

**OUTCOMES FOR PATIENTS DISCHARGED FROM
STATE PSYCHIATRIC INPATIENT CARE
EVALUATION
Final Report**

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Preface

This study was commissioned by the Inspector General for Mental Health of the Commonwealth of Virginia, Dr. Anita Everett, M.D. in January 2000. The Southeastern Rural Mental Health Research Center of the University of Virginia, Dr. Elizabeth Merwin, PhD, RN, Director, developed the methods, procedures, and implemented the study. Dr. Barbara Burkett-Halapin, PhD, MSPH, was the initial Project Director, Dr. Catherine Kane, PhD, RN, became Project Director October 1, 2000. Anita Thompson-Heisterman, MSN, CS, FNP, RN was Project Coordinator. Dr. Hinton was Data Manager. Drs. Merwin, Kane, Donna Chen, MD, and Ivora Hinton, PhD, were advisors to the project throughout.

EXECUTIVE SUMMARY

The Southeastern Rural Mental Health Research Center (SRMHRC) at the University of Virginia under the auspices of the Inspector General for Mental Health conducted this study of patients discharged from public inpatient psychiatric facilities in Virginia. The study was conducted in order to obtain an objective assessment of the discharge placement process and outcomes for persons recently discharged from Virginia state facilities. Specifically the study was intended to examine:

- the appropriateness of the community placement post discharge from a public inpatient psychiatric facility
- the usefulness of the Level of Care Utilization System for Psychiatric and Addiction Services (LOCUS) measure (Sowers, George, & Thompson, 1999) to determine level of discharge placement.
- continuity of care as represented by the length of time from discharge to the first visit with a mental health professional
- severity of psychiatric symptoms of discharged consumers
- changes in medications and dosages prescribed for psychiatric conditions post discharge
- the psychiatric and general medical services utilized by discharged consumers

A follow-up study was designed to determine the patients' actual discharge placement setting and general condition post-discharge. University of Virginia Human Investigations Committee approval was received. A randomized sample of 126 persons discharged from state mental health facilities served as the sample for Phase I of the study. Phase I of the study resulted in 12 interviews. Information is provided on experiences with contacting the remaining individuals. A review of discharge planning summaries for the Phase I sample provided information on the discharge planning process and allowed for a comparison between study participants (those interviewed) and a random sample of adults discharged from state inpatient care. Phase II used different methods to contact 265 randomly selected potential study participants, and resulted in an additional 8 interviews. Information from client interviews, a discharge plan summary review, and from the process used to contact clients provides information useful in describing the discharge process, discharge placements, and client functioning.

Interviews were conducted at the interviewee's Community Service Board (CSB) or at their place of residence. The structured interview included the following instruments: the Positive and Negative Syndrome Scale (PANSS), the Mental Health Statistics Improvement Program Task Force on Mental Health Report Card -Consumer Survey (MHSIP), the Medical Outcomes Study 36 Item Short Form Health Survey (SF-36), demographic information, and the Mental Health Usage Section of the General Medical Services Utilization Questionnaire (MHSU). The Global Assessment of Functioning (GAF), the Multnomah Community Ability Scale (MCAS), and the Level of Care Utilization System (LOCUS) were completed by the nurse clinicians post interview. Data from the hospital discharge summary sheet found in the CSB charts was also collected when possible.

In Phase I, at least 6 attempts were made to contact each potential interviewee. Despite vigorous efforts, only 17 clients were actually contacted to request an interview and only 12 agreed to participate in the study in Phase I. Only 8 agreed to participate in Phase II, for a total of twenty. Despite the small sample size, the study provides a valuable perspective on the discharge process and status of persons discharged from state facilities.

The study findings are summarized below:

- The majority of the potential discharged sample could not be contacted, even though extensive valid methods for follow-up were used.
- The majority of cases were discharged to a higher level of care than recommended by LOCUS in Phase I and to the same level of care in Phase II. Eight cases were discharged to a higher level of care and eight matched the LOCUS recommendation. Three cases were discharged to a lower level of care than recommended by LOCUS. Clinicians had to speculate regarding certain parameters of the measure, as the array of residential placements available in many regions are not as varied as the LOCUS expects.
- The time between discharge and initial CSB appointment averaged less than one week in both Phase I and II.
- The severity of psychiatric symptoms of discharged consumers seems to be similar to the spectrum reported in other studies of persons with serious mental disorders. The evidence that the majority of the sample is deteriorating in function over time indicates that rehabilitative services are required by these consumers to enable them to maintain and improve function.
- A low level of function was observed in this sample at interview. It is of concern that only two were participating in vocational programming, and only 4 were attending clubhouse programming.
- A concern, one that also plagues other studies, is that the informants who participated in this study had the functional ability to do so. It is believed that many cases lost to follow-up may not have the cognitive ability or level of function to be able to connect with the interviewer and complete an interview successfully.
- Physical functioning in this sample as reported on the SF-36 is notably worse than a normative sample but somewhat better than the physical functioning scores of another psychiatric outpatient sample described in a published study.
- Changes in medications and dosages prescribed for psychiatric conditions were found to occur in most cases from inpatient to community care. In each case, but one where psychotropic medications were changed, the dosage was reduced or discontinued.
- The psychiatric and general medical services utilized by this sample of discharged consumers for the most part seem to be comparable and appropriate for persons with

serious and persistent mental illness. All those who had not refused service or who had been incarcerated were evaluated by a psychiatrist within an average of one week post discharge and were receiving medication management regularly.

The following recommendations are offered for consideration:

- The results regarding the LOCUS instrument indicate that lower levels of care could be appropriate placements for recently hospitalized persons with serious mental disorder, if they were available.
- Continuity of care seems to be lacking. From the outset, the phone numbers and addresses at discharge were inadequate to locate many clients. Thirty-six percent of the sample had moved with no forwarding address, had no phone or an inaccurate phone number listed, or moved to a different state. Given that outcome evaluations are being required more intensively as evidence of treatment effectiveness, systems for patient follow-up should be improved.
- An issue of clinical concern regarding the high number of clients lost to follow-up is the possibility that these consumers are at higher risk for relapse than those who were able to be located. Before such a proposition can be examined in Virginia, improved communication and tracking strategies must be developed.
- Discharged consumers have recognizable symptoms, are deteriorating in functional levels, and are not involved in rehabilitative programming. This situation should be investigated more thoroughly and further recommendations developed to address this problem.
- Of concern is the level of physical distress reported in this sample. The high number of ER visits and primary care visits suggest that this sample has extensive needs for medical care. Strategies are needed for tracking the need for medical services, for delivering medical services, for monitoring the provision of these services, and for encouraging appropriate use of medical services within this population.
- Medication dosages prescribed at discharge were found to be decreased by community providers. Further study is needed to determine the reasons for these reductions.
- Consumer satisfaction for this sample is lower than that of a comparative sample receiving assertive community treatment. It is recommended that the MHSIP be used to assess consumer satisfaction at least annually.

I. Purpose

The Southeastern Rural Mental Health Research Center (SRMHRC) at the University of Virginia under the auspices of the Inspector General for Mental Health conducted this study of patients discharged from public inpatient psychiatric facilities in Virginia. The study was designed to examine the discharge placement process and outcomes. Specifically the study was intended to

examine:

- the appropriateness of the community placement post discharge from a public inpatient psychiatric facility
- the usefulness of the Level of Care Utilization System for Psychiatric and Addiction Services (LOCUS) measure (Sowers, George, & Thompson, 1999) to determine level of discharge placement.
- continuity of care as represented by the length of time from discharge to the first visit with a mental health professional
- severity of psychiatric symptoms of discharged consumers
- changes in medications and dosages prescribed for psychiatric conditions
- the psychiatric and general medical services utilized by discharged consumers
- consumer satisfaction with services

II. Background

Discharge from inpatient psychiatric treatment is a complex and significant process for consumers with severe and persistent mental illness. With shorter lengths of stay, consumers are discharged with active symptoms (Lieberman, Wiitala, Elliott, McCormick, Goyette, 1998). Therefore, it is important that consumers be discharged to the appropriate setting, so that their symptoms can be managed and, in order to protect the consumers' human rights, that the consumer be placed in the least confining setting. Goldman (1999) pointed out that with the onset of de-institutionalism, individuals with severe and persistent mental disorders have often become among society's least well off. He points out that community care is not possible without broad support for human services.

Continuous and coordinated care is considered essential to successful discharge into the community (Olson, Mechanic, Boyer, Hansell, 1998). The period directly following discharge from inpatient treatment has been identified as high-risk for persons with severe and persistent psychiatric illness (Wells, 1992). Lack of appropriate post-discharge placement is considered to be associated with increased risk of relapse and re-hospitalization (Cohen, Gantt, & Sains, 1997). Psychiatric inpatient facilities in the Commonwealth of Virginia discharge more than 6,000 consumers each year (Department of Mental Health, Mental Retardation and Substance Abuse Services, 1999). As length of stay has decreased dramatically in the last 10 years, there is some uncertainty regarding the actual level of symptoms and functioning of consumers post-discharge. There is the concern that consumers are being discharged 'sicker' and the implications of this are uncertain (Lieberman, et al., 1998).

Continuity of care

Minnesota recently examined the costs of a non-integrated service system (Doherty et al., 1999). The authors note that those with serious mental illness must interact with a daunting array of medical, mental health, and social service systems. Each of these systems usually has different access points, service models, funding sources, financial incentives and channels of accountability. Further, communication and coordination between providers in these systems are hampered by differences in professional 'cultures' geographical distance and incentives, which

do not encourage collaboration and coordination of care. The authors also found that patients' families become the 'de facto' care coordinators. However, there is a serious lack of collaboration with and support for patients' families. Models of service provision are most often individualistic and are not funded to provide for collaborating with families. The authors further note that a fragmented system is costly. Finding that 40% of this population had concurrent physical health problems, the authors deduced that lack of coordinated care was leading to lengthy inpatient stays for both physical and psychiatric relapses, that could be avoided through early collaborative preventive measures. The authors finally conclude that an integrated care system for the seriously mentally ill would prevent unnecessary suffering for the patients and their families and reduce excessive costs for the public at large.

A major concern is that consumers link to aftercare services as soon as possible after discharge. Klinkenborg and Calsyn (1996) reviewed the research literature predicting receipt of aftercare and recidivism among individuals with severe and persistent mental disorders. Their findings, in general, suggest that variables related to system responsiveness, such as intensive outpatient care and delivery of aftercare services, are more consistent predictors of receipt of aftercare than variables related to either client vulnerability or community support. Community support variables were more consistent predictors of recidivism than other indicators. Given that community support is essential, and coordinated community support is most likely to have positive outcomes, the fragmentation of community service delivery systems is considered an impediment to the effective delivery of community-based care (Rosenheck et al., 1998).

Farrell, Koch and Blank (1999) examined continuity of care in Virginia public psychiatric facilities. This descriptive study sent questionnaires to Community Mental Health Centers (CMHC's) to determine whether: 1) the CMHC had a record of discharge; 2) the hospital had provided notification of discharge; 3) CMHC contacted patient during hospitalization; 4) CMHC had contact with patient following discharge; and 5) CMHC provided face to face services. The results indicated that the CMHC's had a record of discharge for 83% of the discharges, that the hospital had provided notice for 95%, that the CMHC had contacted 54% during hospitalization and 80% following discharge, and that the CMHC had provided face to face services to 78% of the discharges. A higher continuity of care was found for those discharged to rural residences in their originating catchments area, those with higher lengths of stay, and those with a primary diagnosis of schizophrenia or major depression (Farrell, Blank, Koch, Munjas, Clement, 1999).

Discharge Placement

The financing of mental health care services has undergone significant change in the past several years, with increasing emphasis on resource management. This emphasis has raised concerns among consumers and providers of services that needed resources are unavailable. In order to address this issue, the American Association of Community Psychiatrists developed LOCUS (Level of Care Utilization System for Psychiatric and Addiction Services), an instrument designed to maintain balance between quality care and the judicious use of resources (Sowers, George, & Thompson, 1999; American Association of Community Psychiatrists, 1997). Since LOCUS is only recently developed, there has not been sufficient empirical testing to determine its usefulness. Other level-of-care indicators have been proposed in the literature. Clarity regarding cost-efficiency and validity is needed.

The Mount Sinai Discharge Planning Inventory (Cohen, Gantt, Sainz, 1997; Gantt, Cohen, Sainz, 1999) evaluates resources that patients have available upon admission in the domains of housing and living arrangements, entitlements, daily activities, and psychiatric treatment. One study (Cohen, et al., 1997) reported that only one-third of 494 consecutive admissions had an optimal fit in all resource categories. For those with sub-optimal resources, discharge planning established psychiatric treatment contacts and increased daily activities. Those with histories of drug abuse, criminality, violence, and treatment non-compliance were more difficult to achieve optimal fit with needed resources on discharge.

Srebnik, Uehara, Smukler (1998) developed The Problem Severity Summary (PSS), a decision support tool with eight levels of care and a computerized decision-tree algorithm, to determine appropriate level-of-care at discharge. This 22 item inventory assesses four domains: symptom severity (anxiety, dissociation, mania, and psychosis), functioning (community living skills, housing problems, income and financial problems, response to stress, sustained attention, social withdrawal, substance abuse, treatment compliance and victimization), self-care (cognitive impairment, physical disability, health status, self-care skills, and need for medical assistance) and maladaptive behavior (dangerousness, negative social behaviors, and involvement with the legal system). This inventory assesses the fit of patients for eight levels of care (brief intervention, medication maintenance, monitoring, rehabilitation, residential, intensive community support, assertive community treatment, and inpatient). In a field test of the instrument, 1,034 clients randomly selected from a population of 7,928 adults being served in a county mental health system of Washington state would have received the following placements; one per cent for brief intervention, 2 % for medication maintenance, 8 % for monitoring, 40 % for rehabilitation, 6 % for residential care, 31 % for intensive community support, 10 % for assertive community treatment, and 2 % for inpatient treatment. Consistent with prediction, level-of-care placement was significantly related to each indicator of clinical severity in the four domains. There was a negative relationship between GAF (level of functioning) and level-of-care placement, indicating the higher the level of functioning the less intensive the level of care assessed. This measure can be used both inpatient, for discharge planning, and outpatient for assessing the need for changes in level-of-care.

