

An Evaluation of
THE COMMUNITY
TRANSITION
PROGRAM:

Psychiatric
Rehabilitation for
People with Severe,
Disabling, and
Treatment Resistant
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in Nebraska's Health &
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February 2005

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EXECUTIVE SUMMARY

This report is a initial analysis of a comprehensive database spanning 8 years that was constructed for the purpose of evaluating the effectiveness of the Community Transition Program. The evaluation results herein describe the recipient population, changes in functioning during treatment, and the outcomes after discharge from treatment.

The Community Transition Program (CTP) at the Lincoln Regional Center (LRC) in Lincoln, NE is a 40-bed inpatient unit serving individuals with severe mental illness (SMI) in the state of Nebraska. The program participants represent a particularly severe and treatment refractory subpopulation of individuals with SMI. The CTP hosts a state-of-the-art comprehensive psychiatric rehabilitation program.

Summary of Program Evaluation Results.

The CTP serves a severely disabled population:

- High number of previous hospitalizations
- Significant history of aggressive or abusive behaviors towards others or self
- 90% diagnosed with a schizophrenia spectrum disorder
- High comorbidity with Axis II personality disorders
- High comorbidity with substance abuse
- Moderate to profound cognitive impairments

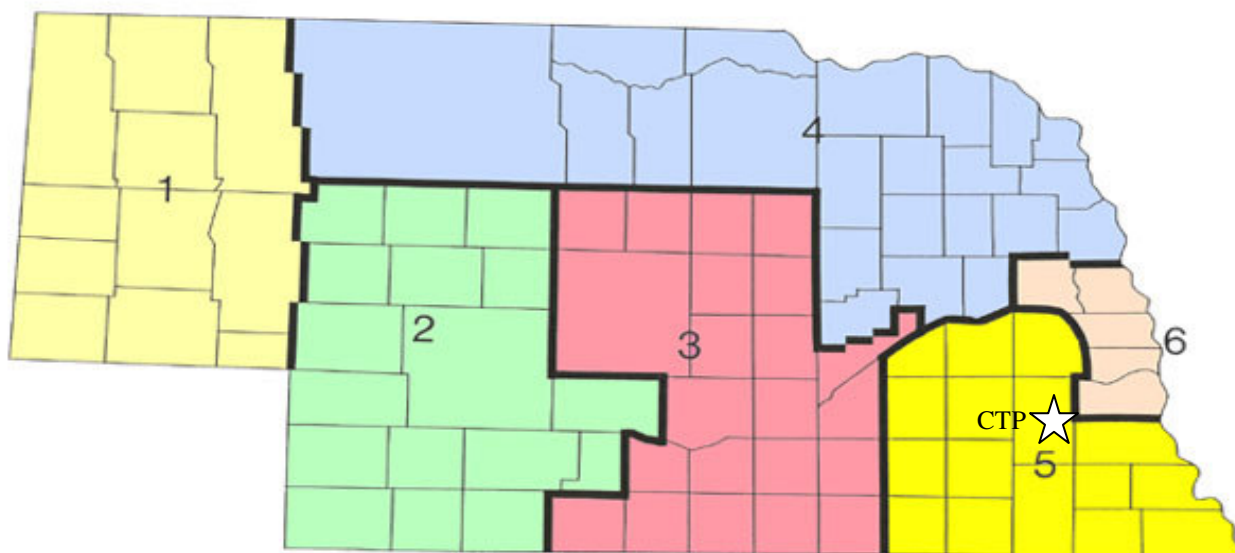
Changes in functioning occur over the course of treatment:

- Improvements in skills necessary for independent functioning (e.g., grooming & hygiene, money management, cooking, keeping a daily schedule)
- Improvements in occupational skills
- Improvements in social functioning (e.g., social interest, interpersonal skills)
- Improvement in understanding and management of one's own psychiatric condition
- Decreases in irritability and psychotic behaviors
- Improvement in cognitive functioning

Favorable outcomes following discharge are evident:

- Individuals discharged to less restrictive, lower intensity settings
- Decrease in recidivism as measured by a decrease in the number of days spent in hospital 2 years after treatment as compared to 2 years before treatment
- Significant number of individuals with *no* rehospitalizations 2 years following treatment
- For those who are rehospitalized, lower number of hospitalizations after treatment

The Office of Mental Health, Substance Abuse, and Addiction Services lies within the Nebraska Health and Human Services System. There are six Behavioral Health regions in Nebraska. Each has its own regional governing board which plans, organizes, directs, and coordinates local service systems of mental health and substance abuse within their respective geographical region. This map shows the 6 Nebraska Regions.



Behavioral Health Regions

The Community Transition Program at the Lincoln Regional Center lies within Lancaster County in Region 5. However, people are referred to the CTP from other services statewide.

There are 3 regional centers serving the state of Nebraska. Currently, Nebraska is undertaking a comprehensive reform of its Health and Human Services System. The reform in the state directs the closing of 2 of these regional centers, consistent with intentions to reduce institution-based services. Ultimately, the reform intends to increase community-based services. Policy-planning is currently in a stage of careful analysis in order to accurately estimate the need for community services.

Consistent with efforts to establish effective community services for people with severe mental illnesses, a sister program to the Community Transition Program was established in 1998. The **CTP at the Heather** is a 15-bed intensive rehabilitation program designed as a step down from the state hospital system. For administrative purposes (e.g., Medicaid reimbursement), it is classified as a *psychiatric residential rehabilitation* program. While this report focuses on the inpatient CTP program rather than the community-based program, it is important to acknowledge that the 2 programs together represent a continuum of mental health services geared towards assisting people achieve their goals and transition to less restrictive settings. *For the interested reader, an evaluation which parallels this document has been completed for CTP-H and is available by request.*

THE COMMUNITY TRANSITION PROGRAM AT THE LINCOLN REGIONAL CENTER

Origins. In collaboration with the Psychology Department of the University of Nebraska – Lincoln, a psychiatric rehabilitation program was developed which, by 1989, was recognized as “state of the art” by a review team from the National Institute of Mental Health. Over the years, CTP has been named the “Comprehensive Care Unit” and “Extended Care Program.”

Models. The CTP uses a *Psychiatric Rehabilitation & Recovery* treatment model which includes technologies from rehabilitation research centers at UCLA, Boston University, and the Missouri mental health system, as well as a number of modalities which have been developed in Lincoln. The treatment regimen includes pharmacotherapy, psychoeducational groups and classes to target improved management of symptoms and disorder, and training aimed at increasing occupational, leisure, and social skills. The treatment is designed to target multiple levels of functioning for individuals with severe mental illness. In addition, program participants are encouraged to be active members of their own treatment team for the purpose of increased engagement in treatment. Hence, the CTP refers to patients as “participants” instead of patients.

Mission & Recipient Population. For the first several years of its operation, the primary mission of the CTP was to return to the community people who had been institutionalized for many years. The CTP was so successful at this that the proportion of chronically institutionalized patients in the recipient populations has decreased substantially. Today, the CTP pursues the same mission of returning to the community people whose behavioral functioning would otherwise create significant safety risks in less restrictive functioning. However, the proportion of individuals with “chronic deinstitutionalization syndrome” is considerably lower now than in 1982, and there is a greater proportion of patients whose community functioning is limited by the sheer severity of their psychotic symptoms, by the dangerousness of their behavior problems, and by medical complications attendant to their psychiatric disorders. The current population includes a high proportion of patients who are minimally responsive to antipsychotic medication. The adjectives which best describe the CTP recipients today include *severely disabled, severely cognitively impaired, treatment resistant, and dangerous to self or others.*

CTP & the Mental Health System. Availability of advanced rehabilitation technology in community settings and forensic settings would change the role and mission of the CTP. In anticipation of this, CTP program development plans envision an expansion of services beyond the current medium-security institutional environment into both higher- and lower-intensity settings.

CTP ADMISSION CRITERIA

INCLUSION CRITERIA:

- Meets criteria for severe and persistent mental illness
- Treatment resistant; history of failure in all other available settings
- Currently unable to function safely in less restrictive setting

EXCLUSION CRITERIA:

- Acute medical instability requiring more intensive medical setting
- Acutely assaultive or suicidal requiring high security setting
- Severely or moderately developmentally disabled, mental retardation
- Primary diagnosis of substance abuse (not dual diagnosis)

TYPICAL CHARACTERISTICS:

- Involuntary, history of treatment noncompliance
- Continuously institutionalized since onset
- Poor response or refractory to antipsychotic medication
- Severe “revolving door” syndrome, multiple short hospitalizations
- Medical complications, e.g. brittle diabetes, complications of eating disorders and polydipsia (water intoxication)
- Comorbidity with substance abuse, dementia, antisocial & borderline personality disorder

WHAT IS PSYCHIATRIC REHABILITATION?

Psychiatric rehabilitation has emerged as a comprehensive approach for treating severe mental illness, organizing a diversity of treatment modalities for the purpose of addressing multiple impairments, providing combinations of treatments, and overcoming disabilities. From its beginnings four decades ago (e.g., Anthony, Buell, Sharratt, & Althoff, 1972; Paul & Lentz, 1977), psychiatric rehabilitation has evolved along with the specific technologies it incorporates toward an increasingly complex but integrated approach (for recent reviews, see Spaulding, Sullivan, & Poland, 2003; Wallace, Liberman, Kopelowicz, & Yeager, 2001). Psychiatric rehabilitation is closely associated with *the recovery movement*, a worldwide social movement that seeks to reverse the stigma of schizophrenia, empower consumers, push clinical technology beyond simplistic “medical model” treatment of psychotic symptoms, and define recovery as the ultimate outcome criterion (Anthony, Cohen, & Farkas, 1999). In this context, recovery means overcoming the functional disabilities of severe mental illness and achieving the best possible quality of life. The recovery perspective on severe mental illness has become a key component in national health policy (President’s New Freedom Commission on Mental Health, 2004; U.S. Department of Health and Human Services, 1999). Psychiatric rehabilitation provides clinical methods and technologies for helping people achieve recovery.

DESCRIPTION OF THE DATA

Overview.

The database utilized was compiled to study people's progress through the mental health system and for the purpose of program evaluation. It was made possible through funding awarded to Myla Browne, M.A. in the form of an NRSA predoctoral fellowship from NIMH. The database was constructed utilizing archival clinical data from the Community Transition Program beginning in 1996 and continuing until July 2003. The clinical database was constructed to be part of a future data archive which has recently been compiled. The construction of this database was approved by the Institutional Review Board (IRB) at the University of Nebraska-Lincoln (UN-L) and the parallel review committees at LRC.

Participants.

The database contains comprehensive clinical data on 146 people admitted to CTP. This constitutes every admission to the program during the time period from 1996 to July 2003. Every admission met the aforementioned CTP admission criteria (see pg. 8). The data was archival in nature, collected as part of routine procedures at the CTP, meaning no active research participation by human subjects was required for this evaluation.

Clinical Data/Measures.

The CTP conducts comprehensive assessment across a wide variety of domains routinely as part of ongoing treatment planning. The domains assessed include symptomatology, performance on activities of daily living, neurocognitive functioning, social skills, leisure skills, occupational skills, general medication and rehabilitation compliance, insight into mental illness, as well as monitoring individual behavioral management programs and performance in groups and classes.

Data Collection.

As part of the NRSA fellowship described above, Myla Browne compiled the data. The data had been previously collected by interdisciplinary staff from nursing, social work, psychology, occupational and recreational therapy, as well as general milieu technicians. Data is collected throughout the person's stay at CTP in order to assist in treatment planning as well as continually to assess progress.

Data Analysis.

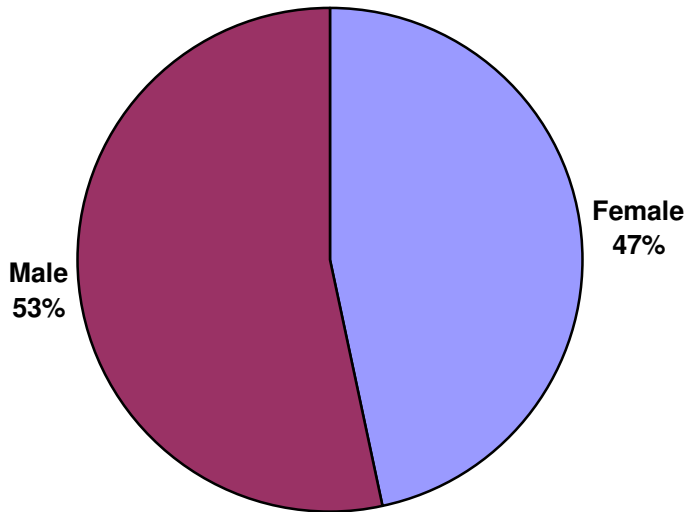
Analyses of the comprehensive database are ongoing. A more extensive analysis of the data is anticipated to be completed in Spring 2005 as the doctoral dissertation of Myla Browne, M.A. Preliminary analyses of this database were conducted for the purpose of this report by Thea Rothmann, M.A.

Purpose.

The purpose of the current report is to describe the population served by the CTP and to evaluate the outcomes of program participants with regard to overall functioning, discharge, and rehospitalization.

..... WHO ARE WE SERVING?

Figure 1. Gender of Individuals Served at CTP (N=146)



The Community Transition Program (CTP) serves 40 men and women at any given time. As seen in Figure 1, from 1996 to July 2004 the CTP program admitted approximately equal numbers of men (N=78) and women (N=68).

The average age at intake for CTP participants is 39.52. Participants range in age from 19 to 65. The largest age group served by CTP is those between the ages of 40 and 44 (See Figure 2).

The average age of women at the time of intake into the program is 39.78 and the average age of men is 39.16.

