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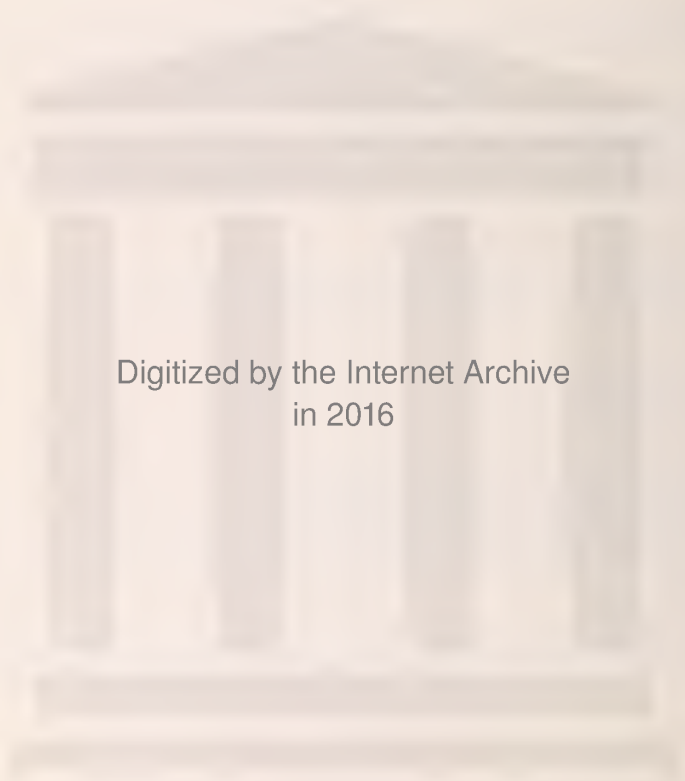

READMISSIONS: METHODOLOGY AND MEANING*

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When visitors touring a hospital ask about its readmission rate, they seldom realize the complexity of the question. And when they are shown the various ways in which readmissions can be modeled, each resulting in a different picture of hospital functioning, they are likely to say, "That's all very interesting, but what is the real readmission rate?"

There is no one "real readmission rate." Numbers, no matter how they are presented statistically, are neutral; they carry no inherent value judgments. But a careful examination of the various models or meanings that can be given to readmission figures is a first step toward deriving value judgments that are appropriate to the situation being evaluated.

Tradition assumes that a patient's readmission to a hospital signifies a failure to cure, and hence, that a high readmission rate must indicate a poor treatment program. The use of readmission figures as a criterion of program effectiveness embodies so many conceptual and methodological problems that one is tempted to say that the whole subject would be best forgotten. However, such a statement would deny the value of readmission figures as a measure of what is happening in a dynamic system that treats patients.

On the assumption that readmissions may be a valid criterion of

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program effectiveness, we studied four aspects of the topic: (a) readmission rates; (b) readmissions and the concept of envelopment; (c) readmissions, length of hospitalization, and time in the community prior to readmission; and (d) readmissions as a function of personality characteristics. Although each area was studied in reference to the treatment program at the Fort Logan Mental Health Center, the results are discussed in terms of evaluative criteria applicable to any mental health facility.

BASIC METHOD FOR AREAS STUDIED

In the broadest sense, anyone who has been discharged from a given mental health facility and seeks subsequent treatment for the same disorder could be considered a readmission to mental health care. For the purposes of this study, a readmission was defined as a patient admitted to and discharged from Fort Logan's Adult Psychiatry Division, with a subsequent admission to the same facility and the same division.

Population Pool

To insure that the data contained only individuals who had had an opportunity to be readmitted, patients (N = 488) who had not been discharged from their first admission as of June 30, 1967 (the end of the 1966-67 fiscal year), were excluded. Known dead (N = 74) were excluded unless a readmission had occurred prior to death. Patients (N = 61) who sought care in the Adult Psychiatry Division following discharge from another division, or vice versa, and those (N = 92) originally admitted to the Adult Psychiatry Division and transferred to another division, or vice versa, were also eliminated from the study sample.

The remaining population consisted of 2,198 patients who had been admitted and discharged prior to June 30, 1967 and subsequently readmitted or not readmitted to the Adult Psychiatry Division by December 31, 1967. Our initial work had indicated that six months would allow ample time for readmission of the majority of patients who were discharged just prior to June 30 and who would seek subsequent care. Later examination of the data indicated that the six-month period should have been extended to a full year.

Unit of Analysis

The original admission cohort was the unit of analysis. The word "cohort" designates a group of patients who have a certain characteristic in common--in this case, first admission in a given fiscal year. If a patient was originally admitted in the 1961-62 fiscal year, he remained in that sample no matter when he was readmitted. Table 1 shows the resulting data pool.

TABLE 1

READMISSIONS AND NON-READMISSIONS BY ORIGINAL ADMISSION YEAR*

Original Admission Year	Readmissions	Non-readmissions	Total
1961-62	51	103	154
1962-63	147	313	460
1963-64	137	354	491
1964-65	112	298	410
1965-66	77	290	367
1966-67	60	256	316
Totals	584	1614	2198

* Excluding known dead, multidivision users, interdivision transfers, and patients not discharged from their first admission as of June 30, 1967.

The original admission cohort was used to determine whether there were any common characteristics among the patients admitted in a given year who sought subsequent care following discharge. Such an analysis also permitted a year-by-year replication of the study and examination of any trends that might emerge across the years.

READMISSION RATES

Some may view these readmission figures as statistical tricks that somehow hide or modify the true meaning and facts about readmissions. No tricks were used. In the context of this paper, the meaning of readmis-

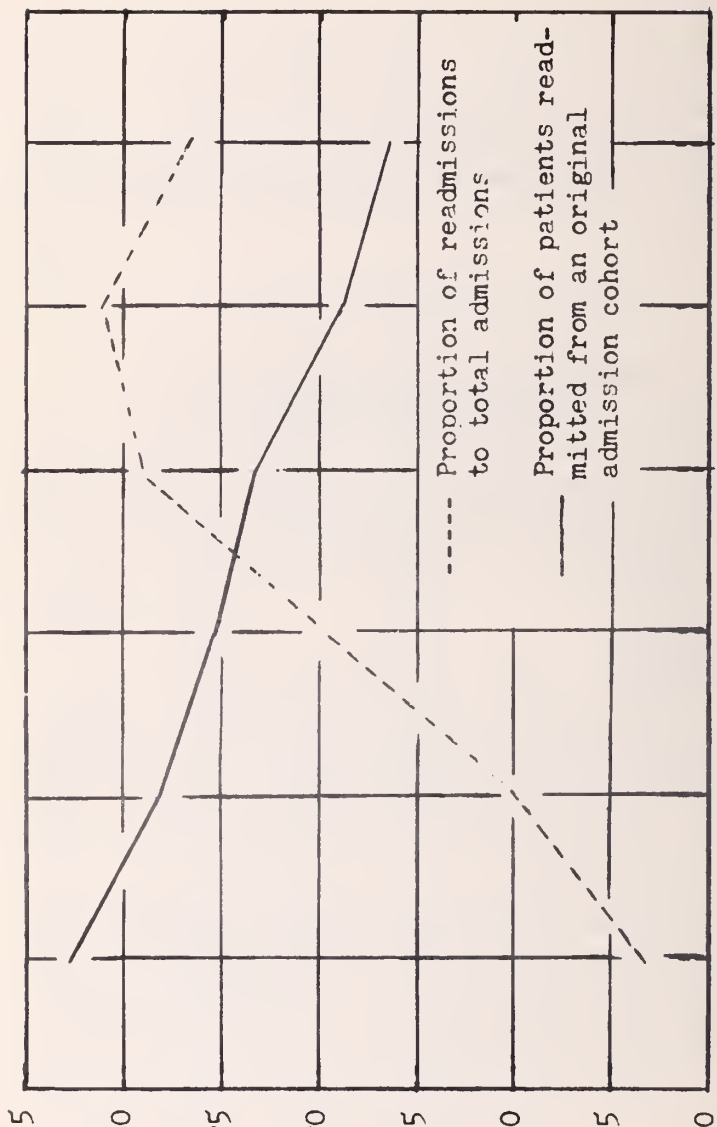

Fig. 1. Distribution of readmissions over fiscal years.

sion figures cannot be separated from the facts. For example, three methods for modeling readmission figures are discussed. The conceptual advantages and disadvantages of each model are presented, with an explanation of possible statistical artifacts inherent in each model.

The three models of calculation described in this section reveal different facts and have different meanings. The usefulness of each depends upon the question asked. These three methods by no means exhaust the ways of obtaining readmission figures; however, they are commonly used and illustrate the various advantages and disadvantages in determining a readmission rate.

Ratio of Readmissions to Total Admissions

One of the most popular ways of calculating readmission rate relates the number of readmissions in a given year to the total admissions during that time. This method offers the hospital administration an ecological measure of readmissions that has some statistical disadvantages but offers a good index for planning future services. The measure indicates the degree to which a given year is saturated with readmissions, and using this calculation, Fort Logan's readmission rate *increases* from 2% to 30% during the first six years of operation (see Fig. 1).

One disadvantage to this procedure is that relating the number of readmissions to total admissions predisposes the readmission rate to increase. The readmission rate for the 1961-62 fiscal year must be low because it was the first year of the hospital's operation and few patients had had time to be discharged. By 1964-65, a large number of patients had been discharged; thus, more patients had been readmitted and more patients were "at risk" of being readmitted. Hypothetically, after twenty years of operation, Fort Logan could have treated and discharged so many patients that the patient load would consist entirely of readmitted patients. At the same time, however, the Center could be maintaining 75% of its discharged patients in the community.

