An Impact Evaluation of the Texas Department of Mental Health and Mental Retardation Assertive Community Treatment (ACT) Program on Participant Use of State Hospitals

By

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An Applied Research Project (Political Science 5397) Submitted to The
Department of Political Science
Southwest Texas State University
in Partial Fulfillment for the Degree of

Masters in Public Administration

(Spring 1998)

Faculty Approval

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Chapter One

Introduction

Adam "was a wonderfully, sweet young man," his mother said. He was a high school athlete and captain of his team, active in his college fraternity, a good student. He had graduated from college and started working while studying for a professional certification exam when something inside him changed. Adam stopped being careful about his personal appearance. He told his parents he suspected them of communicating with each other in secret ways, such as in sign language, which he couldn't understand. He began to hear his mother's voice in his head and he asked her why she was sending him messages... he was diagnosed with schizophrenia. (National Alliance for the Mentally Ill)[1]

Schizophrenia

It is estimated that as many as 3 million Americans (1 per cent of the population) suffer from problems related to the mental illness schizophrenia.[2] The illness, which produces devastating symptoms such as hallucinations[3], delusions[4], and disorganized thinking[5], chooses its victims from America's youth, often striking persons in their late teens and early twenties. Of all the mental disorders labeled major mental illness, schizophrenia is considered to be the most disabling, affecting individual functioning and ability to live and work independently.[6]

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, (DSM-IV), is the manual used by psychiatrists and other mental health professionals as the primary diagnostic tool for determining mental illness. The DSM-IV defines schizophrenia as a disturbance, which lasts for at least 6 months and includes at least one month of active

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[1] Taken from the National Alliance for the Mentally Ill Medical Information Series on Schizophrenia.

[2] Schizophrenia: Questions and Answers, Booklet produced by the National Institute of Mental Health, 1986 and available for free from the Public Inquiries Branch, National Institute of Mental Health, Room 15C-05, 5600 Fishers Lane, Rockville, MD 20957

[3] Seeing and hearing things that do not exist in reality. A person with schizophrenia may hear "voices" in his head which may say negative things to the person or tell him what to do.

[4] False personal beliefs, e.g., believing that a neighbor is controlling behavior, or believing that people on television are directing special messages specifically at the person.

[5] Thoughts coming and going very rapidly, or inability to concentrate or focus attention. Connecting thoughts in a logical sequence may be difficult. Commonly known as a "thought disorder."

symptoms which include at least two of the following: delusions, hallucinations,[7] disorganized speech, grossly disorganized or catatonic behavior, and negative symptoms.

Schizophrenia is not a "split personality", as some believe. Split or multiple personality is another disorder, which is unrelated and very rare. According to the Alliance for the Mentally Ill, a national family advocacy group, there is no single known cause of schizophrenia, though there is evidence of a genetic relationship. Schizophrenia is a disease of the brain, having a biological base like diabetes and cancer, and not caused by bad parenting or weaknesses within the person. There is no known cure for individuals with schizophrenia, though most individuals with the illness respond to drug therapy and other treatment and rehabilitative services which assist persons in living successful lives within their home communities.

The Texas Department of Mental Health's Assertive Community Treatment Program

The evolution of community-based care for persons with schizophrenia and other severe mental illnesses, has been characterized as often directed toward the highest functioning members of the population, not the most in need or most disabled (Bachrach, 1997:52). With the goal of improving community-based care for persons with severe mental illness and reducing dependence on state psychiatric hospitals, the Texas Department of Mental Health and Mental Retardation (TXMHMR) began statewide implementation of a model program, assertive community treatment (ACT), in the summer of 1995. Assertive community treatment is defined in Texas as a mobile multidisciplinary team, which includes a part time psychiatrist and at least one registered nurse and which maintains responsibility for providing

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[6] Schizophrenia: Questions and Answers, P.1.

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comprehensive clinical treatment and psychiatric rehabilitation to persons with severe mental illness who have historically been difficult to successfully treat. Today, 2,000 individuals across Texas receive this service.

Study Purpose

The purpose of this study is explanatory: to evaluate the Texas Department of Mental Health and Mental Retardation's (TXMHMR) Assertive Community Treatment (ACT) program's effectiveness in reducing state hospital use for program participants diagnosed with schizophrenia. The study uses archival records from TXMHMR's state management information system, to investigate the relationship between ACT and hospital use reduction. The researcher compares ACT participant use to the hospital use of a comparison group receiving another service (supported housing) during the same time period. The study also attempts to use state management information to investigate whether ACT clients experience an overall reduction in symptoms related to mental illness and improved community functioning as indicated on assessment tools required by the state. Table 1.1 illustrates the study research questions.

Table 1.1: Study Questions
1. Do ACT clients with schizophrenia diagnosis have reductions in state hospital days as compared to a comparison group of individuals receiving non-ACT services?
2. Do ACT clients with schizophrenia diagnosis have an overall reduction in symptoms related to mental illness after ACT entry?
3. Is there evidence that ACT clients with schizophrenia diagnosis have improved functioning?
4. Are there recommendations that can be made for future policy development and research?

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[7] A defining characteristic of schizophrenia is the presence of psychotic features.

Based on the findings, the study provides recommendations, which can be used for future policy development and further research inquiry. TXMHMR maintains an extensive database, which includes information on all clients served thoughout the system. The data analyses may be helpful in identifying the usefulness of the management information for local program evaluation.

Chapter Summaries

A historical context of treatment of persons with severe mental illness is provided in Chapter Two. The development of community-based services is also discussed. Finally, this chapter provides an overview of much of the empirical evidence on Assertive Community Treatment to date, which is used to formulate the conceptual framework used for the study. The study's conceptual framework is included in this chapter.

Chapter Three serves to provide further context for the implementation of the program of Assertive Community Treatment. The Texas Department of Mental Health and Mental Retardation, the state agency charged with serving persons with major mental illness, is described. Texas' community-based system, which has had direct responsibility for the implementation of ACT, is discussed. Finally, this chapter includes information related to current trends and environmental influences related to publicly funded community-based mental health services. Information on Texas' "Uniform Assessment" and management information system is provided. Chapter Three also includes a general description of the TXMHMR mental health priority population.

Chapter Four provides a discussion of the study design and describes the study methodology. Subject selection and inclusion criteria are discussed for both for the experimental group and the comparison group. Study limitations are examined.

Chapter Five reports the results of the research and describes related analyses. Finally, Chapter Six provides conclusions and recommendations, which can be used by the Texas Department of Mental Health and Mental Retardation for policy development and future research inquiry.

Chapter Two

Literature Review

"For those of us who have been diagnosed with mental illness and who have lived in the sometimes desolate wastelands of mental health programs, hope is not just a nice sounding euphemism. It is a matter of life and death. We know because, like the sea rose, we have known a very dark winter in which all hope seem to be crushed out of us. It started for most of us in the prime of our years. At first we could not name it. It came like a thief in the night and robbed us of our youth, our dreams, our hopes our futures. It came in the dark like a terrifying nightmare that we could not waken from."
(Patricia Deegan, Consumer Advocate, 1994)

Introduction

John Hoult describes the deinstitutionalization of persons with severe mental illness from public mental hospitals, as simply a two-part process. First, the process includes discharging persons from mental hospitals to the community. Secondly, the process requires the provision of adequate resources for quality community-care (Hoult, 1986:137). Quality community care for persons with severe mental illness, e.g., schizophrenia and schizophrenia related mental disorders has failed to be realized (Anthony, 1993; Bachrach, 1987; Hoult, 1986; Test, 1992). According to Leona Bachrach, one of the foremost thinkers in contemporary psychiatry (Lamb, 1987), "Deinstitutionalization in America has been plagued by a variety of problems. Among other things, it has frequently been accused of overlooking the needs of the very people it was originally intended to serve: the most severely disabled among the mentally ill (Bachrach, 1987: 14)." Four examples of the nation's responses to people who have schizophrenia are provided by Bachrach who says that we have placed them in hospitals, treated them in community-based facilities ... and at times, provided no care at all. A worthy outcome of our failed policy, according to Bachrach, is that we have tried to do something new by "looking for new and innovative ways to care for people who have schizophrenia by making them subjects of model programs (Bachrach, 1987: 14)."

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This chapter provides a review of relevant literature and research of the program, assertive community treatment (ACT), which originated as the Training in Community Living Program (TCL) in Madison, Wisconsin.[8] The chapter explores the historical context regarding the expansion of community based services through a series of model programs for persons at risk of psychiatric hospitalization. Model programs are reviewed in the context of their relevancy and efficacy in the care of persons with severe mental illness. The assertive community treatment program model elements are discussed, and most importantly, a review of relevant research is provided. As a result of the literature review, a conceptual framework is designed, which guides the research questions and methodology.

Deinstitutionalization: A Historical Context

Primary responsibility for the care and treatment of persons with severe mental illness has alternated from the community to the hospital and back to the community, throughout history. In the seventeenth and eighteenth centuries, mental illness was viewed as a problem of social or spiritual weakness (Breakey, 1996:15). Care was provided by the local communities or families or within jails. In the nineteenth century, care was shifted to confinements in hospitals, when the concept of mental illness was viewed as medical and needing physician care. The belief that a severe mental illness such as schizophrenia could have a biological or psychological basis developed in the twentieth century and the movement away from institutional care began in favor of less restrictive community care (Breakey, 1996:15).

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[8] Originated by Marx, Stein and Test as the Training in Community Living program (TCL). The Wisconsin program currently operates under the name of Programs of Assertive Community Treatment (PACT). Assertive Community Treatment (ACT), Mobile Treatment Teams (MTT), Continuous treatment Teams (CTT) are just some of the terms used for service models which are adaptations of the original Marx, Stein, and Test demonstration program.

According to William Breakey (1996:15,16), while the emphasis on community care of persons with mental illness in the twentieth century has been positive for many, it has also shifted care from hospitals to institutions such as jails and homeless shelters, which were not intended for persons with mental illness.[9] To illustrate his point that the locus of care for persons with severe mental illness has been cyclical from community to hospital, Breakey (1996:16) uses the words of Benjamin Franklin in a petition to justify the establishment the Pennsylvania Hospital.

> *THAT with the Numbers of People the Number of lunatics, or Persons distemper'd in Mind, and deprived of their rational Faculties, hath greatly increased in this province.*
> *THAT some of them are going at large, are a Terror to their Neighbours, who are daily apprehensive of the Violences they may commit; and others are continually wasting their Substance, to the great Injury of themselves and Families, ill disposed Persons wickedly taking Advantage of their unhppy Condition, and drawing them into unreasonable bargains, &c. (Benjamin Franklin, 1751, quoted by Grob, 1973)*

Although, Franklin's language is somewhat dated, the problems that he describes are familiar today.

In the twentieth century, public mental hospitals were criticized for being overcrowded and providing poor care. In a 1961 report, *Action for Mental Health*, which documented the problems of care in state run psychiatric hospitals, the Joint Commission on Mental Illness and Health, called for a new system: community-based mental health care. In 1963, through legislation introduced and passed by Congress, President John F. Kennedy established a network of community mental health centers across the nation. The legislation intended to shift the locus of care from the hospital to the community. "Kennedy's address to Congress and the passage of the Mental Retardation Facilities and Community Mental Health Centers Construction Act in 1963 officially marked the end of the preeminence of state hospitals in

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[9] Many believe that the shift to community institutions was a result of communities being ill-prepared to meet

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America's mental health system and the beginning of the era of deinstitutionalization" (Breakey, 1996: 15). Deinstitutionalization was seen as possible due to the development of new medications and the passage of social security legislation of the 1960s. These two events made it possible for persons with mental illness to receive medical care outside hospitals via Medicaid and Medicare (Breakey, 1996:26). Policy makers believed that the establishment of the community mental health center system would make it possible for individuals to have access to necessary outpatient psychiatric care.

Kennedy's dream of reducing the state hospital population by over 50 percent, and policy makers' belief that reductions of hospital use would lead to a shift in funds from the hospital to community care have not been fully realized. William R. Breakey cites the work of Lutterman (1994) who found that in 1993 there were still 256 state operated psychiatric hospitals operating in the United States (Breakey, 1996:26). Leonard Stein, a founder of the assertive community treatment approach, criticized the disparity in expenditures for community-based care for persons with mental illness. Stein pointed out that in 1980, only 30 percent of total expenditures for services were going for community-based care, while 70 percent were still going to support hospital services (Stein, 1985: 38). Stein further argued that there may already be enough money in the system to provide good care if only that money were distributed more rationally.

Deinstitutionalized patients are described as having schizophrenia, bi-polar/ manic-depressive illness and personality disorders. What makes deinstitutionalized individuals different, according to Leona Bachrach, is that they have not been recipients of long term institutional care, but are intermittent users of the mental health system (Bachrach, 1987:32,

the needs of the population and inadequate community mental health funding.

35). In describing the response of the public community mental health systems in caring for persons during this era of deinstitutionalization, Bachrach says that, "Services for mentally ill people are often directed toward the highest functioning members of the population, not the most disabled. Very often, essential services may be totally unavailable to those who need them most (Bachrach, 1987:52)."

Two major problems have been identified in addressing the needs of persons with severe mental illness in this era of deinstitutionalization (Test, 1992: 154). First, policy makers and service providers have grossly underestimated what it takes to support people with severe mental illness within the community setting. Secondly, programs and services are not reaching the persons needing them; e.g., deinstitutionalized individuals drop out even though they are initially linked to aftercare services (Test, 1992: 154). Leona Bachrach (1987: 25) provides testimony to the problems of community mental health care by saying that "In community mental health programming we've somehow been diverted from our original purpose, so that we've often overlooked the complex needs of the most seriously ill in the population of schizophrenic patients."

Essential Elements of a "Caring" System

William Anthony states that eight elements must be present in a "caring" system. Anthony includes the following as necessary elements of community-based care.

Table 2.1: Anthony's 8 Elements of a Caring Mental Health System
• treatment;
• crisis intervention;
• case management;
• rehabilitation;
• enrichment;
• rights protection;
• basic support;
• and self-help

Anthony defines treatment for persons with severe mental illness, as alleviating symptoms and distress. Crisis intervention includes the resolution of dangerous problems. Case management is defined as a method of obtaining necessary services, while rehabilitation is defined as helping a client develop skills. Rights protection ensures that persons who may have significant impairments and symptoms related to their mental illness are protected from abuse. Assisting a client in having satisfying and fulfilling activities is viewed as enrichment, and shelter, meals and health care are, just some of the basic supports needed. The term self-help, according to Anthony, includes a person learning to exercise choice in one's own life (Anthony, 1993:13).

Looking for Solutions: The Development of Model Programs

In search of solutions to the problems of providing community-based care to persons with severe mental illness, the mental health field has developed a number of "model programs." Model programs, according to Leona Bachrach, can be viewed as individual entities, or for their important commonalties, generalizability, and relevance for psychiatric service delivery within larger mental health service systems (Bachrach, 1987: 14-26).

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According to Bachrach, there have been enough model programs demonstrated and that

community-based care needs to develop systems of care using the eight principles of model

programs as follows (Bachrach, 1987: 17-19).

Table 2.2: Elements of Model Programs
• Model programs assign the highest priority to the most severely impaired • Model programs are linked to other resources in the community such as medical, social, vocational, etc. • Model programs provide the full range of services, which were provided in institutional settings • Model programs provide individualized treatment interventions • Model programs are culturally relevant • Model programs employ specially trained staff • Model programs are tied to a complement of hospital beds • Model programs are self-evaluating

Psychiatric Rehabilitation

The early 1970s brought a focus on psychiatric rehabilitation[10] in the form of facility-

based programs designed to teach independent living skills and provide social and vocational

support.[11] Anthony states that the field of psychiatric rehabilitation has helped broaden the

perspective of treatment from treating just the illness to acknowledging the need to treat the

resulting effects of the illness, e.g., functional and social impairments (Anthony, 199: 12).

While Gary Bond defines the major goal of psychiatric rehabilitation as prevention of

hospitalization, he says that the standard Psychosocial Rehabilitation (PSR) day program is not

effective in preventing hospitalization (Bond, 1985: 993-994). In 1984, Bond studied three

types of service configurations by examining whether psychosocial rehabilitation, a treatment

philosophy incorporating vocational, residential, and social programming and community

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[10] Psychiatric rehabilitation is also known as psychosocial rehabilitation. Both terms are used synonymously.

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outreach, can be defended on economic grounds, e.g., cost savings (Bond, 1984: 56).

Participant outcomes were compared using three interventions: psychiatric rehabilitation

program; support group attendance; and an aggressive home outreach program. The

aggressive home outreach program was found to have the most savings.

Case Management

In a further attempt to resolve problems in the community care of persons with severe

mental illness, case management was introduced to Texas and the rest of the nation as another

model program in the 1980s. The primary intent of community mental health case

management[12] was to address the problems of fragmented and pluralistic care[13] (Bachrach,

1987:92). Persons with severe mental illness were often unable to figure out how to get what

they needed from the mental health system (Bachrach, 1987: 92). While case management was

seen by many as a panacea which would help persons with severe mental illness connect with

the services they needed, case management developed with a variety of operational definitions.

Variations in Case Management Definitions

Judith Maurin (1990:8) points out problems with operational definitions and case

management variations. Variations include case management as an administrative function,

which is most often referred to as the "brokerage" model in which staff link consumers to what

is needed but do not provide services. Maurin presents a second variation of case management

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[11] In Texas, Psychiatric Rehabilitation programs have many varied forms, e.g., Psychiatric Rehabilitation Clubhouses provided facility based peer and social support and community skills training. Programs entitled Fairweather Lodges, were communal living situations where "members" would operate small businesses.
[12] In Texas, Targeted Case Management was introduced in 1985. Case managers had "caseloads" of 25 to 35 individuals who had been screened and found to meet criteria for "most in need" and had severe mental illness.

that she describes as an "extender" model in which paraprofessionals assist case managers in the performance of their work. A third variation is described as the "clinical" model in which staff link clients to needed resources but also directly provide services, such as teaching basic living skills (Maurin, 1990: 8). While concluding that research on case management has resulted in mixed findings, Maurin (1990: 12) states that this may be due to a lack of definition of case management and calls for future evaluations of the implementation process. While most agree that case management assists mental health clients negotiate and procure services, there is no consensus on the term case management (Maurin, 1990:12).

Joel Kanter agrees with Maurin's assessment of case management's lack of national consensus regarding operational definitions and how it should be practiced. Kanter delineates the clinical case management model by describing it as concerned with the whole person, e.g., housing, treatment, social, family, etc., "not merely an administrative system for coordinating services." Further support is provided by Kanter for what he calls team models of case management, which require close collaboration between case managers, psychiatrists, and other clinical staff, versus administrative case management which segregates case managers from clinicians (Kanter, 1989: 361).

Caseload sizes have been widely discussed as related to the problem of varied case management outcomes related to hospital use reduction. Kanter (1989: 367) provides five factors affecting optimal case management caseload sizes. The factors include:

- the mixture of newly referred unstable patients and long-term stabilized patients,
- the risk level of the target population;
- the availability and accessibility of other community resources; and
- the program's success in attracting and retaining skilled case managers.

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[13] Bachrach refers to pluralism in reference to the variety of services available to persons with mental illness predominately from the community mental health center system.

Furthermore, Kanter states that caseload sizes may vary, ranging from 5 to 50, depending on patient functioning.

Integrating Psychiatric Rehabilitation and Case Management

Gary Bond completed a focused study on the benefit of combining case management (CM) and psychosocial rehabilitation services (PSR)[14] and found that combined CM and PSR have better outcomes than one without the other. In addition, Bond says that when interpreting the results, it is important to know that the CM services in the study were more effective than in previous studies and that the PSR program was surprisingly less effective than people might think (Bond, 1994: 341-342). Barbara J. Burns (1995:673) substantiates Bond through her findings that outcomes of reduced hospitalizations are not always found with the "broker/administrative" model of case management.

Integrating Psychiatric Rehabilitation, Case Management and Clinical Treatment

Assertive community treatment is a model of community-based care, which combines psychiatric rehabilitation, clinical treatment and case management, and has an impressive record of obtaining desired outcomes. Jack E. Scott and Lisa Dixon differentiate case management models from assertive community treatment (ACT). "ACT directly and intensively provides all or nearly all of the treatment, rehabilitation, and support services needed by individuals with schizophrenia: case management models offer a limited array of direct services delivered with less intensity than ACT programs" (Scott & Dixon, 1995: 658)."

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[14] The term psychiatric rehabilitation is widely accepted and is used synonymously with the term psychosocial rehabilitation (PSR) which Bond refers to in his study.

Assertive Community Treatment: Origin and Definition

ACT traces its origin to The Training in Community Living (TCL)[15] program

developed in the 1970s in Madison, Wisconsin. "No psychosocial intervention has influenced

current community mental health care more than assertive community treatment... By far the

most carefully defined, well documented, and successful of these interventions (Drake and

Burns, 1995: 667)." Laurie Flynn, President, The National Alliance for the Mentally Ill, a

family and consumer advocacy organization, has called for the inclusion of assertive

community treatment in all systems of care for persons who have severe and persistent mental

illness (Flynn, 1996).[16]

Anthony refers to Community Support Services (CSS) or assertive community

treatment as a "network of caring and responsible people committed to assisting vulnerable

populations meet their needs and develop their potentials without being unnecessarily isolated

or excluded from the community (Anthony, 1993: 12)." Gary Bond (1994:345) provides

support for the model of care by saying, "a multi-program system is only effective when there

is close integration and continuity of services, conditions which require a fixed point of

responsibility and adequate communication and collaboration between the different players."

Barbara J. Burns (1993:670) states that ACT is the only comprehensive service targeted to

persons with severe mental illness, which has had multiple randomized clinical trials.

The assertive community treatment model developed from the work of Marx, Test, and

Stein, on the ward of the Mendota State Hospital in Madison, Wisconsin in the 1970s (Test,

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[15] Training in Community Living (TCL) is now known as Programs for Assertive Community Treatment (PACT) and was the predecessor for more recent adaptations that have become to be known as Assertive Community Treatment (ACT), mobile treatment teams, and continuous treatment teams. TCL and PACT are very specified treatment models and interventions which states have failed to implement with fidelity.
[16] Laurie Flynn,"States Helping States: P/ACT and Managed Care meeting hosted in 1996 by TXMHMR.

1992: 153). Leonard Stein and Ron Diamond describe the service model as having two key parts. First, Stein and Diamond called for assertive outreach and strong case management which ensures that individuals' needs are being met, and that there is early recognition of developing problems. Secondly, Stein and Diamond state that the model ensures that patients do not drop out of treatment. The team approach inherent in the assertive community treatment model has the benefit of helping to prevent staff burnout due to sole responsibility for very difficult and needy patients and also ensures continuity of treatment (Stein & Diamond, 1985: 34).

Mary Ann Test, an originator of the Madison, Wisconsin Training in Community Living program which is more recently referred to as ACT, describes the model as an interdisciplinary team which sees that all patient needs are addressed by the core services team. The Training in Community Living program is described by Test as made up of 13 interdisciplinary staff for 115 patients whose needs include mental health (medications and treatment) and rehabilitation services (employment and daily living skills development) and assistance with basic needs such as housing, food, and health care. The team is responsible for both developing individualized plans with each patient to address their needs, and providing most of the planned treatment and services itself (Test, 1992: 154). Services provided by the team include:

1. *Medications*
2. *Long term one to one clinical relationships*
3. *24 hr crisis availability*
4. *Employment rehabilitation services*
5. *Assistance with housing and daily living skills*

Mary Ann Test emphasizes the importance of having a single team provide most of these services to minimize fragmentation of community care systems and integrate clinical management. By using the same team to provide most services, the interaction of symptoms

and psychosocial functioning can be effectively addressed continually throughout the course of illness (Test, 1992:156).

Robert Drake and Barbara J. Burns (1995:667) describe ACT as a community team which provides services much like a hospital by ensuring the provision of a full range of medical, psychosocial, and rehabilitation services. These researchers further state that bringing care to the patient reduces problems with missed appointments and that skills learned in a naturalistic setting last longer than those learned in a hospital.

The Importance of Assertive Outreach

Mary Ann Test emphasizes the importance of assertive outreach, defined as both biological and psychosocial services that are taken to the patient instead of waiting for the patient to come to a central location to receive services (Test, 1992: 156). The work of Morrison and Bellack (1984) is cited as back up to the rationale for this approach. The outreach approach is designed to minimize dropout rates and to provide psychosocial services in vivo (in natural environments such as home or other community setting) due to problems in transference of training. Transference of training is difficult for persons with serious mental illness (Test, 1992: 156). According to Test, the core elements of the service model include:

1. *Assertive outreach and in vivo treatment*
2. *Individualized treatment*
3. *On-going treatment and support*
4. *Treatments and services provided directly by TCL (ACT)*
5. *Direct assistance with symptom management*
6. *Facilitation of an optimally supportive environment*
7. *Direct assistance with instrumental functioning*
8. *Continuous treatment*

The Importance of Continuous Treatment

Test defines a continuous treatment team as "a fixed point of responsibility for assisting the patient in meeting all of his or her needs from the day that the patient enters the program to a time extending years into the future" (Test, 1992: 158). The continuous treatment team approach minimizes dropout and maximizes "integrated clinical management across functional areas and patient and provider can plan services at any one time based on an increasing shared history and longitudinal picture of the patient's growth and setbacks" (Test, 1992: 158)." Test provides further support for ongoing treatment by citing E. Fuller Torrey (1986), who emphasizes the importance of the long-term, trusting, supportive human relationships between patient and staff and the ensuing benefits of patient reliance on the team as the stable point in his or her life. Hoult (1986:138) also provides empirical support for continuous treatment, when speaking of long term effects after the discontinuation of the treatment, by pointing out that the experimental group patients experienced diminished outcomes, which soon became "indistinguishable" from those of the control group. Scott & Dixon (1995:665) believe that more research is needed regarding the advantages and disadvantages of transitioning people from assertive community treatment teams.

