



PRELIMINARY FINDINGS FROM THE RECOVERY CENTER OUTCOME STUDY 2012 REPORT

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University of Kentucky Center on Drug and Alcohol Research



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EXECUTIVE SUMMARY

This report presents information on a sample of adults who participated in Phase I residential services in Recovery Centers in Kentucky during 2009 and 2010. A total of 206 randomly selected individuals completed follow-up surveys approximately 6 months after they were discharged for any reason from Phase I of Recovery Center programs. Individuals were eligible for the follow-up study if they had completed a baseline interview as they entered Phase I, had agreed to participate in the follow-up study, and had a discharge record from Phase I submitted to the University of Kentucky Center on Drug and Alcohol Research (UK CDAR). The target date for the follow-up interview was six months after the individual was discharged from Phase I. Individuals included in this report had a target follow-up between July 1, 2010 and June 30, 2011.

A wide range of conditions and behaviors are included in this report: living arrangements, education, employment, physical health, mental health, involvement with the criminal justice system, and recovery supports. All data are anchored in resident conditions before entering this program (called 'baseline') and 6 months after Phase I ended (called 'follow-up'). At follow-up most areas of individuals' lives reflected positive changes, including the following outcomes:

DECREASED CRIMINAL JUSTICE INVOLVEMENT

- The number of individuals who reported being arrested decreased significantly from 71.4% at baseline to 11.3% at follow-up, which was an 84.1% decrease.

- The number of individuals who reported spending time in jail or prison decreased significantly from 74.1% at baseline to 11.3% at follow-up, which was an 84.9% decrease.

INCREASED RECOVERY SUPPORT INVOLVEMENT

The number of individuals who reported going to mutual help recovery group meetings like AA/NA/MA increased from 45.3% at baseline to 81.1% at follow-up, representing a 79.1% increase.

Among individuals who had not been in a controlled environment such as a prison or jail for the month before they entered the Recovery Center:

- The percent of individuals who were abstinent from alcohol increased significantly from 37.5% at baseline to 93.3%.
- The percent of individuals with past 30 day abstinence from illicit drugs increased significantly from 23.3% at baseline to 87.5%.
- The percent of all follow-up individuals reporting past 30-day abstinence from alcohol and drugs went from 34.6% at baseline to 84.9% at follow-up. At follow-up fully 75.1% had been abstinent for the past 6 months.
- 97.4% met criteria for alcohol dependence at baseline and only 24.7% met these criteria at follow-up— a 74.7% decrease.
- 91.5% met criteria for drug

dependence at baseline and only 12.8% met these criteria at follow-up — an 86.0% decrease.

Among individuals who spent time in prison or jail during the month before they entered the Recovery Center:

- 81.2% were alcohol abstinent at baseline, and 88.4% of these individuals were alcohol abstinent at follow-up.
- 70.6% were drug abstinent at baseline, and 86.7% of these individuals were drug abstinent at follow-up.

SATISFACTION WITH RECOVERY CENTER SERVICES

- Individuals reported high levels of satisfaction with the Recovery Center programs, rating their overall experience an average of 8.7 on a scale from 1 to 10 with 10 representing the best experience.

COST SAVINGS FROM RECOVERY SERVICES

- Using cost estimates from the U.S. Office of Drug Control Policy, data from this sample of individuals participating in Recovery Centers suggest that for every dollar spent on recovery services, there was a \$2.92 return in avoided costs.
- In addition, there was a 93% reduction in victim cost of crimes from baseline to follow-up and a 94% reduction in incarceration as well for individuals in this sample.

For every dollar spent on treatment for this sample of clients who were in recovery in 2009-2010, the avoided costs can be estimated as \$2.92.

2012 ANNUAL REPORT CONTENTS

This is the first annual Recovery Center Outcome Study (RCOS) follow-up report and includes 206 individuals who completed both a baseline interview at entry to Phase 1 and a follow-up telephone interview about 6 months after being discharged from Phase I. When data collection was initiated, the programs enrolled all individuals as they entered Phase I of the Recovery Center. As soon as an individual exited Phase I, either through transition to Phase 2 or through leaving the facility, a discharge record was electronically submitted by the Recovery Center to UK CDAR. All individuals with a completed baseline survey and a discharge record were eligible to be included in the follow-up sample. Individuals in this sample were contacted by interviewers at UK CDAR for a telephone follow-up interview six months post-discharge. The following report describes the individuals as they entered Phase I. In addition, the report analyzes information collected through UK CDAR's independent follow-up interviews where clients report on their substance use, education, employment, living situation, mental health, criminal justice system involvement, and recovery supports.

