52044

Program Evaluation and Decisionmaking

by

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For the Mental Health Systems Evaluation Project of the Northwest Denver Mental Health Center and the University of Denver, the support of program decisionmaking is the central function of evaluation efforts mounted by service agencies. Since we view program evaluation as a branch of management, rather than a basic or applied research function, our emphasis is on monitoring program processes and outcomes which are intimately related to management's basic objectives. Yet, this is easier said then done. If management knew exactly what it needed to know, and if evaluators could measure the key variables involved, the task would not be as difficult as it is. Nevertheless, we must try. What follows is a technology-oriented description of the kinds of data being gathered and processed by our evaluation section in order to answer questions for management. While this may not be exactly what all or most centers need in the way of information for decisionmaking, the approaches suggested may be of some utility.

TYPES OF INFORMATION NEEDED

We can conveniently categorize the types of information needed for most decision-support efforts into *input*, *process* (including *cost*), and *output* data. Input data allows monitoring of the numbers and types of clients entering the service system, and enables matching the client input to the catchment area population in order to derive some idea regarding accessibility of services being provided. Process data is probably the most heavily used in routine

decisions, focusing on such issues as the numbers of services delivered and the costs involved, important aspects of client treatment "careers" (such as early dropouts, heavy utilizers, etc.), and manpower data (what types of clinicians are providing how much of which services). Output data obviously addresses the question of the ultimate effect of the services, and thus some type of client assessment or community assessment technology is required. Further discussion of outcome evaluation it will be covered in a separate paper.*

Some special information categories which do not fit easily into the above scheme include *needs* data, *budgetary* information (derived from accounting systems), and *indirect services* data regarding consultation delivered and its impact upon consultees. Of these, only needs data will be discussed here.

INPUT AND PROCESS INFORMATION—STATISTICAL REPORTS

The most widely used information in our Center is generated from our direct services system (client intake and subsequent encounter forms) on a monthly basis for each identifiable service element (inpatient wards, outpatient teams, specialized rehabilitation units, etc.). The same computer programs generate annual reports from the same data base.

Beneficiary Report

The most basic datum in our system is the unique, unduplicated client who is treated somewhere in our Center during the time period of interest (See Illustration 1). Computer programs total all such clients seen by each serving element and also count the number of separate service contacts (encounters) with these same clients. The report involves an age-sex breakdown, an ethnic group breakdown, two geographic breakdowns, and a diagnosis breakdown. Each of these provides information useful in program monitoring. For example, the small number of Blacks seen by Team III in 1974 can be noted and compared with the proportion of Blacks in the Team III service area; a large discrepancy should be investigated. The diagnostic information shows that schizophrenics have the largest average number of contacts during the year (over 10) at this Team, while drug abuse clients are seen less frequently (slightly over three times each). Extremely important in this report is the geographic information; it can be used to monitor service volume in important areas and help lead to better allocation of resources. In this example, outpatient Team III services almost exclusively clients in its own area; other units, in contrast, draw clients from all over the city.

Beneficiary and Contact Counts Over Time.

Data from our Beneficiary Reports can be plotted for the purpose of monitoring systematic changes in numbers of clients served and the contact

*See page 360, "Monitoring and Analysis of Program Outcome Data."

ILLUSTRATION 1

Beneficiary Report-Outpatient Patient Team 1974

	Unduplicated Beneficiaries	Patient Contacts		Unduplicated Beneficiaries	Patient Contacts
Adult Male	351	2441	Northwest Catchment	984	6948
Adult Female	468	3670	Southwest Catchment	11	77
Child Male	116	623	Southeast Catchment	2	9
Child Female	90	429	Northeast Catchment	16	67
Unknown	91	553	Outside Denver	7	50
Caucasian	632	4913	Unknown	96	565
Spanish	370	2131	Team 1 Service Area	27	147
Black	12	63	Team 2 Service Area	24	101
Indian	4	12	Team 3 Service Area	922	6639
Oriental	5	23	Team 4 Service Area	11	61
Other	3	15	Team 5 Service Area		
Unknown	90	559	Team 6 Service Area		
			Outside Team Area	36	203
			Unknown	96	565
			Alcoholism	103	492
Total Unduplicated Beneficiaries	1116		Sit. Maladj. Behavior	72	446
Total Patient Contacts	7716		Neurosis	182	1469
			Schizophrenia	89	962
			Personality Disorder	110	693
			Drug or Narcotic	15	51
			Psychophysiological	2	10
			Child Adol & Bhvr Dis	176	982
			Other Psychosis	1	35
			Other	232	1578
			Unknown	134	993