The Empirical Evidence

The ACT model has been widely disseminated across the nation and many studies have been performed. Research has included randomized controlled trials conducted in the United States and Australia, which have had positive findings (Deci, 1995: 676). The following

section includes reviews of past research evaluating the effects of assertive community treatment on variables such as hospital use, symptoms, client satisfaction, and quality of life.

Meta Reviews of ACT Research

Mark Olfson reports that overall, ACT has reduced hospital utilization but cautions that the quality of earlier studies was better than later studies which have not replicated effects on symptoms, functioning and occupational performance. The efficacy of assertive community treatment in controlling clinical symptoms, improving social functioning and promoting occupational functioning, according to Olfson, (1990:634) has been primarily restricted to the original research in Madison and the TCL replication in Australia. "The most consistent finding--that assertive community treatment reduces hospital utilization--has been replicated in several evaluations of assertive community treatment programs and tends to be most robust when study subjects are selected for recent high levels of service utilization" (Olfson, 1990: 640). In his 1990 review, Olfson concluded that "every study that has probed patient's feelings about treatment has found that patients who receive assertive community treatment are significantly more pleased with their care than control patients" (Olfson,1990: 640).

In 1995, Gary Bond, John H. McGrew, and Dawn M. Fekete (1995:4) performed a Meta analysis of nine studies of ACT. Bond et al (1995:4), found a reduction in inpatient days by 50 percent or more and evidence of improved level of functioning. The benchmark of at least 50 percent reduction in inpatient days has been recommended as a minimum expected result of ACT services. In regard to vocational outcomes, Bond et al (1995:13) found no impact on employment but explained that the programs included in the study may not have had vocational components.

Table 2.3: Meta Analysis of ACT Research

Researcher	Studies Reviewed	Overall Findings
Olfson[17]	Stein and Test Hoult et al Bond Marx et al Mulder Wright et al	Reduction in Hospital Use Was a Positive Finding in All Studies. Only the Stein and Test Study and the Hoult Replication Were Found to Have Impact on Clinical Symptoms, Improving Social and Occupational Functioning.
Bond et al[18]	Nine Studies of Indiana, Ill. And PA. Programs Were Reviewed	Reduction in Hospital Use (Created Benchmark of 50% Reduction of Hospital Use for Future Studies)

Stein and Test Study

Leonard Stein and Mary Ann Test, founders of the assertive community treatment model, have found ongoing evidence of the efficacy of the service model for persons with severe mental illness. Stein and Test (1980:393) using an experimental research design, studied the effects of the Training in Community Living program (TCL) on persons who were randomly selected while being evaluated for state hospital admission. The TCL model was compared to a control group, which received "progressive in-hospital treatment plus community aftercare" (Stein & Test, 1980: 393). The treatment intervention lasted 14 months for the experimental (E) group, with the latter few months spent transitioning E subjects to regular care (same programs as control group).

Sixty-five subjects, residents of Madison, Wisconsin and the surrounding area, were included in both the experimental and control groups (Stein & Test, 1980: 394). Subjects were aged 18-62, and had a psychiatric diagnosis other than organic brain syndrome or primary alcoholism (Stein & Test, 1980: 393). Data was collected at four month intervals for 28

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[17] Information taken from Olfson (1990), Table 3, p.637.
[18] Bond et al, (1995) p.4-16.

months by way of face to face interviews performed by researchers who were not part of the treatment team (Stein & Test, 393). The mean age of subjects was 31 years and subjects had accumulated at least 14.5 months in the hospital spread over 5 hospitalizations per subject. Seventeen per cent of the subjects (17%) had spent no time in the hospital. Fifty per cent of the subjects (50%) had schizophrenia diagnosis.

The experimental program was implemented using mental hospital staff who had been retrained and transplanted to the community. The TCL intervention included staff coverage 24 hours a day, seven days a week, in vivo (natural environment) treatment, areas of daily living assistance and job assistance, and support for patient families (Stein & Test, 1980: 393). The control group received innovative treatment that was aimed at preparation for community living, which included treatment in the hospital and aftercare services upon discharge. Data was collected using the following instruments: Demographic Data Form; Short Clinical Rating Scale; Community Adjustment Form; and Rosenburg Self Esteem Scale.

The findings (see Table 2.4) include reduction in hospital use, without an increase in penal or supervised living settings. The experimental group spent less time unemployed, had higher satisfaction, and higher self-esteem than the control group. The experimental group also had decreased symptoms and improved functioning.

An impressive aspect of the Stein and Test study was the evaluation of the long-term effects of the TCL intervention via a 14-month follow up study. Stein and Test conclude that positive outcomes diminished as the program intervention ended and clients were returned to regular services. Upon discontinuation of the experimental condition, the researchers found that hospital use increased, community functioning decreased, and symptoms increased (Stein & Test, 1980: 396). Stein and Test recommended "that for a large number of chronically

disabled psychiatric patients, treatment must be an ongoing rather than time-limited endeavor… organized so that it can provide a flexible system of delivery that gives the patient only what he what he needs, when he needs it and where he needs it" (Stein and Test, 1980:396*)*.

Australia Replicates the Stein and Test Study

"Stein and Test's study is generally regarded as the best" says John Hoult, who replicated the study in Sydney, Australia (Hoult, 1986:138). Hoult further describes his replication study as having the following goals: 1). To demonstrate that it is feasible to treat psychiatric patients in community as an alternative to mental hospital admission; 2). To show that this can be done without detriment, to the patient, their relatives, or the community; and, 3). To demonstrate that such treatment costs no more than standard hospital care or after care. The study sample consisted of 60 patients who were presenting for voluntary state hospital admissions. Random assignments were used and persons with organic brain disorder or mental retardation or single substance abuse were excluded. The experimental subjects (50% with diagnosis of schizophrenia) were randomly assigned to a community treatment team and the control group, which received standard hospital inpatient care and after care services upon discharge. The findings replicated those of the Stein and Test randomized clinical trials. Hoult (1986:142) further concluded that most psychiatric patients could be treated effectively in the community.

Further Empirical Evidence

Robert G. Wright, Julia R.Heiman, Jill Shupe, and Glenette Olvera, examined four years of a service that was based on the Stein and Test TCL model, which served severely disabled psychiatric patients with few family ties and multiple hospitalizations (Wright et al, 1989: 1293). Wright and colleagues set out to test whether hospital days and episodes decreased without an increase in jail use, and also measured patient stabilization and satisfaction. Wright et al found that hospital use decreased by 80% the first year of the study (Wright, et al, 1989: 1296). Further study findings are found in Table 1. The researchers concluded that hospitalization use alone is an inadequate outcome measure for ACT. "If reduced hospitalization is not accompanied by stabilization in other respects, the benefits of community support may be questioned" (Wright, et al, 1989: 1293).

In 1993, Jerry Dincin, Daniel Wasmer, Thomas Witheridge, Larry Sobeck, Judith Cook, and Lisa Razzano, studied the Thresholds Bridge program in Illinois, to determine broader system effects of ACT on state hospital use of persons who were designated to be at high risk for hospitalization (Dincin et al, 1993: 833). The researchers compared hospital use in a state hospital catchment area that had an ACT team to one, which did not (Dincin et al, 1993: 833). The researchers expected at least a 50% reduction in hospital use for experimental subjects (Dincin et al, 1989: 834). Methodology included the measurement of bed day use by program participants during the fiscal year before the program started (1986) and three subsequent years compared to use by individuals in service areas not served by the program (Dincin, et al, 1993: 833). Client characteristics included a mean use of 80 hospital days the year before program entry, and the mean use of 27 days one year after (Dincin et al, 1993:834). The subjects (80% diagnosed with schizophrenia) had histories of repeated

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hospitalizations with at least 3 hospitalizations the previous year and five lifetime admissions with at least 100 days the year before (Dincin et al, 1993: 834-835). Hospital utilization was reduced by 28% for experimental subjects, while comparison subjects experienced a 15% increase in hospital use (Dincin, et al, 1993: 836). Dincin and colleagues concluded that the ACT intervention had a significant impact on hospital use and admission rates.

John McGrew, Gary Bond, Laura Dietzen, Mike McKasson and Larry Miller, examined outcomes of clients admitted to six assertive community treatment programs in Indiana. Subjects were assessed by case managers (McGrew, et al, 1995: 696) at six-month intervals for 18 months. Subjects (65% schizophrenia) included 212 individuals with a mean of 8.9 lifetime hospitalizations, and a mean use of 106.8 hospital days the year before program entry (McGrew, et al, 1995: 697). The study compared outcomes of ACT clients to a comparison group of community support program recipients (McGrew, et al, 1995: 697). Study findings included: reduced hospital admits by one third; hospital days reduced by 50% at 4 of the 6 sites; improved Quality of Life (QOL); and improved family and social support. McGrew and colleagues conclude that their results provide support for wide spread dissemination of Act as an effective form of community-based care for persons with serious mental illness (McGrew et al, 1995: 696). The following Table 2.4 provides summary information on ACT studies.

Table 2.4: Summary of Studies Evaluating Impact of Assertive Community Treatment

Study	Type of Study	Key Variables	Findings
Stein and Test (1980)	Impact eval/ Experimental design with randomization of subjects to E and C groups	Symptoms Community adjustment (living, working, social relations) Self esteem Psych. Hosp use	Experimental (E) group had significant reduction in hospitalizations over control (C) group No greater use of penal institutions for E vs. C group E spent less time unemployed E more satisfied E less symptomatic E improved functioning
Hoult (1986)	Impact eval/ Experimental with random subjects to E and C groups	Symptoms Hospital use Satisfaction Community functioning Schizophrenia only Persons with 0 hospitalizations	E group was less symptomatic than C group E group improved in functioning E group more satisfied E group had less hospital admissions and less bed day use Compared results for schizophrenia only and found same results Higher suicide attempts among E group
Wright (1989)	Impact eval/ experimental with random subjects to E and C groups	Hospital use Client billings Satisfaction Jail incarcerations Residential change Suicide threats and attempts	80% reduction in hospitalization (33 mean days 2 yrs prior to entering ACT, after 1 year 6 days) Jail events decreased but days in jail did not Client billings decreased overall but higher billings were maintained for persons with schizophrenia Increased stabilization Satisfied with life and residential status
Dincin et al (1993)	Impact eval/ Thresholds Bridge program vs. comparison group	Hospital use pre and post	E spent less time in hospital than C (mean of 80 days yr. Before entry, mean 27 days one yr. After entry)
McGrew et al (1995)	Impact eval ACT vs. comparison group/ within subjects pre-post	Hospital use Quality of life Level of functioning Clinical status	Reduced hospital admits by 1/3 Reduced hospital bed day use by 50% Improved QOL Improved family and social support Increased self-reliance Improved daily living skills More legal problems

Researchers, John McGrew and Gary Bond (1995:113), have begun investigating the

relationship between essential ACT model specifications, e.g., team size, staff make-up, in an

attempt to isolate key indicators that lead to better program outcomes. McGrew and Bond

interviewed twenty national experts who prioritized ACT program elements and found high inter-expert agreement. Expert judgements on ideal model specifications are as follows:

- Percentage of contact in-home: 75%
- Caseload ratio: one staff to 10 clients
- Ideal team caseload size: 66
- Nurse time (Hours per week): 32
- Maximum team caseload size: 98
- Number of team meetings per week: 5
- Minimum team caseload size: 48
- Psychiatrist time per week: 13 hrs.
- New clients admitted per month: 6
- Months client treatment refusals before stopping engagement (minimum): 15

McGrew and Bond point out the national direction toward managed care and managed care's emphasis on the delineation of what a treatment approach such as ACT includes and who should receive the specified treatment (McGrew and Bond, 1995: 124). "The setting of program standards and identification of critical program elements will become even more important with the anticipated growth of managed care" (McGrew and Bond, 1995:124). Empirical evidence is required to further delineate the effect of program elements on client outcomes (McGrew and Bond, 1995:124).

The Conceptual Framework

This literature review is used to develop a conceptual framework (set of hypotheses) which is used to examine the impact of the Texas ACT program on state hospital bedday use. The empirical research relies primarily on the work of Stein and Test, who developed the service model, and John McGrew and colleagues (1995:696), who studied the outcomes of six assertive community treatment teams in Indiana. Gary Bond and colleagues, through a Meta analysis of numerous empirical studies, created a national benchmark of a 50% or more

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reduction of state hospital bed-day use for ACT program recipients. This benchmark will be

an expected minimal reduction for this study. Drake and Burns (1995:667), recommend that

ACT investigations should not stop at reviewing the impact of the services on hospital use but

should also include other inquiries into the effects on psychiatric symptoms, program

satisfaction, community functioning and quality of life. This study also investigates changes in

psychiatric symptoms and community functioning over time.

This study includes three hypotheses as its conceptual framework. The conceptual

framework is defined in Table 2.5.

TABLE 2.5: THE CONCEPTUAL FRAMEWORK	
H1: 50% Reduction in Hospital Bed Days	After 12 months of receiving ACT services, program participants have reduced state hospital use by 50% from year prior to entering program.
H2: Decrease Symptoms	ACT program participants will experience a decrease in symptoms related to mental illness as measured by Brief Psychiatric Rating Scale (BPRS) total score.
H3: Improved Community Functioning	ACT program participants will experience improvements in community functioning as indicated after program entry and measured by the TXMHMR Uniform Assessment, MCAS instrument.

It is not the goal of the Texas study to further prove the efficacy of assertive

community treatment and its worthiness for program expansion. The research performed to

date is substantial and provides ample support for ACT as a well proven community-based

system of care for persons with severe mental illness. The Texas study instead, evaluates the

impact of Texas' implementation of ACT on hospital use, which may in turn help state and

local program management. The study results may also provide senior policy makers with

knowledge regarding current client information collected on the CARE management information system and its use in program evaluation.

Conclusion

It is apparent through review of the literature, that deinstitutionalization has worked on only one level. Persons with severe mental illness, such as schizophrenia, have for the most part been discharged to the community for care. No longer are state hospitals considered the primary treatment settings for persons with severe mental illness. While this national policy direction appears positive, the provision of effective quality community care is still a major challenge for public policy makers, funders, and community mental health service providers. For many persons with severe mental illness, community care is unacceptable.

Their episode of illness has to progress unchecked until it is of sufficient severity for them to be admitted to the hospital. When that happens, there will then be enough staff to give them good quality care, so that their symptoms can subside, but afterwards there will again be hardly anyone available to help maintain them and to prevent relapse (Hoult, 1986:137).

The 1990s have been labeled "the Decade of Recovery" for persons with severe mental illness (Anthony, 1993:18). Recovery is defined by William Anthony as persons receiving the help they need to live satisfying lives, hopeful, and contributing lives even with the limitations of illness (Anthony, 1993:18). While the past two decades have resulted in numerous innovative programs designed to address service needs of persons with mental illness, the efficacy of some of the programs has been questioned. "The proliferation of newer psychosocial technologies and the increased recidivism of the past decade suggests a need to reevaluate existing programs (Bond, 1985:994).

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While the research evidence regarding the efficacy of the ACT intervention is substantial, outcomes have varied. In this time of ever increasing scrutiny of expenditures of public tax dollars, it is important to delineate program elements that lead to desired program outcomes. Future work of ACT researchers will need to be centered on defining "exactly what program characteristics lead to what client outcomes, for which clients, at what cost" (Bond et al, 1995:14). What makes one program obtain an 80% reduction in hospitalization, while another results in a 50% decrease in hospitalization? The difference in outcomes is one that may be very costly for public administrators and taxpayers and is worthy of future inquiry.

Chapter Three provides an overview of TXMHMR and its role in ensuring the provision of mental health services throughout Texas. TXMHMR's priority population, its vision, mission, and funding, is described. The community-based mental health system, which has responsibility for program implementation, is also discussed. The Texas Assertive Community Treatment program design is also presented.

Chapter Three

Setting

*The current system of community based care and the public mental health system for
persons with severe mental illness is criticized as being a "technically sophisticated
care, delivered by a cottage industry with few incentives to be efficient, little external
accountability, and an open checkbook"
(Shore, 1996: 1).*

National and State Mental Healthcare Reform

While President Clinton's version of healthcare reform failed, the perceived need and

efforts directed at healthcare reform are ongoing. President Clinton's proposed reform

included an integration of private and public mental healthcare in the form of universal private

insurance coverage (Shore, 1996:23). Many states are attempting to integrate publicly funded

general healthcare and mental healthcare[19] through various state strategies. Miles Shore[20] sees

the current movement toward managed care models in public mental healthcare agencies as

intended to merge the best of what the private and public sectors have to offer, which in turn,

will result in improved efficiencies. Shore cautions public administrators involved in designing

mental healthcare reform by saying that there are many similarities between the era of

deinstitutionalization and the current era of managed care. The following similarities are used

by Shore to make his point:

- Both were clear about the problems to be solved, but not as clear about the goal or
  end product
- Both had strong support from effective proponents who would stand to gain from
  the changes

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[19] The term "Behavioral Health" is used to denote mental health and substance abuse services, but is not used
in reference to mental retardation services.

[20] Miles Shore, M.D., is Bullard Professor of Psychiatry at Harvard Medical School and visiting scholar at the
John F. Kennedy School of Government, Harvard University.

- Both were linked to broad social goals: the unexamined faith in government's ability to solve problems and in the other to a similar faith in private sector solutions that have not yet been successful with seriously mentally ill populations

The managed care movement nationally, is being driven by several factors, but the primary one is competition for healthcare (Shore, 1996: 1). While public mental health services are not directly effected by the competition within the "global economy," inefficiencies anywhere in the marketplace seem intolerable in the current environment. Increased profit lines, and consumers who want better services at lower costs are factors driving this change (Shore, 1996: 1).

The Texas Department of Mental Health and Mental Retardation (TXMHMR)

Texas, as the rest of the nation, is reforming its physical and mental healthcare system. In conjunction with a national trend toward the privatization of public services, the Texas Legislature, the Comptroller's office, and the people of Texas are increasingly demanding privatization of the Department's services. The rationale appears multi-fold. First, the Department's primary role is one of governance. The Legislature's perception that privatization will result in better quality of services, is also a driving influence. Privatization is further believed to result in improved efficiencies, which may result in savings, which then can be used to expand services. At present, choice is restricted through the current public system known as the community mental health and mental retardation center, a quasi governmental entity, which is the primary contractor for most of the state's services to TXMHMR's targeted population. One would expect that persons with mental illness and mental retardation, and parents of children with emotional disturbances want greater choices in the provision of services.

The Texas Department of Mental Health and Mental Retardation is the state agency charged with the governance of services to Texans who have mental retardation and mental illness. Services are provided primarily through contracts with community mental health and mental retardation centers. The Department is the "provider of last resort," and serves individuals most in need of services regardless of their ability to pay for the services rendered. The Department's priority population for mental health services is defined in Table 3.1.

Table 3.1: TXMHMR Mental Health Priority Population
Children and adolescents under the age of 18 with a diagnosis of mental illness who exhibit severe emotional or social disabilities which are life-threatening or require prolonged intervention.
Adults who have severe and persistent mental illness such as schizophrenia, major depression, manic depressive disorder, or other severely disabling mental disorders which require crisis resolution or ongoing and long-term support and treatment.[21]

As the state's second largest agency, TXMHMR has appropriations totaling approximately $1.7 Billion, or approximately 3% of the total state budget. The agency employs over 26,000 people statewide and provides services to over 130,000 Texans with disabilities. The TXMHMR system consists of eight state hospitals (one which offers both maximum security services and services for dually diagnosed youth), 13 state schools, five state centers, 35 community mental health mental retardation centers (CMHMRCs), and one specialty residential program for youth.[22] Table 3.2 provides information regarding mental health state hospital versus community based services spending in the last three years. Spending for community mental health services increased over hospital spending in fiscal year 1997, but decreased in 1998, while state hospital spending increased. Proportional community spending has remained at 61% of all mental health dollars for the last three years.

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[21] TXMHMR Strategic Plan, Fiscal Years 1999-2003 Draft.

Table 3.2: MH Funding by State Hospital and Community-Based Services ($s in Millions)*						
	1996	% of Total	1997	% of Total	1998	% of Total
StateHospital [23]	226.40	39	243.5	39	246.8	39
MH Community[24]	347.8	61	380.6	61	379.0	61
TOTAL MH Spending	574.2	100	624.1	100	625.8	100

*Source: TXMHMR Strategic Plan Draft, Fiscal Years 1999-2003

Most services provided by TXMHMR to persons with severe and persistent mental illness consist of traditional outpatient services. These services include psychiatric evaluation, medication management, crisis screening/assessments and intervention, services coordination, psychological counseling, and family education and support. Persons with more severe impairments related to their mental illness may have access to a limited number of specialized services, such as targeted case management, which is intended to provide assistance in accessing needed services and resources that may be available from other governmental agencies. Psychiatric rehabilitation programs designed to provide community living skills training and support are also available.

For the years 1997 through 2001, the Texas Department of Mental Health and Mental Retardation (TXMHMR) has adopted seven strategic areas of focus to improve efficiency and effectiveness. These include:

1. Clarifying authority versus provider roles;
2. Strengthening local authority contracts;

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[22] TXMHMR Strategic Plan, Fiscal Years 1997-2001.

[23] Funds include all dollars appropriated to and earned by MHMR facilities except construction funds and central administration. Source: TXMHMR Strategic Plan, 1999-2003 Draft.

[24] Funds include both state general revenue, federal block grant and locally earned federal funds. Source: Strategic Plan 1999-2003 Draft.

3. Maximizing management and funding efficiencies;
4. Increasing "best practice" programming;
5. Realizing contractual efficiencies and outsourcing;
6. Improving information resources; and
7. Downsizing.[25]

The number four strategy, to increase "Best Practice" programming, is a strategy targeted for

individuals with the most severe impairments related to mental illness. "Best Practices," are

defined as those services, which through research have been proven to obtain consumer level

and system level outcomes that the Department wants to achieve. Assertive Community

Treatment (ACT) is one of three TXMHMR designated "best practices." Supported Housing

and Supported Employment which help persons live in regular community housing and work in

regular community jobs, are also considered "Best Practices."

The Role of the State Hospital

Paul G. Stiles, Dennis Culhane, and Trevor R. Hadley (1996), performed a study in

1989, comparing state hospitalization utilization, staffing, and costs, and were intrigued by

what they found. Thirty-nine years of deinstitutionalization, according to Stiles et al

(1996:523), did reduce the numbers of persons "coming in contact with or receiving treatment

at state hospitals." The researchers data showed that while the level of care in state hospitals

improved tremendously over the years, the cost of state hospitals have "skyrocketed" and that

in 1989, there were more state hospitals than there were when deinstitutionalization began.

Stiles and colleagues concluded that "not only has there been no observable savings from

deinstitutionalization, but there has been increased costs to the state and federal governments

over the course of deinstitutionalization to run state hospitals" (Stiles et al, 1996:524).

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[25] TXMHMR Strategic Plan 1997-2001.

Until the 1960s, services to Texans with mental illness and mental retardation were primarily provided through large institutions such as state hospitals for persons with mental illness and state schools for persons with mental retardation. There is a general agreement nationally on the goal that persons with severe mental illness receive necessary services within their home communities, and an increasing emphasis lies with expanding services within the community (TXMHMR Strategic Plan, 1995-1999). Compared with the rest of the nation, Texas has dramatically reduced the census of its state hospitals. Texas ranks eighth among the ten largest states in state hospital per capita expenditures.[26] On any given day, there are approximately 2,600 individuals residing in the state hospitals at a cost of approximately $300.00 per day.[27] In MH community-based services funding, Texas ranks last when compared to the ten largest states and ranks 44th among the fifty states in per capita mental health funding.

Community Mental Health Services

Mental health services for the adult priority population are primarily delivered through annual contracts [28]and performance memorandum with the community mental health and mental retardation centers (CMHMRCs) and state operated community services (SOCS). CMHMRCs are quasi-governmental agencies, governed by a local board of directors, which is selected by County Commissioners. SOCS are agencies, which are operated by TXMHMR, predominately located in extremely rural areas of Texas.

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[26] While national ave. expenditure is $54.21 per capita, Texas spends approximately $35.00 per capita. Source TXMHMR Strategic Plan.

[27] TXMHMR Strategic Plan 1999-2003: Draft

Texas' Assertive Community Treatment Program

Assertive Community Treatment (ACT), is defined in Texas as a comprehensive mobile treatment intervention designed to provide long term services to persons with whom traditional mental health services have failed. ACT consists of a team of professional and paraprofessional staff, which delivers comprehensive treatment and rehabilitation services to persons who predominantly carry the diagnosis of schizophrenia. Most services are provided in client homes and natural community settings. The team consisting of a full or part-time psychiatrist, at least one registered nurse, and other professionals and paraprofessionals, serve between 30-50 individuals in rural communities, and 50-100 individuals in urban communities. Staffing requires a minimum ratio of no more than 10 clients to one clinician.[29]

ACT became a statewide program in 1995 by being mandated in all TXMHMR community mental health performance contracts. No new funding was provided, although, two years before the mandate, incentive funds were made available to contractors to begin providing assertive community treatment services. TXMHMR has required providers to re-direct existing state general revenue dollars and existing staff to develop and perform these services. While historically the Department has used an inclusive planning process for the development of major service initiatives, the decision to require ACT statewide was made internally by the leadership due to the service's empirical evidence and a need to maintain and reduce state hospital utilization. The decision to move quickly toward implementation of ACT was also seen as appropriate due to the pressure placed by the Texas State Legislators for

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[28] Contracts for services include performance requirements for "Best Practices." Performance Memorandums are utilized for state operated services and include the same components as contracts. Different mechanisms are used due to a state not being able to "contract" with itself.
[29] 1996 TXMHMR Community Based Standards

TXMHMR to improve its accountability to the people of Texas by providing effective, efficient services. Currently, Texas ACT programs serve over 2,000 individuals on a given day. While the cost of a one-day stay in a state hospital is approximately $300.00, ACT services are provided at a cost of $21.00 to $27.00 per day, or between $7,500 to $10,000 per year per client.[30]

Texas' Supported Housing Program

Texas began the implementation of supported housing,[31] a model program with the goals of assisting adults who were homeless or at risk of homelessness choose, get, and keep normal housing in the community in 1991. The program is geared to provide clients with individualized support services aimed at increasing independence, satisfaction and success within the community. Supported Housing services consist of assistance in locating affordable housing, and providing temporary rental assistance, rehabilitative services, and services coordination. Like ACT, supported housing (SH) staff provide most of the services within natural community settings versus traditional clinics. Staffing ratios for supported housing are higher than ACT and require no more than 15 clients per one clinician/ mental health worker (TXMHMR Community Based Standards). Unlike ACT, supported housing does not include the psychiatrist and registered nurse as part of the team, and accesses other services within the mental health system versus delivering the services through the team. Individuals targeted for supported housing services are not as significantly impaired as individuals identified needing

[30] TXMHMR FY98 Contract Instructions
[31] TXMHMH Supported Housing Program Evaluation: Year One Findings, Prepared by Burek, Toprac, Mason, and Olsen, 1994.