This report includes five major sections.

SECTION 1: provides a thorough overview of the study, including background on the development and formulation of the research questions for Recovery Centers. The projects' methods for data collection and analysis are described and the research project's limitations are stated.

SECTION 2: describes individuals at the Recovery Centers as they entered Phase I of the program. Included in the description are individuals' demographics, physical and mental health status, substance use history, employment and education status, and criminal justice system involvement.

SECTION 3: describes individuals' satisfaction with the Recovery Center program, which they reported in the follow-up survey.

SECTION 4: describes changes that occurred for individuals between Phase I baseline and the follow-up interview 6-months after discharge from Phase I. Changes include education, caretaking, employment status, criminal justice system involvement, physical and mental health status, and abstinence from tobacco, alcohol and drugs. Rates of change are calculated, as well as whether these behavior changes from baseline to follow-up are statistically significant.

SECTION 5: provides an analysis of the reductions in costs to Kentucky after individuals participate in residential recovery services and the implications for future policies.

SECTION 1. INTRODUCTION AND OVERVIEW

The Recovery Center Outcome Study (RCOS) is an off-shoot of the research project that is mandated by state law for all state funded and licensed substance abuse treatment programs. That study, the Kentucky Substance Abuse Treatment Outcome study (KTOS) provided a template and continuing information technology support for RCOS. The Kentucky Department of Behavioral Health, Developmental and Intellectual Disabilities (DBHDID) funds KTOS. The Kentucky Housing Corporation provides funding for RCOS through a contract with the University of Kentucky Center on Drug and Alcohol Research (UK CDAR). The Recovery Centers were developed through Recovery Kentucky and are managed through the Kentucky Housing Corporation.

Recovery Kentucky announced its plan for Recovery Centers in January 2005. This was an initiative to help Kentuckians recover from substance abuse and dependence - problems that often lead to chronic homelessness. The initiative was designed to initially develop ten housing recovery centers across the state, providing housing and recovery services for up to 1,000 people. There are four prototypes (The Healing Place for Men and for Women and The Hope Center for Women plus George Privett Center for Men). Plans are under way for four more centers. The Recovery Centers help people recover from addiction, gain control over their lives, and eventually reside in permanent housing.

The Recovery Centers were developed as residential settings for individuals to engage with self-help approaches in order to maintain abstinence and improve their odds of recovery from addictive levels of alcohol and drug use. Recovery Centers are not treatment facilities. They are housing environments in which individuals can pursue active use of self-help supports in gaining and maintaining recovery from alcohol and drug dependence. The basic structure of Recovery Centers includes five stages of residential status:

1. *Safe-Off-The-Streets*, or SOS, which is an initial housing safety/shelter arrangement;
2. *Motivational Track I* where individuals start to examine their commitment to begin work on serious recovery living;
3. *Motivational Track II* where individuals learn the language of self-help and more seriously apply themselves toward committing to beginning a recovery lifestyle;
4. *Phase I* where individuals spend an average of 6 months during practicing recovery living in the Recovery Center; and
5. *Phase II* where individuals graduate into more independent living with jobs outside the facility and duties as peer mentors within the facility.

The fundamental structure of the Recovery Centers was developed around approaches used by the Hope Center in Lexington, Kentucky and the Healing Place in Louisville, Kentucky; however, modifications have been made as new Recovery Centers were opened and implementation reflected necessary updates to the model.

One modification was part of the state's effort to curb unnecessary incarceration of nonviolent drug offenders. The Kentucky Department of Corrections (DOC) contracts with the Recovery Centers for about half of the centers' beds for DOC referred individuals. The Recovery Centers form a key component in providing a midway alternative between prison and unsupervised living in the community. By providing this level of supervised recovery-oriented living, the goals for reduced incarceration might be met more safely for Kentucky citizens and for the individuals involved.