frequency with these clients. In Illustration 2, 1974 is shown to be a much heavier service year, with increasing numbers of contacts with these clients. A possibly seasonal downtrend in contacts may be noticeable toward the end of each year.

Length of Client Treatment Careers.

Illustration 3 depicts some highly important information regarding how long clients are seen in our treatment system. Of the 11,000 clients seen in 1973, over 4,000 were seen only once, and about 5,700 (or 51%) had only one or two contacts. This clearly indicates the degree to which the Center is in the "crisis-intervention" business, a fact insufficiently recognized prior to the feedback of this information. At the other extreme, about 700 clients (or 6%) accounted for about 63,000 contacts, nearly half of our total outpatient workload for the year. Center management would like to reduce the number of clients falling at either extreme, and subsequent data indicates some movement in the desired direction.

ILLUSTRATION 2

Team II Service Area Reports

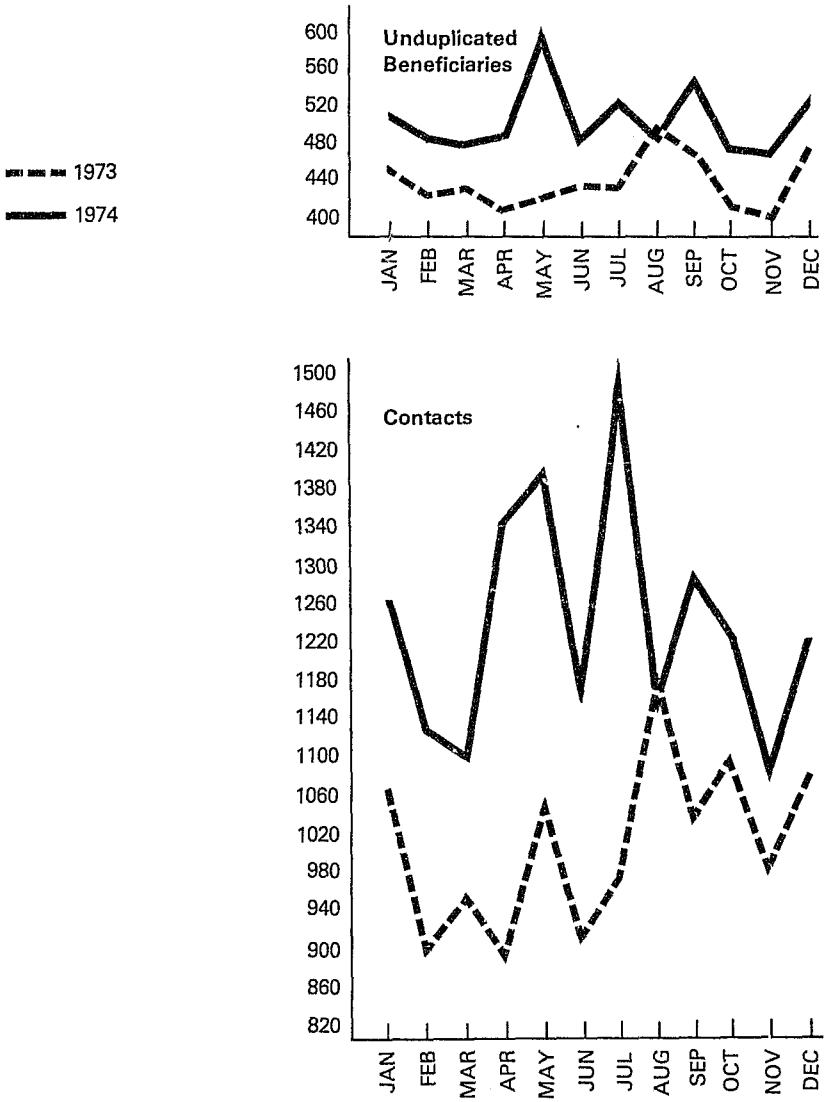


ILLUSTRATION 3

Numbers and Percentages of Clients Making Different Numbers of Outpatient Contacts

Calendar 1973

No. of Contacts (N)	Unduplicated Clients	Total Contacts Per Category	Percentage of Clients Having *N* or Fewer Contacts	Percentage of Clients Having *N* or More Contacts
1	4216	4216	37.30	100.00
2	1494	2988	50.52	62.70
3	886	2658	58.36	49.48
4	579	2316	63.48	41.64
5	408	2040	67.09	36.52
6	359	2154	70.26	32.91
7	256	1792	72.53	29.74
8	250	2000	74.74	27.47
9	217	1953	76.66	25.26
10-11	404	4243	80.24	23.34
12-16	690	9392	86.34	19.76
17-35	867	20616	94.01	13.66
36-99	511	32483	98.53	5.99
100+	166	30506	100.00	1.47
	11,303	119,357		

* Excludes all inpatient and day care contacts

Treatment Length of Different Diagnostic Groups.

Illustration 4 shows that alcoholics constitute over one-third of the group of clients who make only a single contact with our Center, suggesting over-representation in this group of "drop-outs." However, alcoholics comprise still more of our longer-term clients, surpassing only the schizophrenic category in this group. These differential client treatment career lengths are useful in planning staff assignments and treatment strategies for these various groups.

PROCESS OBJECTIVES MONITORING