A second disadvantage is that such a calculation obscures the role of multiple readmissions or readmission events in the increasing readmission rate. Almost 40% of the Fort Logan patients who are admitted for the second time (first readmission) come back a third, fourth, fifth, or sixth time. Table 2 shows that over 30% of the later admission years'

TABLE 2

FIRST READMISSIONS AND (MULTIPLE READMISSIONS)
ORIGINAL ADMISSION YEAR BY ADMISSION YEAR*

		YEAR OF READMISSION						
Original Admission Year	Number of Readmission Events	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
1961-62	69	3	22	12 (6)	10 (5)	2 (2)	2 (3)	(2)
1962-63	228		30 (2)	56 (9)	29 (18)	20 (29)	11 (17)	1 (6)
1963-64	190			35 (3)	50 (11)	31 (15)	17 (16)	4 (8)
1964-65	163				30 (4)	42 (20)	33 (18)	7 (9)
1965-66	96					23 (1)	41 (10)	13 (8)
1966-67	68						29 (4)	31 (4)
Total readmission load for each admission year		3	52 (2)	103 (18)	119 (38)	118 (67)	133 (68)	56 (37)
Percent of *multiple* readmits in the total readmission sample from each admission year		0%	3.7%	14.9%	24.2%	36.2%	33.8%	39.8%

*Excluding multidivision users, and interdivision transfers.

readmission load consisted of multiple readmissions. This figure also appeared to be increasing because there had been more time for patients to have multiple readmissions.

Ratio of New Patients to Subsequent Readmissions of Same Patients

The second method of calculating readmission rate compares the total number of new patients admitted in a fiscal year with the number of these patients who are subsequently readmitted. Calculated in this manner, the readmission rate at Fort Logan has *declined* from 33% to 19% over the first six years of operation (see Fig. 1 and Table 2). This measure offers administration a means of projecting the number of new admissions each year who will eventually return.

This system, too, has its disadvantages. First, the decline in the readmission rate is a statistical artifact produced by the passage of calendar time. For example, the 1961-62 original admission cohort had had six years in which to be discharged and readmitted. Thus, few patients in the non-readmitted group were likely to be readmitted at a future date. However, the 1966-67 original admission cohort had had, at most, a year and a half in which to be readmitted. Thus, that non-re-admitted group contained many patients likely to be readmitted at a later date.

Second, this calculation does not consider the role of multiple readmissions. Since each readmitted patient was counted only once, the proportion of patients who had multiple readmissions cannot be determined. It is interesting to note that both methods of calculating the readmission rate play down the role of multiple readmissions. Yet it is likely that future studies will show that the multiple readmission has a tremendous influence on the hospital's ability to offer services and the treatment teams' ability to care for their patients.

Cumulative Percentages of Readmissions

Because calendar time appears to be the major problem in determining readmission rates that do not contain statistical artifacts, a method was used that holds time constant. The first year after discharge was divided into quarterly units and all subsequent time periods into years,

TABLE 3

CUMULATIVE READMISSION TO ADULT PSYCHIATRIC*

Original Admission Year	TIME FROM FIRST DISCHARGE TO FIRST READMISSION									
	0-90 days	0-181 days	0-270 days	0-365 days	0-2 years	0-3 years	0-4 years	0-5 years	0-6 years	0-7 years
1961-1962	10.4%	15.6%	18.2%	24.0%	27.3%	30.5%	31.2%	32.5%	32.5%	33.1%
**PA = 154	N=16	N=24	N=28	N=37	N=42	N=47	N=48	N=50	N=50	N=51
1962-1963	9.8%	15.6%	19.3%	22.2%	27.2%	30.2%	31.1%	31.9%	31.9%	
PA = 460	N=45	N=72	N=89	N=102	N=125	N=139	N=143	N=147	N=147	
1963-1964	9.8%	14.7%	18.1%	19.8%	23.6%	26.7%	27.5%	27.9%		
PA = 491	N=48	N=72	N=89	N=97	N=116	N=131	N=135	N=137		
1964-1965	10.0%	14.4%	17.1%	18.8%	25.6%	27.1%	27.3%			
PA = 410	N=41	N=59	N=70	N=77	N=105	N=111	N=112			
1965-1966	6.26%	11.7%	14.4%	16.1%	20.9%	20.9%				
PA = 367	N=23	N=43	N=53	N=59	N=77	N=77				
1966-1967	9.5%	14.3%	17.1%	18.4%	18.9%					
PA = 316	N=30	N=45	N=54	N=58	N=60					

*Figures exclude known deaths, multiple division users and inter-division transfers. It should be noted that the last box in each row, which represents the last year in which patients could be readmitted, actually represents only half of the year since the cut-off date for a readmission was December 31, 1967, and the 1967-68 fiscal year extends until June 30, 1968.

**PA - Population at risk as of December 31, 1967.

and then the *cumulative* percentage was determined for each original admission cohort (the population "at risk") readmitted in each time period. The results of this analysis are presented in Table 3. Except for the 1965-66 fiscal year, the cumulative readmission rates are amazingly stable and suggest that the readmission rate at Fort Logan has neither increased nor decreased appreciably since its first year of operation.

Using the same method, Table 4 addresses the question; "What percentage of the readmitted patients were readmitted within the first 90 days following discharge, and so on, until December 31, 1967, the cut-off date?" Again, except for the 1965-66 fiscal year, the figures are remarkably stable. Since only about 50% of the patients were readmitted within six months of discharge, it might have been more appropriate to extend the cut-off date another six months to obtain a larger sample of readmitted patients. However, the year-by-year stability of the data indicated that this technique for holding time constant may be valuable in future studies.

Although the third method of calculating the readmission rate avoids the difficulties of statistical artifacts induced by the passage of calendar time, it, like the preceding methods, considers a readmission as a single event and thus makes it difficult to consider the role of multiple readmissions.

Theoretically, none of the figures produced by these three methods of calculation is more "correct" than the others. However, by correctly applying each of the models to the questions they are best suited to answer, the hospital's administrators would be less likely to make inappropriate conclusions concerning its readmission figures.

READMISSIONS AND THE CONCEPT OF ENVELOPMENT

To avoid some of the inherent difficulties of readmissions as evaluative criteria, McPartland and Richart (1) suggested a scheme of classifying readmitted patients instead of reporting all readmissions as a homogeneous group. Their concept of "envelopment" was based on the varying amounts of time and hospital resources patients consumed. Based on the length of time to readmission and the degree of envelopment to which the patient returned, readmissions were classified as follows:

Delayed transfer. Any patient returning to a "less" enveloping

TABLE 4

TIME PERIODS IN WHICH
READMITTED PATIENTS WERE READMITTED

Original Admission Year	TIME FROM FIRST DISCHARGE TO FIRST READMISSION									
	0-90 days	91-181 days	182-270 days	271-365 days	2 years	3 years	4 years	5 years	6 years	7 years
1961-1962 N=51	31.4% N=16	15.7% N=8	7.8% N=4	9.8% N=5	17.6% N=9	9.8% N=5	1.9% N=1	3.9% N=2	0.0% N=0	1.9% N=1
1962-1963 N=147	30.6% N=45	18.4% N=27	11.6% N=17	8.8% N=13	15.6% N=23	9.5% N=14	2.7% N=4	2.7% N=4		
1963-1964 N=137	35.0% N=48	17.5% N=24	12.4% N=17	5.8% N=8	13.7% N=19	10.9% N=15	2.9% N=4	1.5% N=2		
1964-1965 N=112	36.6% N=41	16.1% N=18	9.8% N=11	6.3% N=7	25.0% N=28	5.4% N=6	.9% N=1			
1965-1966 N=77	29.8% N=23	25.9% N=20	12.9% N=10	7.7% N=6	23.3% N=18					

modality, irrespective of the time, and thus considered to have made some progress.

Unsuccessful discharge. Any patient readmitted within two calendar months of his previous discharge.

Relapse. A patient discharged from a service and later readmitted to the same or a more enveloping service.

If a patient returned to a more enveloping modality, he was assumed to be more impaired. Similar logic was used for the "same" and "less" categories. Envelopment provides two ways of determining types of readmissions.

Discharge-to-admission Method of Comparison

The first method compares the previous discharge treatment modality with the current admission modality. It answers the question, "How much more enveloped, or impaired, are readmitted patients at the time of their second admission than at their time of discharge?"

Using this method, Rutledge and Binner (2) studied all Fort Logan admissions between July 1962 and June 1963 who were readmitted (including multiple readmissions) by December 1965. They adapted the concept of envelopment by ranking Fort Logan services as follows:

Rank	Service
1	Inpatient
2	Family Care
3	Day Care
4	Halfway House
5	Night Care
6	Home Care
7	Outpatient

Only 15.22% of the total sample could be classified as "Delayed Transfers," i.e., having returned to a less enveloping modality. In the categories of "Unsuccessful Discharges" and "Relapses," 28.26% returned to the same modality and 56.51% to more enveloping modalities. Thus, over half of the patients readmitted were assumed to have been more impaired upon readmission than upon previous discharge. (See Table 5 for details of distribution.)

