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Study of methodologies to estimate the number of chronically mentally ill adults in Montana

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A STUDY OF METHODOLOGIES TO ESTIMATE THE NUMBER OF CHRONICALLY MENTALLY ILL ADULTS IN MONTANA

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CHAPTER I

INTRODUCTION

Statement of the Problem

Developing and financing adequate and appropriate community services for those individuals with severe, long term mental illness is a challenging problem for state and community based providers in the 1980s. Prior to deinstitutionalization, planning for this population was fairly simple: most individuals with mental illness were served in the State Hospital, often for long periods of time. Today the challenge is to develop and finance effective community based delivery systems that not only provide services to deal with the symptoms of mental illness, but also provide residential options, help with basic living skills, and educational and vocational training.[1]

Contributing to the complexity of planning for and providing community services for those with severe mental illness is the heterogeneity of the population. The chronically mentally ill are not one group with one type of treatment need, but many groups and subgroups, each requiring a different constellation of services. Those termed chronically mentally ill include all adult age groups, both sexes, many different diagnoses, and many different levels of disability and need.[2]

If the State is to adequately plan for the range of services needed by this population, and to rationally allocate scarce resources for those services, it is necessary to obtain an accurate picture of the

demographic and clinical characteristics of the client population, know where they live in the State, and determine the specific types of treatment and support services needed.

The purpose of this paper is to 1) evaluate a number of methodologies that have been developed to estimate the number of chronically mentally ill individuals in need of mental health services and the types of services needed, 2) determine the feasibility of utilizing the various methods in estimating the need for services in Montana, and 3) use the methods selected to actually estimate the number of seriously mentally ill individuals in Montana.

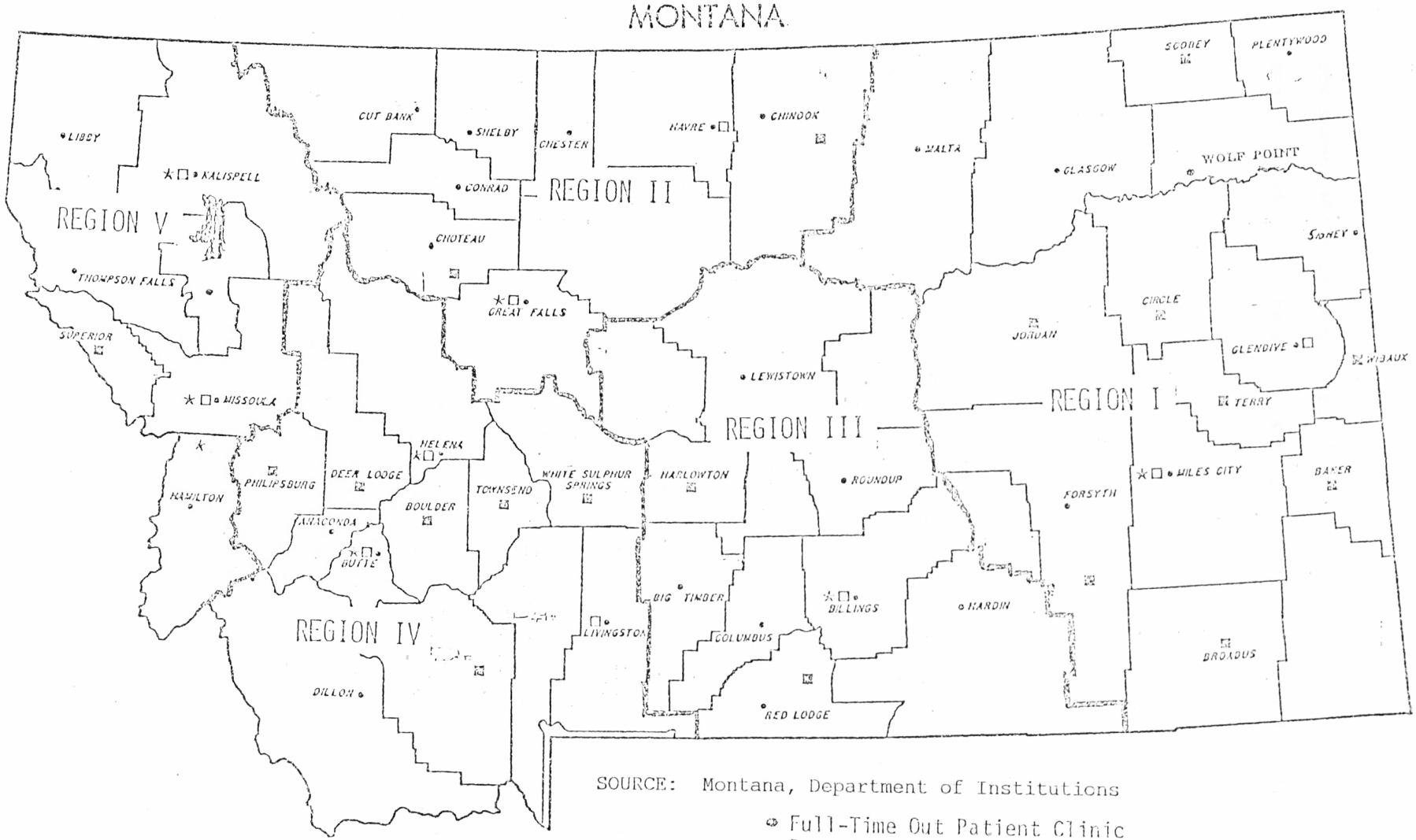
Definition of Terms

The following terminology will be in this paper:

1. Chronically mentally ill (CMI) - Those individuals for whom mental illness has become a recurring and long term disorder which interferes with their ability to function in many aspects of their daily lives. They have been described as persons who are or might have been, if it were not for the deinstitutionalization movement, on the rolls of long term mental institutions.[3] Other terms used to describe this group are individuals with severe and disabling mental illness, and the seriously mentally ill.

2. Community Mental Health Center (CMHC) - Non-profit regional agencies supported for the most part by public funds which provide comprehensive mental health services in communities through out the State. There are five regional centers in Montana. The location of each region within the State is depicted in Figure 1.

3. Department of Institutions - The agency of Montana state



SOURCE: Montana, Department of Institutions

- Full-Time Out Patient Clinic
- Part-Time Out Patient Clinic
- Day Treatment Programs
- Transitional Living Programs

FIGURE 1. MONTANA REGIONAL COMMUNITY MENTAL HEALTH CENTERS

government which is responsible for planning for publicly provided mental health services in the State, and allocating federal and state resources to fund institutional and community services.

4. Deinstitutionalization - The movement to serve mentally ill individuals in the community rather than institutional settings.

5. Mental health service needs - The array of services which may be needed to maintain mentally ill individuals in the community. Services may include medication management, counseling, twenty-four hour residential living opportunities with supervision, assistance in obtaining and maintaining employment, emergency stabilization in times of crisis, and any number of activities to assist them in the activities of daily living.

6. Needs Assessment - A research and planning activity designed to determine a community's mental health needs and patterns of using mental health services. The activities are designed to produce data which can be used to identify the need for mental health services, where services are needed and the extent of need. It is in effect an analysis of the market for mental health services or a segment of that market that provides the basis for allocating resources to new or expanding programs or reallocating resources within existing programs.

Background

Profound changes in the care and treatment of the mentally ill have taken place since the 1950s, with depopulation of mental hospitals and tremendous growth in services for the mentally ill in the community. To illustrate the magnitude of this change, in 1955 there were 560,000 residents of state mental hospitals, or 339 of every 100,000 persons

living in the United States resided as patients in state mental hospitals. Today the number of patients in state mental hospitals is approximately 120,000, or 49 of every 100,000 persons. The total number has declined almost 80 percent.

A number of factors have contributed to this change in the treatment of mental illness. The introduction of antipsychotic medication is usually credited with being the driving force behind the deinstitutionalization movement. Newly discovered drugs allowed containment of the most bizarre and frightening symptoms of mental illness. This treatment created optimism among mental health professionals and families of the mentally ill that patients could return to their communities and lead normal lives.[4]

Other factors contributed to deinstitutionalization as well. A new ideology of community care emerged which was facilitated by an "anti-hospital" movement. This movement held that hospital care was damaging and that community care was unquestionably better for treatment of the mentally ill. The scientific basis for this ideology was based in research which had demonstrated that custodial hospitalization and inactivity had contributed to secondary disabilities for mentally ill patients.[5]

The mental health legal movement was another force contributing to deinstitutionalization. Focusing on the civil liberties of the mentally ill, commitment laws were tightened. Patient rights were emphasized, with an emphasis on the placement of patients in the least restrictive environment.[6] In line with this movement, Montana, in 1975, passed legislation (53-21-102(14) M.C.A.) that restricted the role of the state mental hospital to the treatment of the "seriously mentally ill."

Still another factor was massive social welfare legislation. Although not designed specifically for the mentally ill, federal programs such as Medicare, Medicaid, Supplemental Security Income (SSI), and Social Security Disability Insurance (SSDI) provided a powerful impetus for deinstitutionalization.[7] The programs provided financial resources that allowed patients to remain in the community. With the introduction of these programs institutional populations across the nation dropped rapidly, averaging a 6 percent reduction a year between 1965 and 1980.[8]

Those individuals who formerly would have been cared for in an institution are now being served in community programs. Whether those services are avaílable, adequate or appropriate has come into question. It is universally acknowledged by mental health professionals that many mentally disabled persons were released from institutions before sufficient community facilities and services were available.[9,10] Evidence of the failure of community programs often cited is the number of homeless who are former residents of mental hospitals or exhibit symptoms of mental illness. Research estimates that about one-third of the homeless may be mentally ill, and that more than 25 percent are ex-patients of mental hospitals.[11]

The apparent failure of community programs to live up to early expectations along with a number of new developments are creating pressure for a reexamination of the systems for providing mental health services, planning for services, and in particular funding mechanisms. A brief description of those forces impacting current mental health planning include: fiscal concerns, the market place for mental health services, increasing client loads, and the State's increased role.

Fiscal concerns

Federal support, always a significant part of funding for mental health services, has been declining, and it is unlikely that all states will be willing or able, given the current economic constraints to make up the shortfall in federal funds. In Montana, federal block grant funds for CMHCs in Fiscal Year 1987 were $1,200,00, a reduction of $100,000 from FY86 levels. The 1987 the State legislature considered but did not appropriate state funds to cover the reduction in federal funds. The most recent federal Block Grant appropriation reduces mental health funds again and restricts a significant portion to new programs. The consequences of reduced funding for ongoing community programs must be evaluated by State and local agencies.

A common belief among mental health professionals is that state dollars that were saved as a result of lower institutional populations have not followed clients into the community to fund ongoing treatment needs of this population. This position is supported by figures which show that even though 77 percent of persons with serious mental illness are in the community, more than two-thirds of the funding goes to state hospitals.[12]

Marketplace for mental health services is changing

The availability of Medicaid, Medicare, and private insurance coverage of mental health services has created a new marketplace for mental health services. For-profit private sector mental health services are growing significantly as an alternative to traditional non-profit community based mental health services. In this climate, the role of public agencies in providing mental health services must be reexamined.

It appears two separate systems may be developing: one public and one private, with each serving different segments of the potential market.[13] In the extreme, the assertion has been made that public funds should only be used to purchase services from private providers rather than fund non-profit agencies.[14] The extent to which private providers can serve or are willing to serve the chronically mentally ill has not been established.

The Number of clients seeking services may be increasing

There is evidence that the utilization of community mental health services may continue to increase. A study conducted in 1957 found 14 percent of the population sought help for mental health related problems. In 1975 when the study was repeated, that number had grown to 26 percent.[15] Increased availability of community services may have contributed to the growth in population served as well as the fact that there is probably less stigma attached to seeking mental health services than there once was.

Demographic patterns will also contribute to a continuing increase in the need for mental health services. The population most vulnerable to mental illness, i.e., young adults, is much larger than ever before. As this baby boom ages, increases in long term care can be anticipated.[16]

Service needs changing

Misconceptions about the level and type of community services needed by the mentally ill developed in the early years of deinstitutionalization. There is an emerging consensus that the level and type of community services needs to be re-evaluated in the light of new information on the mentally ill.[17,18] It was thought for many years that providing crisis intervention and children's services would prevent certain types of

mental illness and reduce the need for future care and treatment. Today mental health experts realize that early intervention does not forestall the progression of schizophrenia nor do personality and other disorders develop into schizophrenia if untreated.[19]

Another misconception was that the mentally ill returned to the community from hospitals eventually would be cured and no longer need services. Services were considered to be "transitional" and would only be needed until the patient could be integrated into normal community life. Now it is known that many seriously mentally ill persons may need extensive long term support services, often for the rest of their lives. As new knowledge about mental illness becomes available, the need for and prioritization of services must be re-evaluated.

State's role in planning for the treatment and care of the mentally ill has increased

Federal mandates in the 1980s have forced the states to assume a greater role in planning for community mental health systems. Each state, through the State Mental Health Authority (SMHA) is responsible for distributing federal block grant funds to local programs in line with federal as well as State priorities. More recently, federal legislation (PL 99-660) requires that the states develop a state plan for mental health services which contains quantitative targets for the number of seriously mentally ill individuals to be served.

The Montana Department of Institutions is the designated State Mental Health Authority, and as such bears the responsibility for planning for publicly funded mental health services in the State. The Department's responsibility in regard to the provision of mental health services is also defined in State law. By statute, the Department is charged with the

responsibility to plan for mental health services in the State, to contract with regional mental health corporations for the purpose of prevention, diagnosis and treatment of mental illness and to evaluate public mental health facilities. In addition, state law describes the care and treatment required for all patients released from the state hospital.

In this climate of diminishing financial resources, increasing and changing demands for services and the availability of some services from private sector providers, the responsibility of the State Mental Health Authority to provide leadership in planning for community mental health services is challenging. A re-examination of methodologies previously used to assess the need for services will be required.

If the Department of Institutions is to adequately plan for the range of services needed, it is necessary to identify the number of individuals needing service, where they live in the State, the specific types of service needed, along with information on existing services and resources. This is typically done by means of a needs assessment.

Initially, in the 1960s and 1970s, when relatively large amounts of federal dollars were available, needs assessments were done to justify and direct the growth of mental health programs. Today, with changes in the economic climate, mental health administrators are faced with directing scarce mental health dollars to priority populations, rather than planning for growth. The question has become "Who needs service the most?", not "Who needs service?"[20]

In this new climate the focus of needs assessment is shifting from providing justification for additional funds for new programs to that of

providing a basis for resource allocation, the setting of priorities for service, and even justification of funding reductions or reallocations. In the future, needs assessment are likely to become more important as a basis for distributing funds to specific programs and locations. This could create additional pressures for the State funding agency to undertake these studies. The reaction to needs assessment for distribution rather than growth is likely to be "more value laden and politicized" than previously. As a result needs assessment methodologies will come under closer scrutiny by those affected, and will have to become more rigorous.[21]

Methodology

The first phase of research involved surveying publications of the National Institute of Mental Health (NIMH), and professional journals which focus on community services for the mentally ill, for information relating to service needs of those with severe and disabling mental disorders, as well as methodologies which has been used to estimate the number of those in need and the extent of service needs. Hospital and Community Psychiatry and Administration in Mental Health are periodicals which were used extensively. Unpublished reports written by professionals in the field of mental health were obtained from several State Mental Health Authorities. The state of Colorado in particular, has been very active in research in the area of needs assessment, and provided numerous reports. In addition, information was obtained by attending two national conferences on mental health statistics at which presentations were made on needs assessment methodologies.

Nine different methodologies were selected for analysis. These methodologies were selected as representative of different types of techniques often used for needs assessment of the mentally ill and because they appeared to have the capability of generating useful information about this population for planning purposes. The nine methodologies include 1) Survey, 2) Quadrant Method, 3) Rates Under Treatment, 4) Model of Estimating Model Services, 5) Prevalence Estimates, 6) Social Indicators, 7) DU Logistic Model, 8) Key Informant and 9) Community Forum. Each of these methods was evaluated according to the following criteria:

1) Method provides critical data elements, i.e., data that will identify the total mentally ill population, subgroups by severity of illness, subgroups by age, location of target populations, mental health services needed by the target group, mental health services received, treatment outcome, cost of services received, and barriers to service

2) Cost of conducting the needs assessment

3) Data generated have validity

4) Data generated have face validity to constituents

5) Information required by the method is readily available

6) Results can be easily updated on a regular basis

A discussion of the general advantages and disadvantages of each method follows with specific references to the feasibility of using it to estimate need in Montana.

The outcome of the analysis was the selection a number of methods which had the capability of providing important information for planning purposes and which could be undertaken with data that are available.

Utilizing the selected methodologies, actual calculations for Montana were performed. Required data on current mental health services were provided by the Department of Institutions. Data were also provided by the Social Security Administration, Community Mental Health Centers, and other State agencies.

The final phase involved evaluating the results of calculations and assessing the usefulness of the data in planning community mental health services in Montana. Problem areas were identified and conclusions drawn regarding the implication for mental health services for those who are chronically mentally ill.

Scope and Limitations

Research for this paper will be limited to identifying and using needs assessment methodologies that will estimate the number of adults with serious and chronic psychological problems, i.e., the chronically mentally ill. Those age 18 and above will be considered adults. This study is limited to identifying those with chronic mental illness and their treatment and service needs. This group was chosen because these individuals are a high priority for publicly funded mental health services and are unlikely to be served by the private sector. Inadequate or inappropriate services for this population at the community level can mean frequent rehospitalizations, inappropriate involvement with the correctional system, or even homelessness.

Mental health services for children and adolescents as well as adults who do not meet the definition of chronically mentally ill are important components of services provided by community health centers, but identifying the need for those services will not be a focus of this paper.

Information relative to serving these population may be produced by the methodologies chosen, however that will not be a primary objective for choosing that particular method.

Producing data that will express the need for mental health services in quantitative terms may be limited to a great extent by the availability of acceptable methodologies. This is not an area in which a large amount of rigorous research has been conducted and, in fact, compared to sophisticated techniques used by market research companies in the business world, what is available in mental health needs assessment has been termed "primitive."[22]

Another limitation may be the availability of current data that are required by the method or methods deemed suitable. If this is the case, procedures and/or instruments for collecting the data will be recommended.

In Chapter II, each needs assessment technique is evaluated with a description of its history, methodology, advantages and disadvantages. Chapter III presents the results of utilizing selected methodologies in estimating the number of chronically mentally ill persons in Montana. An evaluation of those results is set forth in Chapter IV, and Chapter V presents the conclusions of this study.

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CHAPTER II

NEEDS ASSESSMENT METHODOLOGIES

Objectives of Needs Assessments

As described in the following discussion, mental health needs can be defined quite differently by various needs assessments. Need in one methodology represents total need of the general population for any type of mental health service; need in another refers to service needs of the chronically mentally ill. Need can be measured as the number of persons needing service or the type of services required to serve the population. Need can also be measured by the number of people seeking services, or as the gap between those estimated to need services and those actually using available services. Different methodologies measure need from different perspectives. Each can contribute data to the planning process.

A number of different needs assessment techniques have been developed and used in recent years. The methodologies vary in complexity, sophistication, cost, and objectives. Of particular importance is the differences in the segments of the population that the studies focus on.

Several methods focus on estimating the total need for any mental health services in the community by any client group. This can be attempted by direct methods which document actual incidence of mental illness or indirect or "synthetic" estimation techniques which rely on the use of population and sociodemographic data in combination with

statistical data which identifies the prevalence of mental illness in the general population. Need for service is then imputed from these data.

Rather than estimating the total or absolute need for mental health services for all populations, other methodologies focus on estimating the number of individuals in specific target populations, most commonly the chronically mentally ill, or children and adolescents. As in estimating the needs of the general population, both direct and indirect methods have been developed to estimate the numbers of these target populations.

Other methodologies attempt to measure need by analyzing utilization data. These demand based models rely on statistics of persons actually seeking mental health services as measured by admission data to CMHCs. Utilization data may also be analyzed in relation to estimated need to determine the degree of unmet need. Unmet need is viewed as the gap between the numbers of individuals estimated to be in need of mental health services and the numbers of individuals actually receiving services in a specific area.

Still another objective of needs assessment methodologies is determining relative or comparative need. These methods measure need by comparing differences in the number of clients utilizing services in one geographic area with clients utilizing services in another area. Often the comparisons may also involve estimated need as well as service utilization data of each area. This concept of relative need addresses the equity issue among areas and groups and can be used to equalize the provision of services.

An assessment of need can include estimating the specific types of service needed, duration of treatment, cost and effectiveness of treatment

as well as potential clients. One methodology reviewed will focus on the types of treatment and residential services needed by the chronically mentally ill.

The needs assessment methodologies reviewed for this paper include examples of a variety of techniques which represent different objectives in defining need, and different techniques in assessing that need. The methodologies included have been categorized as 1) Direct Measures, which document actual need and/or utilization of mental health services, 2) Indirect Measures, which utilize synthetic estimation techniques, and 3) Other Methodologies, which involve soliciting opinions on mental health needs from the public or those working in the field.

A brief history including who developed the method, when it was developed, and how widely it is used, is presented for each methodology, followed by a description of the method, and a discussion of the relative advantages and disadvantages.