The second major type of decision-support and planning data discussed here involves the achievement of "process objectives." Two such common objectives are providing services accessible to all major demographic groups in a catchment area, and providing continuous care, particularly as it involves transferring clients from one treatment modality to another. For these types of studies, a client-oriented data base is an extremely helpful type of data organization. In such a data base, each client has a unique identifying number, and all services delivered to that client are clustered into a single abstract of his treatment career under his number. In this way, it is possible to extract data needed for these studies in a convenient manner, without erroneous duplication of clients in certain categories. Specific examples of these reports are shown next.

ILLUSTRATION 4

Percentage of Outpatient Clients in Each Diagnostic Category for Each Treatment Length

Primary Diagnosis	Treatment Length					
	1 Contact N=2285	2 Contacts N=1201	5 Contacts N=254	7 Contacts N=171	10 or 11 Contacts N=130	36 to 99 Contacts N=136
Alcoholism	34.5	24.4	22.8	19.9	26.3	44.1
Situational Maladjustment	21.1	16.9	24.4	35.1	22.1	3.7
Neurosis	19.1	32.5	24.4	18.1	16.8	12.5
Schizophrenia	8.5	9.7	13.0	10.5	13.2	25.7
Other Psychoses	3.2	8.1	2.4	1.2	3.7	2.2
Personality Disorder	11.2	7.3	9.8	14.6	15.3	11.0
Drug or Narcotics Addiction	1.6	1.1	3.1	0.6	2.6	0.7

Overall $X^2 = 285.8$, $df = 30$, $p < .001$

Accessibility of Care—Ethnic Groups.

In our area, the provision of services to large Spanish-American and Black minorities is a key political issue. Therefore, it is helpful to know whether one's clientele contains an adequate representation of these minorities in the client population. Illustration 5 compares the percentage of clients in each major ethnic group with the percentage of residence in the catchment area falling into those groups. The chart shows slight over-representation of the two large minorities in our clientele. While it can be demonstrated that the "need" of these two large minorities is actually greater than in the White "Anglo" population, and that perhaps the over-representation should therefore be much greater, at least the Center can see that its services are in fact accessible to these groups in that they are not under-represented according to sheer numbers of people in the catchment area.