In updating the Rutledge-Binner study, we made two changes:

TABLE 5

DISTRIBUTION OF KINDS OF READMISSIONS BY TIME FROM DISCHARGE DATE
(Admissions between July 1961 and June 1963 readmitted by December 1965)

Kind of Re-admission	Time Interval from Discharge	Degree of Envelopment	# of Read-missions	% of Read-missions	Combined %
Delayed Transfers	Two months or less	Less	18	7.83	15.22
	More than two months	Less	17	7.39	
Unsuccessful Discharges	Two months or less	Same	22	9.56	19.13
	Two months or more	More	22	9.56	
Relapses	Between two months and one year	Same	29	12.61	
	Between one and two years	Same	10	4.35	18.70
	Over two years	Same	4	1.74	
	Between two months and one year	More	69	30.00	
	Between one and two years	More	30	13.04	46.95
	Over two years	More	9	3.91	
TOTAL READMISSIONS			230	100.00	100.00

*Reprinted from "Readmissions to a community mental health center," Community Mental Health Journal, 6(2), 1970, with the permission of authors Rutledge and Binner.

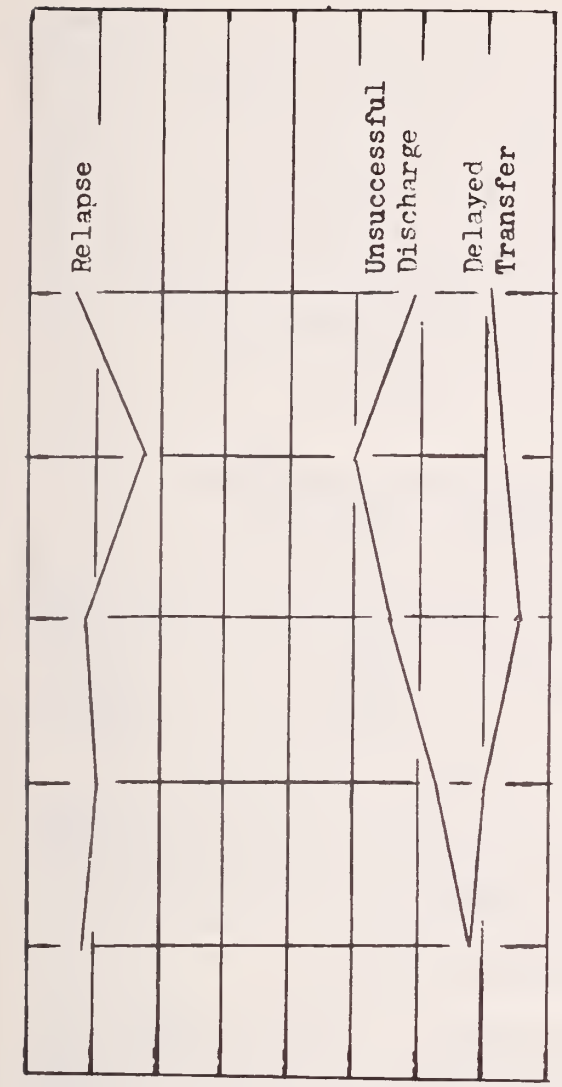

Fig. 2. Percentage of types of readmissions over fiscal years.

*The figures for the 1966-67 fiscal year were not included in the analysis, since there has not been sufficient time for patients to fall into many of the specified time periods upon readmission.

(a) we exluded multiple readmissions, and (b) we used a revised ranking that gave the Halfway House treatment modality a rank of 3 and Day Care a rank of 4. The ranking was revised in the initial phase of a study in progress at the Center on the chronic patient and comprehensive community mental health centers.

Our analysis (Fig. 2) showed a trend over the years toward more unsuccessful discharges and relapses, with fewer delayed transfers.

Table 6 compares our findings with those of Rutledge and Binner. There was a drop of 7% in delayed transfers, an increase of 3% in unsuccessful discharges, and an increase of 4% in relapses.

TABLE 6

COMPARISON OF CURRENT READMISSIONS TO RUTLEDGE-BINNER DATA

Kind of Readmission	Rutledge-Binner Data	Current Data
Delayed Transfer	15.22%	8.01%
Unsuccessful Discharge	19.13%	22.52%
Relapse	65.65%	69.46%

Although these differences may be the result of the slightly different samples and ranking procedures, in both studies two-thirds of the readmissions fell into the relapse category.

Admission-to-admission Method of Comparison

The second method compares the previous admission treatment modality with the current admission modality. It answers the question, "How much more enveloped, or impaired, are readmitted patients at the time of their second admission than at the time of their first admission?"

When admission-to-admission modalities were compared, only 23.8% of the patients returned to a more enveloping modality and hence were assumed to be more impaired upon readmission than upon first admission.

Methodological Problems

Each comparison, in answering the question for which it was designed, yielded different results. In monitoring programs, hospital administrators must weigh the answers against the limitations of the model. The concept of envelopment involves the tenuous assumption that degree of envelopment is a valid indicator of impairment. Circumstances may influence the modality to which the patient is admitted as well as the modality from which he is discharged. Does the patient have a place to live? Does the team have space for the patient? The use of just two data points, discharge and readmission or admission and readmission, fails to consider the number of modality movements or changes a patient makes during hospitalization and may not adequately reflect the role of admission circumstances.

Both methods of determining kinds of readmissions produce artifacts that could distort the picture of Fort Logan's readmission population. The majority of patients enter day care or in-hospital care, but many are discharged from outpatient care, the least enveloping service. The latter patients can return only to the same or a more enveloping modality. Thus, the comparison of discharge-to-admission modality is likely to indicate a high percentage of patients who are more enveloped (impaired) at the time of their second admission.

The admission-to-admission comparison has the same methodological problem in the opposite direction. Since the customary modality on first admission is day- or in-hospital, there is little chance to go to a more enveloping modality upon readmission.

Perhaps one answer to these methodological difficulties would be to examine a patient's "envelopment career," the total degree of envelopment during a first hospitalization compared with that for subsequent hospitalizations.

Although both methods of comparison are logical possibilities within the Fort Logan program, we made a year-by-year comparison between the readmitted and non-readmitted patients to determine whether both possibilities were warranted.

The discharge-to-admission method appears to be valid because of the increasing tendency to discharge subsequently readmitted patients from the more enveloping modalities (Table 7). If envelopment is used

TABLE 7

READMISSION AS FUNCTION OF DISCHARGE MODALITY

		PERCENTAGE IN EACH DISCHARGE MODALITY							
		In	Day	Night Care	Halfway House	Out-patient	Home Care	Family	Special Hospital Leave
1961-1962	Non-Readmission	2.9	35.9	1.9		55.3		3.9	
	Readmission	11.8	41.2		1.9	45.1			
1962-1963	Non-Readmission	12.8	48.9	3.5	1.28	31.7		1.2	
	Readmission	13.6	46.9	4.1	2.0	27.9		4.8	
1963-1964	Non-Readmission	9.9	44.4	4.8	4.5	33.1		3.4	
	Readmission	20.9	33.6	7.0	6.3	30.2		1.4	.6
1964-1965	Non-Readmission	18.5	44.9	4.7	2.7	27.2		1.4	
	Readmission	20.6	44.7	3.6	4.5	23.2		1.8	1.8
1965-1966	Non-Readmission	17.9	37.2	1.0	4.8	34.5	3.1	1.4	
	Readmission	23.4	48.1	1.3	5.2	18.2	1.3		2.6
1966-1967	Non-Readmission	23.4	47.7	2.7	2.7	21.1	1.6		
	Readmission	36.7	45.0	1.7	1.7	11.7	3.4		

TABLE 8

READMISSION AS FUNCTION OF ADMISSION MODALITY

		PERCENTAGE IN EACH DISCHARGE MODALITY							
		In	Day	Night Care	Halfway House	Out-patient	Home Care	Family	Special Hospital Leave
1961-1962	Non-Readmission	24.3	75.7						
	Readmission	31.4	68.6						
1962-1963	Non-Readmission	39.9	58.1	1.0		1.0			
	Readmission	48.3	50.3	1.4					
1963-1964	Non-Readmission	36.7	59.3	3.1		0.9			
	Readmission	49.7	49.7	0.6					
1964-1965	Non-Readmission	39.8	56.6	3.6					
	Readmission	55.4	44.6						
1965-1966	Non-Readmission	55.0	41.6				3.4		
	Readmission	62.4	36.4				1.3		
1966-1967	Non-Readmission	55.1	41.4	1.6	0.3		1.6		
	Readmission	36.7	45.0	1.7	1.7	11.7	3.2		

as an index of impairment, readmitted patients are more impaired at discharge than non-readmitted patients and are, therefore, more likely to return. The steady increase in discharges from 24-hour care and day care suggest that the teams may not be taking the time to bring the patient back into the community gradually by using outpatient care for a number of weeks prior to discharge.

It appears that the logical considerations for using an admission-to-admission analysis may not be warranted. Table 8 indicates a slight trend toward more enveloping first-admission modalities for patients who return. Collapsed over years, 47.3% of the patients who returned had been admitted originally to 24-hour care, whereas 41.6% of the non-returning patients had been admitted to 24-hour care. There are also strong indications that, in general, Fort Logan has been admitting fewer patients to day care and more to in-hospital care.

LENGTH OF HOSPITALIZATION AND TIME IN COMMUNITY PRIOR TO READMISSION

A previous report (3) indicated that the concept of length of stay can also be modeled in a variety of ways. To simplify matters for the purposes of our concern with readmissions, length of hospitalization was defined as the total number of days the patient was considered under care.