Direct Methods

Survey

Objective

To estimate the number of individuals in the total population who may need mental health services

History

It appears that surveys have rarely been used by SMHAs in determining the need for mental health services.[1] One exception is the State of Colorado. In collaboration with the University of Denver and the National Institute of Mental Health (NIMH), a state survey was undertaken over a three year period for the purpose of determining the prevalence of mental

illness in the state. Another stated purpose of the survey was to utilize the data gathered to validate various indirect methods of estimating the number of individuals in need of mental health services.

Projects of this magnitude are more likely to be undertaken by the federal government, although a national survey has not been attempted.[2] However, starting in 1984 NIMH sponsored surveys of five large metropolitan areas have been conducted. The findings of the study for three locations have been published,[3] and the data are often used in estimating the prevalence of mental disorders in other locations.

Method

The survey approach to needs assessment is based on the collection of data from a sample of the population to be evaluated. Mailed questionnaires, personal interviews, or telephone interviews are commonly used in which information about current or past mental health problems are obtained. The design and methods used must be carefully considered or the validity of the survey can be jeopardized. The assistance of survey experts may be needed in dealing with the critical issues in designing the survey. Those issues include the following:

Sampling procedure. Sampling is based on the premise that a few individuals will adequately represent the characteristics of the total population. Procedures must be developed so every person in the population to be surveyed has an equal chance of being represented in the survey. Careful consideration must be given to this issue as it will affect the precision of the estimate. The size of the sample is an equally important decision. The most important factor in determining the size of the sample is how widely dispersed the characteristics being

measured are in the population. The greater the dispersion the larger the sample must be to give a representative picture of the population.[4]

Survey technique. Personal interviews, telephone surveys and mailed questionnaires can be considered. Each has advantages and disadvantages. Person-to-person interviews are more time consuming and costly but permit the greatest flexibility and indepth questioning. Mailed questionnaires are a lower cost method but subject to low response rates especially among the less educated and mobile segments of the population.[5] A serious shortcoming of telephone surveys is the fact that all potential residents are not accessible by telephone.[6]

Survey instrument. Survey instruments can be difficult to develop and often require assistance of experts in the field. Question construction and wording, question sequence, and response format can all affect the respondent's willingness to cooperate and the quality of responses received.[7] Instruments have been developed and tested by NIMH, the most widely used being the Diagnostic Interview Schedule (DIS). It is a structured interview which is designed to be used by lay interviewers to generate data necessary to make a psychiatric diagnosis. It is long, estimated to take one and one-half hours to administer, and complex, requiring several weeks of interview training.[8]

In addition to determining the sampling procedure and survey technique, and designing the survey instrument, consideration must be given to the recruitment and training of interviewers, verification of responses, and analyzing and reporting data.

Advantages

When carefully designed and conducted, a survey is considered the

most scientifically valid method of assessing need.[9] It can provide the most accurate and useful information for establishing mental health priorities. Target groups, i.e., the chronically mentally ill can be identified, as well as the location for needed services. It can be determined if those experiencing the symptoms of mental illness have sought help and if they have whether services were provided by the private or public sector providers. It, more than any other method, could be designed to obtain all the critical data elements required for effective planning.

Validating indirect methods of needs assessment, as done in Colorado, could be an additional advantage of conducting a survey.

Disadvantages

Community surveys require a major commitment of resources and time to do them correctly. The technical requirements are often beyond the capabilities and resources of most state agencies responsible for mental health planning. (The cost of the Colorado study approached $1 million.)[10] This level of expenditure would require an appropriation of new money by the legislature and is unlikely to be undertaken without a strong commitment to utilize the data as the basis for making significant changes in the mental health delivery system. This commitment is unlikely in Montana given the current fiscal problems the State is experiencing.

All of the technical problems inherent in any survey are encountered, and in addition, problems unique to mental health issues. One such problem is the question of the accuracy and completeness of self-reported information regarding an individual's mental health status.[11]

Quadrant Method

Objective

To estimate the size of the non-institutionalized population of chronically mentally ill people.

History

This methodology, employing utilization data from CMHCs and Social Security Administration data (SSA), was developed by NIMH in conjunction with the Human Resource Research Institute.[12] Although no numerical data are available on the number of states currently using this method, the numbers may be quite high because it is relatively easy to use. Colorado utilized the method to estimate the number and distribution of CMI, and tested the validity of the technique by comparing the estimation results with available data on this population. The results of that analysis have been presented at a national conference.[13] The correlations between the Quadrant estimates and treatment data are reported as moderate to high, indicating that the pattern of disability recipients for all causes strongly parallels that of the chronically mentally ill receiving services in the public mental health system.[14]

Method

The Quadrant Method estimates the total number of chronically mentally ill individuals in each county based upon the number and distribution of recipients of SSA disability benefits. The method relies upon treatment data from CMHCs and SSA data.

The CMHCS must be able to identify the CMI among their clients and be able to identify the total number of CMI being served at one point in time. In addition, information is needed relative to the participation of

these CMI clients in SSA benefit programs, both Supplemental Security Income (SSI) and Social Security Disability Income (SSDI).

Data required from the SSA include 1) a count of disability recipients for mental illness in the state, and 2) the geographic distribution of disability recipients for all categories in the state.

The method divides the population into four groups that are illustrated in Figure 2. As seen from the figure, the population is classified by two variables: receipt of Social Security disability benefits and their enrollment in treatment at CMHCs.

Figure 2

QUADRANT COMPONENTS

RECEIVING MENTAL HEALTH SERVICES AT CMHC

RECEIVING SSA BENEFITS FOR MENTAL ILLNESS	YES	NO
YES	A= The number of CMI receiving mental health services who are receiving SSA benefits	B= Number of SSI/SSDI recipients for mental disability who are not receiving mental health services.
NO	C= Number of open cases of CMI clients who do not receive SSI/SSDI payments	D= Number of CMI who are not receiving mental health services and are not receiving SSA benefits

SOURCE: John W. Ashbaugh and Ronald W. Manderscheid, "A Method for Estimating the Chronic Mentally Ill Population in State and Local Areas," Hospital and Community Psychiatry 36 (April 1985): 389-393.

The calculation of Quadrant D is based on the assumption that the ratio of the number of CMI not participating in SSA disability programs (D) to those receiving SSA benefits but not receiving services in CMHCs (B) is the same as the ratio of the number of clients in the CMHCs not

receiving SSA benefits (C) to those receiving services and also receiving SSA benefits (A). Mathematically the relationship may be expressed as A/C = B/D or D = B(C/A).

Advantages

This method has a number of advantages. First, it represents a practical way to derive regional estimates of the entire population of chronically mentally ill people, both those in treatment and those who are not. While this does not tell us anything about the reasons this group is not receiving services at the CMHC or where services, if needed, are being provided, it does present a reasonable indication of the potential number of this population. It also has the advantage of using data that are state specific and do not rely on national averages.

It is an economical method and relatively simple to implement. If standard definitions of chronic mental illness are used, comparisons across geographic areas will be valid. Another advantage is the ability to update the data fairly easily as new data become available.

Disadvantages

The main disadvantage is the estimates are constrained by availability of the required data. It assumes that a definition for CMI has been adopted by the SMHA, and that CMHCs routinely identify CMI clients. Only recently has Montana adopted an operational definition of CMI. A copy of that definition can be found in Appendix 1 of this report. In July, 1988, all CMHCs identified clients on their caseload who met the definition of severe and disabling mental illness. Nor do all CMHCs routinely determine if a person being admitted for mental health services is receiving SSA benefits for a mental illness.

Social Security information is not as readily available as one might expect. While the state office can provide data on the number of recipients of benefits for all disabilities by county, they cannot provide data on the number receiving benefits for disability due to mental illness. NIMH has worked with the Social Security Administration to obtain these data for specific states, but it is not known if these data will be available on an ongoing basis.

Another problem with this method is that it may underestimate the total number of chronically mentally ill people. The method assumes that characteristics in the population receiving services with regard to enrollment in SSA disability programs are an unbiased estimate of these characteristics in the population not receiving service. However, this assumption may be unwarranted since participants in mental health programs are more likely to participate in SSA disability programs than those not receiving services.[15] Using these data may lead to a conservative estimate of the size of the CMI population.

Rates Under Treatment

Objective

To identify the number, distribution, and characteristics of clients utilizing publicly funded community mental health services

History

Utilization data, i.e., actual statistics on services provided, are often used to assess need for services. In a survey of states to determine the types of needs assessment methodologies used, it was found to be the most used technique.[16] Of 37 states responding to the survey, almost 60 percent listed it as at least one method used.

Method

The underlying assumption of this method is that the need for services can be estimated based on the number of individuals currently using services. Using data that are normally developed for management purposes, e.g., service units provided, number of clients served, number of admissions, comparisons can be made across geographic areas of the state. Typical examples of this type of comparison can be seen in Tables 1 and 2. In Table 1 the rates of admission per 10,000 population for eight service areas in the state of Maine have been tabulated. Rates per 10,000 receiving treatment are calculated in Table 2.

A somewhat different method of employing utilization data was developed by the state of Washington. The objective of this methodology is to relate utilization factors to issues of prioritization of services.[17] The first step was to classify clients into four priority groups based on severity of illness. The next step was to assess utilization of services by each of the priority groups. The following indicators were used:

1. Client density - measures the percent of clients with each priority rating

2. Treatment density - measure the percent of priority clients which are represented in each treatment modality

3. Service utilization rate - measures the percent of each priority level utilizing a given service

4. Service intensity - the amount of resources applied to treatment of each priority group during a standard unit of time

5. Mean charge amount per unit of time - the cost of providing the service for each unit time

TABLE 1

RATE OF ADMISSIONS OF RESIDENTS OF SERVICE AREAS
TO STATE MENTAL HEALTH INSTITUTES - FISCAL YEAR 1986
(MAINE)

Service Area	Number Admitted	Rate of Admissions Per 10,000 Population
Aroostook	72	7.90
Eastern Maine	228	9.67
Kenneber Valley	298	17.65
Tri-County	188	10.26
Cumberland	321	16.30
York	115	7.29
Bath-Brunswick	65	8.58
Mid-Coast	61	9.75

SOURCE: Maine, Department of Mental Health and Mental Retardation, Mental Health in Maine 1986-1987 (Augusta, Maine: n.p.,1986), p.14.

TABLE 2

RATES UNDER TREATMENT - PER 10,000 POPULATION
FISCAL YEAR 1986
(MAINE)

Service Area	Outpatient	Community
Aroostook	178.72	105.17
Eastern Maine	100.88	25.87
Kenneber Valley	140.21	82.83
Tri-County	108.54	33.63
Cumberland	97.1	42.71
York	93.91	39.51
Bath-Brunswick	207.07	13.2
Mid-Coast	233.18	73.84

SOURCE: Maine, Department of Mental Health and Mental Retardation, Mental Health in Maine 1986-1987 (Augusta, Maine: n.p.,1986), p.14.

An analysis of these data will determine the type of services used by each priority group, the composition of the service units in terms of priority levels, and if services provided to high priority groups are more intensive and costly than those provided to lower priority clients.

Advantages

The availability of the data is an obvious advantage. States typically have management information systems that provide data about the number of people in treatment in the mental health system. Often more detailed information is available regarding clients such as diagnosis and level of functioning that can be helpful in planning services. There is little cost in obtaining the data, and it is relatively simple to organize and analyze it.

An advantage of a method based on demand for services is that it has appeal for those who maintain that a service is not needed unless someone is asking for the service.

The data generated by the Washington analysis would be useful in evaluating to what extent mental health resources are currently being expended on target populations. Having a picture of the type of services used by the chronically mentally ill, and the cost of those services would be valuable information for planning services for this population. The data could be used to expand or cut back on specific types of services depending on their utilization by priority clients. Services that were used by a high percentage of priority clients would be priorities for funding purposes. This method would also provide data about the cost of serving each priority group. This would allow administrators to make decisions about their fiscal ability to provide services to each group.

Disadvantages

A major disadvantage is that the data may give a false picture of community needs. Research has shown a wide variance between the mental health needs of a community as determined by field surveys and the number of persons receiving mental health care in the same community.[18] There may be important differences between those who obtain treatment and those who do not. This makes extrapolation about the needs of the population uncertain.

The data may be misleading as to the level of need. Relatively low per capita usage may not indicate low need but inaccessible or unacceptable services. A number of issues are raised if the funding agency uses data such as that in Tables 1 and 2 in developing funding allocation formulas. Should the areas of low per capita admission and usage be granted additional funds to expand services? Is there a need for additional services? Can it be assumed that the services in the high usage areas are needed services and are being provided to priority populations? If necessary, should funding be reallocated from areas of high use to areas of low use to create a more equitable availability of services? Obviously more information is needed before these questions can be answered.

The Washington method does identify priority groups and services used but there are limitations in using that method for planning as well. Data are only provided for clients currently being served in the mental health system, and for services currently being offered. It assumes services are needed and appropriate. It does not provide any information on services that may be needed but are not available, or clients who may require

mental health services but are not being served by the CMHC.

A factor that must be considered in using rates under treatment data for estimating need is that funding may determine utilization, not necessarily need. Services can be used only if they are available. Most often, it is funding that determines the level of services that are provided by local agencies. Service availability in turn, drives utilization. In one state research found the correlation between funding and utilization rates to be .9.[19]

Model of Estimating Optimal Services

Objective

To develop a typology of CMI individuals and to determine service needs of each type identified

History

This method is the result of a recent research project undertaken by the Colorado Department of Institutions.[20] It is a sophisticated model which offers the possibility of employing utilization data as a needs assessment tool. The model recognizes that the CMI population represents a diverse population with diverse treatment needs.

Method

The first phase of the project was to develop an empirically based typology of chronically mentally ill clients being served in the mental health system, in both community based programs and the State hospital. The CMI were identified in all admissions for a thirty month period. Admission data for this group were then submitted to computer analysis by a procedure know as cluster analysis. The purpose of the procedure is establish groups of individuals who are similar to each other and

dissimilar from individuals in other groups. Four distinct client groups were identified by this method, all fitting within the definition of CMI. These groups were termed "Young Adult, Extremely Disabled, Personally Distressed, and Adapted."

The second phase of the research established specific relationships between client clinical characteristics and their service needs. Clinicians working with the CMI were asked to provide data on a sample of CMI clients relative to their service needs and most desirable living arrangement. They indicated what type of services and residential living arrangement their client needed, assuming all options were available and accessible to them, and how important it was that the client receive the service. Importance was measured by a five point scale with 5 representing the most important. Mean importance ratings were then calculated for service needs for each group identified in step one. The results of those calculations are represented in Table 3.

To assess unmet need a ratio was calculated which captured the degree to which clients received needed services:

Proportion of services received = the sum of importance rating X service received (Yes = 1, No = 0) divided by the sum of importance.

Advantages

This technique offers the possibility of using utilization data (the most readily available) as a needs assessment tool for planning purposes. It is particularly useful in focusing on the treatment needs of the CMI. It not only identifies treatment needs but can also estimate the inability of the system to meet those needs. It does not assume that services within the mental health system are adequate or appropriate.

TABLE 3

SERVICE NEEDS OF CMI CLIENTS CURRENTLY
SERVED BY COLORADO MENTAL HEALTH SYSTEM

SERVICE CATEGORY	SERVICE NEEDS	
	Number (%) of CMI in Treatment Who are in Need of Services	Number (%) of those in Need Whose Needs were Not Fully Met
1. Case Management	673 (71.8%)	211 (31.3%)
2. 24 Hour Crisis Stabilization	316 (33.7%)	195 (61.6%)
3. Vocational Development	760 (81.2%)	509 (66.9%)
4. Clinical Care	928 (92.6%)	431 (49.7%)
5. Basic Needs	755 (80.6%)	267 (35.3%)
6. Medical/Physical	703 (75.0%)	340 (48.4%)
7. Family Education and Treatment	466 (49.8%)	393 (84.3%)
8. Substance Abuse	253 (27.0%)	177 (69.9%)

SOURCE: David Stern et.al., "Planning a Residential/Service Continuum for the Chronically Mentally Ill: A Typological Approach." Presentation at National Conference on Mental Health System Planning, Oak Brook, Illinois, 15 May 1987.

Because it identifies four distinct groups of individuals among the CMI, it clearly demonstrates that those termed chronically mentally ill may include young adults who have been characterized as "treatment resistant," and may never have been hospitalized, as well as adults who have spent a major part of their lives in mental institutions.

Disadvantages

To duplicate this model would require a considerable amount of both clinical and administrative staff time. Survey instruments must be developed, each client assessed as to treatment needs, and results must be tabulated and analyzed. In addition computer capabilities are needed as well as staff expertise with statistical analysis.

The fact that the conclusions regarding treatment needs of the CMI are based on those individuals who are currently in treatment may be perceived as a limitation of the study. It can not be assumed that the results can be generalized to those who are not in treatment.

Indirect Methods

Prevalence Estimates

Objective

To synthetically estimate the number of mentally ill individuals in the population by severity of symptoms and diagnosis

History

This approach to needs assessment is a rather simple technique that allows an estimate to be made of the number of persons potentially in need of mental health services in a specific geographic area without the use of data from the mental health system. It involves the use of prevalence rates for mental illness developed on test populations which are then

applied to the population of a specific area to obtain an estimate of the number of people with mental illness. The prevalence rates often used resulted from NIMH sponsored research conducted in several sites in the country as part of a series of epidemiological studies call the Epidemiological Catchment Area (ECA) program. The prevalence rates for the populations tested have been published, and are considered to be the state of the art in large epidemiological studies.[21] A number of diagnostic categories broken down by age and sex are reported.

Method

In order to utilize the data it is necessary to disaggregate the population of the area under study into groups for which prevalence rates are available. Each population grouping can then be multiplied by the prevalence rate for that group to estimate the number of people with mental disorders. Table 4 illustrates this method applied to population figures for the state of Alaska.[22]

Advantages

The advantages of this approach to needs assessment are that the required data are readily available through published reports and census data, and the calculations are easy to do. Because prevalence rates are available for many specific diagnoses, it is possible to be quite specific about the diagnosis of those identified as mentally ill. The ability to estimate by diagnosis lends a certain credibility to the numbers, perhaps more than is warranted.

This method of estimating need for mental health services may be better than population data alone in that it takes into account the different prevalency rates for various age groups and sex.

TABLE 4

ALASKA ESTIMATE OF MENTALLY ILL PERSONS
BASED ON PREVALENCE ESTIMATES
JULY 1985

	MALE					FEMALE					
	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	Total
AFFECTIVE	1,812	4,527	1,222	97	7,658	2,573	8,982	2,424	286	14,265	21,923
PANIC & OBSESSIVE/ COMPULSIVE	885	2,023	670	60	3,638	1,268	3,735	640	93	5,736	9,374
SOMATIZATION AND ANTISOCIAL PERS.	927	2,312	118	30	3,387	399	800	34	0	1,233	4,620
COGNITIVE	1,349	2,023	3,135	1,505	8,030	725	1,956	2,323	1,437	6,441	14,471
SCHIZOPHRENIA AND SCHIZOPHRENIFORM	548	867	236	0	1,651	362	1,868	202	31	2,463	4,114
PHOBIAS	2,276	4,238	2,364	253	9,131	4,385	12,184	3,131	549	20,249	29,380
SUBSTANCE ABUSE OR DEPENDENCE	7,502	15,316	2,719	238	25,775	3,008	2,757	303	23	6,091	31,866
TOTAL	15,299	31,306	10,482	2,183	59,270	12,720	32,282	9,057	2,419	56,478	115,748

SOURCE: Alaska, Department of Mental Health, Estimates of Need for Mental Health Services in Alaska, by Vincent Van der Hyde, Jr. (Juneau, Alaska: n.p., 1987).

Disadvantages

Although easy to compute, the use of these data is very limited for planning purposes. It tends to raise more questions than it answers. The numbers represent the total incidence of many diagnosable mental disorders in the population, but all people with diagnosable disorders do not seek mental health treatment, and not all people seeking treatment have diagnosable disorders. Also, not all who seek such services look to the public mental health system.

Although mental health administrators can assume that individuals with the same diagnosis have similar degrees of illness and similar treatment needs, this assumption is largely untested. It has been questioned whether diagnosis as derived in a survey (as opposed to clinical determination) is adequate to predict the level and types of care required.[23]

The reasonableness of transferring prevalency rates from the test population to another population may challenge the validity of this method. Both the test population and the target population must be similar on all relevant dimensions for the transfer to be valid. Since the studies were conducted in large metropolitan areas, transferring prevalency rates of mental illness to a rural state with very low population densities may be problematic.

Social Indicators

Objective

To identify relative needs of sub-state areas for mental health services.

History

Early attempts (1960s and 1970s) to estimate the need for mental health services often relied upon this method. It was a time when, fueled by federal dollars, community services were expanding rapidly and justification was needed for this expansion. Research purported to show that social and economic characteristics were significantly related to the incidence of mental illness.[24] The validity of that assumption has been challenged and will be discussed under Disadvantages. Its role in needs

assessment has been primarily to rank areas of a state based on their relative need for mental health services.