Figure 2. Distribution of Age & Gender of CTP Participants (N=145)

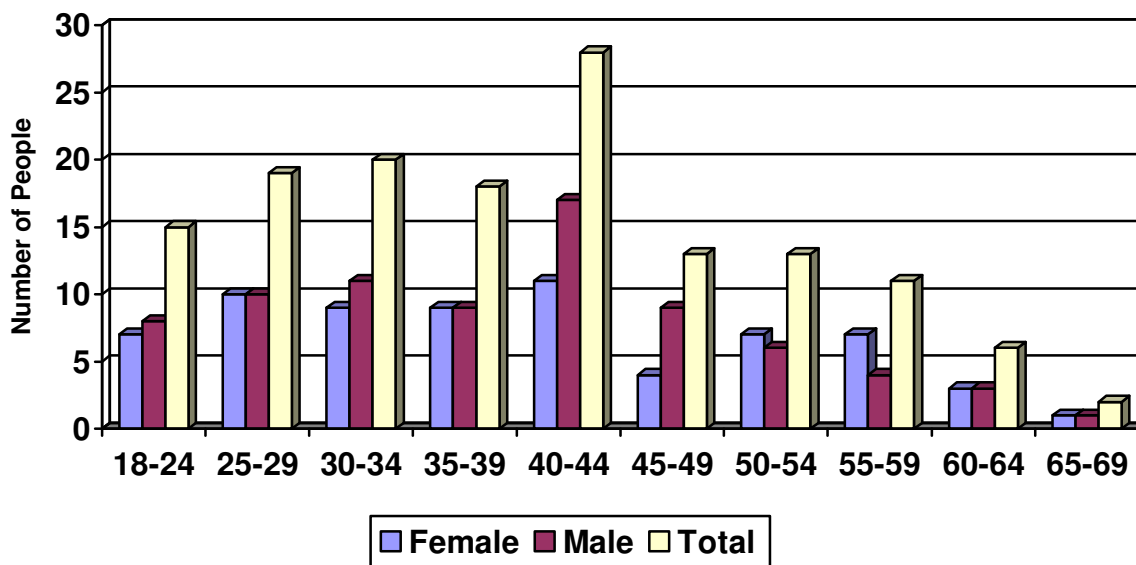
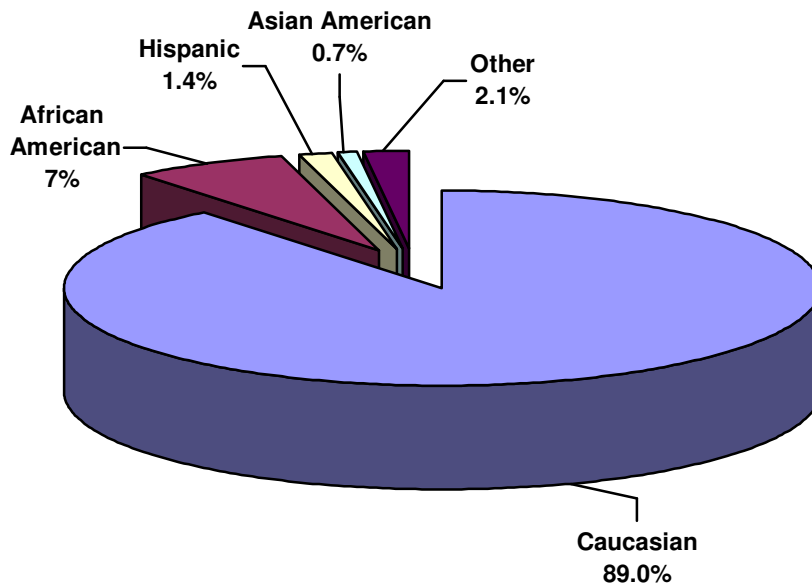


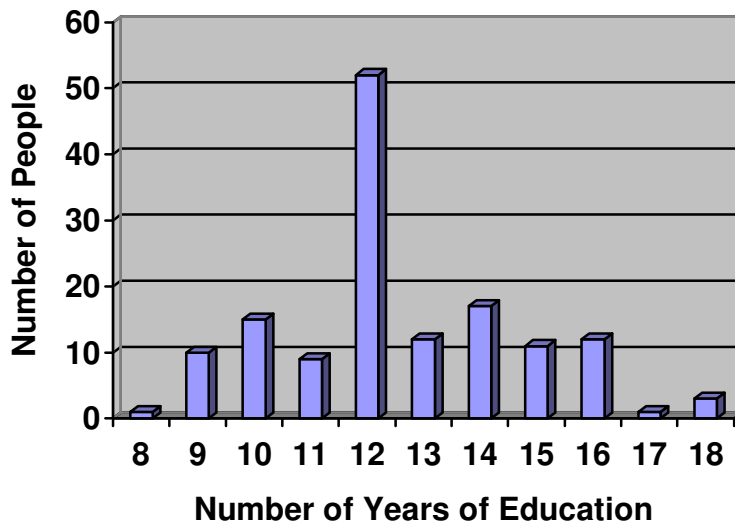
Figure 3. Race/Ethnicity of People Served at CTP (N=146)



Race/ethnicity statistics from the CTP program participants are reported in Figure 3.

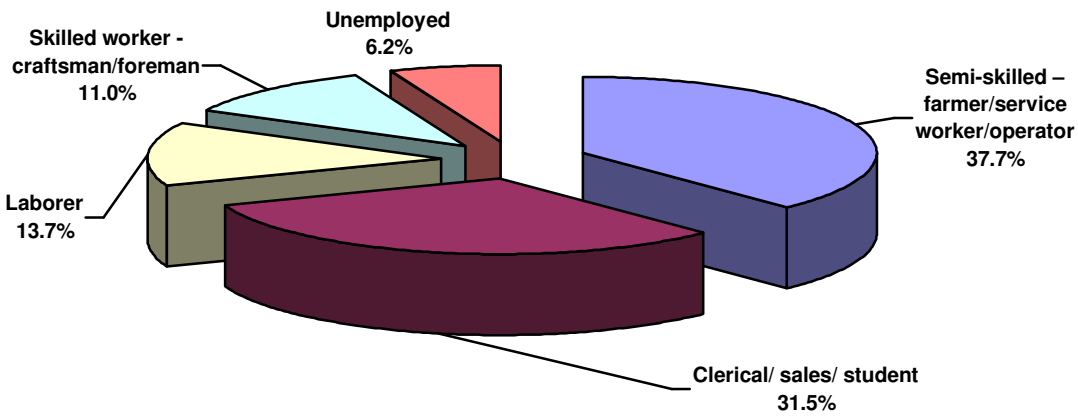
Racial distribution among CTP participants is largely consistent with statewide demographics. According to the 2000 U.S. Census data, 89.6% of Nebraskans are Caucasian., 5.5% are Hispanic or Latino, 4.0% are African American, 1.3% are Asian, 0.9% are Native American, and another 4.2% are biracial or some other race (Total >100% due to people of Hispanic decent being included in multiple race categories). CTP demographic data indicate that there are slightly more African Americans represented in the CTP program and slightly fewer Hispanic and Native American people than what is characteristic of statewide demographics.

Figure 4. Educational Attainment of CTP Participants (N=143)



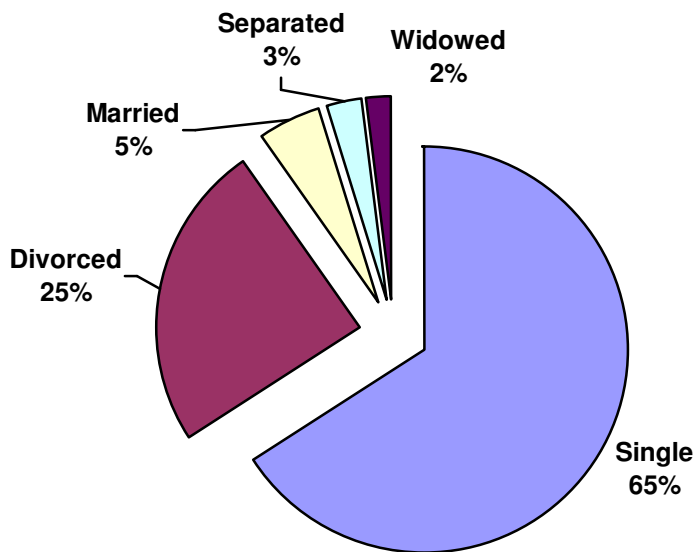
CTP program participants average 12.54 years of education, with a minimum of 8 years of education and a maximum of 18 years (See Figure 4). Those with 12 years of education include 30 people who have attained their General Equivalency Degree (GED). Some people were involved in special education (N=19, 13.1%).

Figure 5. Highest Level of Occupation Previously Achieved by CTP Participants (N=146)



Only 6% of people admitted to the CTP program have no history of employment (See Figure 5). A majority of people have been employed in some capacity. However, the figure shown here does not fully depict the employment history of people admitted to the program. The number of years of employment in each person’s highest occupational level is not shown here. Generally speaking, many people admitted to the CTP program have variable work histories with difficulty maintaining consistent employment. As such, occupational therapy is a core component of the CTP rehabilitation program.

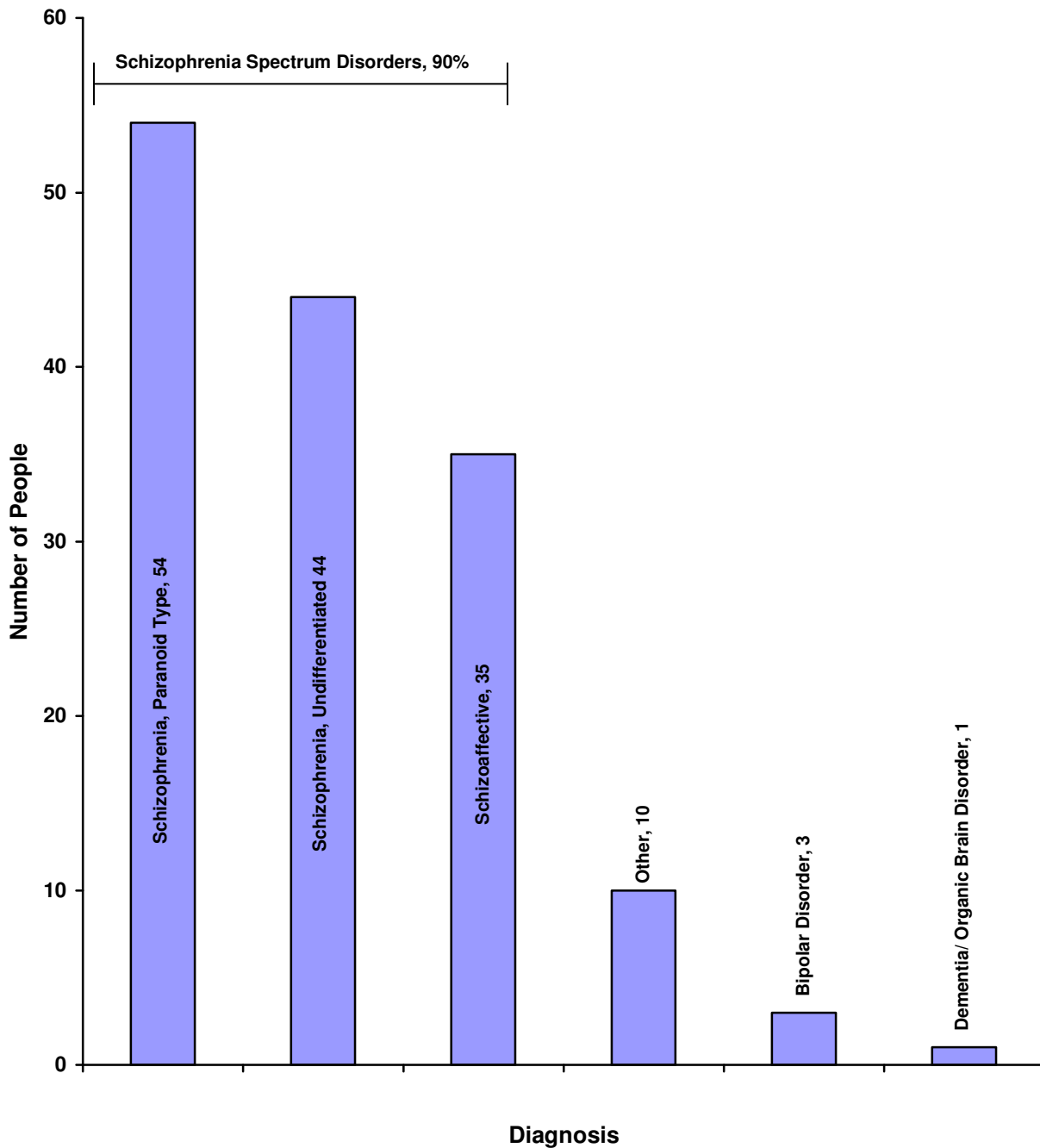
Figure 6. Marital Status of CTP Participants (N=145)



Most people admitted to the CTP program are single (See Figure 6). Since severe mental illness is characterized by difficulties in social functioning and onset of illness typically occurs in late adolescence or early adulthood, it is anticipated that many people will not have significant relationship histories or the skills to maintain significant relationships. In addition, 25% of people admitted to the program are divorced and an additional 3% are separated, highlighting the difficulty associated with maintaining significant relationships for people with severe mental illness. As such, intervention strategies such as social skills training and family therapy are included in the CTP rehabilitation program.

The CTP population largely includes people with schizophrenia spectrum disorders (See Figure 7). Approximately 90% of individuals admitted to the program have a primary Axis I diagnosis a schizophrenia spectrum disorder (i.e., Schizophrenia, Paranoid Type - 36%, Schizophrenia, Chronic/ Undifferentiated Types - 30%, or Schizoaffective Disorder - 24%). Despite the large number of people who fall within similar diagnostic categorizations, treatment in the CTP program is highly individualized. This is in large part due to the fact the treatment plans are designed to address individual problems and functional deficits identified using thorough interdisciplinary assessment at the time of admission.

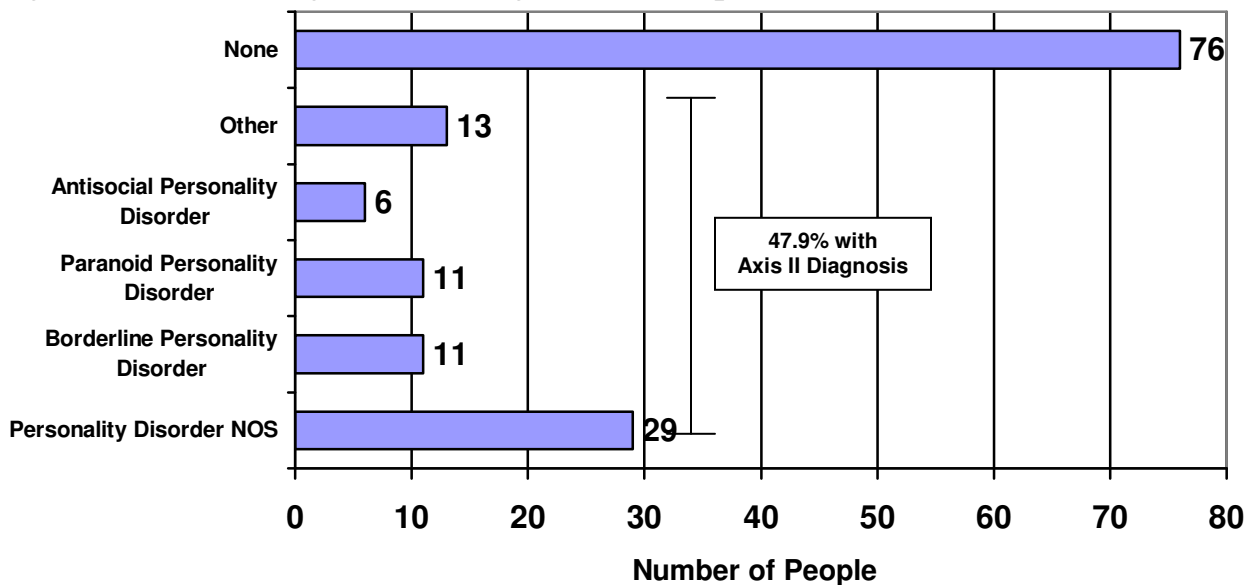
Figure 7. Primary Axis I Diagnoses of CTP Participants (N=147)



Comorbidity, or having more than one diagnosis, is highly characteristic of people with severe mental illness. Among CTP participants, 34.8% of people have a secondary Axis I diagnosis

- The most frequent comorbid diagnosis in this population is substance abuse. Indeed, 28% of people at CTP have a secondary Axis I diagnosis of substance abuse or substance dependence. This percentage is actually lower than may be expected within a severely mentally ill population. This lower percentage may be attributed to less substance use for those with high levels of institutionalization due to the inaccessibility of substances. Still, only a little less than half (42.4%) have no history of substance abuse, which indicates that many people do not receive an official diagnosis of substance abuse despite significant history of substance abuse.
 - 9.7% had histories of alcohol abuse upon admission
 - 46.5% had a history of using a combination of substances including alcohol, marijuana, cocaine, methamphetamines, and IV drugs
 - 1.4% had a history of abuse of a substance other than those listed above
 - 42.4% had *no* history of substance abuse
- An additional 1.5% have a secondary Axis I diagnosis of Post Traumatic Stress Disorder.
 - 7.7% had a history of physical abuse
 - 13.4% had a history of sexual abuse
 - 7% had a history of neglect
 - 18.3% had a history including a combination of physical abuse, sexual abuse, and neglect
 - 59.9% did not have a documented history of abuse or neglect
- Another 5.3% of people have some other secondary Axis I diagnosis.

Figure 8. Axis II Diagnoses Among CTP Participants (N=146)



In addition, 47.9% of CTP program participants also have an Axis II diagnosis (See Figure 8), including Borderline Personality Disorder, Paranoid Personality Disorder, and Antisocial Personality Disorder.