A point-biserial correlation between length of stay and readmission/non-readmission showed no relationship ($r = -.013$). Since patients current as of June 30, 1967 were removed from the study, the data were biased toward short stays on the part of the non-readmitted group. Therefore, only the first three years' data were analyzed. The resulting correlation was $r = -.16$ ($p = .05$), indicating the shorter the stay the more likely a patient is to return. This is a weak, though reliable, relationship, and the use of a small sample statistic, the point-biserial correlation, on a large sample may have produced the result.

It has often been assumed that short periods of hospitalization involve a necessary "trade-off" with more readmissions, but the correlation obtained in this study indicates that this may not be true. A correlation of -.16 accounts for only 3% of the variance.

To further explore the relationship between length of stay and readmissions, a scatter plot between length of hospitalization and time in the community prior to readmission was developed. The results revealed that (a) the longer a patient was hospitalized, the shorter the stay in the community, and (b) the shorter the patient's hospitalization, the longer the time in the community prior to rehospitalization. Some of the missing variance between length of stay and readmission could be accounted for by the long-stayers who can maintain only short periods of time in the community before they must return. Why this relationship exists is an important question. Is the treatment program somehow training patients to be successful patients instead of successful community members?

Although the relationship between length of hospitalization and readmissions needs more study, our analysis strongly suggests that looking at only one variable, such as length of stay, is inadequate. No one variable, analyzed in isolation, can provide the needed information or account for a maximum amount of variance. Instead, relationships between variables must be considered. The examination of such relationships may be complex, involved, and difficult to interpret, but the questions mental health professionals are asking about readmissions are exactly that: complex, involved, and difficult to analyze.

READMISSIONS AS A FUNCTION OF PERSONALITY CHARACTERISTICS

In this phase of the study, we attempted to determine the personality characteristics that differentiated the non-readmitted from the readmitted patient. Information on each patient was obtained from the hospital admission, mental status, and social history forms.

Analysis was based on a series of frequencies and probabilities computed for each fiscal year for each of the categories, readmissions and non-readmissions. The expected probabilities of readmission were as follows:

1961-62	33%
1962-63	32%
1963-64	29%
1964-65	27%
1965-66	21%
1966-67	19%

The probability that a given patient was a readmission or non-readmission as a function of the responses to the items on the forms was then obtained. On any given item, the number of responses in each category was divided in accordance with the proportion of readmitted respondents to non-readmitted.

If the observed probability differed markedly (by 5% if 25% of the readmission sample was included, or by 8% if 20% of the sample was included) from the expected probability, the item was considered to discriminate between readmissions and non-readmissions, and an inference was drawn.

The number of readmissions for the later years is low, because there has not been sufficient time for a readmission to occur. Thus, there are a number of false non-readmitted patients in the later years' comparisons. We expected that the existence of these false non-readmissions would reduce the number of discriminations between the readmitted and non-readmitted populations in the later years; however, this effect occurred only with the mental status form and, even then, the trends in the data were surprisingly consistent with the discriminations found in the in the earlier years.

Admission Form Data

The admission form characterized the readmitted patient as single, having experienced difficulty holding a job, having been under some form of psychiatric care at the time of admission, and as having been admitted to 24-hour care more than expected.

Social History Form Data

The data showed that readmitted patients experienced overprotection, inconsistency, dominance, and psychological trauma during developmental periods. There were also indications that the readmitted patients come from broken homes, have difficulty with the law, have low social productivity, see their problems as primarily centered around their families, vocations, and financial matters; have a history of mental disturbance in the family; and exhibit depression, disorganization, aggression, and antisocial behavior as their primary symptoms.

Mental Status Form Data

The strongest findings from the mental status examination concerned cognitive ability. While intelligence estimates ranged from high to low, the readmitted patients exhibited delusional, phobic, and depressive thought content; blocking and slowing of thought processes; poor organization of thought; poor use of logic; and little capacity for abstraction. Readmitted patients also used inappropriate gesturing; were suspicious; moved predominantly against people; and had a poor self-image, poor prior adjustment, and a gradual rather than sudden onset of illness. Oddly enough, they had few emotional disturbances in comparison to the non-readmitted patients. This finding was especially strong for the first admission cohort.

Summing the information from all three forms, the readmitted patient appeared to be a marginal individual who has difficulty communicating with others effectively. The consistency with which the items mentioned discriminated from year to year indicated that treatment teams may be unable to change many characteristics of the readmitted patients. Group therapy often emphasizes the emotional aspects of a person's problems, but the major difficulties of readmitted patients centered around inability to stabilize in the community and inability to communicate with others. Such patients may return because they are unable to communicate the extent of their impairment.

Since the data also indicated that readmitted patients are likely to come from broken homes (where mental disturbance has a long history), have difficulty with the law, and show low social productivity, perhaps treatment should focus on helping the patient adapt to his environment.

SUMMARY

While it may appear that we have so complicated readmissions as to make them useless as criteria for program evaluation, actually we have done the opposite. Our study demonstrated that each of the many ways in which readmission figures can be presented is designed to answer a specific question. The various methods of calculating and describing readmissions do not represent statistical tricks for hiding

foreboding truths about hospital functioning. Instead, they determine the extent to which readmission figures can answer a given question and, thus, the extent to which those figures, in combination with other measures, can gauge the effectiveness of a hospital treatment program.

REFERENCES

1. McPARTLAND, S., and RICHART, H. Analysis of readmissions to a community mental health center. *Community Mental Health Journal*, 2 (1): 22-26, 1966.

2. RUTLEDGE, L., and BINNER, P. R. Readmissions to a community mental health center. *Community Mental Health Journal*, 6(2): 136-43, 1970.

3. SCHATZ, J. Patterns of Fort Logan patients. Research report (mimeo), Fort Logan Mental Health Center, May 1967.

FOLLOW-UP OF CHILDREN NOT ADMITTED TO THE FORT LOGAN MENTAL HEALTH CENTER

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The Children's Division of the Fort Logan Mental Health Center offers 24-hour care and day care to emotionally disturbed children between the ages of six and fifteen who require controls and protection that cannot be provided in their own homes or through other community resources. Outpatient services are available only to children who have graduated from the 24-hour or day care programs. The treatment program provides milieu therapy for all children and gives both children and parents individual therapy, group therapy, and family unit therapy as needed.

Admission is voluntary; families may apply directly or through referral from an agency in the community. This policy has called for continuous work with mental health agencies and juvenile courts, which have been accustomed to using court commitments to send patients to state hospitals. The control of patient intake frees the program staff to use all of its clinical manpower for treatment, but at the same time, it imposes the responsibility of insuring that children who could benefit only from this type of program are not denied admission.

Each application for admission is reviewed by the staff to determine the best course of action. If the initial information from the family or from the referring agency appears to meet admission requirements, a diagnostic evaluation is completed at the community level. The evaluation procedure includes interviews with the child and with his parents, review of background information from other agencies, and consultation with the staff of the referring agency. Children are not accepted for

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admission if (a) the primary diagnosis is that of mental retardation or brain damage, unless there are emotional problems not directly related to these conditions, (b) there is physical illness severe enough to require pediatric care in a general hospital, or (c) antisocial behavior is exhibited without evidence of anxiety, depression, or internalized conflict. If admission to the Children's Division is deemed inappropriate, the staff recommends alternatives--return to the referring agency or other possible sources of help.

To measure the effectiveness of our preadmission evaluation program, a study was made of children referred to Fort Logan during 1966 and the first quarter of 1967 who were not accepted for evaluation or who were evaluated but not accepted for admission. The purpose of the study was to determine (a) the adequacy of decisions made by Fort Logan staff relevant to admission, and (b) the appropriateness of referrals to other agencies.

METHOD

The study group consisted of 50 children and their parents who contacted the Division but were not clinically evaluated and 42 children and their parents who were evaluated by Fort Logan staff.

Background information was obtained from the Center's intake forms, historical and diagnostic materials from referring agencies, summaries of telephone contacts with families who were not evaluated, and reports of clinical evaluations by Fort Logan staff. Information on the current adjustment of the 92 children was gathered from telephone interviews of parents or reports from other agencies. Parents of 77 of the the children were reached by telephone, and all cooperated in supplying the information requested. The status of the other 15 families was obtained through the agencies to whom the families had been referred.

RESULTS

Outcome of Referrals for Families Not Evaluated

Table 1 shows the referral distribution by reported benefit or lack of benefit for this group. Information was obtained on the four families

for whom referral was deemed inappropriate as well as on the 46 families for whom other agency services were recommended.

TABLE 1

REFERRAL DISTRIBUTION OF FAMILIES NOT EVALUATED
(N = 50)

Disposition	Outcome		Total
	Satisfactory	Unsatisfactory	
Followed through with referral			
To original agency	13	1	14
To different agency	11	6	17
Did not follow through with referral	11	4	15
Not referred	3	1	4
Totals	38	12	50

Of the 31 families who followed through with referral, 24 reported that the agency to which Fort Logan referred them had been of benefit. Seven families considered the referral outcome unfavorable. Two of these had had clinical services but claimed that no benefit was derived; two families stated that the waiting list had been too long; three children had been refused service because family income was too high or because the agency's pattern of services did not meet the child's needs. One of the three eventually received private care with good results.

On the basis of information received from the 15 families who did not follow through with referral, 11 of the children seemed to be functioning well. Ten of the 11 had manifested spontaneous improvement, and the 11th child had eventually received outpatient psychiatric care to which he responded favorably. Four of the 15 children were not faring well. The family of one had a negative attitude toward any kind of treatment, the family of another was still indecisive about getting help, and the family of a third was seeking psychiatric care for a severely mentally retarded child. The fourth child received care in a private hospital and later was admitted to the Children's Division; however, the staff had felt initially that a correctional setting would be more beneficial. The problems in this

case were particularly complex; the child, who suffered an impulse-ridden personality, stubbornly resisted ego and superego development.

