patient groups permits better utilization con-

trols. This is the basis for the diagnosis-related groups (DRGs) introduced in Medicare in 1983.

The Medicare prospective payment system based upon DRGs was implemented by the 1983 Social Security Amendments (Title VI of PL 98-21). At the time of the Congressional hearings on the amendments, the psychiatric profession and the hospital industry adamantly opposed using DRGs for psychiatric care. The American Psychiatric Association and the National Association of Private Psychiatric Hospitals (among other groups) emphasized the extent to which DRG-based reimbursement would not be able to accommodate the widely varying treatment experiences of psychiatric inpatients (Widem et al., 1984). This opposition effectively delayed the implementation of prospective payment in psychiatric care.

Bachofer (1988:10) points out, however, that the exemption of psychiatric services from the DRG system was not due to evidence that DRGs would produce worse outcomes for psychiatric care than for medical/surgical services. Rather, federal policy makers "accepted the logic" of the psychiatric lobby which argued that psychiatric treatments were more heterogeneous and that large numbers of outliers (i.e., chronic patients) would make length of stay predictions complicated. When DRG-based reimbursement was implemented in Medicare, psychiatric hospitals were excluded. Most psychiatric units of general hospitals were exempted if they met a few basic conditions.

Nevertheless, Congress directed federal agencies to begin testing the feasibility of a prospective payment system for psychiatric and substance abuse treatment. This led to a boom in research on psychiatric length of stay (for an overview of this literature see Scherl, English, & Sharfstein, 1988). Most researchers focused on whether grouping patients by diagnosis would reduce the variance in length of stay among a psychiatric inpatient population. Finding no success, they turned to modifying the DRGs and/or adding more patient variables until the largest amount of explained variance had been reached. Numerous studies reported unsuccessful attempts to predict lengths of psychiatric hospitalization using diagnoses and patient characteristics (age, sex, race, etc.). The maximum explainable variance appeared to be somewhere between 10 and 25 percent (Cyr & Haley, 1983; Goldman et al., 1984; Taube, Lee, & Fortho-

fer, 1984; Gordon, Jardiolin, & Gordon, 1985; English et al., 1986; Schumacher et al., 1986; Christ, Tsemberis & Andrews, 1987; Choca et al., 1988). Almost unanimously, researchers concluded that using DRGs for prospective payment would be inappropriate for inpatient psychiatric care.

AN ALTERNATIVE MODEL

Unfortunately, psychiatric length of stay research became nearly synonymous with prospective payment modeling. There are other reasons, however, to study length of stay. Additional knowledge might be forthcoming from research which is not tied to a medical model and not focused on clinical assessment and hospital finance. Research is needed that explores psychiatric hospitalization from a socio-political perspective. Studies should determine the extent to which psychiatric hospitalization and treatment duration depend upon social, economic, legal, and organizational factors, and the extent to which these relationships are independent of diagnosis or the severity of mental disorder.

A social deviance/social control perspective on mental hospitalization has a rich heritage in fields such as sociology (e.g., Lemert, 1967) and even psychiatry in the writings of the "anti-psychiatry" school (e.g., Szasz, 1961). It is also consistent with the political-economic, or "people processing" perspective used to analyze human services organizations (Hasenfeld, 1983). Such an approach should be used to study how psychiatric hospitals "behave" as organizations, and why some patients are "processed" differently by these organizations. To the extent that a patient's experiences cannot be explained by clinical variables, other perspectives should be employed.

Of course, this observation has not been ignored entirely by healthcare researchers. Hospitals are frequently studied by organizational researchers (e.g., Zald & Hair, 1972; Cook et al., 1983; Alexander, Kaluzny, & Middleton, 1986; D'Aunno & Zuckerman, 1987; Gifford & Mullner, 1988). Organizational studies of psychiatric treatment facilities have also appeared in recent years (e.g., Smith & Simmons, 1983; Warren, 1983; Rosenheck, 1988; O'Driscoll & Evans, 1988). Economic analyses of psychiatric hospitals

have looked at market dynamics and the structure of reimbursement as determinants of length of stay and patient costs (Sharfstein et al., 1984; Frank & Lave, 1985 & 1986; Rupp, Steinwachs, & Salkever, 1985; Schumacher et al., 1986; McGuire et al., 1987). Some studies have found that the amount of explained variance of psychiatric lengths of stay can be increased by considering the characteristics of hospitals (Taube, Lee & Forthofer, 1984).

