Patient Experience in Psychiatric Units of General and State Mental Hospitals

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THE area of community mental health and the organization of community mental health services has become a focal point in psychiatry. Problems concerned with the development of mental health centers, the role of psychiatric units in general hospitals as an integral part of such centers, and the gradual reduction in the size of public mental hospitals dominate current thinking and planning. Such planning, however, requires a careful evaluation of our present services and a projection of our future needs based on well-documented data.

In 1961, Forstenzer emphasized the "need to develop a working partnership between community services and the State hospital systems" (*1*). He feared "the risk of solidifying two separate and distinct programs, both operating at less than optimal levels, each handicapping the other, and each presumably concerned with different portions of the range of mental illnesses and possibly with different segments of the total population." Dorken, in discussing community mental health (*2*), pointed out the need for proper survey data to know the extent of actual problems requiring attention and whether a particular mental health service is needed. He noted that the mental health centers in Minnesota were dealing with a population largely different from that of mental hospitals, and that they were reaching a segment of the community not previously reached. Schulberg presented the advantages and disadvantages of service by general hospital units as a core of community psychiatric services (*3*). The general hospital tends to be treatment oriented and may not provide an adequate program of public health and preventive measures. Perhaps more important, there has been little or no research to determine the efficacy of general hospital units, their strengths and weaknesses.

In the planning of mental health services, particularly hospital beds, there has been a tendency to confuse demand with use and to consider one type of service in isolation from the others. Baldwin noted the "urgent necessity for detailed examination at an operational level, of the working of the present system, so that effects of planned changes may be measured, and adjustments made to accord more clearly with need as estimates become available" (*4*).

In considering the development of future health services, the role of the general hospital unit versus the public mental hospital, and the relationship between these and other services, the following questions may be posed:

1. How are these facilities (general hospital unit and public mental hospital) now used? Who uses these facilities? Do they serve similar or different segments of the population?
2. What is the subsequent psychiatric experi-

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ence of patients hospitalized at either of these facilities? In what way does hospitalization in a public mental hospital or general hospital unit affect the course of a patient's disorder? What is the interaction, if any, between these facilities and between the hospital units and other community services?

While some of the answers cannot be obtained solely from descriptive data, the following data shed some light on these questions.

Background

For our study, a statistical comparison was made of first admissions (patients never before admitted to any psychiatric inpatient unit) during 1960 to the psychiatric services of Strong Memorial Hospital and to Rochester State Hospital. The physical and administrative characteristics of these two facilities (in 1960) are briefly described below.

Strong Memorial Hospital is a general hospital of 700 beds, owned and operated by the University of Rochester. Rochester Municipal Hospital, which the university operates, is so much a part of the same hospital complex that the whole is commonly referred to as the University Medical Center. (On July 1, 1963, the university purchased Municipal Hospital from the city of Rochester.) The psychiatric inpatient services comprise three floors for adults with a total of 86 beds and a children's unit of 12 beds. These 98 beds constitute 14 percent of all the hospital's beds. During 1960, 1,250 persons were admitted to the psychiatric services, of whom two-thirds were Monroe County residents. The bed occupancy averaged about 90 percent, with an average patient stay of 28–30 days. All the admissions were voluntary, though many might best be termed semi-voluntary. The cost per diem ranged from $30.30 to $42.10, with an average of $38.10. Most of this cost was paid by Blue Cross insurance coverage, which provided 30 days per admission for psychiatric hospitalization with renewal of the coverage after 90 days out of the hospital.

As this is a university teaching hospital, all patients are seen by third-year medical students and members of the psychiatric house staff. Approximately 40 percent of the patients are under private psychiatric care. Patients who are not under private care are cared for by the psychiatric residents, with supervision by the senior full-time faculty.

There is a daily average of six residents and interns, three or four medical students, a clinical director, psychologist, and psychiatric social worker for each of the three adult inpatient services (34, 28, and 24 beds, respectively). The children's unit (12 beds) has a daily average of three house officers and one or two medical students. In addition, senior faculty members provide considerable supervision by frequent case conferences or rounds. The daily average of 23 registered and practical nurses and 31 nursing assistants provides patient: staff ratios of 3.3 : 1 and 2.5 : 1, respectively. However, the teaching functions of the services insure an abundance of personnel and an intensity of care, which cannot be characterized adequately by patient: staff ratios or other figures.

There are active occupational and recreational therapy programs. The treatment orientation can be characterized best as eclectic. It ranges from intensive psychotherapy to drugs and electroconvulsive therapy (ECT). Although occasional patients are in a modified day or night care program, there are no specific units designated for such care. The services are oriented toward acute, short-term care, with an occasional patient remaining several months to years.

Rochester State Hospital, located within the city limits of Rochester in contrast to the isolation of most public mental hospitals, serves five counties and has 3,260 beds. Its bed occupancy during 1960 was 99 percent. Of 1,121 admissions, 808, or 72 percent, were from Monroe County. Twenty-seven percent of the admissions were voluntary. The per diem cost was $5.18, and a large portion of this was paid from State taxes. During 1960 there was a daily average of 108 registered and practical nurses, 555 nursing attendants, and 27 psychiatrists, 9 of whom were residents. This gave a ratio of 30 resident patients per nurse, 6 for each attendant, and 120 per psychiatrist. The hospital has a variety of services, ranging from the acute or reception units to those caring for the elderly demented patients, with a wide range of patient: staff ratios.

The State hospital has fairly active occupational and recreational programs but the treat-

ment is, of necessity, less intensive than at the University Medical Center and more reliance is placed on drug therapy. Less ECT is used at the State hospital. The average stay on the reception service was 49 days during 1960, and 48 percent of the patients were released to convalescent care. Ten percent of the patients released from the hospital are placed in the family care program. There are small day and night care units which do not, as yet, play a major role in the hospital's services.