The following information was obtained about the four children who were not referred:

In one case, the child had already been accepted in a classroom for emotionally disturbed children at the time the family contacted Fort Logan. The mother reported in the follow-up interview that the child responded well to this placement.

In the second case, the problem appeared to be only immaturity in the child. The mother reported the child's improvement, crediting it to her self-awareness of mistakes in her previous child-rearing practices.

The third family had contacted Fort Logan pending the outcome of a juvenile court hearing. Follow-up revealed that their child had benefited from placement in a correctional setting.

In the fourth case, the mother was uncertain about wanting a referral. We subsequently learned that the child was not doing well, but the mother was still ambivalent toward treatment.

Outcome of Referrals for Children Evaluated but Not Admitted

Table 2 shows the distribution of referrals for the 42 families who were evaluated by our staff but whose children were not accepted for admission.

Again, a large percentage of families who followed through with referral reported benefit. Circumstances of the unfavorable outcome in six cases who followed through were as follows:

Two children eloped from correctional settings. One was believed to be concealed by his parents. The other was reported to have left the state with some adults who were trafficking in narcotics.

Two children were in an adult treatment division at the Colorado State Hospital because they could not be accommodated in an open setting such as Fort Logan.

One family could not meet the expense of a recommended private school for perceptually handicapped children.

Ongoing consultation for one child had been refused by a state-operated children's home; the child continued to adjust poorly in that home.

TABLE 2

REFERRAL DISTRIBUTION OF FAMILIES EVALUATED BUT NOT ADMITTED
(N = 42)

Disposition	Outcome		Total
	Satisfactory	Unsatisfactory	
Followed through with referral			
To original agency	14	4	18
To different agency	11	2	13
Did not follow through with referral	7	4	11
Totals	32	10	42

Among the families who did not follow through with referral, seven children appeared to be doing well. Three had improved following foster home placements, and one had improved following placement in a special education class. Three had shown spontaneous improvement.

Four children of families who did not follow through continued to have problems. One had come to the attention of the juvenile court after refusing referral to the Colorado Youth Center. One family had contacted a child welfare agency but had not yet accepted foster-home placement for the child.

In the third case, the child was refused admission to the state training school. The parents did not have sufficient funds for private placement in either a school for the retarded or a school for the perceptually handicapped.

In the fourth case, the mother refused to allow the child to be admitted to the 24-hour program in our children's division. She appeared to be a mother who needed to maintain a symbiotic relationship with her child.

DISCUSSION

Should we have evaluated the children referred but not accepted for evaluation? Should we have admitted the children who were evaluated but not accepted for admission?

The follow-up survey indicated that for most of the children Fort Logan staff had made appropriate decisions and helpful referrals. There were almost no differences in outcome between the families who had only telephone contact with our staff and those who were evaluated. Thirty-one families in each group followed through with referral; 24 (77%) of the former group and 25 (89%) of the latter reported favorable outcomes.

Twenty-six of the families referred did not follow through, but 13 of the 26 reported that their children had shown spontaneous improvement, a phenomenon probably similar to that often seen in patients on treatment waiting lists of outpatient facilities. In the five other reports of improvement in this group, remedial services had been used at some point.

In addressing the concerns of the study, particular attention was given to the decisions made for the children who had not fared well. Results were unsatisfactory for 22 of the 92 children. The reasons for failure were not always conclusive, but we noted some circumstances that may have influenced outcome.

In 11 cases, failure appeared to be due primarily to minimal interest on the part of the family. Some of these families made token gestures of following through with referral; others rejected the recommendations altogether.

Only four of the six children referred to a correctional setting arrived there. Two children showed improvement; the other two eloped. The staff of Fort Logan views the correctional agencies as treatment settings, but it appears that not many other agencies appreciate their treatment potential. Present laws concerning the use of correctional placements are structured for repeated offences, overlooking the possibility of using such settings therapeutically for the early offender.

Six children appeared to be the victims of service or communication gaps. One agency had to refuse service because it could not meet the child's needs, but it failed to suggest other possibilities for help. And in one instance, a state-operated foster home refused our offer of psychiatric consultation services while the child remained in the home. In the other four cases, the families had incomes too high to qualify for existing agency services but not high enough to afford private care.

CONCLUSIONS

The large proportion of families who benefitted from referral back to the initiating agency suggests that indiscriminate admission of all referrals to Fort Logan could bypass the professional skills still available in the referring agency.

While the study demonstrated the importance of careful screening of applicants to avoid unnecessary hospitalization, it did not diminish our concern about the children who need a 24-hour or day care program but who are not referred or who fail to receive services because of uncooperative families. Since most agencies are overwhelmed trying to help people who want help, they can scarcely justify pursuing unwilling recipients of their care. One answer to this problem might be follow-up by a volunteer group under the auspices of a community professional council.

The Children's Division will continue close supervision of its intake procedures through further studies and hopes to explore some of the problems revealed in this study through its expanded role as part of the Southwest Denver Comprehensive Community Mental Health Center.

A STORY FOR MARY*

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A major task of a child welfare worker in a protective services agency is to help the children under his care integrate unhappy life experiences and free their potential for establishing satisfying relationships that will ensure their further development. When deprivation and inconsistent parental care lead to a child's separation from his parents, it is essential that the child understand what is happening to him and why. This article discusses a specific activity that became the medium through which information was conveyed to a young child—preparing a written and illustrated account of the child's past and current life.

BACKGROUND INFORMATION

Mary's parents, who were Sioux Indians, had been continuously involved in marital conflict. Despite the efforts of social workers for many years to provide rehabilitative services to the family, there was a pattern of frequent separations and abandonment of the children by one or both parents. Court action resulted in awarding custody of the two eldest children to a state training school. Mary's mother placed the four younger children in boarding schools but kept Mary with her until Mary was five years of age, at which time she and her younger brother were removed on a court order charging dependency and neglect. Because the behavior of the parents had been the primary focus of the workers' helping efforts, they

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knew relatively little about the individual children prior to their placements. When Mary was placed in a foster home, it was explained to the foster parents that the caseworker needed to get to know Mary and planned to see her regularly outside the home as well as observe her within the foster family setting.

During the first weeks of foster care it was evident that Mary did not know why she was in the foster home. She could not discuss her feelings with the worker, but she revealed fantasies that her mother would buy a house and a car and then take all her children home to live together as a family. Since it was most unlikely that her mother could improve her level of functioning sufficiently to enable her to resume responsibility for the care of her children, Mary's fantasy could not be encouraged. (5) Rather, she needed to be prepared for continued foster care. Mary's ability to cope with her situation indicated that she could use help in understanding and accepting what had happened to her that created the need for a substitute family. (2) Although the worker used play therapy on occasion to convey ideas to Mary, it was the child's interest in the book department of the local drugstore that led the worker to consider using the preparation of a "book" as a means of interpretation. On one of their subsequent trips to the drugstore Mary was again attracted to the children's book section and asked the social worker to buy her a book. The social worker responded by offering an alternative—that he and Mary write their own book. Mary was interested in this suggestion and ready to talk about it. The discussion led to a consideration of how to make a book and what materials would be required.

The worker's next trip with Mary was used to select the materials needed. Mary carried primary responsibility for determining what supplies were to be purchased and she appeared to enjoy shopping for them. In response to her question about what the book would be about, the social worker suggested that it be a book about Mary herself. A considerable amount of time was devoted to planning the book. It was agreed that before the next visit the social worker would write the story and Mary would find pictures that would illustrate the story. She selected pictures from magazines and was assisted with her project by the foster parents.

When the worker and Mary met again the story had been written and Mary had a packet of pictures. Together they read the story and selected pictures to illustrate it. The story was typed on large sheets of paper,

with a paragraph or two on each page, allowing much room for pictures. The process of putting the book together provided many opportunities to read all or selected parts of the story. Mary determined to a large extent which parts needed to be reread and discussed. As a result, she talked about parts of her life that she had been unable to discuss earlier with the worker. The following is the narrative in the book.

THE STORY OF MARY

In the beautiful land of Chief Red Cloud lived a man named John and a woman named Susan. Red Cloud was one of the early chiefs of the mighty Sioux Nation. Red Cloud's people were some of the first people to live on the great prairies. They hunted wild animals to eat. The berries and other fruits that grew on the prairies and in the Black Hills were good to eat.

John and Susan were some of Red Cloud's people. They were happy that long ago he had been their chief. Sometimes John and Susan lived in Red Cloud's land. This land is called the Pine Ridge Reservation. Sometimes they lived in a city with a lot of different kinds of people in it. This city is called Rapid City. John and Susan grew some fine babies. Taking care of the babies and finding enough food for them was a hard job. Sometimes it was easier for them to take care of their children and get food for them if John would live in the city and Susan would live on the reservation. Sometimes John and Susan loved each other very much. Sometimes they did not love each other.

When John and Susan had six little children, Susan felt something happy and wonderful inside her and knew she was going to have another baby. Susan took her little children back to the land of Chief Red Cloud. There on the reservation she gave birth to a baby girl. Her name was Mary. She was a pretty baby with beautiful black hair and sparkling eyes.