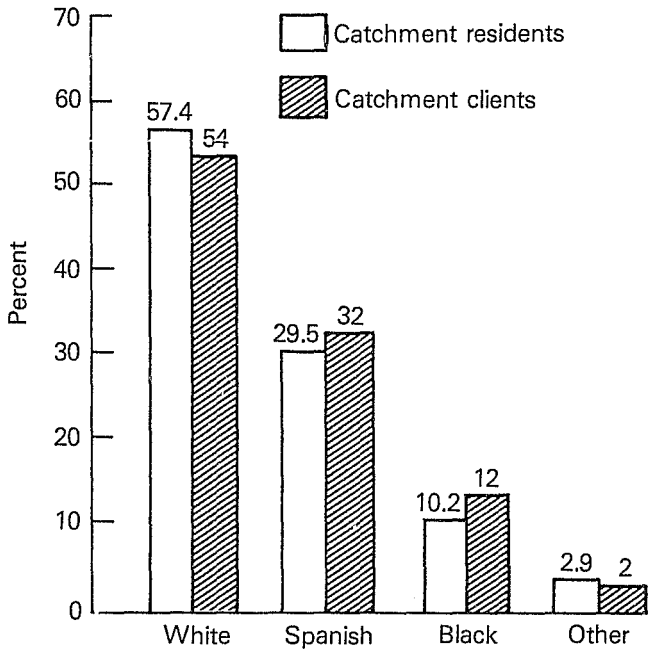
Accessibility of Care—Educational Level.

Another utilization pattern relevant to accessibility involves educational level, particularly in view of the belief that outpatient mental health services consist primarily of "talk" therapy suitable only for educated, middle-class clients. In Illustration 6, the representation of such groups among our clientele is compared to that in the catchment population. The chart shows under-representation of lesser-educated persons and of college graduates.

ILLUSTRATION 5

Ethnic Composition

Catchment Clients vs. Residents



This may indicate a problem, since much of our catchment population is poor and uneducated, and there may be at least some psychological barrier hindering use of our services by those with less then eight years of schooling. There is also the possibility that this under-representation is related to the fact that we under-serve the elderly population, which is likely to have fewer years of schooling than the young adult group.

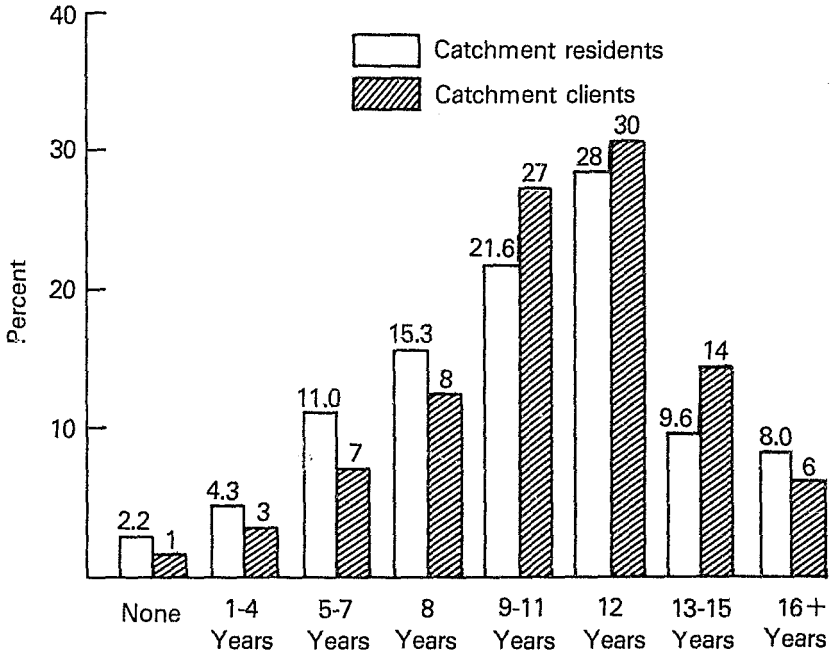
Accessibility of Care—Age.