Both of these facilities nominally admit patients with almost any type of disorder, limited only by the number of beds available. The University Medical Center, however, does not function as a legal detention unit and, thus, rarely admits a patient under court jurisdiction or a person on convalescent care from the State hospital. This limitation necessarily precludes the admission of patients with some types or degrees of disorder. As we note later in this paper, there must be still other selective proc-

Table 1. First admission rates [1] by age, sex, and diagnosis, inpatient services of University Medical Center and Rochester State Hospital, Monroe County residents, 1960

Age and sex	University Medical Center									
	All diagnoses		Schizophrenic reaction		Affective psychosis		Chronic brain syndrome		Other diagnoses [2]	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Both sexes [3]	511	87.2	148	25.2	89	15.2	34	5.8	240	40.9
Under 25	108	44.6	38	15.7	1	.4	0	.0	69	28.5
25–44	204	129.7	90	57.5	11	7.0	1	.6	102	65.2
45–64	144	116.3	19	15.2	55	44.1	13	10.4	57	45.7
65 and over	55	87.2	1	1.6	22	34.9	20	31.7	12	19.0
Males	203	72.3	56	19.6	30	11.0	14	5.3	103	36.5
Under 25	51	42.3	23	19.1	0	.0	0	.0	28	23.2
25–44	72	95.6	27	35.8	3	4.0	0	.0	42	55.8
45–64	56	93.5	6	10.0	18	30.1	7	11.7	25	41.7
65 and over	24	88.2	0	.0	9	33.1	7	25.7	8	29.4
Females	308	101.0	92	30.4	59	19.0	20	6.2	137	45.4
Under 25	57	46.9	15	12.4	1	.8	0	.0	41	33.8
25–44	132	162.6	63	77.6	8	9.9	1	1.2	60	73.9
45–64	88	135.9	13	20.1	37	57.1	6	9.3	32	49.4
65 and over	31	86.4	1	2.8	13	36.2	13	36.2	4	11.1
	Rochester State Hospital									
Both sexes [3]	318	54.2	57	9.7	14	2.4	210	35.8	37	6.3
Under 25	22	9.1	10	4.1	0	.0	0	.0	12	5.0
25–44	52	33.2	27	17.9	1	.6	5	3.2	19	12.1
45–64	61	48.9	18	14.4	12	9.6	25	20.1	6	4.8
65 and over	183	290.0	2	3.2	1	1.6	180	285.2	0	.0
Males	142	53.3	29	10.2	2	.8	85	33.2	26	9.1
Under 25	13	10.8	5	4.1	0	.0	0	.0	8	6.6
25–44	31	41.2	16	21.2	0	.0	2	2.7	13	17.3
45–64	23	38.4	8	13.4	1	1.7	9	15.0	5	8.3
65 and over	75	275.6	0	.0	1	3.7	74	271.9	0	.0
Females	176	54.8	28	9.2	12	3.9	125	38.0	11	3.7
Under 25	9	7.4	5	4.1	0	.0	0	.0	4	3.3
25–44	21	25.9	11	13.6	1	1.2	3	3.7	6	7.4
45–64	38	58.7	10	15.4	11	17.0	16	24.7	1	1.5
65 and over	108	300.9	2	5.6	0	.0	106	295.3	0	.0

[1] Rate per 100,000 population.
[2] Includes personality disorder, neurotic reaction, situational reaction, and psychophysiological disorder.
[3] Age-adjusted to Monroe County population, 1960 census.

esses operating either in the referring sources or the hospitals, or both, despite the stated admission policies.

Method

A psychiatric case register was established for Monroe County, N.Y., on January 1, 1960. Virtually all admissions to psychiatric services (inpatient, clinic, emergency, and private practice) are reported to the central register. Records of deaths of all Monroe County residents, provided by the New York State Department of Health, are matched with this case register. Finally, we attempt to determine the migration of patients within and out of the county, and we have been partially successful in this.

A more complete description of the reporting and register operation has been published (*5*). From such a cumulative case register it is possible to select a variety of cohorts and statistically observe their subsequent psychiatric experience over a period of time.

Characteristics of First Admissions

In 1960, there were about 800 admissions from Monroe County to the University Medical Center (UMC) and about an equal number to Rochester State Hospital (RSH). However, a much larger number, 511 compared with 318, of the admissions to UMC were first admissions (table 1). Conversely, many more "chronic" patients were admitted to RSH. Some clues as to how this large pool of chronic readmissions to RSH is built up will be elucidated later by following all first admissions over a 2-year period.

A comparison of the rates of first admissions is shown by patient characteristics in table 1 and figure 1. Before age 65 first admission rates in both urban and nonurban areas were much higher for the University Medical Center (fig. 1) while after age 65, rates were much higher for the State hospital.

Corresponding to this change in relative rates after age 65, and the fact that admissions of older persons are almost entirely accounted for by patients with chronic brain syndrome, the rate for chronic brain syndrome patients to UMC was relatively small (table 1). In contrast, first admission rates for schizophrenic reactions were higher to UMC than to RSH up to age 45, and rates for affective psychosis were higher to UMC at all ages. Rate of admission to UMC for other diagnoses was also high.

Two-thirds of all first admissions to RSH were patients with chronic brain syndrome, while one-half of all first admissions to UMC were patients with personality disorder or neurotic reaction (fig. 2). About 60 percent of the first admissions to RSH were 65 years and over; 60 percent to UMC were under 45 years of age.

More females than males were admitted to both hospitals, but the rates were not higher for females in all age groups (table 1). Unlike most public mental hospitals (*6*), in the Rochester State Hospital the age-adjusted first admission rate for females was as high as that for males. The most plausible, though not proved, explanation of this phenomenon may be

Figure 1. First admission rates, by age and area of residence: inpatient services of University Medical Center and Rochester State Hospital, Monroe County residents, 1960