The method provides data for characterizing geographic areas and comparing them along a number of socioeconomic dimensions. The U.S. Census of Population and Housing is a comprehensive source of socioeconomic information; however, much of the information is not available in published form for small geographic areas. To address this problem NIMH devised the Health Demographic Profile System (HDPS) for use by mental health planners.[25] The system provides data taken from the most recent census for small census tracts, minor civil divisions, census county divisions, counties and states. The smaller units can be combined to correspond to mental health catchment areas for purposes of planning and evaluation. The HDPS system was designed to 1) locate and identify high risk populations, 2) identify and locate target populations such as the poor and the elderly, 3) characterize the social and economic structure of the area, and 4) provide data from which to compute rates of service utilization.

Method

Although many states indicate they use social indicator data for needs assessments,[26] a defined, consistent methodology was not identified. Several examples were found in various state mental health plans and they will be presented as illustrations of how social indicator data have been used.

1. North Dakota

The method used by the state of North Dakota is one variation of the social indicator approach to estimating need for mental health

services.[27] Eleven social indicators were selected to indicate need:

Percent of labor force unemployed

Percent of change in number of farms

Percent of population in poverty

Suicide rate per 100,000

Divorce rate per 1000

Percent of minority population

Population density

Abuse and neglect report per 1000 Ages 0-17

Percent of population 65 and over

Percent of female headed household with children under 18 per 1000

Percent of population 0-17 years of age

Initially a table of raw scores was constructed for each county for each indicator. The raw scores were then ranked from the highest number (rank number one) to the lowest number (highest rank), with the exception of the population density variable for which the lowest rank represented the least densely populated county, and the high rank the most densely populated. This was justified by the fact that the most densely populated counties are the sites of mental health centers and the majority of mental health services are provided in these counties.

The rank scores were then totaled for each area and an average calculated to determine the relative need of each county. The inclusion of percent of change in number of farms may represent an attempt to include "farm stress" as a contributing factor to the need for mental health services.

2. Maine

This example illustrates a relatively simple and inexpensive method of displaying the results of a needs assessment based on social indicators. The variables considered to be related to the need for services were unemployment, poverty, infant deaths, and illegitimate births.

The first step was to determine the actual number of affected persons in each area for each variable selected. These numbers are then converted into a percentage which reflects that particular areas percent of the state total. Areas which have higher percentages than the statewide percentage are considered areas of higher need and visually represented on the map by means of lines or crosshatching. An illustration of this approach can be seen in Figure 3.

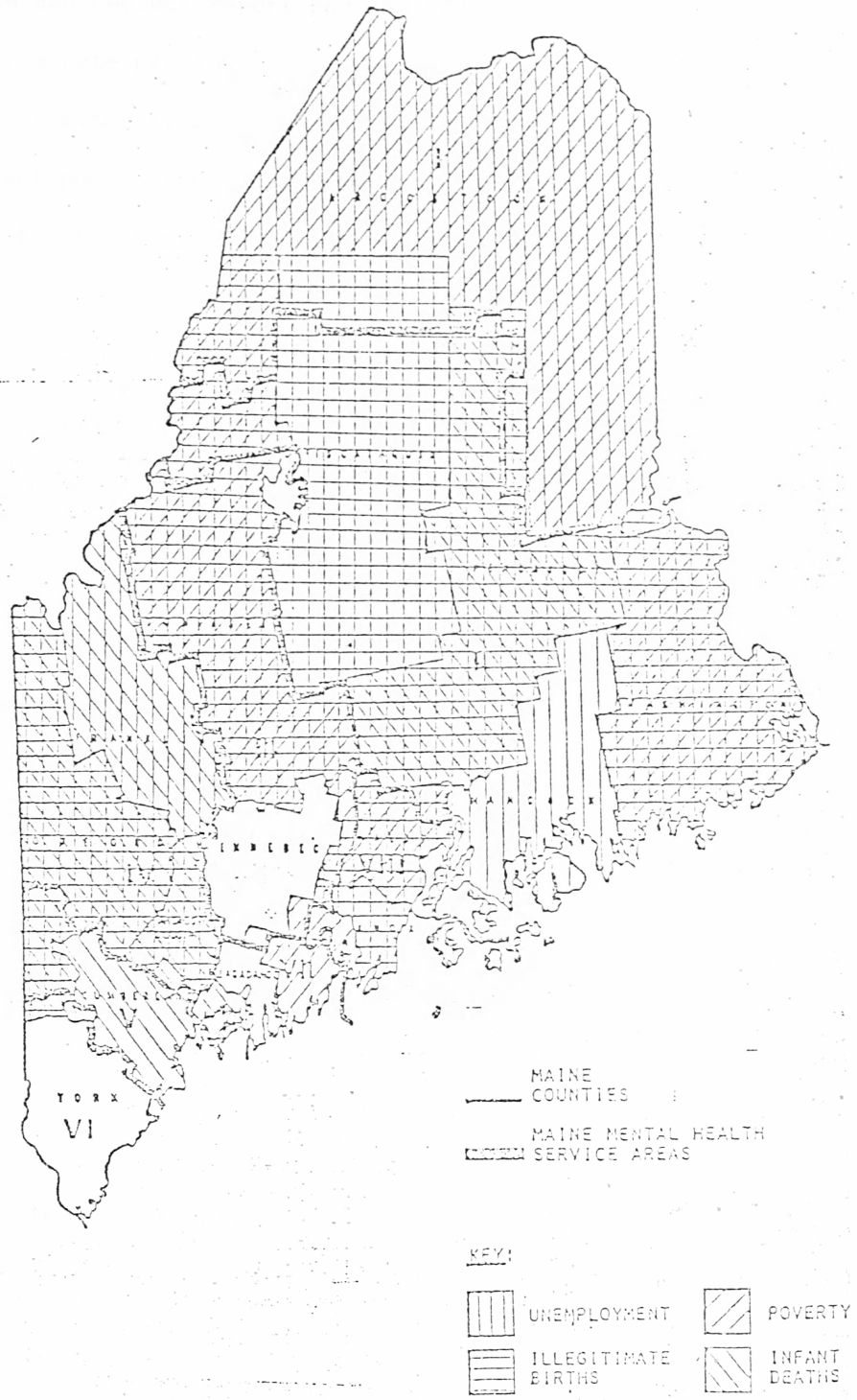
3. Colorado

This method modifies prevalency estimation techniques with social indicator data to estimate the population in need.[28] Research determined that prevalency data should be adjusted, but only modestly, to reflect the influence of social indicator data.

The first step is to use prevalency rate data to estimate the number of person with mental disorders for each age group for each service area in the state. The result of this calculation is termed the unmodified estimate of the population in need. This figure is then modified to reflect the degree of "social disorganization" of the area. The social indicators used to measure social disorganization were:

Percent labor force unemployment

Suicide rate per 100,000



SOURCE: Maine, Department of Mental Health and Mental Retardation, Mental Health in Maine 1986-1987 (Augusta, Maine: n.p., 1986), P 16

FIGURE 3 MAINE SOCIAL INDICATORS MAP

Abuse and neglect report per 100,000

Divorce rate per 1000

Percent minority population

Percent population in poverty

Data for the first four indicators are collected by the state and are updated annually.

The following procedure is then used to factor social indicator data into a formula. Standardized scores are calculated for each indicator. Then the "Z" scores are summed and these totals are restandardized to arrive at the "composite social indicator" score. This figure is used as an indication of the extent to which each area differs from the state average across all six variables.

The composite social indicator is then used to modify the estimate calculated in step one:

Population in Need = unmodified population (based on prevalency rates) X (1+.1 X Composite Social Indicator)

The unmodified population is modified by 10 percent of the composite social indicator. This weight of .10 was determined by research which included community surveys and simulation studies.

Advantages

This method has the potential of identifying geographic areas of high need for mental health services -- assuming that the relationship between specific demographic characteristics and mental illness can be established. Most methodologies fail to do this.

It is possible that using social indicators to influence the allocation of fiscal resources may have face validity to community

programs because it does appear to take into account the unique characteristics of each region. In that sense it may have political value.

Disadvantages

Although it appears to be a quick, inexpensive, easy method to assess need, the results are of questionable value in planning mental health services or allocating resources. A number of problems related to the use of social indicators to estimate the need for mental health are illustrated by the three examples provided. The obvious intent of the methods is to rely on the characteristics of the population to reflect the quality of life, relating that to levels of stress, and relating levels of stress to mental illness. There does not appear to be sufficient evidence that the relationships between specific variables and the incidence of mental illness have been established. For example, different variables were selected in each state as evidence of the need for increased services. Critics of this method report that there is a lack of consistent models for using social indicators that are valid and reliable.[29]

The assumption is made in each of the methods that each characteristic has equal weight in creating a need for mental health services. It is reasonable to assume that certain variables will contribute more than others to the need for mental health services.

The limitation of the social indicator method was demonstrated by research conducted by the Department of Institutions in 1982 which assessed the correlation of 17 demographic variables with admission data at Montana State Hospital. The only demographic variable found to correlate with admissions was distance from the state hospital. The

closer people live to Warm Springs, the more likely they are to be admitted to the state hospital.[30]

A major problem with social indicator methodologies is the inability to translate ranking of need into numbers needing services or types of services needed. Even if it reliably identified areas of high need, it gives administrators little data useful in planning services. Social indicators closely associated with specific service needs have not been determined.

DU Logistic Model

Objective

To estimate the prevalence of mental disorders in the population as measured by diagnosis, dysfunction and demoralization

History

The University of Denver has recently completed a survey of the state of Colorado to determine the numbers and basic types of mental illness considered to indicate need for services. Three mental health need indicators were used: diagnosis, dysfunction, and demoralization. The instruments used were the Diagnostic Interview Schedule (DIS), the Center for Epidemiological Studies Depression Scale (CES-D), and Colorado community functioning scales which were adapted for the survey.[31]

Using these survey findings as the validity criterion, a number of indirect needs assessment models were evaluated. The quantitative predictions of each model were directly compared to the findings of the survey for four need variables: 1) ability to predict total need of any type, 2) diagnosis plus dysfunction or demoralization, 3) severe mental illness (as measured by specific diagnosis usually associated with severe

disability), and 4) severe chronic mental illness. The duration of the illness, at least one year, was considered in categorizing individuals in the "severe chronic" category.

A logistic regression model developed by Denver University (DU Logistic Model) was found to have the highest correlation with need in the Severe and Severe Chronic categories. This model is presented in this paper.

Method

Logistic regression equations have been developed by Denver University for calculating predicted prevalence of mental illness for five categories of severity. The model equation and component variables follow:

$$\text{Predicted } R'_{\text{subarea}} = \text{Odds}_{\text{case}} / + \text{Odds}_{\text{case}}$$

$$\text{where Odds}_{\text{case}} = \text{Exp(onent) } B_o * \text{Exp } (B_1X_1) * \text{Exp } (B_2X_2) \text{ and}$$

where X^1 = Percentage of Total Persons Below Poverty Level, and
X^2 = Percentage of Divorced Males

The five categories of mental illness for which the model is designed to estimate prevalence are described below:

1. "Any" includes those individuals with any measurable indication of mental disorder whether diagnosis, dysfunction, or demoralization.
2. "Plus" includes those with a diagnosable disorder plus dysfunction or demoralization.
3. "Severe" includes only those with a diagnosis most often associated with severe disability i.e. schizophrenia and other psychosis.
4. "Diagnosis" includes only those exhibiting symptoms of a diagnosable mental illness.

5. "Severe chronic" estimates the number of individuals with severe mental disability (captured in Category three) who have experienced problems for a duration of one year or longer.

The model utilizes two social indicators, the percent of the population living in poverty, and the percent of divorced males. These data are obtained from the decennial census. As the population at risk for these calculation is adults, it is necessary to disaggregate census data to capture population figures for those age eighteen and over. Applying the calculated prevalence rates to the population at risk results in an estimated number of mentally ill in each of the five categories listed, for any subarea of the state for which there is census data.

Advantages

An important advantage of this model is its capability to estimate prevalence in five categories of need. It is the only Indirect Method of assessing need reviewed which can estimate the number of chronically mentally ill individuals within a specific geographic area.

The method is relatively easy to use, and census data are readily available.

The validity of the method has been assessed. The correlation of the performance of this estimation technique with need as measured by the results of the Colorado survey was the highest of any indirect methodology assessed. The average absolute deviation from observed values for this model for the Severe Chronic category was .79 percent.

Disadvantages

One disadvantage of the method is its reliance on decennial census

data. The accuracy of basing estimates on data that are five to ten years old may be questioned.

Although it was developed based on the Colorado statewide sample, it has not been tested elsewhere. The reliability of using prevalence rates found in Colorado may not be accurate for Montana.

Other Methods

Key Informant

Objective

To identify community concerns relative to mental health services

History

This method is often used by states as part of their needs assessment process but rarely as the only method of determining need.[32]

Method

The Key Informant method of determining need of service involves contacting those individuals and agencies who are in a position to know the mental health system and can identify needs. These may include, for example, service providers, mental health administrators, clinical staff of CMHCs, human service professionals, private mental health professionals, legislators, consumers, and advocacy groups.

The method of acquiring the information may be by telephone, personal interview, or a written questionnaire. Because of the high response rate and free exchange of ideas, the most frequently used method is the personal interview.[33] Mailed responses tend to have a lower response rate but can be used effectively.[34]

Constructing a questionnaire or interview schedule that allows those conducting the research to obtain comparable information is necessary.

Questions can be open ended or they can be very structured depending on the type of information desired.

Advantages

The strengths of this method are that it allows input from many individuals and promotes communication between the state mental health agency and the agencies and individuals contacted. It can be seen as a community based approach to establishing priorities.

Disadvantages

Although issues of concern are identified, it is rarely useful to gauge the extent of the problem. Another weakness of this approach is informant bias. Although knowledgeable, key informants see needs from their own individual or organizational perspective which may not be representative of the community.

Community Forums

Objective

To identify community concerns relative to mental health services.

Method

The Community Forum is essentially a public meeting with input invited from everyone in the community. It expands the number of respondents included in the Key Informant approach to include anyone interested in attending the meeting.

Typically testimony is solicited from those attending in response to questions or outlined objectives. Input is then analyzed to identify needs from the community perspective.

Advantages

The chief advantage is the ability to obtain input from many segments of the community and to increase citizen participation in a relatively inexpensive way.

Disadvantages

There are a number of weaknesses in this method. It can be time consuming to arrange, publicize, and hold the meetings. Meetings such as these have the potential of becoming a general grievance session and fail to focus on problems which the state agency has control over.[35]

A significant disadvantage is that often the data obtained are not amenable to systematic analysis, offering instead an "impressionistic" view of community mental health needs.

Summary of Methodologies

A summary of the methodologies reviewed for this paper is presented in Table 5. The various methods, grouped by Direct Methods, Indirect Methods, and Other are displayed across the top of the table. A list of data elements that potentially could be obtained from each needs assessment is presented in the left hand column of the table. Three types of data are specified: population data, geographic distribution, and service data. A "Y" (yes) indicates that a method will generate that data, "N" (no) indicates the method does not produce that type of data, and "P" means that the method is partially successful in providing the data.

Three data elements are critical in planning mental health services for persons with severe and disabling mental illness. Administrators must know the size of the population in need of service, the geographic

TABLE 5
COMPARISON OF DATA GENERATED BY
NEEDS ASSESSMENT METHODOLOGIES

	DIRECT METHODS				INDIRECT METHODS			OTHER	
	STATE SURVEY	QUADRANT METHOD	RATES UNDER TREATMENT	MODEL OF OPTIMAL SERVICES	PREVALENCE ESTIMATES	SOCIAL INDICATORS	DU LOGISTICS MODEL	KEY INFORMANT	COMMUNITY FORUM
OBJECTIVES									
1. Population Data									
a)total number of mentally ill adults	Y	N	N	N	Y	N	Y	N	N
b) number of CMI adults	Y	Y	P	P	P	N	Y	N	N
2. Geographic distribution of target groups	Y	Y	P	P	Y	N	Y	N	N
3. Service Data	P	N	P	P	P	N	N	P	P
a) needs of CMI									
b) services received	Y	N	Y	Y	N	N	N	N	N
c) services provided by public mental health system	Y	N	Y	Y	N	N	N	N	N
d) treatment outcome	Y	N	N	N	N	N	N	N	N
e) service cost	N	N	Y	Y	N	N	N	N	N
f) barriers to service	Y	N	N	N	N	N	N	P	P

KEY:
Y = Yes, provides data
N = No, does not provide data
P = Partially successful in providing data

distribution of that population, and the type of the service needed. These critical elements are 1b, 2, and 3a on the table. The balance of the data elements listed represent useful information in planning public sector services for the mentally ill, but they are not viewed as critical as those identified above.

No one method completely provides all three types of data considered critical. For example, the Quadrant Method and DU Logistic Model estimate the number of CMI and where they are geographically located, but do not provide data on services needed. The Model of Optimal Services identifies service needs of those individuals being served by the public mental health system, but fails to provide any data on individuals who currently are not receiving mental health services either as to the number or needed services.

It appears each methodology contributes some information that is useful in depicting the need for mental health services, but no one method is capable of providing all of the necessary data elements. A state wide survey has the greatest potential to capture the three critical data elements and additional data valuable in the planning process as well. It could be designed to show what services were obtained, whether those services were provided by the private or public sector, and what was the duration and outcome of treatment. No other method can provide this complete picture of the population in need of mental health services.

The Quadrant Method is focused on identification of the CMI by sub-state areas, but provides no information on service data. Rates Under Treatment identifies services received by the CMI, but only for those

clients who seek services from the public mental health system. Extrapolation of need to those not receiving these services is considered risky. The Model of Optimal Services goes beyond the Rates Under Treatment method by providing information on services needed that are not currently being provided by the mental health system, but again only for those individuals currently being served.

Prevalence Estimates is a method that relies on using rates of mental illness (expressed as percentages of the total population) which were determined in studies of specific areas of the country. These rates are then applied to the population being assessed. Rates are available from the ECA studies for estimating the incidence of mental illness which meets the definition of a number of different psychiatric diagnosis. Rates have been developed to estimate the incidence of such symptoms within a six month period of time, or as a lifetime rate. While these percentages do not specifically estimate the number of CMI, the prevalence of certain diagnosis usually associated with severe dysfunction may approximate the CMI population.

Social Indicators, with the exception of the Denver University Logistics Model, has been used to estimate the relative need for all mental health services across different geographic regions, but the method cannot determine actual numbers of people in need, or more importantly for purposes of this paper, cannot identify specific target groups such as the chronically mentally ill. The DU Logistic Model, however, is capable of utilizing census data and two demographic statistics, percent of the population in poverty, and percent of divorced males, to estimate the total number of mentally ill within any census enumeration district, as

well as target populations by severity of illness and chronicity. It does not attempt to estimate service related data.

The Community Forum and Key Informant methods are useful in determining what mental health professionals, consumers, and the public perceive are the needs of their community for mental health services. While these methods lack the ability to identify the three critical data elements, they can be useful in identifying problems in communities which indicate there are unserved or underserved populations or barriers to service by those in need.

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CHAPTER III

APPLICATION OF SELECTED METHODOLOGIES TO MONTANA

Criteria for Selecting Methodologies

Each of the needs assessment methodologies reviewed for this paper was evaluated to determine if it was feasible to use that method in estimating the number of chronically mentally ill (CMI) adults in Montana, where they live in the state, and what mental health services they may require. The following criteria were used in that evaluation:

1. Critical data elements are generated:
    a) the number of CMI adults
    b) the geographic location of those individuals
    c) mental health services needed by that population
2. Financial resources are available to carry out the assessment
3. The estimates generated will be valid
4. The data required to utilize the method are available

Table 6 provides a tabular summary of each methodology in relation to the above criteria. "Y" (Yes) indicates the criteria were met, "N" (No) indicates the criteria were not met, and "P" indicates the criteria were partially met.

Three methods have the capability of estimating the number and location of chronically mentally ill individuals: Survey, Quadrant Method, and DU Logistics Model. In addition, three methods have a partial capability of estimating this population: Rates Under Treatment, Model of Estimating Optimal Services and Prevalence Estimates. Both Rates Under

TABLE 6

COMPARISON OF NEEDS ASSESSMENT METHODOLOGIES

	DIRECT METHODS				INDIRECT METHODS			OTHER	
	STATE SURVEY	QUADRANT METHOD	RATES UNDER TREATMENT	MODEL OF OPTIMAL SERVICES	PREVALENCE ESTIMATES	SOCIAL INDICATORS	DU LOGISTICS MODEL	KEY INFORMANT	COMMUNITY FORUM
CRITERIA FOR ANALYSIS									
Provides critical data elements (Population, Distribution, Service)	Y	Y	P	P	P	N	Y	N	N
Resources are available to do it	N	Y	Y	Y	Y	Y	Y	Y	Y
Estimates will be valid	Y	P	P	P	P	N	P	N	N
Data have face validity	Y	Y	Y	Y	P	P	Y	Y	Y
Required Data are readily available	Y	P	Y	Y	Y	Y	Y	Y	Y
Results can be updated	N	Y	Y	Y	Y	Y	Y	Y	Y

KEY:
Y = Yes, provides data
N = No, does not provide data
P = Partially successful in providing data

Treatment and Model of Estimating Optimal Services rely on current utilization data and, therefore, only provide data on those individuals receiving services. Prevalence Estimates is capable of estimating the CMI population only to the extent that diagnosis is a reliable indicator of chronic mental illness. It may serve as a useful comparison to other methodologies being employed.

