MENTAL HEALTH
Statistical
Note No. 178

Legal Status of Admissions to Three Inpatient Psychiatric Settings, United States, 1980

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October 1986

Overview

Inpatient psychiatric services have changed dramatically over the past 30 years (Bassuk and Gerson 1978; Goldman et al. 1983; Bachrach 1985). Yet, relatively little is known about changes that have occurred in the distribution of legal statuses among admissions to inpatient settings. An emergent service delivery issue is the locus of responsibility for involuntary patients admitted under both civil and criminal statutes. Variations in the characteristics of admissions within these legal statuses across different inpatient settings are important, and for the most part, unrecognized in current analyses of evolving mental health service delivery models. In fact, knowledge about the legal status of admissions is crucial in understanding the overall dynamics of contemporary mental health care systems.

This note reports findings from three sample surveys of admissions during 1980, conducted by the Survey and Reports Branch (SRB), National Institute of Mental Health (NIMH). The surveys covered the inpatient psychiatric services of State and county mental hospitals and private psychiatric hospitals and the separate inpatient psychiatric services of non-Federal general hospitals.[1] Results show that most persons were voluntarily admitted to these inpatient psychiatric services. Of the 1,176,558 inpatient admissions, 838,317, or 71 percent, were voluntary admissions. Involuntary noncriminal commitments represented the majority of remaining admissions; they accounted for 306,468 admissions, or 26 percent. Involuntary criminal commitments represented only 31,773 admissions, or 3 percent of the incoming caseload. The discussion that follows presents an analysis of the legal status of these admissions by sex, race, age, referral source, diagnosis, and length of stay. The sources and limitations of the data, together with estimated sampling errors, are presented in the technical appendix.

As shown in table A, the separate inpatient psychiatric services of non-Federal general hospitals (hereafter referred to as general hospitals) admitted a larger number of patients to inpatient psychiatric services in 1980 (666,300) than either State and county mental hospitals (369,049) or private psychiatric hospitals (141,209). Substantial differences occurred across these three settings in the distribution of legal statuses among inpatient admissions (table A). As expected, State and county mental hospitals admitted a much larger percentage of patients on an involuntary basis (58 percent) than either general hospitals or private psychiatric

hospitals (16 percent and 13 percent, respectively). For the three settings, 64 percent of all involuntary admissions and 85 percent of involuntary criminal admissions in 1980 were to State and county mental hospitals (percents not shown in table). These high levels of involuntary admissions to State and county mental hospitals occurred despite the fact that the latter organizations accounted for only 31 percent of all inpatient admissions to the three settings.

Table A. Percent distribution of admissions to selected inpatient psychiatric services by legal status: United States, 1980

Legal status	Inpatient psychiatric services					
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals			
			Total	Public	Nonpublic	Multiservice
Total	369,049	141,209	666,300	127,372	436,589	102,339
Voluntary ...	41.6%	87.4%	84.2%	67.5%	92.3%	70.8%
Involuntary: noncriminal	51.1	12.5	15.1	30.2	7.7	27.6
Involuntary: criminal ..	7.3	0.1	0.7	2.4	-	1.6

Note: Percentages may not add to 100 due to rounding.

Sex and Race

Males comprised a larger percentage of all inpatient admissions to State and county mental hospitals (65 percent) than to private psychiatric hospitals or general hospitals (48 percent and 45 percent, respectively; table 1). This relationship was noted for voluntary admissions and involuntary noncriminal commitments, but not for involuntary criminal commitments, where males represented approximately equal percentages of admissions to State and county mental hospitals and private psychiatric hospitals (84 percent and 88 percent, respectively).

In all three settings, the relative distribution of males varied by legal status. For each hospital type, males comprised a larger percentage of involuntary criminal commitments than either voluntary admissions or involuntary noncriminal commitments. In State and county mental hospitals, 84 percent of the involuntary criminal admissions were males, compared with 66 percent of voluntary and 62 percent of involuntary civil admissions. In private psychiatric hospitals, 88 percent of involuntary criminal admissions were males, compared with 47 percent of voluntary and 54 percent of involuntary civil admissions. Similarly, in general hospitals, 77 percent of the involuntary criminal commitments were males, compared with 44 percent of voluntary admissions and 51 percent of involuntary noncriminal commitments.

Differences with respect to racial composition also existed by hospital type and legal status (table 1). Overall, persons from races other than white represented larger percentages of all admissions to State and county mental hospitals than to private psychiatric hospitals or general hospitals. This pattern was also noted for voluntary admissions and involuntary noncriminal commitments. Among involuntary criminal commitments, the percentages of persons from races other than white were about equal in State and county mental hospitals and general hospitals (37 percent and 36 percent, respectively).

With the exception of private psychiatric hospitals, where no persons from races other than white were admitted through involuntary criminal commitments, minorities tended to comprise somewhat larger percentages of involuntary commitments and smaller percentages of voluntary admissions. In State and county mental hospitals, races other than white represented 31 percent of involuntary noncriminal commitments and 37 percent of involuntary criminal commitments, compared with 23 percent of voluntary admissions. Similarly, in non-Federal general hospitals, minorities comprised 25 percent of involuntary noncriminal commitments and 36 percent of criminal commitments, compared with only 16 percent of voluntary admissions. (For general hospitals, the percent difference between voluntary admissions and criminal commitments was not statistically significant due to the large standard errors for the small number of criminal commitments.)

Comparisons of admission rates per 100,000 civilian population (table 1) show considerable differences among organization types. Overall, general hospitals admitted patients at higher rates per 100,000 civilian population than State and county mental hospitals or private psychiatric hospitals. This relationship held for both the sexes and for whites, but not for persons from all other races, who had about equal rates of admission to general hospitals and State and county mental hospitals (359.7 and 328.0 admissions per 100,000 civilian population, respectively). Irrespective of sex or race, voluntary admissions had higher admission rates to general hospitals, and involuntary commitments had higher admission rates to State and county mental hospitals.

In State and county mental hospitals, irrespective of legal status, males had higher admission rates than females, and persons from races other than white had higher rates than whites. By contrast, in private psychiatric hospitals, significant differences did not exist between male and female rates for any legal status. However, among voluntary admissions to these hospitals, persons from races other than white had lower admission rates than whites; differences between racial groupings were not statistically significant for the other legal statuses. In general hospitals, the only significant differences in admission rates were found among voluntary admissions, where males had lower rates than females, and among involuntary noncriminal admissions, where persons from all other races had higher rates than whites.