Symptom severity

Clearly, successful discharge can be influenced by the level of symptomatology, since symptom exacerbation is the most frequent cause of re-hospitalization. A study of the closing of a state hospital in Indiana (McGrew, Wright, Pescosolido, & McDonel, 1999) tracked 303 inpatients for 24 months. Inpatient measures of function were collected pre discharge, and every six months for 18 months on a level of functioning scale that ranged from 1 (independent functioning) to 7 (disintegrated functioning). At discharge, level of function averages were: cognitive ability = 4.1 (SD = 1.2), medical compliance = 3.9 (SD = 1.0), personal reliance = 4.0 (SD = 1.0), and physical health = 3.6 (SD = 1.3). The GAF score mean was 48.2 (SD = 15.5), indicating a fairly impaired level of function.

Rosenheck et al., (1998) reported the characteristics of 1832 homeless persons with mental

illness in 18 communities (2 in each state). The average age of the population was 38.5 (SD = 9.4), 65% were male, 44.5% were female, 44.5% were African American, and 5.2 % were Latino. Forty-eight had been homeless less than 6 months, 27% from 6 months to 2 years, and 24% for more than two years. The average score on a 5-point depression symptom scale was 3.31 (SD = 1.5). Client report of psychotic symptoms on a 40-item scale averaged 11.71 (SD = 9.5). Interviewer rating of psychotic symptoms averaged 10.9 on a 52-item scale (SD = 8.9). Clients averaged 2.4 (SD = 6.10) days of intoxication during the previous month, and 3.8 (SD = 11.2) days of drug use. Ratings of physical ill health averaged 3.3 (SD = 1.2) on a 5-point scale (5=poor). All clients received at least 1 clinical psychiatric diagnosis, primarily major depression and schizophrenia.

One study (Seivewright, Tyrer, Casey, & Seivewright, 1991) examined psychiatric morbidity in urban and rural primary care in Great Britain. At three-year follow-up, a prevalence rate of severe symptomatology was established at approximately 7% in both the rural and urban group. Consumers with personality disorders and those in the urban setting had greater morbidity, more contacts with all levels of psychiatric service and more psychotropic drugs. Despite this increased morbidity, the urban group was no more likely to seek appointments with the general practitioner for psychiatric problems than the rural group. However, the rural group sought care for medical illness more often than the urban group.

A study of the closing of a state hospital in Indiana (McGrew, Wright, Pescosolido, & McDonel, 1999) compared individuals discharged to the community with those discharged to other hospitals. Those discharged to other hospitals were more likely to have had a longer length of inpatient stay, but there were no differences on average for level of functioning between groups. At discharge the community sample mean score on the GAF was 48.2, and had the most problems with cognitive ability, medical compliance, personal reliance, and all types of activities of daily living.

Another study (Bow-Thomas, Velligan, Miller, Olsen, 1999) examined the symptomatology of inpatients from admission through discharge to 6 months post-discharge. At discharge, the sample was most likely to have persistent symptoms of psychosis and withdrawal and fewer symptoms of depression and paranoia as measured with the Brief Psychiatric Rating Scale (BPRS). The total BPRS score at discharge was 43.44. This pattern tended to worsen slightly over time, such that at follow-up there was higher level of symptomatology recorded on average for each these dimensions and the average BPRS score increased to 49.68. In a study (Olfson, Mechanic, Boyer, & Hansell, 1998) of linking inpatients to aftercare, the reported BPRS mean for consumers discharged from four general hospitals in New York City was 34.5 and the GAF mean was 54.3.

Higher levels of symptomatology are associated with poorer outcome. One recent study (Olfson, Mechanic, Hansell, Boyer, Walkup, 1999) examined a sample of persons with schizophrenia for risk for homelessness post-discharge, based on a variety of factors. Their findings indicated that individuals with a total score above 40 on the BPRS were more likely to report becoming homeless than patients with lower scores, as were those with Global Assessment Scores (GAF) of less than 43. Individuals who had a drug use disorder at discharge were also more likely to report being homeless than those not having a drug use disorder. Thus, consumers with drug use

disorder, persistent psychiatric symptoms, and impaired global functioning at discharge are more at risk of homelessness.

A study (Lieberman et al., 1998) followed 3 cohorts (1988-91, 1992-3, 1995-6) of persons with major depression from admission, through discharge, to one-month follow-up. Findings indicated an average GAF score of 47.3 for the entire sample, with the mean decreasing over time post-discharge. Readmission rates were equal for all three cohorts. Thus, with decreasing lengths of stay over the years these samples demonstrate higher residual depression and lower global functioning at discharge. Over time, however readmission rates are not affected.

In reviewing the literature on symptomatology at discharge, it is difficult to determine just how high the symptom levels are for individuals returning to the community. Frequently, recognized measures are not utilized consistently to evaluate symptoms, nor, if used, are the mean scores on the measures reported. However, from the reports reviewed here (such as Bow-Thomas, Velligan, Miller, Olsen, 1999; Olfson, Mechanic, Hansell, Boyer, Walkup, 1999; Lieberman et al., 1998), it can be concluded that inpatients are being discharged with apparent symptomatology, which has implications for their quality of life over time.

Physical morbidity and mortality of this population is another area of concern. The high incidence of physical health problems has been consistently documented in persons with psychiatric conditions (Sheline, 1990; Vogt, Pope, Mullooly, & Hollis, 1994). Among persons with serious mental illness, the frequency of physical health problems is reported to be 50% to 90% higher than among general psychiatric outpatients. The majority of medical conditions experienced by the severely mentally ill do not receive adequate follow-up (Barnes, Mason, Greer & Ray, 1983; Farmer, 1987; Roca, Breakey & Fischer, 1987). The frequency of medical problems among persons with serious, long-term mental illness living in the community is particularly high, reportedly ranging from 26% to over 90% (Barnes et al., 1983; Farmer, 1987; Roca, et al., 1987). One study reported that more than 42% of chronically mentally ill outpatients had at least one medical problem that limited functional ability (McCarrick et. al, 1986).

Higher mortality rates for the institutionalized seriously mentally ill have long been documented. More recent studies of this population after discharge have found mortality rates from natural causes to range from 1.5 to 4 times that of the general population (Dembling, Chen, Vachon, 1999; Allebeck & Wistedt, 1986; Black, Warrack, & Winokur, 1985; Martin, Cloninger, Guze & Clayton, 1985a, 1985b). Mortality from circulatory, respiratory, digestive and genito-urinary diseases have also been reported as greater than expected in schizophrenic populations (Newman & Bland, 1991). It has been suggested that factors such as poor judgment about health needs, low socio-economic status and inadequate detection of health conditions results in an increased risk of physical illness for this population (Barnes et al., 1983; Lieberman & Coburn, 1986). Persons with long-term, symptomatic psychiatric disorders such as schizophrenia are more likely to suffer multiple chronic social and behavioral deficits, which are likely to include inadequate health and self-care practices (Holmberg & Kane, 1999). Currier (2000) has recently documented a worldwide trend indicating that as psychiatric inpatient beds have been reduced, the mortality rate for persons with mental disorders has been increasing.

Changes in medication dosages

A variety of studies have tracked the need for psychotropic medications to control psychiatric symptoms, and likewise have assessed the need to increase or decrease the dosages depending on the individual's condition. However, studies that track medication type and dosage as the individual is discharged into the community are primarily examining the effect of specially designed treatment programs or the patterns of medication non-compliance. A concern exists that, though great care during hospitalization has been taken to establish the most effective configuration of medications and dosage levels, perhaps post-discharge community clinicians change medications and dosage levels, thus changing the effectiveness of the discharge configuration. No study to date has tracked a population of individuals discharged with a variety of medications to determine how medication types and dosages change as the client moves from the inpatient setting to community care.

Service Utilization

Service utilization is important to examine, because it indicates both the engagement of the consumer in seeking needed resources and the potential cost of these services for persons with severe mental illness. A variety of reports in the literature primarily address readmission rates post discharge and/or closing of public mental health facilities. There are fewer reports of actual services used by consumers post discharge.

Regarding re-hospitalization rates, these vary widely in reports of public hospital closings. For instance, a rate of 87% in one year is reported for those discharged due to a Vermont public mental health facility closing (Deweese, Pulice, McCormick, 1996), a rate of 27% is reported for those discharged due to a hospital closing in Indiana (McGrew, Wright, Pescosolido, McDonel, 1999), rates of 20-30% are reported for those discharged due to a hospital closing in Philadelphia (Rothbard, Kuno, Schinnar, Hadley, & Turk, 1999), and rates of 13% and 23% are reported for discharges from a residential treatment and an inpatient setting in San Diego (Hawthorne, Green, Lohr, Hough, Smith, 1999). These studies are representative of the range of re-hospitalization rates in the U.S.

Other service usage is reported in a very few studies. Most recently, Rothbard and colleagues (1999) in addition to the re-hospitalization rates reported above, reported other service usage over 3 years for 329 subjects who had been inpatients for more than 1 year. Service utilization rates were as follows. Seventy-four percent of the study subjects received psychotropic drugs, costing approximately \$513 per year for those on typical anti-psychotics and \$4,000 per year for those on clozapine. Approximately 75% of the subjects lived in subsidized residential care for most of the year, costing on average \$30,152 per year. Only 1-3% received inpatient and/or drug and alcohol treatment during the follow-up period, costing approximately \$11,467 per subject per year. Between 8% and 10% were hospitalized annually for medical reasons, costing \$1,820 on average per year. Forty-six had continuing physician contact for medical problems throughout the follow-up period. The mean number of physician contacts ranged from 3.6 to 4.6 per year, costing only \$55 per person per year for outpatient medical care. The general population has an annual user rate of 78% and an average of 4 to 5 ambulatory visits per year. In

conclusion, this study reported that an annual service package for discharged patients was approximately \$60,000 in the first year after discharge, with psychiatric care comprising 96% of the cost, and residential care contributing 56% of the total cost.

Consumer Satisfaction

Consumer satisfaction with services is a recognized indicator of service outcome (Mental Health Statistics Improvement Program, 1996). The NIMH Center for Mental Health Services developed the MHSIP Consumer-Oriented Mental Health Report Card to enable mental health service providers to compare and evaluate mental health services based on the concerns that are important to consumers. In a study conducted at the Southeastern Rural Mental Health Research Center (Kane, Blank, Midkiff, McColley, 2000), consumers rated satisfaction with mental health services on average at 145 on a 200-point scale. National norms have not yet been reported for this measure.

Holley, Hodges, and Jeffers (1998) compared the views of consumers, providers and families regarding preferred placement after long term inpatient care. Great disparity was found between consumers and providers/families. Forty-nine percent of consumers preferred independent living, whereas only 10 percent of family members and 17 percent of providers preferred it. Consumers (55%) expressed a clear desire to work compared to providers (12%) assessment of their ability to work. Consumers' perspectives on placement and treatment decisions must be taken into account for successful outcomes.

The "Alumni Program" (Hobbs, Wilson, Archie, 1999) developed and implemented at McMaster University Medical Center in Ontario, Canada, was designed to reconceptualize care for the seriously mentally ill from an intermittent acute care orientation to a 'chronic illness model' which approaches ongoing psychiatric treatment similarly to approaches employed to treat chronic medical conditions such as arthritis, asthma, or diabetes. Consumers are encouraged to be involved in treatment and discharge planning. After discharge the ongoing treatment is provided by the family physician, regular check-ups (every three to six months) with the mental health treatment team and re-admissions to inpatient care as required. This new conceptualization and model of treatment delivery is more palatable to mental health consumers because it encourages and supports client autonomy and self-reliance.

The present study sought to examine continuity of care from the consumer's perspective in order to assess the appropriateness of the community placement post discharge, the involvement of consumers in the discharge process, the psychiatric and general medical services utilized by discharged consumers, the length of time from discharge to the first visit with a mental health professional, severity of psychiatric symptoms of discharged consumers, consumer satisfaction with services, and the utility of the LOCUS measure to determine level of discharge placement. The project aimed to provide an objective evaluation of the LOCUS measure to determine whether it could serve as a valid indicator of types and levels of placement at discharge.

III. Design, Methodology, and Procedures

The study was conceived as a descriptive quantitative investigation, using valid and reliable instruments in face-to-face semi-structured interviews with recently discharged consumers. Each consumer received \$10 in Phase I and \$25 in Phase II for completing the entire set of questionnaires.

A. Measures:

Structured interview instruments used included: the Positive and Negative Syndrome Scale (PANSS), the Mental Health Statistics Improvement Program Task Force on Mental Health Report Card-Consumer Survey (MHSIP), the Medical Outcomes Study 36 Item Short Form Health Survey (SF-36), and the Mental Health Usage Section of the General Medical Services Utilization Questionnaire (MHSU). Demographic information, Global Assessment of Functioning (GAF), the Multnomah Community Ability Scale (MCAS), and the Level of Care Utilization System (LOCUS) were completed by the nurse clinicians post interview. Data from the hospital discharge summary sheet found in the CSB charts was also collected when possible. The actual measures used in this study are provided in the Appendix.

Psychiatric symptoms were measured by the sum of scores on the **Positive and Negative Symptom Scale** (PANSS, Kay, Fiszbein, & Opler, 1987). The PANSS is a 30-item, 7-point rating instrument for assessing symptoms of schizophrenia. The PANSS consists of three subscales, including the positive subscale, the negative subscale, and the psychopathology subscale. Symptom severity is rated from absent, denoted by a score of 1, to extreme, denoted by a score of 7, in all three subscales.

The positive subscale consists of seven items addressing delusions, conceptual disorganization, hallucinatory behavior, excitement, grandiosity, suspiciousness, and hostility. The negative subscale consists of seven items that assess affect, emotional withdrawal, poor rapport, passive/apathetic social withdrawal, difficulty in abstract thinking, flow of conversation, and stereotypical thinking. The psychopathology subscale consists of 16 items addressing somatic concerns, anxiety, guilt, tension, mannerisms, depression, motor retardation, uncooperativeness, unusual thought content, disorientation, poor attention, lack of judgment, disturbance of volition, impulse control, preoccupation, and social avoidance. Cronbach's alpha has been reported at 0.73 for the positive scale, 0.83 for the negative scale, and 0.79 for the general psychopathology scale. Reported test-retest coefficients for each of the scales were 0.80, 0.66, and 0.60, respectively (Kay, Fiszbein, & Opler, 1987).