ACT services. Table 3.3 provides information regarding the characteristics of TXMHMR's

ACT versus Supported Housing services.

Table 3.3: ACT Services Compared to Supported Housing Services

Service Characteristics	ACT	Supported Housing
Staff to Client Ratio	1:10	1:15
Provides all mental health services through the team (Except for inpatient and residential care)	Required	Not required.
Services are not time- limited but based on continued need.	Required	Required
Majority of services provided in natural settings out of the office	Required	Not required though rehabilitation services are provided in home.
24 Hour Crisis Coverage	24 hour responsibility and availability to respond to crises	Not required. May provide 24 hour responsibility directly but often relies on agency crisis system
Family Supports	Required	Not required
Coordination of all hospital admissions and discharges	Required	Not required
Hold team meetings daily to coordinate daily client care/ staff assignments	Required	Not required. Usually done in weekly staff meetings
Multidisciplinary staff	Required Psychiatrist, RN/s plus additional competencies	Not required

The TXMHMR Uniform Assessment

The Texas Department of Mental Health and Mental Retardation created a statewide

management information system, known as CARE, in the early 1980s. All community mental

retardation centers and state facilities and operations are required to report and enter

information into the database, which is used for statewide management purposes to track

clients served within the state system. The CARE system includes archival information on

state hospital use and client level information regarding many of services rendered. TXMHMR

has collected client level service and demographic data for over a decade. Data on all individuals served within the TXMHMR service system has primarily been used for the purpose of reporting general department performance in terms of numbers served and characteristics of those served. More recently, the Department has begun using the data for statewide evaluation of variations in client characteristics and service need levels and service use across the service system.

In 1996, the Texas Department of Mental Health and Mental Retardation developed and adopted a series of client assessment instruments, which have become known as the TXMHMR Uniform Assessment. The requirement of the Uniform Assessment to be utilized state wide is seen as an initiative which can lead to better information regarding service needs of individuals across the state. All community mental health and mental retardation centers and state operated community services are required to use these standardized assessment instruments and enter a subset of assessment information on the CARE state-wide client database.

The Uniform Assessment instruments (see appendix A) are designed to obtain client level information regarding community functioning (Multnomah Community Ability Scale, MCAS)[32] and psychiatric symptoms (Brief Psychiatric Assessment Scale, BPRS, version 4.0). Data for persons receiving ACT and SH services is collected by clinicians at community mental health and mental retardation centers and state operated community services divisions every 90 days and entered on the TDMHMR CARE statewide management information system.

The following Chapter Four provides an overview of the methodology used in this study. Subject selection criteria and data analyses, are also discussed.

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[32] The MCAS is a 17-item scale, which measures the level of functioning of persons with severe mental illness.

Chapter Four

Methodology

Introduction

This chapter describes the methodology used to test the hypotheses. The research design, sample selection, data analyses, and statistical analyses will be discussed. The study depends on data sources (archival records) retrieved from TXMHMR's management information system to assess the impact of the ACT program on participant state hospital use, symptoms and community functioning.

Research Design

A quasi-experimental, post-test only, comparison group design, is used to test two of the study's formal hypotheses (H2, H3), which relate to psychiatric symptoms and community functioning of study subjects. The pre-test, post-test, comparison group design, is used to test the formal hypothesis (H1) related to state hospital usage for program participants.

Earl Babbie (1995) describes the difference between qualitative research and quantitative research as it relates to quantitative (numerical) analysis and states that field research is typically qualitative. Surveys and experiments, according to Babbie, are for the most part quantitative. Some researchers, who primarily perform quantitative studies, are critical of researchers who focus on qualitative studies, charging that their studies are unscientific (Babbie, 1995: 85).[33]

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1 Babbie, Earl. *Observing Ourselves: Essays in Social Research*, California: Wadsworth, Inc., 1986. p. 85.

Research design consists basically of descriptive designs, and experimental and quasi-experimental designs.[34] Descriptive designs such as cross-sectional, time-series, and case study designs, help researchers and administrators identify variables that may need further study. The experimental design depends on randomly assigning subjects to different groups: the experimental group versus a control group. The quasi-experimental design is frequently used in social research due to the type of controls necessary for a true experimental design are often difficult to obtain.[35]

Babbie differentiates between experimental design, or scientific research and program evaluation, or evaluation research. While the experimental design requires a control group, independent and dependent variables and is focused on methodology, evaluation research starts out with the definition of the purpose of the inquiry.[36] Many methods can be use in program evaluation research, including experimental designs, surveys, etc.[37] Evaluation is a form of "applied research" which is meant to have practical usage (Babbie, 1995).

Data Sources

This study is different from other TXMHMR program evaluations in that it will rely solely on historical and current state management information for its data source versus instruments specifically designed for the study. Key variables include psychiatric hospital use; psychiatric symptoms; and community functioning. The independent variable for the study is

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[34] O'Sullivan, Elizabethann and Rassel, Gary R. Research Methods for Public Administrators. New York: Longman Publishers, USA., 1995. p.48.
[35] Ibid.

[36] Found on page 338 in Babbie's text: The Practice of Social Research.

[37] Ibid.

the type of service (assertive community treatment intervention vs. an alternative service intervention, supported housing).

Hypothesis 1, is tested by comparing statewide management information (archival records) on hospital use of subjects prior to program entry, and post program admission. A reduction of 50 per cent or more bed days used after ACT entry is the expected outcome as compared to a reduction of less than 50% for comparison group subjects receiving supported housing services. While the study primarily focuses on hospital use for ACT participants, the researcher tests Hypotheses 2 and 3 by analyzing TXMHMR's Uniform Assessment data on client community functioning and psychiatric symptom changes using data available on the statewide management information system, CARE. Table 4.1 provides a summary of information sources used in this study. Examples of TXMHMR's Assessment instruments are found in Appendix A.

Table 4.1: Data Sources and Assessment Instruments
TXMHMR's Statewide Data System (CARE): CARE provided information on consumer demographics, program assignment dates, use of state hospitals, DSM IV-R diagnosis, and level of functioning, Global Assessment of Functioning (GAF) scores. The GAF score is a single score ranging from 1 to 90, assessed by clinicians, which describes the consumer's general level of functioning.
Brief Psychiatric Rating Scale (BPRS) Expanded Version 4: A psychiatric symptom scale consisting of 24 items. TXMHMR uses an expanded version which includes 6 additional questions not included in the original version developed by Lukkoff et al (1986).
Multnomah Community Assessment Scale (MCAS): The MCAS is a 17 item scale which measures the degree of psychiatric disability for chronically mentally ill adults who are living in the community.

BPRS and MCAS scores for persons receiving ACT and supported housing services are collected every 90 days and entered on CARE. Hypotheses 3 and 4 are operationalized using mean total assessment scores reported after program entry and at least 180 days post initial score. A decrease in the mean BPRS score signifies the decrease in subjects' psychiatric symptoms. An increase in MCAS score is interpreted as an increase in community functioning. Table 4.2 provides an overview of how the relationship between participation in ACT and various dependent measures are operationalized.

TABLE 4.2: Operationalizing the Hypotheses

Hypothesis	Dependent Variable	Dependent Variable Measurement	Relationship to ACT
H1: Reduce Hosp Bed Days	State hosp use	Bed days	50% reduction
H2: Decrease Psych symptoms	Symptoms related to mental illness	Mean BPRS Score (first, last post entry)	Negative: Decrease in score= decrease in symptoms
H3: Improved Community Functioning	Community functioning. a. Functioning b. Adj. To living c. Soc. Competence d. Com. Compliance	MCAS mean summary scores (first, last post entry)	Positive: increase in score = improved functioning

Sample Selection

Seven hundred and six (706) experimental subjects were selected using the criteria listed in Table 4.3.

Table 4.3: Subject Selection Criteria
1. Persons with a primary diagnosis of schizophrenia who entered ACT services between September 1, 1995 and December 1, 1996 who have received at least 12 months of service.[38]
2. Persons received at least six months of non-interrupted ACT services.[39]
3. Individuals who entered ACT and received at least six months of service and who then entered the state hospital are included.

Persons with mental illness other than schizophrenia, and persons with other disorders such as organic brain syndrome, primary diagnosis of substance abuse, and mental retardation are excluded from the study as is consistent with previous empirical studies exclusion criteria (Olfson, 1990:636). Participant confidentiality is not an issue in this study since aggregate data are reported without identification of client names.

Comparison Group Subjects

In order to suggest a relationship between the independent variable, ACT, and its effect on state hospital use, a comparison group (supported housing clients) is used to compare hospital rates for subjects with similar characteristics. The comparison group consists of persons with primary diagnosis of schizophrenia, which have never received ACT services. The selection criterion identified in Table 4.3, is used for both groups.

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[38] While the department required statewide implementation starting September, 1995, several CMHMRCs developed services before that date. This study will include those subjects.

[39] For the purpose of this study, interrupted service is defined as discharged to a non-ACT service.

Data Analyses

First, pre and post ACT state hospital use is analyzed and reported in terms of mean number of accumulated bed days twelve months prior to program entry and 12 months post program entry. Community functioning scores are reported using first CARE entered summarized score and last reported score. Overall MCAS scores are expected to increase as functioning improves. Community functioning will also be measured using MCAS aggregated scores on functioning, adjustment to living, social competence, and community compliance.

Impact on psychiatric symptoms is assessed using BPRS summary scores as reported in CARE for study participants. The first and last score entered after program entry is used. There must be at least six months between assessment scores for inclusion in the study. For the purpose of this study, all data are aggregated statewide and are not reported by individual community mental health and mental retardation center.

Statistical Analyses

The statistical independent t-Test, which provides information regarding the variance of the means, is used to measure the variance in experimental and comparison group subjects by comparing the means of the two groups. The Chi-Square statistical test is used to measure differences in categorical variables, such as race and sex. Descriptive statistics, such as means and percentages are also used in presentation of study results. The SAS statistical analysis computer software program was used for data analyses. The next chapter presents study results and contains a discussion regarding the study limitations.

Chapter Five

Results

We in the public mental health business are under the gun to produce cost-effective outcomes that meet the needs for consumers. That is why it is absolutely critical, in my estimation, that we come together as researchers, clinicians, and consumers to refine the models of care that produce positive results. (Don Gilbert, Commissioner, TXMHMR)

This chapter presents the study results. The three hypotheses related to state hospital use, symptoms and community functioning, provide a framework for the analyses and discussion. Issues related to the interpretation of the results and limitations of the study are also discussed.

Study participants

The study sample includes seven hundred and six (706) ACT participants (experimental subjects) and nine hundred and two (902) supported housing program participants (comparison group subjects). All subjects included in the study, entered and received their services through community mental health and mental retardation centers and state operated community services (SOCs) between September 1, 1995 and December 31, 1996. All subjects currently have a diagnosis of schizophrenia and have received at least twelve months of service.

In general, subjects from both the experimental group and the comparison group are well matched according to descriptive characteristics. Subjects in both groups are relatively young with a mean age of 40 years (*SD=10.5*) for the experimental group and a mean age of 41 (*SD=10.7*) for the comparison group. Forty-three (43) percent of the ACT subjects were minorities, as compared to forty-two (42) percent of the SH subjects. Table 5.1 provides a comparison of the means of characteristics of study subjects.

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Table 5.1: Mean Comparisons in Demographics

ACT	N	Mean	SD	SH	N	Mean	SD
Gender				Gender			
Male	410	58% *	.5	Male	478	53%*	.5
Female	296	42%	.5	Female	424	47%	.5
Age (yrs)	706	40	10.5	Age (yrs.)		41	10.7
Race				Race			
Black	183	26%	.4	Black	226	25%	.4
White	395	56%	.5	White	523	58%	.5
Hispanic	118	17%	.4	Hispanic	144	16%	.4
Other	10	1.4%	.1	Other	9	1%	.1
Primary Dx.				Primary Dx.			
Schizophrenia	706	100%		Schizophrenia	902	100%	
Substance Abuse	202	29% ***	.5	Substance Abuse	180	20%***	.4

*p≤ .05
**p≤ .01
***p≤ .001

Experimental and comparison group subjects differed in the number of males served by the programs, and also differed on the clinical measure of substance abuse. The subjects differed significantly in hospital use one year prior to program entry (see Table 5.2). Assessment scores regarding level of functioning indicate that the ACT program served individuals with greater impairments. The ACT group had an overall mean Global Assessment of Functioning (GAF) score of 41 ($SD=10$) versus a mean GAF score of 46 ($SD=10$) for the SH subjects. There was no significant difference in the ACT and SH groups on GAF, BPRS, or MCAS scores at program entry. Table 5.2 provides a comparison of ACT and supported housing subjects on clinical severity measures commonly used by TXMHMR to assess level of impairments.

The differences in the experimental and comparison groups on clinical severity measures, suggest a possible bias. The bias, however, is in the direction, which would make it more difficult for the ACT program to achieve statistical significance. The possibility exists

that the researcher might say that there is not a difference (null hypothesis), when it is untrue

due to a bias within subjects groups.

Table 5.2: Comparisons on Clinical Severity Measures at Program Entry		
Measure	**ACT Mean** (N=902)	**SH Mean** (N=702)
GAF	41 (SD=10)	46 (SD=10)
BPRS	70 (SD=27)	59 (SD=27)
MCAS	49 (SD=12)	58 (SD=12)
State Hosp Days (1 year prior)	60 (SD=96.3)***	16 (SD=55)***

GAF scores range from 1 to 100.
BPRS scores range from 24 to 168 with the higher score indicating higher level of symptoms
MCAS scores range from 17 to 85 with the lower score indicating more severe impairments. Scores between 49 (ACT) and 58 (SH) indicate mean levels of ability being medium versus low or high.
***$p \leq .001$

While GAF scores differed between ACT and SH participants, both mean scores fall into the

range of serious symptoms and impairments in functioning.[40] BPRS scores differed by 11

points, which indicate that the ACT group has more psychiatric symptoms than the supported

housing participants. MCAS, which measures community functioning, differed by 9 points for

ACT clients which provides even more evidence, that the ACT clients have greater problems

related to community functioning. Finally, the most significant difference, appears to be in

hospital use, with the ACT clients having used more hospital days in the year prior to program

entry than SH clients.

Unsuccessful attempts were made to introduce control measures, e.g., control for GAF

scores $\leq$ 40, which the researcher believed would result in a true comparison group. The GAF

control measure splits the subjects into two subgroups with GAF $\leq$ 40 and GAF > to 40. As

indicated in Tables 5.4 and 5.5, ACT subjects in both subgroups show a higher use of hospital

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[40] A score of 40-50 indicates serious symptoms and impairments. The higher the score, the less impaired.

days than SH subjects prior to program entry. Although this attempt to construct a truly

comparable subject group was unsuccessful, the researcher elected to proceed with the

analyses and acknowledge the possible existence of a Type II error. [41]   A Type II error,

increases the risk of the researcher failing to reject a null hypothesis which is actually false.

Effect on State Hospital Use

Study results indicate that ACT has a positive impact on state hospital use, which is

consistent with other research findings and supports Hypothesis 1. ACT program participants

experienced more than a 50% reduction in hospital use over the year prior to entering the

service. As shown in Table 5.3, data indicate that ACT participants had a sixty-three per cent

(63%) reduction in hospital use. The SH subjects also experienced a significant reduction in

state hospital use.

Table 5.3: Pre-Post Mean Hospital Use for ACT/SH				
H1: Reduce Hospital Days	*N*	Pre Mean Hosp Days	Post Mean Hosp Days	% Diff
ACT	706	60	22	63% ***
SH	902	16	6	62% ***
TOTAL	1608			

***$p \leq .001$

Both programs, while serving subjects with different levels of impairments, appear to

be effective in reducing state hospital use for persons with schizophrenia. Tables 5.4 and 5.5

provide information regarding ACT and SH subject groups' hospital use when GAF scores are

used as control variables. Even with the introduction of a control variable, both programs have

similar pre-post percentage reductions in hospital use.

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[41] A type I error is defined as "rejecting a null hypothesis which is true" Introductory Statistics for Behavioral

Table 5.4: Impact on Hospital Use for ACT/SH Group with GAF >40

H1: Reduce Hospital Days	N	Pre # Hosp Days	Post # Hosp Days	% Diff
ACT	313	18,555	5,910	68%
SH	582	6217	1943	69%

Table 5.5: Impact on Hospital Use for ACT/SH Groups with GAF<=40

H1: Reduce Hospital Days	N	Pre # Hosp Days	Post # Hosp Days	% Diff
ACT	393	23,708	9,748	59%
SH	320	8,245	3,278	60%

Effect on Symptoms

Hypothesis 2 is not supported by the findings. Symptom reductions as indicated in BPRS scores did not occur for ACT subjects. While the study found no significant decreases in psychiatric symptoms for ACT subjects, it is important to point out that there also appeared to be no significant increases in psychiatric symptoms. SH subjects, however, decreased BPRS scores by 4.47 points, which proved significant. Table 5.6 provides evidence of the findings.

Table 5.6: Impact on Symptoms (BPRS)

H2: Reduce Symptoms	1st	>180 days	Diff	Prob >|T|
ACT	70.24	70.43	+.19	.0005 ***
SH	59	54.53	-4.48	.0004 ***

***$p \leq .001$
A decrease in BPRS score indicates a reduction of symptoms

Health Sciences (1976), Welkowitz et al.

Effect on Community Functioning

Data did not support Hypothesis 3. Over time, MCAS scores reflected that ACT and SH subjects continued to function at a similar level. Supported housing scores changed at the same rate as ACT scores.

Table 5.7: Impact on Community Functioning (MCAS)				
H3: Improve Functioning	1st	>180 days	Diff	Prob> ITI
ACT	48.91	49.35	-.44	0.1077
Mean Level of Need (2.4)				
SH	57.65	57.21	-.44	0.1073
Mean Level of Need (1.95)				

Possible Explanations for No Change in BPRS and MCAS

Accuracy of BPRS and MCAS scores needs to be questioned due to the absence of consistent and standardized training. The first MCAS and BPRS measures were taken on approximately September 1, 1996, after most subjects had been in the program three or more months. It is possible that a significant clinical change occurred after program entry, but before the first BPRS and MCAS scores were recorded in CARE.

The BPRS has been mostly used in inpatient settings, where it clearly reports clinical changes between hospital admission and discharge. This evidence exists in various drug studies. On the other hand, very little information exists to support its use in outpatient settings. More research is needed in this area,[42] and in answering the question regarding how long a time frame may be needed to find a significant BPRS change in a community setting.

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[42] TXMHMR BPRS Literature Review authored by Sue Burek, Researcher.

Potential Cost Savings (Diversions)

While supported housing consumers had an overall decrease in hospital use, the ACT consumers had an average of three times as many hospital days prior to entering services. By applying simple math to the hospital use reductions, a possible cost savings[43] may be calculated. ACT clients utilized 42,263 hospital days (mean of 60 days per person) one year prior to entering ACT. One year later, ACT consumers used 15,658, a total reduction of 26,605 days. At an estimated $300.00 per day, ACT was shown to have a hospital cost savings of $7,981,500. ACT is estimated to cost between $7,500 to $10,000 per person per year. Seven hundred and six ACT clients were included as subjects in the study. At a cost of $10,000 per person per year[44], the estimated cost of ACT is $7,060,000. Theoretically, with the current saving tied to the reduced use of the state hospital, ACT would "pay for itself." Table 5.8 provides a comparison of potential hospital cost diversion. On the other hand, supported housing subjects had a total of 14,462 hospital days the year before program entry. One year later, SH subjects had used 5,221 hospital days, for a total reduction of 9,241 days. At an estimated cost of $300.00 per day, SH diverted $2,772,300 in hospital costs. The cost of SH services ranges from $4,000 to $7,500 per year per person. Nine hundred and two subjects were included in the study, which results in an estimated annual cost for SH services equaling $6,765,000 ($7,500 per person).

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[43] While the term "savings" is used, reductions in hospital use do not really equate a savings but a freeing up of valuable resources which may be used by other individuals.

[44] FY 1998 Contract Instructions require a range of funding for ACT between $7,500 and $10,000 per person per year. The required range of funding for SH is $4,000 to $7,500 per person per year.

Table 5.8: Estimated Hospital Cost Diversion

	Pre # Hosp Days	Post # Hosp Days	Difference	Est. Cost Diversion
ACT (N=706)	42,263	15,658	26,605	$7,981,000
SH (N=902)	14,462	5,221	9,241	$2,772,300

*Assumes $300 per day state hospital cost

Summary of Findings

The Texas ACT program has successfully resulted in a significant decrease in state hospital use for program participants diagnosed with schizophrenia, who have received at least 12 months of service. The program has exceeded the benchmark of 50% as set by Bond et al. Symptoms and community functioning scores did not change significantly for either the experimental subjects or the comparison group during the time period set by the study. However, it is important to note that findings indicate that symptoms and community functioning levels did not worsen. These findings indicate that both ACT and SH, two of TXMHMR's "best practices" are effective in reducing dependency on state hospitals. Data analysis also suggests that the ACT program is serving persons with significant impairments, its intended targeted population. Finally, the ACT program's reduction of state hospital use may produce a potential savings which is within the funding range set by TXMHMR to pay for ACT services.

Study Limitations

The state hospital use data is the most reliable data used in this study. The data is collected and entered by TXMHMR staff and is reviewed frequently and used ongoing for

important management decisions. On the other hand, Uniform Assessment information is collected by individual clinicians at community mental health mental retardation centers and state operated community services divisions who have varied training and credentials. The variation in clinician training and scoring justifies caution when interpreting this study's results.

TXMHMR requires the Uniform Assessment to be performed every 90 days for persons receiving services from "Best Practices" such as ACT and SH. Currently, the time of assessment may not fall at the time of admission, therefore use as an effective instrument for program evaluation is questionable, due to the absence of a true baseline assessment.

Finally, a critical limitation of this study is the absence of a true control or comparison group. Without a comparison group, it is impossible to rule out a possible system effect related to TXMHMR's continued emphasis on hospital downsizing.

Chapter Six

Conclusions and Recommendations

TXMHMR's decision to implement assertive community treatment in relation to improving services targeted to persons with the most severe impairments related to mental illness appears to have been a wise one. Texas' assertive community treatment program is successful in meeting one of its primary goals: to assist individuals with severe mental illness in reducing dependency on state hospital inpatient care. Findings regarding the ACT program's efficacy in decreasing symptoms and improving community functioning are inconclusive.

The use of TXMHMR's statewide management information in program evaluation is an exciting aspect of this study. The Uniform Assessment data appears to have potential in ongoing program evaluation at both the state level and at the local service sites. While this study only analyzed a few variables, the Uniform Assessment includes many more variables that can be analyzed in future studies using more sophisticated statistical analyses than were used in this study.

Policy Recommendations

The following recommendations are made for consideration in future policy development as a result of the findings of this study.

1. Continue expansion of both assertive community treatment and supported housing services. It appears that both services are effective in reducing dependency on state hospitals.
2. Require the Uniform Assessment to be performed at program entry and every 90 days thereafter. This change in timelines will result in the UA's increased effectiveness in measuring symptom and community functioning, as well as other desired outcome changes over time.

3. If the Uniform Assessment clinical information is to be used in ongoing assessments of program efficacy, it is imperative that clinicians administering the assessments are adequately trained to minimize errors in scoring and reporting. TXMHMR may want to evaluate current training on Uniform Assessment instruments in order to determine its role in standardizing training and establishing inter rater reliability.
4. Require local providers to evaluate "Best Practice" programs for their effect on hospital use, symptoms, and overall community functioning. Continue to emphasize state program evaluation efforts.

Conclusion

This study indicates that the Texas ACT program is in line with programs nationally in reductions in participant hospital use by 50% or more. Overall, persons receiving ACT services are decreasing their use of state hospitals. Further analyses of the ACT program is needed to conclude that the results in this study are not due to an overall system effect regarding a continued policy emphasis on downsizing the state hospital system. Future research efforts need to include an identification of a comparison group with similarity in measures on symptoms, community functioning and previous hospital use.

The Texas Department of Mental Health and Mental Retardation should be commended on its efforts to improve services to persons with the most severe mental illness, such as schizophrenia. Public mental health services are under the gun to prove the efficacy of their work due to increased scrutiny and impending competition from the private sector. Failure to provide evidence of the effectiveness of public services may result in a failure to compete for contracts in the future. Finally, and most importantly, without a continued commitment to evaluating the effects of services to individuals, we cannot assure that the problems associated with deinstitutionalization are not continued. It is not acceptable to

reduce state hospital use without being able to provide evidence of positive outcomes for individuals in the community.