Age

Very few differences were observed across the three settings in the age distributions of admissions in different legal statuses (table 2). Irrespective of hospital type or legal status, persons in the 25–44 year age group represented the largest percentage of admissions.

Several age variations were noted within specific settings. In State and county mental hospitals, 38 percent of the involuntary criminal admissions were under age 25, compared with 25 percent of involuntary noncriminal and 24 percent of voluntary admissions. In general hospitals, the majority of

involuntary criminal commitments (72 percent) were between the ages of 25–44, a percentage much higher than for any other legal status.

Referral Source

Substantial differences were observed in the overall pattern of referral sources for all admissions to State and county mental hospitals, compared with general hospitals and private psychiatric hospitals (table 3). Moreover, for each setting, differences occurred among referral patterns for the different legal statuses. Fully 29 percent of all referrals to State and county mental hospitals were from the police or courts, compared with only 10 percent in general hospitals and 5 percent in private psychiatric hospitals. This larger percentage of police and court referrals to State and county mental hospitals was due largely to the referral patterns of involuntary criminal commitments to these hospitals; almost all (94 percent) of the latter were referred by the police or courts.

Referral by the police or courts is not the only referral source that varied by type of setting. Overall, referrals by psychiatrists and other physicians comprised only 9 percent of admissions to State and county mental hospitals, but 43 percent of admissions to private psychiatric hospitals and 32 percent of admissions to general hospitals. In private psychiatric hospitals, both voluntary admissions and involuntary noncriminal commitments showed relatively high percentages of physician referrals (47 percent and 20 percent, respectively). Variation also existed in the percentages of admissions who referred themselves for treatment or who were referred by family or friends. While about one-half of voluntary admissions to State and county mental hospitals and general hospitals (52 and 46 percent, respectively) were referred by self, family, or friends, less than one-third (30 percent) of voluntary admissions to private psychiatric hospitals came from these referral sources.

Primary Diagnosis[2]

Substantial variations existed in the pattern of diagnoses for all admissions across hospital types, as well as across legal statuses within hospital types (table 4). Overall, State and county mental hospitals admitted a larger percentage of patients diagnosed with schizophrenia (38 percent), as contrasted with private psychiatric hospitals (21 percent) and general hospitals (25 percent). This relationship was also noted among voluntary admissions, but not among involuntary commitments.

Schizophrenia tended to be diagnosed more frequently among involuntary admissions than among voluntary admissions. In State and county mental hospitals, schizophrenia represented 29 percent of all voluntary admissions, 45 percent of involuntary noncriminal commitments, and 42 percent of involuntary criminal commitments. A similar pattern was found in general hospitals, where the corresponding figures were 22 percent, 42 percent, and 41 percent. (Due to large standard errors, the difference observed between voluntary admissions and involuntary criminal commitments was not statistically significant for general hospitals.) In private psychiatric hospitals, schizophrenia was found more frequently among involuntary noncriminal commitments than among voluntary admissions (39 percent versus 19 percent).

State and county mental hospitals also had a substantially larger proportion of admissions diagnosed with alcohol and drug-related disorders (26 percent), compared with private psychiatric hospitals (12 percent) and general hospitals (11 percent). This relationship held regardless of legal status. However, for

State and county mental hospitals the percentages of admissions diagnosed with alcohol and drug-related disorders varied across the different legal statuses; voluntary admissions were diagnosed with these disorders more frequently than were involuntary admissions. In State and county mental hospitals, 40 percent of all voluntary, 18 percent of all involuntary noncriminal, and 10 percent of all involuntary criminal admissions received these diagnoses. This relationship assumed a somewhat different form in private psychiatric hospitals and general hospitals, where these differences were not observed.

Affective disorders were much more prevalent among admissions to private psychiatric hospitals and general hospitals (43 percent and 31 percent, respectively), compared with State and county mental hospitals (13 percent). In private psychiatric hospitals and general hospitals, affective disorders tended to occur with a smaller relative frequency among involuntary admissions than among voluntary admissions. Although 45 percent of voluntary admissions to private psychiatric hospitals were diagnosed with affective disorders, a smaller percentage of involuntary noncriminal commitments received these diagnoses (27 percent). Similarly, in general hospitals, 33 percent of voluntary admissions received these diagnoses, compared with 20 percent of involuntary noncriminal commitments.

Length of Stay[3]

Differences existed across hospital types and across legal statuses within hospital types with respect to length of stay (LOS) (table 5). Overall, about 85 percent of general hospital admissions were discharged in less than 29 days, compared with 68 percent in private psychiatric hospitals and 55 percent in State and county mental hospitals. By contrast, 20 percent of State and county mental hospital admissions stayed longer than 90 days, compared with 6 percent of private psychiatric hospital admissions and only 1 percent of general hospital admissions.

These differences in LOS are closely linked to legal status. In State and county mental hospitals, length of stay for 34 percent of the involuntary criminal admissions exceeded 90 days, compared with 22 percent of involuntary noncriminal admissions and 16 percent of voluntary admissions. Given both the smaller relative frequency of involuntary admissions to private psychiatric hospitals and general hospitals and the shorter LOS of these admissions, the shorter overall LOS for all admissions to these settings is quite understandable. In this respect, the results show that no involuntary criminal commitments exceeded a 90-day LOS in either private psychiatric hospitals or general hospitals, and only 4 percent and 1 percent of involuntary noncriminal admissions, respectively, exceeded 90 days. In fact, 54 percent of involuntary criminal admissions to general hospitals stayed between 1 and 7 days.

Significant differences were not found in the overall median days of stay for admissions to State and county mental hospitals (23 days) and private psychiatric hospitals (19 days) (table B). However, general hospitals admitted persons for considerably shorter periods of inpatient care (12 days). Among voluntary admissions, the median lengths of stay in State and county mental hospitals and private psychiatric hospitals were about the same. Among involuntary commitments, State and county mental hospital admissions had longer median lengths of stay. Regardless of legal status, admissions diagnosed with organic disorders or schizophrenia had longer median stays in State and county mental hospitals than in private psychiatric hospitals or general hospitals.