The **MHSIP Consumer Survey** (Mental Health Statistics Improvement Program, 1996) was used to measure consumer satisfaction with treatment. The MHSIP is a 40-item survey addressing 4 areas of satisfaction: general satisfaction (3 items), access to services (7 items), appropriateness of treatment (15 items), and outcomes of care (15 items). The MHSIP-CSS is scored quantitatively with a value of 1 denoting "strong agreement", and a value of 5 denoting "strong disagreement". Total instrument alpha coefficient for this scale has been found to be .86 and alphas for the subscales were as follows: general = .62, accessibility = .52, applicability = .79 and outcome = .74 (Kane et al., 2000).

The SF-36 (Ware, 1995) is a self-report questionnaire that measures respondent's level of functioning in eight domains on a scale from 0 (poor) to 100 (excellent). The eight domains include physical functioning, physical role, bodily pain, general health, vitality, social functioning, emotional role, and mental health. The higher the score, the better the functioning. The SF-36 was developed within the Medical Outcomes Study and has shown robust reliability and validity in a large number of diagnostic and cultural populations (Ware, McHorney, Lu, & Sherbourne, 1994).

The **Global Assessment of Functioning Scale (GAF, APA, 1994)** is a measure of overall psychological disturbance. The GAF consists of nine ranked behavioral descriptors of general functioning, which are indicated by numerical ratings. These descriptors range from "absent or minimal symptoms" denoted by a score of 100, to "in persistent danger of severely hurting self or others" denoted by a score of 1. The GAF has been found to be both a reliable and valid tool for the measure of psychiatric disturbance.

The **Multnomah Community Adjustment Scale** has been used by community mental health services to measure community functioning (Barker, Barron, McFarland, Bigelow, 1994). The MCAS is a clinician rated 17-item Likert scale, which assesses four factors: functioning, adjustment to living, social competence and behavior problems. Inter-rater reliability has been reported at .85 and test-retest reliability at .83. The MCAS provides a measure of the consumer's severity of disability. It can be used to describe an agency's case mix of clients, measure consumer progress, assign clients to different levels of service, and assist payers in determining reimbursement. The measure, aimed at persons with chronic mental illnesses, is sensitive to differences among individuals within this population and is quick and easy to complete. Items on the MCAS are scored quantitatively from 1, denoting extreme impairment, to 5, denoting no impairment. Inter-rater reliability has been reported at .85 and test-retest reliability at .83 (Barker, et al, 1994).

Mental Health Services Utilization Questionnaire The use of mental health services by this population was collected regarding Partial Day/Night Treatment, Evaluation by Psychiatrist, Individual Therapy, Group Therapy, Family Therapy, Medication Management, Case Management, 24 Hour Residential Care, Non-24 Hour Residential Care, Clubhouse, and Clozapine Support.

The **Discharge Plan and Referral Summary (DMHMRSAS, 2000)** found in the patients' CSB charts were reviewed by the nurse clinicians. Data on length of stay, Axis I-V diagnoses, placement, time to first contact with the CSB and medication were abstracted.

LOCUS (Sowers, George, & Thompson, 1999) is a measure intended to predict the appropriate intensity of services required by evaluating clients along six assessment parameters and defines six levels of resource intensity relevant to placement. The LOCUS interview protocol is copyrighted and therefore not available for reproduction. One of these parameters is composed of two subscales, giving a total of seven scales that must be completed. Each of these scales is rated from 1 to 5 with specific criteria for each increment in rating. A composite score is obtained which ranges from 7-35 and weighs prominently in the determination of level of care

recommendations. The six evaluation parameters as described by Sowers et al., (1999) include:

Risk of Harm - This rating considers the degree to which a person is at risk for harming themselves or others

Functional Status - This rating measures a person's level of functioning using several indicators including ability to interact with others, to maintain hygiene and activities of daily living, to fulfill role responsibilities, and to maintain vegetative functions.

Medical, Addictive and Psychiatric Co-Morbidity - This rating considers potential complications to the course of the presenting or most prominent problem due to the co-existence of additional disorders.

Recovery Environment - This parameter contains two sub-scales, Level of Stress (interpersonal conflicts or harassment, life transitions, interpersonal or material losses, environmental threats, and perceived pressures to perform) and Level of Support (from family, friends and professional sources, and the likelihood that these supports will be able to participate in treatment).

Treatment and Recovery History - This scale considers past response to treatment and the durability of any recovery achieved.

Attitude and Engagement - This rating measures a person's capacity for change, including the desire to change, the abilities to recognize one's difficulties, to accept responsibility for maintaining health, and to engage with potential sources of aid.

Based on the above parameters LOCUS defines six levels of care as described by Sowers et al., (1999). Descriptions for each level of care follows:

Recovery Maintenance and Health Management - The least intensive level of care for persons who have completed treatment at a more intensive level of care and who require minimal professional support to maintain their recovery.

Outpatient - Services at this level will be provided to persons who have active, but not significantly disabling disorders. Clinical contacts will usually occur about once a week and may include a variety of treatment modalities.

Intensive Outpatient - This level of treatment is intended for persons who require more intensive support, but are able to live in the community. Services may be provided in a clinic or may be community based. Professional contacts will usually occur several times per week, often in extended sessions.

Intensively Managed Non-Residential - This is the most intensive of outpatient options and is appropriate for persons who are capable of living in community settings, but only with significant support and intensive treatment and case management. A highly structured treatment setting with clinical contacts for extended periods on most days is available with 24-hour availability of clinical staff by phone.

Non-Secure Residential - Treatment and other supportive services are provided in the context of a residential setting, but there is no ability to restrict egress or to provide secure care. Treatment is provided on site and most contact with the community takes place in the context of some type of supervision.

Secure Residential - This is the most intensive level of care available and will be provided in the context of a secure setting capable of providing close monitoring and seclusion and restraint when needed. Psychiatric, nursing and medical services will be available on site or in close proximity 24 hours daily with a capacity to respond quickly when needed. Physician contact will generally occur on a daily basis and medication will be administered by the staff.

Reliability and validity data for LOCUS has been reported by Sowers et al. (1999). Clinicians with various levels of experience rated 10 case vignettes after receiving training in the use of the instrument. The intra-class correlation coefficient was 0.68. The validity of the instrument is supported by the finding that the means of the raters' LOCUS placement recommendations concurred with the author generated recommendation. The initial testing indicated that LOCUS could facilitate consistent placement of clients in psychiatric or addiction services.

Protection of Human Subjects

Application for approval for Research on Human subjects was submitted to the Human Investigations Committee of the University of Virginia Health System prior to data collection. The Human Investigations Committee (HIC) approved the proposed study on February 24, 2000.

Criterion for Inclusion

Subjects must:

- have been between the ages of 18 and 65;
- have been an adult inpatient at one of six state psychiatric facilities for more than five consecutive days;
- have been English speaking;
- not have been discharged from a forensic unit.

C. Sampling Procedure

PRAIS` numbers (unique identifiers) of all consumers discharged from six Commonwealth of Virginia inpatient mental health facilities during the months of January 2000 – March 2000 were requested by the Inspector General, Anita Smith Everett, M.D. on March 20, 2000. The six institutions: Central State Hospital, Eastern State Hospital, Northern Virginia Mental Health Institute, Southern Virginia Mental Health Institute, Southwestern Virginia Mental Health Institute, and Western State Hospital each submitted a list of PRAIS numbers for patients discharged from their facilities during that time period. The subsequent 8 participants from Phase II were discharged from April to July 2000.

1. Randomization

The hospitals provided a total of 828 PRAIS numbers that comprised the initial sampling frame for Phase I. This master list was sequentially numbered for each facility by month of discharge. A JavaScript random number generator was used to produce a customized set of 7 random numbers per month for each facility. The list of 21 random numbers per facility generated by the JavaScript program was then linked to the master list of PRAIS numbers to produce the study sample of 126 patients. The 126 patient PRAIS numbers from Phase I were sent to Dr. Everett on March 31, 2000. A letter was written by Dr. Everett and mailed to each patient requesting their participation in the study. The SRMHRC received the discharge addresses and telephone numbers corresponding to the PRAIS numbers the week of April 25th from the Inspector General's office.

Following completion of Phase I, procedures were modified for Phase II. In Phase II, random sampling process consistent with that described for Phase I was used. Of 775 clients discharged, 265 were selected for contact. Letters were sent by the Inspector General to each client's discharge address requesting them to participate in the study. Clients willing to participate were asked to fill out a form with information of their availability for interview and contact information. Of the 265 letters sent out, 3 clients replied that they did not wish to participate, 50 letters were returned due to bad addresses, moved with no forwarding address, or were marked deceased. Seven were discharged to out of state addresses, and 48 had out of state mailing addresses. Thirty-two individuals agreed to be interviewed. Even though the 32 agreed to be interviewed, 1-2 changed their mind when contacted, and many could not be reached. Extensive efforts were made to contact these individuals by phone, but problems such as having the wrong phone number, disconnected phone numbers, and messages not being returned were barriers to contacting many of these individuals. Eight additional interviews were obtained.

2. Recruitment

In Phase I, Psychiatric Clinical Nurse Specialists were hired to contact the patients chosen at random to participate in this study. Recruitment began in June 2000 and extended through October 2000. At least six attempts by phone were made to reach each of the 126 patients. The calls were made at different times of the day (morning, afternoon and night) and on different days of the week (weekday, and weekend). Every attempt was made to locate patients following hospital discharge. The date, time and outcome of the telephone contacts were recorded. In a final effort to reach patients, a letter was sent in July of 2000 to all patients who could not be reached via phone. For Phase II, in an effort to recruit further participants, the Assistant to the Inspector General served as the contact person and set up interviews. Although methods for recruitment were different, both demonstrated similar difficulties in contacting clients including bad mailing addresses and phone numbers.

D. Interview procedure

Interviews were conducted by the nurse clinicians at either the local CSB or the current residence of the consumer. At the time a client agreed to an interview, that client's CSB was requested to provide a room for the interview and to make it possible for the interviewer to contact the case

manager for information if needed.

E. Interviewer training

The psychiatric nurse clinicians underwent a two-day training program at the SRMHRC conducted by Drs. Kane, Merwin, and Burkett-Halpin before interviewing commenced. The first day of training included instruction on the PANSS, MHSIP, SF-36, GAF, MCAS and MHSU instruments. In addition the nurse specialists were informed of University of Virginia Human Investigation Committee procedures, confidentiality and safety issues.

On June 6, 2000, the interviewers attended a LOCUS training session conducted by Robert Benacci, M.A. from Deerfield Behavioral Health Network, Inc. The six-hour training session included an overview of the LOCUS instrument. Mr. Benacci described in detail the six dimensions that comprise the LOCUS score: risk of harm or dangerousness, functional status, medical addictive and psychiatric co-morbidity, recovery environment, treatment and recovery history, attitude and engagement. The nurse clinicians then practiced performing LOCUS evaluations using case vignettes.

Inter-Rater Reliability. In order to insure comparable ratings between the psychiatric nurse clinicians, inter-rater reliability was measured and refined. Percent agreement was used as the measure of inter-rater reliability. Following the patient interview, “calibration meetings” were held with the nurse clinicians. In these meetings the nurse clinicians would discuss why they assigned the specific value/rating for each item. In the case of discrepancies, a discussion would ensue in which the nurses would attempt to establish rules for deciding when they would give a specific rating for a specific item. These sessions were intended to improve the reliability between nurses. Discrepancies of more than 1 point per item between the nurse clinicians were considered unacceptable. In this case the nurse clinicians would undergo further training.

Inter-rater reliability was established for the LOCUS, MCAS and PANSS instruments. The results are presented below in Table One in terms of percentage agreement.

Table 1. Percentage Agreement Between Nurse Clinicians

	LOCUS	MCAS	PANSS
Nurse 1 and 2	85.7%	76.5%	90%
Nurse 1 and 3	42.9%	70.6%	80%
Nurse 1 and 4	28.6%	64.7%	66.6%

Overall % Agreement for All Instruments
73.9= % *Kappa* =0.653

Note: Kappa scores can range from 0-1 with 0 denoting agreement is no better than chance and 1 denoting perfect agreement

Reliability data of recordings of behavior states using a category ranking system has been studied (Mudford, Hogg & Roberts, 1999). Percentage agreement ranged across observer pairs from 0%

to 58%, with kappa scores ranging from 0 to .64. A study conducted at Western Psychiatric Institute reported agreement among behavior ratings for children with psychiatric disorders of 52%, with a Kappa of .57 (Molina, Pelham, Blumenthal, 1998).

The percentage agreement in this study is consistent with inter-rater reliability scores from other psychiatric studies. The kappa score for percentage agreement for all instruments was 0.653, meaning that agreement between nurse clinicians was not due to chance. Discrepancies between nurse clinicians' scores were never greater than one point per item; therefore additional training was not necessary. It is postulated that the discrepancies that did occur were related to the clinicians' personal and professional background. All interviewers were advanced practice psychiatric nurses. However, their practice settings included community, private and inpatient practice. In the actual implementation of the study, 19 of the 20 participants were interviewed by the nurse coordinator. Therefore inter-rater reliability became less critical.

Results are presented separately for Phase I and Phase II participants, followed by information on the total group of 20 study participants. Information discussed about contact and recruitment procedures is discussed separately for the two Phases.

F. Sample

1. Description of the population sampled.

The only demographic information available for the total sample of patients randomized to the study was gender. This information is presented in Table 2 for Phase I and Phase II. In Phase I, 61% of the randomized sample was male, 34% was female and the gender of 5% could not be determined with the information provided. In Phase II, the discharged clients continued to be about 60% male.

Table 2. Patients Randomized to the Study Known Demographic Data

Gender	Phase I		Phase II	
	N	%	N	%
Male	77	61.1	157	59.2
Female	43	34.1	107	40.4
Unknown	6	4.8	1	0.4

2. Status of Patients Randomized

Table 3 depicts the status of those patients randomized to the study in Phase I. Over 13% of the patients randomized to the study refused to participate. Almost 10% of the patients were reported to have relocated. Five percent of the patients were discharged to addresses not in the Commonwealth of Virginia and another was discovered to have moved out of state. Sixteen percent of the patients were in a criminal justice facility. Fifteen percent of the patients had no phones or the wrong number was provided to the study staff. Fourteen percent of the patients

could not be reached after multiple attempts. Three percent of the randomized population was deceased. Almost 6% of the sample was re-hospitalized. Of those randomized, over 70% were lost, or potentially lost, to follow up in Phase I. Table 4 shows this information broken down by hospital from which the clients were discharged. Table 4a shows the breakdown of hospitals where the client was treated for the clients interviewed. Of the 265 individuals identified as potential participants, 3 stated they did not wish to participate, 32 submitted a form with their contact information agreeing to participate. Letters were returned for bad addresses for 50 clients. Of the 32 agreeing to be interviewed, 8 were able to be contacted by phone to set up the interview, and were actually interviewed.