The average age at illness onset for CTP program participants is 20.3 years. According to social histories completed by each individual's social worker at the time of admission, the earliest psychiatric hospitalization and/or institutionalization was at the age of 4* and the latest at 50 years of age. Some people have a slow, progressive onset of illness, while others have a rapid illness onset. Among CTP participants, there is a roughly equal distribution between these two types, with 50.8% (N=65) having a slow, insidious onset and 49.2% (N=63) having a rapid onset.

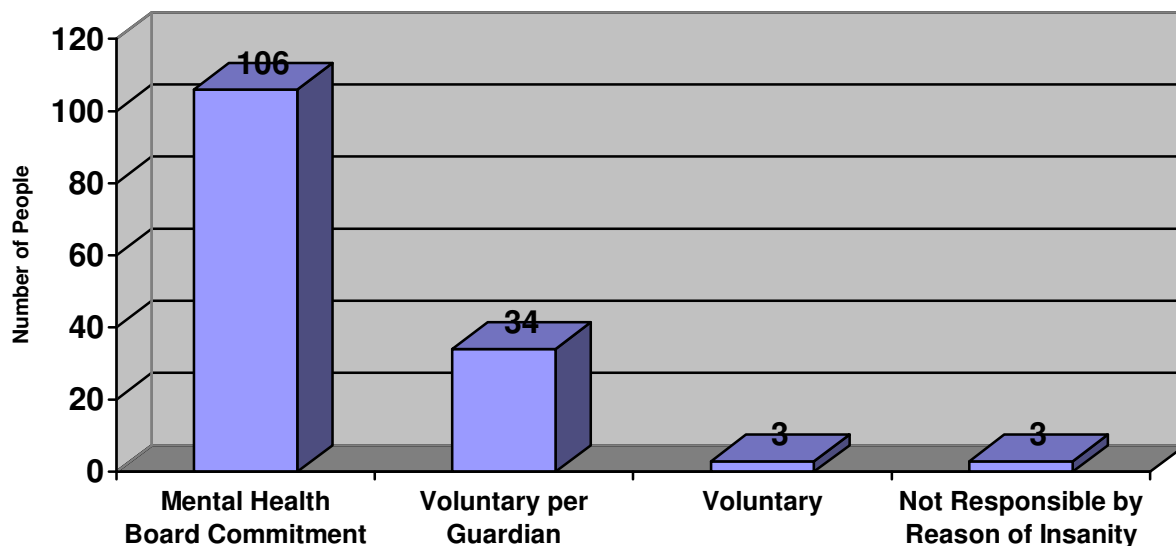
While age of onset typically occurs in late adolescence or early adulthood, as is the case with CTP program participants, premorbid characteristics of illness are often evident at an earlier age. For example, 59.0% (N=82) of CTP program participants had behavioral problems evident in adolescence or earlier.

At least 17.1% (N=25) of people in the program have a history of being verbally aggressive or abusive while 68.5% (N=100) have a history of being physically aggressive or abusive. Approximately 14.4% (N=21) of CTP program participants have no history of being verbally or physically aggressive or abusive.

In addition, many program participants are aggressive or abusive towards themselves. At least 51.4% (N=75) of people have attempted to harm themselves and an additional 17.1% (N=25) have reported ideation of self-harm or suicide. A third of people admitted to the program (31.5%, N=46) have no history of self-harm ideation or attempts.

Because of these high rates of dangerousness towards self and others, most people are admitted to the program following civil commitment (See Figure 9). For each individual in the CTP program who is admitted Voluntary per Guardian (21.9%), more than 3 times as many are civilly committed by the Mental Health Board of Nebraska (70.5%).

Figure 9. Legal Status of CTP Participants (N=146)

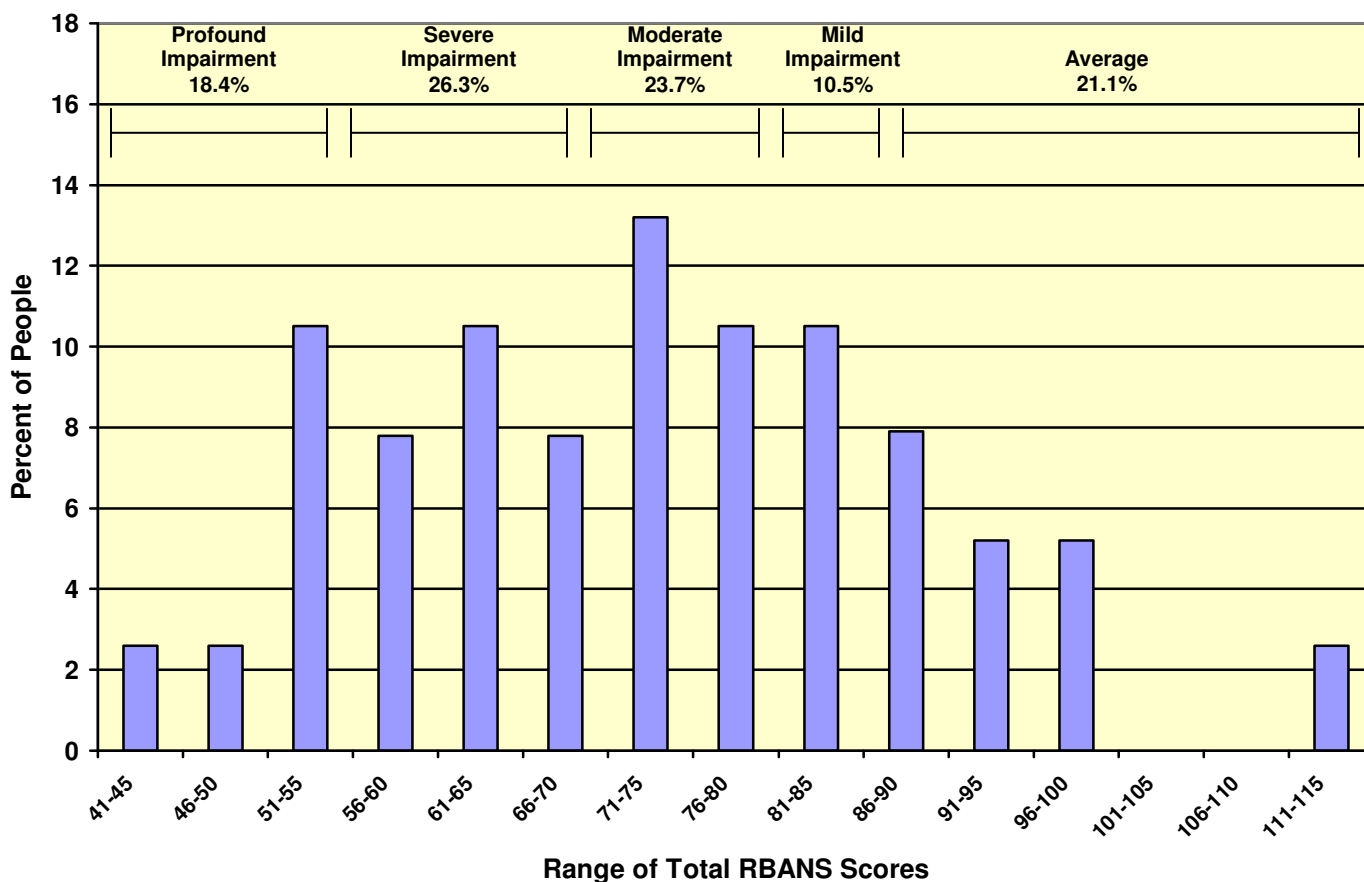


* In Nebraska, psychiatric diagnosis can function to disqualify an individual for developmental disability services, so the average age of onset in the SMI population is sometimes unusually low.

People with severe mental illness often have accompanying cognitive difficulties. At the CTP, comprehensive neuropsychological assessment is conducted with each participant at least every six months. The assessment battery is frequently updated to include the most state-of-the-art measures. As such, the number of people with data for any given measure is lower than in other areas of this report because at different time periods, different measures were used. One such cognitive measure is the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS; Randolph, 1998) which was added to the assessment battery in 2001. It is a brief cognitive screening measure which provides a global index of neuropsychological functioning.

For 38 people, at admission, the average Total RBANS score was 72.39 (range=44 - 111), which is indicative of moderate neuropsychological impairment. The distribution of these scores is illustrated below (See Figure 10). As shown, over 2/3 of the CTP participants in this sample demonstrate moderate to profound impairments, while 1/3 demonstrate average neuropsychological functioning or only mild impairments.

Figure 10. Percent Distribution of CTP Participants' RBANS Total Scores (N=38)



Treatment at CTP is designed to target cognitive impairments. As demonstrated in the figure above, many people starting the program demonstrate impairments. Please refer to the outcomes section of this evaluation for a demonstration of the change in the RBANS Total Scores across treatment (See page 27).

Before admission to CTP, most people have had a significant history of prior hospitalizations. The average number of previous hospitalizations across the lifetime of CTP participants was 8.42 (See Figure 11). Some people have been institutionalized for most of their lives. In fact, 11 people, or 7.3%, have been hospitalized 20 or more times. Likewise, there are few people who have never been hospitalized before coming to CTP. Only 3.3%, or 5 individuals have never been hospitalized before the current hospitalization which led to their CTP stay. While the number of days people have spent in the hospital in their lifetime is too unreliable to obtain accurate data on, the number of days spent in the hospital in the 2 years preceding admission to CTP may be reported reliably (see Figure 12).

Figure 11. Number of Hospitalizations in Lifetime for CTP Participants (N=143)

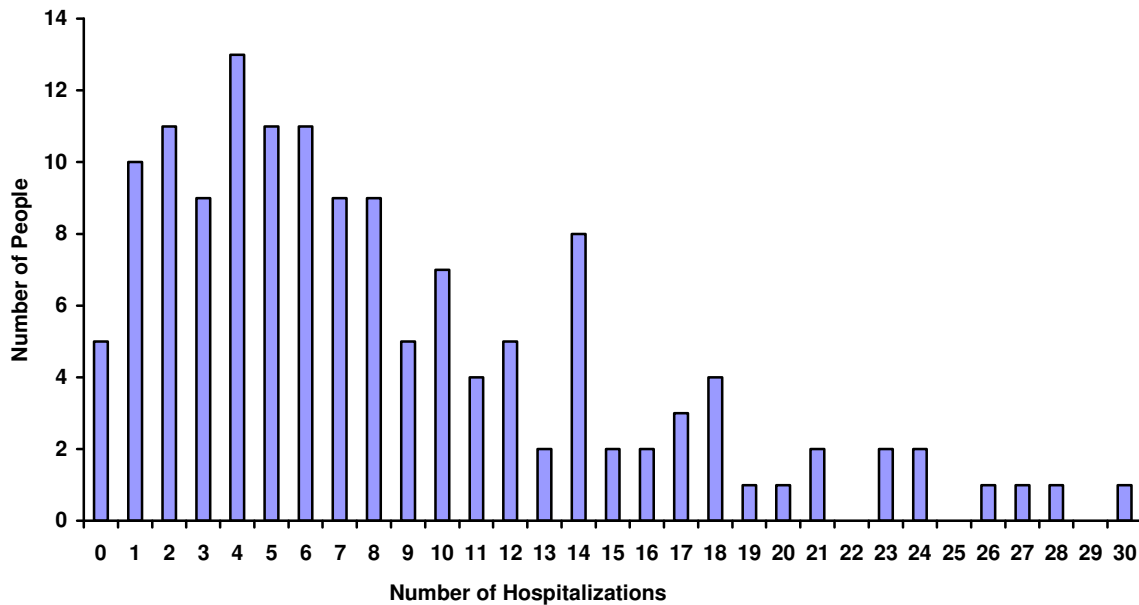
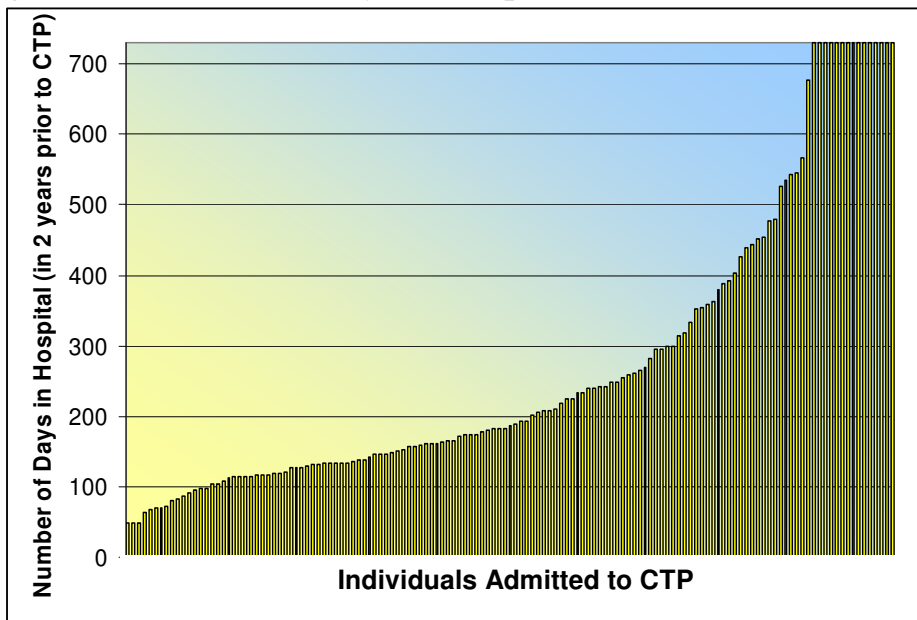


Figure 12. Number of Days in Hospital in 2 Years Prior to CTP Admit (N=143)



People admitted to CTP, on average, spent 227.34 days in the hospital in the 2 years prior to admission (See Figure 11). Fifteen of these people were hospitalized for the entire 2 years (730 days) preceding their admission to CTP. More than half (52.4%) spent 1 out of every 4 days in the 2 years before they were admitted to CTP.

..... WHAT TREATMENT ARE THEY RECEIVING?

Upon admission, each CTP participant undergoes thorough assessment by an interdisciplinary team. These assessments are used in the formulation of individualized treatment plans for each individual. Standards generally dictate that treatment plans include *clinical problems*. Clinical problems are the circumstances or conditions that impair the person's functioning in domains relevant to the service provider. A wide variety of problem titles are used in CTP treatment plans, as seen in Table 1 below. The problem titles are official entries of the master treatment plan and they direct all treatment and rehabilitation activities.

The master treatment plan is developed at the first treatment planning meeting, which occurs within 10 days of admission. At that time, the average number of problem titles per person is 6.66 (range 1 to 16). This indicates that treatment team members are identifying and addressing a large number of separate problems. This is to be expected in this population given their tendency to have multiple presenting problems and vulnerabilities. This also reflects the importance of having highly developed and diverse rehabilitation capabilities.