Kentucky also stands to benefit from the reduced cost of incarceration through use of Recovery Center services for DOC clients. The idea of recovery-oriented residential centers is part of a nationwide interest in practices other than formal clinical treatment that might reduce substance use and lead to recovery from addictive disease. This led the Substance Abuse and Mental Health Services Administration (SAMHSA) and the Center for Substance Abuse Treatment (CSAT) to develop and encourage use of a recovery-oriented system of care (<http://www.pfr.samhsa.gov/rosc.html>). In 2008, SAMHSA/CSAT released a report summarizing the many regional meetings they held with the states on recovery-oriented treatment approaches (Sheedy & Whitter, 2008). Part of the SAMHSA interest in this also derives from greater appreciation of recovery as participation in a wellness that goes beyond mere abstinence (Laudet, Flaherty, & Langer, 2009). While the SAMHSA efforts are still under the umbrella of treatment, recovery in the broader sense is quite distinct from treatment. In Recovery Centers, the emphasis is on peer support, peer mentoring, peer guidance, and a culture of recovery within a residential setting. In fact, the Recovery Centers like to use the adage “we act our way into a new way of thinking” rather than “we think our way into a new way of acting.” Recovery environments stress daily living in a recovery mode where the persistent focus is on promoting abstinence from substance use and recovery from addiction.

The following recovery principles were articulated in the meetings CSAT held with the states and they typify those that play a role in the Kentucky Recovery Centers.

Guiding Principles of Recovery

- There are many pathways to recovery.
- Recovery is self-directed and empowering.
- Recovery involves a personal recognition of the need for change and transformation.
- Recovery is holistic.
- Recovery has cultural dimensions.
- Recovery exists on a continuum of improved health and wellness.
- Recovery emerges from hope and gratitude.
- Recovery is a process of healing and self-redefinition.
- Recovery involves addressing discrimination and transcending shame and stigma.
- Recovery is supported by peers and allies.
- Recovery is (re)joining and (re)building a life in the community.

Laudet, Flaherty, & Langer (2009) called for research to examine the effectiveness of recovery services and laid out a series of questions about recovery processes and their effectiveness. This RCOS technical report is the first research study in the nation to systematically examine outcomes among individuals participating in a residential recovery setting using a pre-test/post-test research design. In this sense, the evaluation findings are about the acts of individuals living in recovery communities more than the effects of a program that one typically sees in an outcome study.

RCOS data for this study includes information collected from individuals when they enter Phase I in the Recovery Centers. For this report period the Recovery Center staff entered discharge data on each individual as the individual left Phase I - either to go on to Phase II or to leave the Recovery Center. About six months after the individual's discharge data are entered into the database; UK CDAR contacts the individual for a follow-up

telephone interview. This means that on average, the follow-up interviews occur about 12 months after the Phase I entry. This report also uses Kentucky Housing Corporation data on individual admission dates and discharge status and status with the Department of Corrections.

There are currently 7 Kentucky Recovery Center facilities for women, including:

1. Trilogy Center for Women – Hopkinsville;
2. Women’s Addiction Recovery Manor – Henderson;
3. Brighton Recovery Center for Women – Florence;
4. Liberty Place for Women – Richmond;
5. Cumberland Hope Community Center for Women – Evarts;
6. The Healing Place for Women – Louisville; and
7. The Hope Center for Women – Lexington.

In addition, there are 7 Recovery Center facilities for men across the state including:

1. Morehead Inspiration Center for Men – Morehead;
2. The Transitions Grateful Life Center for Men – Erlanger;
3. The Healing Place for Men – Louisville;
4. George Privett Recovery Center for Men – Lexington;
5. Owensboro Regional Recovery Center for Men – Owensboro;
6. The Healing Place of Campbellsville – Campbellsville; and
7. CenterPoint Recovery Center for Men – Paducah.

1A. RESEARCH QUESTIONS

Two fundamental questions regarding outcomes from participation in the Recovery Centers are the focus of this report using RCOS data:

- (1) Do individuals participating in residential recovery experience significant improvement in the rate of abstinence after their residential stays?
- (2) Are there estimable cost reductions to society resulting from the Recovery Center episodes?