Table 3.

Sample		Phase I	Phase II
		%	N
Total Sample	126	100	265
Agreed To Participate then unable to arrange interview	8	6.3%	
Refused To Participate	17	13.5%	
Interviewed	12	9.5	8
Total number reached	37	29.3%	
Not able to contact:			
Deceased	4	3.2%	
Re-hospitalized	7	5.6%	
Incarcerated	20	15.9%	
Nursing Home		0.8%	
Moved no forwarding	12	9.6%	
No Phone/Wrong #	19	15.%	
Relocated to Different State	7	5.6%	
Could Not Be Contacted After Multiple Attempts Via Phone	18	14.3%	
Non-English Speaking		0.8%	
Total not reachable:	89	70.8%	

Table 4. Status of patients randomized to the study by hospital of discharge in Phase I N=126

	Interviewed (N=12)	Agreed to participate but could not arrange (N=8)	Refused (N=17)	Moved (N=12)	Jailed (N=20)	Non- Virginia Residency (N=7)	Died (N=4)	Hospital (N=7)	Phone (N=19)	Could Not Be Contacted (N=18)	Other -- Includes Nursing Home and Non-English Speaking (N=2)
Central State	1 7.9%	0 0%	2 11.8%	1 8.3%	11 55%	0 0%	0 0%	3 42.9%	1 5.3%	2 11.1%	0 0%
Eastern State	2 1.6%	2 25%	2 11.8%	2 16.7%	1 5%	4 57.1%	2 50%	0 0%	4 21%	1 5.6%	1 50%
Northern Virginia	2 1.6%	0 0%	2 11.8%	0 0%	15 15%	2 28.6%	0 0%	0 0%	31.6%	8 44.4%	0 0%
Southwestern Virginia	2 1.6%	4 50%	1 5.8%	5 41.6%	3 15%	0 0%	2 50%	0 0%	2 10.6%	2 11.1%	0 0%
Western State	3 2.4%	2 25%	5 29.4%	2 16.7%	3 15%	0 0%	0 0%	2 28.6%	1 5.3%	2 11.1%	1 50%
Southern Virginia	2 1.6%	0 0%	5 29.4%	2 16.7%	1 5%	1 14.2%	0 0%	2 28.6%	5 26.3%	3 16.7%	0 0%

Note: Percentages are column percentages

Table 4a. Patients Interviewed, By Hospital of Discharge, Includes Phase I and Phase II.

	Interviewed (N=20)
Central State	1 (5%)
Eastern State	4 (20%)
Northern Virginia	2 (10%)
Southwestern Virginia	4 (20%)
Western State	3 (15%)
Southern Virginia	6 (30%)

Note: Percentages are column percentages

IV. Results

A. Demographic Characteristics of Sample

A total of 12 consumers were interviewed from June through October 2000 during Phase I. The demographic characteristics of those consumers are shown in Table 5. The consumers ranged in age from 19-54 years with the mean age of the sample interviewed being 36 +/-12.78 years. The sample was comprised of more females (7) than males (5). Seven of the patients were Caucasian, 4 were African American and one Asian. One patient was widowed. Eight consumers had children under the age of eighteen.

Table 5. Demographic Characteristics of Sample (Phase I)

Age	
Mean	36 years
Range	19-54
S.D.	12.78
Gender	
Male	41.7% (N = 5)
Female	58.3% (N = 7)
Race	
Caucasian	58.3% (N = 7)
Black	33.3% (N = 4)
Asian	8.3% (N = 1)
Education	
8th Grade or Less	25.0% (N = 3)
Some High School	41.7% (N = 5)
High School Graduate	8.3% (N = 1)
Some College	25.0% (N = 3)
Marital Status	
Single	75.0% (N = 9)
Separated/Divorced	16.6% (N = 2)
Widowed	8.3% (N = 1)
Dependents	
Yes	66.7% (N = 8)
No	33.3% (N = 4)

A total of eight consumers were interviewed from January through March 2001, during Phase II of the project. They were discharged between April and July 2000. The demographic characteristics of those consumers are shown in Table 5-II. The consumers ranged in age from

22-57 years with the mean age of the sample being 34. The sample was comprised of more males (5) than females (3). Five of the consumers were Caucasian and three were African American. Over eighty percent of this group were high school graduates. Most of the sample were single (5) and without dependents.

Table 5-II. Demographic Characteristics of Sample (Phase II)

Age	
Mean	34
Range	22-57
S.D.	13
Gender	
Male	62.5 (N = 5)
Female	37.5% (N = 3)
Race	
Caucasian	62.5 (N = 5)
Black	37.5% (N = 3)
Asian	0% (N=0)
Education	
8th Grade or Less	0% (N = 0)
Some High School	12.5 (N = 1)
High School Graduate	37.5 (N =3)
Some College	50% (N=4)
Marital Status	
Single	62.5% (N = 5)
Separated/Divorced	37.5% (N = 3)
Widowed	0% (N = 0)
Dependents	
Yes	37.5% (N = 3)
No	62.5% (N = 5)

The combined demographic characteristics of the sample (N=20) are shown in Table 5-III. The consumers ranged in age from 19 to 57 years with a mean age of 35. Fifty percent were male and 50% female. Sixty percent (12) were Caucasian, 35% (7) African American and one Asian. Fifty-five percent had graduated from high school and sixty percent were single. Fifty five percent had children, though some of these were no longer dependent children under the age of eighteen.

Table 5-III. Demographic Characteristics of Combined Sample N=20

Age	
Mean	35
Range	19-57
S.D.	12
Gender	
Male	50% (N =10)
Female	50% (N = 10)
Race	
Caucasian	60% (N =12)
Black	35% (N = 7)
Asian	5% (N=1)
Education	
8th Grade or Less	15% (N =3)
Some High School	30% (N = 6)
High School Graduate	20% (N=4)
Some College	35% (N=7)
Marital Status	
Single	60% (N = 12)
Separated/Divorced	35 % (N = 7)
Widowed	5% (N = 1)
Dependents	
Yes	55% (N =11)
No	45% (N = 9)

B. Diagnoses

The diagnoses of patients interviewed were reviewed. This information was obtained from CSB chart reviews and from discharge records subsequently provided by the Inspector General's Office. In Phase I of the study, two consumers had diagnoses of schizophrenia, three had bipolar disorder, four major depression, one adjustment disorder, and four had substance abuse noted in Axis I. For Axis II, four were diagnosed with some form of personality disorder and two with mild mental retardation. For Axis III nine had identified medical problems, and of these two had seizure disorders. In Axis IV, eight were identified with relationship problems, either lack of social support or conflicts with supports. Axis V is discussed later in the report. Of the eight consumers added to the study in Phase II, five had schizoaffective disorder as a primary diagnosis. There was significantly more substance abuse noted. The review of the total sample (N=20) reveals the following diagnoses. Two had diagnoses of schizophrenia, four of schizoaffective disorder, three had bi-polar disorder, five major depression, one depression not

otherwise specified, two adjustment disorder, one parent attachment problems, one gender identity disorder, and one polysubstance abuse. Nine other of these subjects also had substance abuse noted in Axis I. For Axis II, seven were diagnosed with some form of personality disorder, two with mild and one with moderate mental retardation. For Axis III fourteen had identified medical problems, and of these two had seizure disorders. In Axis IV, thirteen were identified with relationship problems, either lack of social support or conflicts with supports. Axis V is discussed later in the report.

C. Time From Discharge to Community Services Board Contact

Time from hospital discharge to CSB contact is presented in Table 6. The time between discharge and community services board contact averaged 5.3 days and ranged from 0-10 days. Two patients had an appointment with the CSB prior to their official facility discharge date. One patient was incarcerated, and one patient refused CSB services.

Table 6. Time From Hospital Discharge to CSB Appointment (Phase I)

Subject	Days Between Discharge and Appointment*
1	5 days
2	6 days
3	10 days
4	2 days
5	5 days
6	Refused or incarcerated
7	Refused or incarcerated
8	7 days
9	4 days
10	6 days
11	8 days
12	0 days

Note: * = two individuals were given a temporary discharge prior to being officially discharged from the facility. During the temporary discharge, they had their first appointment with the CSB.

Time from hospital discharge to CSB appointment for Phase II participants is presented in Table 7. The time to first appointment ranged from one to nine days, with an average of 5 days.

Table 7. Time From Hospital Discharge to CSB Appointment-Phase II

Subject	Days Between Discharge and Appointment
13	7 days
14	5 days
15	9 days
16	3 days
17	7 days
18	2 days
19	1 days
20	6 days

Time from discharge to first CSB appointment for the total sample (N=20) ranged from 0 to 10 days, with a mean of 5.16 days.

D. Medication changes from discharge to interview

Medication changes from discharge to interview were assessed on ten of the twelve consumers in Phase I. The data is presented in Table 8 (note subjects 1-12). Two consumers were discharged without any medication prescribed. One consumer discontinued all medications on her own. Of the seven remaining, all were prescribed psychotropic medications. Of the 24 psychotropics prescribed, 12 remained unchanged at time of interview and 11 were decreased or discontinued. Two consumers were prescribed Cogentin at discharge. Both of these had dosages decreased at time of interview. One consumer was discharged on Ativan, which was subsequently decreased and Cogentin added. Case #9 is particularly interesting. This consumer was discharged on Clozaril, Depakote, Prilosec, and Clonidine. By time of interview Clozaril and Clonidine were decreased and Risperidone was added.

Medication changes from discharge to interview for the total sample were able to be assessed on eighteen of the twenty consumers. The data is added and presented in Table 8, with Phase II subjects numbered 13-20. Two consumers were discharged without any medication prescribed. One consumer discontinued all medications on her own. Of the fifteen remaining, all were prescribed psychotropic medications. Of the 48 psychotropics prescribed, 15 remained unchanged at time of interview and 28 were decreased or discontinued. Three consumers were prescribed Cogentin or Artane at discharge. All of these had dosages decreased at time of interview. One consumer was discharged on Ativan, which was subsequently decreased and Cogentin added. As with Case # 9 noted above, subjects #13 and #15 also had significant medication changes from discharge to interview.

Table 8. Medications Adjustments Post Discharge

Medications at Discharge	Medications Added/Changed at interview	Direction
#1		
Prolixin Decanoate 25 mg IM Q 2 wk		
Prolixin HCL 20 mg a.m		
Prolixin HCL 40 mg PO HS		
Valproic Acid 1000 mg PO BID		
Cogentin 1 mg BID	Cogentin 1 mg daily	Decreased
#2		
Effexor 75 mg TID	Effexor 75mgm BID then QD	Decreased
Zyprexa 5mg HS	Zyprexa 2.5mgm then D/C	Decreased
Conjugated Estrogens 1.25 QD		
#3		
Lithium 600mg BID	Lithium 600mgm HS	Decreased
#4		
Valproic Acid 1000 mg BID	Valproic Acid 500 mg BID	Decreased
Mellaril 200 mg BID		
Ativan 2mg PO TID	Ativan 2mg BID	Decreased
	Cogentin 2 mg BID then 1mg BID	Added
#5		
Zoloft 50 mg QD		
Klonopin 1 mg BID		
Seroquel 200 mg BID		
Lamictal 200 mg BID	Lamictal 100 mg BID	Decreased
Topamax 50 mg at 8am and noon	Topamax 50 mg noon	Decreased
Topamax 25 mg HS		
	Mutivitamin 1 QD	Added
	Neurontin 300 mg BID then...	Added
	Neurontin 300 mg HS	
#6		
Depakote 500 mg BID	Self discontinued	
Zyprexa 7.5 mg HS	Self discontinued	
#7		

Medications at Discharge	Medications Added/Changed at interview	Direction
No medications		
#8		
Zoloft 50 mg QD		
Risperidone 2 mg HS		
Medications for COPD		
Singulair (Montelukast) 10 mg QD		
Servent MDI		
Albuterol MDI		
	Prednisone 10 mg/d for 60 days	Added
	Zyban for smoking cessation	Added
#9		
Clozaril 200mg BID	Clozaril 200mg HS	Decreased
Depakote 750 mg TID		
Cogentin 3 mg HS	Cogentin 1 mg HS	Decreased
Prilosec 20 mg Q am		
Clonidine 0.1 mg Q am and 0.2mg QHS	Clonidine 0.1 mg BID	Decreased
Colace 100 mg BID		
	Risperidone 4 mg at HS	Added
#10*		
Clozaril 300 mg PO BID	Unknown	
Propranolol 40 mg PO BID	Unknown	
Glucophage 850 mg PO BID	Unknown	
Depoprovera IM ? Q 3 months	Unknown	
#11*		
Effexor 37.5 mg BID	Unknown	
Vasotec 5 mg Q am	Unknown	
Valium 5 mg TID	Unknown	
Robaxin 750 mg PO TID	Unknown	
Trazadone 100 mg 10 pm	Unknown	
Tylenol # 3 one TID prn	Unknown	
#12		
No meds.		

* = followed by private providers, no access to records at follow-up.