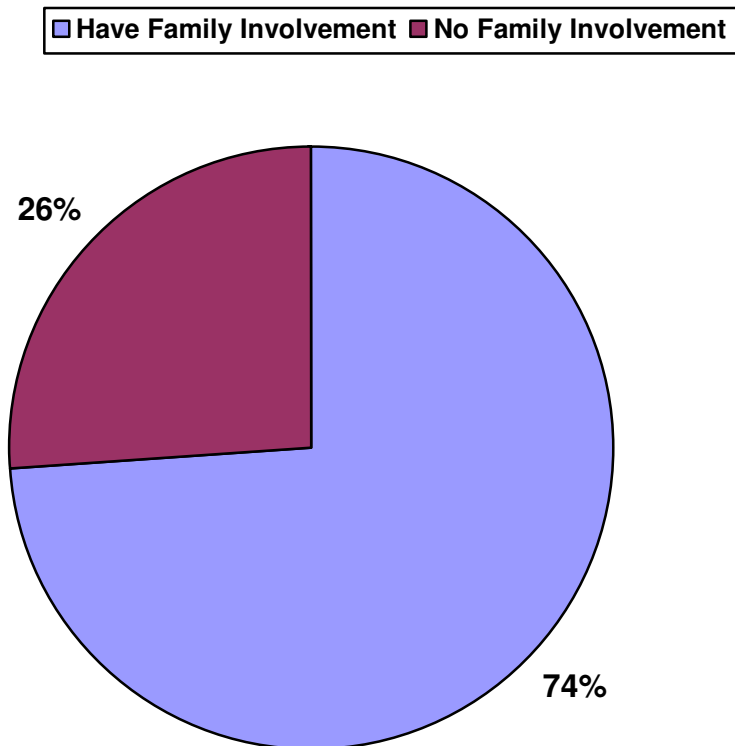
Table 1. Problem Titles on Individual Treatment Plans of CTP Participants (N=119)

<u>Problem Titles</u>	<u>N</u>	<u>%</u>
Leisure Skills Deficit	119	100
CNS Dysregulation	117	98.3
Occupational Skills Deficit	115	96.6
Insufficient Understanding and Management	115	96.6
Unstable Living Situation	109	91.6
Living Skills Deficit	104	87.4
Social Skills Deficit	87	73.1
Rehabilitation Noncompliance	85	71.4
Psychophysiological Dysregulation	57	47.9
Psychotropic Substance Abuse	53	44.5
Physical	44	40.0
Medication Noncompliance	24	20.2
Socially Unacceptable Behavior	23	19.3
Educational Deficit	17	14.3
Cognitive Symbolic Processing Deficit	9	7.6
Self-Destructive Behavior	9	7.6
Crisis Prone Behavior	4	3.4
Dysfunctional Environment	4	3.4
<u>Other Problem Titles:</u>		
Impulsive Behavior, Neuropsychological Cognitive Deficit, Symptom-Linked Attributional Problem, Short-Term Memory Deficit, Continuous Performance Deficit, Inadequate Social Support, Affect-Linked Attributional Problem, Physical Condition Affecting Behavior, Restrictive Legal Status; all N=1 (0.8 %)		

After clinical problems have been defined, the treatment team develops short and long term goals to improve each area of impairment. In doing so, the strengths a person may have in the problem area are identified so that they may be utilized in improving the specific area of functioning. A variety of treatment approaches are included for each problem title which are geared towards helping the individual achieve goals in that particular area. For example, if an individual's treatment plan includes the problem title, "Leisure Skills Deficit," the approaches under this title may include a leisure planning group, hobby development group, and activities group.

The overarching purpose of this complex, interdisciplinary treatment planning is to have all treatment approaches work in concert to help the person recover and maintain recovery.

Figure 13. Involvement of Participants' Family Members During the Course of Treatment at CTP (N=145)

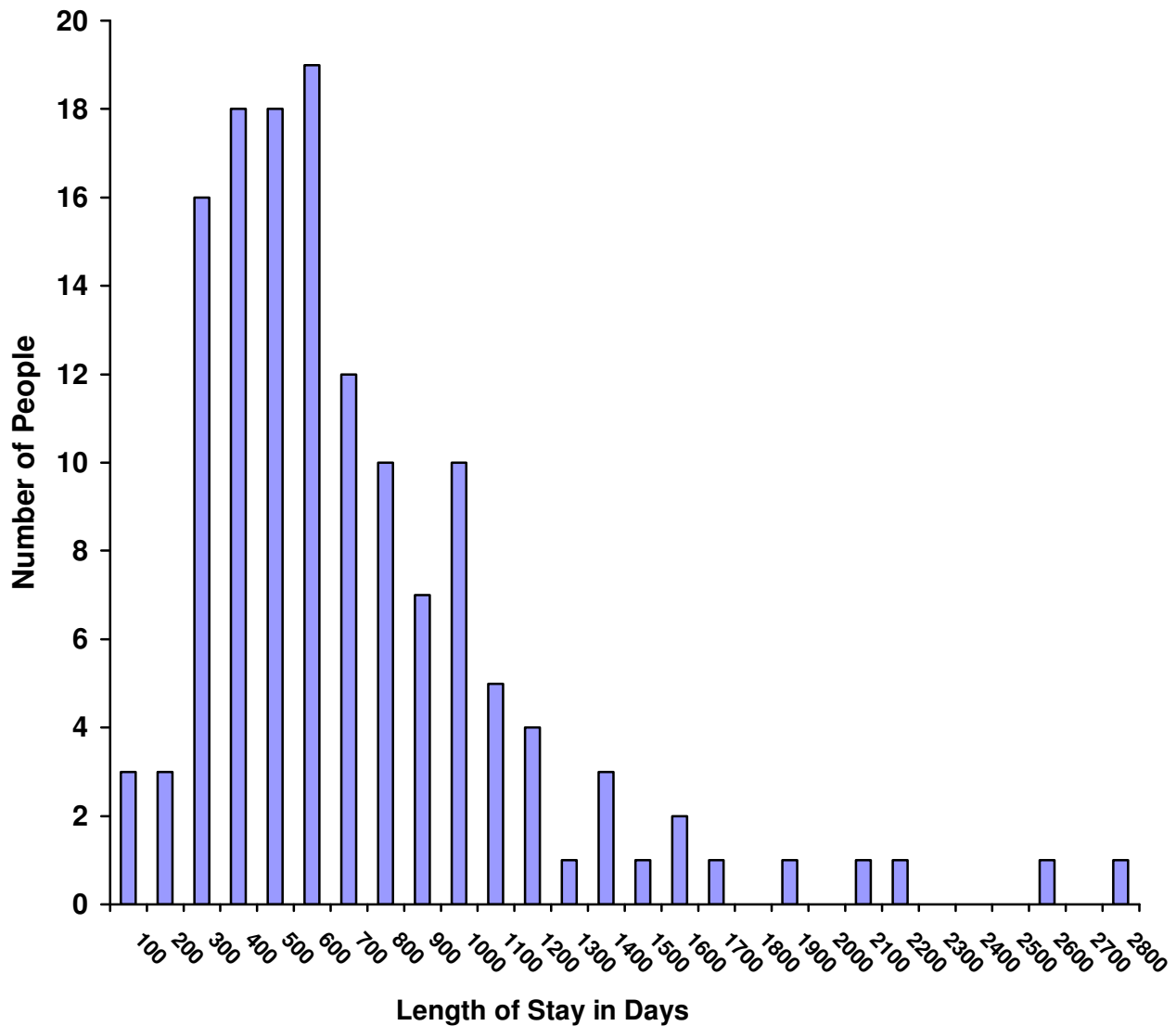


According to social worker reports, while receiving treatment at CTP, slightly over 1 out of every 4 individuals, have *no* family involvement during the course of treatment (See Figure 13). Family involvement means that there is at least minimal involvement in the individual's life. For those who do have family involvement, the level of involvement varies considerably for each individual.

The average length of treatment varies considerably. For people discharged from the program between 1996 to July 2003 (N=145), the average length of stay was 667.1 days, or approximately 1 year and 10 months. However, as seen in Figure 14 below, those requiring the longest period of treatment, bring the average for the entire group higher. Length of stay ranged from 11 days to 2,745 days. The most common length of stay, or modal length of stay, was 531 days, or 1 year and 5 months. A secondary mode emerged at 217 days, or 7 months. This distribution suggests that at least three groups of people emerge based on length of stay: a large group of people whose length of stay is between 1 to 2 ½ years, a slightly smaller group whose length of stay is under a year, and a much smaller group of people whose length of stay is longer than 2 ½ years.

See Appendix A: Length of Stay for a more in depth look at the CTP length of stay data.

Figure 14. Length of Stay at CTP in Days for CTP Participants (N=145)



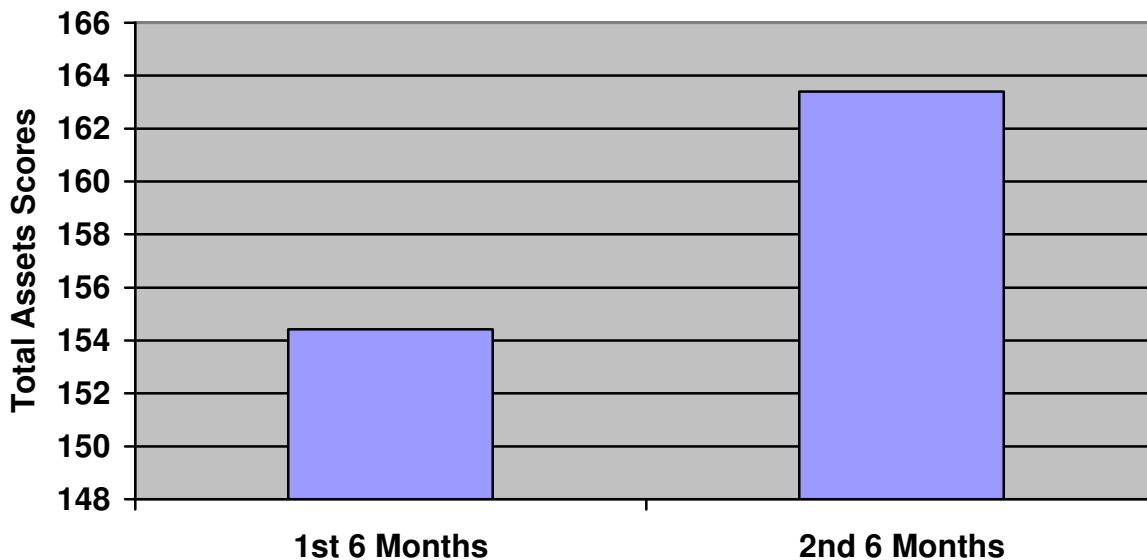
WHAT ARE THE OUTCOMES?

..... WHAT CHANGES DURING TREATMENT?

The Nurses' Observational Scale for Inpatient Evaluation (Honigfeld, Roderic, & Klett, 1966) is a 30-item behavioral checklist which assesses 6 areas of functioning: an individual's daily schedule competence (e.g., "refuses to do ordinary things expected of him or her"), social interest (e.g., "tries to be friendly with others"), neatness (e.g., "keeps clothes neat"), irritability (e.g., "gets angry or easily annoyed"), psychoticism (e.g., "talks, mutters, or mumbles to self"), and motor retardation (e.g., "is slow-moving or sluggish"). Responses range from zero (*never*) to four (*always*). The three adaptive functioning scales (i.e., daily schedule competence, social interest, neatness) are positively weighted and the three maladaptive scales (i.e., irritability, psychoticism, motor retardation) are negatively weighted when determining the total assets score.

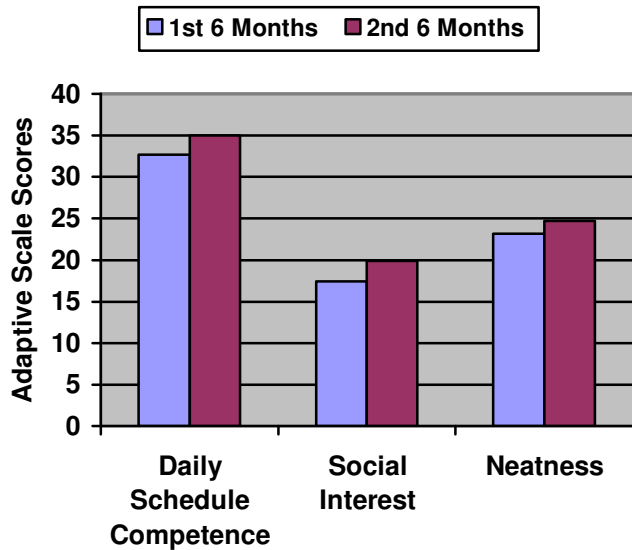
This measure is utilized in routine assessment in the CTP treatment program. The NOSIE is sensitive to daily fluctuations in functioning, but as data points are averaged over time, the NOSIE subscales become reliable estimates of overall functioning. Therefore, comparing averages across extended time periods provides a reliable measure of clinical improvement. For the purposes of this analysis, NOSIE scores were averaged in 6 month time periods.

Figure 15. Change from First 6 Months of Treatment to Second 6 Months of Treatment on NOSIE Total Assets (N=91)



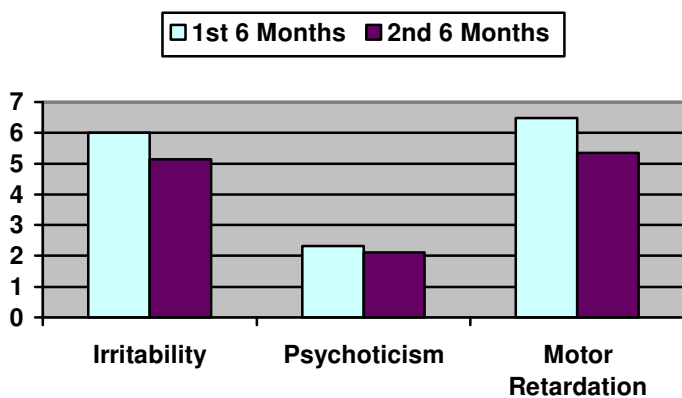
As measured by NOSIE Total Assets score, participants in the CTP program show significant improvement from the first 6 months of treatment to the second 6 months of treatment (See Figure 15). Specifically, the average Total Assets score for 91 participants in the program during the first 6 months of treatment was 154.42 and the second 6 month average for those same 91 participants was nearly 10 points higher at 163.40.

Figure 16. Change from 1st 6 Months of Treatment to 2nd 6 Months of Treatment on Adaptive Functioning Scales of NOSIE (N=91)



On all of the adaptive functioning NOSIE scales, participants demonstrate improvement (See Figure 16). Scores on Daily Schedule Competence increased from 32.70 to 35.04 while scores on Social Interest increased from 17.39 to 19.86. Finally, Neatness scores increased from 23.21 to 24.69 from the first 6 months of treatment to the second 6 months.

Figure 17. Change from 1st 6 Months of Treatment to 2nd 6 Months of Treatment on Maladaptive Functioning Scales of NOSIE (N=91)



Decreases in all 3 of the maladaptive functioning scales were evident for these 91 participants (See Figure 17). Specifically, Irritability scores decreased from 6.00 to 5.13, Motor Retardation scores decreased from 6.48 to 5.34, and Psychoticism scores decreased from 2.32 to 2.11.

Improvements in functioning continue throughout the course of treatment. While the length of stay at CTP varies based on the functioning of each person, those who remain at CTP continue to show improvements in functioning. Forty people who were in the program for at least 24 months showed continued improvement on the Total Assets (See Figure 18) and the 3 adaptive scales of the NOSIE (See Figure 19).