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APPENDIX A

TXMHMR Uniform Assessment Instruments

Appendix A

CARE

Client Assignment and Registration System
Texas Department of Mental Health and Mental Retardation

| CARE-UA | **MH Adult Uniform Assessment** (Action Code 333) | 7/15/96 |

Last Name/Suffix ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚ ⬚⬚⬚   Client ID ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚

First Name ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚   Local Case Number ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚

Middle Name ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚   Component ⬚⬚⬚

Action   Add: ⬚   Change: ⬚   Delete: ⬚

Date of Assessment ⬚⬚ – ⬚⬚ – ⬚⬚⬚⬚
   MM   DD   YYYY

Level of Need Assigned _____

Brief Psychiatric Rating Scale
   (BPRS) Total Score _____

Clinical Alcohol Use Scale _____
   1 = Abstinent
   2 = Use Without Impairment
   3 = Abuse
   4 = Dependence
   5 = Dependence with Institutionalization

Multnomah Community Ability Scale
   Functioning _____
   Adjustment to Living _____
   Social Competence _____
   Community/Compliance _____

   Total Sum of Multnomah Scores _____

Clinical Drug Use Scale _____
   1 = Abstinent
   2 = Use Without Impairment
   3 = Abuse
   4 = Dependence
   5 = Dependence with Institutionalization

Community Assessment

Residential _____
   6 = Independent
   5 = Supported Housing
   4 = Assisted Living
   3 = Treatment/Training Institution
   2 = Homeless
   1 = Correctional Facility

Financial Support _____
   4 = Wages
   3 = Social Security or Other Public Benefits
   2 = Family
   1 = Indigent/No Financial Support

Employment A _____
   5 = Independent Competitive
   4 = Supported Employment
   3 = Transitional Employment
   2 = Sheltered Employment
   1 = No Employment of Any Kind

Legal
   A) Total Arrests in Last 3 Months _____
   B) Prison/Jail Nights in Last 3 Months _____
   C) Prison/Jail Episodes in Last 3 Months _____
   D) Has Individual Been on Parole/Probation
       Over Last 3 Months? (Yes/No) _____

Employment B _____
   5 = 61-90 days
   4 = 31-60 days
   3 = 16-30 days
   2 = 1-15 days
   1 = 0 days

Victimization _____
   A = None
   B = One Time
   C = Two Times
   D = Three or More Times

Completed By: _____   Date: _____

Client Name_____   Case No.: _____   Date_____

MULTNOMAH COMMUNITY ABILITY SCALE

INSTRUCTIONS: This scale is intended for use with people who have a severe and persistent mental illness. To complete the scale, the primary clinician should circle the appropriate number for each question which corresponds with the client's functioning during the past 3 months, except for Section 4 - Behavioral Problems , which should reflect the client's level of functioning during the past year .

Section One: INTERFERENCE WITH FUNCTIONING

This section pertains to those physical and psychiatric symptoms that make life more difficult for the client. Rate the client as he/she functions with current medications and services.

1. Physical Health: How impaired is the client by his/her physical health status? *NOTE:* Impairment may be form chronic health problems and/or frequency and severity of acute illnesses.

1. Extreme health impairment
2. Marked health impairment
3. Moderate health impairment
4. Slight health impairment
5. No health impairment
? Don't know

2. Intellectual Functioning: What is the client's level of general intellectual functioning? *NOTE:* Low intellectual functioning may be due to a variety of reasons. It should be distinguished from impaired cognitive processes due to psychotic symptoms, which are covered in later questions. Rate estimated IQ independent of psychotic symptoms.

1. Extremely low intellectual functioning.
2. Moderately low intellectual functioning.
3. Low intellectual functioning.
4. Slightly low intellectual functioning
5. Normal or above level of intellectual functioning.
? Don't know

3. Thought Processes: How impaired is the client's thought processes as evidenced by such symptoms as hallucinations, delusions, tangentiality, loose associations, response latencies, ambivalence, incoherence, etc.?

1. Extremely impaired thought processes
2. Markedly impaired thought processes
3. Moderately impaired thought processes
4. Slightly impaired thought processes
5. No impairment, normal thought processes
? Don't know

4. Mood Abnormality: How abnormal is the client's mood as evidenced by such symptoms as constricted mood, extreme mood swings, depression, rage, mania, etc. *NOTE:* Abnormality in this area may include any of he following: range of moods, level of mood, and/or appropriateness of mood.

1. Extremely abnormal mood
2. Markedly abnormal mood
3. Moderately abnormal mood
4. Slightly abnormal mood
5. No impairment, normal mood
? Don't know

5. Response to Stress & Anxiety: How impaired is the client by inappropriate and/or dysfunctional responses to stress and anxiety? *NOTE:* Impairment could be due to inappropriate responses to stressful events (e.g., extreme responses or no response to events that should be of concern) and/or difficulty in handling anxiety as evidenced by agitation, perseveration, inability to problem-solve, etc.

1. Extremely impaired response
2. Markedly impaired response
3. Moderately impaired response
4. Slightly impaired response
5. Normal response.
? Don't know

_____ SUMMED SCORE FOR SECTION ONE

Section Two: ADJUSTMENT TO LIVING

This section pertains to how the client functions in his/her daily life and how he/she has adapted to the disability of mental illness. Rate behavior, not potential behavior.

6. Ability to Manage Money: How successfully does the client manage his/her money and control expenditures?

1. Almost never manages money successfully
2. Seldom manages money successfully
3. Sometimes manages money successfully
4. Manages money successfully a fair amount of the time
5. Almost always manages money successfully
? Don't know

7. Independence in Daily Life: How well does the client perform independently in day-to-day living? *NOTE:* Performance includes personal hygiene, dressing appropriately, obtaining regular nutrition, and housekeeping.

1. Almost never performs independently
2. Often does not perform independently
3. Sometimes performs independently
4. Often performs independently
5. Almost always performs independently
? Don't know

8. Acceptance of Illness: How well does the client accept (as opposed to deny) his/her psychiatric disability?

1. Almost never accepts disability
2. Infrequently accepts disability
3. Sometimes accepts disability
4. Accepts disability a fair amount of the time
5. Almost always accepts disability
? Don't know

_____ SUMMED SCORE FOR SECTION TWO

Case No.: _____

Section Three: SOCIAL COMPETENCE
This section pertains to the capacity of the client to engage in appropriate interpersonal relations and culturally meaningful activity.

9. Social Acceptability: In general, what are other people's reactions to the client:

1. Very negative
2. Fairly negative
3. Mixed, mildly negative to mildly positive
4. Fairly positive
5. Very positive
? Don't know

10. Social Interest: How frequently does the client initiate social contact or respond to others' initiation of social contact:

1. Very infrequently
2. Fairly infrequently
3. Occasionally
4. Fairly frequently
5. Very frequently
? Don't know

11. Social Effectiveness: How effectively does the client interact with others? NOTE: "Effectively" refers to how successfully and appropriately the client behaves in social settings, i.e., how well he or she minimizes interpersonal friction, meets personal needs, achieves personal goals in a socially appropriate manner, etc.

1. Very ineffectively
2. Ineffectively
3. Mixed or dubious effectiveness
4. Effectively
5. Very effectively
? Don't know

12. Social Network: How extensive is the client's social support network? NOTE: A support network may consist of interested family, friends, acquaintances, professionals, coworkers, socialization programs, etc. Note: Rate the size of the network, not the social acceptability.

1. Very limited network
2. Limited network
3. Moderately extensive network
4. Extensive network
5. Very extensive network
? Don't know

13. Meaningful Activity: How frequently is the client involved in meaningful activities that are satisfying to him or her? NOTE: Meaningful activities might include arts and crafts, reading, going to a movie, etc.

1. Almost never involved
2. Seldom involved
3. Sometimes involved
4. Often involved
5. Almost always involved
? Don't know

_____ SUMMED SCORE FOR SECTION THREE

Section Four: BEHAVIORAL PROBLEMS
This section pertains to those behaviors that make it more difficult for the client integrate successfully in the community or comply with his/her prescribed treatment. NOTE: Rate client's current behavior, considering as appropriate events during the past year.

14. Medication Compliance: How frequently does the client comply with his/her prescribed medication regimen? NOTE: This question does not relate to how much those medications help the client.

1. Almost never complies
2. Infrequently complies
3. Sometimes complies
4. Usually complies
5. Almost always complies
? Don't know

15. Cooperation with Treatment Providers: How frequently does the client cooperate as demonstrated by, for example, keeping appointments, complying with treatment plans, and following through on reasonable requests?

1. Almost never cooperates
2. Infrequently cooperates
3. Sometimes cooperates
4. Usually cooperates
5. Almost always cooperates
? Don't know

16. Alcohol/Drug Abuse: How frequently does the client abuse drugs and/or alcohol? NOTE: "Abuse" means use to the extent that it interferes with functioning.

1. Frequently abuses
2. Often abuses
3. Sometimes abuses
4. Infrequently abuses
5. Almost never abuses
? Don't know

17. Impulse Control: How frequently does the client exhibit episodes of extreme acting out? NOTE: "Acting out" refers to such behavior as temper outbursts, spending sprees, aggressive actions, suicidal gestures, inappropriate sexual acts, etc.

1. Frequently acts out
2. Acts out fairly often
3. Sometimes acts out
4. Infrequently acts out
5. Almost never acts out
? Don't know

_____ SUMMED SCORE FOR SECTION FOUR

_____ TOTAL SCORE (SUM SECTION SCORES)

Case No.: _____

1) Residential: Which of the following best represents the consumer's current residential status?

_____	6	Independent
_____	5	Supported Housing (Regular, Integrated Housing)
_____	4	Assisted Living (e.g. Licensed Personal Care Home)
_____	3	Treatment/Training Institution
_____	2	Homeless
_____	1	Correctional Facility

2) Employment A: Which of the following best represents the consumer's current job status?

_____	5	Independent Competitive
_____	4	Supported Employment (Competitive)
_____	3	Transitional Employment
_____	2	Sheltered Employment
_____	1	No Employment of Any Kind

3) Employment B: How many of the last ninety days was the consumer employed? (Approximate)

_____	5	61-90 days
_____	4	31-60 days
_____	3	16-30 days
_____	2	1-15
_____	1	0 days

4) Financial Support: What is the consumer's primary source of financial support?

_____	4	Wages
_____	3	Social Security or other public benefits
_____	2	Family
_____	1	Indigent/ No financial support

5) Legal: A) Total arrests in the last 3 months: _____
          B) Prison/Jail <u>nights</u> in the last 3 months: _____
          C) Prison/Jail <u>episodes</u> in the last 3 months   _____
          D) Has the individual been on parole/probation over the last 3 months?
               YES _____   NO _____

4) Victimization: How many times has the individual experienced victimization (e.g. rape, assault, threats, exploitation, harassment) that resulted in potential/actual physical, psychological, or financial harm during the last ninety days?

_____ None
_____ One time
_____ Two times
_____ Three or more

5) Hospitalization:

HOSPITAL	TYPE * P, CP, S, M, GM	STATUS** V/I	ADMIT DATE	DISCHARGE DATE

*   P = Private Psychiatric,   CP = Community Public Psychiatric,   S = State Psychiatric
      M = Psychiatric Services in Medical Hospital, GM = Hospitalization for Medical Reasons
**   V = Voluntary,   I = Involuntary

Case No.: _____ Admission Date: _____

ADDITIONAL ASSESSMENT INFORMATION

Education Last grade completed in school: _____
Current Educational Status: _____

Military
❑ Yes   ❑ No
Branch: _____   Dates of Service: _____
Eligible for related benefits: ❑ Yes   ❑ No

History
Relevant Childhood History (include developmental/social support systems):
_____
_____
_____
_____
_____

Relevant Medical and Psychiatric Information
Diagnostic History:
Past Diagnoses: _____
_____

History of Trauma or abuse: ❑ Yes   ❑ No If yes, describe: _____
_____

Relevant Medical Information: (Medication, Family History, Allergies, Pregnancies, Injuries, Surgeries, Eating/Sleeping Disturbances)
_____
_____
_____
_____
_____
_____

Consumer Needs/Preferences/Objections

Statement of Needs by Consumer: _____
_____

Preferences/Objections to specific treatments: ❑ Yes   ❑ No
If yes, specify: _____

Desires family involvement: ❑ Yes   ❑ No
Describe concerns: _____

Consents Obtained: ❑ Yes   ❑ No

Case No.: _____

SUMMARY SHEET

Assessment Scoring

Multnomah:
Functioning   .   (1) _____
Adjustment to Living   (2) _____
Social Competence   (3) _____
Community/Compliance   (4) _____   **Total Sum of Multnomah scores:** _____

BPRS: _____   **CBCL**- Children /Adolescents only: _____

Clinician Drug Use Scale: _____   **Clinician Alcohol Use Scale:** _____

Community Assessment: Res: _____ Emp A: _____ Emp B: _____
    FinSup: _____ Legal A: _____ Legal B: _____
    Legal C: _____ Legal D: _____ Victimization: _____

Eligibility for Services

Eligible for services based on assessment (priority population):   ❑ Yes ❑ No

Strengths/Unmet Needs

Strengths/Natural Supports: _____
Unmet Needs: _____

Recommendations/Conclusions

Recommendations and conclusions based on assessments and prioritized by need for inclusion in treatment plan. Incorporate information from consumer and family surveys into this section.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

_____   _____
Signature of Clinician Completing Assessment   Date

Case No.: _____

BRIEF PSYCHIATRIC RATING SCALE (Version 4.0)

NA	1	2	3	4	5	6	7
Not assessed	Not present	Very mild	Mild	Moderate	Moderately Severe	Severe	Extremely Severe

Rate items 1-14 on the basis of consumers self report during interview. Mark "NA" for symptoms not assessed. Note items 7, 12, and 13 are also rated on observed behavior during the interview. PROVIDE EXAMPLES

1. Somatic Concern   NA 1 2 3 4 5 6 7

2. Anxiety   NA 1 2 3 4 5 6 7

3. Depression   NA 1 2 3 4 5 6 7

4. Suicidality   NA 1 2 3 4 5 6 7

5. Guilt   NA 1 2 3 4 5 6 7

6. Hostility   NA 1 2 3 4 5 6 7

7. Elevated Mood   NA 1 2 3 4 5 6 7

8. Grandiosity   NA 1 2 3 4 5 6 7

9. Suspiciousness   NA 1 2 3 4 5 6 7

10. Hallucinations   NA 1 2 3 4 5 6 7

11. Unusual Thought Content NA 1 2 3 4 5 6 7

12. Bizarre Behavior   NA 1 2 3 4 5 6 7

13. Self-neglect   NA 1 2 3 4 5 6 7

14. Disorientation   NA 1 2 3 4 5 6 7

Rate items 15-24 on the basis of observed behavior or speech of the consumer during the interview.

15. Conceptual Disorganization   NA 1 2 3 4 5 6 7

16. Blunted Affect   NA 1 2 3 4 5 6 7

17. Emotional Withdrawal   NA 1 2 3 4 5 6 7

18. Motor Retardation   NA 1 2 3 4 5 6 7

19. Tension   NA 1 2 3 4 5 6 7

20. Uncooperativeness   NA 1 2 3 4 5 6 7

21. Excitement   NA 1 2 3 4 5 6 7

22. Distractibility   NA 1 2 3 4 5 6 7

23. Motor Hyperactivity   NA 1 2 3 4 5 6 7

24. Mannerisms and Posturing   NA 1 2 3 4 5 6 7

Sources of information (check all applicable)
_____ Consumer
_____ Parents Relatives
_____ Mental Health Professional
_____ Chart

Confidence in assessment.
_____ 1= Not at all - 5 Very confident

Explain here if validity of assessment is questionable:
_____ Symptoms possibly drug induced
_____ Underreported due to lack of rapport
_____ Underreported due to negative symptoms
_____ Consumer uncooperative
_____ Difficult to assess due to formal thought disorder
_____ Other _____

3

Version 4.0
BRIEF PSYCHIATRIC RATING SCALE
(BPRS)

Expanded Version

Scales, Anchor Points, and Administration Manual adapted by

Joseph Ventura, M.A., David Lukoff, Ph.D., Keith H. Nuechterlein, Ph.D., Robert P. Liberman, M.D., Michael F. Green, Ph.D., and Andrew Shaner, M.D.

Clinical Research Center for Schizophrenia and Psychiatric Rehabilitation

UCLA Department of Psychiatry and Biobehavioral Sciences

West Los Angeles VA Medical Center

February 19, 1993

Please use the following references for citation of the Expanded BPRS:

Current Version (4.0):
Ventura, J., Lukoff, D., Nuechterlein, K.H., Liberman, R.P., Green, M.F, Shaner, A. (in press) Manual for the Expanded Brief Psychiatric Rating Scale. International Journal of Methods in Psychiatric Research.

Initial Version:
Lukoff, D., Nuechterlein, K.H., Ventura, J. (1986) Manual for the Expanded Brief Psychiatric Rating Scale. Schizophrenia Bulletin 1 2: 594-602.

For Training and Quality Assurance program:
Ventura, J., Green, M.F., Shaner, A., Liberman, R.P. (in press) Training and Quality Assurance with the Brief Psychiatric Rating Scale: "The Drift Busters." International Journal of Methods in Psychiatric Research.

For Symptom Monitoring:
Lukoff, D., Liberman, R.P., and Nuechterlein, K.H. (1986) Symptom monitoring in the rehabilitation of schizophrenic patients. Schizophrenia Bulletin, 12:578-602.

DESCRIPTION AND ADMINISTRATION OF THE BPRS

The Brief Psychiatric Rating Scale (BPRS) provides a highly efficient, rapid evaluation procedure for assessing symptom change in psychiatric patients. It yields a comprehensive description of major symptom characteristics. Factor analyses of the original 18-item BPRS typically yields four or five factor solutions. The Clinical Research Center's Diagnosis and Psychopathology Unit has developed a 24-item version of the BPRS.

This manual contains interview questions, symptom definitions, specific anchor points for rating symptoms, and a "how to" section for problems that arise in rating psychopathology. The purpose of the manual is to assist clinicians and researchers to sensitively elicit psychiatric symptoms and to reliably rate the severity of symptoms. The expanded BPRS includes six new scales added to the original BPRS (Overall & Gorham, 1962) for the purpose of a more comprehensive assessment of a wider range of individuals with serious mental disorders, especially outpatients living in the community (Lukoff, Nuechterlein, & Ventura, 1986).

This manual will enable the clinician or researcher to conduct a high quality interview adequate to the task of eliciting and rating the severity of symptoms in individuals who are often inarticulate or who deny their illness. The following guidelines are provided to standardize assessment. Please familiarize yourself with these methods for assessing psychopathology.

(1) Using all sources of information on symptoms.

(2) Selecting an appropriate period or interval for rating symptoms.

(3) Integrating frequency and severity in symptom rating: the hierarchical criterion.

(4) Rating the severity of past delusions for which the patient lacks insight.

(5) Rating symptoms when the patient denies them.

(6) Using a standardized reference group in making ratings.

(7) Rating symptoms that overlap two or more categories or scales on the BPRS.

(8) Rating a symptom that has no specified anchor point congruent with its severity level.

(9) "Blending" ratings made in different evaluation situations.

(10) Resolving apparently contradictory symptoms.

1. USING ALL SOURCES OF INFORMATION ON SYMPTOMS

The rating of psychopathology should be made on the basis of all available sources of information about the patient. These sources include behavioral observations and interviews made by treatment staff, family members, or other caregivers in contact with the patient, available medical and psychiatric case records, and the present interview of the patient. The interviewer/rater is encouraged to seek additional sources of information about the patient's psychopathology from others to supplement the present interview--this is particularly important when the patient denies symptoms.

2. SELECTING AN APPROPRIATE PERIOD OR INTERVAL FOR RATING SYMPTOMS

The duration of the time frame for assessment depends upon the purpose for the rating. For example, if the rater is interested in determining the degree of change in psychopathology during a one month period between pharmacotherapy visits, the rating period should be one month. If a research protocol aims to evaluate the emergence of prodromal symptoms or exacerbation of psychotic symptoms, it may be advisable to select a one week interval since longer periods may lose accuracy in retrospective recall. When a study demands completeness in identifying criteria for relapse or exacerbation during a one or two year period, frequent BPRS assessments will be necessary.

Rating periods typically range from one day to one month. Retrospective reporting by patients beyond one month may suffer from response bias, retrospective distortions, and memory problems (which are common in persons with psychotic and affective disorders). When resources and personnel do not permit frequent assessments, important information can still be captured if the frequency of assessments can be temporarily increased when (1) prodromal symptoms or stress are reported; (2) medication titration and dosing questions are paramount; and (3) before and after major changes in treatment programs.

3. INTEGRATING FREQUENCY AND SEVERITY IN SYMPTOM RATING: THE HIERARCHICAL CRITERION

Most of the BPRS scales are scored in terms of the frequency and/or severity of the symptom. It is sometimes the case that the frequency and severity do not match. A hierarchical principle should be followed that requires the rater to select the highest scale level that applies to either frequency or severity. Thus, when the anchor point definitions contain an "OR," the patient should be assigned the highest rating that applies. For example, if a patient has hallucinations persistently throughout the day (a rating of "7"), but the hallucinations only interfere with the patient's functioning to a limited extent (a rating of "5"), the rater should score this scale "7."

The BPRS is suited to making frequent assessments of psychopathology covering short periods of time. If, however, an interviewer intends to cover a relatively long period of time (e.g., 6 weeks), then combining ratings for severity and frequency of symptoms must be carefully thought out depending upon the specific project goals. If the goal of a project is to define periods of relapse or exacerbation, the rating should reflect the period of peak symptomatology. For example, if over a six week period the patient experienced a week of persistent hallucinations, but was free of hallucinations the remaining time, the patient should be rated a "6" on hallucinations, reflecting the "worst" period of symptomatology.

Alternatively, if the goal is to obtain a general level of symptomatology, the rating should reflect a "blended" or average score. For extended rating periods (e.g., 3 months), the interviewer may prefer to make one rating reflecting the worst period of severity/frequency/functioning and another rating reflecting the "average" amount of psychopathology for the entire period.

4. RATING THE SEVERITY OF PAST DELUSIONS FOR WHICH THE SUBJECT LACKS INSIGHT

Patients may often indicate varying degrees of insight or conviction regarding past symptoms, making their symptoms difficult to rate. Experiences that result from psychotic episodes can often appear quite real to patients. For example, the belief that others tried to poison them, or controlled all their thoughts and forced them to walk into traffic, could have created severe anxiety and intense fear. Patients can give vivid accounts of their psychotic experiences that are as real as if the situations actually occurred. It is important in these cases to rate the extent to which these memories of a delusional experience can be separated from current delusions involving the present.

Please note that a patient may be able to describe his or her past or current delusions as part of an illness or even refer to them as "delusions." However, a patient should always be rated as having delusions if he or she has *acted* on the delusional belief during the rating period.

When a patient describes a delusional belief once firmly held, but that is now seen as irrational, then a "1" should be scored for Unusual Thought Content (and also for Grandiosity, Somatic Concern, Guilt, or Suspiciousness if the idea fell into one of these thematic categories). However, if the individual still believes that the past psychotic experience or event was real, despite not currently harboring the concern, it should be rated a "2" or higher depending on the degree of reality distortion associated with the belief.

Consider the following scenarios:

Scenario No. 1: The patient gives an account of delusional and/or hallucinatory experience and realizes in retrospect that he was ill. He indicates that he has a chemical imbalance in his brain, or that he has a mental condition.

- Rate "1" on Unusual Thought Content.

Scenario No. 2: The patient gives indications that his past psychotic experiences were due to a chemical imbalance and/or an illness, but entertains some degree of doubt. He claims it is possible that people were trying to kill him, but he is doubtful. The memories of what happened are not bizarre and he indicates that currently he is certain no one is trying to hurt him.

- Rate "2" or "3" on Unusual Thought Content depending on degree of reality retained.

Scenario No. 3: The patient describes previous psychotic experiences as if they actually occurred. He can give examples of what occurred, e.g., co-workers put drugs in his coffee, or that machines read his thoughts.   However, the patient says those circumstances no longer occur. The patient is not currently concerned about co-workers or machines, but he is convinced that the circumstances on which the delusion are based actually occurred in the past.

Rate "3" or "4" on Unusual Thought Content depending on the degree of reality distortion, and a "1" on Suspiciousness.

Scenario No. 4: The patient holds bizarre beliefs regarding the circumstances that occurred in the past and/or his current behavior is influenced by delusional beliefs. For example, the patient believes that thoughts were at one time beamed into his mind from aliens OR the patient will not watch T.V. for fear that the messages will again be directed to him OR that the mafia is located in shopping malls that he should avoid.

Rate "4" or higher on Unusual Thought Content depending on the degree of preoccupation and impairment associated with the belief. Consider rating suspiciousness.

Scenario No. 5: The patient believes that previous psychotic experiences were real and previous delusional beliefs are currently influencing most aspects of daily life causing preoccupation and impairment.

Rate "6" or "7" on Unusual Thought Content depending on the degree of preoccupation and impairment associated with the belief.

5. RATING SYMPTOMS WHEN THE PATIENT DENIES THEM

An all too common phenomenon in clinical practice or research is the denial or minimization of symptoms by patients. Patients deny, hide, dissemble or minimize their symptoms for a variety of reasons, including fear of being committed, restricted to a hospital, or having medication increased. Simply recording a patient's negative response to BPRS symptom items, if denial or distortion is present, will result in invalid and unreliable data. When an interviewer suspects that a patient may be denying symptoms, it is absolutely essential that other sources of information be solicited and utilized in the ratings.