When Mary was old enough to crawl and stand up alone, her Daddy John was hurt badly in a car accident. He could never walk again. He could not get food for his family and he could not care for them. There had not been many jobs in the city or on the reservation. How sad he was after all this had happened.

By the time Mary could walk well, Mama Susan was ready to have another baby. Now Mary had a little brother. His eyes sparkled too.

As the children grew bigger and stronger they needed more food to keep on growing. They needed someone to help them learn about new things. They needed someone to keep them from getting hurt. Mama Susan had to do all this by herself. Even though she loved her children, it was hard to care for all of them alone.

In the city there were many helpers. Some of these helpers were doctors, some were teachers, and some of the helpers were social workers. The social workers wanted to help Mama Susan so that she could do the

things she wanted to do for the children to help them grow big and happy. Sometimes some of the children had to go away to school or live with someone else. Even when there were helpers and when some of the children were somewhere else, it was hard for Mama Susan to do what she wanted to do for her children.

John and Susan talked to some of the social workers about what to do to help the children. They decided that the children would get the best kind of care if they could live with other people. Because by this time John was very sick. It was because John and Susan loved their children that they decided to make these plans for them.

The only way the social workers could put Mary and her little brother in another home was to go to court. In court the judge could say it would be okay to find new homes. If the judge would say this, it would mean that John and Susan would be able to let the children go to new homes.

Susan, Mary, and her little brother and the social workers were in court on two days. They were hard days. Susan cried and said she had wanted to be able to help the children. She was sorry that she had not been able to take care of her children, and she also said she loved them. Mary was unhappy and did not know if she should sit by Susan or sit by the social workers. The judge agreed that the best way to help Mary was to let her live with another family. Then she could have all the things that Mama Susan wanted for her. It was not easy for Mary to tell Mama Susan good-bye because she loved Mama Susan. Mama Susan was a good person to love.

Mr. Eikenberry was Mary's social worker. They did not know each other very well before they went to court. It was hard for Mary to know whether Mr. Eikenberry could help her and be her friend. Mr. Eikenberry knows many children and many families. One of the families he knows are Mom and Dad Thomas.

Mom and Dad Thomas have loved and cared for many children. They had asked Mr. Eikenberry for another child to love and care for. Mr. Eikenberry talked to them about Mary. They decided that they wanted to take care of Mary as long as she needs their home. Because Mary needed a home and the Thomases needed another little girl, Mr. Eikenberry brought Mary to live with the Thomas family.

At first, living with the Thomases was a little hard for Mary. They did some things differently from the way Mary did them. Sometimes Mary would be terribly lonely for the people she had known before.

The Thomases will be Mary's mom and dad for as long as she needs them. They make a good home. Dad Thomas works in the day so he can have food for his family. Mom Thomas spends her days washing clothes, baking goodies, and caring for her children. Working and washing and baking are some of the ways the Thomases show that they love their children.

Mom and Dad Thomas have a pretty little yellow house with a white

fence around it. The fence keeps the children from going into the street. Some of the children need to live with the Thomases a long time. Some of the children need to live with the Thomases a short time.

The Thomas family is like an Easter basket. Some of the children have white skin. Some have brown skin. Some of them, like Mary, are Red Cloud's people and have a nice tan skin. Some of the children are big, others are just tiny. A few are boys and a few are girls.

All of them like cookies and raisins. They all need to be loved and cared for. They all pray and they all sleep. Sometimes they cry and sometimes they giggle. Not many of them like to go to the doctor for a shot. They all like to feel the rain on their pretty faces. Like Mary, they all need the Thomases for part of the time they are growing up.

EVALUATION OF THE TREATMENT DEVICE

One approach to evaluating this method of handling with a child potentially explosive information about his life is to consider both the potential benefits to him and the difficulties it may create. In regard to Mary it seemed that the book had served much of its intended purpose by the time it was assembled. The process of planning the book, matching the pictures to the narrative, and repeated discussions of the content occupied weekly contacts for two months. Mary was then ready to take the book home and give it to the foster mother for safekeeping. Mary chose to store the book on top of the refrigerator in the kitchen, where it was beyond the reach of the other children in the home. Significance might be attached to her choice because much of the family's activities took place in the large kitchen of the foster home.

Mary's attitude toward the book was one of quiet respect. After her book was completed, her attitude toward her early life appeared to be one of acceptance. (3) The new level of adjustment was effective to the point that it allowed Mary to move beyond expending all her energies in trying to deal with her feelings about the past.

The foster parents were involved in discussions about the book, and they indicated respect for it and its meaning to Mary. They knew enough about Mary's background so that they could talk comfortably about the book with her and handle any questions she might raise.

The social worker consciously attempted to write a story that would be an accurate representation of Mary's natural parents and their strengths as parents as well as their limitations. By discussing the story in segments with the child, the worker had an opportunity to expand on

the contents. Talks about the story as the book was prepared were lengthy and included many details of Mary's background. The guideline in these discussions was to determine what the child was asking for and what she was able to use constructively. The theoretical construct on which the social worker was operating was that Mary's having a clearer understanding of why her own parents could not care for her would make it possible for Mary to effect a more satisfying adjustment to substitute parents. (4) The relationship that developed between Mary and the worker during the preparation of the book enabled him, in the months that followed, to help her face new situations as they occurred, especially conflicts with other children and the death of her father.

One danger in a social worker's writing the story of a child's life is that he may inadvertently emphasize his wish to help the child at the expense of giving an accurate account of his actual life experiences. Safeguards that could be taken to diminish this possibility include the use of colleagues, or consultation, for more objective evaluations as the story is being developed. Accurate representation and interpretation must be a constant concern of the worker.

Another caution relates to a child's readiness and capacity to integrate the information about his life. There should be a definite indication that the child wants and can participate in such an experience. (1)

Mary's immediate response to the experience of writing the book and her later adjustment in foster care tends to indicate that this treatment device may have potential value for other children in similar situations. Writing a book about a child's life experiences makes them graphic and tangible for the child and the worker. The book can be used to present therapeutic material of a sophisticated nature on a level that is meaningful and real to a very young child. In Mary's case, the worker learned that two years later the book was still kept on top of the refrigerator. For Mary, who had few mementos of childhood, the book seemed to serve the purpose of being a part of a developing identity.

REFERENCES

1. GANTER, GRACE, and POLANSKY, N. A. Predicting a child's accessibility to individual treatment from diagnostic groups. *Social Work*, 9:56-63, July 1964.

2. GOLDBERG, F. H., LESSER, S. R., and SCHULMAN, RENA. A conceptual approach and guide to formulating goals in child guidance treatment. *American Journal of Orthopsychiatry*, 36:125-133, January 1966.

3. KADUSHIN, A. Reversibility of trauma: A follow-up study of children adopted when older. *Social Work*, 12:22-33, October 1967.

4. SEIDEN, R. H. Salutary effects of maternal separation. *Social Work*, 10:25-29, October 1965.

5. WERKMAN, S. L. The psychiatric diagnostic interview with children. *American Journal of Orthopsychiatry*, 35:764-771, July 1965.

PROGRAM EVALUATION USING GOAL–ORIENTED PROGRESS NOTES: A PRELIMINARY REPORT*

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The data available for hospital-wide program evaluation in mental health facilities usually come from automated patient record systems. The Fort Logan Mental Health Center began collecting a wide variety of data on its patient population when the Center opened on July 1, 1961. Its automated system† contains demographic, historical, psychological, medical, psychiatric, admission, and discharge information on each patient. Automation has increased the quantity of data that can be retrieved quickly for administrative, clinical, and research purposes, and the demands for accuracy within the automated process have increased the quality of the data. However, in the area of treatment evaluation, most automated systems still depend upon criteria such as length of stay, readmission rates, and response to treatment.

None of these traditional criteria, either alone or in combination, meet the evaluation needs of the therapeutic techniques employed at the Fort Logan Mental Health Center. For example, the relatively short

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length of stay for patients in the Center's Alcoholism Division does not mean that its program is more effective than that of the Adult Psychiatry Division. Instead, it reflects the well-defined, brief phases intrinsic to the Alcoholism Division treatment program (2). The treatment structure at Fort Logan is based on modalities ranging from 24-hour in-hospital care to outpatient care involving only a few hours a month. Outpatients remain on the hospital books every day until discharged. To compare Fort Logan's length of stay figures to those of a hospital whose population consists entirely of 24-hour in-hospital care would grossly misrepresent the Center's philosophy of treatment and its ability to carry out that philosophy (3).

Applying readmission figures as an evaluative criterion presents certain problems for Fort Logan. If the readmission rate is defined as the number of patients who were admitted in a given year who were subsequently readmitted, Fort Logan's readmission rate decreased from 33% to 19.8% during the first six years (9).

The treatment philosophy of the Center can alter the significance of readmission figures, too. A treatment team may discharge a patient, believing that his experience in the community will be beneficial, but expecting him to return. In this case, readmission must be viewed not as a treatment failure but as a part of the treatment process (9).

Estimates of response to treatment frequently rest upon the clinician's rating of a patient's improvement, but does the rating signify a change in behavior, symptom alleviation, social productivity, or all of these and more (11)? Furthermore, the usual rating of improvement provides no baseline for judgment.