None of the methods are designed to estimate the need for specific types of community mental health services, although several methods provide a partial picture of the need. Rates Under Treatment and Model of Optimal Services estimate the type of service needed for the CMI population based on the needs of those currently receiving services. A Survey may be able to estimate service needs; however, it would portray needs only from the perspective of the consumer, not mental health professionals.

When evaluated against the first criteria, the following methods have potential for application in Montana:

Survey

Quadrant Method

DU Logistics Model

Prevalence Estimates

Model of Estimating Optimal Services

The first three estimate the number of CMI in the state by number and location. Prevalence Estimates has the potential to approximate this number because it can estimate the occurrence of specific diagnosis. Model of Optimal Services is included because it is the only method which attempts to identify the type and quantity of community services needed,

even though that estimate has the limitation of being based on individuals currently using services. This method has an advantage over Rates Under Treatment in that it goes beyond identifying existing services and provides a picture of what optimal services for current clients should be.

Evaluating these five methods against Criterion number two requires that State Survey be dropped from consideration. As financial resources are not available at this time, the Department of Institutions has no capability to pursue this method of assessing the need for mental health services. However, the Department has indicated an interest in implementing a survey of those individuals with severe and disabling mental illness who are currently being served by the public mental health system similar to the survey administered in the Model of Estimating Optimal Services. A survey instrument based on the one used in that method will be adapted for use in Montana as part of this paper.

Resources are available to undertake the remaining needs assessment methodologies.

Methodologies Retained

Quadrant Method

Prevalence Estimates

DU Logistics Model

Model of Estimating Optimal Services

Whether the methodologies employed will produce valid estimates of the CMI in Montana cannot be assured. In its analysis of the Quadrant Method, the State of Colorado found moderate to high correlations between estimates of the number of CMI produced by this method and other estimates

of this population. The validity of prevalence rates developed in Prevalence Estimates and DU Logistics Model has been tested in other geographic locations. The reliability of transferring rates of mental illness from the locations for which the rates were determined to the Montana population is unknown at this time.

The methods appear to have face validity, and in the absence of a state survey, appear to be the best approach at this time to estimating this population.

The last criterion looks at whether required data is available to execute the needs assessment. Several problems are evident. Data requirements of the Quadrant Method include 1) the number of recipients of SSA benefits due to mental disability for Montana, and 2) the number of CMI currently being served in the public mental health system who receive these benefits. Neither of these numbers are available. The CMHCs do not collect data on their client's eligibility for these benefits, and the SSA can only provide numbers on those who receive benefits for all disabilities--not just mental disabilities. However, the required data can be estimated, and this technique will be used.

Both Prevalence Estimates and DU Logistic rely on decennial census data to compute the estimated CMI population. Required data includes the population aggregated by age and sex into groups for which prevalency rates have been developed, and in addition, DU Logistic utilizes the percent of divorced males, and the percent of population living in poverty. The data available are from the 1980 census, data which are almost ten years old.

Obviously, the results will be constrained by missing data which must be estimated, and the lack of current demographic information. However, lacking the ability to conduct a state survey, the following four methods offer the best options to estimate the number of chronically mentally ill individuals in Montana and their mental health service needs.

Quadrant Method

Prevalence Estimates

DU Logistics Model

Model of Estimating Optimal Services

Quadrant Method

Utilizing Social Security Administration (SSA) data which are available for each county in Montana, this method allows the estimation of the number of CMI persons within each mental health region in the state. Data required for the calculation include treatment data as well as SSA data. Each CMHC must be able to identify the number of persons on their caseload which meet the definition of CMI. The criteria for characterizing individuals as CMI is established by the SMHA and includes a number of specific psychiatric diagnosis and measures of dysfunction. As of July, 1988, the total number of persons meeting the definition of CMI being served in Montana was 2,175.[1] The number within each region is found in Table 8.

Social Security data available for each county include the number of adults receiving Supplemental Security Income (SSI) and/or Social Security Disability Income (SSDI) payments for all disabilities. Since available data do not identify the number of disabilities due to mental illness, it is necessary to estimate that number using national percentages.

Information published by the SSA states that 21.2 percent of SSI recipients have a mental disorder. That percentage for the SSDI population is 12.0 percent.[2] The results of applying these percentages to Montana's recipients of SSA disability benefits are summarized in Table 7 for each mental health region in the State. Figures for each county can be found in Appendix 2.

The methodology also requires data on the status of the CMI on the rolls of the CMHC relative to their receipt of SSI or SSDI benefits. Since this information is not collected by Montana CMHCs, an estimate was made utilizing percentages found in Colorado.[3] Approximately 24 percent of CMI clients in Colorado were receiving SSI benefits, 11 percent were receiving SSDI benefits, and approximately 3 percent were receiving both. Application of these percentages to the numbers of CMI individuals found in each mental health region in Montana is found in Table 8.

With the required data for three sections of the "quadrant", the fourth "quadrant" can be calculated. This is an estimate of the number of CMI who are not receiving mental health services, and who are not receiving SSA benefits. The total of the four "quadrants" is the estimated number of CMI individuals within each mental health region. The results of those calculations are found in Table 9. This method produced the following estimates of the CMI in Montana:

Region 1 - 570
Region 2 - 1,206
Region 3 - 1,158
Region 4 - 1,560
Region 5 - 1,707
State 6,201

TABLE 7

ESTIMATE OF PERSONS RECEIVING SSA BENEFITS
FOR MENTAL ILLNESS BY REGION

	Number Receiving SSI Disability Benefits	Percent Due to Mental Illness 21.1%	Number Receiving SSDI Disability Benefits	Percent Due to Mental Illness 12.0%	TOTAL DUE TO MENTAL ILLNESS
Region I	584	124	786	94	218
Region II	1262	268	1587	190	458
Region III	1056	224	1782	214	438
Region IV	1356	287	2554	306	594
Region V	1468	311	2798	336	647
State Total	5726	1214	9507	1141	2355

SOURCE: U. S., Department of Health and Human Services, Social Security Administration, Social Security Bulletin (Washington, D.C.; Government Printing Office, 1986, p.120.

TABLE 8

ESTIMATE OF THE NUMBER OF CHRONICALLY MENTALLY ILL PERSONS
IN MONTANA MENTAL HEALTH SYSTEM RECEIVING
SOCIAL SECURITY DISABILITY BENEFITS

	CMHC Open Cases	Estimated No. Receiving SSI Benefits 23.8%	Estimated No. Receiving SSDI Benefits 11.5%	Estimated No. Receiving SSI & SSDI 2.7%	Number Receiving Any Benefit	Number Receiving No Benefits
REGION I	259	62	30	7	99	160
REGION II	677	161	78	18	257	420
REGION III	386	92	44	10	146	240
REGION IV	407	97	47	11	155	252
REGION V	446	106	51	12	169	277
TOTAL	2175	518	250	59	827	1349

Notes: "Open Cases" is the number of CMI clients being served in the Mental Health Centers as of July, 1988. Percentages of CMI clients receiving SSI or SSDI benefits is based on percentages found in clients in Colorado.

TABLE 9

ESTIMATE OF THE NUMBER OF CHRONICALLY MENTALLY ILL INDIVIDUALS IN MONTANA - QUADRANT METHOD

	Region I	Region II	Region III	Region IV	Region V	TOTAL
A = Enrolled in CMHC & Receiving SSA Pats.	99	257	146	155	169	826
B = Receiving SSA Pats. & Not in CMHC	119	201	292	439	478	1529
C = Enrolled in CMHC & Not Receiving SSA Pats.	160	420	240	252	277	1349
D = Estimated CMI Not in CMHC & Not Receiving SSA	192	328	480	714	783	2497
TOTAL CMI INDIVIDUALS	570	1206	1158	1560	1707	6201

Notes: "A" is estimated in Table 8. "B" is derived from the estimate of persons receiving SSA benefits calculated in Table 7, less the number receiving benefits who are currently served in the mental health system estimated in Table 8. "C" is the number of open cases of CMI less the number receiving SSA benefits estimated in Table 8. "C" = B (C/A).

Prevalence Estimates

The first step in this methodology is the disaggregation of population data into groups by sex and age for which prevalency rates are available. The 1980 census data was used. These data were developed for each county and then aggregated for each mental health region. The next step was to select specific diagnoses from the ECA studies for which prevalence rates were determined. Those diagnostic categories and prevalence rates associated with them can be found in Appendix 3. A weighted average of rates found at each of the three sites included in the study was calculated. The diagnostic categories listed are limited to diagnoses which are specifically included in Montana's definition of CMI. This limitation, it was hoped, would provide an estimate of chronically mentally ill individuals, not those experiencing any incident of mental illness.

The study also provides confidence bounds by age and sex. Applying these figures to the prevalence rates allows the calculation of upper and lower limits for the rates at the 95 percent confidence level. This calculation is found in Appendix 4.

Calculations to estimate the number of individuals experiencing symptoms that would be indicative of a psychiatric diagnosis during the previous six month period are then performed. Table 10 contains a regional summary of the results of these calculations. Estimates of the prevalence of mental illness for each diagnostic category within each region is found in Appendix 5 of this report.

TABLE 10

REGIONAL ESTIMATES OF CMI
USING PREVALENCE RATES

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
Region I	500	1,089	425	348	2,362	620	1,480	584	419	3,103	5,465
Region II	829	1,632	593	455	3,509	1,001	2,314	852	591	4,758	8,267
Region III	785	1,889	656	533	3,863	1,115	2,703	973	684	5,475	9,338
Region IV	1,187	2,213	733	630	4,763	1,414	3,026	1,077	837	6,354	11,117
Region V	1,044	2,530	767	629	4,970	1,427	3,562	1,103	769	6,861	11,831
State Total	4,345	9,353	3,174	2,595	19,467	5,577	13,085	4,589	3,300	26,551	46,018

With this methodology, the estimated number of individuals in the state experiencing symptoms of mental illness as measured by participation in any of the diagnostic categories listed would be 46,018. This is 8.3 percent of the adult population. The lower limit of this estimate would be 4304 (.8 percent) and the upper limit 96,542 (17.4 percent). The lower and upper limits are based on predicted prevalence rates within 95 percent confidence bounds. These figures do not take into account the duration of the illness or the level of dysfunction associated with it.

DU Logistic Model

The data required to run this model are compiled from the decennial census. The required data for each county include 1) the total number of persons eighteen years of age and older, 2) the percent of the population living in poverty, 3) the number of adult males, 4) the number of divorced males, and 5) the percent of divorced males.

With these data and the logistic regression equations developed by Denver University (Appendix 6) prevalence rates for five categories of mentally ill individuals can be determined. This calculation is performed in three steps. The first step predicts the odds; the second step calculates the prevalence rate for each geographic area for which census data are provided. The final step computes the number of individuals within each county. These county specific estimates are then combined to provide estimates for each mental health region and then for the state.

The calculations of the prevalence rates for each county modified by the percent of poverty and the percent of divorced males within the county are found in Appendix 7.

Table 11 contains the results of applying the prevalence rates computed in Appendix 7 to the population at risk, i.e., adults within the county. The categories of mental problems for which prevalence rates are available are found at the top of each column: 1) Diagnosis or Dysfunction or Demoralization, 2) Diagnosis plus Dysfunction or Demoralization, 3) Severe Mental Illness, 4) Diagnosis only, 5) Severe Chronic. Further explanation of these categories can be found in Chapter II.

The counties are listed in the left hand column. The estimated number of individuals in each category is provided as well as the percent of the adult population that figure represents. For example, Rosebud county is estimated to have 1,777 individuals, or 28.6 percent of the adult population, who have experienced symptoms within a thirty day period, that meet the definition of a psychiatric diagnosis,or demoralization or dysfunction due to mental illness. In that same county

430 individuals or 6.9 percent of adults are estimated to have a diagnosable mental illness plus dysfunction or demoralization.

The estimates allow comparisons of the counties within each region as to numbers and rates of mental illness. In Region I, for example, the estimated rates of Severe Mental Illness, expressed as percentages, range from a low of 1.7 percent in Dawson County to a high of 3.9 percent in Prairie County, while the Region as a whole has a rate of 2.2 percent.

Using this methodology, the number of chronically mentally individuals in the state are estimated to be 5,943, or 1.1 percent of the adult population.

Model of Estimating Optimal Services

The previous methodologies have provided techniques by which estimates can be made of the CMI population, and their geographic distribution within the state. They do not, however, provide any data on the type of services required by this population, or the quantity of any particular service. Although it may be estimated that approximately 6,000 individuals have severe and disabling mental illness, that information alone does not define community service needs. What percent of that population requires twenty-four hour supervised residential living? What percent can live independently but require some support? How many require training in basic living skills, and how many need vocational training or supported employment? The diversity of the population precludes any simple answers.

Analyzing the level of services that are currently used by the CMI in the state only gives a partial picture of the need. It does not consider services that are not available but are needed. A method used by the

TABLE 11

ESTIMATED NUMBER OF MENTALLY ILL BY REGION
DU LOGISTIC MODEL

COUNTY/ MH REGION	DIAG OR DEMORALIZATION		DYSF OR DIAGNOSIS PLUS DYSF OR DEMOR		SEVERE MENTAL ILLNESS (DIAG)		DIAGNOSIS		SEVERE CHRONIC	
CARTER	356	27.4%	84	6.4%	42	3.2%	215	16.6%	21	1.6%
CUSTER	2495	27.0%	575	6.2%	200	2.2%	1510	16.3%	101	1.1%
DANIELS	470	23.1%	96	4.7%	41	2.0%	278	13.7%	22	1.1%
DAWSON	1919	23.5%	395	4.8%	135	1.7%	1141	14.0%	74	0.9%
FALLON	615	24.1%	130	5.1%	58	2.3%	366	14.3%	31	1.2%
GARFIELD	302	26.1%	68	5.9%	34	2.9%	181	15.7%	17	1.5%
MCCONE	445	24.9%	97	5.4%	50	2.8%	266	14.9%	26	1.5%
PHILLIPS	976	26.4%	221	6.0%	91	2.5%	588	15.9%	47	1.3%
POWDER RIVER	436	25.0%	94	5.4%	33	1.9%	261	14.9%	17	1.0%
PRAIRIE	350	26.8%	81	6.2%	51	3.9%	210	16.1%	26	2.0%
RICHLAND	2072	24.7%	443	5.3%	156	1.9%	1239	14.7%	83	1.0%
ROOSEVELT	2019	29.4%	501	7.3%	175	2.5%	1238	18.0%	84	1.2%
ROSEBUD	1777	28.6%	430	6.9%	164	2.6%	1084	17.4%	80	1.3%
SHERIDAN	951	24.0%	199	5.0%	81	2.0%	565	14.3%	44	1.1%
TREASURE	175	25.4%	38	5.6%	18	2.6%	105	15.2%	9	1.3%
VALLEY	1841	26.5%	418	6.0%	152	2.2%	1111	16.0%	77	1.1%
WIBAUX	259	26.0%	58	5.8%	27	2.7%	156	15.6%	14	1.4%
TOTAL REGION I	17459	26.0%	3928	5.9%	1509	2.2%	10512	15.7%	773	1.2%
BLAINE	1253	27.3%	293	6.4%	144	3.1%	757	16.5%	72	1.6%
CASCADE	15638	27.4%	3639	6.4%	1140	2.0%	9493	16.6%	571	1.0%
CHOTEAU	1125	26.1%	252	5.9%	89	2.1%	678	15.7%	45	1.1%
GLACIER	1999	28.9%	491	7.1%	220	3.2%	1219	17.6%	107	1.5%
HILL	3213	25.6%	709	5.7%	255	2.0%	1930	15.4%	132	1.1%
LIBERTY	410	25.2%	90	5.5%	38	2.3%	246	15.1%	20	1.2%
PONDERA	1140	24.9%	246	5.4%	97	2.1%	682	14.9%	51	1.1%
TETON	1113	24.5%	238	5.2%	98	2.2%	664	14.6%	52	1.2%
TOOLE	991	25.5%	219	5.6%	87	2.2%	594	15.3%	45	1.2%
TOTAL REGION II	26882	26.9%	6176	6.2%	2169	2.2%	16262	16.2%	1096	1.1%
BIG HORN	1985	28.2%	476	6.8%	204	2.9%	1207	17.1%	100	1.4%
CARBON	1418	24.2%	299	5.1%	116	2.0%	845	14.4%	62	1.1%
FERGUS	2559	27.3%	597	6.4%	240	2.6%	1549	16.5%	120	1.3%
GOLDEN VALLEY	179	25.4%	39	5.6%	20	2.8%	107	15.2%	10	1.5%
JUDITH BASIN	475	25.6%	105	5.7%	47	2.5%	285	15.3%	25	1.3%
MUSSELSHELL	893	28.3%	212	6.8%	80	2.6%	538	17.3%	39	1.3%
PETROLEUM	117	26.2%	27	6.0%	18	4.1%	70	15.7%	9	2.1%
STILLWATER	1023	25.6%	226	5.6%	88	2.2%	614	15.3%	46	1.1%
SWEET GRASS	564	24.0%	119	5.0%	49	2.1%	336	14.3%	26	1.1%
WHEATLAND	408	24.2%	86	5.1%	34	2.0%	243	14.4%	18	1.1%
YELLOWSTONE	20594	27.0%	4732	6.2%	1461	1.9%	12477	16.3%	737	1.0%

TABLE 11 - Continued

ESTIMATED NUMBER OF MENTALLY ILL BY REGION
DU LOGISTIC MODEL

COUNTY/ MH REGION	DIAG OR DEMORALIZATION	DYSF OR	DIAGNOSIS PLUS DYSF OR DEMOR		SEVERE MENTAL ILLNESS (DIAG)		DIAGNOSIS		SEVERE CHRONIC	
YELLOWSTONE	20594	27.0%	4732	6.2%	1461	1.9%	12477	16.3%	737	1.0%
TOTAL REGION III	30205	26.8%	6918	6.1%	2358	2.1%	18270	16.2%	1194	1.1%
BEAVERHEAD	1627	27.9%	385	6.6%	124	2.1%	990	17.0%	61	1.1%
BROADWATER	629	27.9%	149	6.6%	53	2.4%	382	17.0%	26	1.2%
DEER LODGE	2473	27.7%	582	6.5%	187	2.1%	1504	16.9%	93	1.0%
GALLATIN	7987	24.5%	1700	5.2%	670	2.1%	4763	14.6%	356	1.1%
GRANITE	551	28.9%	135	7.1%	49	2.6%	337	17.7%	24	1.2%
JEFFERSON	1220	25.8%	270	5.7%	82	1.7%	734	15.5%	42	0.9%
LEWIS AND CLARK	8310	27.3%	1929	6.3%	581	1.9%	5045	16.6%	291	1.0%
MADISON	1037	26.2%	233	5.9%	89	2.2%	625	15.8%	45	1.1%
MEAGHER	467	30.4%	119	7.8%	40	2.6%	288	18.7%	19	1.2%
PARK	2512	27.3%	583	6.3%	180	2.0%	1524	16.5%	90	1.0%
POWELL	1544	30.6%	396	7.9%	111	2.2%	955	18.9%	52	1.0%
SILVER BOW	7268	26.6%	1654	6.1%	536	2.0%	4394	16.1%	272	1.0%
YELLOWSTONE PARK	64	30.1%	16	7.6%	4	2.0%	40	18.5%	2	1.0%
TOTAL REGION IV	35689	26.6%	8152	6.1%	2706	2.0%	21582	16.1%	1375	1.0%
FLATHEAD	9533	26.6%	2188	6.0%	690	1.9%	5823	16.1%	351	1.0%
LAKE	3605	27.8%	852	6.6%	349	2.7%	2187	16.8%	173	1.3%
LINCOLN	3157	26.9%	724	6.2%	237	2.0%	1911	16.3%	120	1.0%
MINERAL	706	28.2%	169	6.7%	56	2.2%	431	17.2%	27	1.1%
MISSOULA	15346	27.5%	3589	6.4%	1166	2.1%	9320	16.7%	592	1.0%
RAVALLI	4075	26.2%	917	5.9%	366	2.4%	2452	15.7%	185	1.2%
SANDERS	1654	27.5%	387	6.4%	123	2.1%	1004	16.7%	64	1.1%
TOTAL REGION V	38176	27.1%	8826	6.3%	2992	2.1%	23128	16.4%	1505	1.1%
STATE TOTAL	148412	26.8%	34000	6.1%	11734	2.1%	89754	16.2%	5943	1.1%

State of Colorado to obtain this information involved a survey of all CMI in the Colorado public mental health system, including those in the state hospital as well as those living in the community.[4] The survey documented what services were used by the client, and what services were needed by the client, with the assumption that all needed services were available. This method allowed mental health planners to assess the gap between services that were needed and services that were available.