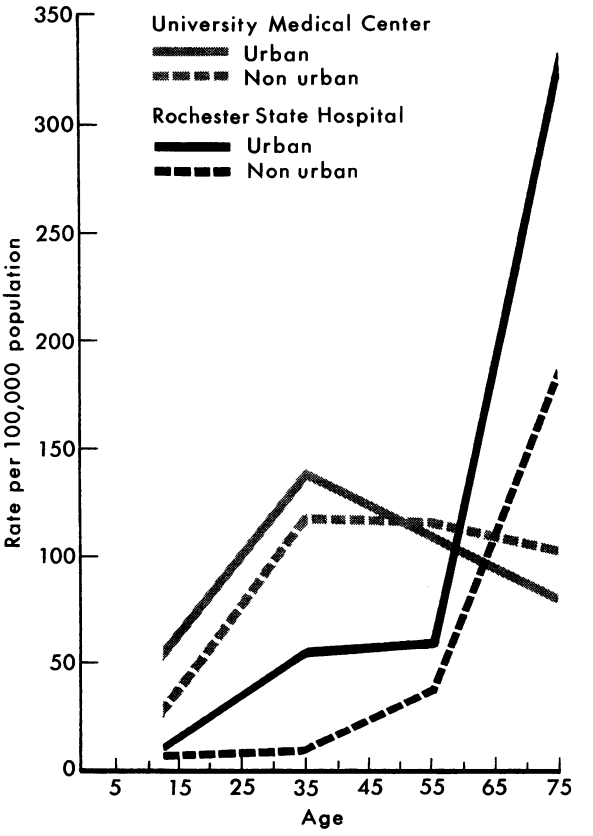


Figure 2. First admission cohorts, by diagnostic categories: inpatient services of University Medical Center and Rochester State Hospital, Monroe County residents, 1960

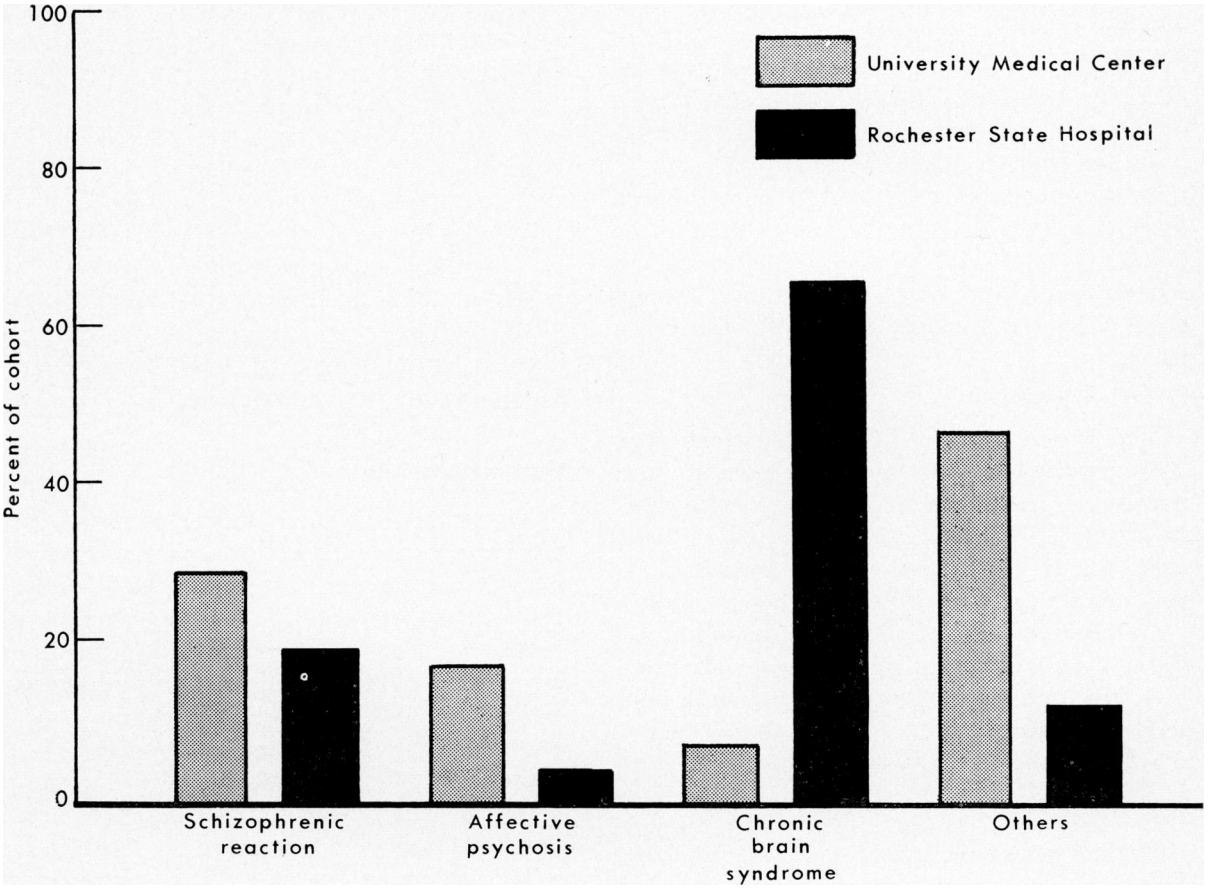


Table 2. Percentage distribution of first admission cohorts by sex, age, and area of residence, inpatient services of University Medical Center and Rochester State Hospital, Monroe County residents, 1960

Patient characteristics	University Medical Center					Rochester State Hospital				
	All diagnoses (N=511)	Schizophrenic reaction (N=148)	Affective psychosis (N=89)	Chronic brain syndrome (N=34)	Other diagnoses [1] (N=240)	All diagnoses (N=318)	Schizophrenic reaction (N=57)	Affective psychosis (N=14)	Chronic brain syndrome (N=210)	Other diagnoses [1] (N=37)
Total cohort	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Male	39.7	37.8	33.7	41.2	43.3	44.7	50.9	14.3	40.5	70.3
Female	60.3	62.2	66.3	58.8	56.7	55.3	49.1	85.7	59.5	29.7
Under 25	21.1	25.0	1.1	.0	29.2	6.9	17.5	.0	.0	32.4
25–44	39.7	61.5	11.2	2.9	42.0	16.4	47.4	7.1	2.4	51.4
45–64	28.4	12.8	63.0	38.2	23.8	19.2	31.6	85.7	11.9	16.2
65 and over	10.8	.7	24.7	58.8	5.0	57.5	3.5	7.1	85.7	.0
Urban area	58.7	60.8	55.1	73.5	56.7	77.7	78.9	64.3	79.5	70.3
Nonurban area	41.3	39.2	44.9	26.5	43.3	22.3	21.1	35.7	20.5	29.7

[1] Includes personality disorder, neurotic reaction, situational reaction, and psychophysiological disorder.

the existence of an observation unit in the county infirmary to which many younger urban males, including a number of alcohol addicts and prisoners, are admitted, rather than to RSH. Nevertheless, proportionally more of the RSH than UMC admissions came from the urban area (table 2), largely reflecting the funneling of older, urban patients with chronic brain syndrome to RSH (fig. 2).