Fort Logan currently assesses response to treatment through ratings in the following areas; social and family relationships; self-management; social productivity; antisocial behavior; use of leisure time; character change; general symptom alleviation; and self-confidence and self-reliance. This assessment allows identification of the area of change and individual clinical interpretation of the specific nature of that change. However, these interpretations vary according to the rater's discipline, experience, and knowledge of the patient (4, 6, 13). And there is evidence that when the person who treats the patient also judges his progress, the rater's value system and his attitude toward the patient affect this rating (5, 12). Recognizing that traditional criteria alone cannot provide

a complete picture of treatment effectiveness, research staff members at the Center sought a new form of program evaluation. We envisioned an automated progress note with two major objectives: "First, to obtain a flexible but ongoing picture of the patient's goals as set by the patient, family, and/or staff; second, to provide the necessary feedback essential to research in a clinical setting." (12)

Glueck (7) noted the numerous defects in the customary narrative progress report: (a) the quality of reporting varies according to the training, motivation, and workload of the observer, (b) the frequency of reports tends to be minimal through the absence of a convenient means for making them, and (c) the absence of a uniform structure and common vocabulary adversely affects the clarity and completeness of reports. The tremendous difficulty in locating and retrieving specific information could be added to this list.

In examining automated versions of records devised by other institutions, several advantages were immediately evident. First, by providing a list of statements and asking the clinical personnel to indicate which were applicable to a given patient, the information eventually included in the chart would be as comprehensive as the list of items submitted to the staff and would cover areas that might be ignored, overlooked, or forgotten in the conventional hand-written narrative form of reporting. Second, the return of the computer-printed narrative report would serve as a valuable communication tool for the teams.

Although the techniques for converting check lists to computerized narrative reports could be adapted from existing systems, e.g., Glueck's (7) work at Hartford or Laska's (8) at Rockland, the content we desired was *not* already available. We believed that team progress notes at Fort Logan should include not only the treatment goals for the patient, but also the plans for using community and hospital resources in attaining these goals, and the psychological, behavioral, and social responses of the patient. As far as we knew, no one had ventured into a goal-method-response approach to treatment evaluation in an ongoing operation with built-in feedback.

Faced, then, with the enormous task of developing our own content and format, a committee of clinical and research personnel was formed in 1967 to devise a pilot document for the staff treatment goal-method portion of the proposed progress note.

Pilot Work

Each team committee member was asked to provide a list of all the goals of treatment their team currently held for each patient. The resulting list of over 600 goal statements was reduced by eliminating duplications, combining and rewording goals of similar nature, and redefining those whose meaning was unclear to committee members. The statements were then organized into the following categories:

1. Financial support
2. Living situation
3. Medical goals
4. Self-confidence, self-expression, and independence
5. Recognition of problem areas
6. Symptom alleviation
7. Social and interpersonal relations

Each category listed a series of items designating a treatment goal the staff might hold for a patient. Space was provided for additional comments from the staff rater.

The committee used the same procedure to produce the lists of treatment methods. The two parts were combined into one form by listing the methods in each category opposite the goals for that category.

To test the form, we asked four Adult Psychiatry Division treatment teams to use it for one month, completing each form at the time they wrote the routine narrative progress notes in the patient's chart. We then examined the forms to determine (a) clarity of language, (b) inclusiveness, (c) difficulties encountered in completion, and (d) general clinical reaction.

Clarity of language. Two measures of clarity were used: verbal reports, and number of redundant items added by the raters. The teams reported no difficulty interpreting the meaning of individual items except in the category, "Recognition of Problem Areas." It was not clear to them whether "recognition" referred to the team or to the patient. The ambiguity was corrected by changing the category heading to "Patient Recognition of Problem Areas." No redundant items were added by the raters.

Inclusiveness. We measured this aspect of the form by the number of new items added by the raters and the distribution of checked items over all subgroups.

In the area of family relations, "husband" and "friends" were added under the item, "Stop Excessive Arguing with." In the next form revision, "Stop Excessive Arguing with Husband," was added under "Marital Relations," and "Stop Excessive Arguing with Friends" was added to the area of "Peer and Employer Relations."

The distribution of items checked, by category, is shown in Table 1. Since among all items on the form, only the various types of bizarre sexual behavior were not checked, we condensed this subsection to a single item in subsequent forms.

TABLE 1

PERCENT OF ITEMS CHECKED BY CATEGORY

Goal Category	Number of checks	% of total
Financial support	88	6.08
Living situation	65	4.49
Medical goals	145	10.03
Self-confidence, self. expression, and independence	489	33.84
Symptom alleviation	189	13.07
Recognition of problem areas	257	17.78
Social and interpersonal relations	212	14.67
Totals	1445	99.96

Difficulties in completion. The teams reported some difficulty in determining when to check "Not yet a matter of concern." Additional instructions were given that this item was to be checked when (a) there was no problem in the area, or (b) when a problem existed in the area but the team wished to defer action.

General clinical reaction. Verbal feedback from the teams indicated their favorable reaction. They felt that the goal list provided them with a convenient way to discuss the treatment program for a given patient. Having treatment goals spelled out and known to all team members helped to maintain treatment unity for the patient.

Design for Subsequent Forms and Procedure

The staff goal-method checklist was only one segment of the total progress note envisioned. To insure a truly representative picture, we needed the stated goals of the patient and of immediate community members directly or indirectly involved in the patient's hospitalization. As Suchman (10) stated, "There can be little question that values play a large role in determining the objectives of public service programs and that any evaluation study of the desirable and undesirable consequences of such programs must take social values, especially conflicting values, into account." Without goal statements from the patients and community, it would be difficult to determine the relevance or "correctness" of the staff's point of view and the effect of possible differences in perception of goals upon the staff's ability to treat patients (1).

Thus, our immediate goal was to develop flexible instruments for recording the treatment expectations of the patient and the community, as well as the staff, and the level of goal attainment perceived from each standpoint.

From Fort Logan admission forms already on file, we constructed a preliminary list of patient treatment goals, using the reasons patients give for applying for treatment. Later, each patient will be asked to indicate his goals for treatment either at evaluation for admission or at actual admission. (Patients unable to provide goal data upon admission may be able to later in treatment.) The response instrument, the level of goal attainment, will consist of a series of statements describing the progress the patient makes toward each stated goal. At the time of discharge, the patient will be asked to complete a second statement of goals and to rate his response to both sets of goals.

Goal statements from community members will be obtained either at the time of evaluation or admission, since relatives usually accompany the patient at one of these times. Approximately one week after the patient is discharged, we will send the response rating form to the family or community members, asking that they indicate any changes in or additions to their original goals and rate these also.

At the time of admission evaluation, or within 24 hours after admission, a treatment team member will complete the staff goal-method checklist. In our current hospital procedure, progress notes are written

weekly for the first month, then every two weeks for two months, and then monthly until discharge. Using this procedure, each progress note will reflect the patient's level of goal attainment for the preceding time period. As each note is due, a staff member will complete another goal-method form, making whatever changes he feels are needed in either the goals for the patient or the treatment methods to be used.

The data on all forms will be transferred to IBM cards via optical scanner equipment at Fort Logan, and the cards will then be processed by computer, using NOVEL (8) computer language. Feedback will consist of (a) a print-out of the progress note in narrative format, to be sent to the appropriate staff member for verification, signature, and insertion into the patient's chart; and (b) a separate list of goals and response items, to be sent to the patient's team for reference in treatment.

Evaluative Applications

The second step in the project will be to assess (a) the direction and degree of any goal differences between staff, patient, and community; (b) the extent to which these differences affect the level of goal attainment; and (c) the extent to which the rapid feedback of goal information to clinicians affects level of goal attainment.

The amount of agreement-disagreement among staff, patient, and community expectations will be determined by comparing the three goal lists. The percentage of agreement-disagreement in each category will be computed. The effect of each type of disagreement--omission of a goal, difference in degree of goal expectation, or difference in direction of goal expectation--upon the level of attainment will be determined by correlational techniques. We will test the assumption that knowledge of the amount and source of disagreement will lead to less disagreement and will increase the level of goal attainment. However, decisions relevant to reducing disagreement, along with the means for so doing, will rest with the parties involved.

The long-range objective of the research staff is to obtain a picture of the effectiveness of Fort Logan's treatment program by combining the goal-method-response measures with traditional evaluative criteria such as length of stay and readmissions.

Two types of evaluation would be possible. The first would be an

ongoing, weekly or monthly, assessment of the patient's progress toward the predetermined goals perceived by the staff. It would be possible to chart the level of attainment for each goal by area, i.e., living situation, financial support, or symptom alleviation, for any given patient or group of patients over time or within a given period of time. By tapping the wealth of data stored in the current record system, we could compare the progress of various groups of patients on such variables as age, sex, diagnosis, marital status, cultural group, social history, and mental status factors. These comparisons could aid in determining which goals are most realistic for a given patient.

The second type of evaluation would measure the overall success of the treatment program based upon goal attainment pooled across all patients. At the completion of treatment, we would obtain three admittedly subjective ratings of the degree to which the goals set forth were reached. For each of these viewpoints an over-all score (a simple mean) could be obtained by summing the level of attainment (response) ratings and dividing by the number of goals stated. This crude measure could then be refined; for example, once the data are sufficient, qualifying factors such as the value placed on the attainment of each goal could be ascertained.

SUMMARY

This report covers the background, pilot work, and preliminary designs for the development of an automated, goal-oriented progress note. The project's ultimate aim is a new dimension of hospital treatment evaluation compatible with traditional assessment criteria such as length of stay and readmissions. The planned goal-method-response measures will provide patients, community members, and hospital staff a means of bridging some of the known gaps in perceptions of illness and expectations of treatment. The checklist forms will be flexible enough to accommodate changing circumstances in the course of hospitalization, and the automated process will furnish rapid feedback to clinicians through computer-printed narrative reports.