Still, most studies do not pursue such findings because they cannot be used to improve pre-admission screening and cost containment (Choca et al., 1988). This study argues that non-clinical factors associated with length of psychiatric hospitalization deserve attention in their own right. Critics of policy research on psychiatric hospitalization often argue that length of stay is meaningless from a clinical perspective and that shorter does not necessarily mean better. Admittedly, large-scale population analyses such as this study are not a reliable way to study psychiatric hospitalization from a clinical perspective. Yet, as observed elsewhere, such studies can provide the "big picture of utilization" and may help identify "prevailing patterns of hospital use" (Kirshner, 1982:28). If the prevailing patterns of adolescent psychiatric hospitalization are affected by non-clinical, structural factors, this would be important knowledge whether or not it is useful clinically.

SOURCE OF DATA

The data presented below are from the Professional Activity Study (PAS) data bases of the Commission on Professional and Hospital Activities (CPHA) of Ann Arbor, Michigan. For more than thirty years, the PAS database has been compiled annually from hospital records collected throughout the United States. The PAS records (patient discharge abstracts) include information on each patient's age, sex, ethnicity, admission and discharge dates, payment sources, diagnoses at discharge, and discharge destination. This study uses patient-specific data from the approximately one thousand short-term general, non-federal hospitals, both private and public, that participated in the PAS during the period 1986 to 1988 (which is about one-fifth of all such facilities).[2]

As participation in the PAS is voluntary, patients from PAS hos-

pitals do not necessarily constitute a representative sample of all patients from short-term, general hospitals nationwide. Hospitals participating in the PAS during the three years of this study, however, were essentially similar to the general hospitals that responded to the American Hospital Association's (AHA) 1987 Survey of Discharge Data. For example, about 16 percent of the hospitals in both groups were affiliated with a medical school. The median (total) bed size of both PAS hospitals and those in the AHA survey was just under 100, and in both cases the hospitals' average occupancy during 1987 was approximately 57 percent (average daily census divided by total bed capacity).

In some respects, however, the PAS hospitals were slightly different from the American Hospital Association respondents. For example, of all 7,100 hospitals responding to the AHA Survey, about 27 percent were located in North central states. Among PAS hospitals, 36 percent were in North central states. PAS hospitals were less likely to be in South central states (8 percent versus 22 percent of all AHA hospitals). The proportions of facilities in the East, Southeast, and Pacific states were comparable among AHA and PAS hospitals. PAS hospitals were also somewhat more likely to be nonprofit (66 percent) than AHA hospitals in general (50 percent).

The lack of a known sampling frame suggests caution in generalizing from the PAS data.[3] Still, the large proportion of short-term general hospitals that participated in the PAS, and the overall similarity of PAS and AHA hospitals, suggest that the data in this study are important and have obvious policy relevance.

RESULTS

There were 121,044 patients aged 13 through 22 with principal diagnoses for psychiatric or substance abuse problems who were discharged from hospitals participating in the PAS during 1986, 1987, and 1988. This patient population was evenly divided into adolescents (under 18) and young adults (18 and over). The patients were also evenly split between males and females, with males only slightly outnumbering females (i.e., 50.6%). Most of the patients were listed by the hospitals as white or caucasian (82.4%). Blacks

made up approximately 10 percent of the study patients, with the rest being primarily Hispanic, Native American, or Asian.

Nearly three-quarters (74 percent) of the PAS hospital discharges were from general hospitals that had at least some designated psychiatric beds or a separate psychiatric unit. Twenty-six percent of the patients were from hospitals with no known psychiatric beds. These patients were most likely treated in "scatter" beds, or a general ward. The vast majority (over 80 percent) of both the adolescent and young adult patients went directly home upon discharge. The remaining 20 percent were usually transferred to other short-term hospitals, intensive care, or skilled nursing facilities.

Diagnoses

Researchers are sometimes criticized for making inferences about the severity of psychiatric disorders based upon diagnoses only, for psychiatric diagnoses are known to be inexact and incomplete. In fact, some misdiagnosis in mental health care may be deliberate. Clinicians may inflate the severity of diagnoses in order to help a client qualify for third-party reimbursement, or deflate the severity to spare the client the stigma of a more serious label (Kirk & Kutchins, 1988).

Their quality notwithstanding, psychiatric diagnoses form the basis of the nosological system used by clinicians to characterize the range of disorders among a hospitalized population. Also, diagnoses are often the only clinically related information available on large groups of psychiatric patients. Like Kiesler and Sibulkin (1987:13) then, this discussion will "take the clinician's word very literally" and assume that psychiatric diagnoses represent meaningful differences in mental disorders.