Several situations might suggest that a patient is not entirely forthcoming in reporting his/her symptom experiences. Patients may deny hearing voices, yet be observed whispering under their breath as if in response to a voice. The phrasing that a patient uses in response to a direct question about a delusion or hallucination can alert the interviewer to the potential denial of symptoms. For example, if a patient responds to an inquiry regarding the presence of persecutory ideas by saying, "Not really," this is not the same as saying "No." Subtleties in patient responses communicate a great deal and must be followed-up before the interviewer concludes that the symptom is absent.

There are several ways for the interviewer to obtain more reliable information from a patient who may be denying or minimizing symptoms. In all these approaches, interviewing skills, interpersonal rapport, and sensitivity to the patient are of paramount importance. If the patient is experiencing difficulty disclosing information about psychotic symptoms, the interviewer can shift to inquire about less threatening material such as anxiety/depression or neutral topics. The interviewer should then return to sensitive topics after the patient feels more comfortable and concerns about disclosure have been addressed.

The use of empathy is critical in helping a patient express difficult and possibly embarrassing experiences. A interviewer may say, "I understand that recalling what happened may be unpleasant, but I am very interested in exactly what you experienced." It is advisable to let patients know what you may be sensing clinically; "I have the impression that you are

reluctant to tell me more about what happened. Could that be because you are concerned about what I might think or write down about you?" The interviewer should actively engage the patient in discussing any apparent reasons for denying symptoms. The interviewer can discuss openly in an inviting and noncritical fashion any discrepancies noted between the patient's self-report of symptoms and observations of speech and behavior. For example, "You have said that you are not depressed, yet you seem very sad and you have been moving very slowly." When denial occurs, the BPRS interview becomes a dynamic interplay between the interviewer's desire for accurate symptom information and determining the reasons underlying the patient's reluctance to disclose.

Occasionally, at the time of the interview, the interviewer will have information about the symptoms that the patient is denying. It is permissible to use a mild confrontation technique in an attempt to encourage a patient to disclose accurate symptom information. For example, a BPRS interviewer may learn from the patient's therapist or relatives of the presence of auditory hallucinations. The interviewer may state, "I understand from talking with your therapist (or relative) that you have been hearing voices. Could you tell me about that?" Letting the patient know in a sensitive and gentle manner that information about his symptoms are already known may aid willingness to disclose. This approach is most effective when a policy of sharing patient information in a treatment team situation is explained to all entering patients. In may be necessary to inform the patient that not all clinical material is shared, but that symptom information needed to manage treatment can not in all cases be confidential.

When you cannot resolve conflicts or contradictions between patient's self-report and the report of others, you must use your clinical judgment regarding the most reliable informants. Be sure to make notes on the BPRS rating sheet regarding any conflicting sources of information and specify how the final decision was made.

6. USING A STANDARDIZED REFERENCE GROUP IN MAKING RATINGS

The proper reference group for conducting assessments is a group of normal individuals who are not psychiatric patients who are living and working in the community free of symptoms. BPRS interviewers should have in mind a group of individuals who are able to function either at work/school, socially, or as a homemaker, at levels appropriate to the patient's age and socioeconomic status. Research has shown that normal controls score at "2" or below on most psychotic items of the BPRS. BPRS interviewers should not use other patients previously interviewed, especially those with severe symptoms, as the reference standard, since this will systematically bias ratings toward lower scores.

7. RATING SYMPTOMS THAT OVERLAP TWO OR MORE CATEGORIES OR SCALES ON THE BPRS

Systematized or multiple delusions can be rated on more than one symptom item or scale on the BPRS. depending on the theme of the delusional belief. For example, if a patient has a delusion that certain body parts have been surgically removed against his/her will and replaced with broken mechanical parts, he or she would be rated at the level of "6" or "7" on both Somatic Concern and at the level of "4" to "7" on Unusual Thought Content depending on the frequency and preoccupation with the delusion. Furthermore, if the patient felt guilty because he believed the metal in his body interfered with radio transmissions

between air traffic controllers and pilots resulting in several plane crashes, the BPRS item Guilt should also be rated.

The specific ratings for each of the overlapping symptom dimensions may differ depending on the anchor points of the BPRS item(s). Thus, a patient with a clear-cut persecutory delusion involving the neighbors should be rated a "6" on Suspiciousness. Whereas, the same delusion could be rated a "4" on Unusual Thought Content if it is encapsulated and not associated with impairment.

8. RATING A SYMPTOM THAT HAS NO SPECIFIC ANCHOR POINT CONGRUENT WITH ITS SEVERITY LEVEL

The anchor points for a given BPRS item are critical in achieving good reliability across raters and across research settings. However, there are occasions when a particular symptom may not fit any of the anchor point definitions. Anchor point definitions could not be written to cover all possible symptoms exhibited by patients. In general, ratings of 2 or 3 represent nonpathological but observable mild symptomatology; 4 or 5 represents clinically significant moderate symptomatology; and 6 or 7 represents clinically significant and severe symptomatology.

The anchor points in this manual are guidelines to aid in the process of defining the character, frequency, and impairment associated with various types of psychiatric symptoms. When faced with a complicated rating, the interviewer may find it useful to first classify the symptom as mild (2 or 3), moderate (4 or 5), or severe (6 or 7), and second to consult the anchor point definitions to pinpoint the rating.

BPRS symptoms that are classified in the severe range usually represent pathological phenomena. However, it is possible for a patient to report or be observed to exhibit examples of mild psychopathology that should be rated at much higher levels. For example, on the item Tension, if hand wringing is observed on 2-3 occasions, the interviewer would rate a "2" or "3." However, if the patient is observed to be hand wringing constantly, then consider a higher rating such as "5" or "6" on Tension. Similarly, instances of severe psychopathology that are brief, transient, and non-impairing in nature should be rated in the mild range.

9. "BLENDING" RATINGS MADE IN DIFFERENT EVALUATION SITUATIONS

A psychiatric patient can exhibit different levels of the same symptom depending on the setting in which the patient is observed or the time period involved. Consider the patient who is talkative during a rating session with the BPRS interviewer, but is very withdrawn and blunted with other patients. In the interview session the patient may rate a "3" on blunted affect and "2" on emotional withdrawal, but rate "5" on those symptoms when interacting with other patients. The interviewer can consider integrating the two sources of information and make an averaged or "blended" rating.

10. RESOLVING APPARENTLY CONTRADICTORY SYMPTOMS

It is possible to rate two or more symptoms on the BPRS that represent seemingly contradictory dimensions of phenomenology. For example, a patient can exhibit blunted affect and elevated mood in the same interview period. A patient may laugh and joke with the

interviewer, but then shift to a blunted, slowed, and emotionally withdrawn state during the same interview. In this case, rating the presence of both elevated mood and negative symptoms may be appropriate reflecting that both mood states were present. Although the simultaneous presence of apparently contradictory symptoms is rare, if such combinations do appear, the rater should consider rating each symptom lower than if just one had appeared. This conservative approach to rating reflects a cautious orientation to the rating process when there is ambiguity regarding the symptomatology being assessed.

CLINICAL APPLICATIONS OF THE BPRS: GRAPHING SYMPTOMS

A graph is printed at the end of this administration manual to help raters plot and monitor symptoms from the BPRS. Because psychotic and other symptoms often fluctuate over time, graphing them enables the clinician to identify exacerbations, periods of remission, and prodromal periods that precede a relapse. Monitoring and graphing can be the key to early intervention to reduce morbidity, relapses, and rehospitalizations.

Graphing of symptomatology can provide vivid representations of the relationships between specific types of symptoms (e.g., hallucinations) and other variables of interest, such as (1) medication type and dose, (2) changes in psychosocial treatment and rehabilitation programs, (3) the use of "street" drugs or alcohol, (4) life events, and (5) other environmental or familial stressors. The preprinted graph shown at the end of this manual provides space to write significant life events or treatment changes and permits the "eyeballing" of the influence of these variables on symptoms. Repeated measurement and graphing of symptoms over time can be done for individual items (e.g., anxiety or hallucinations), or for clusters of symptoms (e.g., psychotic index). Such clusters can be chosen from factor analyses of earlier versions of the BPRS (Guy, 1976; Overall, Hollister, and Pichot, 1967; Overall and Porterfield, 1963). The blank graph in this manual allows raters to select and write in specific symptoms of the BPRS based on the needs of individual patients.

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Multnomah Community Ability Scale

USER'S MANUAL

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(c) Sela Barker and Nancy Barron

October, 1994

PREFACE

The Multnomah Community Ability Scale (MCAS) is a 17-item instrument intended to be used by clinicians working with severely mentally ill community mental health program clients. The scale is a tool for functional assessment targeted at an impaired population. The instrument was developed by community mental health staff following standard methodology for rating scale development. The scale has good reliability and validity.

This User's Manual contains a copy of the instrument, instructions for its use, normative data, detailed instructions for rating each item, and case example vignettes (followed by a table of criterion scores). The first two case examples are usually presented in paper format while the third and fourth are available as a video. Papers describing the instrument's reliability and validity as well as giving examples of its application can be obtained from the authors. The training video is available for purchase. **This manual is intended to be photocopied.**

Suggested citations:

Barker S., Barron N., McFarland B., & Bigelow D. (1993). Multnomah Community Ability Scale: User's Manual. Western Mental Health Research Center, Oregon Health Sciences University, Portland, Oregon.

Barker S., Barron N., McFarland B., & Bigelow D. (1994). A Community Ability Scale for Chronically Mentally Ill Consumers: Part I: Reliability and Validity. Community Mental Health Journal, Vol. 30, No. 4, August, 1994.

Barker S., Barron N., McFarland B., Bigelow D., & Carnahan, T. (1994).   A Community Ability Scale for Chronically Mentally Ill Consumers: Part II: Applications. Community Mental Health Journal, Vol. 30, No. 5, October, 1994.

Instructions for Using the Multnomah Community Ability Scale
(c) Sela Barker and Nancy Barron

1.   INTRODUCTION

1.1   Background and Purpose of Scale

The Multnomah Community Ability Scale (MCAS) measures the degree of psychiatric disability for chronically mentally ill adults who are living in the community. The MCAS can be used for balancing clinical staff's workload assignments, measuring client change, developing treatment plans, evaluating community programs, and supplying data for advocacy efforts. The scale is intended for use by clinicians who consistently work with clients over time and who have a broad knowledge of the client's functioning. The scale may be filled out every three to six months in order to measure changes in degree of ability.

The MCAS measures degree of ability through 17 indicators grouped in four sections: (1) interference with functioning, (2) adjustment to living, (3) social competence, and (4) behavioral problems. Ratings of frequency are totaled for each indicator, and both a total score and sub-scores for each section are calculated for the client. Total scores are grouped into three categories: low, medium, and high (functioning).

Items were selected for several reasons. Some items such as physical health, alcohol and drug abuse, and intellectual functioning don't necessarily measure level of functioning but were included because clients with problems in these areas frequently have substantial disability and are especially challenging for service providers. Other items such as medication compliance and response to stress and anxiety were included as critical characteristics of being disabled.

Items are worded to reflect ability level independently of services received. Specifically, response to stress and anxiety and social acceptability measure in part the client's ability to perform productively regardless of services such as day treatment, socialization, or vocational services.

1.2   Development of the Scale

The MCAS was developed over several years by a group of mental health professionals working in community mental health programs. They conducted a series of four pilot tests to insure the scale was a reliable and valid measure of degree of psychiatric disability.

Initially, a list of 36 possible indicators of ability was developed. Forty-seven clinicians in four agencies ranked each indicator on how important the indicator was in assessing ability level. Based on an analysis of the distribution of rankings, a group of items was identified that clinicians felt were important and that measured certain concepts central to the definition of chronic mental illness. Concepts, indicators, and scales were refined as a result of two tests of the scale in the attempt to create items that would be sensitive to this client population.

1.3   Reliability and Validity

The first application involved case managers rating 180 randomly selected clients and the second involved 150 randomly selected clients. Also collected were services received, client demographics, and clinicians' global rating of the clients' levels of ability.

This information was used in the analysis to check validity. The distribution of each item and correlations among items were analyzed. The resultant MCAS consisted of 17 items covering four major areas of functioning. Throughout the process, scales and items were revised to assess functioning independent of services received and to describe items in as non-judgmental manner as possible.

Another test of the MCAS was an inter-rater and test-retest study involving the ratings of clients from two agencies. Results indicated a more than sufficient correlation of the total scores for both the inter-rater test and test-retest. While correlations for a few specific items were lower than others, the results in general indicated adequate reliability.

In summary, testing has shown that the MCAS is valid and reliable. Total scores are used to indicate whether a client is severely, moderately, or mildly dysfunctional.

2.   APPLICATIONS

Since the MCAS only requires a few minutes to complete, it is a low cost, unobtrusive tool. The benefits of using it are numerous. It provides a common language for assessing client care and program planning. For the individual client and clinician, its use facilitates treatment planning and tracking a client's progress. Used in conjunction with an assessment of services provided, normative standards can be developed for the amount of service needed to maintain a client at given levels of ability. Clearly there are advantages to the use of the MCAS.

2.1   Recommendation for the Use of the MCAS

The MCAS should be administered at intake and at treatment plan review for all clients. Clients should be rated at a regular interval, perhaps every three to six months at their next treatment review. A completed MCAS is recommended for an inter-agency transfer of a client.

All clinical staff should be trained in the use of the MCAS. Each agency should appoint a data coordinator to insure the scale is completed as required and that summary data are available for use. Agencies are encouraged to contact the authors about participating in special projects involving the MCAS.

2.1.1 The population of reference. We are measuring the ability of the client through the indicator of the clinician's perception. Each clinician's clinical judgment and experience are relative. There are subpopulations within the larger population of chronically mentally ill clients. We intend that the reference group for these scoring judgments are all the chronically mentally ill clients the clinician has ever known, not just the clients on the current caseload (which may be all of one or a few particular subtypes of clients).

Your observation of a client's behavior, self-reporting of behavior, reports from significant others, and your clinical judgment should all be used as sources of information on which to base your ratings. All items except those in Section 4 Behavioral Problems should be rated based on the client's level of functioning during the last three month interval. Items in the Behavioral Problems section should reflect the client's level of functioning over the last 12 months.

2.2   Rating the Items

Rate the client's level of functioning over the period of time regardless of the services received. Rating the client at least once a year is recommended. You may wish to refer to your ratings when you update your treatment plan and include in your treatment plan areas covered by various items.

2.2.1 Instructions and Examples for each Item

Included here are instructions for rating each item. These instructions were compiled by the authors and include suggestions from two groups of clinicians who have used the scale extensively.

Question 1 - Physical health.

Some chronically mentally ill people misinterpret or don't experience symptoms or health problems, so it is important to verify the status of a client's health from other data on physical condition if at all possible. Use nursing staff as consultants as possible and needed. Many chronically mentally ill clients are scored 5 because their disability is psychiatric and not physical. Remember that a health condition is not the same as a health impairment. Some examples are that a controlled seizure condition would be scored 4, and a poorly controlled or uncontrolled seizure condition would be scored at less than 4, depending on the severity and lack of control.

Question 2 - Intellectual functioning

Generally 5 indicates Intelligence Quotient (IQ) of 90 or above, 4 indicates the 80s, 3 indicates the 70s, 2 indicates the 60s, and 1 indicates below 60 according to an accepted test of intelligence such as the Wechsler Adult Intelligence Scale. However, in the absence of tested intelligence, estimate the level of intellectual functioning from behavioral cues. Since the scale is intended to measure clinician's perception, rate the item in terms of your perception of the client's intellectual functioning (independent of psychotic symptomatology).

Question 3 - Thought Process.

Consider the client's ability as he/she is when rated, whether that be on or off medications, independent of other services. If the client has changed within the time period rated, use the most recent condition.

Question 4 - Mood Abnormality.

Notice that mood may include range, level, appropriateness, and therefore is not unidimensional. Disability in any of these elements may cause a person to have a low score. Different psychopathologies may manifest in different elements of mood.

Both questions 3 and 4 are sometimes confusing since the clinician must ascertain behavioral presentations of mental disorder. Consider the diagnostic indications in the clinical record, and look for consistency in disparate write-ups. Any elements which reflect thought or mood (such as range, appropriateness, level) may be cause for a lower score. It may help to establish "benchmark" clients in your clinical practice.

Question 5 - Response to Stress and Anxiety.

The client's response to work, living independently, changes in life status, family discord, interpersonal conflict, new social demands, etc. may reveal an impaired response to normal stressors. Impairment could be due to inappropriate responses to stressful events or difficulty in handling anxiety as evidenced by agitation, perseveration, inability to problem-solve, etc. A client may become hostile or aggressive, self-destructive, antisocial, or have other outward manifestations or poor coping. A client may also withdraw or actively isolate him/herself. Pay special attention to the quieter manifestations which may be less obvious or socially troublesome but are still dysfunctional for the client.

Question 6 - Ability to Manage Money.

If there is no indication that the client has any trouble managing money, assume that she/he manages it successfully. If the client only manages a slight amount of money because most of it is managed by someone else, rate below 3. If the client only manages a slight amount of the money she/he could have, rate lower; if she/he is managing a small amount because that is all she/he has left over after rent and food, rate somewhat higher. Rate what clients ARE doing, not what they MIGHT do if they had a chance. If a client is not managing money, she/he cannot be scored higher than a 1 or 2.

Question 7 - Independence in Daily Living.

If a client resides in a residential care facility or is hospitalized, the rating would generally be 3 or less. Clients who are hospitalized can be rated on this dimension in terms of how far and how fast they proceed through the hierarchy of hospital privilege. Street people present a different subgroup for rating. Their rating should reflect the degree of quality or success they accomplish in meeting their basic needs. For clients in a structured residential setting, most ratings are 3 or less.

Question 8 - Acceptance of Illness.

You may wish to ask the client about this issue prior to rating the item. Some insight into or verbal admission of the client's mental illness is necessary for a high rating. Remember that issues of medication compliance and compliance with treatment are rated in items 14 and 15 and should not be considered in this question. An attitude of non-acceptance of illness if considered denial to the extent that it interferes with treatment.

Question 9 - Social Acceptability.

Consider this item within the range of the client group rather than the general population. Consider physical appearance, behavior in public situations, and reports from others. If appearance and behavior motivate others to cross to the opposite side of the street, a low rating is required. Clients with bipolar disorders tend to be rated 3 because of their changeable or contrasting behaviors. Responses of the general public are relevant here, rather than a negative peer group who may encourage or enforce socially unacceptable behaviors.

Question 10 - Social Interest.

On this question, do NOT consider the quality or acceptability of the contact. This item is a measure of the <u>frequency</u> of social <u>interest</u> without the judgment of the appropriateness which is the core in question 9 and 11.

Question 11 - Social Effectiveness.

Behavior which is aggressive, intrusive, inappropriate, goal-inappropriate, illegal, immoral, or ridiculous causes this item to be rated low.

Question 12 - Social Network.

One group's guidelines for ratings of social network were:
    1 = nobody
    2 = family member or a casemanager
    3 = family member and a casemanager or a friend or a socialization group
    4 = family member and a casemanager and a friend or a socialization group
    5 = perhaps all of the above and then some

Question 13 - Meaningful activity.

The difference between 1 and 2 is the difference between "nothing and something". Sociable clients may achieve a 4 or 5. For situations such as watching TV or sitting in a bar, the guideline is whether the client is involved in the situation rather than sitting withdrawn and isolated.

Question 14 - Medication Compliance.

If a hospitalized client has refused medication and an independent medical consultant has evaluated medication refusal, then rate 1. If any other forms or forced compliance have been used, rate 1.

Question 15 - Cooperation with Treatment Providers.

If a client keeps appointments, but is not involved or is non-compliant with treatment efforts, rate 2. The modal rating for clients with several involuntary commitments in a defined period of time who are placed in a high intensity community service program is a 2.

Question 16 - Alcohol & Drug Abuse.

Clinicians vary about what level of use comprises abuse for a chronically mentally ill person. Some believe that any use is abusive. The authors do not take this position. The item probes use to the extent that it interferes with functioning, which is a judgment of the clinician.

Question 17 - Impulse Control.

One group's catch phrase was "If you'd hit your mother, you're a 1". Stabbing, breaking windows, flashing, setting fires are examples of poor impulse control in addition to those in the item. A rating of 2 is given to acts that are less severe, consistent, frequent, or to acts which were provoked, threats or intimidation without violence. A rating of 3 indicates less frequency than 2. A rating of 4 indicates perhaps one or two minor lapses of impulse control in the time period being rated. A rating of 5 indicates lack of noteworthy incidents.

3.   HOW TO SCORE THE MCAS

Add the scores for each question for the section score, and add the section scores for the total scores. Do not assign a point count for any "don't knows" used. Instead, prorate the section score (which will therefore prorate the total score) by 1) adding the scores for the items scored), dividing by the number of the items scored, and multiplying that figure by the number of items in the section. For example, if there are three items, one is scored 4, the second is scored 3, and the third is not scored, that is, it is marked "don't know", 1) add the two scores, which equal seven, 2) divide seven by two [the number of items scored], which equals 3.5, and 3) multiply 3.5 x 3, which gives 10.5 as a section score. If you wish to round, by convention, we are suggesting rounding down to the nearest whole number, 10.

4.   NORMS FOR THE MCAS

The samples on which norms are based include clients from urban and rural areas. Since we have found little if any effect of location on the ratings, the urban and rural data are combined.

The clients were enrolled in community support units of community mental health centers. This enrollment implies that they suffer from a major mental illness (i.e. schizophrenia or bipolar disorder), have been hospitalized in the recent past or are at risk of hospitalization, and suffer from social role impairment in several areas. The samples include a slight preponderance of females. The clients' average age is slightly over 40.

5. INTERPRETING THE MCAS

The groupings of scores in the table below are based on the normative data. The total score enables clinicians to compare their client's level of ability with that of the larger population of chronically mentally ill persons in the community. If the scale is completed each three to six months, over time a profile of client change can be obtained.

Sub-section scores can also be charted and compared to the norms of the same population. The sub-section scores provide more specific information about the client's ability because they indicate levels for areas of functioning embodying relative strengths or weaknesses of the client.

Levels of Ability

63-85	High (little disability)
48-62	Medium
17-47	Low (severe disability)

CASE EXAMPLES for the MULTNOMAH COMMUNITY ABILITY SCALE

There are four case examples for your practice in using the MCAS, with criterion scores to check your ratings. The training videos Using the Multnomah Community Ability Scale, Parts I and II, contain portraits of Lynn and Mary. If you do not have access to the training videos or wish additional practice, we have provided written case examples of Joe Black and Mrs. B., which can be used by following these instructions.

Instructions for rating the first case example:

The consumers portrayed in the video tapes and written case examples are fictitious, created from experiences of community mental health staff. After you read or view the case example, take five to ten minutes to complete the scale. Remember to read the instructions preceding each item and refer to the more detailed guidelines in this manual if you need clarification to rate an item.

The case studies are brief, but contain enough information to rate each item. Only select "Don't know" if you strongly feel that there is no supporting information by which to form a conclusion. Rate the consumers portrayed in the examples without consulting others. When you are done, compare your ratings to the "criterion" scores which follow the case example.

Joe Black:

Joe is a 19 year old single Caucasian male who lives with his mother and father, 13 year old brother and 21 year old sister. He is unemployed. He was an above average student and is attempting to attain his high school equivalency degree (GED) through tutorial study at home. He was brought to the center by the police.

Joe's father called the center requesting an evaluation of his son. The father reported his son was having auditory hallucinations directing his behavior. For example, last night a voice told him, "You are the human sacrifice, eat a bar of soap." (He did eat a bar of soap.) He was threatening to kill his father and mother if they did not do as he demanded. Joe was complaining that he could not sleep due to his hallucinations. However, he refused to come to the center to be evaluated. The father called the police at the Crisis Unit worker's suggestion. When they arrived, the police observed Joe's agitation and belligerence. Joe went into a rage when police suggested he accompany them to the center.

Joe's father reported that Joe has been on an antipsychotic medication prescribed by his psychiatrist. The dosage was recently reduced since Joe had shown some improvement and stability and there was concern about side effects. His hallucinations, agitation, and sleeplessness have increased over the past week since his medication dosage was reduced.

Joe has been hospitalized twice before for psychiatric disturbances. The first episode was when he was fifteen years old. At that time he had attempted to assault his father with a hatchet at the direction of what he described as the voice of Jesus Christ telling him his father was the Devil. He was hospitalized for two weeks and apparently resumed near normal functioning, having been stabilized on trifluoperazine (Stelazine). The next episode was two years later when he was 17. The hospitalization was for control of suicidal ideation and behavior apparently prompted by delusional thinking (he swallowed a crucifix and some coins). He had discontinued his medication prior to that hospitalization on the advice of his psychiatrist.

Joe has tried to return to school since the second hospitalization, but was unable to because of extreme anxiety and continuing symptoms. He has made progress toward his GED with his tutor. He has seen his psychiatrist monthly, but has not followed through with his referral to a day treatment program. He has not formed any new friendships and has been socially isolated. At times he complains he is afraid to leave the house.

Joe's medical history is unremarkable. His last physical exam was one year ago--reportedly normal. Family medical history is negative except one maternal aunt who died of cancer. Joe has no history of drug or alcohol abuse, but he does smoke.

A social and developmental history indicated normal birth and apparently normal socialization to puberty. In his early teens, Joe seemed to become somewhat less interested in socializing than were his peers. He did not date or participate in sports or other extra curricular activities in junior or senior high school. He withdrew from regular school after his second hospitalization (when he was in the 11th grade). Joe has not been in any trouble with the law.