In private psychiatric hospitals and general hospitals, only slight differences were found in the median days of stay across legal statuses. However, in State and county mental hospitals, involuntary criminal commitments had much longer stays (46 days) than did involuntary noncriminal commitments (25 days) and voluntary admissions (19 days). Much of this difference could be attributed to variation in the composition of diagnostic groups across legal statuses (see table 4). Admissions with schizophrenia or alcohol and drug-related disorders had longer stays when admitted on an involuntary criminal basis (84 days and 29 days, respectively), compared with those admitted on a voluntary basis (31 days and 12 days, respectively) or on an involuntary noncriminal basis (43 days and 11 days, respectively). Of potential interest, those admitted to State and county mental hospitals with diagnoses of organic disorders had much shorter stays when admitted through an involuntary criminal commitment, compared with those admitted through an involuntary noncriminal commitment or a voluntary entry (40, 71, and 74 days, respectively).

Table B. Median days of inpatient stay for admissions (excluding deaths) to selected inpatient psychiatric services, by legal status and selected primary diagnoses: United States, 1980

Legal status and primary diagnoses	Inpatient psychiatric services		
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals
Total	23	19	12
Alcohol and drug-related	12	20	6
Organic	71	17	14
Affective	22	20	14
Schizophrenia	42	18	15
Voluntary	19	20	12
Alcohol and drug-related	12	21	7
Organic	74	18	15
Affective	21	20	14
Schizophrenia	31	19	14
Involuntary-noncriminal ..	25	14	10
Alcohol and drug-related	11	8	4
Organic	71	13	11
Affective	22	15	13
Schizophrenia	43	16	12
Involuntary-criminal	46	14	7
Alcohol and drug-related	29	-	*
Organic	40	*	*
Affective	31	*	*
Schizophrenia	84	*	12

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

Summary

The data presented in this note provide a picture of the legal statuses of admissions to inpatient psychiatric services during 1980. In general, most inpatient admissions were voluntary. Involuntary commitments were considerably more frequent in State and county mental hospitals than in general hospitals or private psychiatric hospitals. Males and persons from all races other than white tended to comprise larger percentages of involuntary commitments than did females or whites. In State and county mental hospitals, involuntary criminal commitments tended to be clustered in the younger ages, under 25 years, compared with voluntary admissions and involuntary noncriminal commitments. Although involuntary commitments, particulary criminal commitments, were frequently referred by the police or courts, voluntary commitments were more often referred by self, family, friends, or psychiatrists and other physicians. Affective disorders and alcohol and drug-related disorders tended to be found more frequently among voluntary admissions; schizophrenia, among involuntary admissions. Involuntary admissions tended to stay for longer periods than voluntary admissions, particularly in State and county mental hospitals.

Notes

[1]Discharges rather than admissions were sampled from the separate inpatient psychiatric services of non-Federal general hospitals. Since admissions to these services have relatively short lengths of stay, the patient characteristics of admissions and discharges are essentially equivalent. Hence, this publication refers to all patients as admissions.

[2]The diagnostic groupings used in this publication are defined as follows:

Selected diagnoses	Combined DSM-II/ICDA-8 Codes	Combined DSM-III/ICD-9-CM Codes
Alcohol/drug related disorders	291; 294.3; 303; 304; 309.13; 309.14	291; 292; 303; 304; 305.0-305.9; 327; 328
Organic disorders	290; 292; 293; 294 (except 294.3); 309.0; 309.2-309.9	290; 293; 294; 310
Affective disorders	296; 298.0; 300.4	296; 298.0; 300.4; 301.11; 301.13
Schizophrenia	295	295; 299
Personality disorders	301	300.16; 300.19; 301 (except 301.11 and 301.13); 312.3
No mental disorder	318	V71.09

[3]The surveys of State and county mental hospitals and private psychiatric hospitals sampled a 1-month cohort of admissions who were then followed for an additional 3-month period. Nineteen percent of admissions to State and county mental hospitals and 5 percent of admissions to private psychiatric hospitals were still in treatment at the end of the survey period. Median length of stay (table B) is a positional measure that divides all admissions into two groups of equal size. Fifty percent of all admissions have a length of stay longer than the median; 50 percent, a length of stay shorter than the median. Results are comparable across the three types of inpatient psychiatric services surveyed. However, it should be noted that a positional measure, such as the median, will produce results that may differ from other measures of central tendency, such as the mean length of stay.

References

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Table 1. Number, percent distribution, and rate per 100,000 civilian population[1] of admissions to selected inpatient psychiatric services, by legal status, sex, and race: United States, 1980

Legal status, sex, and race	Inpatient psychiatric services					
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals			
			Total	Public	Nonpublic	Multiservice
	Number					
Total	369,049	141,209	666,300	127,372	436,589	102,339
Male	239,400	67,395	301,010	59,472	195,198	46,340
Female	129,649	73,814	365,290	67,900	241,391	55,999
White	265,442	123,051	552,679	97,233	371,981	83,465
All other races	103,607	18,158	113,621	30,139	64,608	18,874
Voluntary	153,584	123,404	561,329	85,929	402,930	72,470
Male	100,566	57,755	246,022	38,043	176,327	31,652
Female	53,018	65,649	315,307	47,886	226,603	40,818
White	118,541	108,454	473,998	68,654	343,940	61,404
All other races	35,043	14,950	87,331	17,275	58,990	11,066
Involuntary-noncriminal	188,492	17,643	100,333	38,442	33,659	28,232
Male	116,170	9,498	51,424	18,926	18,871	13,627
Female	72,322	8,145	48,909	19,516	14,788	14,605
White	129,875	14,435	75,694	26,459	28,041	21,194
All other races	58,617	3,208	24,639	11,983	5,618	7,038
Involuntary-criminal	26,973	162	4,638	3,001	-	1,637
Male	22,664	142	3,564	2,503	-	1,061
Female	4,309	*	1,074	*	-	*
White	17,026	162	2,987	2,120	-	867
All other races	9,947	-	1,651	*	-	770

Table 1. Number, percent distribution, and rate per 100,000 civilian population[1] of admissions to selected inpatient psychiatric services, by legal status, sex, and race: United States, 1980 (continued)