In summary, the marked difference between these two hospital cohorts, particularly in the diagnostic and age profiles, emphasizes the selectivity of admissions and the need to consider this in any cohort followup comparison.

Cohort Experience

The fate of a cohort of mental patients over a long period of time may be described in a number of ways because of the dynamic character of these disorders. We compared only the most important features in the psychiatric experience of our two cohorts during the first 2 years after the date of admission, including release to the community, admission to outpatient care, readmission to hospital, and continuous stay in hospital.

Death Rate

Unlike the cancer patient, survival is not the keystone of case management for most mental diseases, although death is a frequent outcome associated with certain mental disorders. A relatively high proportion, 42 percent, of the State hospital patients died during their first hospitalization or shortly thereafter, compared with 5 percent of the university hospital patients (table 3). This difference reflects the high mortality risk for RSH patients with chronic brain syndrome: 60 percent died over a 2-year period compared with 24 percent of UMC patients with chronic brain syndrome.

Patients with schizophrenic or affective reactions admitted to RSH had a slightly higher death rate than UMC patients.

Continuous Hospitalization Rate

Despite the higher hospital death rate, a larger proportion, 17 percent in contrast to 2 percent for UMC, of the initial RSH cohort was still hospitalized at the end of the 2-year period (table 3). These differences between the two hospital cohorts reflected the high retention rate for the RSH patients with chronic brain syndrome who remained alive; more than half had not left the hospital during the 2-year period. The experience of the UMC patients with chronic brain syndrome differed; only 14 percent of those surviving had not left a hospital (in this analysis, direct transfer from the university hospital to the State hospital was considered as one period of continuous hospitalization). The probable explanation is that UMC patients were younger, and often their chronic brain damage was due to alcohol or trauma rather than arteriosclerosis.

First Release Rate

The cumulative first release rate for all RSH patients at the end of the 2-year period was only 44 percent, again reflecting the low release rate of the chronic brain syndrome patients (20 percent). For RSH patients with functional psychosis (schizophrenic reaction plus affective psychosis), however, the release rate was 90 percent. The 2-year first release rate was 97 percent or more for each diagnostic group of UMC patients, except for patients with chronic brain syndrome (74 percent).

The difference between the hospitals in the 2-year release rates for functional psychosis is not remarkable. However, the rate of release for various intervals within the 2-year period is considerably different. UMC patients were released much earlier, as shown in figure 3.

Readmission Rate

The rate of readmission during the 2-year period was not greatly different for the two cohorts; overall between one-fourth to one-fifth of the released patients returned to a hospital (table 3).

The return rate was somewhat higher for the UMC than for the RSH schizophrenic patients (32 percent compared with 20 percent). If an RSH schizophrenic patient returned, however, he was more likely to remain in the hospital. Related to this, a higher proportion of the UMC patients had more than one readmission.

Table 3. Status of first admission cohorts at end of 2-year followup, inpatient services of University Medical Center and Rochester State Hospital, Monroe County residents, 1960–62

Status	University Medical Center									
	All diagnoses		Schizophrenic reaction		Affective psychosis		Chronic brain syndrome		Other diagnoses [1]	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total cohort	*511*	*100.0*	*148*	*100.0*	*89*	*100.0*	*34*	*100.0*	*240*	*100.0*
Died in hospital	9	1.8	0	.0	0	.0	5	14.7	4	1.7
Continuously in hospital during 2 years	12	2.3	5	3.4	1	1.1	4	11.8	2	.8
Released to community	490	95.9	143	96.6	88	98.9	25	73.5	234	97.5
Total released	*490*	*100.0*	*143*	*100.0*	*88*	*100.0*	*25*	*100.0*	*234*	*100.0*
Died while in community	17	3.5	2	1.4	3	3.4	3	12.0	9	3.8
Moved from county	16	3.3	4	2.8	0	.0	0	.0	12	5.1
Lost to followup	16	3.3	10	7.0	0	.0	2	8.0	4	1.7
Received subsequent psychiatric inpatient care	*107*	*21.8*	*45*	*31.5*	*18*	*20.5*	*2*	*8.0*	*42*	*17.9*
Readmitted: in hospital at end of 2 years	25	5.1	11	7.7	10	11.4	0	.0	4	1.7
One readmission: in community at end of 2 years	56	11.4	23	16.1	6	6.8	2	8.0	25	10.7
More than one readmission: in community at end of 2 years	26	5.3	11	7.7	2	2.3	0	.0	13	5.5
Remained in community without further psychiatric inpatient care	*334*	*68.2*	*82*	*57.3*	*67*	*76.1*	*18*	*72.0*	*167*	*71.5*
Outpatient psychiatric care only	163	33.3	44	30.8	35	39.8	7	28.0	77	32.9
No psychiatric care	171	34.9	38	26.5	32	36.3	11	44.0	90	38.6