Table 1 presents the principal ICD-9-CM diagnoses of patients with lengths of stay of 90 days or less.[4] Nearly 20,000 patients, or 16 percent, had been discharged with a principal diagnosis indicating psychosis—i.e., schizophrenia (8,964), bipolar disorders (4,539), organic and miscellaneous non-organic psychoses (3,348), drug and alcohol psychoses (2,105), affective psychoses (457), and psychoses with origins in childhood (220). Most of the remaining patients (39,155 or 55 percent) had been diagnosed with one of the

various non-psychotic diagnoses shown in Table 1—e.g., depression, personality disorder, and adjustment reaction. The most frequent among these was adjustment reaction. Over 19,000 patients (16 percent) were discharged with this diagnosis. Another large group of patients was diagnosed as having drug abuse or dependency problems. More than 15,000, or about 12 percent of all patients had been diagnosed as alcohol dependent, which was the second most frequent diagnosis.

The principal diagnoses of adolescents and young adults varied considerably. Adolescents were less likely to have been hospitalized for psychoses. Only 9 percent of the adolescents were diagnosed as psychotic while the figure for young adults was 24 percent. Non-psychotic diagnoses accounted for 65 percent of adolescent patients but only 45 percent young adults. The diagnostic categories in which adolescents substantially outnumbered young adults were single episode depression, neurotic depression,[5] adjustment reaction, emotional disturbance, conduct disturbance, cannabis dependence, and nondependent substance abuse. Adults outnumbered adolescents among those diagnosed for cocaine and alcohol dependence, bipolar disorder, and most psychoses. In general, the diagnoses of adolescents were less serious than those of young adults just a few years older.

Length of Stay

Table 1 also shows the average length of stay for each diagnostic category. Lengths of stay (LOS) ranged from 0 days (i.e., under 24 hours) to 767 days. The average for all patients between the ages of 13 and 22 was 16.3 (s.d. = 20.6). The distribution of LOS was positively skewed, with a median of 9 days and the 85th and 99th percentiles falling at 30 and 90 days respectively. Cases with hospital stays longer than 90 days were excluded in order to improve the interpretation of average length of stay. This reduced the study population to 119,857.

Average lengths of stay (ALOS) for adolescents were substantially longer than those of young adults in most diagnostic groups. Differences were especially pronounced among depression diagnoses, most chemical dependency and abuse diagnoses, adjustment

Table 1: Average Length of Stay (ALOS) by Principal Diagnosis, by Age at Admission (N=119,857).[1]

	AGE AT ADMISSION					
	13-17		18-22		Total	
DIAGNOSTIC GROUPS[2]	n	ALOS	n	ALOS	n	ALOS
Schizophrenic Disorders	1602	22.0	7362	16.3	8964	17.3
Affective Psychoses	176	20.3	281	13.1	457	15.9
Oth Nonorganic Psychoses	845	15.6	1959	11.1	2804	12.4
Psychoses, Childhood Orig	170	26.1	50	15.7	220	23.7
Alcoholic Psychoses	76	3.9	531	6.7	607	6.4
Drug Psychoses	373	8.2	1125	7.1	1498	7.4
Organic Psychoses	179	15.0	365	14.6	544	14.7
Bipolar Disorder	1503	22.5	3036	15.7	4539	17.9
Maj Depression, 1 Episode	5511	22.7	4505	13.0	10016	18.4
Maj Depression, Recurring	1574	19.4	2088	13.9	3662	16.3
Anxiety,Neurotic Disorders	1764	7.6	2275	6.3	4039	6.9
Neurotic Depressions	4774	21.9	3039	9.9	7813	17.3
Personality Disorders	1123	19.9	1799	9.8	2922	13.7
Depressive Disorders	1308	13.7	1289	8.1	2597	11.0

Alcohol Dependence	6107	22.8	8940	14.4	15047	17.8
Other Drug Dependence	1552	24.0	2278	14.5	3830	18.3
Cocaine Dependence	390	19.7	3289	13.4	3679	14.1
Cannabis Dependence	2426	27.0	954	19.8	3380	25.0
Nondependent Drug Abuse	5110	11.3	3982	6.7	9092	9.3
Adjustment Reaction	11002	12.8	8639	7.1	19641	10.3
Conduct Disturbance	5907	20.5	493	13.0	6400	19.9
Oth Symptoms,Physiol Malfun	519	5.4	516	4.3	1035	4.8
Eating Disorders	1384	25.7	1752	25.4	3136	25.5
Organic Brain Damage	659	5.4	899	6.5	1558	6.0
Emot Disturb/ Att Def	1964	22.7	115	16.2	2079	22.3
MR/DD	146	14.4	152	12.0	298	13.2
TOTALS	58144	18.4	61713	12.1	119857	15.1

1. Excludes cases with lengths of stay over 90 days.
2. Primary psychiatric diagnoses upon the patient's discharge from the hospital, grouped according to the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM).

reaction, and conduct disturbance. Adults were hospitalized longer than adolescents only in cases of alcohol psychoses and organic brain damage. Adolescents were hospitalized for an average of 18.4 days while young adults stayed for just 12.1 days. The mean length of stay for all patients was just over 15 days.