The next illustration (7) shows substantial under-representation of both the young (ages 0-19) and the elderly (age 55 and up). This necessarily indicates over-representation of the intermediate age range. Both the young and elderly groups are also under-represented in most CMHCs around the country, a phenomenon which may imply either lesser "need" or alternate sources of service (schools, family physicians), as well as inadequacy of the CMHC program. In our Center, moreover, the problem is compounded in the younger age group by a declining trend over the ten quarterly periods shown. However, this data is for the Center as a whole, and includes the development of a very large alcoholism program aimed at the middle and upper age ranges;

ILLUSTRATION 6

Education Level for People 25 or Older

Catchment Clients vs. Residents



accordingly, the downtrend is mostly an artifact of presentation and the true situation is better depicted in the following illustration (8) covering only psychiatric outpatient teams. Although here the curve is flatter, the curves illustrate two features which concern the managers—no change in the direct-services line (except for possibly seasonal variation), and a *decline* in indirect services at the very time management is attempting to increase the services to children through this modality. Future data will be watched carefully.

Continuity-of-Care—Transfer Rates.

Our data system allows us to track services to clients who are referred to a different service element for continued care. Illustration 9A shows that in 1972, only about half of the clients transferred subsequently received services from the new units. However, a shift upward occurred in late 1972, probably in November-December. By repeating the analysis for other major transfer pathways, it appeared that the main source of the Center-wide increase was the increase in successful transfers from our inpatient wards to outpatient teams for aftercare (Illustration 9C). In terms of the over-all transfer rate, Center management takes the view that the failure of non-critical cases to

ILLUSTRATION 7

Age Comparison of Catchment Clients With Residents by Quarter

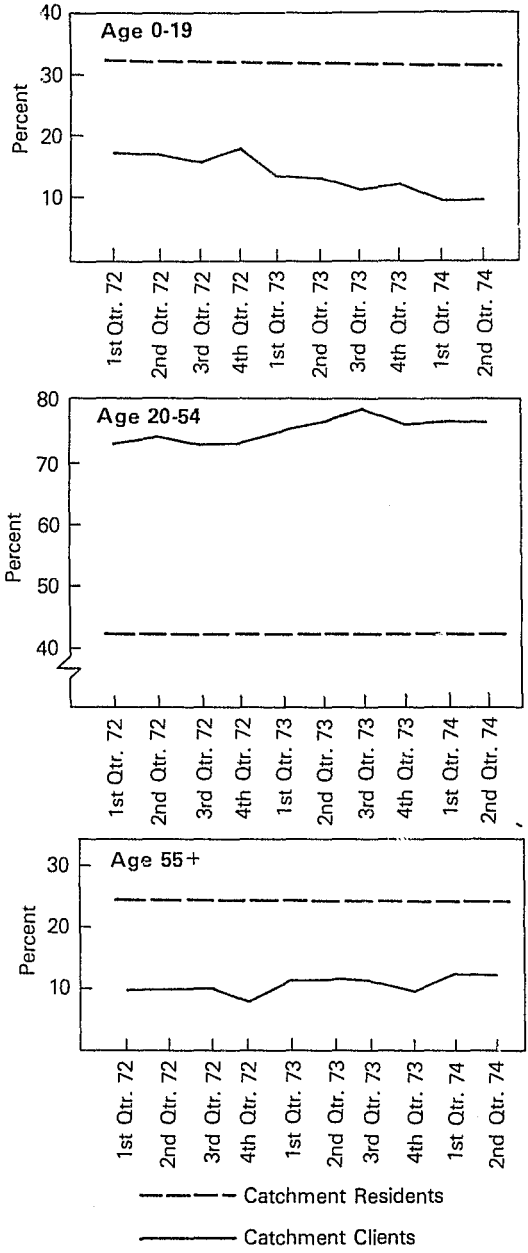
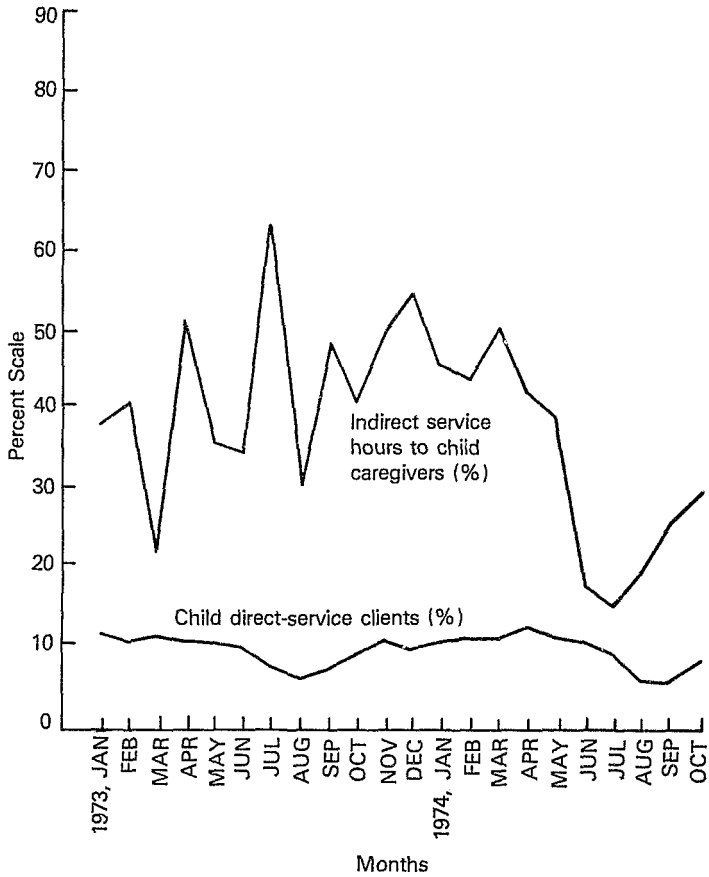