Legal status, sex, and race	Inpatient psychiatric services					
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals			
			Total	Public	Nonpublic	Multiservice
	Percent distribution					
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Male	64.9	47.7	45.2	46.7	44.7	45.3
Female	35.1	52.3	54.8	53.3	55.3	54.7
White	71.9	87.1	82.9	76.3	85.2	81.6
All other races	28.1	12.9	17.1	23.7	14.8	18.4
Voluntary	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Male	65.5	46.8	43.8	44.3	43.8	43.7
Female	34.5	53.2	56.2	55.7	56.2	56.3
White	77.2	87.9	84.4	79.9	85.4	84.7
All other races	22.8	12.1	15.6	20.1	14.6	15.3
Involuntary-noncriminal	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Male	61.6	53.8	51.3	49.2	56.1	48.3
Female	38.4	46.2	48.7	50.8	43.9	51.7
White	68.9	81.8	75.4	68.8	83.3	75.1
All other races	31.1	18.2	24.6	31.2	16.7	24.9
Involuntary-criminal ..	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Male	84.0	87.7	76.8	83.4	-	64.8
Female	16.0	*	23.2	*	-	*
White	63.1	100.0	64.4	70.6	-	53.0
All other races	36.9	-	35.6	*		-47.0

Table 1. Number, percent distribution, and rate per 100,000 civilian population[1] of admissions to selected inpatient psychiatric services, by legal status, sex, and race: United States, 1980 (continued)

Legal status, sex, and race	Inpatient psychiatric services					
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals			
			Total	Public	Nonpublic	Multiservice
	Rate per 100,000 civilian population					
Total	163.6	62.6	295.3	56.5	193.5	45.4
Male	219.8	61.9	276.4	54.6	179.2	42.5
Female	111.1	63.3	313.1	58.2	206.9	48.0
White	136.8	63.4	284.9	50.1	191.7	43.0
All other races	328.0	57.5	359.7	95.4	204.5	59.8
Voluntary	68.1	54.7	248.8	38.1	178.6	32.1
Male	92.3	53.0	225.9	34.9	161.9	29.1
Female	45.4	56.3	270.2	41.0	194.2	35.0
White	61.1	55.9	244.3	35.4	177.3	31.6
All other races	110.9	47.3	276.5	54.7	186.8	35.0
Involuntary-noncriminal	83.6	7.8	44.5	17.0	14.9	12.5
Male	106.7	8.7	47.2	17.4	17.3	12.5
Female	62.0	7.0	41.9	16.7	12.7	12.5
White	66.9	7.4	39.0	13.6	14.5	10.9
All other races	185.6	10.2	78.0	37.9	17.8	22.3
Involuntary-criminal	12.0	0.1	2.1	1.3	-	0.7
Male	20.8	0.1	3.3	2.3	-	1.0
Female	3.7	*	0.9	*	-	*
White	8.8	0.1	1.5	1.1	-	0.4
All other races	31.5	-	5.2	*	-	2.4

[1]Population estimates used as denominators for rate computations are from the Current Population Reports of the U.S. Bureau of the Census, Series P-25, No. 929, table 3, p.19.

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

Note: Percentages may not add to 100 due to rounding.

Table 2. Percent distribution of admissions to selected inpatient psychiatric services, by legal status and age: United States, 1980

Legal status and age	Inpatient psychiatric services		
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals
Total	369,049	141,209	666,300
Under 18	4.5%	11.9%	7.2%
18-24	21.0	16.5	17.4
25-44	47.9	39.4	45.3
45-64	21.2	22.4	21.1
65 and over	5.4	9.9	8.9
Voluntary	153,584	123,404	561,329
Under 18	5.3%	12.0%	7.5%
18-24	18.9	15.9	16.7
25-44	49.6	39.5	44.8
45-64	22.0	22.7	21.6
65 and over	4.2	10.0	9.4
Involuntary-noncriminal	188,492	17,643	100,333
Under 18	4.3%	11.0%	5.9%
18-24	20.4	20.8	21.4
25-44	46.3	39.3	46.8
45-64	22.0	19.9	19.3
65 and over	7.1	9.1	6.6
Involuntary-criminal	26,973	162	4,638
Under 18	1.7%	*	-
18-24	36.7	*	16.9
25-44	49.6	*	72.5
45-64	10.9	*	*
65 and over	*	-	-

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

Note: Percentages may not add to 100 due to rounding.

Table 3. Percent distribution of admissions to selected inpatient psychiatric services, by legal status and referral source: United States, 1980

Legal status and referral source	Inpatient psychiatric services		
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals
Total	369,049	141,209	666,300
Self	15.9%	13.9%	23.9%
Family/friend	10.0	13.6	18.8
Police/court	29.0	4.9	10.4
Clinic/CMHC	17.3	10.4	7.1
Psychiatrist/other physician	8.7	43.3	32.1
State/county mental hospital	4.9	3.1	1.1
Other	14.2	10.7	6.7
Voluntary	153,584	123,404	561,329
Self	37.6%	15.8%	27.8%
Family/friend	14.2	14.2	18.6
Police/court	8.5	1.8	2.9
Clinic/CMHC	15.9	9.3	6.7
Psychiatrist/other physician	4.7	46.7	36.4
State/county mental hospital	4.0	1.8	1.0
Other	15.1	10.6	6.6
Involuntary-noncriminal.....	188,492	17,643	100,333
Self	0.4%	1.1%	3.1%
Family/friend	8.0	9.7	20.9
Police/court	36.4	26.0	48.4
Clinic/CMHC	20.4	18.8	9.5
Psychiatrist/other physician	13.2	19.9	9.4
State/county mental hospital	6.0	12.8	1.4
Other	15.4	11.7	7.2
Involuntary-criminal	26,973	162	4,638
Self	-	-	-
Family/friend	-	-	-
Police/court	94.0	91.4	87.1
Clinic/CMHC	2.6	-	*
Psychiatrist/other physician	*	-	*
State/county mental hospital	*	-	*
Other	*	8.6	*

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

Note: Percentages may not add to 100 due to rounding.