Figure 1 presents the distribution of LOS among the patients with hospital stays of 90 days or less. It demonstrates that most hospitalizations involved less than 30 days of care. Many patients are discharged within a few days, the distribution then falls consistently between stays of 3 and 90 days. There are obvious frequency peaks at 14, 21, 28, and 42 days. The peaks indicate that once patients have been hospitalized for at least 10 days, it is common for them to be discharged at seven-day intervals.

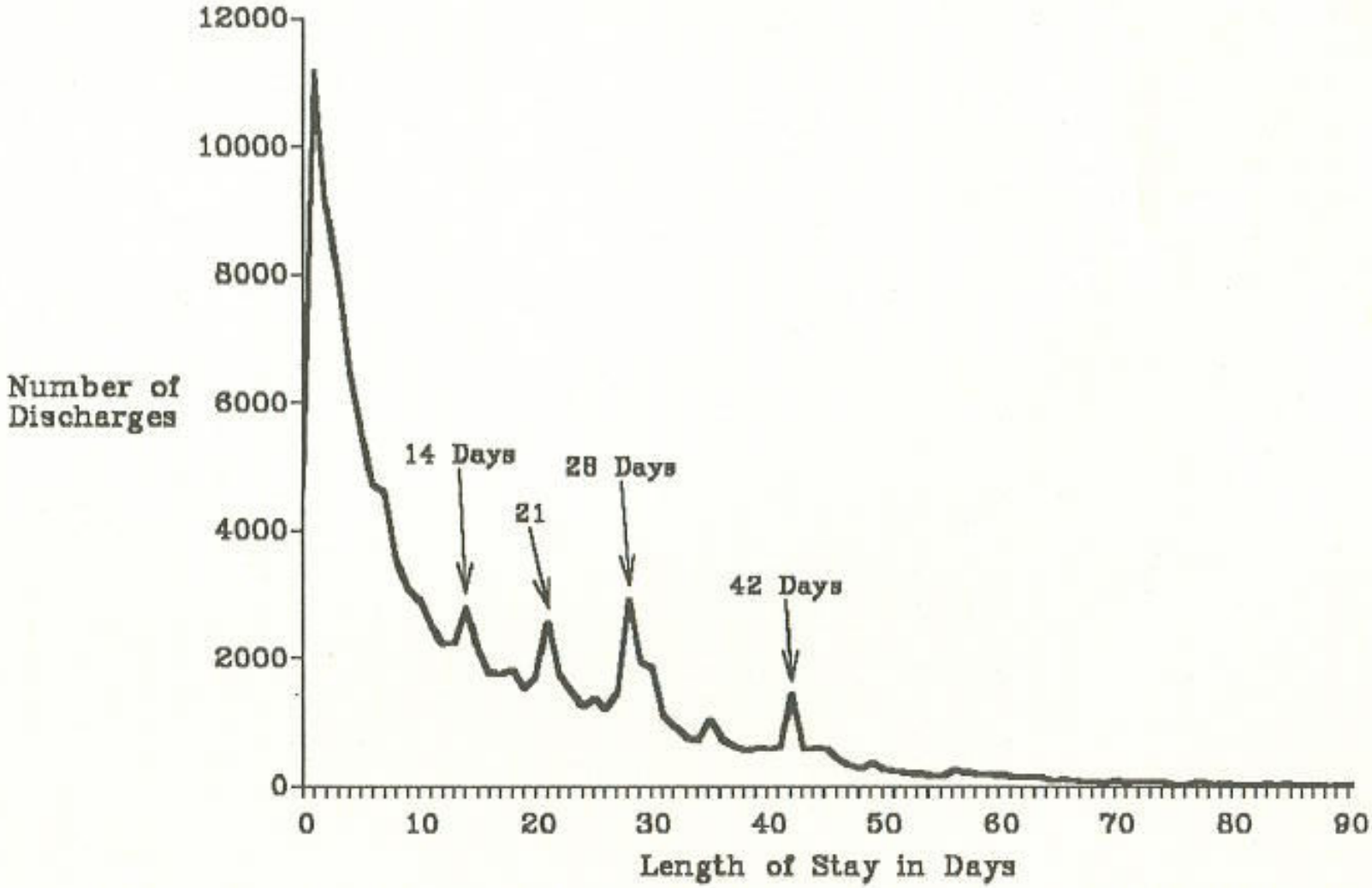
Payment Source

Most hospitalizations were reimbursed by private insurance (53 percent), either by Blue Cross or some other program. More than a quarter (27 percent) were paid by Medicaid or another publicly funded program such as Title V, Workers Compensation, etc. (although the latter were few in number). The remaining cases (21 percent) were either self paid, involved no charges to the patient, or were charged to some "other" source.

The payment source varied significantly according to whether the patient was admitted to the hospital as an adolescent or a young adult, and according to ethnicity. Private insurance was the source of payment in 61 percent of the adolescent cases while Medicaid and other public programs paid for 25 percent; the respective figures for young adults were 44 and 29 percent ($\tau_b = -.175$, $p < .001$). Among white patients, 56 percent of hospitalizations were paid by insurance and 24 percent by Medicaid; for non-White patients, 34 percent were paid by insurance while 42 percent were covered by Medicaid ($\tau_b = -.131$, $p < .001$). Male and female patients were equally likely to be covered by insurance, about 52 percent in both groups.

Payment sources also differed among diagnostic groups. The proportion of cases covered by private insurance ranged from a low of 35 percent for young adults diagnosed with psychoses or conduct

Figure 1: Frequency Distribution of Discharges by Length of Stay in Days (N=119,857)



disorders, to a high of 72 percent among adolescents hospitalized for drug abuse and dependency. Payment by insurance was more common for adolescents in every diagnostic grouping. Among those diagnosed as psychotic, for example, 56 percent of the adolescent hospitalizations were covered by insurance, but only 35 percent of adults. Sixty-three percent of adolescents diagnosed for non-dependent drug abuse were insured, but only 44 percent of adults.