The project staff is currently engaged in further refining the research instruments and testing the techniques for implementation.

REFERENCES

1. ANDERSON, MARY LOU; POLAK, P. R.; GRACE, D.; and LEE, ALDORA. Treatment goals for patients from patients, their families, and staff. *Journal of the Fort Logan Mental Health Center*, 3(3):101-115, 1965.

2. BINNER, P. R. Operational problems of program evaluation. Paper (mimeo) presented at Southern Regional Conference on Mental Health Statistics, Norman, Oklahoma, August 1968.

3. BONN, ETHEL M., and KRAFT, A. M. The Fort Logan Mental Health Center: Genesis and development. *Journal of the Fort Logan Mental Health Center*, 1(1):17-27, 1963.

4. CARR, J. E., and WHITTENBAUGH, J. Perception of "improvement" and interjudge reliability in therapy-outcome studies. Paper presented at the annual meeting of the American Psychological Association, Chicago, September 1965.

5. DIETZE, DORIS. Staff and patient criteria for judgments of improvement in mental health. *Psychological Reports*, 19:379-387, 1966.

6. DIETZE, DORIS. Relationships between staff and patients in judging criteria for improvement in mental health. *Journal of Clinical Psychology*, 23:41-46, 1967.

7. GLUECK, B. C., JR. Computer techniques in patient care at the Institute of Living (Hartford, Connecticut). IBM application brief, undated.

8. LASKA, E., and KLINE, N. S. Computers at the Rockland Research Center. In *Computers and Electronic Devices in Psychiatry*, Nathan S. Kline and Eugene Laska (eds.). New York, Grune and Stratton, 1968.

9. MORTON, W. D.; LANTZ, ALMA; and HALPERN, J. Readmissions: Methodology and meaning. *Journal of the Fort Logan Mental Health Center*, 6(1):1-22, 1970.

10. SUCHMAN, E. A. *Evaluative research.* New York, Russell Sage Foundation, 1967.

11. ULEHLA (WILSON), NANCY C., and DICKEY, BRENDA A. Proposal of changes on the psychiatric disposition summary (P-110). Research report, mimeo. Fort Logan Mental Health Center, 1965.

12. ULEHLA (WILSON), NANCY C. MACC study and recommendations. Research report, mimeo, Fort Logan Mental Health Center, 1966.

13. WITTENBORN, J. R.; PLANTE, M.; and BURGESS, F. A comparison of physicians' and nurses' symptom ratings. *Journal of Nervous and Mental Diseases*, 133:514-518, 1961.

CURRENT RESEARCH*

Editor's Note: This section of the Journal briefly describes some of the current research projects at the Fort Logan Mental Health Center. Additional studies in progress will be summarized in the Fall-Winter 1970 issue.

Adolescent Division

Family Communication, an exploration of ways to improve family communication and understanding, based on the assumption that breakdown in communication is one of the key etiological variables in families producing adolescent patients. The study involves pre-evaluation of family communication, the use of structured audiotape exchanges between parents and child, and post-treatment evaluation of family communication. (Principal Investigator: Floyd Martinez, Ph.D.)

Staff Attitudes Toward Juvenile Offenders, an investigation of the congruence or divergence of attitudes toward mental illness and attitudes toward juvenile offenders. The intent of the study is to explore descriptively the attitudes of individuals working with juvenile offenders; to compare these attitudes with those of staff working with the "mentally ill"; to help develop an on-going indication of staff attitudes for the institution; and to help develop an instrument to aid in staff selection and training. (Principal Investigator: Stephen L. Bloom, Ph.D.)

Alcoholism Division

Relating Outcome to Treatment Methods and Pre-treatment Measures for Alcoholic Patients, a study of an experimental program begun January 15, 1970, involving three tteatment plans: a standard treatment program, a standard program with intense family unit involvement, and a program

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focused on community situations in which an alcohol problem is involved. The primary aims of the study are (a) to relate treatment outcome (four months after admission) to the three plans, and (b) to relate outcome to alcoholism dimensions describing drinking patterns and socioeconomic factors, measured on the patient prior to treatment. (Principal Investigators: Kenneth W. Wanberg, Th.D., and Donald M. Fairchild, Th.D.)

Synthesizing of Alcoholism Patterns, a study of the interrelationships of various independent patterns identified in the excessive use of alcohol. The project has two major goals: (a) to develop factor scores for each domain of data on symptom patterns, and (b) to develop standardized scores for these factors to provide a normative basis upon which an individual patient can be scored. (Principal Investigator: Kenneth W. Wanberg, Th.D.)

Children's Division

Follow-up of Children Discharged from the Children's Division, an extension of the ongoing follow-up of children to include personal interviews with parents and/or other adults responsible for the children discharged, to elicit more specific information on the current status of the presenting complaints, and to study school performance and school progress prior to hospitalization, during hospitalization, and after discharge. (Principal Investigator: Terry D. Keepers, Ph.D.)

Treatment Inquiry Research Project, an examination of the ways in which individual staff members perceive the problems of patients and the treatment methods they use in each case. The aims of the project are (a) to identify the types of problems we feel we can treat successfully and those we believe we cannot treat successfully, (b) to identify which of a patient's problems we focus on in treatment, (c) to determine the kinds of treatment individual staff members feel are most appropriate for a given problem, (d) to measure the consistency or inconsistency of individual staff perceptions of, and efforts to treat, individual patients with certain types of problems, and (e) to determine differences or similarities in team treatment methods with patients who have certain types of problems, (Principal Investigator: Keith Hammond, Ph.D.)

Crisis Intervention Division

Outcome of Crisis Intervention Therapy and of Milieu Therapy, a study comparing the effects of services provided by the Crisis Unit and the Adult Psychiatry Division at Fort Logan. This work evolved from an initial interest in comparing admission characteristics of patients admitted to these services, with the eventual goal of developing a screening instrument that would predict the best treatment modality for each admission. The expanded study considers the differences in treatment approaches of the two services as well as the possible differences in patient populations. The primary aims of the project are to compare the effects of the two treatment approaches with respect to (a) relative cost, (b) readmission rates, (c) symptom reduction, and (d) subsequent community adjustment. Also to be tested is the possibility that the crisis intervention approach may favor patients with good premorbid social adjustment, whereas the milieu approach may favor patients with poor premorbid social adjustment. (Principal Investigators: Richard M. Eisler, Ph.D., Vail Williams, Ph.D., and Rita B. Vollman, Ph.D.)

Program Information and Analysis Department

Development and Pretesting of a Modified Progress Note for Program Evaluation, an adjunct to a major research project (described in the article beginning on page 39 of this issue) to develop an automated goal-method-response patient progress note for treatment program evaluation. The study design proposes major modifications in the current progress note that will (a) simplify the process of testing and refining the current note, (b) identify the parts of it that are introducing large amounts of error into the data, (c) identify sources of individual differences among staff in setting goals, (d) increase the power and usefulness of the data ultimately collected, and (e) provide comparisons between the existing progress note and the proposed revised form and between the revised form and variables such as length of stay, social history information, response to treatment items on the discharge summary, and perhaps others. (Principal Investigators: Thomas H. Smith and Isabel Cinnamon)

Cost-Benefit Analysis of Mental Health Programs, a proposal to study existing Fort Logan data to develop preliminary cost-benefit

estimates and to develop a weighting method based on utility theory to apply economic values to intangible benefits. (Principal Investigator: Paul R. Binner, Ph.D.)

Pre- and Post-hospitalization Community Adjustment, an ongoing follow-up study of discharged patients that focuses on four major areas of adjustment: family and social relationships, social productivity, self-maintenance, and antisocial behavior. The data have been examined tentatively from a number of aspects; the current focus is on the attrition rate over time. comparing the characteristics of "lost" patients with those of patients about whom information is still collected. (Principal Investigator: Hiram Gordon, Ph.D.)

Staff Development Department

Three evaluation projects in this department are partially supported by U.S.P.H.S. Grants 2-T01-MH10871-04, 5-T01-MH10412-05, and 5-T01-MH08723-07 from the National Institute of Mental Health:

Psychiatric Residency Evaluation, involving the development of a rating form for supervisory assessment of resident progress in training. The project includes an intensive study of six residents during the first nine-month residency placement, focusing on resident, supervisor, and head nurse expectancies for the resident. (Principal Investigator: Samuel B. Schiff, M.D.)

Psychology Internship Evaluation, involving the development of a rating form for supervisory assessment of intern progress while in training. The project includes a pre- and post-investigation of how treatment ideology changes during the year of internship at the Fort Logan Mental Health Center. (Principal Investigator: Nuri A. Assafi, Ph.D.)

Staff Development Study, focusing on increased sensitivity of treatment programs to the needs of the poor from the black and brown minority groups. Evaluation consists of helping staff to state outcome objectives, thus providing criteria against which to measure the effectiveness of treatment efforts. (Principal Investigator: Samuel B. Schiff, M.D.)

The Fort Logan Mental Health Center is Colorado's second state hospital. Currently serving almost half the population of the state, its organization follows as much as possible the recommendations of the Joint Commission on Mental Illness and Health. Concepts of milieu therapy are strongly utilized, with emphasis on expansion of professional roles and the involvement of the patient's family and his community in treatment. The hospital is entirely open and relies heavily on transitional forms of treatment. Approximately one-half of its patients are admitted directly to day care, and evening care is offered. Geographic and administrative decentralization are utilized, with the same psychiatric team following the patient from the time of admission through all phases of treatment.