Table 4. Percent distribution of admissions to selected inpatient psychiatric services, by legal status and primary diagnosis: United States, 1980

Legal status and primary diagnosis	Inpatient psychiatric services		
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals
Total	369,049	141,209	666,300
Alcohol and drug-related	26.5%	12.2%	10.6%
Organic disorders	4.2	3.5	3.3
Affective disorders	13.4	42.9	31.1
Schizophrenia	38.0	21.2	25.2
Personality disorders ..	5.7	4.8	4.6
No mental disorder	0.9	*	0.1
All other	11.4	15.3	25.1
Voluntary	153,584	123,404	561,329
Alcohol and drug-related	39.6%	12.7%	10.4%
Organic disorders	2.5	3.2	3.1
Affective disorders	13.3	45.1	33.2
Schizophrenia	28.9	18.7	22.2
Personality disorders ..	5.0	4.9	4.8
No mental disorder	0.4	*	*
All other	10.3	15.4	26.3
Involuntary-noncriminal ..	188,492	17,643	100,333
Alcohol and drug-related	18.2%	9.0%	12.0%
Organic disorders	5.7	5.6	4.1
Affective disorders	14.4	27.4	20.4
Schizophrenia	44.7	38.9	41.5
Personality disorders ..	4.5	4.3	3.4
No mental disorder	0.6	*	*
All other	11.9	14.7	18.6
Involuntary-criminal	26,973	162	4,638
Alcohol and drug-related	9.7%	-	*
Organic disorders	2.9	*	*
Affective disorders	7.9	*	*
Schizophrenia	42.2	*	41.3
Personality disorders ..	17.2	*	*
No mental disorder	6.3	-	*
All other	13.8	*	13.8

*Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

Note: Percentages may not add to 100 due to rounding.

Table 5. Percent distribution of admissions[1] to selected inpatient psychiatric services, by legal status and length of stay: United States, 1980

Legal status and length of stay	Inpatient psychiatric services		
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals
Total	366,766	141,080	666,300
7 days or less	25.9%	23.4%	34.1%
8-28 days	29.3	45.0	50.6
29-90 days	24.5	26.0	14.5
91 days or more[2]	20.3	5.6	0.8
Voluntary	153,067	123,297	561,329
7 days or less	31.6%	22.0%	32.9%
8-28 days	28.8	45.4	51.3
29-90 days	23.5	26.8	15.0
91 days or more[2]	16.1	5.7	0.7
Involuntary-noncriminal	186,869	17,621	100,333
7 days or less	23.2%	33.5%	39.6%
8-28 days	30.1	41.8	47.5
29-90 days	25.0	20.3	11.9
91 days or more[2]	21.8	4.4	*
Involuntary-criminal ..	26,830	162	4,638
7 days or less	11.9%	*	53.6%
8-28 days	27.3	*	34.1
29-90 days	27.2	*	*
91 days or more[2]	33.6	-	-

[1]Patients who died while in treatment are excluded.

[2]Patients who were still in treatment at the end of the survey period are included in this category.

Note: Percentages may not add to 100 due to rounding.

Technical Appendix

1980 Sample Surveys
Admissions to Psychiatric Inpatient Services
State and County Mental Hospitals
Private Psychiatric Hospitals
Non-Federal General Hospitals

Survey Designs and Procedures*

A. Survey Designs

Scope of the surveys

The surveys of admissions to State and county mental hospitals and private psychiatric hospitals were conducted during the period July 1980 to October 1980 by the Survey and Reports Branch (SRB), National Institute of Mental Health (NIMH), in cooperation with State mental health agencies. The survey of discharges from the separate psychiatric inpatient services of non-Federal general hospitals was conducted during the month of February 1981 by the American Hospital Association (AHA) under contract to NIMH. The target populations included all patients admitted to the inpatient services of State and county mental hospitals and private psychiatric hospitals and all discharges from the separate psychiatric inpatient services of non-Federal general hospitals located in the 50 States and the District of Columbia.

Total additions to State and county mental hospitals consist of admissions (new and readmissions) and returns from long-term leave. The survey population included only new admissions and readmissions and excluded returns from long-term leave, whereas totals used in ratio adjustment (described below) included returns from long-term leave. The exclusion of these latter cases from the survey population could produce a slight upward bias in the estimates; however, since the number of returns from long-term leave was small in relation to other types of admissions, such bias should be negligible. Hereafter, the term admissions is used.

Sampling frames and sample sizes

The sampling frames (universes) for the surveys consisted of all hospitals reported in the most recent NIMH Inventory of Mental Health Organizations at the time of the surveys. This inventory collected data on services, caseload, staffing, and expenditures. The caseload data on admissions or discharges formed the basis for the stratification of the universe of hospital inpatient services, as described below.

For State and county mental hospitals, the original universe for the survey consisted of 274 hospitals. The target sample consisted of 169 hospitals. Of these, 10 refused to participate, and 3 were out of scope: 1 had closed, and 2 had been incorrectly classified. Thus, 156 hospitals participated in the 1980 survey and provided data for 4,867 sample inpatient admissions.

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*Prepared by Survey and Reports Branch, Division of Biometry and Applied Sciences, National Institute of Mental Health.

For private psychiatric hospitals, the original universe consisted of 180 hospitals. The target sample consisted of all 180 hospitals. Of these, 26 refused to participate. Thus, 154 hospitals participated in the 1980 survey and provided data for 6,958 sample inpatient admissions.

For non-Federal general hospital separate psychiatric inpatient services, the original universe consisted of 1,060 hospitals. The target sample consisted of 294 hospitals. Of these, 47 refused to participate and 13 were out of scope: 4 had closed and 9 had been incorrectly classified. Thus, 234 hospitals participated in the 1981 survey and provided data for 5,101 sample inpatient discharges.

Sample designs

The private psychiatric hospital survey used a one-stage stratified probability design. Hospitals were divided into two primary strata, defined by the annual number of admissions reported in the 1978 Inventory, as shown in table I. Hospitals in the small stratum were requested to include in the sample all patients admitted during the month of July 1980. Hospitals in the large stratum were requested to include only those admissions whose patient case number ended with an odd digit.

The State and county mental hospital and the non-Federal general hospital surveys used stratified probability designs selected in two stages, as described below.

In the State and county mental hospital survey, all hospitals in States identified by the Indian Health Service as having a large proportion of Native American population were selected into a certainty stratum. Hospitals in the following States were included in the certainty stratum: Alaska, Arizona, Colorado, Idaho, Kansas, Montana, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming. Remaining hospitals were stratified by size into four primary strata, defined by the annual number of inpatient admissions reported in the 1979 Inventory, as shown in table I.

In the non-Federal general hospital survey, all hospitals were stratified by three ownership/auspice categories (public, nonpublic, and multiservice/CMHC) and by five size categories, defined by the annual number of inpatient discharges reported in the 1978 Inventory, as shown in table I.

In these two latter surveys, hospitals in each primary stratum were listed by State, and sampling of hospitals was systematic, with a random start within the first sampling interval.