Medications at Discharge	Medications Added/Changed at interview	Direction
#13		
Loxapine 50mgm one Q am		Discontinued
Loxapine 200mg Q HS		Discontinued
Artane 2 mgm BID		Discontinued
Paxil 20 mgm QD		Discontinued
Loratadine 10 mg Q am (allergies)		
Ranitadine 150 mgm BID (GERD)		
	Celexa 40 mgm	Added
	Trazadone 100mg Q HS	Added
	Risperidone 2mgm BID	Added
#14		
Paroxetine 20 mg QD	Paroxetine 30 mg QD	Increased
	Seroquel 100mg QD	Added
Lovastatin 40 mgm QD (for cholesterol)		
Folic Acid 1 mgm QD (anemia)		
Cyanocobalamine 1000mcg IM q month (macrocytic anemia)		
#15		
Bupropion 150 mg QD		Discontinued
Celexa 40 mg Q am		Discontinued
Risperidone 2 mgm BID		Discontinued
Trazadone 50 mgm HS		Discontinued
Vistaril 25 mgm HS		Discontinued
	Zoloft 100mg HS	Added
	Buspar 15 mg BID	Added
#16		
Zyprexa 10 mg HS		Discontinued
	Prozac 10mgm	Added
#17		
Olanzapine 30 mg HS	Olanzapine 25mgm HS	Decreased
Clonazepam 0.5mgm TID	Clonazepam 1.0mgm am 0.5 mgm at noon and 1.5 mgm at HS	Increased
Depakote 750 mgm in am and 1000mg at night	Depakote 750 mgm BID	Decreased
Trazadone 50 mgm HS		Discontinued
#18		

Medications at Discharge	Medications Added/Changed at interview	Direction
Depakote 500mg in am and 750 mgm HS		Discontinued
Effexor 75 mgm BID		
Trazadone 50 mg HS	Trazadone 50 mg HS prn	Decreased
#19		
Depakote 500mgm TID		
Risperidol 2mgm BID		
Cogentin 0.5mgm BID		
Buspar 10mgm BID with meals		
Vistaril 25 mgm TID		
Synthroid 112mcg QD (hypothyroid)		
Prilosec 20 mg QD (GERD)		
#20		
Stelazine 20 mg BID		
Restoril 15 mg HS		Discontinued
Depakene 1250 mg BID	Depakote 1500mgm BID	Increased
Neurontin 800mgm TID		
Vistaril 50 mgm TID	Vistaril 25mgm TID	Decreased
Zantac 150 mg BID (GERD)		
Premarin 0.125 mgm QD (estrogen)		
Aldactone 25mgm BID (hypertension)		
Lasix 120 mg BID (diuretic)		
NPH insulin 30u Q am and 10u Q PM		
Immodium 2 mg prn (diarrhea)		
Lopressor 25 mgm BID (hypertension)		
Albuterol MDI 2 puffs Q 4 hours prn (COPD)		

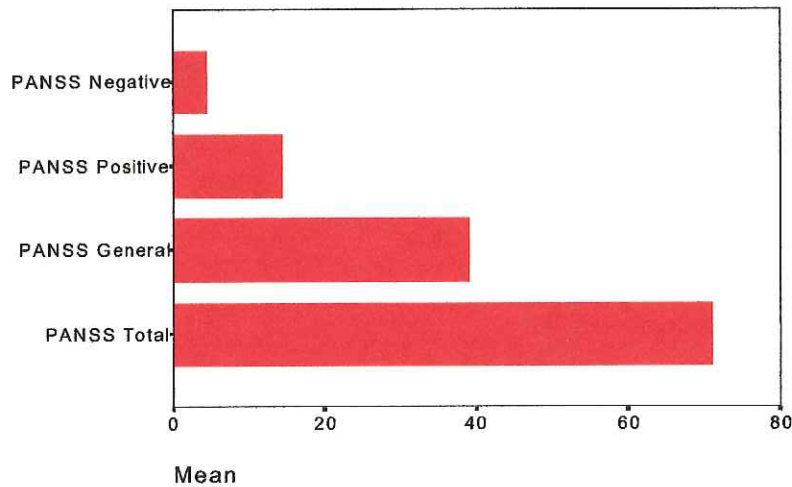
* = followed by private providers, no access to records at follow-up.

E. Assessment Instrument Results

1. Positive and Negative Syndrome Scale (PANSS)

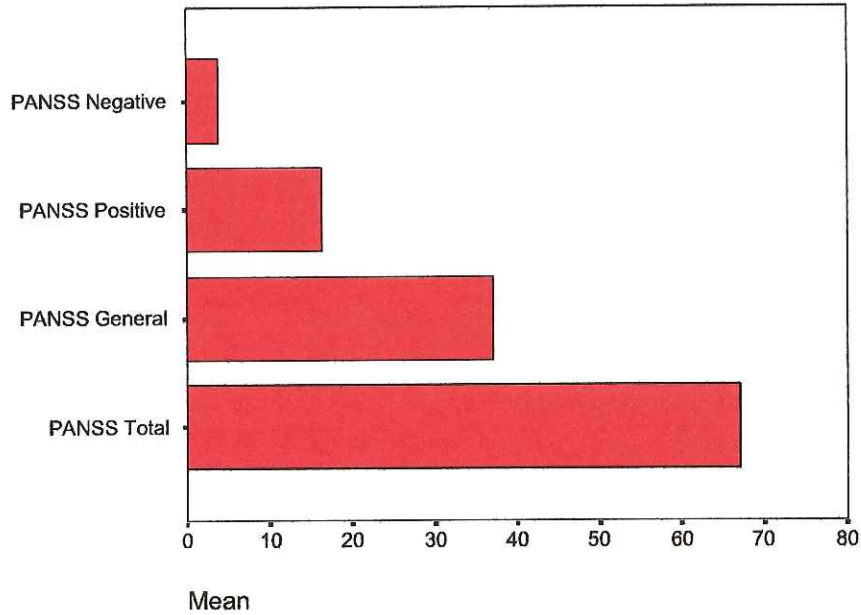
Results from the PANSS from Phase I are presented in Graph 1, for Phase II in 1a and for both in 1b. The mean PANSS total score was 69.55 (Range 36-106, S.D = 22.13). The Negative Symptoms score mean was 4.3500 (Range 2-8, S.D. = 1.8994). The Positive Symptoms score mean was 15.25 (Range 8-26, S.D. = 5.7663). The General Psychopathology score mean was 38.4 (Range 21-58, S.D. = 11.4036). One study of inpatients with schizophrenia (Kay, Fiszbein, & Opler, 1987) found the negative symptoms mean equal to 21.01 (Range 8-38, S.D. = 6.17), the Positive symptoms mean equal to 18.02 (Range 7-32, S.D. = 6.08), and the general psychopathology mean equal to 37.74 (Range 19-63, S.D. = 9.49). A study of persons with schizophrenia living in the community (Bell, Millstein, Beam-Goulet, Lysaker, Cicchetti, 1992) found the negative symptoms mean equal to 17.3 (S.D. = 4.5), the Positive symptoms mean equal to 19.0 (S.D. = 5.9), and the general psychopathology mean equal to 38.3 (S.D. = 7.1). In comparison to the scores in these samples, the present sample was assessed to have fewer negative symptoms, but the positive and general psychopathology symptoms were quite similar.

Graph 1. PANSS (Phase I)



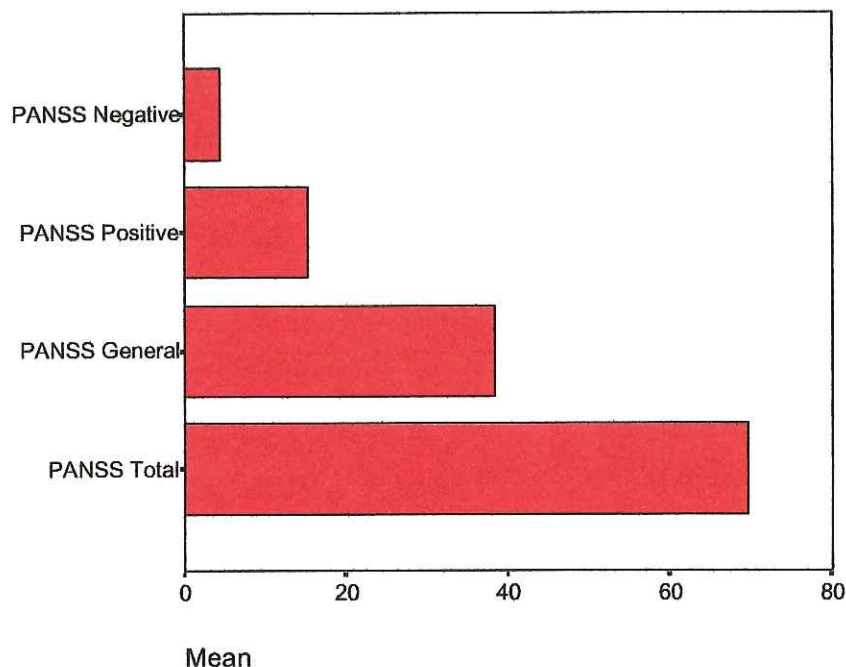
PANSS		Minimum	Maximum	Mean	Std. Deviation
PANSS Negative	12	2.00	8.00	4.6667	2.1462
PANSS Positive	12	8.00	26.00	14.5833	6.2152
PANSS General	12	21.00	58.00	39.2500	13.3697
PANSS Total	12	36.00	106.00	71.2500	25.7863

Graph 1a. PANSS (Phase II)



PANSS	N	Minimum	Maximum	Mean	Std. Deviation
PANSS Negative	8	2.00	6.00	3.8750	1.4577
PANSS Positive	8	8.00	26.00	16.2500	5.2576
PANSS General	8	23.00	49.00	37.125	8.3055
PANSS Total	8	39	96	67.00	16.50

Graph 1b PANSS Total



PANSS	N	Minimum	Maximum	Mean	Std. Deviation
PANSS Negative	20	2.00	8.00	4.35	1.8994
PANSS Positive	20	8.00	26.00	15.2500	5.663
PANSS General	20	21.00	58.00	38.4000	11.4036
PANSS Total	20	36	106	69.25	22.13

2. Global Assessment of Functioning (GAF)

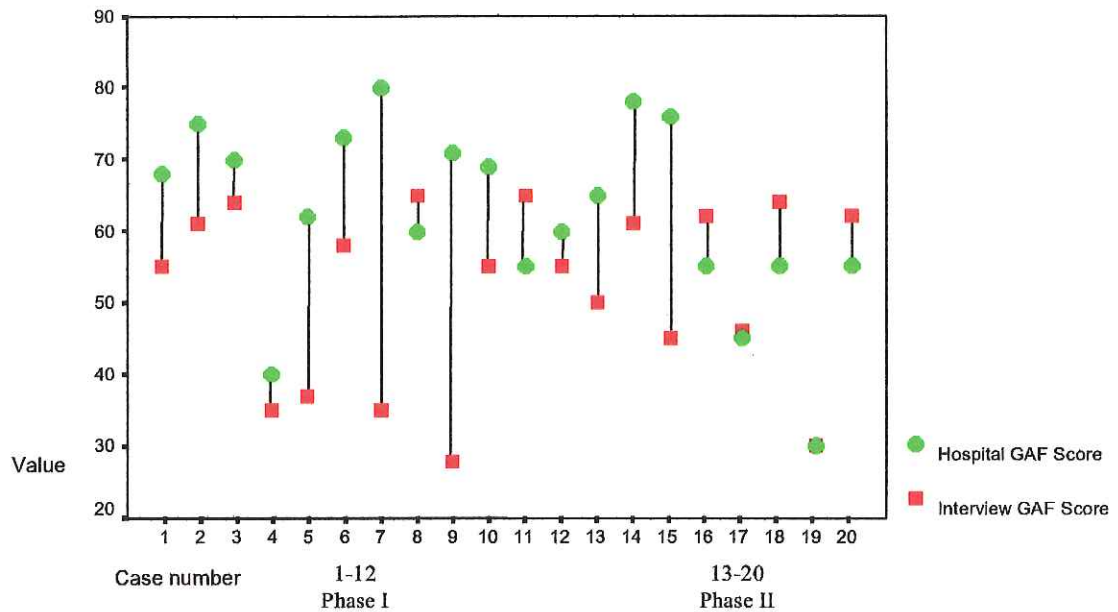
In Phase I the mean GAF Score at discharge was 65.25 (SD = 10.69) with a range of 40-80. One consumer had a score of 40 at discharge, which indicates a very low level of functioning. At follow-up, the mean GAF Score was 51.08 (SD = 13.47) with a range of 28-65. Four of these consumers had scores below 40.

In Phase II the mean GAF Score at discharge was 57.38 (SD = 15.81) with a range of 30-78. At follow-up, the mean GAF Score was 52.50 (SD = 11.93) with a range of 30-64.

In the Total group, the mean GAF Score at discharge was 62.10 (SD = 13.19) with a range of 30-80. At follow-up, the mean GAF Score was 51.65 (SD = 12.57) with a range of 28-65.

Graph 2 presents the GAF scores of the participants as assessed at time of discharge and by the University of Virginia nurse clinicians at time of follow-up.

Graph 2. GAF Scores at Discharge (Hospital) and Follow-up (Interview)



In Phase I, ten of the twelve patients' GAF scores decreased from discharge to follow-up. Of these, two decreased more than 40 points, another decreased 14 points. One decreased 10 points, and another 5 points. Two consumers showed improvement since discharge. One improved by 10 points and one improved by 5 points. Actual scores are presented in Table 10 subjects 1-12.

In Phase II, three consumers had lower GAF scores from discharge to follow-up. The scores decreased by 31, 17 and 15 points. Four subjects had improved scores, one by one point, two by 7 points and one by 9 points. One participant had an identical GAF score from discharge to point of interview. Scores are presented in Table 10 subjects 13-20

The total sample reflects ten of the twenty patients' GAF scores decreasing from discharge to follow-up. Of these, two decreased more than 40 points, another decreased 31, one by 25 points, and another by 17 points. Two participant's points decreased by 15 and two others by 14 points. One decreased 13 points, and two others by 5 points each. Six consumers showed improvement since discharge. One improved by 10 points, one by 9 points and two by 7 points. One improved by 5 points and one by a mere 1 point. One consumer had an identical score on discharge and interview. All of the interviews were conducted more than 3 months after discharge. Total scores are presented in Table 10.