Average lengths of stay are shown in Figure 2 according to the source of payment. The vertical axis provides the ALOS for each admission-age group—i.e., those admitted at age 13, at age 14, etc. Patients with stays longer than 90 days are again excluded. Cases with very short lengths of stay are also excluded, thus reducing the influence of extreme cases on both ends of the LOS distribution. Figure 2 represents all patients with lengths of stay from 2 through 90 days (N = 104,034).[6] The association between payment source and length of stay is visible in Figure 2. At each admission age, those patients with access to private insurance have longer average stays. Those without insurance *or* Medicaid spent the least time in inpatient care. Figure 2 also demonstrates that patients entering the hospital at age 18 or above spent less time in care. In fact, lengths of stay fall dramatically between admission ages of 16 and 18, and remain stable after age 18. This pattern appears in all payment groups.

Table 2 explores the extent to which the relationship between payment source and mean length of stay varies among diagnostic categories and admission ages. Paired difference of means tests were performed within a series of "oneway" analyses of variance (ANOVA). Differences which reached statistical significance (Scheffe test, $p < .01$) are portrayed by arrows indicating the direction of the relationship. Non-significant differences are indicated by the approximate equality sign ($\approx$).

Statistical analyses of skewed distributions using simple means or averages are subject to misinterpretation. When transformed to natural logarithms, the length of stay distribution approximates normality. Length of stay data are typically examined in this manner (e.g., English et al., 1986; Frank & Lave, 1986; Christ, Tsemberis & Andrews, 1987; Choca et al., 1988). ALOS in its original, or

arithmetic form, is shown for each payment source within diagnostic groups and by age at admission. The difference between each pair of means, however, was tested using the log transformations of LOS.