The second sampling stage consisted of the selection of a sample of patients admitted to sample hospitals during the month of July 1980 for State and county mental hospitals and of patients discharged during the month of February 1981 for non-Federal general hospital separate psychiatric inpatient services. Hence, each sample hospital reported data for a cluster of patients included in the second-stage sample. Each sample hospital was asked to list all inpatient admissions (discharges) during the sample month on a form provided by NIMH and to complete patient questionnaires for each patient identified on one of the predesignated sample lines. The listing booklets were designed with differential

sampling fractions, so that larger programs sampled a smaller proportion of their patients, thus maintaining approximately equal reporting levels among all sampled hospitals. Sampling was systematic, with a random start within the first sampling interval.

Data collection and instruments

The sample hospitals completed patient questionnaires on each designated sample patient. Most items were obtained from the hospital records by medical records administrator staff. The data collection instruments contained similar data items for each survey, although they were structured somewhat differently. The form used in the survey of non-Federal general hospitals was a one-part form, while those used in the surveys of State and county mental hospitals and private psychiatric hospitals were two-part forms. The first part of the form requested information pertaining to the admission of the patient and was completed at the time of admission, upon discharge, or at the end of the study period. The second part of the form requested data about the treatment of the patient, as well as a discharge summary if the patient was discharged. This second part was completed at the end of the 3-month study period or at the time of the patient's discharge from the inpatient service, whichever occurred first. In the survey of non-Federal general hospitals, both the individual questionnaires for discharged patients and the listing booklet were mailed by the sample hospitals to AHA for editing and processing. For the remaining two surveys, these materials were mailed to NIMH.

B. Limitations of the Designs

Nonresponse

As in any survey, there were three possible types of nonresponse:

1. failure of a sample hospital to participate in the survey

2. failure to obtain data on a patient designated as a sample case

3. failure to obtain specific items of information (age, diagnosis, etc.) for individual sample patients.

Estimates presented in this report were adjusted for the failure of a sample hospital to respond through the use of an adjustment factor (number of selected hospitals divided by number of respondent hospitals) in conjunction with inflation by the inverse of the first stage sampling fraction. The number of sample hospitals that did not respond to the surveys is detailed in table I, by strata. No instances occurred of failure to obtain data on an admission designated as a sample case in the State and county mental hospital and private psychiatric hospital surveys. In the non-Federal general hospital survey, data were adjusted for failure to obtain data on discharges designated as sample cases (four cases) by use of an adjustment factor (number of designated sample cases divided by the number of respondent sample cases within the same hospital). Data were adjusted for nonresponse to specific items as follows: records were sorted on a core set of variables, such as sex, age-category, diagnostic-category, stratum, region, and patient number, and the value of the variable from the previous record was substituted for the unknown

value. Unless otherwise footnoted, the percentage of cases with missing data was 5 percent or less for any given variable.

Seasonality

Data collected in this survey were inflated to represent the annual number and characteristics of admissions or discharges for the types of inpatient services surveyed, as described below. However, patients were sampled only for a 1-month period. Seasonal variations in the number and characteristics of patient admissions or discharges were not considered in the estimation or variance calculations used for these surveys.

C. Estimation

Estimation was carried out in three steps:

1. Within each primary stratum, patient records were weighted by the product of the inverse of the sampling fraction(s), the nonresponse adjustment factor(s) (described above), and the ratio of total annual admissions or discharges (described below) to total sample-month admissions or discharges. This weight has the effect of inflating sample cases to annual facility totals and inflating sample facility totals to stratum totals.

2. Within each primary stratum, weights developed in step one were multiplied by a stratum-level ratio adjustment factor defined as the ratio of the total annual admissions or discharges for all hospitals in the stratum, to the inflated total count of admissions, as calculated from the procedure described in step one. The purpose of this ratio adjustment was to take into account all relevant information in the estimation process, thereby reducing the variability of the estimate. The effect of this ratio adjustment was to bring the estimates derived from the sample into agreement with the known total number of admissions or discharges.

3. Resulting stratum level estimates were summed across strata to derive totals and subtotals for different domains of interest.

D. Reliability of Estimates

Background

Because estimates presented in this report are based on sampling, they are likely to differ from figures that would have been obtained from complete enumerations of the universes using the same instruments. Results are subject to both sampling and nonsampling errors. Nonsampling errors include biases due to inaccurate reporting, processing, and measurement, as well as error due to nonresponse and incomplete reporting. These types of errors cannot be measured, but have been minimized to the extent possible through the procedures used for data collection, editing, and quality control.

The sampling error (standard error) of a statistic is inversely proportional to the square root of the number of observations in the sample. Thus, as the sample size increases, the standard error decreases. The standard error measures the variability that occurs by chance, because only a sample rather than the entire universe is surveyed. The chances are about two out of three that an estimate from

the sample differs by less than one standard error from the value that would be obtained from a complete emuneration. The chances are about 95 out of 100 that the difference is less than twice the standard error, and about 99 out of 100 that it is less than three times as large.

In this report, statistical inference is based on the construction of 95-percent confidence intervals for estimates (0.05 level of significance). All statements of comparison in the text relating to differences such as "higher than," "less than," etc., indicate that the differences are statistically significant at the 0.05 level or better. Terms such as "similar to" or "no difference" mean that statistically, no difference exists between the estimates being compared. Lack of comment on the difference between any two estimates does not imply that a test was completed and there was a finding of no significance.

Calculation of Standard Errors

Standard errors were calculated for a broad range of subtotals within age, sex, and race subclasses through the use of SESUDAAN: Standard Errors Program for Computing of Standardized Rates from Sample Survey Data developed at the Research Triangle Institute by B.V. Shah. This procedure computes estimated sampling variance through the use of a Taylor series approximation. As applied to data from the present surveys, variance estimates for subtotals were calculated for each primary stratum and then summed across strata to derive standard errors for domains of interest. The variance estimate for each primary stratum includes both the between-facility and the within-facility components of variance, with corrections for finite populations applied at both sampling stages. Since preliminary work suggested that use of stratum-level ratio adjustment did not appreciably affect the variance estimates, all variance estimates were calculated on ratio-adjusted subtotals.