Phase I data N=12

	N	Minimum	Maximum	Mean	Std. Deviation
Hospital GAF Score	12	40.00	80.00	65.25	10.70
Interview GAF Score	12	28.00	65.00	51.08	13.47
Valid N (listwise)	12				

Phase II- N=8

	N	Minimum	Maximum	Mean	Std. Deviation
Hospital GAF Score	8	30.00	78.00	57.38	15.81
Interview GAF Score	8	30.00	64.00	52.50	11.93
Valid N (listwise)	8				

Total N=20

	N	Minimum	Maximum	Mean	Std. Deviation
Hospital GAF Score	20	30.00	80.00	62.10	13.19
Interview GAF Score	20	28.00	65.00	51.65	12.57
Valid N (listwise)	20				

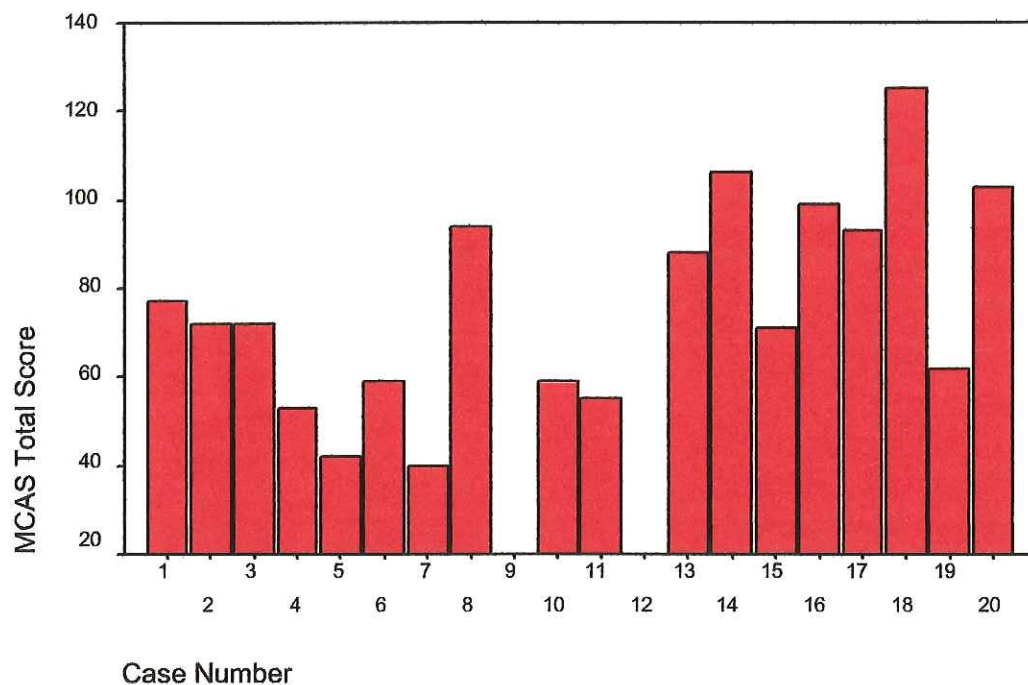
Table 10. Actual GAF and Change Scores

	Hospital GAF Score	Interview GAF Score	Change in GAF Score
1	68	55	-13
2	75	61	-14
3	70	64	-6
4	40	35	-5
5	62	37	-25
6	73	58	-15
7	80	35	-45
8	60	65	+5
9	71	28	-43
10	69	55	-14
11	55	65	+10
12	60	55	-5
13	65	50	-15
14	78	61	-17
15	76	45	-31
16	55	62	+7
17	45	46	+1
18	55	64	+9
19	30	30	Same
20	55	62	+7

3. Multnomah Community Ability Scale (MCAS)

The average MCAS score for those interviewed in Phase I was 62.30 (SD = 16.60) with a range of scores from 40-94. In Phase II the average MCAS score was 93.38 (SD=19.99) with a range of scores from 62 to 125. The total sample interviewed (N=20) had an average MCAS score of 76.11 (SD=23.73) with a range of score from 40-125. In a predictive validation study (Zani, McFarland, Wachal, Barker, Barron, 1999), of consumers scoring in the 20 to 60 range, 20 percent were likely to be hospitalized. Of those scoring in the 60+ range, less than 10% were likely to be re-hospitalized. The MCAS total score for individual patients in Phase I is shown in Graph 3. Three consumers scored in the 20-50 range indicating some likelihood that they will be re-hospitalized within the year.

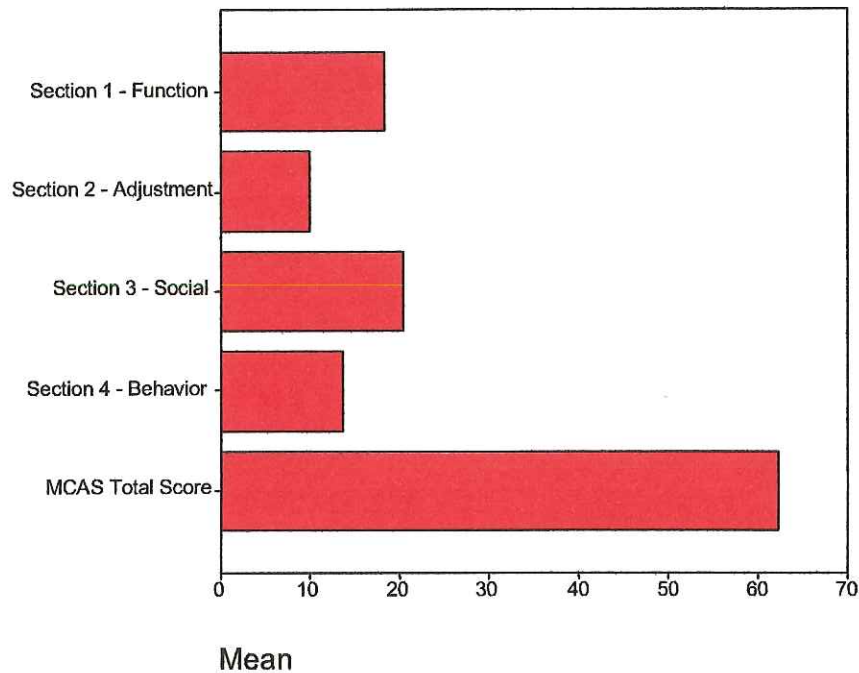
Graph 3. MCAS Total Score-Phase I and II



In a study of community living persons with severe mental illness (Kane, 2000) MCAS scores (N=59) for function averaged 17.3 (SD = 2.64) compared to 18.37 (SD = 3.44) in this sample, likewise for adjustment 9.34 (SD = 2.49) compared to 10.50 (SD = 3.62), for social involvement 14.80 (SD = 3.37) compared to 30.90 (SD =16.73), behavioral 15.57 (SD = 3.38) compared to 15.00 (SD = 4.47), and a total 57.26 (SD = 8.56) compared to 76.11 (SD =23.73). These scores reflect

similar levels of functioning in both samples. Data for this sample is displayed in Graph 4b.

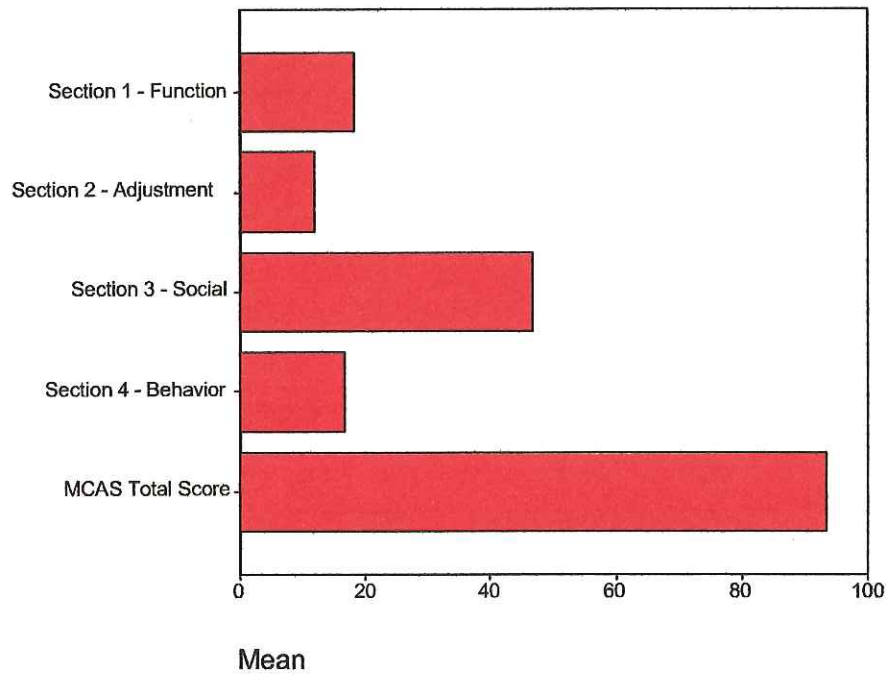
Graph 4. MCAS Sub-Scores and Total Score Means-Phase I



Descriptive Statistics

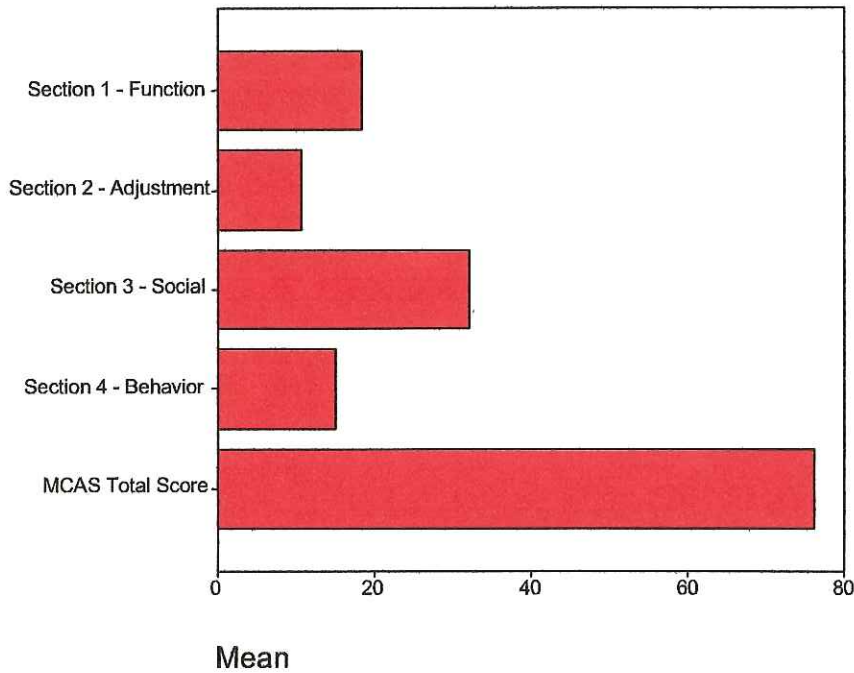
MCAS	N	Range	Minimum	Maximum	Mean	Std. Deviation
Section 1 – Function	11	10.00	13.00	23.00	18.4545	3.26691
Section 2 – Adjustment	12	11.00	4.00	15.00	9.5833	3.80092
Section 3 – Social	12	26.00	11.00	37.00	20.4167	8.42570
Section 4 – Behavioral	11	16.00	4.00	20.00	13.8182	5.07579
MCAS Total	10	54.00	40.00	94.00	62.3000	16.60020

Graph 4a. MCAS Sub-Scores and Total Score Means- Phase II



MCAS	N	Range	Minimum	Maximum	Mean	Std. Deviation
Section 1 – Function	8	11.00	12.00	23.00	18.2500	3.88219
Section 2 – Adjustment	8	9.00	6.00	15.00	11.8750	3.04432
Section 3 – Social	8	39.00	29.00	68.00	46.6250	13.29809
Section 4 – Behavioral	8	9.00	11.00	20.00	16.6250	3.06769
MCAS Total	8	63.00	62.00	125.00	93.3750	19.99241

Graph 4b. MCAS Sub-Scores and Total Score Means- Total



MCAS	N	Range	Minimum	Maximum	Mean	Std. Deviation
Section 1 – Function	19	11.00	12.00	23.00	18.3684	3.43528
Section 2 – Adjustment	20	11.00	4.00	15.00	10.5000	3.62012
Section 3 – Social	20	57.00	11.00	68.00	30.9000	16.72659
Section 4 – Behavioral	19	16.00	4.00	20.00	15.0000	4.47214
MCAS Total	18	85.00	40.00	125.00	76.1111	23.72611

4. MHSIP - Consumer Satisfaction Survey

MSHIP data for Phase I is shown in Graph 5. The mean score for the general satisfaction sub-scale was 10.72 (SD = 4.24). For the consumer satisfaction with access to care sub-scale, the mean score was 22.9 (SD = 8.73). The mean score for the appropriateness of treatment sub-scale in this population was 53.17 (SD = 13.88). The outcome of treatment sub-scale mean was 47.67 (SD = 18.86). The higher the score the higher the satisfaction. The total MHSIP mean was 133.58 (SD = 44.77).

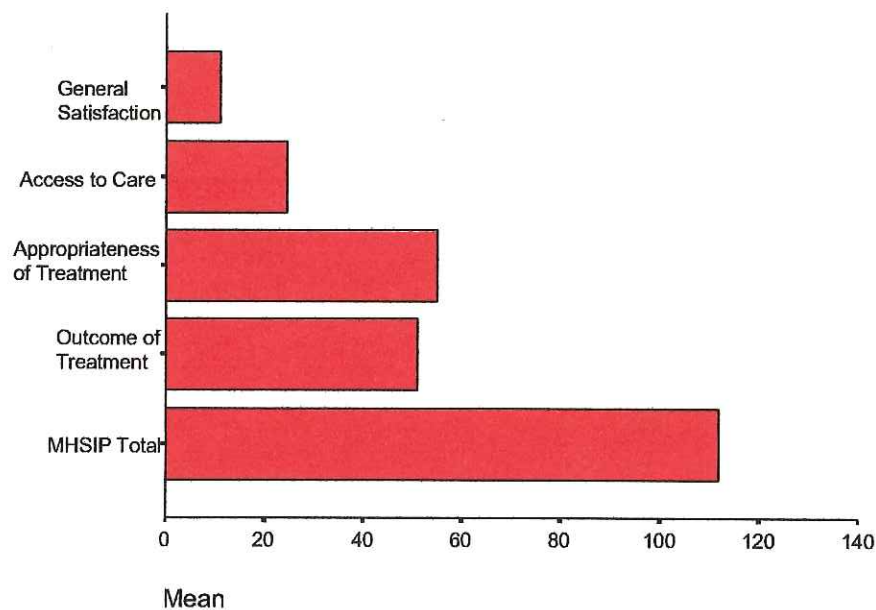
MSHIP data for Phase II is shown in Graph 5a. The mean score for the general satisfaction sub-scale was 12.125 (SD=2.64) For the consumer satisfaction with access to care sub-scale, the mean score was 28.125 (SD=5.96). The mean score for the appropriateness of treatment

sub-scale in Phase II subjects was 61.0 (SD=10.3648). The outcome of treatment sub-scale mean was 51.125 (SD=15.12). As the higher the score the higher the satisfaction, the Phase II participants would seem to be more satisfied with services.