	Rochester State Hospital									
Total cohort	*318*	*100.0*	*57*	*100.0*	*14*	*100.0*	*210*	*100.0*	*37*	*100.0*
Died in hospital	125	39.3	2	3.5	1	7.1	122	58.1	0	.0
Continuously in hospital during 2 years	54	17.0	6	10.5	0	.0	47	22.4	1	2.7
Released to community	139	43.7	49	86.0	13	92.9	41	19.5	36	97.3
Total released	*139*	*100.0*	*49*	*100.0*	*13*	*100.0*	*41*	*100.0*	*36*	*100.0*
Died while in community	8	5.8	0	.0	2	15.4	6	14.6	0	.0
Moved from county	2	1.4	0	.0	0	.0	1	2.4	1	2.8
Lost to followup	7	5.0	0	.0	1	7.7	1	2.4	5	13.9
Received subsequent psychiatric inpatient care	*33*	*23.7*	*10*	*20.4*	*2*	*15.4*	*10*	*24.4*	*11*	*30.5*
Readmitted: in hospital at end of 2 years	14	10.1	7	14.3	0	.0	4	9.8	3	8.3
One readmission: in community at end of 2 years	12	8.6	2	4.1	2	15.4	3	7.3	5	13.9
More than one readmission: in community at end of 2 years	7	5.0	1	2.0	0	.0	3	7.3	3	8.3
Remained in community without further psychiatric inpatient care	*89*	*64.0*	*39*	*79.6*	*8*	*61.5*	*23*	*56.2*	*19*	*52.8*
Outpatient psychiatric care only	43	30.9	15	30.6	8	61.5	14	34.2	6	16.7
No psychiatric care	46	33.1	24	49.0	0	.0	9	22.0	13	36.1

[1] Includes personality disorder, neurotic reaction, situational reaction, and psychophysiological disorder.

Any comparison of the readmission rates during the observation period could be biased if the time of first release and, therefore, of the remaining "readmission exposure time" is not taken into account. However, this does not appear to be a significant factor here since all schizophrenic patients discharged from UMC and 41 of 49 released from RSH within the 2-year period were released within the first 6 months. Five of 41 (12 percent) of the RSH schizophrenic patients released within 6 months were readmitted. Five of the eight (63 percent) released after 6 months were readmitted during the 2-year period.

Of the released RSH patients with a diagnosis of personality disorder or neurosis, 30 percent returned to the hospital compared with 18 percent for the UMC patients. Many of this RSH group are alcohol addicts who return for brief admissions. The return rate was also greater for patients with chronic brain syndrome from RSH (24 percent) than from UMC (8 percent), but the difference is not statistically significant. The numbers involved are small.

With readmission there was a "drift" of patients from UMC to RSH. This was most marked for the schizophrenic group (fig. 4). For the UMC schizophrenic patients, 67 percent of their first readmissions were at UMC and the other 33 percent at RSH. In contrast, for the second readmission only 15 percent entered UMC and 85 percent were admitted to RSH. More than half of the latter group had been in UMC for their first readmission. Stated another way, of the 30 schizophrenic patients readmitted to UMC once, 20 percent were readmitted the second time to UMC. Twenty-seven percent of the group, however, were readmitted the second time to RSH. The same tendency, though to a lesser degree, was

Figure 3. Cumulative percentage of patients released with schizophrenic reaction or affective psychosis: inpatient services of University Medical Center and Rochester State Hospital, Monroe County residents, 1960

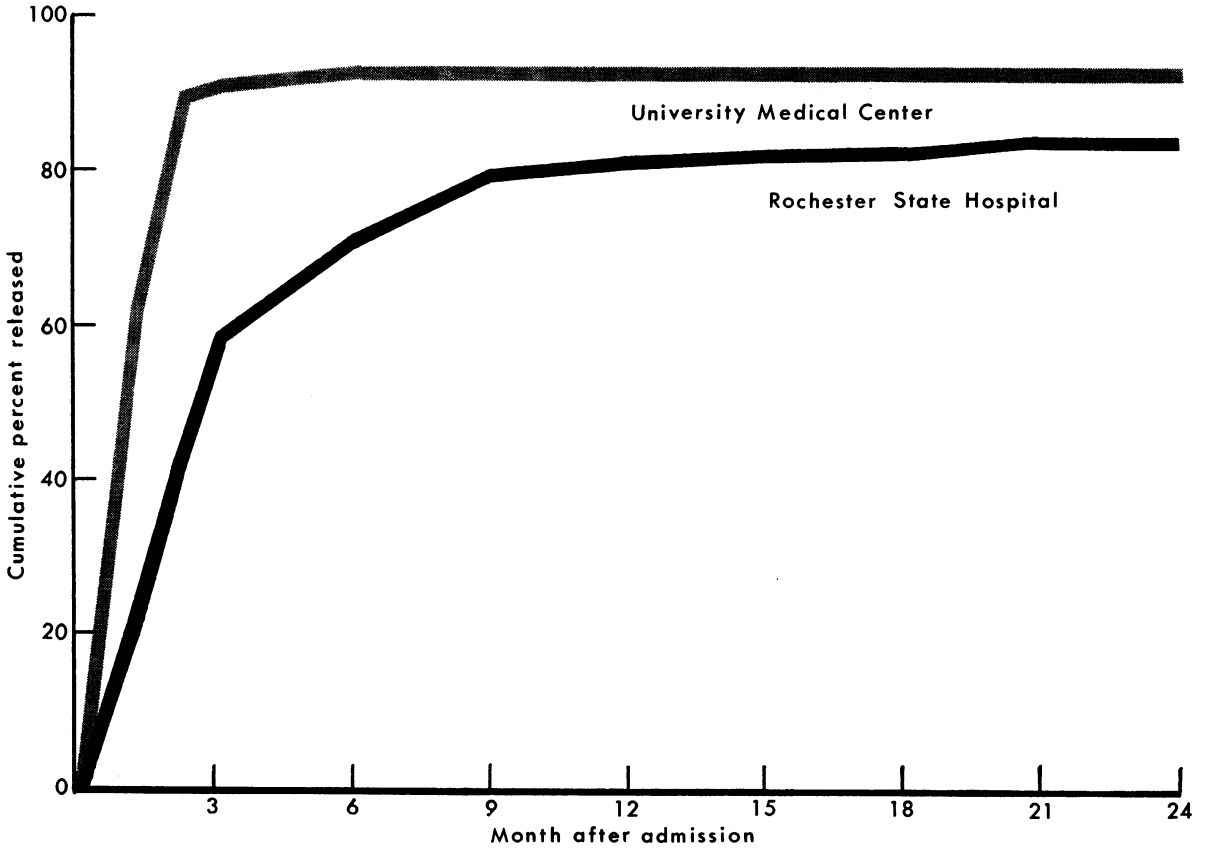
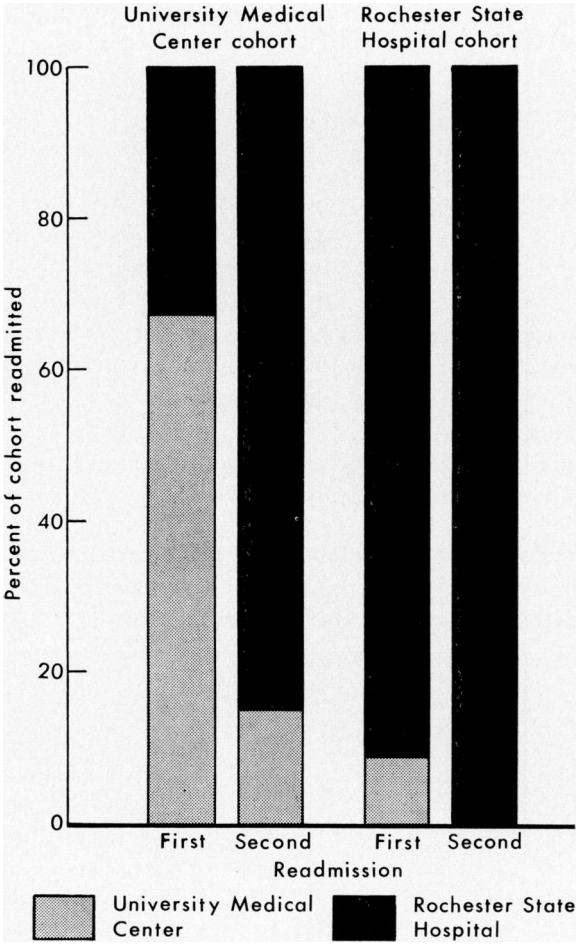