Figure 18. Change Over 2 Years on NOSIE Total Assets Scores (N=40)

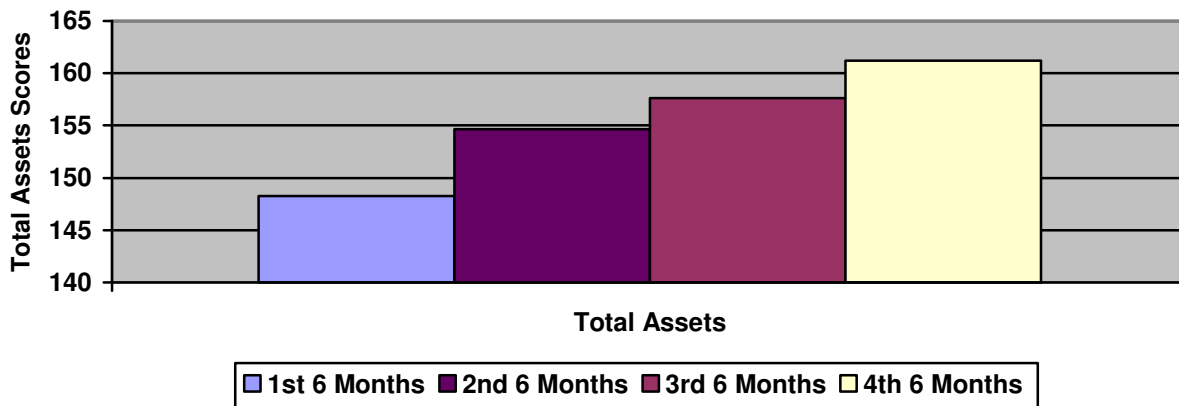
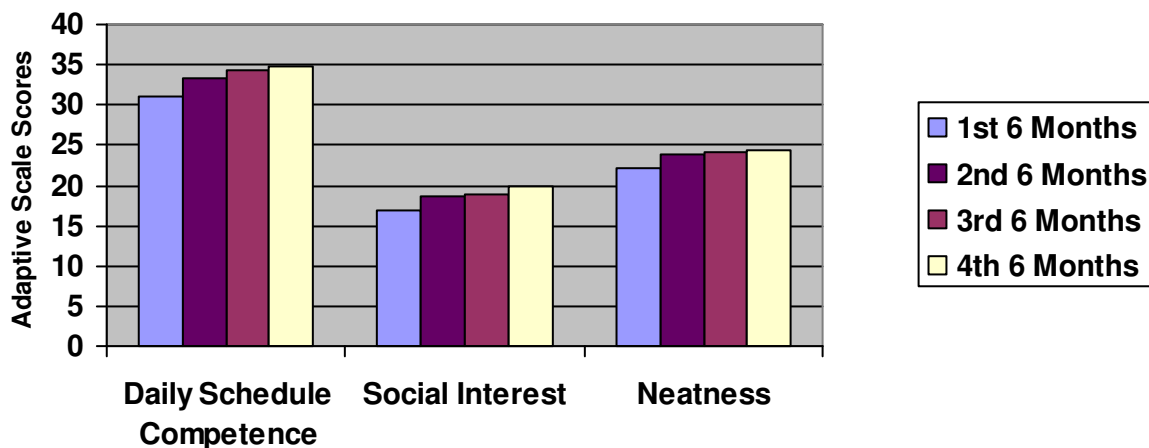
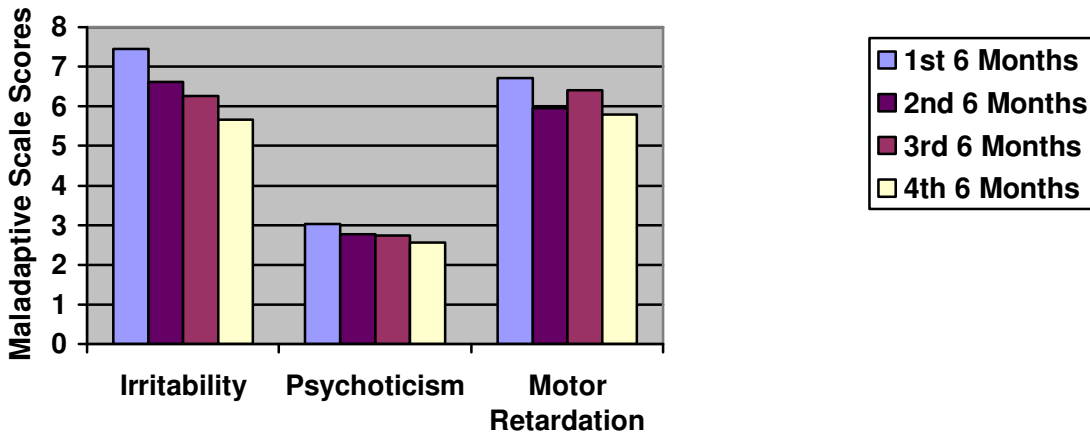


Figure 19. Change Over 2 Years on NOSIE Adaptive Scale Scores (N=40)



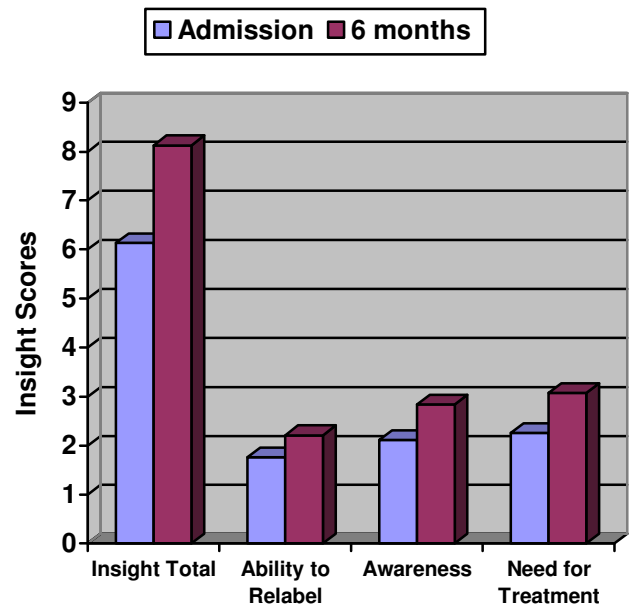
Likewise, improvements in functioning were evident by following the changes in the maladaptive scales (See Figure 20). Throughout treatment, there is a steady decrease in scores on Irritability and Psychoticism. In addition, Motor Retardation has an overall decrease during the first two years of treatment.

Figure 20. Change Over 2 Years on NOSIE Maladaptive Scale Scores (N=40)



Upon admission and every 6 months thereafter, participants in the CTP program complete a measure of *insight*. Currently the Insight Scale (IS; Birchwood, Smith, Drury, Healy, Macmillan, & Slade, 1994) is in use at CTP. This is a brief 8-item self-report measure. The measure yields a total score and 3 subscale scores. The 3 subscales are: *need for treatment* (“I do not need medication”), *ability to relabel psychotic experiences* (“some of my symptoms were made by my mind”), and *awareness of illness* (“I am mentally well”). This measure of insight focuses on insight into functional impairment rather than specific illness categorizations. This measure was added to the CTP assessment battery only in 2001, which explains why there are fewer people’s results reported here.

Figure 21. Change in Insight from Admission to 1st 6 Months of Treatment (N=19)

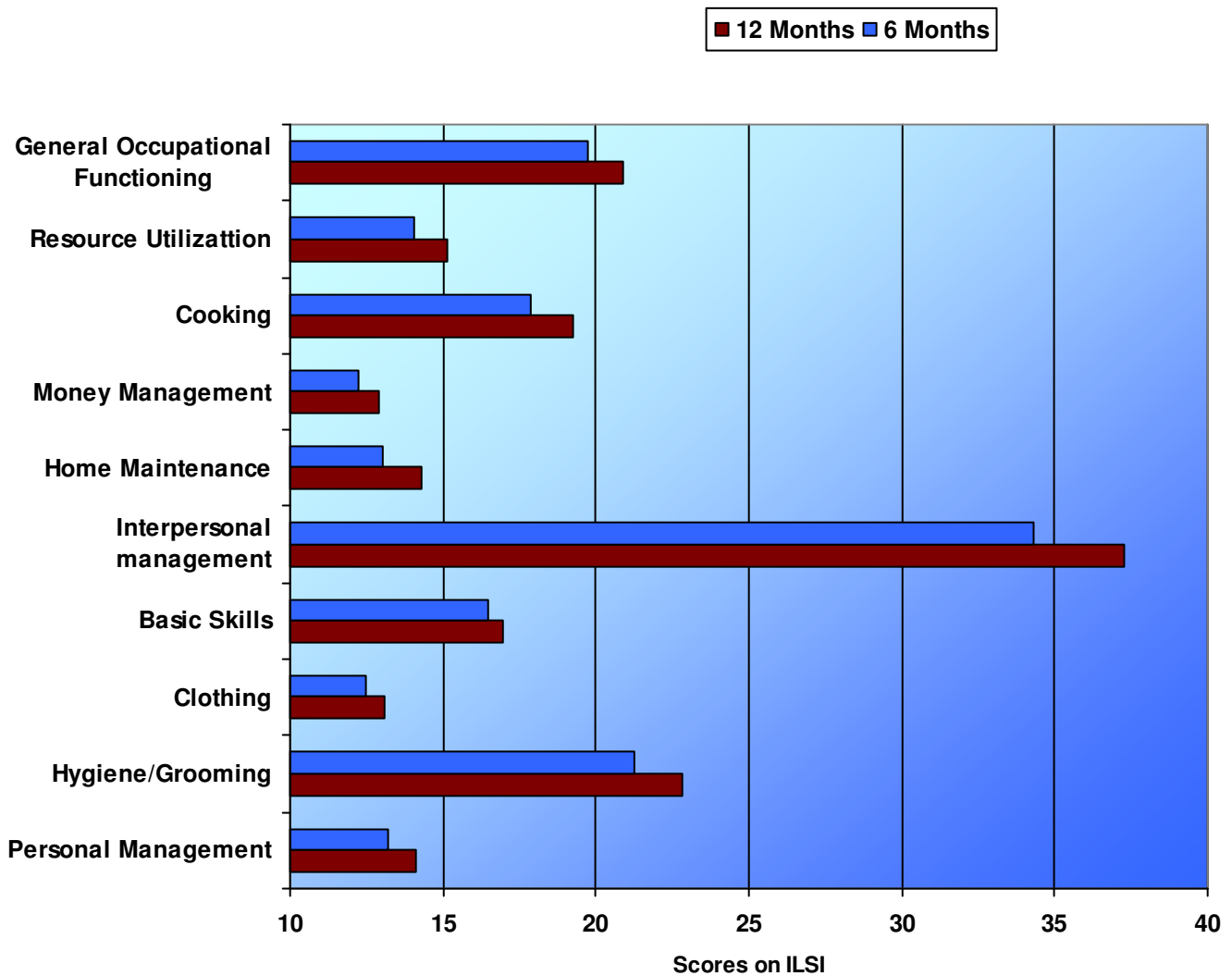


CTP participants show an overall increase in insight as evidenced by the change in the total insight score from 6.13 to 8.13 (See Figure 21). Likewise, increases in all 3 of the subscales are evident. The *ability to relabel psychotic experiences* improves from 1.76 to 2.21 and the *awareness of illness* increases from 2.11 to 2.84. In addition, participants report an increased awareness of the *need for treatment*, with a change from 2.26 to 3.08 from admission to 6 months later.

The Independent Living Skills Inventory (ILSI; Menditto, Wallace, Liberman, VanderWal, Jones, & Stuve, 1999) is completed every 6 months during an individual's treatment at CTP. This inventory is completed by various members from the multidisciplinary treatment team to assess an individual's progress in each respective area. For example, the occupational therapist completes the section regarding occupational functioning while an individual's budgeting instructor rates the person on money management. The areas assessed include personal management, hygiene/grooming, clothing, basic skills, interpersonal management, home maintenance, money management, cooking, resource utilization, and general occupational functioning.

As seen below (See Figure 22), improvements in all areas measured by the ILSI are evident. The graph below demonstrates change from 6 months of treatment to 12 months of treatment.

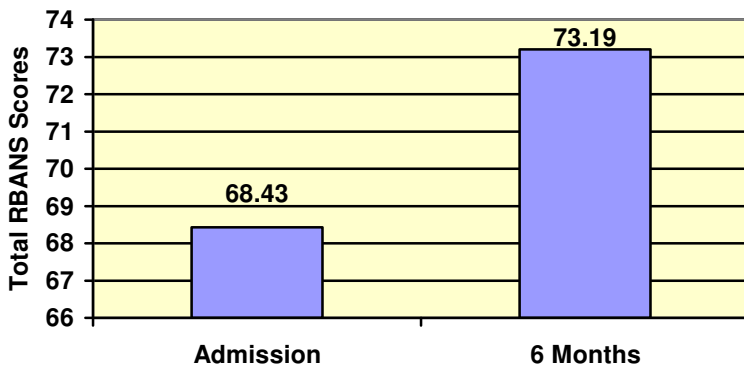
Figure 22. Change From 6 Months to 12 Months on ILSI (N=82)



* Note: Scores on Interpersonal Management are higher than other areas assessed because more items make up this section of the ILSI, not because functioning in this area is higher than in other areas assessed by the ILSI. This chart is intended to compare changes in functioning from 6 months to 12 months in each respective area, not to compare one area of functioning to another.

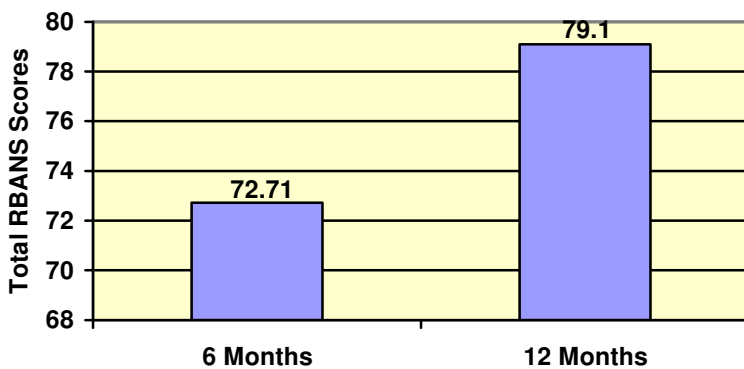
Recall from page 16, that one measure of cognitive functioning used routinely in the CTP program is the RBANS. This brief cognitive screening measure provides a global index of neuropsychological functioning across several domains. At the time of admission, over 2/3 of CTP participants demonstrated moderate to profound impairments on the RBANS.

Figure 23. RBANS Total Average Scores at Admission and 6 Months of Treatment (N=21)



As seen at left (See Figure 23), improvements on the RBANS are noted to occur with treatment. The graph at left demonstrates change from the time of admission to 6 months of treatment. At the time of admission, for the 21 people in this sample, the average Total RBANS score fell in the severe impairment range. Those same people 6 months later had an average Total RBANS score nearly 5 points higher, falling into the range of moderate impairment.

Figure 24. RBANS Total Average Scores at 6 Months of Treatment and 12 Months of Treatment (N=21)



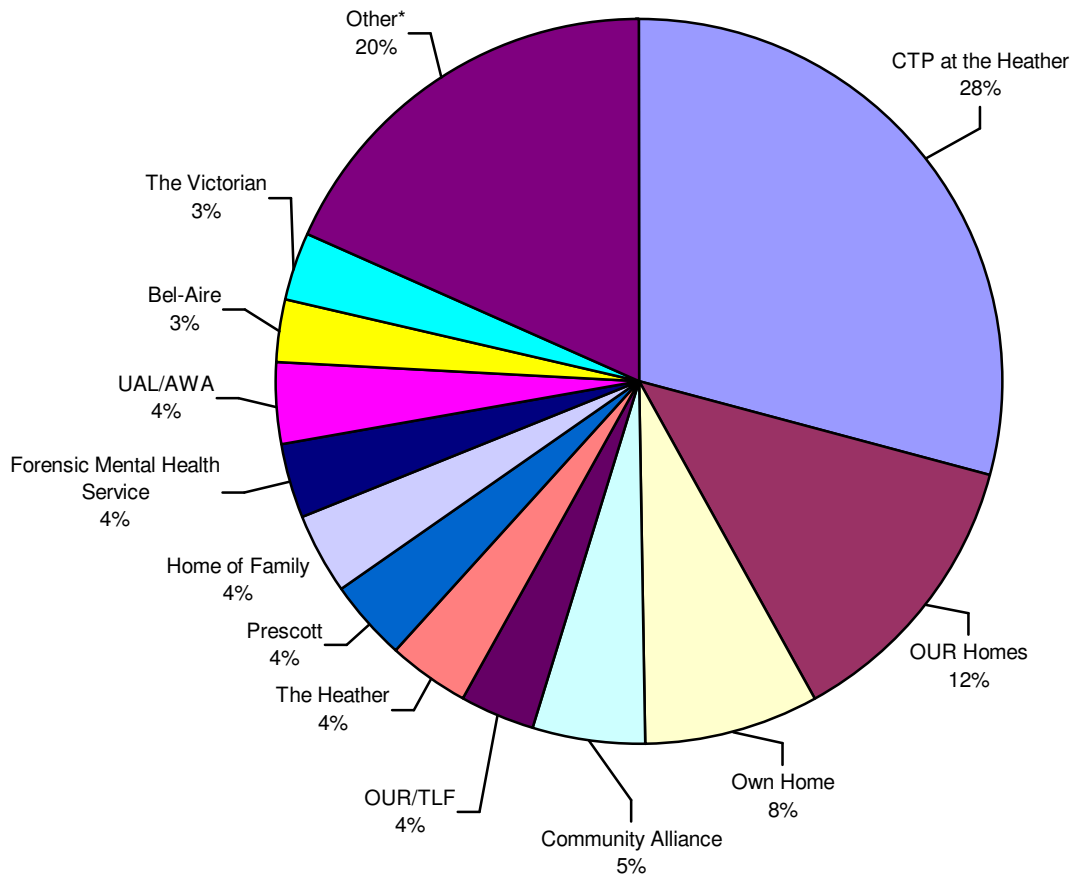
As seen at left (See Figure 24), improvements on the RBANS continue with a longer period of treatment at CTP. The graph at left demonstrates change from 6 months of treatment to 12 months of treatment. At 6 months of treatment, participants' average Total RBANS score was in the moderate impairment range. At 12 months of treatment, the average score had increased almost 7 points higher, nearly falling into the range of mild impairment.