Relative standard errors of subtotal estimates

The relative standard error of a subtotal estimate is obtained by dividing the standard error of the estimate by the estimate itself and is expressed as a percent of the estimate. Approximate relative standard errors for aggregate subtotal estimates are presented in figure I. Approximately 30 curves were generated for each survey by inputting the relative variance and the inverse of weighted aggregate totals obtained from SESUDAAN into the GLM (General Linear Models) procedure in SAS (Statistical Analysis System). GLM uses the method of least squares to obtain the a and b parameters (listed in table II) and the predicted relative variance. From this, the predicted relative standard error was calculated and plotted against aggregate subtotal estimates using the GPLOT procedure in SAS/GRAPH. The 30 curves generated were very similar, and the generalized curves presented in figure I represent the most conservative of the set of curves for each survey. These generalized relative standard error curves indicate the magnitude of the relative standard error for estimates of various sizes and should be interpreted as approximate rather than exact for any specific estimate.

Alternatively, the relative standard error, RSE(x), for a subtotal estimate may be calculated directly using the following formula, where x is the size of the estimate and a and b are the parameters listed in table II. Direct computation will produce more precise results than use of the approximations in figure I. Direct computation should be used when

comparing specific subgroups of non-Federal general hospitals (i.e., public, nonpublic, multiservice), since the curve shown in figure I represents the aggregate of all three subgroups of general hospitals.

$$RSE(x) = \sqrt{a + \frac{b}{x}} \cdot 100$$

Relative standard errors of rates

The approximate relative standard error for a rate, in which the denominator is the United States population or one or more of the age-sex-race subgroups of the United States population, is equivalent to the relative standard error of the numerator of the rate, as presented in figure I.

Relative standard errors of estimated percentages

The approximate relative standard error of an estimated percentage, expressed in percentage terms, may be determined by use of figure II. The relative standard error of the percent is obtained from the appropriate curve, and may be interpolated for percentages based on denominators not shown in the figure. These relative standard errors should be interpreted as approximate rather than exact for any specific percentage.

Alternatively, relative standard errors for percents, RSE(p), may be calculated directly using the following formula, where p is the percentage of interest, x is the base of the percentage, and b is the parameter listed in table II.

$$RSE(p) = \sqrt{\frac{b}{x} \cdot \frac{(100-p)}{p}} \cdot 100$$

Relative standard errors of medians

In this report, medians were calculated on ungrouped data using the PROC UNIVARIATE procedure from SAS. The sampling variability of an estimated median depends on the form of the distribution as well as the size of the base upon which it is calculated. An approximate method for calculating the standard error of the median when the underlying population is normally distributed is to multiply the standard error of the mean by a factor of 1.2538. For estimated medians in this report, estimates were converted into logs in order to normalize distributions, and standard errors of the mean were calculated. The antilogs were then taken, and the resultant standard errors were multiplied by 1.2538 to obtain an approximate standard error for the median. Confidence intervals were then calculated around the median obtained from PROC UNIVARIATE using this estimated standard error.

Alternatively, 95-percent confidence intervals for medians may be approximated as follows:

1. Determine the relative standard error, expressed in percentage terms, of the estimate of 50 percent from the relevant distribution in figure II;

2. Convert the relative standard error to the standard error, i.e.,

$$\frac{RSE \cdot EST}{100}$$

3. Add to and subtract from 50 percent twice the standard error determined in step (2);

4. Using the distribution of the characteristic, calculate the values from the distribution corresponding to the two points established in step (3). These values will be the upper and lower limits for the 95-percent confidence interval.

Estimates of differences between two statistics

The standard error of a difference is approximately the square root of the sum of the squares of each standard error considered separately. This formula will represent the actual standard error quite accurately for the difference between separate and uncorrelated characteristics, although it is only a rough approximation in most other cases.

Estimates of statistical sums

The standard error of the sum of a number of independent estimates is the square root of the sum of the squares of the standard errors of the separate estimates.

Table I. Universe and sample counts for State and county mental hospitals, private psychiatric hospitals, and the separate psychiatric inpatient services of non-Federal general hospitals, by primary strata

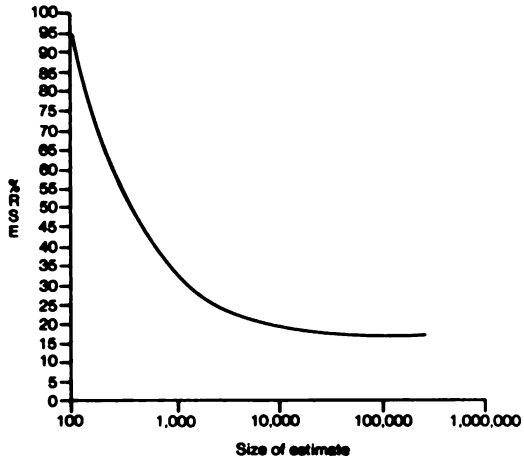
Primary strata	Number of hospitals					Number of patients in actual sample
	Universe	Sample	Responding in scope	Out of scope	Non-responding	
Annual Admissions						**Admissions**
			State and county mental hospitals			
Total, all strata .	274	169	156	3	10	4,867
0-999	123	61	55	1	5	1,806
1,000-2,499	86	43	40	1	2	1,339
2,500-4,999	33	33	31	-	2	885
5,000+	7	7	6	-	1	132
Indian Health (all sizes) ...	25	25	24	1	-	705
			Private psychiatric hospitals			
Total, all strata .	180	180	154	-	26	6,958
0-719	105	105	90	-	15	3,596
720+	75	75	64	-	11	3,362
Annual Discharges						**Discharges**
			Non-Federal general hospitals			
Total, all strata .	1,060	294	234	13	47	5,101
Public						
Total, all strata .	160	73	55	2	16	1,118
0-399	51	17	12	-	5	330
400-799	53	18	14	-	4	301
800-1,499	36	18	12	2	4	248
1,500+	14	14	11	-	3	196
Unknown	6	6	6	-	-	43
Nonpublic						
Total, all strata .	727	129	106	4	19	2,338
0-399	246	31	25	1	5	810
400-799	315	39	34	-	5	723
800-1,499	132	33	26	1	6	515
1,500+	17	17	15	-	2	201
Unknown	17	9	6	2	1	89
Multiservice/CMHC						
Total, all strata .	173	92	73	7	12	1,645
0-399	51	25	21	2	2	501
400-799	51	26	19	-	7	435
800-1,499	30	15	12	-	3	216
1,500+	10	10	10	-	-	118
Unknown	31	16	11	5	-	375