Figure 4. Readmission of first admission cohorts with schizophrenic reaction: inpatient services of University Medical Center and Rochester State Hospital, Monroe County Residents, 1960



noted for other diagnostic groups; while only 33 percent of the first readmissions were to RSH, this proportion increased to 48 percent for the second readmission.

Our findings on readmission rates are not significantly changed when the numbers who died in the community, moved from the county, or were lost to followup are excluded from the analyses.

Total Time in Hospital

RSH patients who were still alive and under observation at the end of 2 years had spent 45 percent of the 2-year period in the hospital in contrast to an average of only 9 percent for UMC patients (table 4).

For RSH patients with chronic brain syndrome, the hospital days accounted for an average of 72 percent of the total time, and for schizophrenic patients 29 percent. The corresponding figures for UMC patients were 19 percent and 14 percent. Sixty-five percent of those from RSH with chronic brain syndrome and 13 percent of those with schizophrenia spent more than three-fourths of their time in the hospital. The proportions for UMC were 14 percent and 4 percent, respectively.

Fourteen of the UMC schizophrenic patients but none of the RSH schizophrenic patients had moved from the county or were lost to followup. We know that these 14 patients were not readmitted to a New York State mental institution during this time. Even if we make the unlikely assumption that these patients spent more than 25 percent of the 2-year period in a mental hospital out of this State, the difference between these two groups in total time under inpatient care would still be significant.

Other Psychiatric Care

About one-half of all released patients subsequently received outpatient psychiatric care from either a clinic or a private psychiatrist. About one-third received such care without further hospitalization (table 3). The rate of rehospitalization for schizophrenic patients who received outpatient care was 38 percent and for those who did not the rate was 23 percent. These rates were about the same for both hospitals. It appears that outpatient care did not reduce the rate of readmission for the schizophrenic patients. We can, however, draw no firm conclusions from these data because there are many variables which may affect the rates of rehospitalization besides outpatient treatment or the lack of it. These variables deserve careful study, but they are beyond the scope of this paper. Furthermore, the data from at least the next year (1961) of the operation of the register are needed to provide large enough groups of patients to make possible the study of several variables. We should like to consider: (*a*) the prognosis at the time of discharge of those who had posthospital out-

patient followup compared with that of those who did not; (*b*) the type and intensity of the outpatient care; (*c*) geographic variables: distance of residence from the hospital as a determinant of followup; (*d*) the needs of families, some of them detrimental to the patients' welfare, as they act to force a patient into outpatient followup and later back into the hospital, making this group have higher rehospitalization rates; and (*e*) the ability of the therapists in the followup clinics—do they strengthen defenses or foster dependency?

Days under care of an outpatient clinic generally accounted for about one-fifth or more of the total time of both UMC and RSH patients. Exceptions were chronic brain syndrome patients from both hospitals and neurotic or personality disorder patients from RSH who spent only one-tenth of their time in outpatient care (table 4).

About one-third of the released patients had received no further psychiatric care of any kind (table 3). Days without care accounted for 71 percent of the total time of the UMC patients compared with 41 percent for the RSH patients (table 4). This discrepancy results from the larger proportion of time under inpatient care for the RSH group.

Discussion and Summary

In response to the first question posed in the introduction, "How are these facilities now used?" our data suggest that the Rochester State Hospital and the University Medical Center (or psychiatric unit of a general hospital), in part, serve different population segments and that they play roles in serving the community which are different and complementary. Patients admitted to the State hospital for the first time tend to be older and more urban; two-thirds have chronic brain syndrome, whereas

Table 4. Percentage distribution of time under inpatient and outpatient psychiatric care of first admission cohorts during 2-year followup, by type of psychiatric care, inpatient services of University Medical Center and Rochester State Hospital, Monroe County residents, 1960–62