MSHIP data for the total group is presented in Graph 5b. The mean score for the general satisfaction sub-scale was 11.32 (SD=3.64) For the consumer satisfaction with access to care sub-scale, the mean score was 25.0 (SD=8.00). The mean score for the appropriateness of treatment sub-scale was 56.0 (SD=12.91). The outcome of treatment sub-scale mean was 49.05 (SD=15.12). The Total MSHIP score was 115.30 (SD=39.47).

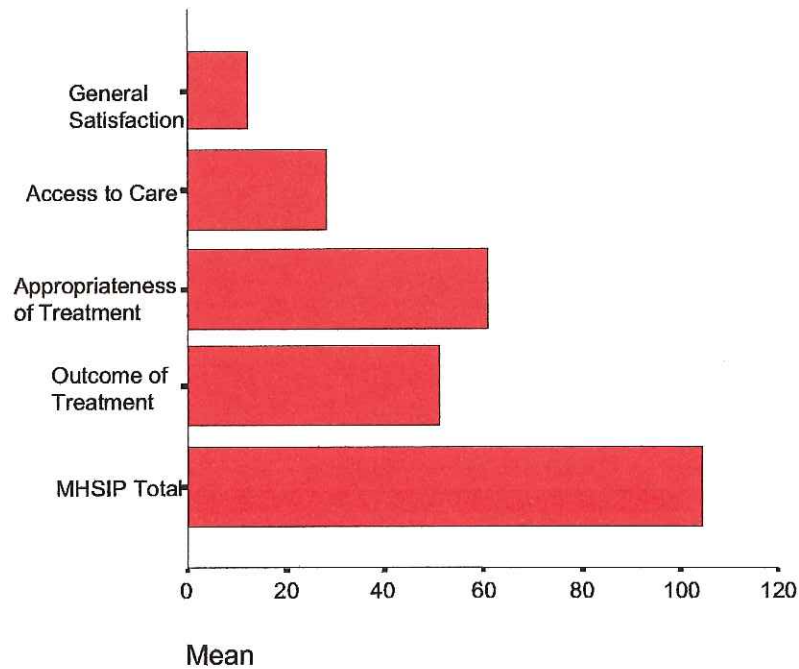
In comparison to the (Kane et al., 2000) sample (N=59) the Total MHSIP is lower, with the general satisfaction mean equal to 10.88 (SD = 2.51); the access mean equal to 24.76 (SD = 4.03); the appropriateness mean equal to 53.74 (SD = 8.29); the outcome mean equal to 52.74 (SD = 7.17) and the MHSIP total mean equal to 145.12 (SD = 16.86).

Graph 5. MHSIP Sub-scales and Total Mean- PHASE I



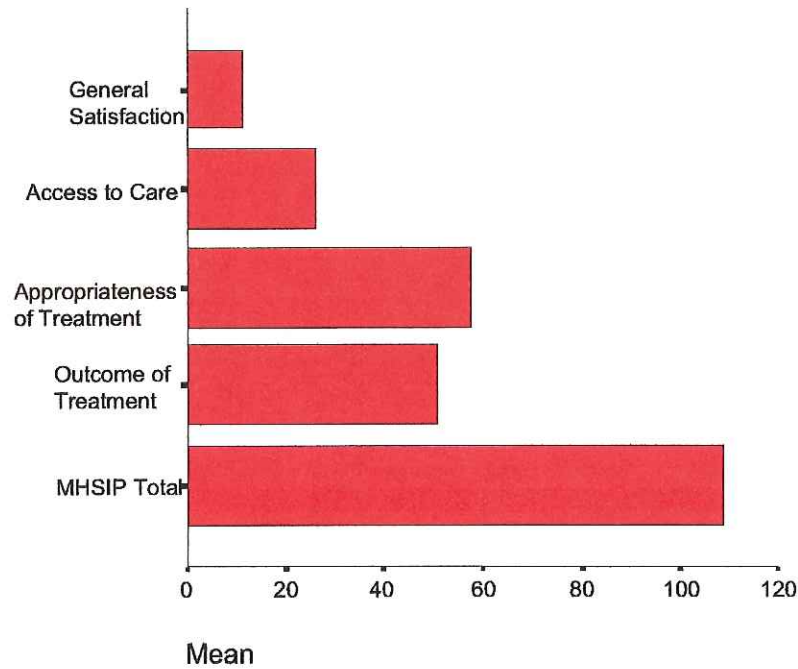
MHSIP		Range	Possible Range	Mean	Std. Deviation
General Satisfaction	11	3.00-15.00	15	10.7273	4.2448
Access to Care	12	5.00-33.00	35	22.9167	8.7330
Appropriateness of Treatment	12	32.00-71.00	75	53.1667	13.8815
Outcome of Treatment	12	11.00-70.00	75	47.6667	18.8696
MHSIP Total	12	48.00-187.00	200	133.5833	44.7670

Graph 5a. MHSIP Sub-scales and Total Mean- PHASE II



MHSIP		Range	Possible Range	Mean	Std. Deviation
General Satisfaction	8	9.00-15.00	15	12.1250	2.6424
Access to Care	8	22.00-35.00	35	28.1250	5.9627
Appropriateness of Treatment	8	42.00-75.00	75	61.0000	10.3648
Outcome of Treatment	8	26.00-75.00	75	51.1250	15.1227
MHSIP Total	8	72.00-135.00	200	104.6250	21.0370

Graph 5b. Total MHSIP



Descriptive Statistics

MHSIP		Range	Possible Range	Mean	Std. Deviation
General Satisfaction	19	3.00-15.00	15	11.3158	3.63704
Access to Care	20	5.00-35.00	35	25.0000	8.00658
Appropriateness of Treatment	20	32.00-75.00	75	56.3000	12.90899
Outcome of Treatment	20	11.00-75.00	75	49.0500	17.12946
MHSIP Total	20	69.00-239.00	200	115.3000	39.47164

5. Medical Outcomes Study 36 Item Short Form Health Survey (SF-36)

Graph 6 presents the mean scores for the SF-36 sub-scales for Phase I. The higher the score the better the functioning. In Phase I the mean score for the sub-scale Physical Functioning was 72.91 (SD = 21.16). For the sub-scale Role-Physical, the mean score was 60.42 (SD = 39.11). The mean score for the sub-scale Bodily Pain was 50.25 (SD = 34.86). For the sub-scale General Health, the mean score was 55.17 (SD = 23.17). The mean score for the sub-scale

Vitality was 44.17 (SD =21.30). For the sub-scale Social Functioning, the mean score was 71.86 (SD = 28.26). The mean score for the sub-scale Role-Emotional was 58.33 (SD = 47.41). For the sub-scale Mental Health, the mean score was 59.67 (SD = 23.42). Table 11 provides the sample size, means and standard deviations for the current sample and two other study samples for Phase I.

In Phase II the mean score for the sub-scale Physical Functioning was 73.75 (SD = 25.60). For the sub-scale Role-Physical, the mean score was 56.25 (SD = 43.81). The mean score for the sub-scale Bodily Pain was 60.50 (SD = 31.31). For the sub-scale General Health, the mean score was 46.00 (SD = 28.95). The mean score for the sub-scale Vitality was 41.25 (SD =23.11). For the sub-scale Social Functioning, the mean score was 56.25 (SD = 24.09). The mean score for the sub-scale Role-Emotional was 33.33 (SD = 39.84). For the sub-scale Mental Health, the mean score was 38.50 (SD = 23.99).

For the Total group, the mean score for the sub-scale Physical Functioning was 73.25 (SD = 22.38). For the sub-scale Role-Physical, the mean score was 58.75 (SD = 39.96). The mean score for the sub-scale Bodily Pain was 54.35 (SD = 33.03). For the sub-scale General Health, the mean score was 51.50 (SD = 25.31). The mean score for the sub-scale Vitality was 43.00 (SD =21.48). For the sub-scale Social Functioning, the mean score was 65.63 (SD = 27.17). The mean score for the sub-scale Role-Emotional was 48.33 (SD = 45.21). For the sub-scale Mental Health, the mean score was 52.20 (SD = 25.35).

In a study of outpatients (Adler, Bungay, Cynn, Kosinski, 2000) the scores of psychiatric clients were lower on scales measuring mental health than a normative sample (Nerenz, Repasky, Whitehouse, 1992). However, the psychiatric patients' scores on the physical health scale were lower than expected. The current sample appears to score higher than the Adler sample on each variable, and lower on every variable compared to the normative sample.

Graph 6. SF-36 Phase I

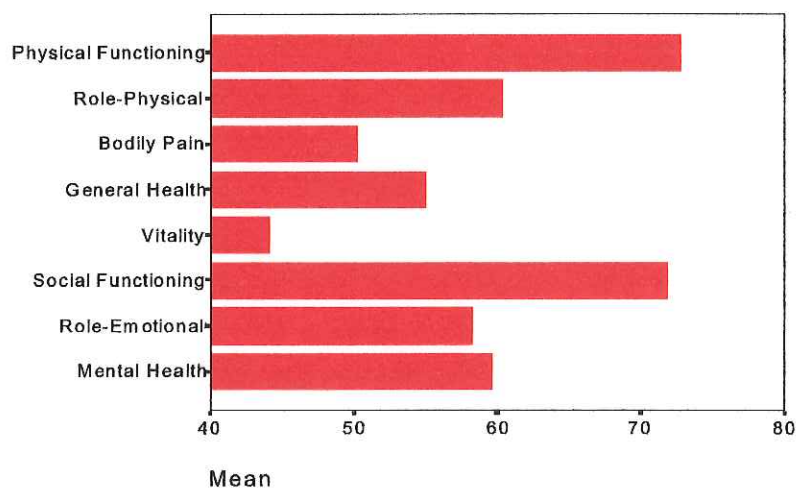


Table 11. Comparison of the Phase I Sample to others

SF-36	Current Sample			Psychiatric (Adler, 2000)			Normative (Nerinz, 1992)		
	N	Mean	D	N	Mean	SD	N	Mean	SD
Physical Function	12	72.91	21.15	411	76.1	1.4	2,474	84.2	0.47
Role-Physical	12	60.41	39.10	411	55.9	2.1	2,474	80.9	0.68
Bodily Pain	12	50.25	34.85	411	66.9	1.5	2,474	75.2	0.41
General Health	12	55.16	23.16	411	61.1	1.0	2,474	71.9	0.42
Vitality	12	44.16	21.30	411	38.8	1.3	2,474	60.9	0.46
Social Functioning	12	71.87	28.26	411	53.1	1.4	2,474	83.3	0.81
Role-Emotional	12	58.33	47.40	411	38.9	2.1	2,474	81.3	0.67
Mental Health	12	59.66	23.41	411	45.7	1.1	2,474	74.7	0.36

Graph 6a. SF-36 Phase II

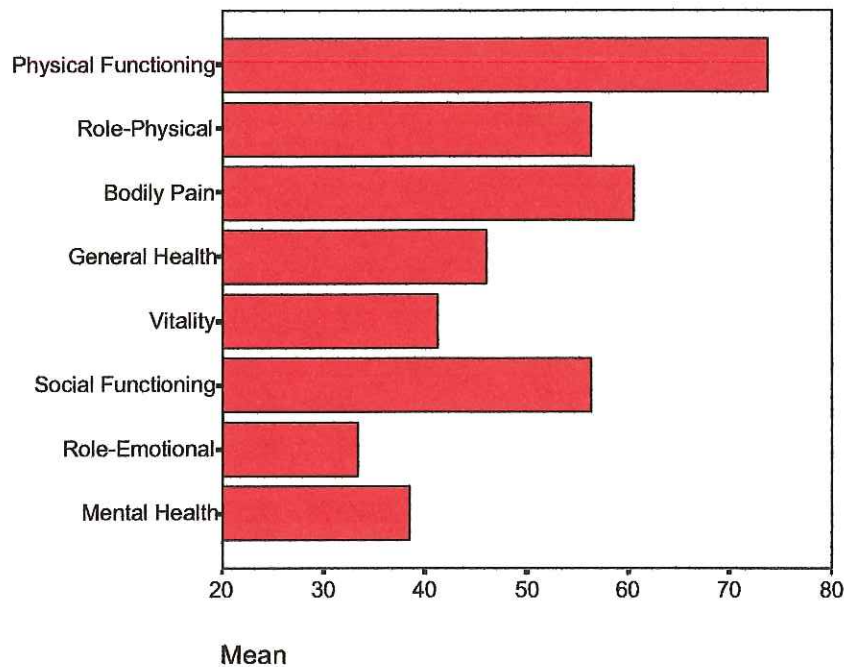


Table 11a. Comparison of the Phase II Sample to others

SF-36	Current Sample			Psychiatric (Adler, 2000)			Normative (Nerinz, 1992)		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Physical Function	8	73.75	25.60	411	76.1	1.4	2,474	84.2	0.47
Role-Physical	8	56.25	43.81	411	55.9	2.1	2,474	80.9	0.68
Bodily Pain	8	60.50	31.31	411	66.9	1.5	2,474	75.2	0.41
General Health	8	46.00	28.95	411	61.1	1.0	2,474	71.9	0.42
Vitality	8	41.25	23.11	411	38.8	1.3	2,474	60.9	0.46
Social Functioning	8	56.25	24.09	411	53.1	1.4	2,474	83.3	0.81
Role-Emotional	8	33.33	39.84	411	38.9	2.1	2,474	81.3	0.67
Mental Health	8	38.50	23.99	411	45.7	1.1	2,474	74.7	0.36