Table II. Parameters for calculating approximate standard errors of estimated numbers and percentages for selected characteristics from the 1980 patient sample surveys of State and county mental hospitals, private psychiatric hospitals, and the separate psychiatric inpatient services of non-Federal general hospitals

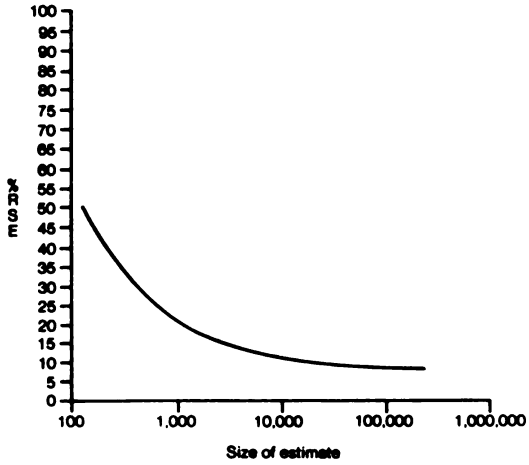
Type of characteristic	Parameter	
	a	b
State and county mental hospitals		
Admissions		
Age by sex by race	0.00207	109.987
Age by sex and race by:		
Diagnosis	0.02286	92.598
Payment	0.02486	95.669
Length of stay	0.01446	94.612
Private psychiatric hospitals		
Admissions		
Age by sex by race	0.00026	25.728
Age by sex and race by:		
Diagnosis	0.00174	24.380
Payment	0.00555	23.293
Length of stay	0.00137	23.001
Non-Federal general hospitals		
Discharges		
Total hospitals		
Age by sex by race	0.00246	204.005
Age by sex and race by:		
Diagnosis	0.00684	204.844
Payment	0.00706	220.418
Length of stay	0.00363	210.455
Public hospitals		
Age by sex by race	0.00770	130.805
Nonpublic hospitals		
Age by sex by race	0.00615	255.056
Multiservice/CMHC hospitals		
Age by sex by race	0.01845	47.318

Figure I
Relative standard errors for estimated subtotals, 1980

State and county mental hospitals



Private psychiatric hospitals



Non-Federal general hospitals

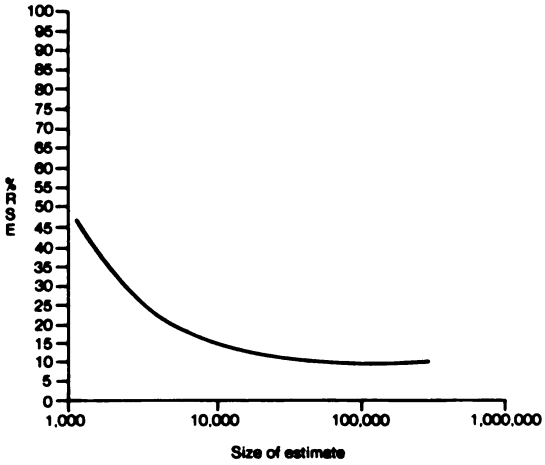
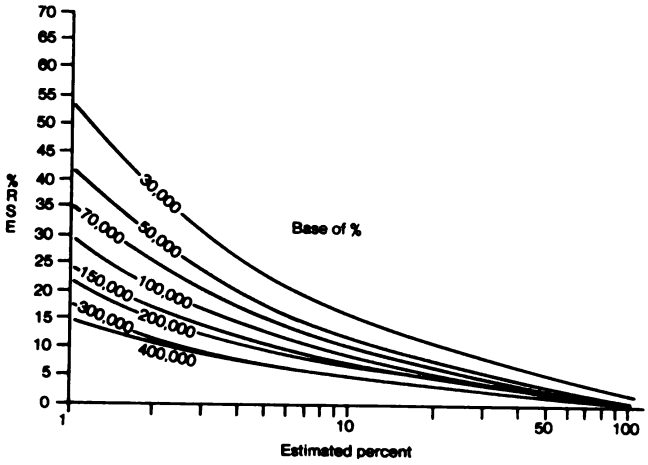
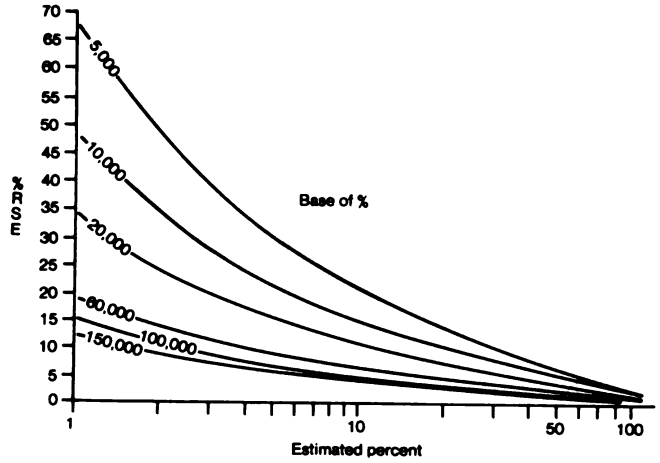


Figure II
Relative standard errors for estimated percentages, 1980

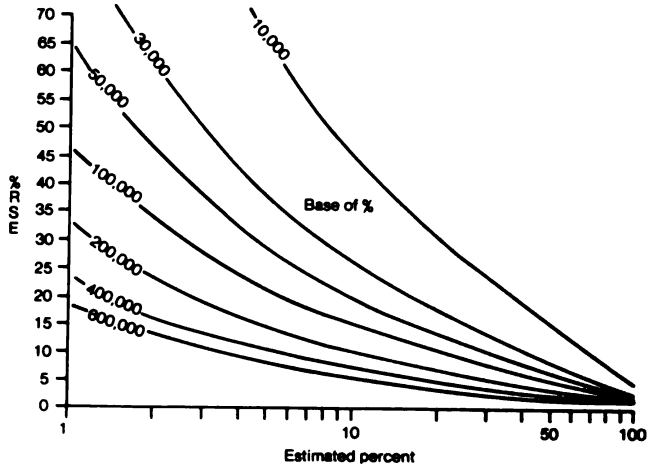
State and county mental hospitals



Private psychiatric hospitals



Non-Federal general hospitals



DHHS Publication No. (ADM) 86-1484
Printed 1986

☆ U.S. GOVERNMENT PRINTING OFFICE 1986-164-445