ILLUSTRATION 8

Direct and Indirect Child Services Volume As a Percentage of Total Services of Outpatient Teams



complete a transfer may be interpreted as simply another (perhaps more convenient) way to drop out of treatment; their real interest is said to be in the transfer of urgent and clinically critical cases. Accordingly, our section is preparing to develop transfer completion rates for various classes of transfers (urgent, necessary, optional).

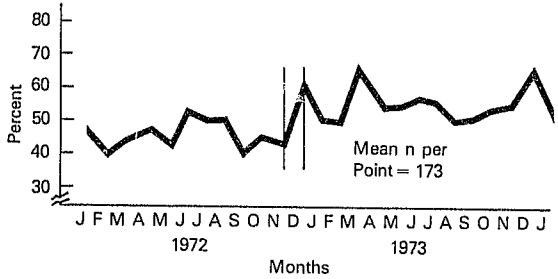
NEEDS ASSESSMENT STUDIES

Our evaluation efforts include two methods of attempting to assess more accurately the needs for services of our catchment area population. The first

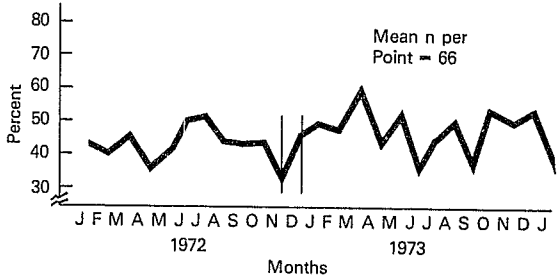
ILLUSTRATION 9

Percent Completed Inter-Unit Transfers and Major Inter-Unit Transfer Paths

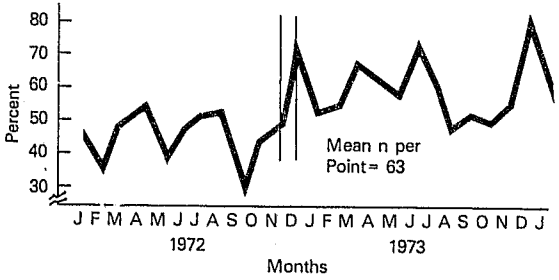
A. Percent Completed Transfers for All Inter-Unit Transfers