Graph 6b. SF-36 Total

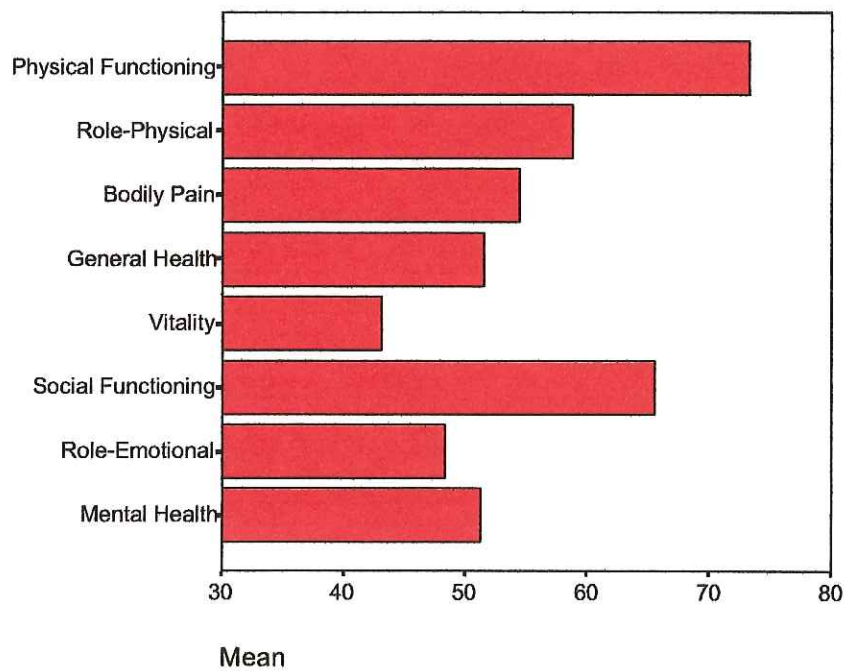


Table 11b. Comparison of Current Total Sample to Others

SF-36	Current Sample			Psychiatric (Adler, 2000)			Normative (Nerinz, 1992)		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Physical Function	20	73.25	22.38	411	76.1	1.4	2,474	84.2	0.47
Role-Physical	20	58.75	39.96	411	55.9	2.1	2,474	80.9	0.68
Bodily Pain	20	54.35	33.03	411	66.9	1.5	2,474	75.2	0.41
General Health	20	51.50	25.31	411	61.1	1.0	2,474	71.9	0.42
Vitality	20	43.00	21.48	411	38.8	1.3	2,474	60.9	0.46
Social Functioning	20	65.63	27.17	411	53.1	1.4	2,474	83.3	0.81
Role-Emotional	20	48.33	45.21	411	38.9	2.1	2,474	81.3	0.67
Mental Health	20	51.20	25.35	411	45.7	1.1	2,474	74.7	0.36

6. Services Use

Table 12 presents data on services usage combining the total sample of participants. An examination of use of mental health services by this population indicates that most of the consumers (N=18, 90.0%) were evaluated by a psychiatrist since their discharge. Seventy percent had received individual therapy. None participated in group therapy, but 2 had attended family therapy. Ninety percent had received medication management on average 4 times and seventy-five percent had received case management on average of 10 times since discharge. Four consumers attended clubhouse and two received clozapine management regularly. Two consumers were reported receiving treatment for substance abuse, but another was in group therapy. One of the three was in a residential treatment program. Only two consumers were in a vocational program, and only three were attending a mutual help group.

Regarding medical services use. Half of these consumers had been to primary care for medical problems and eight had visited Emergency Rooms for medical treatment. Two consumers had an inpatient hospitalization for a medical condition, one spending over a month.

Table 12. Services Usage (Total Sample)

	Count (Percent) N=20	Total Services For All users	Mean Use Per User	Days	Hours	Minutes
Long-term Inpatient	1 (5%)	1	1.00	4.30		
Acute Inpatient	5 (25%)	5	1.00	2.45		
Crisis Support/ Emergency	5 (25%)	9	1.80	.	.00	39.00
Partial Day/Night Treatment	1 (5%)	30	30.00	.	.00	18.00
Assessment	14 (70%)	16	1.14	.	.00	44.00
Evaluation by Psychiatrist	18 (90%)	28	1.56	.	.00	32.00
Individual Therapy	14 (70%)	123	8.79	.	.00	28.00
Group Therapy	0 (0%)	0	0.00	.	.00	.00
Family Therapy	2 (10%)	3	1.50	.	.00	4.00
Medication Management	18 (90%)	73	4.06	.	.00	16.00
Medications	18 (90%)	307	17.06	.	.00	9.00
Primary Care Visits for Mental Health	2 (10%)	7	3.50	.	.00	7.00
Clozapine Support	2 (10%)	16	8.00	.	.00	1.00
Case Management	15 (75%)	149	9.93	.	.00	15.00
Clubhouse	4 (20%)	82	20.50	.	1.00	.00
24 Hour Residential Care	6 (30%)	6	1.00	39.35		
Non-24 Hour Residential Care	2 (10%)	181	90.50	9.15		
Substance Abuse Services						
Assessment	2 (10%)	3	1.50	.	.00	9.00
Inpatient	0 (0%)	0	0.00	.	.00	.00
Residential Treatment	1 (5%)	1	1.00	8.05		
Outpatient Methadone	0 (0%)	0		.	.00	.00
Individual Therapy	1 (5%)	21	21.00	.	.00	3.00
Group Therapy	3 (15%)	322	107.33	.	.00	17.00
Medication/ Somatic	0 (0%)	0	0.00	.	.00	.00
Acupuncture	0 (0%)	0	0.00	.	.00	.00
Detoxification	0 (0%)	0	0.00	.	.00	.00
Rehabilitation Services						
Vocational Program other than clubhouse	2 (10%)	7	3.50	.	.00	6.00
Support Services						
AOD Self-Help or Mutual Help Groups	3 (15%)	209	69.67	.	.00	12.00
MH Consumer Operated Self Help	1 (5%)	1	1.00	.	.00	5.00
Medical Services						
Primary Care Visits for Physical Health	10 (53%)	32	3.20	.	.00	22.00

	Count (Percent) N=20	Total Services For All users	Mean Use Per User	Days	Hours	Minutes
Emergency Physical Health Visits	8 (40%)	20	2.50	.	2.00	.00
Non-Mental Health Pharmacy	12 (60%)	317	26.42	.	.00	16.00
Medical Inpatient	2 (10%)	2	1.00	.	10.00	24.00
Specialty Non-Mental Health Medical Services	5 (25%)	15	3.00	.	.00	16.00

7. Level of Care Utilization System For Psychiatric and Addiction Services (LOCUS)

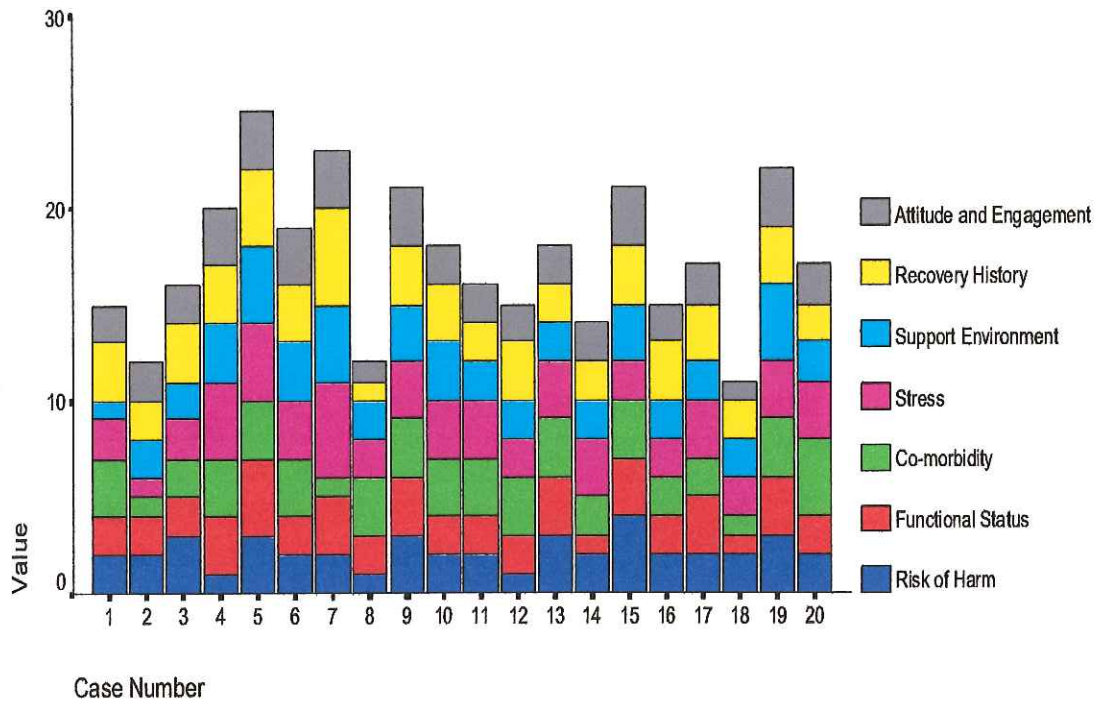
Seven of the cases from Phase I (subjects 1-12) and six from Phase II (13-20) were discharged from the hospital to independent residences, though two of these were living in subsidized housing. One case was discharged to jail and 4 patients from Phase I and 2 patients from Phase II were discharged to community residential treatment programs. In this sample, ten subjects were discharged to outpatient care reflecting 5 each from Phase I and II. Five participants were discharged to non-secure residential and 2 to secure residential facilities. The majority of cases (N=8, 67%) in Phase I were discharged to a higher level of care than recommended by LOCUS while in Phase II only one subject was discharged to a higher level of care. Forty-five percent (N=9) of the total participants were discharged to a higher level of care. The LOCUS recommendation matched the hospital placement in two cases (17%) in phase I and in 5 cases (62.5%) in phase two. Thirty-five percent of the total sample matched the LOCUS recommendation. Eighty percent of the participants were discharged to an equal or higher level of care than recommended by LOCUS. One case (8%) in Phase I and two cases (25%) in Phase II for a total of 3 cases (15%) were discharged to a lower level of care than recommended by LOCUS. One of the subjects in Phase II scored high on the risk parameter of the LOCUS and thereby merited a secure residential placement. These findings are presented in Table 13. Phase I data is reflected in subjects 1-12 and Phase II data subjects 13-20. Graph 7 depicts the LOCUS dimensions for each case.

Table 13. LOCUS Recommended Level of Placement vs. Actual Post-Discharge Placement

ID	LOCUS Recommendation	Placement after discharge	Placement compared to LOCUS
1	Outpatient	PACT (Intensive Outpatient)	Higher
2	Recovery Maintenance	Outpatient	Higher
3	Outpatient	Non-secure Residential	Higher
4	Intensive Outpatient	Non-secure Residential	Higher
5	Non-secure Residential	Secure Residential	Higher
6	Intensive Outpatient	Outpatient	Lower
7	Non-secure Residential	Secure Residential (Jail)	Higher
8	Recovery Maintenance	Outpatient	Higher
9	Intensive Outpatient	Intensive Outpatient	Agree
10	Outpatient	Non-secure Residential	Higher
11	Outpatient	Outpatient	Agree
12	Outpatient	Outpatient	Agree
13	Intensive Outpatient	Outpatient	Lower
14	Outpatient	Outpatient	Agree
15	Secure Residential ¹	Outpatient	Lower
16	Outpatient	Outpatient	Agree
17	Intensive Outpatient	Non-secure Residential	Higher
18	Recovery Maintenance	Recovery Maintenance	Agree
19	Non-secure Residential	Non-secure Residential	Agree
20	Intensive Outpatient	Intensive Outpatient	Agree

¹ Although the LOCUS instrument would place this individual as needing a Secure Residential Placement, the clinician conducting the interview believed that outpatient placement was the clinically appropriate placement for this individual.

Graph 7. LOCUS dimensions



Note: High Scores Indicate poor prognosis and need for more secure placement.
 Note: Subject 15 needed secure residential due to a high score on the risk assessment parameter.

8. Correlations among instruments

Pearson product moment correlations were computed for the major variables of the study. The correlation matrix is provided in Appendix A. Age was inversely correlated with the MHSIP total satisfaction score (-.46, p=. 05) indicating that the older the person the less satisfied with services at follow-up. Education was correlated with the follow-up GAF score (.52, p=. 02), indicating that the more education one had, the higher the GAF score at follow-up. Education was also inversely correlated with the PANSS Total score (-0.44, p=.05).

PANNS was inversely correlated with the follow-up GAF score (-.81, p=. 000), the MCAS total score (-.65, p=. 000), and the SF-36 mental health score (-.61 p=. 000), indicating the more

symptoms scored on the PANSS the lower the functioning as measured by the GAF, the MCAS and the SF-36. The PANSS was directly correlated with the LOCUS recommendation (.77, $p=.000$), indicating that the more symptoms scored on the PANSS the higher the level of care needed as assessed by LOCUS. The LOCUS was inversely correlated with the GAF at follow-up (-.86, $p=.000$) and the MCAS total score (-.0.61, $p=.00$).

V. Limitations

It should be recognized that this study was conducted in order to obtain an objective assessment of the placements of persons recently discharged from Virginia state facilities. Therefore, in order to protect against possible biasing of the sample, the case managers for the cases were not initially contacted to become involved in the study. Contact with the subjects for purposes of this study was initiated and carried out solely by the evaluation team. However, contacting mental health clients who had been formerly inpatients at a state facility was found to be more difficult than estimated in the planning stages. As will be seen below, the plan to directly contact cases, without involving the case manager, made establishing contact with this vulnerable population very challenging. In order to provide a more in-depth look at the circumstances involved in attempting to contact cases, the project coordinator wrote up a series of vignettes from her field notes of activities and situations involved in the process. Vignettes from the field notes are provided later in this document.

Studies following the seriously mentally ill post discharge usually have problems with low rates of location and participation. For instance, a recent study of inpatients discharged to rural areas (Barry, Fleming, Greenely, Kropp, Widlak, 1999) reported that 17 percent of the sample refused to participate, and 20 percent were unavailable due to lack of complete data. Young, Grusky, Jordon, Belin (2000) in attempting to examine outcomes for severely mentally ill patients discharged from state facilities found that 31% were lost to follow-up. Hawthorne et al., (1999), comparing residential treatment to inpatient treatment, reported over 50% of the sample lost to follow-up.

A. Sample Size

The main limitation of this study is the small sample size. There were many issues that made the recruitment of patients difficult including: confidentiality concerns, patients lost to follow-up, and specific patient variables common to this study population.

I. Problems with contacting the subjects:

Patient Protection/Confidentiality Issues With CSB's. At the time a client agreed to be interviewed, the CSB of the client was notified of the project by the SRMHRC and a request was made for an interview room for the study from that CSB. In three cases, the staff at community services boards were reluctant or refused to facilitate the study, voicing concerns about the confidentiality of the patients. This delayed one interview, cancelled another and caused another to be conducted in the patient's home without access to information from the case manager or the CSB chart. The action of the community services boards staff demonstrated earnest efforts to protect vulnerable clients.