On mental status examination, Joe was found to be well groomed and looks his stated age. He was cooperative with the interviewer, but said he did not feel he needs to be here. He was restless and fidgety, pacing around the interview room flailing his arms and, at times, holding his hands over his ears. His posture and gait appeared normal. Communication with him was very difficult. At times he remained silent and appeared to be listening to hallucinations. On inquiry he reported he hears the voices of Jesus Christ and Thomas Edison telling him to eat a light bulb. He denied feelings of worthlessness or sadness, and there was no evidence of suicidal ideation. He reported he believes his hallucinations are caused by his father and says he wants them "removed". Mood was extremely labile as evidenced by anger with the interviewer and giggles. A wide range of affect occurred during the course of the interview. Memory appeared intact. He was able to perform simple calculations. Proverb interpretation was bizarre: the bird-in-hand proverb was taken to mean "if you have one bird, put it in two bushes, then eat it."

Joe relies upon his parents for his meals. He continues to receive a weekly allowance for spending money which he spends on the first day. He performs very few household chores.

Mrs. B:

Mrs. B is a 33 year-old Caucasian woman. She is generally well-groomed and can effectively articulate her thoughts and feelings. She has the diagnosis of Bipolar Disorder, Mixed Type and Alcohol Dependence. Her psychiatric history includes six psychiatric admissions to state and local hospitals in both Oregon and Minnesota. According to Mrs. B the onset of her psychiatric problems began in adolescence when at age 15 she was hospitalized for anorexia nervosa. Mrs. B has had minimal involvement in outpatient care. However, in 1983 she was accepted for Community Support Unit services. She has had difficulty in making a commitment to outpatient treatment and challenges the effectiveness of medications in helping her. She misses many appointments, does not follow through with treatment recommendations, and calls the clinic requesting appointments when she is in crisis. She has not been treated for alcoholism. She has attended several AA groups in the past, but does not like them. She openly states that her drinking is not a problem.

Mrs. B graduated from high school in 1969 and was an average student. She has been married for nine years. This is her second marriage and her husband's third. Mr. and Mrs. B have separated from each other several times and eventually reconciled. Mrs. B states that she and her husband have both had affairs and "know how to hurt each other".

Mrs. B has a very sparse work history. During her married life Mrs. B and her husband have managed small motels. This is their occupation and current source of income. Mrs. B helps at the motel by doing laundry and working at the front desk. However, Mr. B states that she is not really motivated to work and that he has to constantly coax her into helping. He states that she would rather stay in their apartment and spend her time engaged in mundane or trivial activity or drink.

Mrs. B has no leisure time pursuits. She likes to go to taverns to play pool, socialize, and drink beer. She has no close friends, but many acquaintances. She stays in touch with her mother and her sister through long-distance phone calls and letters.

At the present time Mrs. B has just left the state hospital against medical advice. Her husband served her with divorce papers while she was in the hospital. Mrs. B is living at the motel which he manages because she "has no place to go". Her plans are to obtain public assistance for 60-90 days, find work, and try to establish a life independent of her husband. She also contemplates moving to another state in order to get a new start. A mental status exam reveals the following symptoms: mildly pressured speech, flight of ideas, suspiciousness, mild paranoid delusions, and emotional lability. She states that last night she went to a restaurant and drank two beers.

Mrs. B has a prescription for thioridazine (Mellaril) 50 mg. twice daily but does not obtain refills unless called and reminded. Mr. B must give Mrs. B a weekly allowance as Mrs. B has the habit of spending the family income on beer and snack foods. Mrs. B has not been monitored for her physical health but has no noticeable health problems.

Multnomah Community Ability Scale Criterion Scores - Training Exercises

	Lynn (video)	Mary (video)	Joe Black	Mrs. B
Physical health	4	4	5	5
Intellectual functioning	5	5	5	5
Thought processes	4	4	1	4
Mood abnormality	4	4	2	4
Response to stress & anxiety	4	4	1	3
Ability to manage money	3	3	1	2
Independence in daily living	4	4	1	2
Acceptance of illness	3	2	1	2
Social acceptability	4	2	2	3
Social interest	3	3	1	4
Social effectiveness	3	2	1	3
Social network	3	3	1	3
Meaningful activity	3	3	2	3
Medication compliance	4	3	5	2
Cooperation with treatment providers	3	3	3	2
Alcohol/drug abuse	5	5	5	3
Impulse control	5	5	4	5
tal				
tion 1 (Interference with functioning)sub-total:	21	21	14	21
tion 2 (Adjustment to living)sub-total:	10	9	3	6
tion 3 (Social competence)sub-total:	16	13	7	16
tion 4 (Behavioral problems)sub-total:	17	16	17	12
and total:	64	59	41	55

APPENDIX B

ACT/ SH Data

Appendix B

THESIS GROUP 12-31-97 (SOURCE: CARE 2-10-98)
MEANS FOR THESIS GROUP

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
ACT	TOTAL SERVED 12MO+	1.000	0.000	706	0	706.000	1.000	1.000
NOADMS	LIFETIME STATE HOSP ADMITS	4.700	4.798	706	0	3318.000	1.000	43.000
HOSP_TOT	LIFETIME STATE HOSP DAYS	517.245	707.936	706	0	365175.000	0.000	3854.000
HOSPRE3	TOTAL ST HOSP DAYS 3 YRS <ACT	52.433	102.099	706	0	37018.000	0.000	365.000
HOSPRE2	TOTAL ST HOSP DAYS 2 YRS <ACT	50.939	97.465	706	0	35963.000	0.000	374.000
HOSPRE1	TOTAL ST HOSP DAYS 1 YR <ACT	59.863	96.348	706	0	42263.000	0.000	365.000
HOSPOST1	TOTAL ST HOSP DAYS 1 YR >ACT	22.178	56.249	706	0	15658.000	0.000	365.000
HOSPOST2	TOTAL ST HOSP DAYS 2 YRS >ACT	11.965	38.776	706	0	8447.000	0.000	305.000
HOSPOST3	TOTAL ST HOSP DAYS 3 YRS >ACT	4.449	26.494	706	0	3141.000	0.000	316.000
ACTGAF1	GAF @ ACT ENTRY	41.043	10.028	705	1	28935.000	5.000	75.000
ACTGAF2	GAF @ ACT END	43.564	11.630	101	605	4400.000	10.000	75.000
GAFDIFF	END GAF - BEGIN GAF	-0.109	5.802	101	605	-11	-24.000	28.000
CAREGAF1	CURRENT GAF ON CARE	40.398	10.129	706	0	28521.000	9.000	84.000
BPRS_11	1ST BPRS	70.239	26.730	706	0	49589.000	24.000	144.000
MULT_11	1ST MULT1	15.215	3.824	706	0	10742.000	5.000	25.000
MULT_12	1ST MULT2	8.034	3.024	706	0	5672.000	3.000	15.000
MULT_13	1ST MULT3	12.394	3.970	706	0	8750.000	3.000	25.000
MULT_14	1ST MULT4	13.263	3.897	706	0	9364.000	4.000	20.000
EMPLT_11	1ST EMPL1	1.176	0.707	706	0	830.000	1.000	5.000
EMPL1_12	1ST EMPL2	1.204	0.735	706	0	850.000	1.000	5.000
RESID_11	1ST RESID	5.302	1.070	706	0	3743.000	1.000	6.000
UXBPRS	BPRS TOTAL (24-16B)	70.428	28.243	706	0	49722.000	24.000	151.000
UXMULT1		15.112	3.830	706	0	10669.000	5.000	25.000
UXMULT2		8.125	2.939	706	0	5736.000	3.000	15.000
UXMULT3		12.401	3.661	706	0	8755.000	3.000	25.000
UXMULT4		13.708	3.832	706	0	9678.000	4.000	20.000
UXMULTT	MCAS TOTAL (17-85)	49.346	11.505	706	0	34838.000	20.000	85.000
UXEMPL1		1.181	0.731	706	0	834.000	1.000	5.000
UXEMPL2		1.217	0.747	706	0	859.000	1.000	5.000
UXRESID		5.407	1.197	706	0	3817.000	1.000	7.000
UXSUBST		19.972	40.007	706	0	14100.000	0.000	100.000
UXCOUNT		4.922	1.113	706	0	3475.000	2.000	9.000
BCOUNT		4.922	1.113	706	0	3475.000	2.000	9.000
MCOUNT		4.887	1.123	706	0	3450.000	2.000	9.000
UXDAYS	DAYS FROM UA #1 TO CURR UA	344.120	64.013	706	0	242949.000	180.000	482.000
DUALMHSA	DUAL DIAG MH/SA	0.286	0.452	706	0	202.000	0.000	1.000
AXIS4TOT	TOTAL AXIS IV STRESSORS	2.734	1.735	706	0	1930.000	0.000	9.000
FY94	SERVED IN FY94	0.069	0.254	706	0	49.000	0.000	1.000
FY95	SERVED IN FY95	0.269	0.444	706	0	190.000	0.000	1.000
FY96	SERVED IN FY96	0.766	0.423	706	0	541.000	0.000	1.000
FY97	SERVED IN FY97	0.983	0.129	706	0	694.000	0.000	1.000
FY98	SERVED IN FY98	0.925	0.264	706	0	653.000	0.000	1.000
ACTEPIS	# ACT EPISODES	1.449	0.697	706	0	1023.000	1.000	5.000
ACTDAYS	TOTAL DAYS IN ACT	691.956	308.090	706	0	488521.000	365.000	2498.000
AGE	AGE @ ACT ENTRY	39.884	10.495	706	0	28158.000	18.000	76.000
TXMHYRS	YEARS IN TXMHMR SYSTEM	7.287	2.132	706	0	5144.547	0.078	9.313
MEDICD98	MEDICAID IN FY98	1.000	0.000	537	169	537.000	1.000	1.000
WHITE	RACE/ETH: WHITE	0.559	0.497	706	0	395.000	0.000	1.000
HISPANIC	RACE/ETH: HISPANIC	0.167	0.373	706	0	118.000	0.000	1.000
BLACK	RACE/ETH: BLACK	0.259	0.439	706	0	183.000	0.000	1.000
OTHER	RACE/ETH: OTHER	0.014	0.118	706	0	10.000	0.000	1.000
DECEASED	DEATHS LISTED ON CARE	0.006	0.075	706	0	4.000	0.000	1.000
FEMALE	GENDER: FEMALE	0.419	0.494	706	0	296.000	0.000	1.000
MALE	GENDER: MALE	0.581	0.494	706	0	410.000	0.000	1.000

THESIS GROUP 12-31-97 (SOURCE: CARE 2-10-98)
MEANS FOR THESIS GROUP

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
ACT	TOTAL SERVED 12MO+	1.000	0.000	902	0	902.000	1.000	1.000
NOADMS	LIFETIME STATE HOSP ADMITS	2.351	3.312	902	0	2121.000	1.000	45.000
HOSP_TOT	LIFETIME STATE HOSP DAYS	192.951	375.793	902	0	174042.000	0.000	3116.000
HOSPRE3	TOTAL ST HOSP DAYS 3_YRS <ACT	20.560	64.675	902	0	18545.000	0.000	365.000
HOSPRE2	TOTAL ST HOSP DAYS 2_YRS <ACT	18.711	63.322	902	0	16877.000	0.000	365.000
HOSPRE1	TOTAL ST HOSP DAYS 1_YR <ACT	16.033	54.947	902	0	14462.000	0.000	365.000
HOSPOST1	TOTAL ST HOSP DAYS 1_YR >ACT	5.788	29.427	902	0	5221.000	0.000	365.000
HOSPOST2	TOTAL ST HOSP DAYS 2_YRS >ACT	4.789	26.755	902	0	4320.000	0.000	365.000
HOSPOST3	TOTAL ST HOSP DAYS 3_YRS >ACT	2.502	20.965	902	0	2257.000	0.000	365.000
ACTGAF1	GAF @ ACT ENTRY	46.074	10.219	902	0	41559.000	10.000	90.000
ACTGAF2	GAF @ ACT END	46.866	10.750	328	574	15372.000	10.000	90.000
GAFDIFF	END GAF - BEGIN GAF	-0.314	6.154	328	574	-103.000	-48.000	40.000
CAREGAF1	CURRENT GAF ON CARE	45.996	9.836	902	0	41488.000	24.000	70.000
BPRS_11	1ST BPRS	59.009	25.402	902	0	53226.000	24.000	148.000
MULT_11	1ST MULT1	17.284	4.016	902	0	15590.000	5.000	25.000
MULT_12	1ST MULT2	10.020	3.022	902	0	9038.000	3.000	15.000
MULT_13	1ST MULT3	14.488	3.898	902	0	13068.000	5.000	25.000
MULT_14	1ST MULT4	15.854	3.560	902	0	14300.000	4.000	20.000
EMPL_11	1ST EMPL1	1.446	1.095	902	0	1304.000	1.000	5.000
EMPL1_12	1ST EMPL2	1.579	1.297	902	0	1424.000	1.000	5.000
RESID_11	1ST RESID	5.278	0.811	902	0	4761.000	1.000	6.000
UXBPRS	BPRS TOTAL (24-168)	54.531	22.410	902	0	49187.000	24.000	149.000
UXMULT1		17.143	3.835	902	0	15463.000	5.000	25.000
UXMULT2		10.023	2.869	902	0	9041.000	3.000	15.000
UXMULT3		14.096	3.710	902	0	12715.000	5.000	25.000
UXMULT4		15.943	3.463	902	0	14381.000	4.000	20.000
UXMULTT	MCAS TOTAL (17-85)	57.206	10.779	902	0	51600.000	20.000	85.000
UXEMPL1		1.467	1.161	902	0	1323.000	1.000	5.000
UXEMPL2		1.517	1.231	902	0	1368.000	1.000	5.000
UXRESID		5.329	0.858	902	0	4807.000	1.000	7.000
UXSUBST		8.537	27.958	902	0	7700.000	0.000	100.000
UXCOUNT		4.749	1.176	902	0	4284.000	2.000	9.000
BCOUNT		4.749	1.176	902	0	4284.000	2.000	9.000
MCOUNT		4.605	1.263	902	0	4154.000	1.000	9.000
UXDAYS	DAYS FROM UA #1 TO CURR UA	337.289	66.316	902	0	304235.000	180.000	485.000
DUALMHSA	DUAL DIAG MH/SA	0.200	0.400	902	0	180.000	0.000	1.000
AXIS4TOT	TOTAL AXIS IV STRESSORS	2.180	1.521	902	0	1966.000	0.000	8.000
FY94	SERVED IN FY94	0.339	0.474	902	0	306.000	0.000	1.000
FY95	SERVED IN FY95	0.543	0.498	902	0	490.000	0.000	1.000
FY96	SERVED IN FY96	0.783	0.413	902	0	706.000	0.000	1.000
FY97	SERVED IN FY97	0.884	0.321	902	0	797.000	0.000	1.000
FY98	SERVED IN FY98	0.747	0.435	902	0	674.000	0.000	1.000
ACTEPIS	# ACT EPISODES	1.394	0.644	902	0	1257.000	1.000	4.000
ACTDAYS	TOTAL DAYS IN ACT	911.529	528.015	902	0	822199.000	365.000	3804.000
AGE	AGE @ ACT ENTRY	40.749	10.710	902	0	36756.000	18.000	80.000
TXMHYRS	YEARS IN TXMHMR SYSTEM	6.123	2.435	902	0	5522.822		9.250
MEDICD98	MEDICAID IN FY98	1.000	0.000	646	256	646.000	1.000	1.000
WHITE	RACE/ETH: WHITE	0.584	0.493	902	0	527.000	0.000	1.000
HISPANIC	RACE/ETH: HISPANIC	0.155	0.362	902	0	140.000	0.000	1.000
BLACK	RACE/ETH: BLACK	0.249	0.433	902	0	225.000	0.000	1.000
OTHER	RACE/ETH: OTHER	0.011	0.105	902	0	10.000	0.000	1.000
DECEASED	DEATHS LISTED ON CARE	0.001	0.033	902	0	1.000	0.000	1.000
FEMALE	GENDER: FEMALE	0.469	0.499	902	0	423.000	0.000	1.000
MALE	GENDER: MALE	0.531	0.499	902	0	479.000	0.000	1.000

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
ACT1BEG		13109.206	352.811	393	0	5151918.000	11380.000	13514.000
CAREHOSP		1.000	0.000	331	62	331.000	1.000	1.000
ADM_DATE	LAST ST HOSP ADMIT	12586.432	1112.316	331	62	4166109.000	9184.000	13876.000
SEP_DATE	LAST ST HOSP DISCHG	12568.311	1035.033	286	107	3594537.000	9201.000	13751.000
NOADMS	TOTAL ST HOSP ADMITS	4.868	5.000	393	0	1913.000	1.000	43.000
HOSP_TOT	TOTAL ST HOSP DAYS	585.099	747.972	393	0	229944.000	0.000	3854.000
HOSPRE	HOSP ADMIT <ACT ENTRY	1.000	0.000	284	109	284.000	1.000	1.000
HOSPOST	HOSP ADMIT >ACT ENTRY	1.000	0.000	109	284	109.000	1.000	1.000
HOSPRE1	TOTAL ST HOSP DAYS 1_YR <ACT	60.326	97.519	393	0	23708.000	0.000	365.000
HOSPRE2	TOTAL ST HOSP DAYS 2_YRS <ACT	56.234	101.274	393	0	22100.000	0.000	374.000
HOSPRE3	TOTAL ST HOSP DAYS 3_YRS <ACT	61.824	110.776	393	0	24297.000	0.000	365.000
HOSPOST1	TOTAL ST HOSP DAYS 1_YR >ACT	24.804	59.893	393	0	9748.000	0.000	328.000
HOSPOST2	TOTAL ST HOSP DAYS 2_YRS >ACT	15.690	42.566	393	0	6166.000	0.000	305.000
HOSPOST3	TOTAL ST HOSP DAYS 3_YRS >ACT	5.249	29.123	393	0	2063.000	0.000	316.000
HOSP_12	ST HOSP DAYS 1-2 YRS PRE	116.560	176.975	393	0	45808.000	0.000	730.000
HOSP_123	ST HOSP DAYS 1-3 YRS PRE	178.384	264.017	393	0	70105.000	0.000	1095.000
MEDICD98		1.000	0.000	292	101	292.000	1.000	1.000
MEDEFFDT		12585.973	1199.603	292	101	3675104.000	5569.000	13819.000
MEDENDDT		2776398.781	666287.391	292	101	810708444.00	13787.000	2936547.000
ACTGAF1	GAF @ ACT ENTRY	34.232	6.113	392	1	13419.000	5.000	40.000
ACT	PERSONS SERVED BY ACT	1.000	0.000	393	0	393.000	1.000	1.000
AGE	AGE @ ACT ENTRY	39.313	10.412	393	0	15450.000	18.000	66.000
TXMHYRS	YEARS IN TXMHMR SYSTEM	7.417	1.965	393	0	2915.059	0.508	9.313
ACTBEGDT	FIRST ACT ENTRY DATE	13109.206	352.811	393	0	5151918.000	11380.000	13514.000
ACTGAF2	GAF @ ACT END	35.708	7.655	48	345	1714.000	10.000	60.000
GAFDIFF	END GAF - BEGIN GAF	0.563	6.321	48	345	27.000	-17.000	28.000
ACTOPEN	OPEN ACT CASES	0.878	0.328	393	0	345.000	0.000	1.000
ACTCLOSE	CLOSED ACT CASES	0.122	0.328	393	0	48.000	0.000	1.000
FY94	SERVED IN FY94	0.084	0.278	393	0	33.000	0.000	1.000
FY95	SERVED IN FY95	0.290	0.454	393	0	114.000	0.000	1.000
FY96	SERVED IN FY96	0.781	0.414	393	0	307.000	0.000	1.000
FY97	SERVED IN FY97	0.992	0.087	393	0	390.000	0.000	1.000
FY98	SERVED IN FY98	0.947	0.225	393	0	372.000	0.000	1.000
ACTUNIQ	UNIQUE PERSONS SERVED BY ACT	1.000	0.000	393	0	393.000	1.000	1.000
ACTEPIS	# ACT EPISODES	1.425	0.721	393	0	560.000	1.000	5.000
DISCH96	ACT DISCHARGES IN FY96	0.506	0.501	393	0	199.000	0.000	1.000
ADMIT97	ACT ADMITS IN FY97	0.229	0.421	393	0	90.000	0.000	1.000
DISCH97	ACT DISCHARGES IN FY97	0.399	0.490	393	0	157.000	0.000	1.000
ADMIT98	ACT ADMITS IN FY98	0.191	0.393	393	0	75.000	0.000	1.000
DISCH98	ACT DISCHARGES IN FY98	0.130	0.336	393	0	51.000	0.000	1.000
ACTDAYS	TOTAL DAYS IN ACT	0.079	0.270	393	0	31.000	0.000	1.000
ACTENDDT	LAST ACT END DATE	720.158	345.463	393	0	283022.000	365.000	2498.000
CAREGAF1	CURRENT GAF ON CARE	2579557.611	958291.155	393	0	1013766141.0	13145.000	2936547.000
CAREGAF2	PREVIOUS GAF ON CARE	35.578	8.150	393	0	13982.000	9.000	70.000
CARECOM		39.826	8.950	241	152	9598.000	20.000	75.000
SYS_STAT		1.000	0.000	393	0	393.000	1.000	1.000
COMBEGDT		1.041	0.264	393	0	409.000	1.000	4.000
COMENDDT		13574.321	247.699	393	0	5334708.000	11690.000	13874.000
DG1_DATE	DG1 DATE	1411877.308	1461944.904	393	0	554867782.00	12194.000	2936547.000
MH	MH DIAG IN AXIS I/II	13625.043	270.222	393	0	5354642.000	12068.000	13913.000
MR	MR	1.000	0.000	393	0	393.000	1.000	1.000
SA	SA DIAG IN AXIS I/II	0.036	0.186	393	0	14.000	0.000	1.000
DUALMHSA	DUAL DIAG MH/SA	0.298	0.458	393	0	117.000	0.000	1.000
DUALMHMR	DUAL DIAG MH/MR	0.298	0.458	393	0	117.000	0.000	1.000
WHITE	RACE/ETH: WHITE	0.036	0.186	393	0	14.000	0.000	1.000
HISPANIC	RACE/ETH: HISPANIC	0.573	0.495	393	0	225.000	0.000	1.000
BLACK	RACE/ETH: BLACK	0.160	0.367	393	0	63.000	0.000	1.000
OTHER	RACE/ETH: OTHER	0.254	0.436	393	0	100.000	0.000	1.000
DECEASED	DEATHS LISTED ON CARE	0.013	0.112	393	0	5.000	0.000	1.000
		0.005	0.071	393	0	2.000	0.000	1.000

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
FEMALE	GENDER: FEMALE	0.397	0.490	393	0	156.000	0.000	1.000
MALE	GENDER: MALE	0.603	0.490	393	0	237.000	0.000	1.000
AXIS41	AXIS IV-A: SUPPORT GROUP	0.677	0.468	393	0	266.000	0.000	1.000
AXIS42	AXIS IV-B: SOCIAL	0.687	0.464	393	0	270.000	0.000	1.000
AXIS43	AXIS IV-C: EDUCATION	0.117	0.322	393	0	46.000	0.000	1.000
AXIS44	AXIS IV-D: EMPLOYMENT	0.382	0.486	393	0	150.000	0.000	1.000
AXIS45	AXIS IV-E: HOUSING	0.267	0.443	393	0	105.000	0.000	1.000
AXIS46	AXIS IV-F: ECONOMIC	0.382	0.486	393	0	150.000	0.000	1.000
AXIS47	AXIS IV-G: HEALTH CARE	0.130	0.336	393	0	51.000	0.000	1.000
AXIS48	AXIS IV-H: LEGAL PROBS	0.076	0.266	393	0	30.000	0.000	1.000
AXIS49	AXIS IV-I: OTHER PROBS	0.234	0.424	393	0	92.000	0.000	1.000
I		5.000	0.000	393	0	1965.000	5.000	5.000
AXIS4TOT	TOTAL AXIS IV STRESSORS	2.952	1.731	393	0	1160.000	0.000	9.000
PRIPOP98		1.000	0.000	388	5	388.000	1.000	1.000
UXDATE	UA DATE	13821.855	38.857	393	0	5431989.000	13650.000	13879.000
CADATE		13815.903	51.609	383	10	5291491.000	13501.000	13879.000
UXCOUNT		4.901	1.124	393	0	1926.000	2.000	9.000
BCOUNT		4.901	1.127	393	0	1926.000	2.000	9.000
MCOUNT		4.878	1.127	393	0	1917.000	2.000	9.000
UXALC		1.603	0.920	393	0	630.000	1.000	5.000
UXDRUG		1.410	0.870	393	0	554.000	1.000	5.000
UXRESID		5.214	1.338	393	0	2049.000	1.000	7.000
UXFINAN		2.913	0.375	393	0	1145.000	1.000	3.000
UXEMPL1		1.148	0.634	393	0	451.000	1.000	5.000
UXEMPL2		1.181	0.674	393	0	464.000	1.000	5.000
UXLEGAL1		0.163	1.619	393	0	64.000	0.000	30.000
UXLEGAL2		1.763	11.410	393	0	693.000	0.000	90.000
UXLEGAL3		0.288	4.569	393	0	113.000	0.000	90.000
UXLEGAL4		0.033	0.179	393	0	13.000	0.000	1.000
UXVICTIM		0.137	0.344	387	6	53.000	0.000	1.000
UXMULT1		14.372	3.618	393	0	5648.000	5.000	25.000
UXMULT2		7.613	2.793	393	0	2992.000	3.000	15.000
UXMULT3		11.796	3.453	393	0	4636.000	5.000	25.000
UXMULT4		13.008	3.684	393	0	5112.000	4.000	20.000
UXLEVEL		2.672	0.531	393	0	1050.000	1.000	3.000
BPRS_11	1ST BPRS	75.262	26.671	393	0	29578.000	24.000	144.000
MULT_11	1ST MULT1	14.471	3.567	393	0	5687.000	6.000	25.000
MULT_12	1ST MULT2	7.448	2.716	393	0	2927.000	3.000	15.000
MULT_13	1ST MULT3	11.842	3.687	393	0	4654.000	3.000	25.000
MULT_14	1ST MULT4	12.611	3.749	393	0	4956.000	4.000	20.000
EMPLT_11	1ST EMPL1	1.120	0.552	393	0	440.000	1.000	5.000
EMPL1_12	1ST EMPL2	1.135	0.571	393	0	446.000	1.000	5.000
RESID_11	1ST RESID	5.270	1.094	393	0	2071.000	1.000	6.000
UXBPRS		76.216	28.203	393	0	29953.000	24.000	140.000
UXDATE1	1ST UA DATE	13479.036	54.241	393	0	5297261.000	13393.000	13650.000
BPRSDATE		13821.557	39.444	393	0	5431872.000	13650.000	13879.000
MULTDATE		13806.271	62.986	391	2	5398252.000	13535.000	13879.000
ULDATE		13821.855	38.857	393	0	5431989.000	13650.000	13879.000
UNIFORM		1.000	0.000	393	0	393.000	1.000	1.000
UXARREST		0.079	0.270	393	0	31.000	0.000	1.000
BPRSERR		.	.	0	393	.	.	.
BPRS168		.	.	0	393	.	.	.
BPRS		1.000	0.000	393	0	393.000	1.000	1.000
MULT		1.000	0.000	393	0	393.000	1.000	1.000
UXMULTT		46.789	10.709	393	0	18388.000	20.000	85.000
MULTERR		.	.	0	393	.	.	.
ULBDATE		1.000	0.000	389	4	389.000	1.000	1.000
ULMDATE		1.000	0.000	349	44	349.000	1.000	1.000
ULBMDATE		1.000	0.000	346	47	346.000	1.000	1.000
UXSUBST		0.209	0.407	393	0	82.000	0.000	1.000