* Note: Although Figure 23 and 24 both include data from 21 people, they are not the same 21 people due to different rates of admission and discharge. Therefore, the 6 month average Total RBANS score differs in Figures 23 and 24.

..... WHAT HAPPENS AFTER CTP?

Participants in the CTP program have been discharged to 35 different locations (See Figure 25). Over 1 out of every 4 CTP participants (27.3%) from 1996 to July 2003 have been discharged to the CTP sister program, CTP at the Heather (see page 6 for a brief description), while another 12.0% are discharged to OUR Homes. In addition, 11 people (7.3%) have been discharged to their own home.

Figure 25. Discharge Locations of Former CTP Participants (N=141)



* Other includes: Assisted Living (2 people), Nursing Home (2), Champion (2), Supervised apartment (1), Independent Living Project (1), Ambassador (1), Community Alternatives (1), Serenity Place (1), A Street (1), Haven Manor (1), Blue Valley Lutheran Care Home (1), Envisions Group Home (1), Domicillary (1), Paxton Manor (1), Assisted Living in Iowa (1), Alliance Home (1), Park Hill Residence (1), Vet's Home (1), Residential Rehabilitation Facility (1), BD Group Home (1), Centerpointe (1), Lincoln/Lancaster Drug Project (1), Short Term Care - LRC (1)

These discharge locations represent various levels of intensity and restrictiveness. The Forensic Mental Health Service (FMHS-LRC) and Short Term Care Program (STCP-LRC) represent a level of intensity and restrictiveness higher than CTP. Discharges to nursing homes represent a higher level of care, however, this placement is likely due to a person's physical needs rather than psychiatric care needs. All others are lower intensity and restrictiveness.

While there are 35 different discharge locations, as seen above in Figure 25, these locations can be broadly grouped into 7 categories (See Figure 26). The Lincoln Regional Center represents the most intensive level of care of these 7 major categories, followed by Nursing Homes (e.g., Vet's Home, Blue Valley Lutheran Care Home), Psychiatric Residential Rehabilitation facilities (e.g., CTP at the Heather), the Transitional Living Facility, Assisted Living (e.g., OUR Homes, A Street, Prescott), Independent Living, and DD/BD Group homes (e.g., Envisions, Community Alternatives). The broadest of all these categories is Assisted Living. During the evaluation period, Residential Care Facilities and Domiciliaries were combined under the single category of Assisted Living, as depicted below. The levels of care within the Assisted Living category vary considerably.

Figure 26. Former CTP Participants' Discharge Locations by Category (N=141)

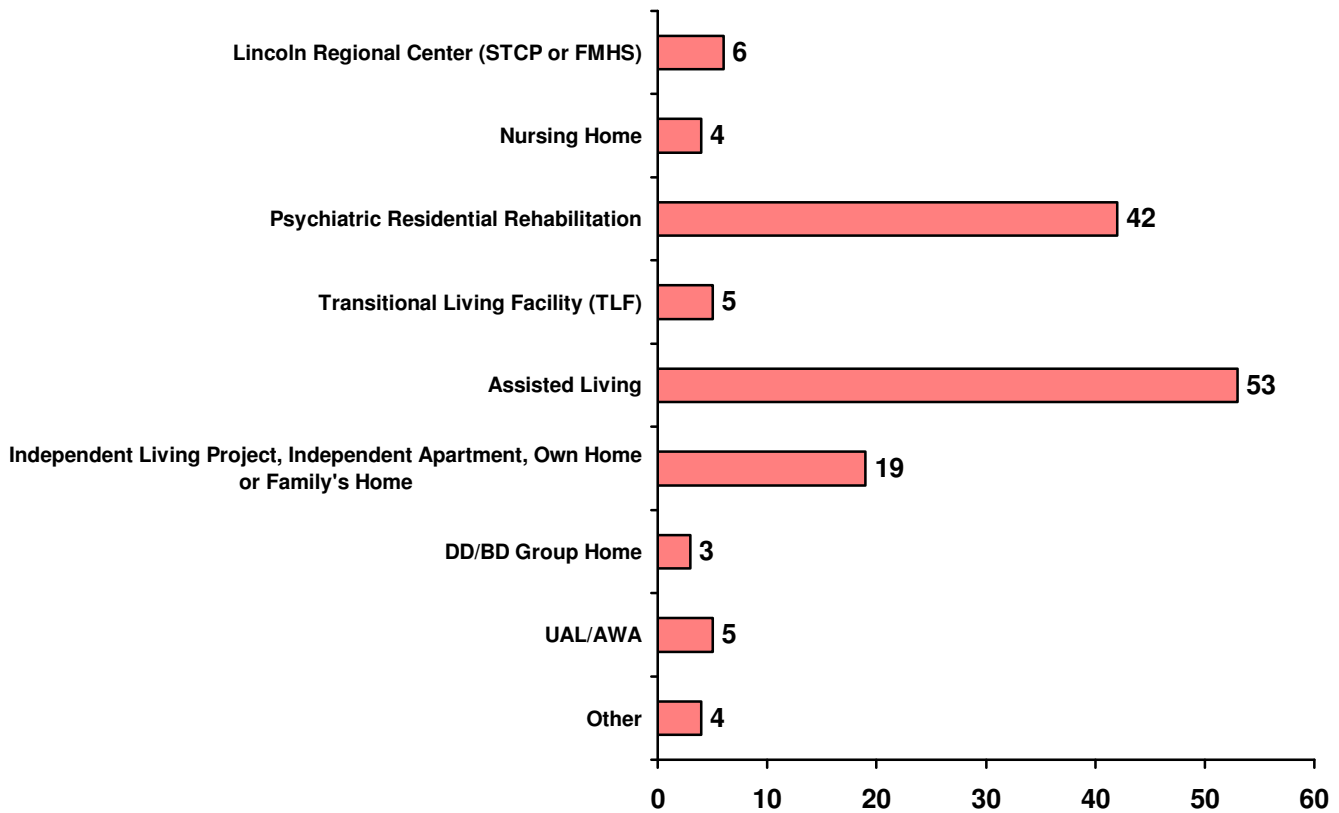
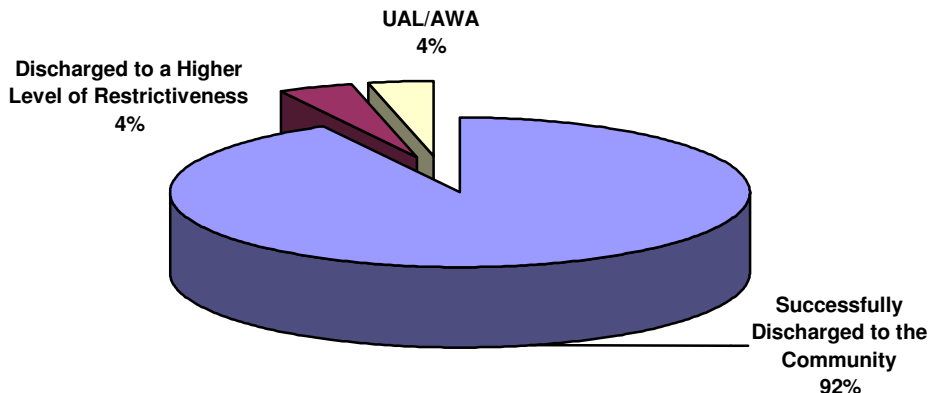


Figure 27. Percentage of Discharges into the Community (N=141)



There are a considerable number of people who have *no* hospitalization days in the 2 years following discharge from CTP (See Figure 28). Recall from the admission criteria discussed on page 8 of this report that all CTP admissions are people who either have an established inability to functioning outside a high-intensity institutional setting, or a severe ‘revolving door’ syndrome with multiple hospitalizations and/or over-use of crisis and emergency services. Figure 28 indicates that after treatment at CTP, over 2/3 of people previously considered unable to function outside of an institutional setting for any significant period of time are leaving the institution and staying out.

Figure 28. Hospitalizations Within 2 Years Following Discharge From CTP (N=100)

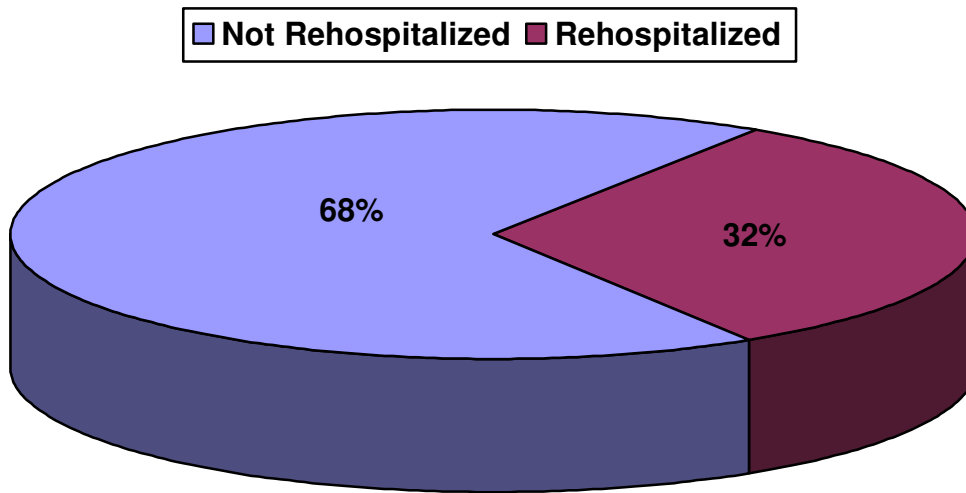


Figure 29. Average Number of Days in Hospital in the 2 Years Before & 2 Years After CTP Treatment (N=97)

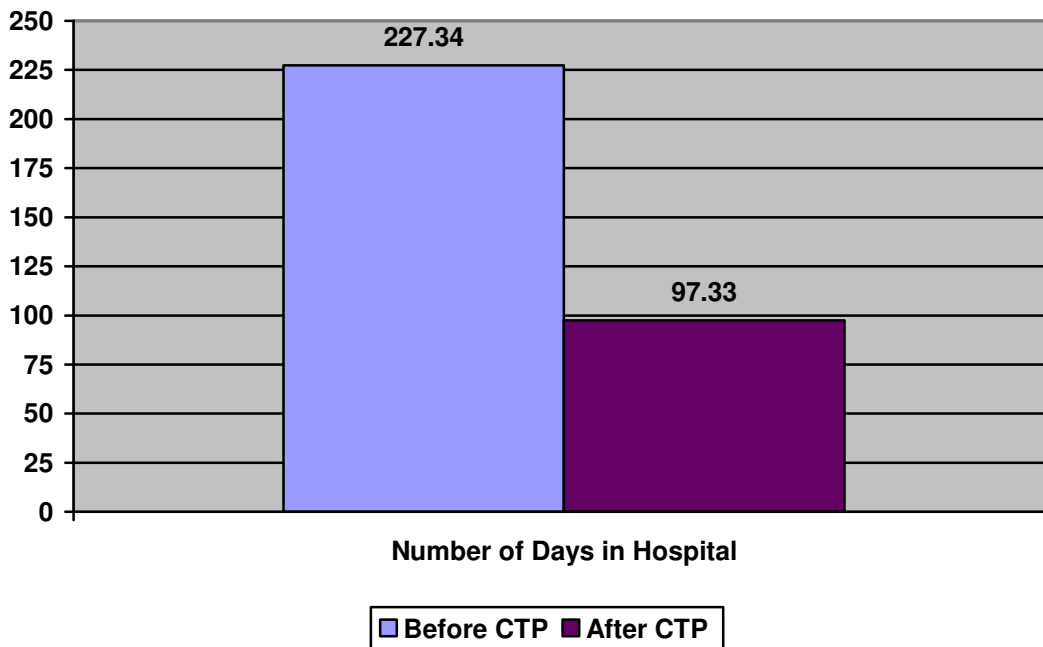
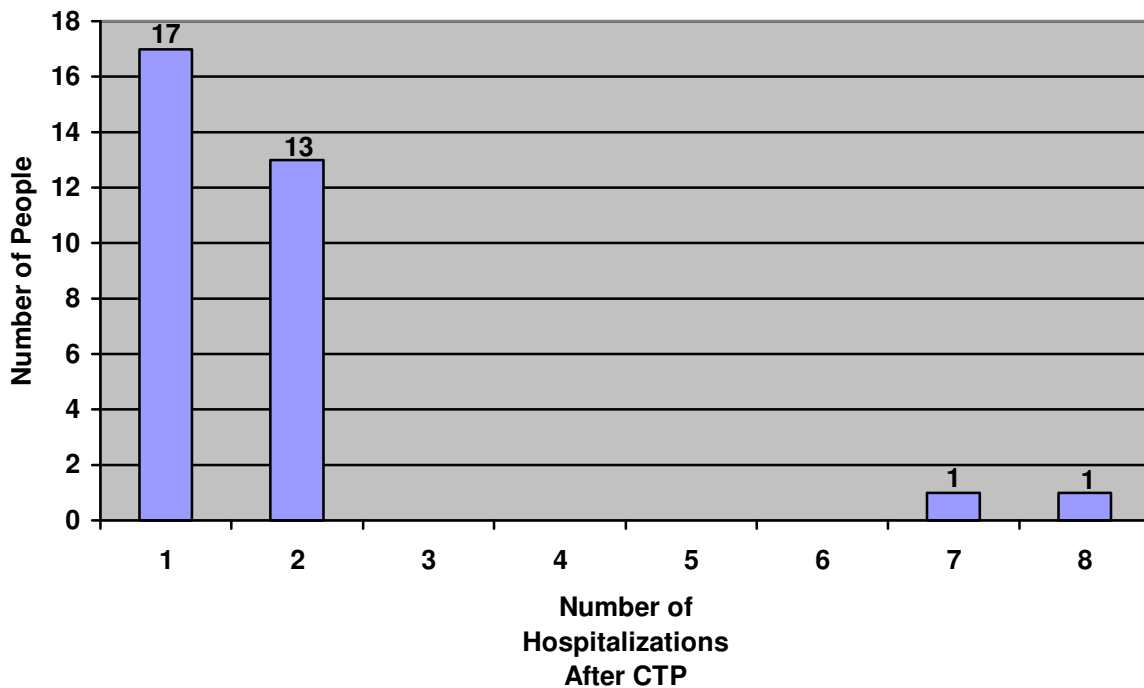


Figure 29 above represents a measure of *recidivism*, or the tendency of CTP discharges to require subsequent hospitalization. The column on the left is the average number of days individuals spent in the hospital in the two years prior to CTP while the column on the right represents the average number of days individuals were hospitalized following CTP. Neither column includes the hospital days while in CTP for treatment. As evidenced below, this measure of recidivism confirms that CTP moves people to higher and more independent levels of personal and social functioning.