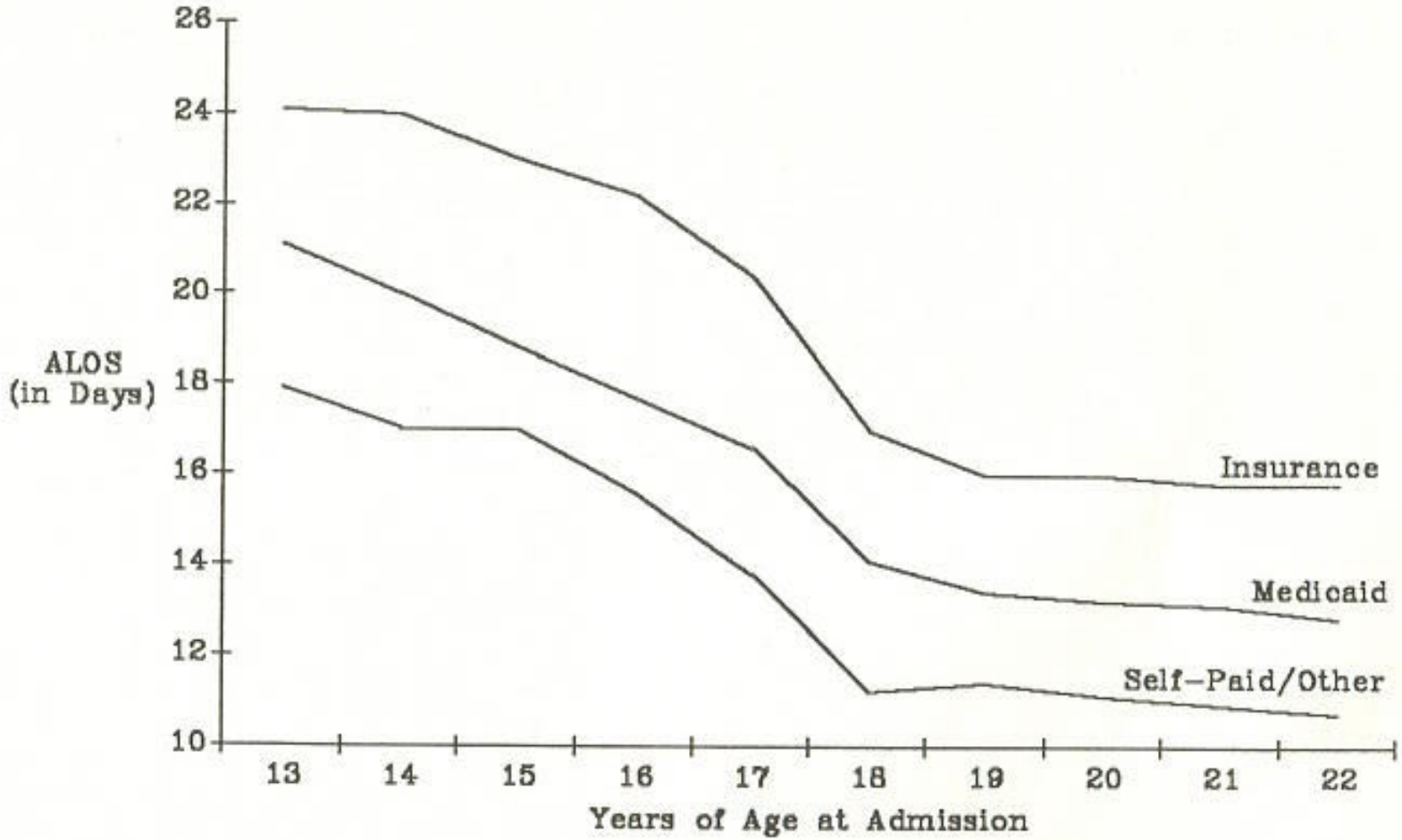
Table 2 reveals that, except for patients diagnosed with psychoses or adjustment reactions (or the few cases of adults with conduct disorders), mean lengths of stay among privately insured patients were significantly longer than for patients covered by Medicaid or other public programs, and for patients without coverage of any kind. Among adolescents hospitalized for drug dependency, nondependent drug abuse, and conduct disturbance, for example, insured patients stayed an average of 5 days longer than patients covered by Medicaid. Young adults diagnosed with drug and alcohol problems were hospitalized five to seven days longer if they were covered by private insurance rather than Medicaid or other public sources. Among young adult patients with psychoses, conduct disturbance, and adjustment reaction, the association between insurance and length of stay was not significant.

DISCUSSION

The pattern of diagnoses in the hospital discharge data suggests that adolescents are treated in general hospitals for less serious mental health problems than young adults who are just a few years older. Nearly a quarter (24 percent) of the young adults discharged from general hospitals had been diagnosed with some form of psychoses. Among adolescents aged 13 to 17, only 9 percent had a psychotic diagnosis. Adolescents outnumbered their young adult counterparts in neuroses, adjustment reactions, conduct disturbance, and nondependent substance abuse diagnoses. They were also more likely to be diagnosed with cannabis dependence. Adults were more prevalent among those diagnosed with psychoses, bipolar disorder, and cocaine and alcohol dependence.