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
UXVALID		1.000	0.000	393	0	393.000	1.000	1.000
LEVELERR		.	.	0	393	.	.	.
DUALSA_	DUAL DIAG MH/SA	29.771	45.783	393	0	11700.000	0.000	100.000
DUALMR_	DUAL DIAG MH/MR	3.562	18.559	393	0	1400.000	0.000	100.000
MEDICD_	MEDICAID IN FY98	100.000	0.000	292	101	29200.000	100.000	100.000
PRIPOP_	PRIORITY POP IN FY9B	100.000	0.000	388	5	38800.000	100.000	100.000
UXDAYS_	DAYS FROM UA #1 TO CURR UA	342.819	63.362	393	0	134728.000	181.000	482.000
TIMEGRP		3.000	0.000	393	0	1179.000	3.000	3.000
GAFGRP		1.000	0.000	393	0	393.000	1.000	1.000

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
ACT1BEG		12782.778	604.536	320	0	4090489.000	9800.000	13495.000
CAREHOSP		1.000		200		200.000	1.000	1.000
ADM_DATE	LAST ST HOSP ADMIT	11912.855	1314.146	200	120	2382571.000	9043.000	13849.000
SEP_DATE	LAST ST HOSP DISCHG	11936.451	1202.585	184	136	2196307.000	9114.000	13752.000
NOADMS	TOTAL ST HOSP ADMITS	2.638	3.665	320	0	844.000	1.000	45.000
HOSP_TOT	TOTAL ST HOSP DAYS	278.288	476.022	320	0	89052.000	0.000	3116.000
HOSPRE	HOSP ADMIT <ACT ENTRY	1.000	0.000	272	48	272.000	1.000	1.000
HOSPOST	HOSP ADMIT >ACT ENTRY	1.000	0.000	48	272	48.000	1.000	1.000
HOSPRE1	TOTAL ST HOSP DAYS 1 YR <ACT	25.766	74.853	320	0	8245.000	0.000	365.000
HOSPRE2	TOTAL ST HOSP DAYS 2 YRS <ACT	26.384	77.802	320	0	8443.000	0.000	365.000
HOSPRE3	TOTAL ST HOSP DAYS 3 YRS <ACT	29.156	77.445	320	0	9330.000	0.000	365.000
HOSPOST1	TOTAL ST HOSP DAYS 1 YR >ACT	10.244	45.022	320	0	3278.000	0.000	365.000
HOSPOST2	TOTAL ST HOSP DAYS 2 YRS >ACT	7.534	36.779	320	0	2411.000	0.000	365.000
HOSPOST3	TOTAL ST HOSP DAYS 3 YRS >ACT	4.500	31.500	320	0	1440.000	0.000	365.000
HOSP_12	ST HOSP DAYS 1-2 YRS PRE	52.150	136.288	320	0	16688.000	0.000	730.000
HOSP_123	ST HOSP DAYS 1-3 YRS PRE	81.306	185.740	320	0	26018.000	0.000	1095.000
MEDICD98		1.000	0.000	246	74	246.000	1.000	1.000
MEDEFFDT		12266.988	1484.340	246	74	3017679.000	4308.000	13819.000
MEDENDDT		2710810.402	781848.513	246	74	666859559.00	13787.000	2936547.000
ACTGAF1		35.688	5.768	320	0	11420.000	10.000	40.000
ACT	GAF @ ACT ENTRY	40.975	10.423	320	0	13112.000	19.000	73.000
AGE	PERSONS SERVED BY ACT	6.074	2.378	320	0	1943.528	9.000	9.250
TXMHYRS	AGE @ ACT ENTRY		0.000	320	0	320.000	1.000	1.000
SH	YEARS IN TXMHMR SYSTEM			0	320			
ACTBEGDT	FIRST ACT ENTRY DATE	12782.778	604.536	320	0	4090489.000	9800.000	13495.000
ACTGAF2	GAF @ ACT END	36.042	7.478	95	225	3424.000	10.000	60.000
GAFDIFF	END GAF - BEGIN GAF	1.474	6.042	95	225	140.000	-10.000	40.000
ACTOPEN	OPEN ACT CASES	0.703	0.458	320	0	225.000	0.000	1.000
ACTCLOSE	CLOSED ACT CASES	0.297	0.458	320	0	95.000	0.000	1.000
FY94	SERVED IN FY94	0.316	0.465	320	0	101.000	0.000	1.000
FY95	SERVED IN FY95	0.569	0.496	320	0	182.000	0.000	1.000
FY96	SERVED IN FY96	0.800	0.401	320	0	256.000	0.000	1.000
FY97	SERVED IN FY97	0.903	0.296	320	0	289.000	0.000	1.000
FY98	SERVED IN FY98	0.778	0.416	320	0	249.000	0.000	1.000
ACTUNIQ	UNIQUE PERSONS SERVED BY ACT	1.000	0.000	320	0	320.000	1.000	1.000
ACTEPIS	# ACT EPISODES	1.325	0.629	320	0	424.000	1.000	4.000
ADMIT96	ACT ADMITS IN FY96	0.266	0.442	320	0	85.000	0.000	1.000
DISCH96	ACT DISCHARGES IN FY96	0.275	0.447	320	0	88.000	0.000	1.000
ADMIT97	ACT ADMITS IN FY97	0.381	0.486	320	0	122.000	0.000	1.000
DISCH97	ACT DISCHARGES IN FY97	0.219	0.414	320	0	70.000	0.000	1.000
ADMIT98	ACT ADMITS IN FY98	0.044	0.205	320	0	14.000	0.000	1.000
DISCH98	ACT DISCHARGES IN FY98	0.075	0.264	320	0	24.000	0.000	1.000
ACTDAYS	TOTAL DAYS IN ACT	965.478	578.158	320	0	308953.000	365.000	3804.000
ACTENDDT	LAST ACT END DATE	2068782.200	1337553.418	320	0	662010304.00	13033.000	2936547.000
CAREGAF1	CURRENT GAF ON CARE	38.009	7.788	320	0	12163.000	5.000	65.000
CAREGAF2	PREVIOUS GAF ON CARE	39.544	8.274	195	125	7711.000	20.000	75.000
CARECOM		1.000	0.000	320	0	320.000	1.000	1.000
SYS_STAT		1.028	0.166	320	0	329.000	1.000	2.000
COMBEGDT		13712.328	157.548	320	0	4387945.000	12843.000	13878.000
COMENDDT		1968367.462	1377810.538	320	0	629877588.00	12931.000	2936547.000
DG1_DATE	DG1 DATE	13689.716	224.333	320	0	4380709.000	11981.000	13908.000
MH	MH DIAG IN AXIS I/II	1.000	0.000	320	0	320.000	1.000	1.000
MR	MR	0.028	0.166	320	0	9.000	0.000	1.000
SA	SA DIAG IN AXIS I/II	0.206	0.405	320	0	66.000	0.000	1.000
DUALMHSA	DUAL DIAG MH/SA	0.206	0.405	320	0	66.000	0.000	1.000
DUALMHMR	DUAL DIAG MH/MR	0.028	0.166	320	0	9.000	0.000	1.000
WHITE	RACE/ETH: WHITE	0.625	0.485	320	0	200.000	0.000	1.000
HISPANIC	RACE/ETH: HISPANIC	0.144	0.351	320	0	46.000	0.000	1.000
BLACK	RACE/ETH: BLACK	0.222	0.416	320	0	71.000	0.000	1.000
OTHER	RACE/ETH: OTHER	0.009	0.097	320	0	3.000	0.000	1.000

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
DECEASED	DEATHS LISTED ON CARE	0.000	0.000	320	0	0.000	0.000	0.000
FEMALE	GENDER: FEMALE	0.466	0.500	320	0	149.000	0.000	1.000
MALE	GENDER: MALE	0.534	0.500	320	0	171.000	0.000	1.000
AXIS41	AXIS IV-A: SUPPORT GROUP	0.450	0.498	320	0	144.000	0.000	1.000
AXIS42	AXIS IV-B: SOCIAL	0.550	0.498	320	0	176.000	0.000	1.000
AXIS43	AXIS IV-C: EDUCATION	0.075	0.264	320	0	24.000	0.000	1.000
AXIS44	AXIS IV-D: EMPLOYMENT	0.331	0.471	320	0	106.000	0.000	1.000
AXIS45	AXIS IV-E: HOUSING	0.163	0.369	320	0	52.000	0.000	1.000
AXIS46	AXIS IV-F: ECONOMIC	0.397	0.490	320	0	127.000	0.000	1.000
AXIS47	AXIS IV-G: HEALTH CARE	0.081	0.274	320	0	26.000	0.000	1.000
AXIS48	AXIS IV-H: LEGAL PROBS	0.044	0.205	320	0	14.000	0.000	1.000
AXIS49	AXIS IV-I: OTHER PROBS	0.269	0.444	320	0	86.000	0.000	1.000
I		5.000	0.000	320	0	1600.000	5.000	5.000
AXIS4TOT	TOTAL AXIS IV STRESSORS	2.359	1.485	320	0	755.000	0.000	8.000
PRIPOP98			1.000	316	4	316.000	0.000	8.000
UXDATE	UA DATE	13822.266	40.181	320	0	4423125.000	13655.000	13879.000
CADATE		13814.657	54.414	303	17	4185841.000	13555.000	13879.000
UXCOUNT		4.791	1.090	320	0	1533.000	2.000	8.000
BCOUNT		4.791	1.090	320	0	1533.000	2.000	8.000
MCOUNT		4.666	1.152	320	0	1493.000	2.000	8.000
UXALC		1.319	0.698	320	0	422.000	1.000	5.000
UXDRUG		1.178	0.584	320	0	377.000	1.000	5.000
UXRESID		5.253	0.886	320	0	1681.000	1.000	7.000
UXFINAN		2.994	0.274	320	0	958.000	1.000	4.000
UXEMPL1		1.319	0.988	320	0	422.000	1.000	5.000
UXEMPL2		1.319	0.946	320	0	422.000	1.000	5.000
UXLEGAL1		0.031	0.305	320	0	10.000	1.000	5.000
UXLEGAL2		0.719	7.262	320	0	230.000	0.000	88.000
UXLEGAL3		0.028	0.255	320	0	9.000	0.000	4.000
UXLEGAL4		0.028	0.166	320	0	9.000	0.000	1.000
UXVICTIM		0.053	0.225	319	1	17.000	0.000	1.000
UXMULT1		16.550	3.805	320	0	5296.000	5.000	25.000
UXMULT2		9.413	2.807	320	0	3012.000	3.000	15.000
UXMULT3		13.406	3.763	320	0	4290.000	5.000	25.000
UXMULT4		15.475	3.708	320	0	4952.000	4.000	20.000
UXLEVEL		2.116	0.527	320	0	677.000	1.000	3.000
BPRS_11	1ST BPRS	64.344	26.482	320	0	20590.000	24.000	148.000
MULT_11	1ST MULT1	16.366	4.101	320	0	5237.000	5.000	25.000
MULT_12	1ST MULT2	9.244	2.973	320	0	2958.000	3.000	15.000
MULT_13	1ST MULT3	13.878	3.720	320	0	4441.000	5.000	24.000
MULT_14	1ST MULT4	15.275	3.720	320	0	4888.000	4.000	20.000
EMPL_11	1ST EMPL1	1.231	0.805	320	0	394.000	1.000	5.000
EMPL1_12	1ST EMPL2	1.331	1.000	320	0	426.000	1.000	5.000
RESID_11	1ST RESID	5.197	0.805	320	0	1663.000	1.000	6.000
UXBPRS		59.616	23.879	320	0	19077.000	24.000	149.000
UXDATE1	1ST UA DATE	13481.497	49.135	320	0	4314079.000	13393.000	13664.000
BPRSDATE		13822.263	40.181	320	0	4423124.000	13655.000	13879.000
MULTDATE		13809.853	61.036	320	0	4419153.000	13520.000	13879.000
ULDATE		13820.000	45.664	320	0	4422400.000	13543.000	13879.000
UNIFORM		1.000	0.000	320	0	320.000	1.000	1.000
UXARREST		0.047	0.212	320	0	15.000	0.000	1.000
BPRSERR				0	320			
BPRS16B				0	320			
BPRS		1.000	0.000	320	0	320.000	1.000	1.000
MULT		1.000	0.000	320	0	320.000	1.000	1.000
UXMULTT		54.844	10.838	320	0	17550.000	23.000	85.000
MULTERR				0	320			
ULBDATE		1.000	0.000	315	5	315.000	1.000	1.000
ULMDATE		1.000	0.000	296	24	296.000	1.000	1.000
ULBMDATE		1.000	0.000	292	28	292.000	1.000	1.000

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
UXSUBST		0.087	0.283	320	0	28.000	0.000	1.000
UXVALID		1.000	0.000	320	0	320.000	1.000	1.000
LEVELERR		.	.	0	320	.	.	.
DUALSA_	DUAL DIAG MH/SA	20.625	40.525	320	0	6600.000	0.000	100.000
DUALMR_	DUAL DIAG MH/MR	2.813	16.559	320	0	900.000	0.000	100.000
MEDICD_	MEDICAID IN FY98	100.000	0.000	246	74	24600.000	100.000	100.000
PRIPOP_	PRIORITY POP IN FY98	100.000	0.000	316	4	31600.000	100.000	100.000
UXDAYS_	DAYS FROM UA #1 TO CURR UA	340.769	60.375	320	0	109046.000	180.000	485.000
TIMEGRP		3.000	0.000	320	0	960.000	3.000	3.000
GAFGRP		1.000	0.000	320	0	320.000	1.000	1.000

Variable	Label	Mean	Std Dev	N	N Miss	Sum	Minimum	Maximum
ACT1BEG		13147.086	276.860	313	0	4115038.800	11949.000	13509.000
CAREHOSP		1.000	0.000	248	65	248.800	1.000	1.000
ADM_DATE	LAST ST HOSP ADMIT	12592.371	1101.689	248	65	3122908.800	9034.000	13879.000
SEP_DATE	LAST ST HOSP DISCHG	12607.438	1076.426	228	85	2874494.800	9054.000	13742.000
NOADMS	TOTAL ST HOSP ADMITS	4.488	4.532	313	0	1405.000	1.000	23.000
HOSP_TOT	TOTAL ST HOSP DAYS	432.048	645.348	313	0	135231.000	1.000	3851.000
HOSPRE	HOSP ADMIT <ACT ENTRY	1.000	0.000	239	74	239.000	1.000	1.000
HOSPOST	HOSP ADMIT >ACT ENTRY	1.000	0.000	74	239	74.000	1.000	1.000
HOSPRE1	TOTAL ST HOSP DAYS 1 YR <ACT	59.281	95.009	313	0	18555.000	0.000	365.000
HOSPRE2	TOTAL ST HOSP DAYS 2 YRS <ACT	44.291	92.190	313	0	13863.000	0.000	365.000
HOSPRE3	TOTAL ST HOSP DAYS 3 YRS <ACT	40.642	88.807	313	0	12721.000	0.000	365.000
HOSPOST1	TOTAL ST HOSP DAYS 1 YR >ACT	18.882	51.213	313	0	5910.000	0.000	365.000
HOSPOST2	TOTAL ST HOSP DAYS 2 YRS >ACT	7.288	32.889	313	0	2281.000	0.000	289.000
HOSPOST3	TOTAL ST HOSP DAYS 3 YRS >ACT	3.444	22.773	313	0	1078.000	0.000	238.000
HOSP_12	ST HOSP DAYS 1-2 YRS PRE	103.572	165.128	313	0	32418.000	0.000	730.000
HOSP_123	ST HOSP DAYS 1-3 YRS PRE	144.214	229.072	313	0	45139.000	0.000	1041.000
MEDIC098		1.000	0.000	245	68	245.000	1.000	1.000
MEDEFFDT		12555.527	1181.924	245	68	3076104.000	7244.000	13819.000
MEDENDDT		2757605.469	702130.058	245	68	675613340.10	13760.000	2936547.000
ACTGAF1	GAF @ ACT ENTRY	49.572	6.988	313	0	15516.000	41.000	75.000
ACT	PERSONS SERVED BY ACT	1.000	0.000	313	0	313.000	1.000	1.000
AGE	AGE @ ACT ENTRY	40.601	10.572	313	0	12708.000	19.000	76.000
TIMHYRS	YEARS IN TXMHMR SYSTEM	7.123	2.318	313	0	2229.458	0.075	9.250
ACTBEGDT	FIRST ACT ENTRY DATE	13147.086	276.860	313	0	4115038.800	11949.000	13509.000
ACTGAF2	GAF @ ACT END	50.679	9.930	53	260	2686.800	23.000	75.000
GAFDIFF	END GAF - BEGIN GAF	-0.717	5.275	53	260	-38.800	-24.000	18.000
ACTOPEN	OPEN ACT CASES	0.831	0.376	313	0	260.800	0.000	1.000
ACTCLOSE	CLOSED ACT CASES	0.169	0.376	313	0	53.800	0.000	1.000
FY94	SERVED IN FY94	0.051	0.221	313	0	16.800	0.000	1.000
FY95	SERVED IN FY95	0.243	0.429	313	0	76.800	0.000	1.000
FY96	SERVED IN FY96	0.748	0.435	313	0	234.000	0.000	1.000
FY97	SERVED IN FY97	0.971	0.167	313	0	304.000	0.000	1.000
FY98	SERVED IN FY98	0.898	0.303	313	0	281.000	0.000	1.000
ACTUNIQ	UNIQUE PERSONS SERVED BY ACT	1.000	0.000	313	0	313.000	1.000	1.000
ACTEPIS	# ACT EPISODES	1.479	0.665	313	0	463.000	1.000	4.000
ADMIT96	ACT ADMITS IN FY96	0.511	0.501	313	0	160.000	0.000	1.000
DISCH96	ACT DISCHARGES IN FY96	0.265	0.442	313	0	83.000	0.000	1.000
ADMIT97	ACT ADMITS IN FY97	0.473	0.500	313	0	148.000	0.000	1.999
DISCH97	ACT DISCHARGES IN FY97	0.291	0.455	313	0	91.000	0.000	1.000
ADMIT98	ACT ADMITS IN FY98	0.173	0.378	313	0	54.000	0.000	1.000
DISCH98	ACT DISCHARGES IN FY98	0.064	0.245	313	0	20.000	0.000	1.000
ACTDAYS	TOTAL DAYS IN ACT	656.546	249.551	313	0	2054699.000	368.000	1808.000
ACTENDDT	LAST ACT END DATE	2441616.473	1097963.377	313	0	764225956.00	13096.000	2936547.000
CAREGAF1	CURRENT GAF ON CARE	46.450	9.075	313	0	14539.000	10.000	84.000
CAREGAF2	PREVIOUS GAF ON CARE	47.149	8.249	194	119	9147.000	18.000	70.000
CARECOM		1.800	0.000	313	0	313.000	1.000	1.000
SYS_STAT		1.042	0.280	313	0	326.000	1.000	4.000
COMBEGDT		13634.633	185.957	313	0	4267640.000	12733.000	13879.000
COMENDDT		1517143.888	1463159.831	313	0	474866037.00	13208.000	2936547.000
DG1_DATE	DG1 DATE	13657.827	222.078	313	0	4274900.000	12915.000	13914.000
MH	MH DIAG IN AXIS I/II	1.000	0.000	313	0	313.000	1.000	1.000
MR	MR	0.026	0.158	313	0	8.000	0.000	1.000
SA	SA DIAG IN AXIS I/II	0.272	0.445	313	0	85.000	0.000	1.000
DUALMHSA	DUAL DIAG MH/SA	0.272	0.445	313	0	85.000	0.000	1.000
DUALMHMR	DUAL DIAG MH/MR	0.026	0.158	313	0	8.000	0.000	1.000
WHITE	RACE/ETH: WHITE	0.543	0.499	313	0	170.000	0.000	1.000
HISPANIC	RACE/ETH: HISPANIC	0.176	0.381	313	0	55.000	0.000	1.000
BLACK	RACE/ETH: BLACK	0.265	0.442	313	0	83.000	0.000	1.000
OTHER	RACE/ETH: OTHER	0.016	0.126	313	0	5.000	0.000	1.000
DECEASED	DEATHS LISTED ON CARE	0.006	0.080	313	0	2.000	0.000	1.000

DUALMHMR

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MEANS OF VARIABLES FOR ACT GROUP WITH GAF > 40

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
FEMALE	GENDER: FEMALE	0.447	0.498	313	0	140.000	0.000	1.000
MALE	GENDER: MALE	0.553	0.498	313	0	173.000	0.000	1.000
AXIS41	AXIS IV-A: SUPPORT GROUP	0.572	0.496	313	0	179.000	0.000	1.000
AXIS42	AXIS IV-B: SOCIAL	0.527	0.500	313	0	165.000	0.000	1.000
AXIS43	AXIS IV-C: EDUCATION	0.109	0.312	313	0	34.000	0.000	1.000
AXIS44	AXIS IV-D: EMPLOYMENT	0.332	0.472	313	0	104.000	0.000	1.000
AXIS45	AXIS IV-E: HOUSING	0.173	0.378	313	0	54.000	0.000	1.000
AXIS46	AXIS IV-F: ECONOMIC	0.297	0.458	313	0	93.000	0.000	1.000
AXIS47	AXIS IV-G: HEALTH CARE	0.102	0.303	313	0	32.000	0.000	1.000
AXIS48	AXIS IV-H: LEGAL PROBS	0.077	0.267	313	0	24.000	0.000	1.000
AXIS49	AXIS IV-I: OTHER PROBS	0.272	0.445	313	0	85.000	0.000	1.000
		5.000	0.800	313	0	1565.000	5.000	5.000
AXIS4TOT	TOTAL AXIS IV STRESSORS	2.460	1.704	313	0	770.000	0.000	9.000
PRJPOPPB		1.000	1.000	308	5	308.000	1.000	1.000
UWDATE	UA DATE	13820.971	41.030	313	0	4325964.008	13662.000	13878.000
CADATE		13813.273	54.426	304	9	4199235.008	13426.000	13878.000
UXCOUNT		4.949	1.100	313	0	1549.000	2.000	8.000
BCOUNT		4.898	1.119	313	0	1533.000	2.000	8.000
MCOUNT		1.537	0.851	313	0	481.000	1.000	5.000
UXALC		1.374	0.807	313	0	430.000	1.000	5.000
UXDRUG		5.649	0.939	313	0	1768.000	1.000	7.000
UXRESID		2.942	0.344	313	0	921.000	1.000	4.000
UXFIRRM		1.224	0.837	313	0	383.000	1.000	5.000
UXEMPL1		1.262	0.829	313	0	395.000	1.000	5.000
UXEMPL2		0.121	1.232	313	0	38.000	0.000	20.000
UXLEGAL1		0.294	2.833	313	0	92.000	0.000	44.000
UXLEGAL2		0.061	0.518	313	0	19.000	0.000	8.000
UXLEGAL3		0.032	0.176	313	0	10.000	0.000	1.000
UXLEGAL4		0.081	0.273	310	3	25.000	0.000	1.000
UXVICTIM		16.042	3.891	313	0	5021.000	5.000	25.000
UXMULT1		8.767	2.997	313	0	2744.000	3.000	15.000
UXMULT2		13.160	3.777	313	0	4119.000	5.000	24.000
UXMULT3		14.588	3.838	313	0	4566.000	4.000	20.000
UXMULT4		2.403	0.613	313	0	752.000	1.000	3.000
UXLEVEL		63.933	25.476	313	0	20011.000	24.000	144.000
BPRS_11	1ST BPRS	16.150	3.935	313	0	5055.000	5.000	25.000
MULT_11	1ST MULT1	8.770	3.226	313	0	2745.000	3.000	15.000
MULT_12	1ST MULT2	13.086	4.203	313	0	4096.000	5.000	24.000
MULT_13	1ST MULT3	14.083	3.930	313	0	4408.000	4.000	20.000
MULT_14	1ST MULT4	1.246	0.859	313	0	390.000	1.000	5.000
EMPLT_11	1ST EMPL1	1.291	0.893	313	0	404.000	1.000	5.000
EMPLT_12	1ST EMPL2	5.342	1.038	313	0	1672.000	1.000	6.000
RESID_11	1ST RESID	63.160	26.607	313	0	19769.000	24.000	151.000
URBPRS		13475.217	50.246	313	0	4217743.000	13393.000	13698.000
UXDATE1	1ST UA DATE	13820.627	41.276	313	0	4325919.000	13662.000	13878.000
BPRSDATE		13802.537	90.818	313	0	4320194.000	12719.000	13878.000
MULTDATE		13820.722	41.193	313	0	4325886.000	13662.000	13878.000
ULDATE		1.000	0.000	313	0	313.000	1.000	1.000
UNIFORM		1.000	0.000	313	0	313.000	1.000	1.000
UXARREST		0.064	0.265	313	0	20.000	0.000	1.000
BPRSERR				0	313			
BPRS168				0	313			
BPRS		1.000	0.000	313	0	313.000	1.000	1.000
MULT		1.000	0.000	313	0	313.000	1.000	1.000
UXMULTT		52.556	11.679	313	0	16450.000	23.000	84.000
MULTERR				0	313			
ULWDATE		1.000	0.000	304	9	384.000	1.000	1.000
ULPDATE		1.000	0.000	284	29	284.000	1.000	1.000
ULBMDATE		1.000	0.000	276	37	276.000	1.000	1.000
UXSUBST		0.188	0.392	313	0	59.000	0.000	1.000