For those people who are rehospitalized within 2 years of discharge from CTP, the number of hospitalizations remains low (See Figure 30). For these 32 people, nearly all had only 1 or 2 hospitalizations following CTP. Only 2 people demonstrated repeated hospitalizations, 7 and 8 hospitalizations, respectively.

Figure 30. Number of Hospitalizations Following Discharge From CTP for Individuals Rehospitalized (N=32)



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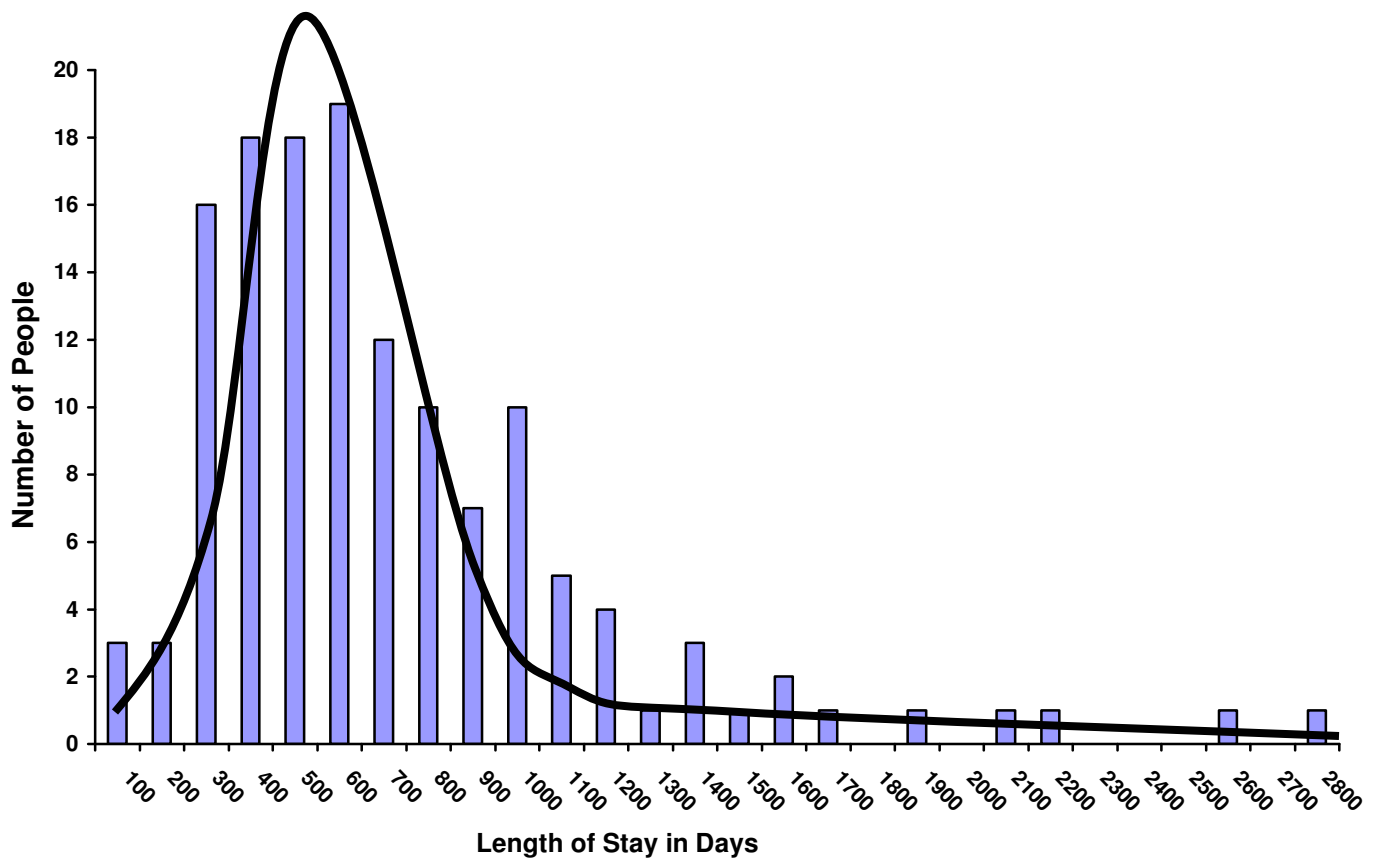
APPENDIX A:
LENGTH OF STAY

LENGTH OF STAY

..... A CLOSER LOOK

As described on page 20 of the evaluation, the average length of stay at CTP is variable. Recall that the average length of stay was 667.1 days (approximately 1 year and 10 months). However, as seen in Figure A1 below, the distribution of the length of the stay is considerably *skewed*, which is evident because of what looks like a long tail on the right side of the graph. A skew indicates that the mathematical average is misleading, which means that the actual length of stay for this sample is shorter than what it appears to be below.

Figure A1 (repeated from page 20). Length of Stay at CTP in Days for CTP Participants (N=145)



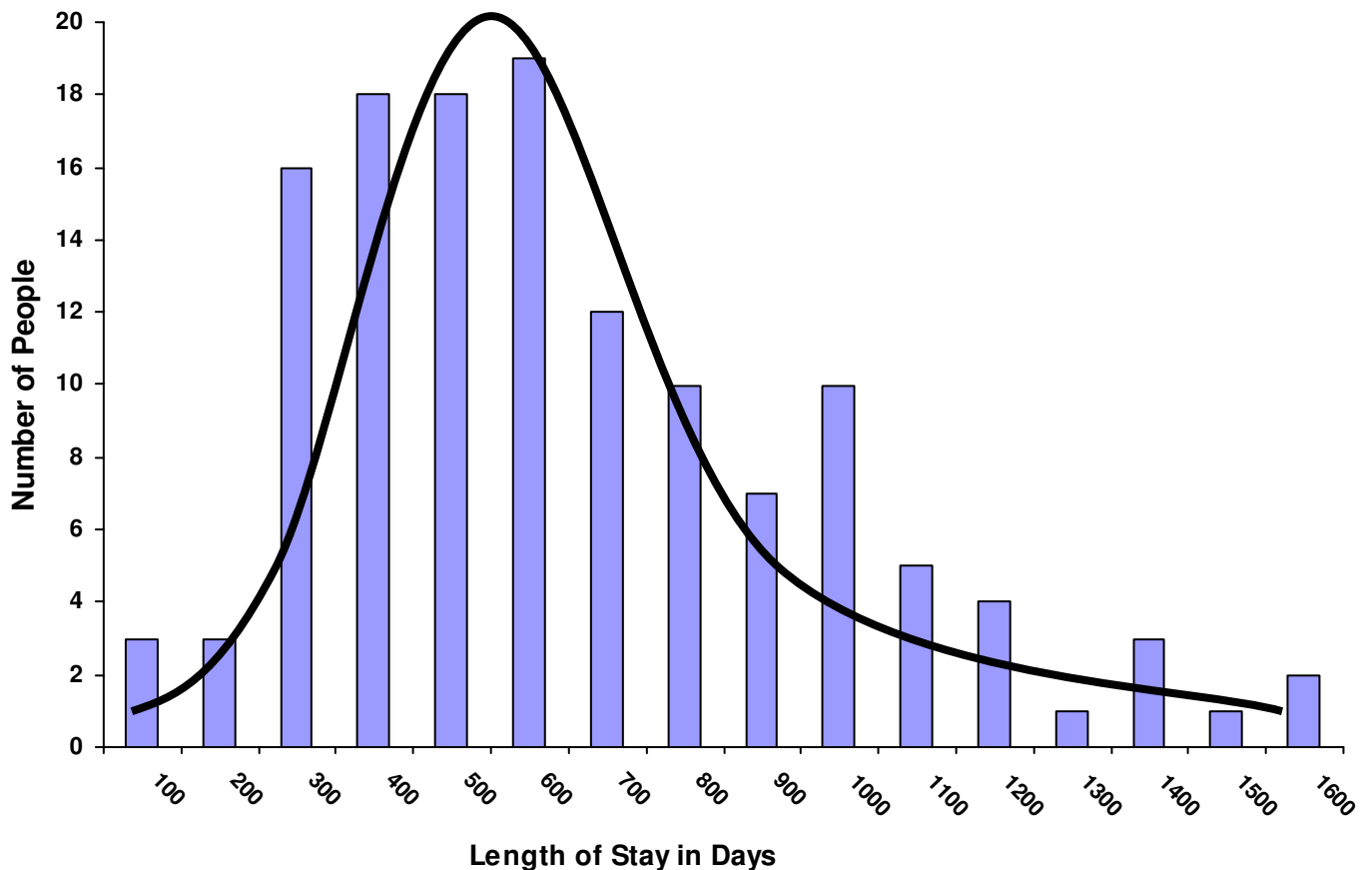
Since the mathematical average in a skewed distribution is misleading, as is the median, the mode is often used to interpret skewed data. Recall from the description of the data on page 20, that three groups of individuals emerged based on interpreting the mode. The most common length of stay is around 1 year and 5 months. A second group has a length of stay of around 7 months. The third group, much smaller than the other two, has a length of stay of greater than 2 ½ years.

The individual data points making up the tail of the skewed distribution are often called *outliers*. We call them outliers, because these data points lie outside the normal distribution of data of the sample and perhaps represent a separate subpopulation which is different from the typical CTP participant. Outliers increase the overall average for the entire group. While skewed data can be interpreted using the mode, another useful way to interpret skewed data is to analyze the outliers.

Using a conservative statistical procedure, six people were identified whose length of stay fell outside of an acceptable range. These six people's length of stay (range 1,646 days to 2,745 days) data alone accounts for 13.33% of the total number of days in CTP of all 145 individuals in the sample while only making up 4.14% of the sample. By removing these 6 data points from the group data, we more accurately portray the distribution of the sample (See Figure A2 below). While only 6 people's data were removed, the average length of stay for the entire sample decreases from 667.1 days, or approximately 1 year and 10 months, to 603.11 days, or approximately 1 year and 8 months. A qualitative analysis of the six outliers can be found on page 39.

It should be noted that the statistical procedure used is a conservative one. Some statisticians may have chosen a less conservative method, which would have resulted in larger numbers of people's data being removed, than the one employed here. In fact, as can be seen in the figure below, the distribution remains skewed with people with the longest stays increasing the overall group average.

Figure A2. Normalized Distribution of Length of Stay at CTP in Days for CTP Participants (N=139)



The average length of stay for male and female participants in the CTP program is nearly identical, as can be seen in Table A1 below. However, there is a noticeable difference in the length of stay based on legal status (Table A1). While there are only 3 individuals whose legal status was NRRI in the sample, the average length of stay for those individuals was 1021.67 days, or 153% of the average of 667.1 days. The length of stay for individuals with an NRRI legal status is likely longer due to requirements of the court that need to be met before an individual can return to the community.

Table A1. Average Length of Stay Based on Clinical Demographics (N=145)

<u>Gender</u>		<u>N</u>	<u>Average (M)</u>	<u>SD</u>
<u>Gender</u>	Male	77	666.68	457.19
	Female	68	667.57	449.90
<u>Legal Status</u>	Mental Health Board Commitment	105	654.67	459.11
	Voluntary per Guardian	34	665.91	452.64
	NRRI	3	1021.67	255.34
	Voluntary	3	761.00	327.83

Figure A3. Average Length of Stay Based on Axis I Diagnosis (N=145)

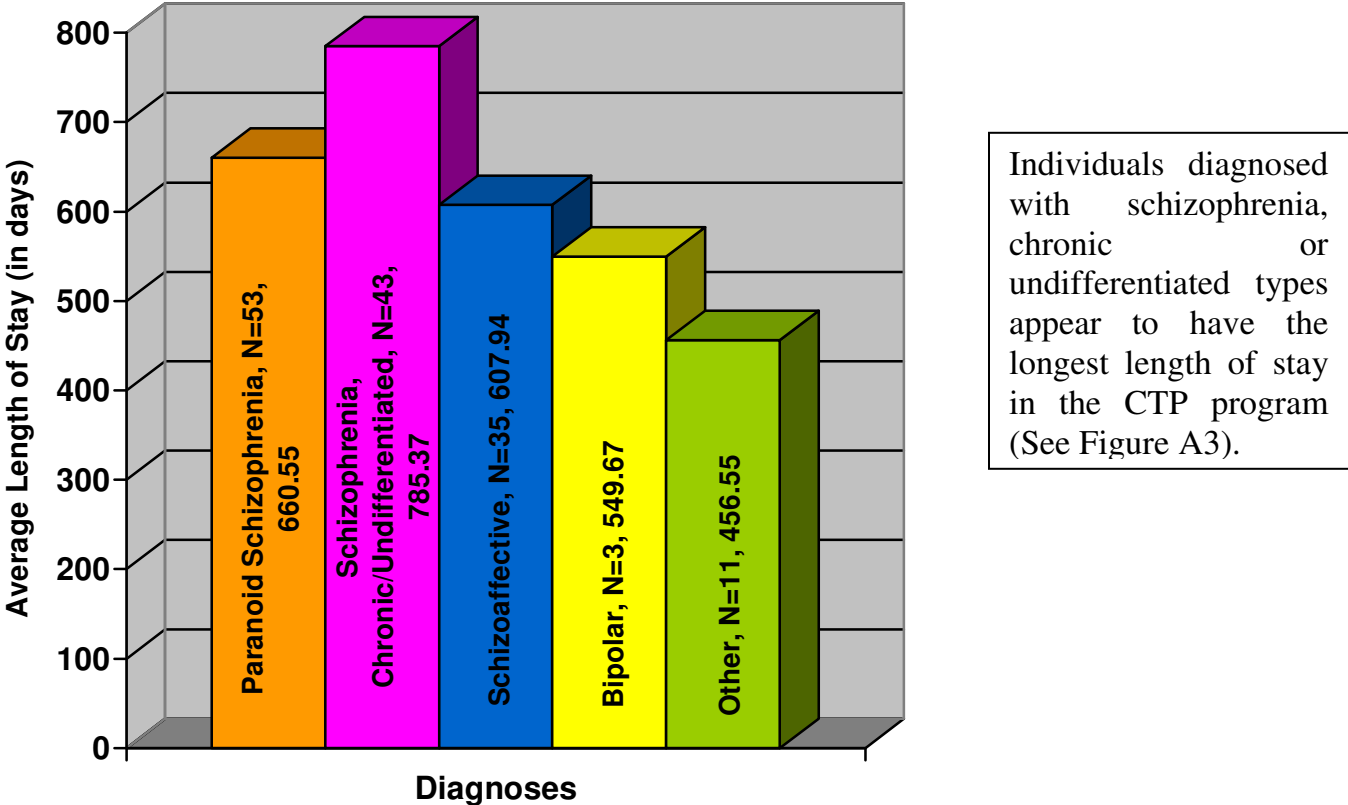
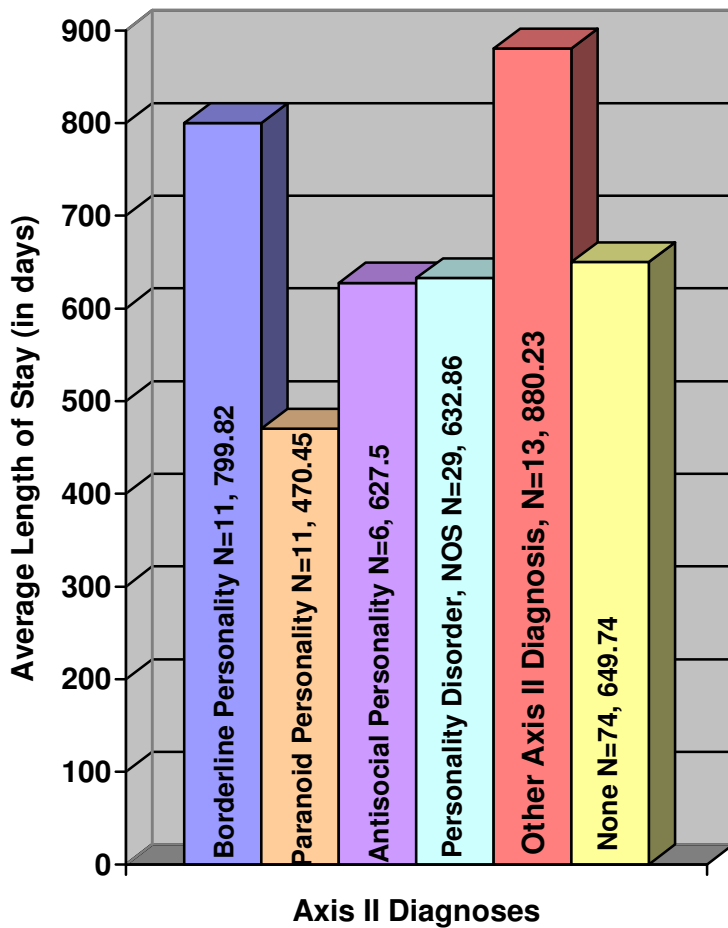