This is the only methodology reviewed which attempted to determine the need for new or expanded services. The importance of having this information is critical to the planning process. To obtain this information in Montana, a similar survey will be conducted of CMI clients currently receiving mental health services. To facilitate this process a survey instrument was designed as part of this study. It is based on the Colorado survey instrument and a similar survey by the Michigan Department of Mental Health[5]. The survey document is presented in Appendix 8 along with a discussion of the development of the instrument.

The Mental Health Bureau of the Department of Institutions has agreed to conduct the survey. It is not possible, however, to complete the survey and report the results in this paper. It will be field tested in the near future, and it is anticipated that the survey will be completed by October, 1989.

Ten percent of all CMI clients in the CMHCs will be surveyed based on a random sample. A Department of Institutions staff person will obtain the information through an interview process with clinicians who work with the clients being surveyed.

The results will be tabulated and statistically analyzed. It is anticipated that the outcome will be a typology of CMI clients in Montana that can be compared to those developed in Colorado and Michigan, as well as a documented need for community services for the CMI which can be used as the basis to determine the adequacy of existing services. This will be valuable data in planning mental health services for this population.

NOTES

1. Montana, Department of Institutions, Files on number of chronically mentally ill persons served by the CMHCs, Helena, Montana, July 1988.

2. U.S., Department of Health and Human Services, Social Security Administration, Social Security Bulletin (Washington, D.C.: Government Printing Office, 1986), p. 120.

3. Shern.

4. Ibid.

5. Michigan, Department of Mental Health, Clients with Serious Mental Illness: Characteristics and Typology, (Lansing, Michigan: n.p. 1988).

CHAPTER IV

EVALUATION OF METHODOLOGIES

Quadrant Method

The results of the Quadrant Method are displayed in the following table. The estimated numbers of CMI persons are listed on the first line for each mental health region in the state, and on the second line of the table are figures which represent the number of CMI per one thousand population using this methodology.

TABLE 12

ESTIMATED NUMBER OF CHRONICALLY MENTALLY ILL PERSONS IN MONTANA - QUADRANT METHOD

	REGION I	REGION II	REGION III	REGION IV	REGION V	STATE
Estimated No.of CMI	570	1206	1158	1560	1707	6201
Per 1000 (Adults)	8.50	12.05	10.27	11.64	12.12	11.18

These estimates show a lower rate of CMI in Region I, which is in Eastern Montana, from Region II, the Great Falls area, and from Region V, which is Western Montana. This can be accounted for by the fact that on a per capita basis there are fewer recipients of SSA disability benefits in Region I than in other areas of the state, with Region V having the highest rate. The method is strongly influenced by the number of people receiving SSA benefits.

Lacking county specific data on the number of disabilities due to mental illness, the assumption had to be made that the proportion would be

that of the national average. The availability of actual Montana data would increase the accuracy of the calculation.

There is reason to believe the numbers exhibited may be conservative estimates of the total CMI population. It has been estimated that participation in the SSI and SSDI program may include less than a third of the total number of persons who would be recognized as chronically mentally ill.[1] Assuming that the estimated total of 2,235 recipients of SSA benefits for mental disability in Montana represents only 30 percent of the total CMI, the estimated total would be 7,450, compared to 6,201 using the Quadrant method.

Since the methodology is dependent on SSA figures, any change in the total number receiving benefits, or the percentage of CMHC clients receiving benefits would result in a higher or lower estimation of the CMI in any area. Lacking actual numbers from all CMHCs, percentages from Colorado were used in doing the calculations. However, one region in Montana was able to approximate the percent of clients receiving SSI and/or SSDI payments. Using those estimates, which indicated a much smaller percentage of clients receiving benefits in Montana than Colorado, on a statewide basis would result in an estimate of 11,123 seriously mentally ill persons in the state.

A comparison to estimates produced by another state utilizing this methodology also indicated the Montana estimate may be low. The state of Rhode Island, with a total adult population almost identical to Montana estimated their CMI population at 12,244, or 2.06 percent of all adults.[2] The Montana estimate of 6,201 would be 1.1 percent of all adults.

Those responsible for developing the methodology suggest that using figures which represent the percentage of the total caseload of CMI individuals receiving SSA benefits will lead to a conservative estimate of the total.[3] It is preferable to use the percentage of those individuals being admitted for treatment for the first time, rather than all CMI clients currently being served. The longer clients are in the mental health system the more likely they are to receive benefits. At this time such data are not available for Montana.

DU Logistic Model

The DU Logistic Model generates estimates of the number of persons in need of mental health services in five categories. Those estimates are summarized in Table 13.

TABLE 13

ESTIMATED NUMBER OF MENTALLY ILL PERSONS
IN MONTANA - DU LOGISTICS MODEL

	REGION I	REGION II	REGION III	REGION IV	REGION V	STATE
Any (Diagnosis or Dysfunction or Demoralization)	17,459	26,882	30,205	35,689	38,176	148,411
Diagnosis Plus Dysfunction or Demoralization	3,928	6,176	6,918	8,152	8,826	34,000
Diagnosis Only	10,512	16,262	18,270	21,582	23,128	89,754
Severe Mental Illness (Diagnosis)	1,509	2,169	2,358	2,706	2,992	11,734
Severe Chronic	773	1,096	1,194	1,375	1,505	5,943
Per 1000 Adults	11.52	10.95	10.59	10.26	10.69	10.71

The first three categories are broad categories of mental illness and not specific enough to identify the CMI. The categories of Severe, and Severe Chronic have potential for estimating the CMI in Montana. The Severe classification includes those diagnostic categories which are most often associated with severe mental disability. Although a certain level of disability can be implied from the diagnosis, it may not be true that all individuals with the diagnosis will be chronically mentally ill. The level of dysfunction associated with chronic mental illness may be more accurately defined in the Severe Chronic category, which is limited to individuals with a classification of Severe based on diagnosis, but in addition, includes only those who have been disabled by it for twelve months or longer. This definition would be similar to the SSA definition employed in the Quadrant Method. A measure of dysfunction is also used as a criterion in Montana's definition of CMI. Per capita figures have been calculated for this category only and appear at the bottom of the Table 14.

This methodology produces prevalence rates which are adjusted for sex and age, and social factors of poverty of the area, and the number of divorced males. On a per capita basis, this method does not indicate as wide a variation among regions as to the number of CMI people within the region, with the exception of Region I, Eastern Montana. In contrast to the Quadrant Method which estimated the Eastern Region to have the lowest per capita number of CMI, this method estimates the region to have the highest number per capita. This result seems to be influenced by the poverty factor in that area of the state. Eastern Montana counties appear

to have higher percentages of poverty, based on the 1980 census. Percent of poverty figures for each county are listed in Appendix 7.

Compared to the state of Colorado, the only other state for which information is available, Montana's rate of Severe Chronic based on this methodology is slightly higher than that found in Colorado. Colorado's state survey estimated .9 percent of adults fit the definition of Severe Chronic. Utilizing this methodology the estimate for Montana is 1.1 percent.

Prevalence Estimates

Employing this methodology resulted in much higher estimates of chronic mental illness than either of the other methods. The estimates are based on prevalence rates which predict the occurrence of a diagnosable mental illness for age and sex adjusted populations within a six month period. The rates are based on diagnosis only and do not factor in level of dysfunction or duration of the illness.

It was assumed for the purposes of this paper, that including only those diagnoses included in the Montana definition of severe and disabling mental illness would allow the approximation of the CMI population. It appears that using that assumption may overstate the extent of this population. The results displayed in Table 14 indicate that 46,017 adults in Montana experience chronic mental illness. This figure represents 8.3 percent of the adult population in the State. The accuracy of a rate this high must be questioned when compared to the estimates produced by the Quadrant Method and DU Logistic Model. Another comparison can also be made. Research has estimated the incidence of chronic mental illness to be approximately .9 percent of the adult population.[4] This rate, called

the "flat rate" is commonly used as a simple and quick estimate of the CMI population. The rate of 8.3 percent predicted by the Prevalence Estimate methodology is approximately 9 times the "flat rate."

It appears that an estimate of the number of CMI based only on diagnosis is doubtful. Important factors in determining chronicity are the duration of the illness and the level of dysfunction associated with it. Diagnosis alone may be a poor indicator of these factors. This methodology does not include a means to consider these facets of disabling mental illness.

TABLE 14

ESTIMATED NUMBER OF CHRONICALLY MENTALLY ILL PERSONS
IN MONTANA - PREVALENCE ESTIMATES

	REGION I	REGION II	REGION III	REGION IV	REGION V	STATE
Estimated No. of CMI	5,464	8,267	9,338	11,117	11,831	46,017
Schizophrenic	656	1,009	1,135	1,348	1,460	5,608
Per 1000 Adults	9.78	10.08	10.06	10.06	10.37	10.11

The one diagnostic category that appears to approximate the rate of CMI found in other methodologies is schizophrenia. This diagnosis, in fact, has often been used as an indicator of chronic mental illness, but its use in this manner has also been disputed.[5] Many but not all indiviuals with schizophrenia are chronically mentally ill. It is not, however, the only diagnosis that leads to serious and disabling mental illness. Although the prevalence of schizophrenia provides a conservative estimate of the number of CMI, it may be useful in looking at regional differences because the estimates take into account the sex and age distribution of the population. The incidence of schizophrenia is highest

for women in the age group of 25-44, and second highest for men in the age group 18-24. The incidence per 1000 population for each region has been calculated and is listed at the bottom of Table 14. There is a slight variance on a per capita basis across the state with the Eastern Region having the lowest estimated incidence and the Western Region having a slightly higher than average incidence.

Comparison of Methodologies

A comparison of the results generated by the three methodologies used is presented in Table 15, Table 16, and graphically depicted in Figure 4.

TABLE 15

COMPARISON OF ESTIMATES OF THE
CHRONICALLY MENTALLY ILL IN MONTANA

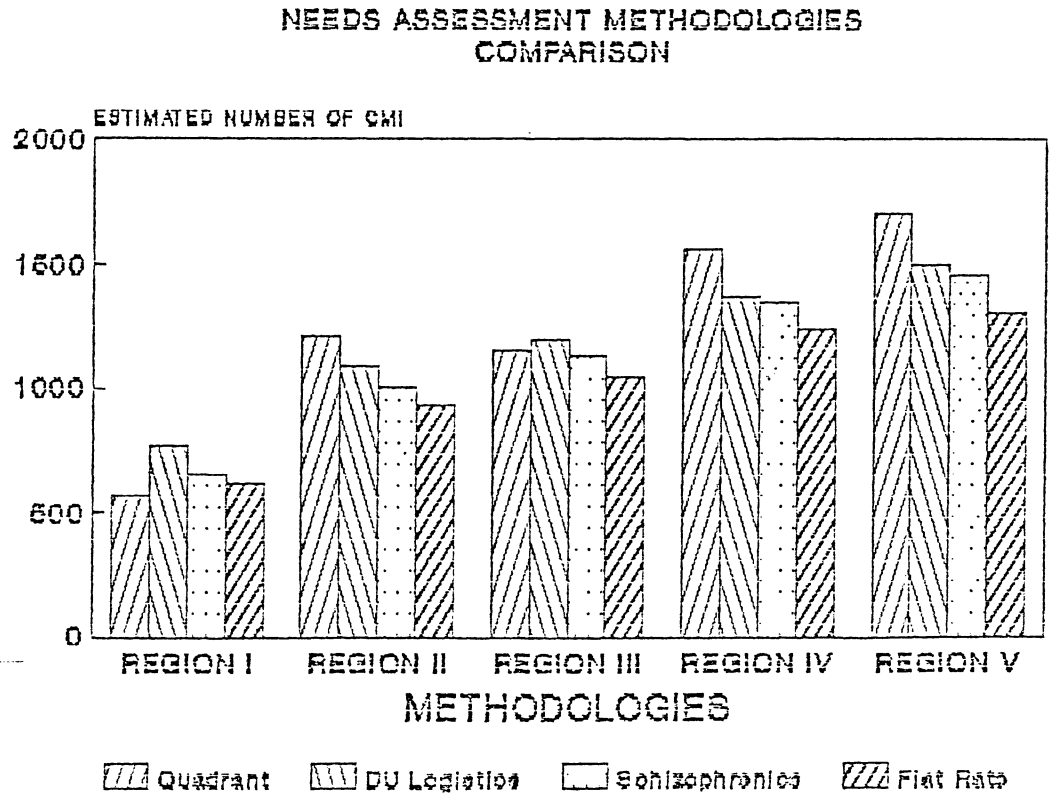
	Region I	Region II	Region III	Region IV	Region V	State
Quadrant	570	1,206	1,158	1,560	1,707	6,201
DU Logistics	773	1,096	1,194	1,375	1,505	5,943
Schizophrenics	656	1,009	1,135	1,348	1,460	5,608
Mean	666	1,104	1,162	1,428	1,557	5,917
Standard Deviation	83.20	80.61	24.28	94.22	107.41	242.77
Flat Rate	622	929	1,047	1,243	1,307	5,148

TABLE 16

COMPARISON OF ESTIMATES OF THE
CHRONICALLY MENTALLY ILL IN MONTANA
PER 1000 ADULTS

	Region I	Region II	Region III	Region IV	Region V	State
Quadrant	8.50	12.05	10.27	11.64	12.12	11.18
DU Logistics	11.52	10.95	10.59	10.26	10.69	10.71
Schizophrenics	9.78	10.08	10.06	10.06	10.37	10.11
Mean	9.93	11.03	10.31	10.65	11.06	10.67
Standard Deviation	1.24	.81	.22	.70	.76	.44
Flat Rate	9.28	9.28	9.28	9.28	9.28	9.28

FIGURE 4


NEEDS ASSESSMENT METHODOLOGIES
COMPARISON
ESTIMATED NUMBER OF CMI
2000
1600
1000
600
0
REGION I
REGION II
REGION III
REGION IV
REGION V
METHODOLOGIES
Quadrant
DU Legislation
Schizophrenics
Flat Rate

The estimated number of CMI persons is recorded for each mental health region for each methodology, as is the number per 1000 population. In addition, the "flat rate" model of .928 percent is listed to serve as a basis of comparison with the various methods being evaluated.[6]

The results of the three methodologies do show regional differences in the rates of occurrence of severe and disabling mental illness. The greatest variance is found in the Quadrant Method with a low rate of 8.50 in the Eastern Region of the state to a high of 12.12 in Western Montana. The variance is not as pronounced in the other methodologies but some difference is noted. With the exception of one case, the Quadrant in Region I, the estimated rates are always higher than the flat rate of 9.28 per 1,000.

A one way analysis of variance was performed on the three estimates generated for each region. No significant difference across regions was found. The observed F value of .7019 is lower than the critical F value of 3.48 at the .05 level. The conclusion can be drawn that the methodologies studied do not produce significantly different results. Further evidence that the methodologies used do not produce significantly different results is provided by correlational analysis. Extremely high correlations between the three estimates were found, ranging from .9834 to .9991.

The total number of CMI estimated for the state in the Quadrant, DU Logistic Model, and Prevalence Estimates (Schizophrenia) ranges from 5,608, Schizophrenia, to 6,201 in the Quadrant Method. Although it was argued earlier than the Quadrant Method may have produced a too conservative estimate, in comparison to DU Logistic, Prevalence Estimates

(Schizophrenia), and the "flat rate," it predicts the highest total number for the State.

It appears the results of the various methodologies do not vary widely within individual regions. This lends credibility to the techniques utilized. Credibility could also be tested if results could be compared to data from other states; however, comparable data are not available at this time.

One of the stated purposes of estimating the total number of CMI persons within a mental health region is to enable the SMHA to plan for adequate services for that population within each region of the state. Although it can not be assumed that every person categorized as CMI will seek mental health services from the public mental health system, a large percentage will. The economic consequences of their illness over a long period of time usually require that publicly funded services be available if they are to be served. A portion of that population is currently being served by CMHCs. By comparing the number being served to the estimated totals it is possible to estimate the unmet need for services within a region.

Table 17 reports the number of clients meeting the definition of CMI and the caseload of the mental health centers. A figure of number per 1,000 population being served has also been calculated. This figure is then compared to the estimated number of CMI individuals per 1,000 population. For purposes of this comparison an average was calculated of the totals for the three methodologies. The percent of the CMIs being served varies significantly across regions, with Region II clearly serving a much larger percent than the other four. One region is slightly above

TABLE 17

CMI CURRENTLY SERVED IN MONTANA'S MENTAL HEALTH SYSTEM

	REGION I	REGION II	REGION III	REGION IV	REGION V	STATE
Average of Quadrant, DU Logistics and Prevalence Rates (Schizophrenia) Per 1000 Population	666 9.93	1,104 11.03	1,162 10.31	1,428 10.65	1,557 11.06	5,917 10.67
CMI on Current Caseload of CMHCs	259	677	386	407	446	2,175
Percent Being Served	38.9%	61.3%	33.2%	28.5%	28.6%	36.8%

the State average, and three regions fall below that average of thirty seven percent. It is difficult to know the exact percent of the CMI living in a region that require services by the public mental health system, but the percentages of those currently being served indicate a large number of CMI individuals are unserved in most areas of the state.

NOTES

1. Ashbaugh, "Method for Estimating the Chronic Mentally Ill," p. 390.

2. Rhode Island, Department of Mental Health, State Mental Health Plan 1989-1998 (Providence, Rhode Island: n.p., 1988).

3. Ashbaugh, "Method for Estimating Chronic Mentally Ill Population," p.p. 389-393.

4. Howard Goldman et al., "Defining and Counting the Chronically Mentally Ill," Hospital and Community Psychiatry 32 (January 1981): 21-27.

5. Herman V. Szymanski et al., "Estimating the Local Prevalence of Persons Needing Community Support Programs," Hospital and Community Psychiatry 33 (May 1982): 372.

6. Goldman.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Of nine methodologies initially reviewed, three were selected to estimate the number of chronically mentally ill persons in Montana. Another methodology, Model of Estimating Optimal Services, which is a method to estimate the level of and type of community services needed by the chronically mentally ill, was also recommended for use in Montana. A survey instrument was developed to implement the Optimal Services method, but has not been undertaken at this time. Therefore, this chapter will be limited to a discussion of the three needs assessment methods which estimate the number of persons with chronic mental illness: Quadrant, DU Logistics, and Prevalence Estimates.

None of the methodologies can be touted as a perfect model with unquestionable validity. Each has a number of shortcomings. A problem common to all three was that the target population being estimated was not defined precisely the same as the CMI are defined in Montana. The definition of persons with chronic mental illness used in Montana is based on a number of different psychiatric diagnosis and one or more measures of dysfunction. Quadrant and DU Logistics measure chronicity by the length of time (one year) the disability has endured, as well as the presence of a diagnosable psychiatric illness. The Quadrant method of basing the estimates on the numbers of individuals who receive SSA disability benefits is credible because eligibility requirements clearly define those who have a severe and disabling mental illness. Recipients must demonstrate that their mental illness prevents them from working, and that the disability has existed or is expected to exist for at least twelve

months.[2] While not exactly the same, these requirements are similar to the conditions defining severe and disabling mental illness that has been adopted by Montana. Diagnosis of mental illness is one component of CMI, but the resulting dysfunction is equally as important.

Prevalence Estimates, however, does not factor in any level of dysfunction. The rates are based on diagnosis only and produced estimated numbers of CMI that were too large to be credible, and would have little value for planning purposes. It may not be possible to obtain accurate estimates of the CMI using diagnosis only. Although certain diagnosis are strongly associated with chronic disability, without some way to factor in level of dysfunction; it is difficult to determine chronicity of the disorder. The definition of severe and disabling mental illness used in Montana incorporates dysfunction by requiring that clients identified as CMI not only have a diagnosis associated with long term illness but that there is evidence of dysfunction as measured by inability to work or to maintain ones own residence.

Secondly, the validity of the methodologies cannot be guaranteed. The reliability of transferring prevalence rates which were determined in large urban settings, to sparsely populated, rural populations in Montana can be questioned. Major distortions are likely to occur when this is attempted. Quadrant and DU Logistics were found to be valid techniques when tested in the state of Colorado, but have not been validated in Montana.

The Quadrant method relies on data that are not entirely available at the present time, and estimations of these missing data had to be calculated. DU Logistics is dependent on data that are only available

from the decennial census, raising questions in regard to the accuracy of utilizing these data as many as ten years after they were collected.

In spite of these limitations, the Quadrant and DU Logistics method present reasonable methods of estimating the number of chronically mentally ill individuals in the state. Both methods can estimate this population at the county level which can then be aggregated at the regional level. Both sets of data can be important in planning state wide mental health services. Although, theoretically, county data should define areas of greater need within a region, it was found that in Montana, the population is often so sparse that even if an area has a higher than normal rate of mental illness, only a very small number of people are affected. Efficiencies of scale require that many services be located in areas with high enough CMI densities to make services economically feasible.

Both methods produce conservative but reasonable estimates of the CMI which appear to be more precise for each regional area than a flat rate. The results of the Quadrant method are influenced by the number of persons receiving social security disability benefits in the region, while the results of the DU Logistics model appear to be strongly influenced by the level of poverty in the region. It is recommended that the results of the two methodologies be averaged to estimate the target population, thus taking into account the demographic and social indicator factors employed in both methods. This produces a per capita rate that has less variation across regions than either method by itself. The mean absolute deviation of the per capita rates calculated by combining the two methodologies is .52 while the mean absolute deviation for the estimates produced by the Quadrant method is 1.31 and .74 for DU Logistic.