52.56 (Med 52.09

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
UXVALID		1.000	0.000	313	8	313.000	1.000	1.000
LEVELERR				0	313			
DUALSA_	DUAL DIAG MH/SA	27.157	44.548	313	8	8500.000	0.000	100.000
DUALMR_	DUAL DIAG MH/MR	2.556	15.807	313	8	800.000	0.000	100.000
MEDICD_	MEDICAID IN FY98	100.000	0.000	245	68	24500.000	100.000	100.000
PRIPOP_	PRIORITY POP IN FY98	100.000	0.000	308	5	30800.000	100.000	100.000
UXDAYS_	DAYS FROM UA #1 TO CURR UA	345.754	64.885	313	0	108221.000	180.000	467.000
TIMEGRP		3.000	0.000	313	0	939.000	3.000	3.000
GAFGRP		0.000	0.000	313	0	0.000	0.000	0.000

Variable	Label	Mean	Std Dev	N	N Miss	Sum	Minimum	Maximum
ACT1BEG		12832.514	554.876	582	0	7468523.000	11278.000	13513.000
CAREHOSP		1.000		351	231	351.000	1.000	1.000
ADM_DATE	LAST ST HOSP ADMIT	11702.772	1305.341	351	231	4107673.000	9035.000	13858.000
SEP_DATE	LAST ST HOSP DISCHG	11721.484	1229.399	335	247	3926697.000	9096.000	13738.000
HOADMS	TOTAL ST HOSP ADMITS	2.194	3.092	582	0	1277.000	1.000	43.000
HOSP_TOT	TOTAL SH HOSP DAYS	146.031	297.272	582	0	84990.000	1.000	2438.000
HOSPRE	HOSP ADMIT <ACT ENTRY	1.000	0.000	508	74	508.000	1.000	1.000
HOSPOST	HOSP ADMIT >ACT ENTRY	1.000	0.000	74	508	74.000	1.000	1.000
HOSPRE1	TOTAL ST HOSP DAYS 1 YR <ACT	10.682	39.050	582	0	6217.000	0.000	365.000
HOSPRE2	TOTAL ST HOSP DAYS 2 YRS <ACT	14.491	53.332	582	0	8434.000	0.000	365.000
HOSPRE3	TOTAL ST HOSP DAYS 3 YRS <ACT	15.833	55.951	582	0	9215.000	0.000	365.000
HOSPOST1	TOTAL ST HOSP DAYS 1 YR >ACT	3.338	14.595	582	0	1943.000	0.000	149.000
HOSPOST2	TOTAL ST HOSP DAYS 2 YRS >ACT	3.280	18.999	582	0	1909.000	0.000	281.000
HOSPOST3	TOTAL ST HOSP DAYS 3 YRS >ACT	1.404	11.551	582	0	817.000	0.000	175.000
HOSP_12	ST HOSP DAYS 1-2 YRS PRE	25.174	79.301	582	0	14651.000	0.000	730.000
HOSP_123	ST HOSP DAYS 1-3 YRS PRE	41.007	118.969	582	0	23866.000	0.000	1095.000
MEDICB98		1.000	0.000	400	182	400.000	1.000	1.000
MEDEFFDT		12074.545	1388.463	400	182	4829818.000	4318.000	13889.000
MEDEHMDT		2775798.978	667150.424	400	182	1110319588.0	13787.000	2936547.000
ACTGAF1	GAF @ ACT ENTRY	51.785	7.183	582	0	30139.000	41.000	90.000
ACT	PERSONS SERVED BY ACT			0	582			
AGE	AGE @ ACT ENTRY	40.625	10.872	582	0	23644.000	18.000	80.000
TXMHYRS	YEARS IN TXMHMR SYSTEM	6.150	2.468	582	0	3579.294	0.010	9.251
SH		1.000	0.000	582	0	582.000	1.000	1.000
ACTBEGDT	FIRST ACT ENTRY DATE	12832.514	554.876	582	0	7468523.000	11278.000	13513.000
ACTGAF2	GAF @ ACT END	51.279	8.527	233	349	11948.000	20.000	90.000
GAFDIFF	END GAF - BEGIN GAF	-1.043	6.061	233	349	-243.000	-48.000	17.000
ACTOPEN	OPEN ACT CASES	0.600	0.490	582	0	349.000	0.000	1.000
ACTCLOSE	CLOSED ACT CASES	0.400	0.490	582	0	233.000	0.000	1.000
FY94	SERVED IN FY94	0.352	0.478	582	0	205.000	0.000	1.000
FY95	SERVED IN FY95	0.529	0.500	582	0	308.000	0.000	1.000
FY96	SERVED IN FY96	0.773	0.419	582	0	450.000	0.000	1.000
FY97	SERVED IN FY97	0.873	0.333	582	0	508.000	0.000	1.000
FY98	SERVED IN FY98	0.730	0.444	582	0	425.000	0.000	1.000
ACTUNIQ	UNIQUE PERSONS SERVED BY ACT	1.000	0.000	582	0	582.000	1.000	1.000
ACTEPIS	# ACT EPISODES	1.431	0.649	582	0	833.000	1.000	4.000
ADM1196	ACT ADMITS IN FY96	0.277	0.448	582	0	161.000	0.000	1.000
DISCHP6	ACT DISCHARGES IN FY96	0.380	0.456	582	0	221.000	0.000	1.000
ADMIT97	ACT ADMITS IN FY97	0.457	0.499	582	0	266.000	0.000	1.000
DISCH97	ACT DISCHARGES IN FY97	0.263	0.441	582	0	153.000	0.000	1.000
ADMIT98	ACT ADMITS IN FY98	0.101	0.302	582	0	59.000	0.000	1.000
DISCH98	ACT DISCHARGES IN FY98	0.131	0.337	582	0	76.000	0.000	1.000
ACTDAYS	TOTAL DAYS IN ACT	881.866	496.327	582	0	513246.000	365.000	2600.000
ACTENDDT	LAST ACT END DATE	1766349.431	1433399.911	582	0	1028015369.0	13033.000	2936547.000
CAREGAF1	CURRENT GAF ON CARE	50.387	7.892	582	0	29325.000	20.000	75.000
CAREGAF2	PREVIOUS GAF ON CARE	50.216	8.417	384	198	19283.000	25.000	75.000
CARECON		1.000	0.000	582	0	582.000	1.000	1.000
SYS_STAT		1.055	0.250	582	0	614.000	1.000	4.000
COMBEGDT		13732.990	141.464	582	0	7992600.000	13180.000	13879.000
COMENDDT		1746347.608	1437237.450	582	0	1016374308.0	13392.000	2936547.000
DGT_DATE	DGT DATE	13692.646	228.783	582	0	7969120.000	12710.000	13915.000
MH	MH DIAG IN AXIS 1/II	1.000	0.000	582	0	582.000	1.000	1.000
MR	MR DIAG IN AXIS 1/II	0.026	0.159	582	0	15.000	0.000	1.000
SA	SA DIAG IN AXIS 1/II	0.196	0.397	582	0	114.000	0.000	1.000
DUALMHSA	DUAL DIAG MH/SA	0.196	0.397	582	0	114.000	0.000	1.000
DUALMHMR	DUAL DIAG MH/MR	0.026	0.159	582	0	15.000	0.000	1.000
WHITE	RACE/ETH: WHITE	0.562	0.497	582	0	327.000	0.000	1.000
HISPANIC	RACE/ETH: HISPANIC	0.162	0.368	582	0	94.000	0.000	1.000
BLACK	RACE/ETH: BLACK	0.265	0.442	582	0	154.000	0.000	1.000
OTHER	RACE/ETH: OTHER	0.012	0.109	582	0	7.000	0.000	1.000

DUALMHMR

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
DECEASED	DEATHS LISTED ON CARE	0.002	0.041	582	0	1.000	0.000	1.000
FEMALE	GENDER: FEMALE	0.471	0.500	582	0	274.000	0.000	1.000
MALE	GENDER: MALE	0.529	0.500	582	0	308.000	0.000	1.000
AXIS41	AXIS IV-A: SUPPORT GROUP	0.460	0.499	582	0	268.000	0.000	1.000
AXIS42	AXIS IV-B: SOCIAL	0.414	0.493	582	0	241.000	0.000	1.000
AXIS43	AXIS IV-C: EDUCATION	0.089	0.285	582	0	52.000	0.000	1.000
AXIS44	AXIS IV-D: EMPLOYMENT	0.304	0.460	582	0	177.000	0.000	1.000
AXIS45	AXIS IV-E: HOUSING	0.162	0.368	582	0	94.000	0.000	1.000
AXIS46	AXIS IV-F: ECONOMIC	0.335	0.472	582	0	195.000	0.000	1.000
AXIS47	AXIS IV-G: HEALTH CARE	0.057	0.231	582	0	33.000	0.000	1.000
AXIS48	AXIS IV-H: LEGAL PROBS	0.034	0.182	582	0	20.000	0.000	1.000
AXIS49	AXIS IV-I: OTHER PROBS	0.225	0.418	582	0	131.000	0.000	1.000
AXIS4TOT	TOTAL AXIS IV STRESSORS	2.081	1.533	582	0	2910.000	5.000	5.000
PRIPDPP98		1.040	0.000	571	11	1211.000	1.000	8.000
URDATE	UA DATE	13818.603	46.449	582	0	571.000	13585.000	1.000
CADATE		13808.752	61.170	545	37	8042627.000	13448.000	13879.000
URCOUNT		4.727	1.221	582	0	7525770.000	2.000	13879.000
BICOUNT		4.727	1.221	582	0	2751.000	2.000	9.000
RICOUNT		4.572	1.320	582	0	2751.000	1.000	9.000
URALC		1.290	0.666	582	0	2661.000	1.000	5.000
URDRUG		1.165	0.557	582	0	751.000	1.000	5.000
URRESID		5.371	0.848	582	0	678.000	1.000	7.000
URFINAN		2.971	0.506	582	0	3126.000	1.000	4.000
URENPL1		1.548	1.239	582	0	1729.000	1.000	5.000
URENPL2		1.625	1.351	582	0	901.000	1.000	5.000
URLEGAL1		0.034	0.217	582	0	946.000	0.000	2.000
URLEGAL2		0.715	6.926	582	0	20.000	0.000	90.000
URLEGAL3		0.179	3.734	582	0	416.000	0.000	90.000
URLEGAL4		0.055	3.228	582	0	104.000	0.000	1.000
URVICTIN		0.059	0.235	580	2	32.000	0.000	1.000
URMULT1		17.469	3.816	582	0	34.000	6.000	25.000
URMULT2		10.359	2.849	582	0	10167.000	3.000	15.000
URMULT3		14.476	3.628	582	0	6029.000	5.000	25.000
URMULT4		16.201	3.296	582	0	8425.000	4.000	20.000
URLEVEL		1.947	0.510	582	0	9429.000	1.000	3.000
BPRS_11	1ST BPRS	56.076	24.316	582	0	1133.000	24.000	140.000
MULT_11	1ST MULT1	17.786	3.881	582	0	32636.000	5.000	25.000
MULT_12	1ST MULT2	10.447	2.966	582	0	10253.000	3.000	15.000
MULT_13	1ST MULT3	14.823	3.956	582	0	6080.000	5.000	25.000
MULT_14	1ST MULT4	16.172	3.430	582	0	8627.000	5.000	20.000
EMPL_11	1ST EMPL1	1.564	1.280	582	0	9412.000	1.000	5.000
EMPL_12	1ST EMPL2	1.715	1.417	582	0	910.000	1.000	5.000
RESID_11	1ST RESID	5.323	0.812	582	0	998.000	1.000	6.000
URBPRS		51.735	21.064	582	0	3098.000	24.000	148.000
URDATE1	1ST UA DATE	13483.227	55.476	582	0	301110.000	13393.000	13689.000
BPRSDATE		13818.354	46.996	582	0	7847238.000	13585.000	13879.000
MULTDATE		13799.565	73.119	582	0	8042282.000	13465.000	13879.000
ULDATE		13814.737	54.766	582	0	8031347.600	13465.000	13879.000
UNIFORM		1.000	0.000	582	0	8040177.600	1.000	1.000
URARREST		0.077	0.267	582	0	582.600	0.000	1.000
BPRSERR				0	582	45.600		
BPRS168				0	582			
BPRS		1.000	0.000	582	0	582.000	1.000	1.000
MULT		1.000	0.000	582	0	582.000	1.000	1.000
URMULTT		58.505	10.532	582	0	34050.000	20.000	65.000
MULTERR				565	17			
ULBDATE		1.000	0.000	565	17	565.000	1.000	1.000
ULUDATE		1.000	0.000	517	65	517.000	1.000	1.000
ULBHDATE		1.000	0.000	504	78	504.000	1.000	1.000

Variable	Label	Mean	Std Dev	N	Nmiss	Sum	Minimum	Maximum
UXSUBST		0.084	0.278	582	0	49.000	0.000	1.000
UXVALID		1.000	0.000	582	0	582.000	1.000	1.000
LEVELENR		.	.	0	582	.	.	.
DUALSA_	DUAL DIAG MR/SA	19.588	39.722	582	0	11400.000	0.000	108.000
DUALMR_	DUAL DIAG MR/MR	2.577	15.859	582	0	1500.000	0.000	108.000
MEDICD_	MEDICAID IN FY98	100.000	0.000	400	182	40900.000	100.000	108.000
PRIPOP_	PRIORITY POP IN FY98	100.000	0.000	571	11	57100.000	100.000	108.000
URDAYS_	DAYS FROM UA #1 TO CURR UA	335.376	69.342	582	0	195189.000	180.000	485.000
TIMEGRP		3.000	0.000	582	0	1746.000	3.000	3.000
GAFGRP		0.000	0.000	582	0	0.000	0.000	0.000

APPENDIX C

Statistical Analyses

Appendix C

INDEPENDENT T-TEST FOR PRE MULTNOMAH BY PROGRAM

TTEST PROCEDURE

Variable: MULT1ST

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
ACT	706	48.90651558	11.71189793	0.44078309	21.00000000	82.00000000
SH	902	57.64523282	11.57269522	0.38532860	18.00000000	83.00000000

Variances	T	DF	Prob>|T|
Unequal	-14.9261	1506.0	0.0001
Equal	-14.9479	1606.0	0.0000

For H0: Variances are equal, F' = 1.02   DF = (705,901)   Prob>F' = 0.7344

INDEPENDENT T-TEST FOR POST MULTNOMAH BY PROGRAM

TTEST PROCEDURE

Variable: UXMULTT

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
ACT	706	49.34560907	11.50477369	0.43298787	20.00000000	85.00000000
SH	902	57.20620843	10.77896404	0.35890024	20.00000000	85.00000000

Variances	T	DF	Prob>|T|
Unequal	-13.9770	1465.3	0.0001
Equal	-14.0884	1606.0	0.0000

For H0: Variances are equal, F' = 1.14   DF = (705,901)   Prob>F' = 0.0659

INDEPENDENT-TEST FOR HOSP DAYS 1 YR POST BY PROGRAM

TTEST PROCEDURE

Variable: HOSPOST1   TOTAL ST HOSP DAYS 1_YR >ACT

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
ACT	706	22.17847025	56.24870700	2.11694801	0	365.00000000
SH	902	5.78824834	29.42713410	0.97981639	0	365.00000000

Variances	T	DF	Prob>|T|
Unequal	7.0263	1003.4	0.0001
Equal	7.5332	1606.0	0.0000

For H0: Variances are equal, F' = 3.65   DF = (705,901)   Prob>F' = 0.0000

INDEPENDENT T-TEST FOR POST BPRS BY PROGRAM

TTEST PROCEDURE

Variable: UXBPRS

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
ACT	706	70.42776204	28.24344061	1.06295591	24.00000000	151.00000000
SH	902	54.53104213	22.41042425	0.74618551	24.00000000	149.00000000

Variances	T	DF	Prob>|T|
Unequal	12.2403	1320-2	0.0001
Equal	12.5845	1606.0	0.0000

For H0: Variances are equal, F' = 1.59   DF = (705,901)   Prob>F' = 0.0000

TTEST PROCEDURE

Variable: HOSPRE1   TOTAL ST HOSP DAYS 1_YR <ACT

PROG	N	Mean	Std Dev	Minimum	Maximum
ACT	706	59.86260623	96.34791914	0	365.00000000
SH	902	16.03325942	54.94702324	0	365.00000000

Variances	T	DF	Prob>|T|
Unequal	10.7914	1056.1	0.0001
Equal	11.4838	1606.0	0.0000

For H0: Variances are equal, F' = 3.07   DF = (705,901)   Prob>F' = 0.0000

TTEST PROCEDURE

Variable: BPRS_11   1ST BPRS

PROG	N	Mean	Std Dev	Minimum	Maximum
ACT	706	70.23937677	26.72981562	24.00000000	144.00000000
SH	902	59.00086918	25.40172089	24.00000000	148.00000000

Variances	T	DF	Prob>|T|
Unequal	8.5449	1476.6	0.0001
Equal	8.5981	1606.0	0.0000

For H0: Variances are equal, F' = 1.11   DF = (705,901)   Prob>F' = 0.1503

T-TEST FOR REDUCTION IN MULTNOMAH BY PROGRAM   16:28 Wednesday, March 18, 1998   1

TTEST PROCEDURE

Variable: DIFFMULT

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	706	-0.43909348	10.90460772	0.41040033	-41.00000000	36.00000000
2	902	0.43902439	10.79678840	0.35949373	-33.00000000	44.00000000

Variances	T	DF	Prob>|T|
Unequal	-1.6095	1507.5	0.1077
Equal	-1.6114	1606.0	0.1073

For H0: Variances are equal, F' = 1.02   DF = (705,901)   Prob>F' = 0.7776

TTEST PROCEDURE

Variable: DIFFHOSP

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	706	124.64305949	236.43324835	8.89828268	-405.00000000	1095.00000000
2	902	42.22394678	140.89842833	4.69140450	-688.00000000	1088.00000000

For H0: Variances are equal, F' = 2.82   DF = (705,901)   Prob>F' = 0.0000

Variances	T	DF	Prob>|T|
Unequal	8.1934	1085.8	0.0001
Equal	8.6836	1606.0	0.0000

TTEST PROCEDURE

Variable: DIFFBPRS

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	706	-0.18838527	28.48112339	1.07190122	-97.00000000	97.00000000
2	902	4.47782705	23.81465279	0.79294120	-105.00000000	104.00000000

For H0: Variances are equal, F' = 1.43   DF = (705,901)   Prob>F' = 0.0000

Variances	T	DF	Prob>|T|
Unequal	-3.4997	1367.3	0.0005
Equal	-3.5761	1606.0	0.0004

Variable: AGE   AGE @ ACT ENTRY

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	706	39.88385269	10.49542122	0.39500039	18.00000000	76.00000000
2	902	40.74944568	10.71005081	0.35660569	18.00000000	80.00000000

Variances	T	DF	Prob>|T|
Unequal	-1.6266	1528.2	0.1040
Equal	-1.6226	1606.0	0.1049

For H0: Variances are equal, F' = 1.04   DF = (901,705)   Prob>F' = 0.5715

TABLE OF PROG BY SEX

PROG   SEX(GENDER)

Frequency Percent Row Pct Col Pct	F	M	Total
ACT	296 18.41 ~41.93 ~41.17	410 25.50 58.07 46.12	706 43.91
SH	423 26.31 ~46.90 ~58.83	479 29.79 ~53.10 ~53.88	902 56.09
Total	719 44.71	889 55.29	1608 100.00

STATISTICS FOR TABLE OF PROG BY SEX

Statistic	DF	Value	Prob
Chi-Square	1	3.956	0.047
Likelihood Ratio Chi-Square	1	3.961	0.047
Continuity Adj. Chi-Square	1	3.758	0.053
Mantel-Haenszel Chi-Square	1	3.954	0.047
Fisher's Exact Test (Left)			0.026
(Right)			0.979
(2-Tail)			0.049
Phi Coefficient		-0.050	
Contingency Coefficient		0.050	
Cramer's V		-0.050	

Sample Size = 1608

TABLE OF PROG BY ETHNICIT

PROG   ETHNICIT

Frequency Percent Row Pct Col Pct	WHITE	HISPANIC	BLACK	OTHER	Total
ACT	395 24.56 55.95 42.84	118 7.34 16.71 45.74	183 11.38 25.92 44.85	10 0.62 1.42 50.00	706 43.91
SH	527 32.77 58.43 57.16	140 8.71 15.52 54.26	225 13.99 24.94 55.15	10 0.62 1.11 50.00	902 56.09
Total	922 57.34	258 16.04	408 25.37	20 1.24	1608 100.00

STATISTICS FOR TABLE OF PROG BY ETHNICIT

Statistic	DF	Value	Prob
Chi-Square	3	1.225	0.747
Likelihood Ratio Chi-Square	3	1.223	0.748
Mantel-Haenszel Chi-Square	1	0.829	0.362
Phi Coefficient		0.028	
Contingency Coefficient		0.028	
Cramer's V		0.028	

Sample Size = 1608

TABLE OF PROG BY DUALMHSA

PROG   DUALMHSA(DUAL DIAG MH/SA)

Frequency Percent Row Pct Col Pct	NO	YES	Total
ACT	504 31.34 71.39 41.11	202 12.56 28.61 52.88	706 43.91
SH	722 44.90 80.04 58.89	180 11.19 19.96 47.12	902 56.09
Total	1226 76.24	382 23.76	1608 100.00

STATISTICS FOR TABLE OF PROG BY DUALMHSA

Statistic	DF	Value	Prob
Chi-Square	1	16.383	0.001
Likelihood Ratio Chi-Square	1	16.288	0.001
Continuity Adj. Chi-Square	1	15.909	0.001
Mantel-Haenszel Chi-Square	1	16.373	0.001
Fisher's Exact Test (Left)			3.48E-05
(Right)			1.000
(2-Tail)			5.84E-05
Phi Coefficient		-0.101	
Contingency Coefficient		0.100	
Cramer's V		-0.101	

Sample Size = 1608

TTEST PROCEDURE

Variable: BPRS_11   1ST BPRS

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
ACT	706	70.23937677	26.72981562	1.00598988	24.00000000	144.00000000
SH	902	59.00886918	25.40172089	0.84578479	24.00000000	148.00000000

Variances	T	DF	Prob>|T|
Unequal	8.5449	1476.6	0.0001
Equal	8.5981	1606.0	0.0000

For H0: Variances are equal, F' = 1.11   DF = (705,901)   Prob>F' = 0.1503

TTEST PROCEDURE

Variable: ACTGAF1   GAF @ ACT ENTRY

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
ACT	705	41.04255319	10.02813679	0.37768148	5.00000000	75.00000000
SH	902	46.07427938	10.21934920	0.34026711	10.00000000	90.00000000

Variances	T	DF	Prob>|T|
Unequal	-9.8981	1525.4	0.0001
Equal	-9.8751	1605.0	0.0000

For HO: Variances are equal, F' = 1.04   DF = (901,704)   Prob>F' = 0.5978

TTEST PROCEDURE

Variable: RATHOSP

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	432	0.52914424	3.14705326	0.15141267	-62.50000000	1.00000000
2	288	0.40625843	3.84039368	0.22629737	-57.00000000	1.00000000

Variances	T	DF	Prob>|T|
Unequal	0.4513	530.7	0.6519
Equal	0.4694	718.0	0.6389

For H0: Variances are equal, F' = 1.49   DF = (287,431)   Prob>F' = 0.0001

TTEST PROCEDURE

Variable: RATBPRS

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	706	-0.08696558	0.48877407	0.01839525	-2.70833333	0.79508197
2	902	-0.01216976	0.44678957	0.01487647	-3.00000000	0.81250000

For H0: Variances are equal, F' = 1.20   DF = (705,901)   Prob>F' = 0.0112

Variances	T	DF	Prob>|T|
Unequal	-3.1616	1445.1	0.0016
Equal	-3.1963	1606.0	0.0014

TTEST PROCEDURE

Variable: RATMULT

PROG	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	706	-0.11589978	0.84952992	0.03197248	-6.20000000	2.00000000
2	902	-0.06803101	0.75445407	0.02512057	-5.80000000	2.15000000

Variances	T	DF	Prob>|T|
Unequal	-1.1773	1420.5	0.2393
Equal	-1.1944	1606.0	0.2325

For H0: Variances are equal, F' = 1.27   DF = (705,901)   Prob>F' = 0.0008