Figure A4. Average Length of Stay Based on Axis II Diagnosis (N=144)



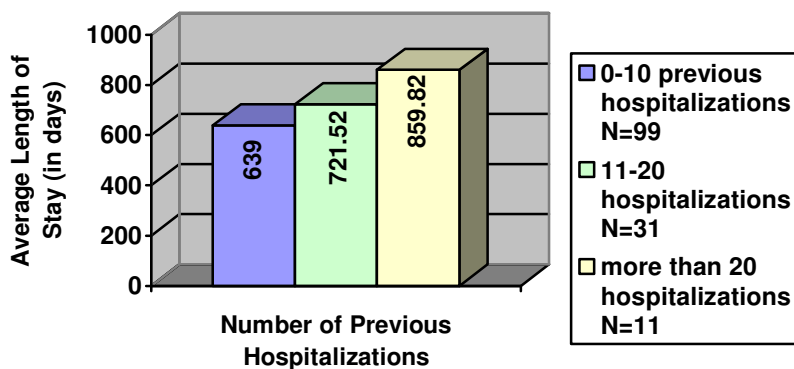
As described on page 14, 47.9% of individuals in the CTP program have been diagnosed with an Axis II disorder.

The “other Axis II Diagnosis” category has the longest length of stay based on Axis II diagnoses. This category includes Borderline Intellectual functioning, among others.

Those diagnosed with Borderline Personality Disorder have a longer length of stay than the average of 667.1 days (See Figure A4).

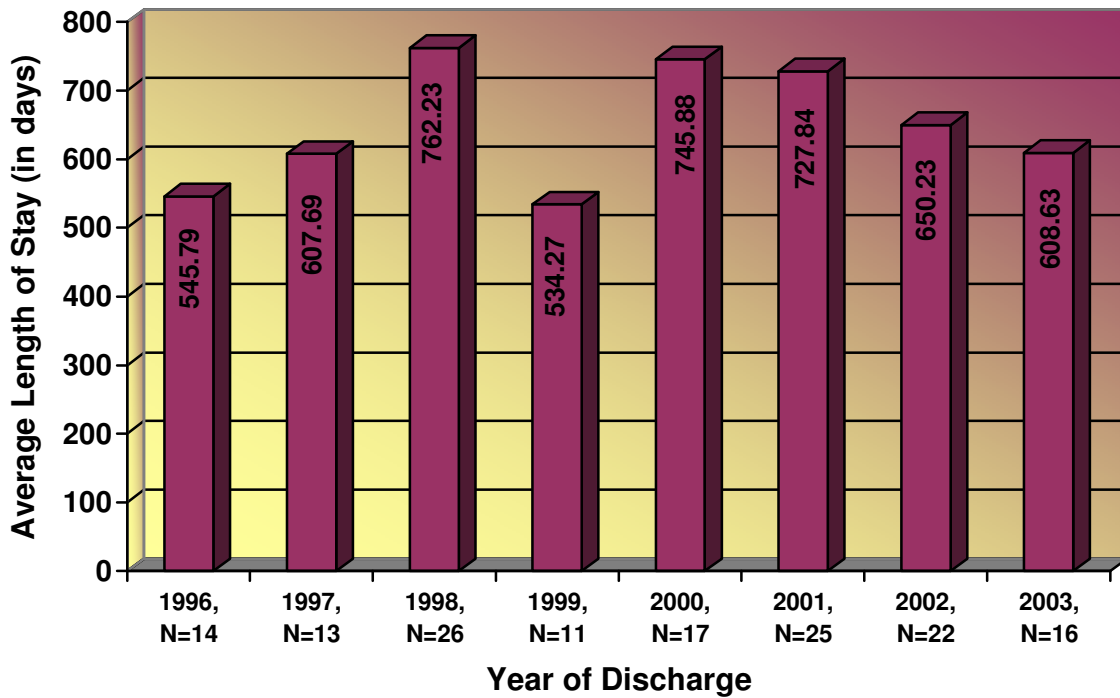
Those diagnosed with Paranoid Personality Disorder have a shorter length of stay than the average of 667.1 days (See Figure A4).

Figure A5. Average Length of Stay Based on Previous Hospitalizations (N=141)



As anticipated, individuals with a long history of previous hospitalizations have the longest length of stay at CTP while individuals with fewer hospitalizations have a shorter length of stay (See Figure A5).

Figure A6. Average Length of Stay Based on Year of Discharge (N=144)



From 1996 to 2003 the average length of stay has varied from year to year. From 1996 to 1998 an increasing trend in the length of stay was apparent (see Figure A6). The CTP at the Heather program (see pg. 6) opened in 1998. This 15-bed psychiatric residential facility accounted for nearly half of the discharges in 1998. The opening of these beds at the level of care provided at CTP-H made it possible to discharge people from CTP for whom an appropriate placement had previously been unavailable. Therefore, in 1999, the length of stay at CTP decreased significantly. By 2000 the average length of stay had leveled out, but has since demonstrated a decreasing trend.

The CTP database will be undergoing further analysis to identify consumer characteristics, circumstances and clinical pathways that influence length of stay. Meanwhile, qualitative analysis was performed on the 6 “statistical outliers” identified on the length-of-stay measure (see previous page). In addition to data in the database, information concerning the circumstances of the discharges was collected from the social workers who had managed the discharges. This type of qualitative analysis can identify factors that account for extremely protracted length of stay.

Common characteristics: All 6 people in the “outlier group” have:

- histories of severe, persistent aggression, not associated with discreet psychotic episodes or responsive to medication
- diagnoses in the schizophrenia spectrum
- relatively severe neurocognitive impairment, although the individual profiles of cognitive strengths and weaknesses are heterogeneous

The group is heterogeneous with respect to gender (3 male, 3 female), demographics and education. Five were under civil commitment and one was “voluntary per guardian.” Age of onset ranged from 16 to 22. Four have a subdiagnosis of paranoid, 2 chronic undifferentiated (but note schizophrenia subdiagnoses are highly unreliable). Five have persistent psychotic symptoms at a medium to high level of severity even when optimally medicated.

The lengths of stay of all people in the “outlier group” were protracted by concerns of community residential providers about history of violence. In all cases, a time period without aggression in the CTP was the functional criterion by which these concerns were addressed. For 2 people, discharge was facilitated by new availability of residential psychiatric rehabilitation in Lincoln. One person was ready for discharge but on a waiting list for residential rehabilitation in Omaha for about one year. One person was found to meet criteria for mental retardation while in the CTP. Residential developmental disability services were determined to be required for that person, and about one year was required to establish eligibility and gain access to the developmental disability system. One person with particularly severe and dangerous aggression and predatory social behavior showed gradual improvement over more than a year, but the behavior returned (without a change in psychotic symptoms) when clozapine was discontinued at the person’s request. The clozapine was reinstated about one year later, after which about one year of renewed progress was required before the person was accepted for residential psychiatric rehabilitation in Omaha.

In conclusion, the qualitative analysis indicates that a history of severe, persistent aggression is a key factor in extremely protracted length of stay in the CTP. Progress may be further complicated by a variety of other factors, including cognitive impairment, antisocial personality traits, persistent psychotic symptoms, access to appropriate services (e.g. developmental disability), and clinical policy concerning refusal of medication. Psychiatric rehabilitation is known to have superior effectiveness in eliminating aggressive and socially unacceptable behavior, but in some cases progress is especially slow, and protracted periods without such behavior may be necessary to convince aftercare providers that risk management issues have been sufficiently addressed. Finally, despite the protracted length of stay, at last follow up, *none* of the 6 people in the “outlier group” had required subsequent hospitalizations.

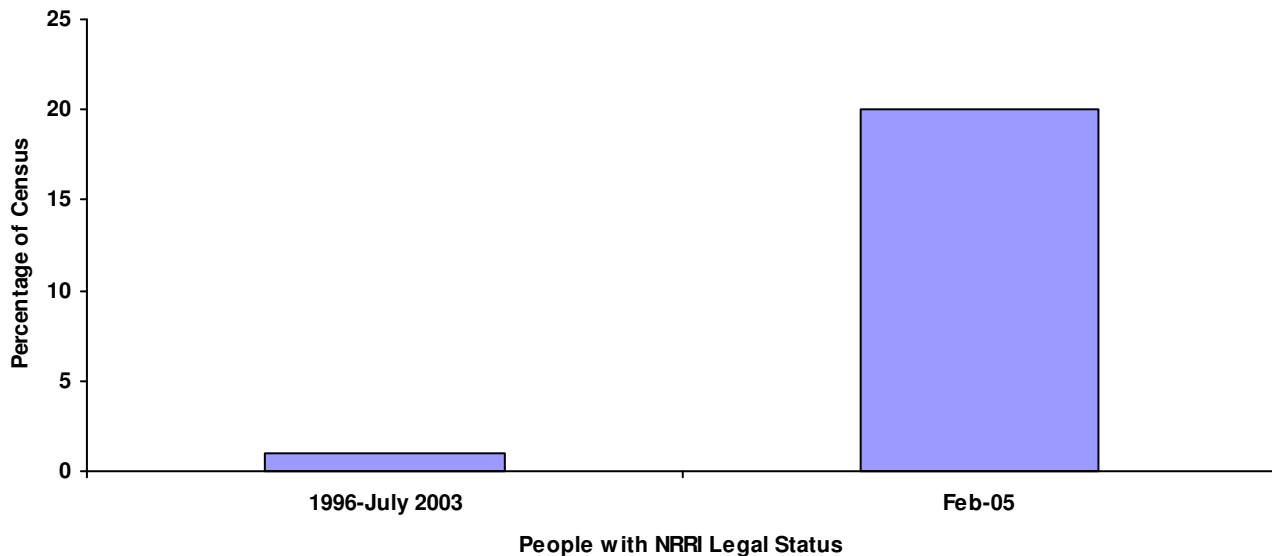
APPENDIX B:
**LEGAL STATUS –
NRRI AND AXIS II**

LEGAL STATUS – NRRI AND AXIS II

..... A CLOSER LOOK

As described on page 15 of the evaluation, very few individuals from 1996 to July 2003 were admitted to the CTP program with a Not Responsible by Reason of Insanity (NRRI) legal status. Only 3 people out of the 146 participants included in the database for this evaluation had an NRRI status, amounting to 2.05% of the sample, or an average of 1.05% of the census at any point in time. In contrast, current census data at the CTP as of February 2005 indicates that 20% of CTP participants have an NRRI status (see Figure B1), *an increase of 20-fold*. There are multiple probable reasons for this change, including: 1) availability of the “conditional release” option, beginning in the late 1990’s, making community discharge a more realistic possibility for many NRRI consumers; 2) availability of higher-supervision community placement options; 3) improved community options for non-NRRI consumers who would otherwise compete for CTP beds; 4) administrative pressure to move people from higher to lower security settings; 5) the CTP record of successfully discharging NRRI consumers to community settings, stimulating referrals from FMHS.

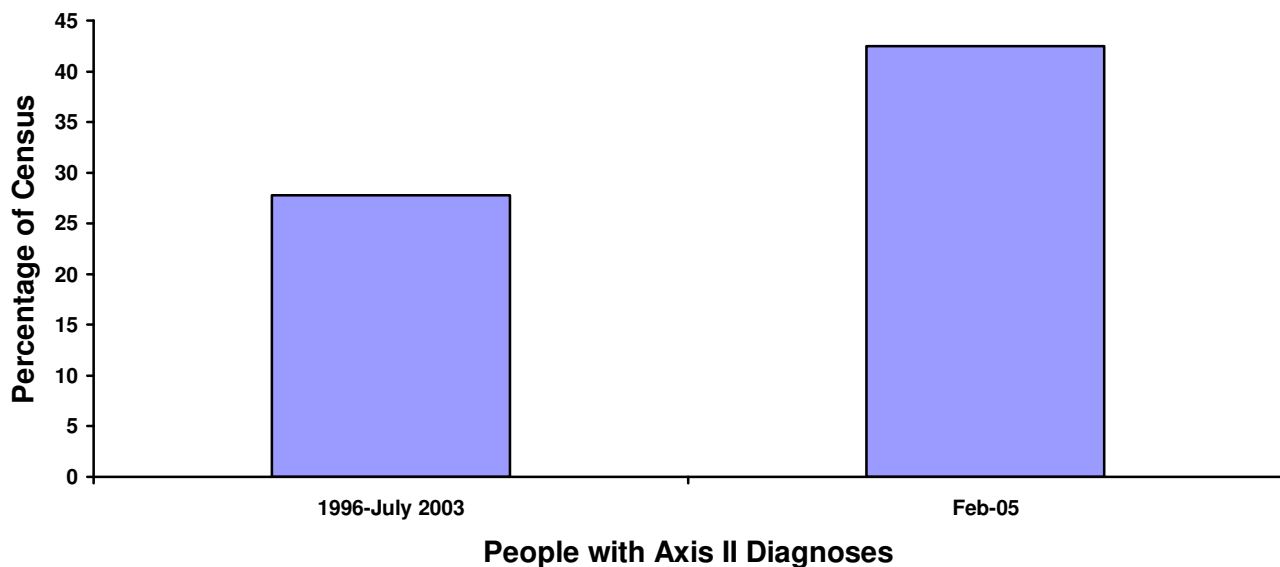
Figure B1. Percentage of CTP Participants with NRRI Status from 1996 to July 2003 (total N=3) and Current Percentage of Participants with NRRI Status (N=8)



Although NRRI does not emerge as an “extreme length of stay” factor in the qualitative analysis of “outliers,” as a group, people who are NRRI in the database have an average length of stay of more than 1000 days (see page 36), leaving them at the extreme end of the normalized distribution (see page 35). The recent influx of NRRI admissions suggests that the CTP length of stay will be further protracted, but so far this has not been observed.

The increase in NRRI admissions to CTP is accompanied by an increase in co-morbid Axis II personality disorders, from an average of 27.8% of the CTP census during the period sampled for this evaluation, to 42.5% of the census in February 2005 (See Figure B2). However, the increase in Axis II co-morbidity is not accounted for solely by the increase in NRRI admissions. An increasing number of referrals from all sources have personality disorders, and these disorders greatly complicate treatment and rehabilitation.

Figure B2. Percentage of CTP Census with Axis II diagnoses from 1996 to July 2003 (total N=57) and Percentage of Current CTP Census with Axis II diagnoses (N=17)



Like NRRI status, co-morbid personality disorders are associated with a longer length of stay. It is therefore noteworthy that the CTP length of stay has steadily decreased since 1998 (see page 38), despite the growing representation of both NRRI and co-morbid personality disorder in the recipient population. This indicates the CTP rehabilitation approach continues to be effective for the changing recipient population.