The accuracy of the Quadrant method can be improved by using the actual rather than estimated percent of CMI clients receiving SSA disability benefits, and by determining the actual number of SSA recipients due to a psychiatric disability rather than estimating the number. Obtaining the first figure would require CMHCs to collect this data, preferably at the time of first admission. Obtaining the SSA data would require a special request to the federal level of the Social Security Administration, and the cost is estimated at several hundred dollars.[1]

The information generated by these methodologies, although clearly an approximation of the number of persons with chronic mental illness, has enough credibility to be used for planning purposes. The most obvious conclusion that can be drawn is that a substantial number of this population is currently not served by the mental health system. Several regions of the state appear to be serving less than thirty percent of the estimated population, while one region serves almost sixty percent. Planning efforts could be directed at enhancing services to this priority population in those regions in which it appears a large percent of the population is underserved. Additional research is needed to identify more precisely why this population is not being served. Questions that might be asked include: Are services not available where needed? Are there barriers to receiving that service? Are available services inappropriate for their needs?

Estimating the number of chronically mentally ill individuals is only one part, but an important part of the needs assessment process. It is the starting point. Another component of the process involves determining what services are needed to respond effectively to the diverse needs of persons with serious mental illness at varying times of their lives. This

service related data will be available when the survey questionnaire, which was developed as part of this study, is administered and the data is compiled and analyzed. The results of this survey in conjunction with the estimates of the number and distribution of the CMI produced in this paper will provide an objective basis for planning publicly funded mental health services in Montana.

NOTES

1. Telephone Interview with Bob Hempel, Denver Regional Office, Social Security Administrator, Denver, Colorado, 5 May 1988.

2. Ohio, Department of Mental Health, Income Support Manual for Case Managers (Columbus, Ohio: n.p., 1988) p.p. 15,23.

APPENDIX I

MONTANA DEFINITION OF SEVERE AND DISABLING MENTAL ILLNESS

The Montana Department of Institutions has defined an adult with a severe disabling mental illness as a person who is 18 years old or older and who meets criterion 1 and criterion 2.

Criterion 1 The person has a severe mental illness as indicated by one of the following:

a. the person has been hospitalized for at least 30 consecutive days because of a mental disorder at Montana State Hospital (Warm Springs campus) or Rivendell of Billings (former Montana Youth Treatment Center) at least once, or

b. the person has a DSM-III-R diagnosis of schizophrenic disorder (295), major mood disorder (296.2, 296.3, 296.4, 296.5, 296.6, 296.7, 301.13); paranoid disorder (297.10); organic disorder (290, 293.81, 293.82, 293.983, 294.00, 294.10, 294.80, 310.10); or other psychotic disorder (298.80, 295.40, 295.70, 297.30, 298.90); or

c. the person has a personality disorder (DSM-III-R code 301) which causes the person to be unable to work competitively on a full-time basis or unable to maintain a residence without assistance and support by family or a public agency.

Criterion 2 The person has ongoing functioning difficulties because of the mental illness, as indicated by one of the following:

a. the person takes prescribed medication to control the symptoms of mental illness, or

b. the person is unemployed or does not work in a full-time competitive situation because of mental illness, or

c. the person receives SSI or SSDI payments due to mental illness; or

d. the person maintains or could maintain a living arrangement only with the ongoing supervision and assistance of family or a public agency.

APPENDIX 2

TABLE 18

COUNTY AND REGIONAL ESTIMATES OF
PERSONS RECEIVING SSA BENEFITS FOR MENTAL ILLNESS

	Number Receiving SSI Disability Benefits	Percent Due to Mental Illness 21.2%	Number Receiving SSDI Disability Benefits	Percent due to Mental Illness 12.0%	TOTAL DUE TO MENTAL ILLNESS
1 CARTER	14	3	16	2	5
CUSTER	110	23	139	17	40
DANIELS	6	1	19	2	4
DAWSON	50	11	80	10	20
FALLON	8	2	32	4	6
GARFIELD	4	1	12	1	2
MCCONE	12	3	18	2	5
PHILLIPS	60	13	56	7	19
POWDER RIVER	0	0	13	2	2
PRAIRIE	8	2	12	1	3
RICHLAND	52	11	86	10	21
ROOSEVELT	84	18	99	12	30
ROSEBUD	68	14	75	9	23
SHERIDAN	40	8	41	5	13
TREASURE	0	0	6	1	1
VALLEY	62	13	74	9	22
WIBAUX	6	1	8	1	2
TOTAL REGION I	584	124	786	94	218
2 BLAINE	70	15	53	6	21
CASCADE	780	165	1091	131	296
CHOTEAU	22	5	34	4	9
GLACIER	126	27	97	12	38
HILL	150	32	142	17	49
LIBERTY	6	1	8	1	2
PONDERA	42	9	50	6	15
TETON	34	7	55	7	14
TOOLE	32	7	57	7	14
TOTAL REGION II	1262	268	1587	190	458
3 BIG HORN	100	21	80	10	31
CARBON	54	11	91	11	22
FERGUS	80	17	127	15	32
GOLDEN VALLEY	2	0	10	1	2
JUDITH BASIN	4	1	15	2	3
MUSSELSHELL	38	8	59	7	15
PETROLEUM	2	0	0	0	0
STILLWATER	32	7	75	9	16
SWEET GRASS	4	1	34	4	5

TABLE 18 - Continued

COUNTY AND REGIONAL ESTIMATES OF
PERSONS RECEIVING SSA BENEFITS FOR MENTAL ILLNESS

	Number Receiving SSI Disability Benefits	Percent Due to Mental Illness 21.1%	Number Receiving SSDI Disability Benefits	Percent Due to Mental Illness 12.0%	TOTAL DUE TO MENTAL ILLNESS
WHEATLAND	10	2	28	3	5
YELLOWSTONE	730	155	1263	152	306
TOTAL REGION III	1056	224	1782	214	438
4 BEAVERHEAD	66	14	94	11	25
BROADWATER	22	5	57	7	12
DEER LODGE	129	27	236	28	55
GALLATIN	148	31	363	44	75
GRANITE	10	2	36	4	6
JEFFERSON	104	22	114	14	36
LEWIS AND CLARK	374	79	633	76	155
MADISON	18	4	66	8	12
MEAGHER	10	2	25	3	5
PARK	78	17	156	19	35
POWELL	34	7	91	11	18
SILVER BOW	364	77	683	82	159
YELLOWSTONE PARK		0		0	0
TOTAL REGION IV	1356	287	2554	306	594
5 FLATHEAD	344	73	830	100	173
LAKE	202	43	230	28	70
LINCOLN	128	27	286	34	61
MINERAL	12	3	64	8	10
MISSOULA	576	122	929	111	234
RAVALLI	124	26	329	39	66
SANDERS	82	17	130	16	33
TOTAL REGION V	1468	311	2798	336	647
STATE TOTAL	5726	1214	9507	1141	2355

SOURCE: U.S., Department of Health and Human Services, Social Security Administration, Social Security Bulletin (Washington, D.C.; Government Printing Office, 1986, p.120.

APPENDIX 3

TABLE 19

ECA DATA - SIX MONTHS PREVALENCE OF DIS/DSM-III PSYCHIATRIC DISORDERS BY SEX AND AGE

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
NUMBER OF RESPONDENTS											
New Haven	176	542	337	236	1291	247	692	453	375	1767	3058
Baltimore	201	467	303	351	1322	303	745	539	572	2159	3481
St. Louis	191	505	288	218	1202	280	728	436	358	1802	3004
PREVALENCE RATES OF PSYCHIATRIC DISORDERS											
MAJOR DEPRESSIVE											
New Haven	3.9%	2.7%	1.4%	0.5%	2.2%	6.1%	7.4%	2.2%	1.6%	4.6%	3.5%
Baltimore	1.1%	1.6%	1.5%	0.3%	1.3%	3.0%	4.5%	2.4%	1.3%	3.0%	2.2%
St. Louis	1.1%	2.8%	1.3%	0.1%	1.7%	5.2%	5.2%	4.9%	1.0%	4.5%	3.2%
	6.864	14.634	4.718	1.18	28.402	15.067	51.208	9.966	6	81.292	107.03
	2.211	7.472	4.545	1.053	17.186	9.09	33.525	12.936	7.436	64.77	76.582
	2.101	14.14	3.744	0.218	20.434	14.56	37.856	21.364	3.58	81.09	96.128
Weighted Avg	2.0%	2.4%	1.4%	0.3%	1.7%	4.7%	5.7%	3.1%	1.3%	4.0%	2.9%
MANIC EPISODE											
New Haven	1.3%	1.0%	0.0%	0.0%	0.6%	2.0%	1.2%	0.6%	0.0%	0.9%	0.8%
Baltimore	0.0%	1.1%	0.0%	0.0%	0.4%	0.3%	0.7%	0.3%	0.0%	0.4%	0.4%
St. Louis	1.4%	0.7%	0.8%	0.0%	0.8%	1.4%	1.0%	0.1%	0.0%	0.6%	0.7%
	2.288	5.42	0	0	7.746	4.94	8.304	2.718	0	15.903	24.464
	0	5.137	0	0	5.288	0.909	5.215	1.617	0	8.636	13.924
	2.674	3.535	2.304	0	9.616	3.92	7.28	0.436	0	10.812	21.028
Weighted Avg	0.9%	0.9%	0.2%	0.0%	0.6%	1.2%	1.0%	0.3%	0.0%	0.6%	0.6%
OBSESS/COMPULSIVE											
New Haven	0.9%	1.3%	0.4%	1.2%	0.9%	2.7%	2.8%	0.8%	0.4%	1.7%	1.4%
Baltimore	2.1%	1.7%	2.4%	0.9%	1.9%	2.6%	3.1%	1.3%	1.2%	2.2%	2.0%
St. Louis	1.5%	1.3%	0.2%	0.2%	0.9%	2.8%	1.5%	1.3%	1.3%	1.7%	1.3%
	1.584	7.046	1.348	2.832	11.619	6.669	19.376	3.624	1.5	30.039	42.812
	4.221	7.939	7.272	3.159	25.118	7.878	23.095	7.007	6.864	47.498	69.62
	2.865	6.565	0.576	0.436	10.818	7.84	10.92	5.668	4.654	30.634	39.052
Weighted Avg	1.5%	1.4%	1.0%	0.8%	1.2%	2.7%	2.5%	1.1%	1.0%	1.9%	1.6%

TABLE 19 - Continued

ECA DATA - SIX MONTHS PREVALENCE OF DIS/DSM-III
PSYCHIATRIC DISORDERS BY SEX AND AGE

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
ANTISOCIAL PERSONALITY											
New Haven	1.2%	1.0%	0.3%	1.1%	0.8%	0.6%	0.6%	0.0%	0.0%	0.3%	0.6%
Baltimore	0.9%	3.4%	0.2%	0.0%	1.5%	0.1%	0.3%	0.0%	0.0%	0.1%	0.7%
St. Louis	4.6%	2.9%	0.3%	0.0%	2.1%	1.6%	0.6%	0.0%	0.0%	0.5%	1.3%
	2.112	5.42	1.011	2.596	10.328	1.482	4.152	0	0	5.301	18.348
	1.809	15.878	0.606	0	19.83	0.303	2.235	0	0	2.159	24.367
	8.786	14.645	0.864	0	25.242	4.48	4.368	0	0	9.01	39.052
Weighted Avg	2.2%	2.4%	0.3%	0.3%	1.5%	0.8%	0.5%	0.0%	0.0%	0.3%	0.9%
COGNITIVE IMPAIRMENT											
New Haven	0.7%	0.6%	0.8%	6.3%	1.4%	0.3%	0.1%	1.4%	4.2%	1.2%	1.3%
Baltimore	0.0%	0.0%	1.1%	5.7%	1.1%	0.4%	0.5%	1.1%	4.8%	1.4%	1.3%
St. Louis	0.4%	0.2%	0.8%	4.6%	1.0%	0.9%	0.3%	0.7%	3.6%	1.1%	1.0%
	1.232	3.252	2.696	14.868	18.074	0.741	0.692	6.342	15.75	21.204	39.754
	0	0	3.333	20.007	14.542	1.212	3.725	5.929	27.456	30.226	45.253
	0.764	1.01	2.304	10.028	12.02	2.52	2.184	3.052	12.888	19.822	30.04
Weighted Avg	0.4%	0.3%	0.9%	5.6%	1.2%	0.5%	0.3%	1.1%	4.3%	1.2%	1.2%
SCHIZOPHRENIA											
New Haven	2.1%	0.6%	0.3%	0.0%	0.7%	1.6%	2.6%	0.7%	0.9%	1.6%	1.1%
Baltimore	1.3%	0.7%	0.8%	0.0%	0.7%	1.0%	3.2%	0.9%	0.2%	1.6%	1.2%
St. Louis	0.6%	1.5%	0.8%	0.0%	0.9%	0.5%	0.5%	0.2%	0.0%	0.4%	0.6%
	3.696	3.252	1.011	0	9.037	3.952	17.992	3.171	3.375	28.272	33.638
	2.613	3.269	2.424	0	9.254	3.03	23.84	4.851	1.144	34.544	41.772
	1.146	7.575	2.304	0	10.818	1.4	3.64	0.872	0	7.208	18.024
Weighted Avg	1.3%	0.9%	0.6%	0.0%	0.8%	1.0%	2.1%	0.6%	0.3%	1.2%	1.0%

SOURCE: Jerome K. Myers, et.al., Six-Month Prevalence of Psychiatric Disorders in Three Communities," Archives of General Psychiatry 41 (October 1984): 959-967.

APPENDIX 4

TABLE 20

ECA DATA - 95% CONFIDENCE BOUNDS ON SIX MONTH PREVALENCE PERCENTAGES

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
DEPRESSIVE EPISODE	2.0%	2.4%	1.4%	0.3%	1.7%	4.7%	5.7%	3.1%	1.3%	4.0%	2.9%
Confidence Bds	2.80%	1.70%	2.00%	0.80%	1.10%	2.80%	2.20%	2.70%	1.70%	1.00%	1.00%
Lower Limits	0.00%	0.69%	0.00%	0.00%	0.63%	1.86%	3.46%	0.40%	0.00%	2.97%	1.93%
Upper Limit	4.77%	4.09%	3.40%	1.10%	2.83%	7.46%	7.86%	5.80%	3.00%	4.97%	3.93%
MANIC EPISODE	0.9%	0.9%	0.2%	0.0%	0.6%	1.2%	1.0%	0.3%	0.0%	0.6%	0.6%
Confidence Bds	1.80%	1.10%	0.90%	0.90%	0.70%	2.30%	1.50%	0.50%	0.70%	0.50%	0.40%
Lower Limits	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%	0.22%
Upper Limit	2.67%	2.03%	1.15%	0.90%	1.29%	3.48%	2.46%	0.83%	0.70%	1.12%	1.02%
OBSESSIVE COMPUL	1.5%	1.4%	1.0%	0.8%	1.2%	2.7%	2.5%	1.1%	1.0%	1.9%	1.6%
Confidence Bds	2.80%	1.70%	2.00%	1.10%	1.10%	2.80%	1.60%	1.50%	1.70%	0.80%	0.70%
Lower Limits	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%	0.87%	0.00%	0.00%	1.09%	0.89%
Upper Limit	4.33%	3.12%	2.99%	1.90%	2.35%	5.50%	4.07%	2.64%	2.70%	2.69%	2.29%
ANTISOCIAL PERS	2.2%	2.4%	0.3%	0.3%	1.5%	0.8%	0.5%	0.0%	0.0%	0.3%	0.9%
Confidence Bds	2.80%	1.70%	0.90%	0.90%	1.10%	1.40%	0.70%	0.50%	0.70%	0.40%	0.40%
Lower Limits	0.00%	0.67%	0.00%	0.00%	0.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.46%
Upper Limit	5.04%	4.07%	1.17%	1.22%	2.55%	2.15%	1.20%	0.50%	0.70%	0.69%	1.26%
COGNITIVE IMPAIR	0.4%	0.3%	0.9%	5.6%	1.2%	0.5%	0.3%	1.1%	4.3%	1.2%	1.2%
Confidence Bds	0.70%	0.50%	1.10%	3.90%	1.10%	1.40%	0.80%	1.50%	3.10%	0.80%	0.70%
Lower Limits	0.00%	0.00%	0.00%	1.68%	0.07%	0.00%	0.00%	0.00%	1.20%	0.44%	0.51%
Upper Limit	1.05%	0.78%	2.00%	9.48%	2.27%	1.94%	1.10%	2.57%	7.40%	2.04%	1.91%
SCHIZOPHRENIA	1.3%	0.9%	0.6%	0.0%	0.8%	1.0%	2.1%	0.6%	0.3%	1.2%	1.0%

TABLE 20 - Continued

ECA DATA - 95% CONFIDENCE BOUNDS ON SIX MONTH PREVALENCE PERCENTAGES

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
Confidence Bds	2.80%	1.10%	1.10%	0.90%	0.70%	2.30%	1.50%	1.30%	0.70%	0.80%	0.70%
Lower Limits	0.00%	0.00%	0.00%	0.00%	0.06%	0.00%	0.60%	0.00%	0.00%	0.42%	0.28%
Upper Limit	4.11%	2.03%	1.72%	0.90%	1.46%	3.31%	3.60%	1.92%	1.05%	2.02%	1.68%

SOURCE: Jerome K. Myers, et.al., Six-Month Prevalence of Psychiatric Disorders in Three Communities," Archives of General Psychiatry 41 (October 1984): 959-967.

APPENDIX 5
TABLE 21

COUNTY AND REGIONAL ESTIMATES OF
CMI USING PREVALENCE RATES

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
REGION I											
Population	6052	13064	9604	4963	33683	5715	12341	9308	6030	33394	67077
DEPRESSIVE											
EPISODE	119	313	135	15	582	267	699	289	79	1333	1914
Lower Limit	0	91	0	0	91	107	427	37	0	571	662
Upper Limit	289	535	327	55	1205	427	970	540	181	2118	3323
MANIC EPISODE	53	122	24	0	198	67	119	31	0	217	415
Lower Limit	0	0	0	0	0	0	0	0	0	0	0
Upper Limit	162	265	110	45	582	199	304	78	42	622	1204
OBSSESSIVE											
COMPULSIVE	92	186	95	40	413	154	304	106	60	625	1038
Lower Limit	0	0	0	0	0	0	107	0	0	107	107
Upper Limit	262	408	287	94	1051	314	502	246	163	1224	2276
ANTISOCIAL											
PERSONALITY	135	310	26	16	487	43	61	0	0	104	592
Lower Limit	0	88	0	0	88	0	0	0	0	0	88
Upper Limit	305	532	112	61	1010	123	148	47	42	360	1369
COGNITIVE											
IMPAIRMENT	21	37	86	277	421	31	38	100	259	427	849
Lower Limit	0	0	0	83	83	0	0	0	72	72	156
Upper Limit	64	102	192	470	828	111	136	239	446	933	1761
SCHIZOPHRENIA	79	122	59	0	260	58	259	58	21	396	656
Lower Limit	0	0	0	0	0	0	74	0	0	74	74
Upper Limit	249	265	165	45	724	189	444	179	63	876	1599
TOTAL	500	1089	425	348	2362	620	1480	584	419	3102	5464
Lower Limit	0	176	0	83	259	0	181	0	72	253	513
Upper Limit	1330	2108	1193	769	5400	1363	2504	1328	937	6133	11533

TABLE 21 - Continued

COUNTY AND REGIONAL ESTIMATES OF
CMI USING PREVALENCE RATES

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
REGION II											
Population	10023	19585	13392	6495	49495	9233	19301	13588	8503	50625	100120
DEPRESSIVE											
EPISODE	197	469	188	20	874	431	1093	421	111	2056	2929
Lower Limit	0	136	0	0	136	172	668	54	0	895	1031
Upper Limit	478	802	456	72	1807	689	1518	788	255	3250	5057
MANIC EPISODE	88	182	33	0	303	109	185	45	0	339	643
Lower Limit	0	0	0	0	0	0	0	0	0	0	0
Upper Limit	268	398	154	58	878	321	475	113	60	969	1847
OBSSESSIVE											
COMPULSIVE	153	279	133	52	616	249	476	155	85	965	1581
Lower Limit	0	0	0	0	0	0	167	0	0	167	167
Upper Limit	434	612	401	123	1569	508	785	359	229	1881	3450
ANTISOCIAL											
PERSONALITY	224	465	36	21	746	70	96	0	0	166	912
Lower Limit	0	132	0	0	132	0	0	0	0	0	132
Upper Limit	505	798	156	79	1539	199	231	68	60	557	2096
COGNITIVE											
IMPAIRMENT	35	55	120	362	573	50	59	146	365	620	1193
Lower Limit	0	0	0	109	109	0	0	0	102	102	211
Upper Limit	105	153	268	616	1142	179	213	350	629	1371	2513
SCHIZOPHRENIA	132	182	83	0	397	93	405	85	29	613	1009
Lower Limit	0	0	0	0	0	0	116	0	0	116	116
Upper Limit	412	398	230	58	1099	306	695	261	89	1351	2449
TOTAL	829	1632	593	455	3509	1001	2314	852	591	4758	8267
Lower Limit	0	264	0	109	373	0	293	0	102	385	758
Upper Limit	2202	3160	1664	1007	8033	2201	3916	1939	1322	9379	17412