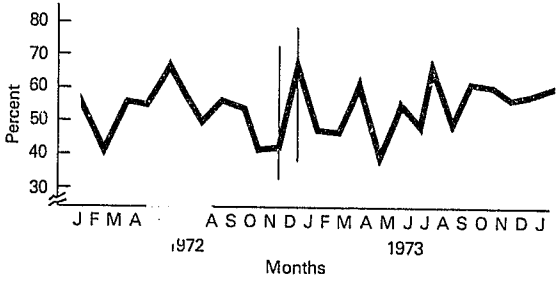
B. Percent Completed Transfers Between Emergency Room and Outpatient Clinics



C. Percent Completed Transfers Between Hospital Units (Excluding Emergency Room) and All Non-Hospital Units



D. Percent Completed Transfers Between Non-Hospital Units and Hospital or Other Non-Hospital Units



of the methods described below requires no Center data; both methodology and the necessary 1970 Census data are provided by NIMH through State mental health offices. The second method requires only a single estimate (or guess) of the total number of psychiatric cases from a metropolitan population in any year, plus some estimate of the variation across all census tracts from that same area. Both methodologies, however, are relatively complex, and the reader should not expect a full understanding from the discussions below.

Mental Health Demographic Profile System.

NIMH has developed a methodology to compare catchment areas to national standards on such variables as economic status, social status, information status, ethnic heterogeneity, family life cycle, family structure, dwelling characteristics, and residential mobility. A catchment area's census data is looked up in a "workbook" of rules for categorizing the catchment along various scales developed by NIMH scientists. Illustration 10 shows the results of this procedure for three social area analysis dimensions of Social Rank. It is apparent that our catchment area looks at the very bottom nationally; in fact, it qualifies for a "poverty area" designation. Within the catchment, however, considerable variation exists among the different sub-areas served by the outpatient teams. Sub-areas I and IV are extremely impoverished, ghetto-type areas with few resources; area II is a "transition" area containing both older homes and newer high-rise apartments, while area III is our most conventional middle-class single dwelling area. These differences, but particularly differences along other dimensions not discussed here, can be useful in generating service programs more attuned to a sub-area's needs. For example, child and family services can be planned for areas where this is appropriate.

Predicted Relative Utilization of Services.

Our section has developed an empirically-based methodology to estimate the volume of clients expected from each census tract in Denver in any year, based upon three factors—total population, "social disorganization," and "socio-economic affluence." Each census tract can be scored along each of these variables derived from census data; the latter two are *clusters* of multiple variables shown in previous research to intercorrelate highly and also to correlate with admissions to psychiatric services. Weighting each score equally, a composite score is derived and then used to allocate portions of a given total client population into each census tract. Illustration 11 shows the distribution of these scores, by quartiles, in Denver. From the map, it is clear that most psychiatric (including alcoholic) clients from Denver will reside in the Northwest catchment area. When based on a city total of 15,000 clients, Northwest Denver is expected to see about 7,600. Northeast, southeast, and southwest Denver would be expected to see 2,900, 2,400, and 2,100 respectively. Such numbers can be extremely useful in planning service programs, including budget allocations. Our section is currently computing actual

ILLUSTRATION 10

Social Area Analysis of the Total Population of the Sub Areas of the Northwest Catchment

II. SOCIAL RANK	Northwest Catchment Area	Sub-Area I	Sub-Area II	Sub-Area III	Sub-Area IV
Economic Status (Based on median income of families and unrelated individuals)	Extremely Low	Extremely Low	Extremely Low	Low Moderate	Extremely Low
Social Status (Based on percent employed male in low status occupation)	Extremely Low	Extremely Low	Low Moderate	Low	Extremely Low
Information Status (Based on median school years completed by persons 25+)	Low	Extremely Low	High	Low	Extremely Low