Time under care	University Medical Center					Rochester State Hospital				
	All diagnoses (N=453) [2]	Schizophrenic reaction (N=132) [2]	Affective psychosis (N=86) [2]	Chronic brain syndrome (N=24) [2]	Other diagnoses [1] (N=211) [2]	All diagnoses (N=176) [2]	Schizophrenic reaction (N=55) [2]	Affective psychosis (N=10) [2]	Chronic brain syndrome (N=80) [2]	Other diagnoses [1] (N=31) [2]
Proportion of total time spent:										
Under inpatient care	9.4	13.8	9.2	19.0	5.7	44.8	28.7	9.8	71.6	14.9
Under outpatient care	19.9	24.0	19.9	10.4	18.2	13.7	18.0	31.5	9.2	11.8
Not under care	70.7	62.2	70.9	70.6	76.1	41.5	53.3	58.7	19.2	73.3
Total cohort	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Proportion of time spent under inpatient care:										
More than 75 percent	2.7	3.8	1.2	14.3	1.4	35.2	12.7	.0	64.6	9.7
51–74 percent	2.0	3.0	3.5	.0	1.0	2.2	3.6	9.1	.0	3.2
26–50 percent	2.9	3.8	3.5	4.8	1.9	8.9	10.9	.0	12.2	.0
25 percent or less	92.3	89.4	91.8	80.9	95.7	53.6	72.8	90.9	23.2	87.1

[1] Includes personality disorder, neurotic reaction, situational reaction, and psychophysiological disorder.
[2] Number excludes patients who died, moved from the county, or were lost to followup during the 2-year period, and includes those who were continuously hospitalized.

one-half of the university hospital patients receive a diagnosis of neurosis or personality disorder. Affective psychoses are more frequent among the university hospital first admissions. Patients with schizophrenic reactions comprise almost one-third of the university hospital first admissions but only one-fifth of the State hospital first admissions. The State hospital has many more readmissions, most of whom are schizophrenic patients contributing to the much larger proportion of this group in the State hospital resident population.

These data offer new information about factors involved in the use of these two hospitals by the community. It is apparent, however, that there are many patients who could go to either hospital. Obviously, factors other than age, diagnosis, and number of prior admissions help determine to which hospital those patients will be admitted. One such factor is the lack of legal authority for the University Medical Center to admit involuntary patients, whom the State hospital can admit. There undoubtedly are other factors. They need to be sought and their impact measured.

In answer to the second question, "What is the subsequent psychiatric experience of patients hospitalized at either of these facilities?" our cohort data also suggest certain specificity in the use of the two hospitals. The difference in the proportions of diagnostic disorders treated makes it necessary to view the longitudinal experience of each diagnostic group separately in any comparison of the facilities.

Although the university hospital schizophrenic patients are released much earlier than those from the State hospital (median time for UMC patients was 1 month in contrast to almost 3 months for RSH patients), by the end of 2 years more than 85 percent of both groups had experienced their first significant release from the hospital. The hospital first readmission rate within the 2-year period was higher for the schizophrenic patients from the University Medical Center. But once readmitted, the State hospital patients were more likely to remain in the hospital while the university hospital patients were more likely to be discharged and readmitted a second time.

With successive readmissions there was a general drift of University Medical Center patients to the State hospital. Outpatient care did not appear to protect against readmission, but the data available do not justify firm impressions on this point. The total time in the hospital during the 2-year period for the State hospital schizophrenic patients was twice that for those of the University Medical Center. This is accounted for more by the long stay of the readmissions than possible differences in administrative practice, as reflected by the duration of the initial admission. Although the University Medical Center cares for a considerable portion of the early and acute schizophrenic patients, the State hospital continues to carry the brunt of the chronic, schizophrenic patient load.

The other diagnostic groups are distributed far more unevenly between the two hospitals than the schizophrenic patients. Rates for affective psychosis were higher for the University Medical Center at all ages. The patients with affective psychosis differed from the schizophrenic patients primarily in their lower readmission rate. Partly associated with this lower return rate, a somewhat smaller proportion of time was spent in inpatient care.

In general, the psychiatric followup experience of the university hospital patients with a diagnosis of psychoneurotic or personality disorder was not greatly different from that of the patients with a diagnosis of affective psychosis, but did differ significantly from that of the schizophrenic patients. A large proportion of the nonpsychotic readmissions of the university hospital cohort were to the county hospital unit for a brief period of observation or as a waiting period prior to transfer to another hospital. Fewer nonpsychotic patients were in the hospital at the end of the 2-year period.

Eighty-six percent of the patients with a diagnosis of chronic brain syndrome were admitted to the State hospital. As noted with other public mental hospitals (*7*, *8*), the chronic brain syndrome cohort admitted to the State hospital was characterized by a high death rate; more than one-half of those who did not die remained in the hospital. Those released had no significantly higher readmission rates than other patients. Primarily because of their low rate of first release, however, 72 percent of the total cohort time (excluding those

who died or were lost to observation) was spent in the hospital; for only 9 percent of the followup period patients were under outpatient care and 19 percent of the time they were without care. It appears that the State hospital is being used as a depository for terminally ill persons as well as for custodial care of aged, demented persons.

Thus, the profiles of the first admission cohorts and, to some degree, the movement of patients between the facilities during a 2-year followup period demonstrate the different and complementary roles which a State hospital and a university (or general) hospital play in serving the mental health needs of a community. Certainly, such differences must be considered in the planning of psychiatric services.

In the schizophrenic and brain syndrome groups, and to a much lesser degree in the other diagnostic categories, a group of patients became chronically disabled from the time of the first psychiatric hospital admission. It has been noted by Brill and Patton (*9*) that the proportion of schizophrenic patients becoming chronically hospitalized in the New York State hospital system has diminished in the past several years. However, as they have mentioned, and as we have seen in our studies, the chronicity has not been completely eliminated. As a subgroup of the schizophrenic patients, the "chronic" group is distinguished by a pattern of inpatient care that is frequently distinct from the other patients; they are continuously or repeatedly hospitalized throughout the 2-year period and enter the State hospital either for their first admission or at some later point. A preliminary inspection of hospital records suggests that a feature distinguishing this group from the "nonchronic" patients is a history of parental loss because of death or desertion before the age of 5. This point is being investigated further.