TABLE 21 - Continued
COUNTY AND REGIONAL ESTIMATES OF
CMI USING PREVALENCE RATES

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
REGION III											
Population	9495	22665	14832	7608	54600	10283	22541	15519	9848	58191	112791
DEPRESSIVE											
EPISODE	187	543	208	23	960	480	1276	481	128	2365	3326
Lower Limit	0	157	0	0	157	192	780	62	0	1034	1192
Upper Limit	453	928	505	84	1969	768	1772	900	296	3736	5705
MANIC EPISODE	83	211	37	0	331	121	217	52	0	389	720
Lower Limit	0	0	0	0	0	0	0	0	0	0	0
Upper Limit	254	460	170	68	953	358	555	129	69	1111	2064
OBSSESSIVE											
COMPULSIVE	145	323	147	61	675	277	556	177	98	1109	1784
Lower Limit	0	0	0	0	0	0	195	0	0	195	195
Upper Limit	411	708	444	144	1707	565	917	410	266	2157	3864
ANTISOCIAL											
PERSONALITY	212	538	40	25	815	78	112	0	0	190	1004
Lower Limit	0	153	0	0	153	0	0	0	0	0	153
Upper Limit	478	923	173	93	1668	222	270	78	69	638	2306
COGNITIVE											
IMPAIRMENT	33	64	133	424	655	55	69	167	423	714	1369
Lower Limit	0	0	0	128	128	0	0	0	118	118	246
Upper Limit	100	177	296	721	1294	199	249	399	729	1576	2871
SCHIZOPHRENIA	125	211	92	0	427	104	473	97	34	708	1135
Lower Limit	0	0	0	0	0	0	135	0	0	135	135
Upper Limit	390	460	255	68	1174	340	812	298	103	1553	2728
TOTAL	785	1889	656	533	3863	1115	2703	973	684	5475	9338
Lower Limit	0	306	0	128	433	0	331	0	118	449	882
Upper Limit	2086	3657	1843	1179	8765	2452	4574	2215	1531	10771	19536

TABLE 21 - Continued

COUNTY AND REGIONAL ESTIMATES OF
CMI USING PREVALENCE RATES

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
REGION IV											
Population	14350	26551	16373	9002	66476	13040	25237	17170	12052	67499	133975
DEPRESSIVE											
EPISODE	282	636	232	27	1178	608	1429	532	157	2727	3904
Lower Limit	0	184	0	0	184	243	874	69	0	1186	1370
Upper Limit	684	1087	564	99	2434	973	1984	996	362	4315	6750
MANIC EPISODE	125	247	41	0	414	153	242	57	0	453	867
Lower Limit	0	0	0	0	0	0	0	0	0	0	0
Upper Limit	384	539	190	81	1194	453	621	143	84	1302	2496
OBSSESSIVE											
COMPULSIVE	219	378	164	72	833	352	622	196	120	1290	2123
Lower Limit	0	0	0	0	0	0	219	0	0	219	219
Upper Limit	621	829	496	171	2117	717	1026	454	325	2522	4638
ANTISOCIAL											
PERSONALITY	321	630	44	29	1025	98	125	0	0	224	1249
Lower Limit	0	179	0	0	179	0	0	0	0	0	179
Upper Limit	723	1082	193	110	2108	281	302	86	84	753	2861
COGNITIVE											
IMPAIRMENT	50	75	149	502	776	70	77	184	518	850	1626
Lower Limit	0	0	0	151	151	0	0	0	144	144	295
Upper Limit	151	207	321	853	1543	253	279	442	892	1865	3408
SCHIZOPHRENIA	189	247	102	0	538	132	530	107	42	810	1348
Lower Limit	0	0	0	0	0	0	152	0	0	152	152
Upper Limit	590	539	285	81	1495	432	909	330	126	1796	3292
TOTAL	1187	2213	733	630	4763	1414	3026	1077	837	6354	11117
Lower Limit	0	358	0	151	509	0	370	0	144	515	1023
Upper Limit	3153	4284	2059	1396	10891	3109	5121	2450	1874	12554	23445

TABLE 21 - Continued

COUNTY AND REGIONAL ESTIMATES OF
CMI USING PREVALENCE RATES

	MEN					WOMEN					GRAND
Age Groups	18-24	25-44	45-64	65+	Total	18-24	25-44	45-64	65+	Total	TOTAL
REGION V											
Population	12624	30351	17346	8983	69304	13162	29708	17583	11075	71528	140832
DEPRESSIVE											
EPISODE	248	727	243	27	1245	614	1682	545	144	2986	4231
Lower Limit	0	211	0	0	211	245	1029	70	0	1344	1555
Upper Limit	602	1243	590	99	2534	983	2336	1020	333	4671	7204
MANIC EPISODE	110	283	43	0	436	155	285	59	0	499	935
Lower Limit	0	0	0	0	0	0	0	0	0	0	0
Upper Limit	338	616	199	81	1234	458	731	147	78	1413	2647
OBSSESSIVE											
COMPULSIVE	193	432	172	72	868	355	733	201	110	1399	2267
Lower Limit	0	0	0	0	0	0	257	0	0	257	257
Upper Limit	546	948	519	171	2183	724	1208	464	299	2695	4878
ANTISOCIAL											
PERSONALITY	282	721	46	29	1078	99	148	0	0	247	1325
Lower Limit	0	205	0	0	205	0	0	0	0	0	205
Upper Limit	636	1237	202	110	2185	284	356	88	78	805	2989
COGNITIVE											
IMPAIRMENT	44	85	156	501	787	71	91	189	476	826	1613
Lower Limit	0	0	0	151	151	0	0	0	133	133	283
Upper Limit	133	237	347	851	1568	255	328	452	819	1855	3423
SCHIZOPHRENIA	166	283	107	0	556	133	624	110	38	905	1460
Lower Limit	0	0	0	0	0	0	178	0	0	178	178
Upper Limit	519	616	298	81	1515	436	1070	338	116	1959	3474
TOTAL	1044	2530	767	629	4970	1427	3562	1103	769	6861	11831
Lower Limit	0	409	0	151	560	0	436	0	133	568	1128
Upper Limit	2773	4897	2155	1393	11218	3138	6028	2509	1722	13397	24616

APPENDIX 6

DU LOGISTIC EQUATION

Calculate Odds

1. OddsAny = EXP(-1.5460+.0097*%IN POVERTY+.0651*%DIVORCED MALES)
2. OddsPlus= EXP(-3.5024+.0143*%IN POVERTY+.0924*%DIVORCED MALES)
3. OddsSev = EXP(-4.5019+.0382*%IN POVERTY+.0297*%DIVORCED MALES)
4. OddsDiag= EXP(-2.1844+.0094*%IN POVERTY+.0657*%DIVORCED MALES)
5. OddsSCN = EXP(-4.9676+.0338*%IN POVERTY+.0032*%DIVORCED MALES)

Calculate Prevalence Rates

1. PrevAny = 100*OddsAny/(1+OddsAny)
2. PrevPlus = 100*OddsPlus/(1+OddsAny)
3. PrevSev = 100*OddsSev/(1+OddsSev)
4. PrevDiag = 100*OddsDiag/(1+OddsDiag)
5. PrevSCN = 100*OddsSCN/(1+OddsSCN)

Calculate Numbers of Mentally Ill

1. NumAny = PrevAny/ 100 * At Risk
2. NumPlus = PrevPlus/ 100 * At Risk
3. NumSev = PrevSev/ 100 * At Risk
4. NumDiag = PrevDiag/ 100 * At Risk
5. NumSCN = PrevSCN/ 100 * At Risk

SOURCE: James A. Ciarlo, et.al., "Validation of Social Indicator Models" Presentation at NIMH Sponsored Conference on Mental Health Planning, Arlington, Virginia, 22 March 1989.

TABLE 22

PREDICTED PREVALENCE OF MENTAL ILLNESS - DU LOGISTIC MODEL

COUNTY/ MH REGION	POPULATION 18 & Over	PERCENT IN POVERTY	TOTAL MALES	DIVORCED MALES	PERCENT DIV MALES	PREDICT ODDS ANY	PLU	SEV	DX	SCN	CALCULATE PREV RATES ANY	PLU	SEV	DX	SCN
CARTER	1300	25.0	672	34	5.06	0.37752	0.06874	0.03348	0.19849	0.01646	27.4059	6.43201	3.24008	16.5620	1.62000
CUSTER	9251	13.0	4423	288	6.51	0.36935	0.06621	0.02210	0.19506	0.01102	26.9727	6.21030	2.16277	16.3228	1.09072
DANIELS	2036	13.6	1018	33	3.24	0.30027	0.04937	0.02052	0.15824	0.01113	23.0933	4.70482	2.01123	13.6628	1.10136
DAWSON	8154	7.5	4106	186	4.53	0.30778	0.05096	0.01689	0.16262	0.00909	23.5349	4.84951	1.66122	13.9880	0.90168
FALLON	2558	16.4	1288	47	3.65	0.31683	0.05335	0.02312	0.16687	0.01225	24.0604	5.06563	2.25978	14.3011	1.21092
GARFIELD	1157	22.7	592	26	4.39	0.35349	0.06253	0.03006	0.18591	0.01520	26.1169	5.88572	2.91895	15.6768	1.49749
MCCONE	1787	22.1	939	33	3.51	0.33192	0.05717	0.02862	0.17451	0.01485	24.9207	5.40826	2.78330	14.8582	1.46382
PHILLIPS	3696	17.4	1907	103	5.40	0.35857	0.06363	0.02530	0.18900	0.01275	26.3937	5.98322	2.46791	15.8960	1.25898
POWDER RIVER	1746	10.5	890	47	5.28	0.33275	0.05702	0.01937	0.17574	0.01009	24.9671	5.39470	1.90032	14.9472	0.99932
PRAIRIE	1305	31.4	658	24	3.65	0.36642	0.06611	0.04100	0.19212	0.02035	26.8160	6.20149	3.93886	16.1162	1.99454
RICHLAND	8404	10.0	4313	220	5.10	0.32728	0.05568	0.01890	0.17285	0.00991	24.6580	5.27459	1.85528	14.7383	0.98218
ROOSEVELT	6866	16.3	3394	267	7.87	0.41654	0.07867	0.02610	0.21995	0.01238	29.4057	7.29376	2.54416	18.0298	1.22308
ROSEBUD	6218	18.0	3203	224	6.99	0.40006	0.07436	0.02714	0.21103	0.01307	28.5747	6.92153	2.64267	17.4260	1.29092
SHERIDAN	3962	13.5	1988	80	4.02	0.31566	0.05299	0.02092	0.16644	0.01112	23.9927	5.03297	2.04986	14.2691	1.10040
TREASURE	690	19.5	352	15	4.26	0.33978	0.05902	0.02650	0.17886	0.01363	25.3612	5.57349	2.58202	15.1725	1.34549
VALLEY	6951	13.7	3421	206	6.02	0.36019	0.06392	0.02237	0.19013	0.01127	26.4812	6.00814	2.18873	15.9762	1.11481
WIBAUX	996	20.6	519	24	4.62	0.35164	0.06200	0.02794	0.18508	0.01417	26.0159	5.83850	2.71820	15.6178	1.39734
TOTAL REGION I	67077		33683	1857	5.51										
BLAINE	4591	24.1	2295	117	5.10	0.37518	0.06810	0.03239	0.19732	0.01597	27.2822	6.37620	3.13749	16.4802	1.57241
CASCADE	57152	10.3	28242	2038	7.22	0.37669	0.06799	0.02036	0.19919	0.01008	27.3623	6.36653	1.99549	16.6106	0.99876
CHOTEAU	4305	12.1	2221	133	5.99	0.35388	0.06228	0.02102	0.18689	0.01067	26.1383	5.86321	2.05963	15.7462	1.05663
GLACIER	6909	23.5	3323	214	6.44	0.40705	0.07643	0.03294	0.21429	0.01572	28.9295	7.10086	3.18937	17.6477	1.54786
HILL	12534	12.1	6180	345	5.58	0.34465	0.05999	0.02077	0.18197	0.01066	25.6315	5.65966	2.03546	15.3958	1.05527
LIBERTY	1628	16.3	824	38	4.61	0.33700	0.05823	0.02370	0.17760	0.01225	25.2056	5.50342	2.31514	15.0818	1.21056
PONDERA	4586	13.9	2259	106	4.69	0.33097	0.05669	0.02167	0.17456	0.01130	24.8673	5.36537	2.12159	14.8621	1.11758
TETON	4536	14.8	2261	97	4.29	0.32525	0.05533	0.02216	0.17145	0.01163	24.5427	5.24335	2.16868	14.6362	1.15023
TOOLE	3879	15.0	1890	96	5.08	0.34306	0.05969	0.02286	0.18092	0.01174	25.5434	5.63290	2.23561	15.3204	1.16084

TABLE 22 Continued

PREDICTED PREVALENCE OF MENTAL ILLNESS - DU LOGISTIC MODEL

COUNTY/ MH REGION	POPULATION 18 & Over	PERCENT IN POVERTY	TOTAL MALES	DIVORCED MALES	PERCENT DIV MALES	PREDICT ODDS ANY	PLU	SEV	DX	SCN	CALCULATE PREV RATES ANY	PLU	SEV	DX	SCN
TOTAL REGION II	100120		49495	3184	6.43	0.32393	0.05458	0.01342	0.17174	0.00710	24.4675	5.17598	1.32444	14.6570	0.70544
BIG HORN	7038	21.0	3446	216	6.27	0.39288	0.07259	0.02979	0.20696	0.01444	28.2064	6.76775	2.89295	17.1478	1.42346
CARBON	5864	12.4	2850	124	4.35	0.31902	0.05376	0.02026	0.16830	0.01073	24.1865	5.10253	1.98597	14.4057	1.06177
FERGUS	9371	17.9	4569	276	6.04	0.37564	0.06799	0.02628	0.19804	0.01299	27.3066	6.36691	2.56129	16.5306	1.28275
GOLDEN VALLEY	705	22.4	365	14	3.84	0.33992	0.05915	0.02923	0.17873	0.01502	25.3691	5.58471	2.84069	15.1634	1.48001
JUDITH BASIN	1859	18.9	953	43	4.51	0.34337	0.05989	0.02609	0.18081	0.01337	25.5605	5.65075	2.54338	15.3125	1.31988
MUSSELSHELL	3115	17.4	1551	107	6.90	0.39530	0.07308	0.02645	0.20854	0.01281	28.3308	6.81073	2.57727	17.2560	1.26495
PETROLEUM	447	32.8	235	7	2.98	0.35560	0.06341	0.04240	0.18630	0.02129	26.2323	5.96293	4.06806	15.7045	2.08480
STILLWATER	4001	14.5	1989	103	5.18	0.34361	0.05981	0.02250	0.18125	0.01155	25.5739	5.64359	2.20057	15.3439	1.14197
SWEET GRASS	2350	13.9	1179	47	3.99	0.31611	0.05311	0.02122	0.16665	0.01127	24.0187	5.04366	2.07849	14.2848	1.11508
WHEATLAND	1684	13.3	824	35	4.25	0.31966	0.05394	0.02090	0.16858	0.01105	24.2233	5.11866	2.04785	14.4264	1.09385
YELLOWSTONE	76357	9.3	36639	2587	7.06	0.36930	0.06607	0.01950	0.19532	0.00974	26.9702	6.19780	1.91346	16.3407	0.96541
TOTAL REGION III	112791		54600	3559	6.52	0.32573	0.05501	0.01345	0.17270	0.00710	24.5703	5.21482	1.32776	14.7273	0.70563
BEAVERHEAD	5821	11.8	2971	221	7.44	0.38779	0.07091	0.02170	0.20499	0.01062	27.9430	6.62152	2.12438	17.0121	1.05090
BROADWATER	2252	15.1	1154	80	6.93	0.38742	0.07094	0.02425	0.20453	0.01185	27.9240	6.62412	2.36793	16.9806	1.17157
DEER LODGE	8914	11.6	4401	322	7.32	0.38397	0.06991	0.02146	0.20297	0.01054	27.7444	6.53463	2.10108	16.8728	1.04349
GALLATIN	32661	13.2	16765	747	4.46	0.32371	0.05491	0.02095	0.17074	0.01102	24.4550	5.20581	2.05259	14.5843	1.09091
GRANITE	1905	16.7	991	74	7.47	0.40742	0.07625	0.02619	0.21506	0.01253	28.9483	7.08555	2.55264	17.6997	1.23796
JEFFERSON	4729	7.2	2376	153	6.44	0.34751	0.06054	0.01767	0.18384	0.00906	25.7891	5.70847	1.73679	15.5296	0.89808
LEWIS AND CLARK	30441	9.0	14578	1073	7.36	0.37548	0.06763	0.01945	0.19864	0.00965	27.2983	6.33521	1.90866	16.5726	0.95667
MADISON	3963	14.6	1984	112	5.65	0.35455	0.06253	0.02290	0.18706	0.01160	26.1752	5.88557	2.23895	15.7589	1.14748
MEAGHER	1536	16.0	811	70	8.63	0.43652	0.08407	0.02640	0.23063	0.01228	30.3877	7.75531	2.57220	18.7410	1.21382
PARK	9214	9.7	4523	327	7.23	0.37484	0.06749	0.01990	0.19824	0.00988	27.2642	6.32296	1.95193	16.5449	0.97895
POWELL	5040	11.2	2773	264	9.52	0.44149	0.08521	0.02256	0.23372	0.01047	30.6276	7.85250	2.20681	18.9443	1.03683
SILVER BOW	27285	10.3	13033	867	6.65	0.36311	0.06454	0.02002	0.19194	0.01007	26.6388	6.06292	1.96301	16.1038	0.99698
YELLOWSTONE PARK	214	8.7	116	11	9.48	0.42986	0.08193	0.02048	0.22772	0.00962	30.0633	7.57332	2.00765	18.5487	0.95350

TABLE 22 - Continued

PREDICTED PREVALENCE OF MENTAL ILLNESS - DU LOGISTIC MODEL

COUNTY/ MH REGION	POPULATION 18 & Over	PERCENT IN POVERTY	TOTAL MALES	DIVORCED MALES	PERCENT DIV MALES	PREDICT ODDS ANY	PLU	SEV	DX	SCN	CALCULATE FREV RATES ANY	PLU	SEV	DX	SCN
TOTAL REGION IV	133975		66476	4321	6.50	0.32535	0.05492	0.01344	0.17250	0.00710	24.5484	5.20650	1.32705	14.7123	0.70559
FLATHEAD	36232	9.4	17789	1200	6.75	0.36215	0.06426	0.01940	0.19150	0.00977	26.5871	6.03881	1.90310	16.0724	0.96768
LAKE	12986	19.1	6330	393	6.21	0.38421	0.07025	0.02765	0.20251	0.01353	27.7568	6.56445	2.69124	16.8406	1.33585
LINCOLN	11741	11.0	5899	398	6.75	0.36785	0.06576	0.02062	0.19442	0.01031	26.8926	6.17057	2.02069	16.2774	1.02091
MINERAL	2505	13.0	1301	97	7.46	0.39277	0.07225	0.02273	0.20755	0.01106	28.2007	6.73841	2.22293	17.1881	1.09398
MISSOULA	55774	11.6	27396	1956	7.14	0.37958	0.06878	0.02134	0.20063	0.01053	27.5142	6.43557	2.09031	16.7105	1.04290
RAVALLI	15573	16.1	7555	409	5.41	0.35437	0.06253	0.02408	0.18686	0.01220	26.1651	5.88588	2.35201	15.7442	1.20556
SANDERS	6021	12.2	3034	213	7.02	0.37884	0.06861	0.02176	0.20019	0.01075	27.4755	6.42088	2.13034	16.6800	1.06364
TOTAL REGION V	140832		69304	4666	6.73										
STATE TOTAL	554795		273558	17587	6.43										

APPENDIX 8

MONTANA LEVEL OF FUNCTIONING AND SERVICE NEEDS QUESTIONNAIRE

This instrument was based on similar survey instruments developed by the Michigan Department of Mental Health and the Colorado Department of Institutions.

The Colorado instrument consists of two parts, the first collecting demographic data and level of functioning data which is routinely provided by admission documents. The second part deals with service needs of the client. This information was gathered in the survey. Montana admission documents do not collect the data required to assess level of functioning of the client. It was felt that using both parts of the Colorado survey would result in a questionnaire of such length that it would not be practical to use it. A similar, but much shorter instrument was developed by the State of Michigan to assess functioning level and develop a typology of their CMI clients. This will be used as part of the Montana survey.