Psychiatric lengths of stay in general hospitals were consistently longer for adolescents than for young adults. Only in cases of alcoholic psychoses and organic brain damage were young adults hospitalized longer on average. Traditional explanations of this phenom-

Figure 2: Average Length of Stay by Age at Admission by Source of Payment, Excluding Cases with LOS Under 2 or Over 90 Days
(N = 102,923)



Data for Figure 2:

	SOURCE OF PAYMENT								
	Self-paid or Other			Medicaid			Private Insurance		
Age at Admission	ALOS	s.d.	N	ALOS	s.d.	N	ALOS	s.d.	N
13	17.9	16.9	547	21.1	17.6	1,538	24.1	19.9	2,398
14	17.0	15.6	999	20.0	17.3	2,373	24.0	19.4	4,770
15	17.0	15.7	1,417	18.8	16.6	3,073	23.0	18.6	7,236
16	15.6	15.2	1,735	17.7	15.9	3,128	22.2	17.9	8,619
17	13.8	13.9	1,898	16.6	15.4	2,749	20.4	16.6	8,159
18	11.2	11.5	2,009	14.1	14.5	2,078	17.0	14.2	5,938
19	11.4	11.5	2,354	13.4	13.0	2,750	16.0	13.6	4,419
20	11.1	11.3	2,517	13.2	12.9	3,171	16.0	13.3	4,225
21	10.9	10.8	2,981	13.1	12.4	3,536	15.8	12.7	4,399
22	10.7	10.4	3,062	12.8	12.0	4,104	15.8	12.5	4,741
Totals	12.6	12.8	19,519	15.6	14.8	28,500	19.7	16.5	54,904

Table 2: Differences in Mean Length of Stay (ALOS) by Principal Diagnosis, by Age at Admission, by Source of Payment (N = 104,034).[1]

	AGE AT ADMISSION											
	13 - 17						18 - 22					
	Self Pay		Insurance		Public		Self Pay		Insurance		Public	
All Psychoses	17.7	<	22.4	≈	20.6		12.9	<	16.6	≈	15.9	
Drug Abuse/Dep	22.3	<	26.9	>	21.2		12.4	<	19.4	>	12.1	
Nondependent Drug Use	13.7	<	21.2	>	15.3		7.7	<	14.7	>	9.2	
Conduct Disturbance	15.3	<	24.6	>	19.6		11.7	≈	14.0	≈	15.5	

Adjustment Reaction	11.4	<	15.2	≈	14.4	7.4	<	9.4	≈	9.5
Depression	17.7	<	23.7	>	20.4	11.2	<	14.3	>	13.1
Other Non-Psychotic	13.5	<	20.6	>	17.9	10.0	<	17.1	>	11.9

1. Excludes cases with lengths of stay over 90 days or under 2 days. ALOS is reported as arithmetic mean, but statistical tests were calculated using a natural logarithmic transformation of length of stay.

ANOVA Results:

< First Log(ALOS) significantly shorter than second: $p < .01$
> First Log(ALOS) significantly longer than second: $p < .01$
≈ First and second Log(ALOS) not significantly different.

enon (e.g., adolescent disorders take longer to treat, the families of dependent adolescents often fail to provide a stable environment upon discharge, adolescents do not respond well to medication, or adults are less willing to drop out of the labor force for extended periods) all imply that adolescent and young adult lengths of stay differ because of developmental issues and issues related to the social transition into adulthood. These explanations would suggest that lengths of stay should fall gradually throughout adolescence *and* into the young adult years of 18 to 22. Yet, the data here show that average length of stay falls relatively quickly at around the age of 16 to 18 and remains stable thereafter. Traditional arguments for longer adolescent lengths of stay need to be re-examined. It may be that economic and legal factors (i.e., the right to consent to treatment and coverage by a parent's insurance benefits) play a significant role (Balos & Schwartz, 1988).

The duration of inpatient psychiatric treatment for adolescents and young adults can be quite different, and possibly for reasons other than treatment concerns. The visible peaks in the frequency of hospital discharges at lengths of stay of 14, 21, 28, and 42 days, for example, could be caused by treatment schedules. But they are more likely the result of payer coverage policies with capitations in 7-day increments, or hospital practices regarding the staffing (or review) of inpatient cases.

The influence of insurance availability is apparent in the data presented above. Patients with private insurance had significantly longer hospital stays, even controlling for age and diagnosis. The relationship between insurance access and length of stay remained even in a multiple regression analysis which regressed length of stay on five independent variables: sex and ethnicity of the patient (coded as binary or dummy variables with female and non-white as the excluded categories), discharge disposition of the patient (whether to own home or not), the facilities of the treating hospital (with or without a designated psychiatric unit), and whether hospitalization was paid by insurance. In all but one pairing of age and diagnostic category (i.e., young adults diagnosed with conduct disturbance), access to insurance was associated with length of stay at a statistically significant level ($p < .001$).