Standard Scale

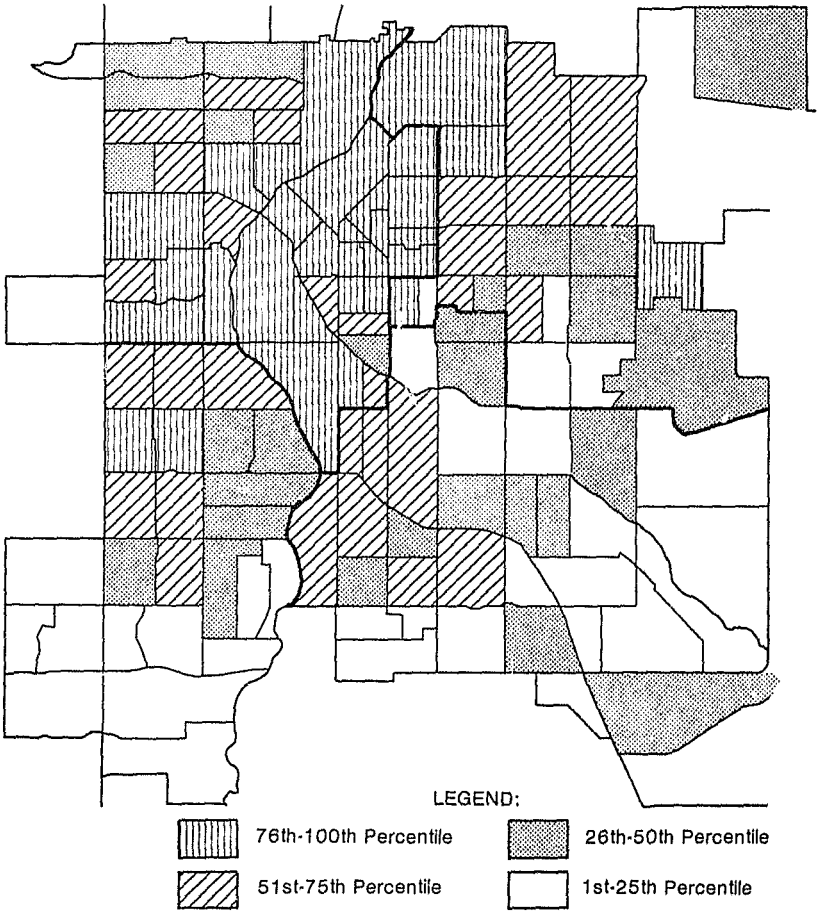
Extremely Low - less than 10th percentile
Low - 10th to 30th percentile
Low Moderate - 30th to 50th percentile
High Moderate - 50th to 70th percentile
High - 70th to 90th percentile
Extremely High - 90th percentile or more

Prepared October, 1974
Based on 1970 Census data.

ILLUSTRATION 11

Composite Need Estimate for Denver Public Mental Health Services Predicted Relative Utilization Volume

Standard Score Quartiles



utilization figures to compare with these predicted figures to further investigate accessibility of services in each city area.

UTILIZATION OF INFORMATION BY MANAGEMENT

The above presentations are not intended to imply that management makes all of its decisions, or even most of them, on the basis of these and other types of data developed by our evaluation section. On the contrary, such evaluation data comprise only *one* of various types of influences upon planning and decision-making. Well-known others include considerations based on clinical theory and experience, realistic budgetary limitations, political factors, personnel capabilities and limitations, and even "irrational" factors such as personal beliefs, biases, and inertia. Our aim is not to replace any of these factors in decisionmaking, but rather to add another—objective, understandable, and relevant data. Our own impressions, plus formal studies of the impact of such information in our Center tell us that we are gradually succeeding. We hope that the examples discussed above, and the outcome evaluation discussions in the companion presentation, will encourage both evaluators and decisionmakers to support and pursue further evaluation activities in the interest of better mental health service programs.

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