The second modification was in the part of the survey which evaluated services received. The Colorado instrument records whether a service was received or not, and if received, a judgment as to the adequacy of the service. If the service was not received, several options are available to document the reason, e.g., funding not available or client unwilling to cooperate. Instead of this two part evaluation of services, the instrument was modified to document whether the service was 1) available, 2) not accessible to client, 3) refused by client, and 4) not available. This would reduce the length of the instrument, simplify the administering

of it, but still provide the critical data needed relative to service delivery.

MONTANA DEPARTMENT OF INSTITUTIONS

Level of Functioning and Service Needs Questionnaire

SECTION I: CLIENT DEMOGRAPHIC

In this section you will be asked questions about the client's background and demographic characteristics. This information is most readily found on the face sheet in the client's case record. Each question should be answered to best describe the client's current status. Please enter the requested number, or circle the one most appropriate response unless otherwise instructed.

1. ASSESSMENT DATE: Enter the date on which you are completing this form:
|__|__|__|__|__|__|
month day year

2. CASE NUMBER: |__|__|__|__|__|__|

3. GENDER:
1. male
2. female

4. BIRTHDATE: |__|__|__|__|__|__|
month day year

5. RACE/ETHNICITY:
1. white
2. black
3. american indian
4. hispanic
5. asian
6. other (specify) _____
7. not known

6. Highest level of education:
   1. Less than High School Graduate
   2. High School Graduate
   3. College
   4. Formal Technical Training
   5. Not known

   Has this client ever been enrolled in special education? ____ YES ____ NO

7. Marital Status:
   1. Never Married
   2. Married
   3. Widowed
   4. Separated
   5. Divorced
   6. Now Known

8. Current Employment Status:

   1. Full-time Competitive Employment
   2. Unemployed, looking for work
   3. Sheltered workshop
   4. Homemaker
   5. Regular volunteer activities
   6. Retired: Age 55 or over
   7. Unknown
   8. Part-time Competitive Employment
   9. Unemployed, not looking for work
   10. Supported employment
   11. Student
   12. CMHC Day Treatment
   13. Other, (Please specify)_____
   _____

9. Current Living Arrangement:

   1. Mental Health Group Home (24 hour staff)
   2. Mental Health Group Home (8 hour staff)
   3. Regular Nursing Home
   4. Secure Nursing Home
   5. Independent Living
   6. Supported Independent Living
   7. Adult Foster Care
   8. Non-mental Health Group Home (DD, dually diagnosed, mentally ill offenders)
   9. Personal Care Home
   10. General Hospital Psychiatric Ward for Short term (21 days or less) care
   11. Montana State Hospital
   12. Center for the Aged
   13. Correctional Facility (e.g. County jail, Montana State Prison)
   14. Shelter/Mission
   15. Homeless

10. INCOME/FINANCIAL ASSISTANCE

    A. What is the client's annual gross level of income?
       1. under $5,000
       2. $ 5,000- 9,999
       3. $10,000-14,999
       4. $15,000-24,999
       5. $25,000-49,999
       6. $50,000 or more
       7. Not known

B. How many persons including the client does the income indicated in 10A support? Enter 99 if the number is not known.

|__|__|

C. For each of the following sources of public support, circle YES if the client receives support from this source; circle NO if the client does not receive support from this source.

General assistance	YES	NO
Medicaid/Medicare/State or County Medical	YES	NO
Supplemental security income (SSI)	YES	NO
Social security disability insurance (SSDI)	YES	NO
Social security - other	YES	NO
Veteran's benefits	YES	NO
Other	YES	NO

Unknown |__|__|

11. DIAGNOSIS

Enter the client's diagnosis using DSM-IIIR codes.

DIAGNOSES: (provisional) DSM III R

AXIS I: Clinical syndrome: ( ) _____ _____
(secondary)

AXIS II: personality & developmental ( ) _____ _____
disorders (secondary)

AXIS III. physical disorders: ( ) _____ _____

AXIS IV. SEVERITY OF PSYCHOSOCIAL STRESSORS: (circle one)

1. none
2. minimal
3. mild
4. moderate
5. severe
6. extreme
7. catastrophic
8. unspecified

_____

AXIS V: HIGHEST LEVEL OF ADAPTIVE FUNCTIONS IN PAST YEAR: (Circle one)

1. superior
2. very good
3. good
4. fair
5. poor
6. very poor
7. grossly impaired
8. unspecified

---

12. Has this client ever received psychiatric treatment in a hospital inpatient setting? (circle one)

YES NO NOT KNOWN

If yes, at Montana State Hospital? YES NO

SECTION II COMMUNITY LIVING SKILLS

This section asks questions about the client's ability to carry out everyday tasks necessary for success in living in the community. Each question should be answered to best describe the client's current status.

13. FOOD PREPARATION

Circle the number of the response which best describes the client's typical ability to prepare meals.

1. Client demonstrates ability and willingness to prepare meals without verbal reminders or physical assistance by others.

2. Client demonstrates the ability and willingness to prepare meals with occasional verbal reminders and/or only occasional physical assistance by others.

3. Client requires training and/or frequent physical assistance to prepare meals.

4. Client's functioning level requires that all meals be prepared and directly served to him/her.

8. Not applicable - client has no opportunity to demonstrate skill.

9. Not known.

14. SHOPPING

Circle the response which best describes the client's current ability to purchase appropriate products to meet basic needs.

1. Client demonstrates the ability and willingness to purchase appropriate products to meet basic needs without verbal reminders and/or physical assistance by others.

2. Client demonstrates the ability and willingness to purchase appropriate products to meet basic needs with occasional verbal reminders and/or only occasional physical assistance by others.

3. Client requires training and/or frequent physical assistance in purchasing appropriate products to meet basic needs.

4. Client's functioning level requires that all shopping is or should be done by others.

8. Not applicable - client has no opportunity to demonstrate skill.

9. Not known

15. KEEP APPOINTMENTS

Circle the number of the response which best describes the client's ability to keep appointments.

1. Client almost always meets scheduled appointments without assistance from others.

2. Client meets most scheduled appointments (51 to 75% of the time) without assistance from others.

3. Client sometimes meets scheduled appointments (25 to 50% of the time) without assistance from others.

4. Client rarely (less than 25% of the time) meets scheduled appointments without assistance from others.

8. Not applicable - client has no opportunity to demonstrate skill.

9. Not known.

SECTION III MALADAPTIVE BEHAVIORS

This section asks questions about the extent to which the client's behavior disrupts daily activities. For each behavior, indicate how often the behavior occurs by circling the number which corresponds to the frequency statement which best describes the frequency of the behavior in the last 12 months.

	Never	Once a year or less	A few times a year	Once or twice a month	Once or more a week	Once a day	More than once a day	Unk
16. Physical violence (e.g. violent episodes involving attacks against others)	1	2	3	4	5	6	7	9
17. Distracting/disruptive behavior (e.g. constant questioning or repetitive statements, playing T.V., radio, or instruments too loud, frequent handshaking, etc.)	1	2	3	4	5	6	7	9
18. Verbal assaults (e.g. use of offensive, threatening, profane, or demeaning language toward others)	1	2	3	4	5	6	7	9
19. Suicidal threat (e.g. a seriously stated verbal intention to take one's own life)	1	2	3	4	5	6	7	9

SECTION IV. FUNCTIONALITY

This section asks questions about the client's emotional and cognitive functioning. Each question should be answered to best describe the client.

20. For each of the following behaviors, circle the number of the response which describes how often in the last 90 days the client has exhibited or reported the following behaviors or symptoms.

		Never	Rarely	Sometimes	Often	Almost Always
a.	Sleeps or sits unless directed into an activity.	1	2	3	4	5
b.	has trouble sleeping	1	2	3	4	5
c.	feels hopeless, worthless or unwanted	1	2	3	4	5
d.	feels blue,	1	2	3	4	5

SECTION V. PHYSICAL HEALTH CARE

This section asks questions about the client's physical health care skills and needs. Each questions should be answered to best describe the clients current status.

21. Circle the number which best describes the frequency of professional medical treatment or consultation (e.g.physician, nurse, etc.) required by the client's medical diagnosis.

1. No medical intervention required
2. Quarterly medical intervention required
3. Monthly medical intervention required
4. Weekly medical intervention required
5. Daily medical intervention required
6. Medical intervention is required 2-3 times a day
7. Continuous medical intervention is required

22. In the last 90 days how often has the client's alcohol consumption interfered with daily functioning? (circle one)

1. Never
2. Rarely
3. Sometimes
4. Most of the time
5. Always
9. Not known

SECTION VI

CLIENT SERVICE NEEDS

PLEASE READ THESE DIRECTIONS CAREFULLY BEFORE BEGINNING WORK ON THIS SECTION:

In order to accurately determine the service needs of the chronically mentally ill population, it is important that we address several aspects of their needs and availability of various services. This section asks you to make certain judgments regarding these needs and services.

An explanation of each type of question found in this section follows:

A. IMPORTANCE

For each service listed in this section, you will need to consider:

1. your client's status within the past 30 days, and

2. if your client needed this particular service to maintain or improve his/her level of functioning.

Once you have made this judgment, please indicate, by circling the appropriate number of the IMPORTANCE SCALE, to what degree each service would have been important for your client to receive within the past 30 days.

NOTE:

1. In judging your client's need for a service, please assume that all of the services indicated are available and deliverable.

2. Do not rate services as important if they reflect the needs your client may have in the future (near or distant) at a different level of functioning, rather than what they actually could use now: ONLY RATE SERVICES AS IMPORTANT IF THEY WERE NEEDED WITHIN THE PAST 30 DAYS.

B. AVAILABILITY

For each service listed that is rated "Somewhat Important" or "Very Important" a judgment must be made about the availability of that service to the client.

Services Available - Service is available and accessible by client if needed.

Service is Available But Not Easily Accessible To Client - Service is available but there are barriers that block the delivery of services to the client, e.g. waiting lists, lack of fiscal resources of client, no transportation available, etc.

Service Available Client refuses Service - Service is available but the client is not cooperative in obtaining service or refuses to seek service.

Service Not Available - The service does not exist in community or within a reasonable distance that would enable the client to obtain the service without relocation.

SERVICE CATEGORIES

Definitions are provided for those services that may not be self explanatory.

CRISIS STABILIZATION SERVICES

ADVOCACY

Legal Assistance Services

Programs providing legal services to clients, oriented toward ensuring civil rights and legal protection.

Advocacy by Other than Case Manager

Assisting client in determining eligibility and entitlement to the range of governmental service and support programs. Instruction on application completion and active participation as an intermediary between clients and agencies are representative services of this sort.

Case Management Services

Services provided by case manager directed toward formulation of an Individual Service Plan, and toward coordination of provision of planned services to the client. Provides centralized record-keeping and referrals; should know all the programs used by the client and the client's status in each respective program.

EDUCATION AND SUPPORT SERVICES

VOCATIONAL DEVELOPMENT SERVICES

Assessment

Functional assessment of client's current work skills, determination of needed skills, and development of vocational plan for client.

Living Skills Training

Service offering training in activities of daily living and community survival. Appropriate skills to foster and develop include personal grooming and hygiene, budgeting and money management, diet training, exercise, use of the telephone, shopping skills, food preparation, cooking, use of transportation.

Work Preparation Training

Provides orientation to the concept of work through prevocational services and career exploration. Increases client readiness for services provided by employment and rehabilitation agencies.

Work Experience Opportunities

The provision of work experiences to develop appropriate skills; provided in sheltered employment, work crews, client-run business, supported placements in industry, etc.

Job Placement and Related Services

Client assistance in obtaining employment in unsubsidized competitive settings. Related services include job and occupational skill training and job development.

Follow-up Support Services

Client assistance on job retention skills, development of ongoing support systems, and maintenance of consistent work habits.

MEDICAL AND DENTAL CARE SERVICES

SUBSTANCE ABUSE TREATMENT SERVICES

MENTAL HEALTH SERVICES

BASIC NEEDS SERVICES

All meals provided - Client is incapable of preparing or assisting in the preparation of meals.

TRANSPORTATION SERVICES

Client Conveyance

Client taken to and from residence in vehicles owned and operated by a public or private transportation service, CMHC or

Client Subsidies

Client given money for use of public or private transportation.

MOST DESIRABLE RESIDENTIAL SETTING

DEFINITIONS OF RESIDENTIAL PROGRAMS

01 Mental Health Group Home (24 hour staff): Group living arrangement for small umber (less than 15) of mentally ill persons. Group home is staffed by persons trained to work with the mentally ill and supervised by mental health professionals. In addition to supervised living, clients receive training and treatment in daily living skills, personal care, socialization and appropriate use of leisure time. Clients generally attend outside activities during the day (e.g., work, mental health programs, school, etc.). Home is staffed 24 hours per day. This is a transitional living arrangement.

02 Mental Health Group Home (8 hour staff): Essentially the same program as 01 above with less supervision. Staff are in the home daily for about 8 hours per day. There is no staff on duty during the night.

03 Regular Nursing Home: Intermediate or skilled nursing home designed primarily for geriatric patients with no special provisions for security for acting out or wandering patients.

04 Secure Nursing Home: Intermediate and skilled nursing care which provides adequate staffing and security to contain wandering patients and deal with some acting out behaviors.

05 Independent Living: Living alone or with family or friend(s) in home or apartment, with no supervision of living arrangement.

06 Supported Independent Living: Living alone or with family or friend(s) in home or apartment, with scheduled visits by mental health professional to check on client's well being. Generally visits are once per week. Mental health worker also available for crisis intervention.

07 Adult Foster Home: Living with and under the supervision of an individual or family with no special mental health training.

08 Non-mental Health Group Home: Group living arrangements for developmentally disabled people; specialized group living for dually diagnosed people; specialized group living for mentally ill offender with enhanced security.

09 Personal Care Home: A licensed facility which provides room, board, and supervision but no treatment. Is not intended as a transitional program.

10 General Hospital Psychiatric Ward for Short-term (21 days or less) Care: Specialized hospital care for acutely mentally ill patients who can be expected to stabilize to the point of not needing hospitalization within 3 weeks.

11 Montana State Hospital Warm Springs Campus: Self-explanatory.

12 Center for the Aged: State facility providing intermediate nursing care for geriatric patients with histories of mental illness. Provides security for wandering patients.

13 Correctional Facility: Self-explanatory.

14 Shelter/Mission: Agency such as Salvation Army offering temporary lodging.

15 Homeless: Client actually living "on the street".

SECTION VI. IMPORTANCE SERVICE AVAILABILITY

	Not at All Important	Somewhat Important	Very Important	Service Available If Needed	Service Available But Not Easily Accessible to Client	Service Available Client Refuses or Unlikely to Use Service	Service Not Available
23. CRISIS STABILIZATION SERVICES							
a. Telephone crisis service	1	2	3	1	2	3	4
b. Emergency home visit	1	2	3	1	2	3	4
c. Psychiatric emergency room visit (hospital)	1	2	3	1	2	3	4
d. Emergency visit to CMHC	1	2	3	1	2	3	4
e. Emergency/shelter alternative residential	1	2	3	1	2	3	4
f. Emergency psychiatric hospitalization	1	2	3	1	2	3	4
24. ADVOCACY SERVICES							
a. Legal Assistance services	1	2	3	1	2	3	4
b. Advocacy by other than Case Manager	1	2	3	1	2	3	4
c. Case Management services	1	2	3	1	2	3	4
25. EDUCATION AND SUPPORT SERVICES							
a. Socialization training	1	2	3	1	2	3	4
b. Family planning/ education	1	2	3	1	2	3	4
c. Parenting education	1	2	3	1	2	3	4
d. Remedial education	1	2	3	1	2	3	4
e. Recreational/ leisure services/ activities	1	2	3	1	2	3	4
f. Social club activities	1	2	3	1	2	3	4
g. Self-help/support groups	1	2	3	1	2	3	4

SECTION VI. IMPORTANCE SERVICE AVAILABILITY

	Not at All Important	Somewhat Important	Very Important	Service Available if Needed	Service Available But Not Easily Accessible to Client	Service Available Client Refuses or Unlikely to Use Service	Service Not Available
26. VOCATIONAL DEVELOPMENT SERVICE							
a. Assessment	1	2	3	1	2	3	4
b. Living skills training	1	2	3	1	2	3	4
c. Work Preparation training	1	2	3	1	2	3	4
d. Work Experience Opportunities	1	2	3	1	2	3	4
e. Job Placement and related services	1	2	3	1	2	3	4
f. Follow-up services	1	2	3	1	2	3	4
27. MEDICAL AND DENTAL CARE							
a. Medical Care: physician assessment and care	1	2	3	1	2	3	4
b. Health Care: Nursing Assessment and care	1	2	3	1	2	3	4
c. Medical hospitalization for non-psychiatric reasons	1	2	3	1	2	3	4
d. Monitoring of medication prescribed for non-psychiatric reasons	1	2	3	1	2	3	4
e. Dental Services	1	2	3	1	2	3	4
f. Physical therapy	1	2	3	1	2	3	4
g. Occupational therapy	1	2	3	1	2	3	4
h. Speech and Hearing Therapy	1	2	3	1	2	3	4
i. Specialized nutrition counseling	1	2	3	1	2	3	4
28. SUBSTANCE ABUSE TREATMENT SERVICES							
a. Alcoholism trmt. (by therapist or other)	1	2	3	1	2	3	4
b. Drug abuse trmt. (by therapist or other)	1	2	3	1		3	4
c. Self-Help (e.g. AA)	1	2	3	1	2	3	4

SECTION VI.

	IMPORTANCE			SERVICE AVAILABILITY			
	Not at All Important	Somewhat Important	Very Important	Service Available If Needed	Service Available But Not Easily Accessible to Client	Service Available Client Refuses or Unlikely to Use Service	Service Not Available
29. MENTAL HEALTH SERVICES							
a. Monitoring of meds prescribed for psych.trmt.	1	2	3	1	2	3	4
b. Psychotherapy: Individual Therapy	1	2	3	1	2	3	4
c. Psychotherapy: Family Therapy	1	2	3	1	2	3	4
d. Psychotherapy: Group Therapy	1	2	3	1	2	3	4
30. BASIC NEEDS SERVICES							
a. Help Locating housing	1	2	3	1	2	3	4
b. Help Maintaining a household	1	2	3	1	2	3	4
c. Help Purchasing food.	1	2	3	1	2	3	4
d. Help preparing food	1	2	3	1	2	3	4
e. All meals provided	1	2	3	1	2	3	4
f. Help maintaining personal hygiene	1	2	3	1	2	3	4
g. Help managing finances	1	2	3	1	2	3	4
h. Help obtaining clothing	1	2	3	1	2	3	4
i. Help maintaining clothing	1	2	3	1	2	3	4
31. TRANSPORTATION SERVICES							
a. Client Conveyance	1	2	3	1	2	3	4
b. Client subsidies	1	2	3	1	2	3	4

SECTION VI. CLIENT'S LIVING SITUATION SERVICE AVAILABILITY

32. Most Desirable Residential Setting (Select One)	Service Available if Needed	Service Available But Not Easily Accessible to Client	Service Available Client Refuses or Unlikely to Use Service	Service Not Available
	1	2	3	4
1. Mental Health Group Home (24 hour staff)	1	2	3	4
2. Mental Health Group Home (8 hour staff)	1	2	3	4
3. Regular Nursing Home	1	2	3	4
4. Secure Nursing Home	1	2	3	4
5. Independent Living	1	2	3	4
6. Supported Independent Living	1	2	3	4
7. Adult Foster Care	1	2	3	4
8. Non-mental Health Group Home (DD, dually diagnosed, mentally ill offenders)	1	2	3	4
9. Personal Care Home	1	2	3	4
10. General Hospital Psychiatric Ward for Short term (21 days or less) care	1	2	3	4
11. Montana State Hospital	1	2	3	4
12. Center for the Aged	1	2	3	4

SECTION VII: RATER INFORMATION

1. Position:_____

2. Name:_____

3. How long have you known this client? (circle one response)

   a. Less than 3 months

   b. 3 through 6 months

   c. 7 through 12 months

   d. 13 months through 24 months (2 years)

   e. 25 months through 60 months (5 years)

   f. More than five years.

4. How long has it been since you last had face-to-face contact with this client?

   a. 7 days or less

   b. between 8 and 14 days

   c. between 15 and 30 days

   d. between 31 and 60 days

   e. between 61 and 90 days

   f. more than 90 days

5. In the last 90 days how many face-to-face contacts have you had with this client?

   number_____

6. Which of the following sources of information did you use in completing this assessment? (check all that apply)

   _____ case record

   _____ own knowledge of client (memory)

   _____ records from other agencies - residential, partial day, etc.

   _____ reports or comments from other staff

   _____ direct observation of client

   _____ reports or comments from client's significant others

   _____ Other, please specify_____

7. In the last three months how has the client's overall condition changed? (circle one)

   a. Has improved

   b. Has fluctuated

   c. Has stayed the same

   d. Has deteriorated

8. Circle the number of the response which best describes the client's current feeling regarding his/her ability to improve his/her functioning in the future.

Very hopeful	Hopeful	Neutral	Discouraged	Very discouraged
1	2	3	4	5

9. Circle the number of the response which best described <u>your</u> estimate of the likelihoo that the clients functioning level will improve in the future.

Very likely	Likely	Possible	Fairly Unlikely	Very unlikely
1	2	3	4	5

Thank you

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