CONCLUSION

These findings may not surprise readers familiar with hospital discharge data. Indeed, the mere existence of an association between length of stay and insurance availability does not provide any information about the appropriateness or effectiveness of treatment. Are patients with private insurance being held inappropriately until their benefits run out, or are non-insured patients discharged prematurely because of restrictive coverage? Does the association between insurance coverage and length of stay necessarily reveal hospital discharge practices that are revenue driven?

While the few variables considered here are not sufficient by themselves as an explanation of psychiatric length of stay, they support the contention that structural, non-clinical factors affect the length of hospitalization. As has been found in previous studies—although not fully explored—the individual experiences of psychiatric inpatients are at least partly determined by forces which on the surface appear completely unrelated to mental health treatment. The significant relationship between insurance coverage and treatment duration argues that additional attention is needed on the determinants of psychiatric lengths of stay and their resulting outcomes for patients.

Future investigations of adolescent inpatient treatment should focus on young people hospitalized for conduct disturbances, adjustment reactions, and substance abuse problems. As recently as 20 years ago, youths with these diagnoses were a small minority of the patient populations typically found in psychiatric hospital research (Gossett et al., 1973). The data in this study demonstrate that conduct disturbance and adjustment reaction are very common principal diagnoses among hospitalized juveniles today. Youths hospitalized for drug abuse diagnoses are also quite prevalent, although it is not clear that inpatient treatment is either effective or necessary for many drug and alcohol problems (Amini et al., 1982; Polich et al., 1984). Many youths are hospitalized for "nondependent" drug abuse as well. Some of these may involve acute and/or toxic doses of illicit drugs and alcohol. With no need to meet a clinical standard of "dependency," however, it is easy to imagine how the distinc-

tion between dangerous behavior and deviant behavior could become obscured when adolescent drug use comes to the attention of frightened parents and communities.

Evidence of the effectiveness of hospitalization continues to elude researchers. Unless it can be demonstrated that there are advantages to inpatient treatment for relatively non-serious behavioral and emotional disorders, public policy should emphasize non-hospital alternatives in designing mental health services for children and adolescents. This would necessarily mean restricting hospitalization to the most serious cases involving dangerous behavior and severe disorders. Less serious problems should be treated whenever possible in non-hospital settings. The available research on psychiatric treatment also suggests that if and when inpatient care is warranted, the duration of hospitalization should be kept "as short as feasible" (Mattes, 1982:827). Assuming that good alternatives are available, this goal should apply to the treatment of children and adolescents as well.

Inpatient psychiatric hospitalization offers an attractive combination of treatment and control, a combination that over-stressed parents and youth services professionals may find hard to resist. If public policy is to ensure that mental health services are delivered within the least restrictive setting compatible with treatment needs, practitioners and policy-makers must continue to ask who are the young people being hospitalized for mental health problems, why do some stay longer than others, and how often do long hospital stays result from factors unrelated to treatment needs? In order to answer these questions, future research on adolescent psychiatric hospitalization will have to go beyond clinical concerns and address the social, economic, legal, and organizational processes which affect patient outcomes.

NOTES

1. One recent estimate placed the per capita increase in general hospital psychiatric inpatient episodes among children and adolescents at 195 percent between 1971 and 1985 (Lerman, 1990). Contrary to what many assume, a large portion of psychiatric inpatient episodes occur in general hospitals, many without psychiatric units or designated psychiatric beds. In fact, it is the omission of such hospitals

which led federal agencies to under-estimate the growth rate in psychiatric hospitalization in the past (Kiesler & Sibulkin, 1987:76).

2. In order to maintain patient and hospital confidentiality, all patient identifiers were removed and hospital identifiers were scrambled before the data base was assembled for analysis.

3. Also, the size of the patient cohorts in the PAS database declined between 1986 and 1988. This was primarily due to a decline in PAS participation from over 1,300 hospitals in 1986 to about 1,000 in 1988. The age, gender, ethnic, and diagnostic profile of the patients, however, was relatively unchanged over the three years.

4. The twenty-six diagnostic categories in Table 1 were derived directly from the ICD-9-CM: *The International Classification of Diseases, 9th Revision, Clinical Modification*, (CPHA, 1978). No attempt was made to group the diagnoses according to other clinical criteria.

5. Neurotic depression diagnoses are in the 300.40 to 300.49 range in the ICD-9-CM (CPHA, 1978).

6. The deletion of cases lacking payment information reduces the working sample to 102,923 in Figure 2.

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