The accumulation of chronically impaired patients plays an important role in determining the character of the State hospital resident population. A knowledge of the admission, release, and readmission pattern enables us to estimate the future magnitude and distribution of the State hospital caseload. The brief duration of the current study, however, permits only a gross prediction of future trends. The high admission rate to the State hospital for patients aged 65 and over with chronic brain syndrome and the comparatively much lower first admission rate for patients with schizophrenia indicates a trend that may change the diagnostic distribution of the State hospital resident population. At the end of the 2-year followup period, 43 of the 200 elderly demented patients and 20 of the 205 schizophrenic patients admitted to both hospitals were under inpatient care at the State hospital. Conceivably, our State hospital will, in the future, have a larger proportion of patients aged 65 years and over admitted with a diagnosis of chronic brain syndrome than schizophrenia or any other diagnosis. This would represent a reversal of the present distribution. Although there is currently a large number of persons aged 65 and over in the State hospital, the majority of these are chronic schizophrenic patients who have aged in the hospital.

The descriptive data available in a case register can tell us little about the effect of hospitalization on the course of a patient's disorder without further investigation. Such data can, however, provide leads for further study. The inclusion of the 1961 admissions and a longer period of followup will provide more stable figures and better predictability. As such data become available, we hope they can provide a more solid foundation for the planning of future psychiatric care.

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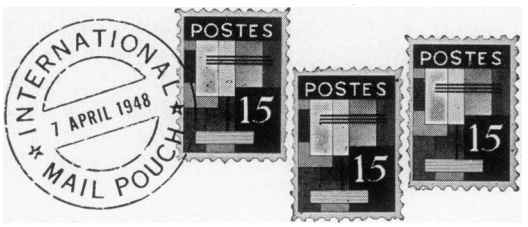
Bolivian Hemorrhagic Fever Reservoir

Calomys callosus, a wild rodent similar to a field mouse, was implicated in the transmission of Bolivian hemorrhagic fever in a recent report by the Bolivian Hemorrhagic Fever Commission.

This serious viral illness, known locally in Bolivia as "the black typhus," has claimed more than 100 lives in northeastern Bolivia since the first case was recorded in 1959. The disease has ravaged the valleys and uplands of Beni province. One village, Orobayaya, was completely abandoned. During severe outbreaks of the disease in San Joaquin, present hub of the field research operations, large numbers of persons fled to other areas.

The Bolivian Hemorrhagic Fever Commission, composed of several U.S. and Bolivian agencies working in cooperation with the Pan American Sanitary Bureau, is coordinating the fight against the disease as part of the Alliance for Progress program. Headquarters for the disease investigation is the Middle America Research Unit in the Canal Zone, a field station of the National Institute of Allergy and Infectious Diseases operated by the Public Health Service in collaboration with the Walter Reed Army Institute of Research.

In San Joaquin, project authorities have launched a rodent control program designed to exterminate *Calomys callosus* from the infected areas. With no available means of protection against the disease, priority has been given to development of a vaccine. The high risk, however, entailed in working with the virus (five members of the research team have contracted the disease) and the need for specialized laboratories are handicaps to efforts to produce an immunizing agent.



Peruvian Anti-TB Campaign

Peru has undertaken a program to reduce tuberculosis death and case rates in four southern provinces, Tacna, Tarata, General Sanchez Cerro, and Mariscal Nieto.

According to 1961 figures, the case rate is 760 per 100,000 inhabitants in Tacna Province alone. For the entire country it is 425. These figures are cited in an agreement initiating the program which was signed by Peru with the U.N. Children's Fund (UNICEF) and the Pan American Sanitary Bureau, the regional office of the World Health Organization.

This agreement, which continues through 1966, calls for health officials to X-ray and test at least 80 percent of the total population (127,439) of the four provinces. It also sets up mass BCG vaccination programs to protect those in good health and a program of treatment with drugs, such as streptomycin, INH, and PAS, for those afflicted with tuberculosis.

The Pan American Sanitary Bureau will provide technical personnel, including the services of a tuberculosis expert, a statistician, and a public health nurse, to work with Peruvian officials and will also pay for fellowships for Peruvian health workers to study tuberculosis control methods abroad. UNICEF is providing $58,000 worth of equipment and supplies including an X-ray mobile unit. To meet the local costs, Peru will spend an estimated $46,000 annually.

CV Disease in Developed Countries

Cardiovascular diseases caused an average of 48 percent of all deaths in 1961 in 22 highly developed countries selected for a study of mortality from this cause. According to a report of the study published by the World Health Organization in *Epidemiological and Vital Statistics Report,* Vol. 17, 1964, the percentage of cardiovascular deaths ranged from a high of 55 percent of all deaths in the United States and Scotland to a low of 27 percent in Yugoslavia. The rates were fairly low in Poland (31 percent), Greece (31 percent), and Japan (37 percent). However, they were between 40 percent and 50 percent in most of the countries, and more than 50 percent in Sweden, Australia, England and Wales, Ireland, Canada, and New Zealand.

Results of the study indicate clearly that diseases of the heart and blood vessels increase with advancing years. They are, however, already important in the 35–44 age group, causing 22 percent of all deaths.

Among the male population in this age group, they cause a quarter to a third of all deaths in many of the countries studied, and in some the proportion climbs to more than half of all deaths for the 44–54 age group. For the most part, the female population in these age groups has a lower proportion of deaths resulting from cardiovascular disease. But there are some exceptions and considerable variation in the rates from country to country.

Aftosa Vaccination in South America

Four South American countries recently signed agreements with the Pan American Sanitary Bureau, regional office of the World Health Organization, for the vaccination of cattle against aftosa (foot-and-mouth disease) with a new weakened live-virus vaccine. Pilot programs were set up for the vaccination of 5,000 head of cattle each in Colombia, Ecuador, and Chile. The fourth agreement provides for the vaccination of 20,000 head of cattle during a 2-year period in Bolivia's Cochabamba Province, the country's main agricultural region.

The new vaccine is intended to protect livestock for much longer periods than do the killed virus vaccines now in use. It was developed by the Pan American Foot-and-Mouth Disease Center, outside Rio de Janeiro, Brazil.

This center is administered by the bureau as a project of the Technical Corporation Program of the Organization of American States, which provides the major financial support. Additional financing has also been provided by the U.S. Agency for International Development.

The center aids South American countries in controlling and gradually eliminating aftosa within their borders. The disease has already been stamped out in many areas including Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Mexico, Panama, the United States, and the Caribbean.