1B. METHODS FOR DATA COLLECTION AND ANALYSIS

RCOS uses a pre- and post-intervention research design, meaning that interview data is collected from Recovery Center participants as they enter Phase I (i.e., baseline) and again approximately 6 months after they are discharged from Phase I (i.e., follow-up). The research design is similar to what is used in the state treatment outcome study for general comparability.

BASELINE INTERVIEW

The baseline survey is administered on site by a Recovery Center staff person to individuals as they enter Phase I. In the earliest days of the research project, the baseline survey was collected using a structured questionnaire on PDA (personal data assistant). Baseline surveys conducted after July 1, 2010 used a web-based program. Individuals chose voluntarily to participate in the follow-up study. At the completion of baseline surveys, staff persons informed individuals about the RCOS follow-up telephone interview and asked if they were interested in participating. Individuals who agreed to participate were required to give informed consent using an electronic consent form on the PDA or the web-based tool. Individuals were informed that the research team has a Certificate of Confidentiality from the U.S. Department of Health and Human Services to protect the research team from being forced to release individual identifying data to law

enforcement or any other agency. The research project's activities are approved by the University of Kentucky Medical Institutional Review Board (IRB).

DATA COLLECTION INSTRUMENTS

The baseline survey begins with information about the Recovery Center program in which the individual is participating and basic demographic information for the individual including items such as name, social security number, date of birth, race/ethnicity, gender, and marital status. The data collection instruments (baseline and follow-up) include items from the Addiction Severity Index (ASI; McLellan et al., 1992) to measure severity of alcohol and drug dependence. In addition, selected items from the Center for Substance Abuse Treatment (CSAT) Government Performance Reporting Act (GPRA; Mulvey, Atkinson, Avula, & Luckey, 2005) are included. A few items from the WHOQOL-100 (World Health Organization Quality of Life-100) were added to provide information about the individual's health. Other items regarding the individual's physical health include questions about chronic pain and traumatic brain injury. Consistent with National Outcomes Measurements System requirements (NOMS), the remaining sections of the instrument include the following topics for RCOS:

- ♣ Education and Employment History
- ♣ Physical and Mental Health Status
- ♣ Tobacco, Alcohol, and Illicit Drug Use History
- ♣ Criminal Justice System Involvement
- ♣ Living Situation
- ♣ Recovery Support Involvement

The online baseline interview is designed to be self-contained, including on-screen clarification of questions and responses for the staff person and the individual as they go through the RCOS interview. Instructions state the staff person should simply read the questions as they appear on the screen and record the individual's responses using the options listed. The data collection program requires respondents provide an answer to all questions. Identifying data are encrypted as the data are entered into the PDA or submitted on the web-based program. Electronic data are stored on password protected computers and servers are in secure facilities. Further, locator information (i.e., telephone numbers, addresses, and contact person's addresses and telephone numbers) are stored encrypted and separate from the survey data.

FOLLOW-UP SAMPLE AND INTERVIEW

Individuals were eligible for participation in a follow-up survey if they: (1) completed a baseline survey and agreed to participate in the follow-up study, and (2) had a discharge record from Phase I (for any reason). Target dates for follow-up surveys were calculated as 6 months after the discharge date entered into the discharge record. The follow-up period began one month before the target month and spanned until two months after the target month. For example, if an individual was eligible for the follow-up survey in May, then the interviewers would attempt to complete the follow-up survey for this individual from April to the end of July. Individuals were included in this Annual Report if they met the above criteria and they were eligible for a follow-up interview on or before June 30, 2011.

Follow-up surveys were conducted by telephone by the research team's interviewers at the University of Kentucky Center on Drug and Alcohol Research. Out of the 268 individuals included in the follow-up sample, 51 were ineligible for participating in the follow-up survey because they were in a controlled environment (i.e., jail, hospital, detention center) or deceased when the interviewers attempted to locate them (see Appendix B for more information on the follow-up efforts). At the time of follow-up, 217 individuals were considered eligible, and of these 217 individuals, 206 completed follow-up surveys, for a follow-up rate of 94.9%. Ten individuals who were considered eligible at the time of follow-up

were never successfully contacted or able to complete an interview during the follow-up period. Finally, one person refused to complete the follow-up survey when contacted by the interviewers.

Most of the questions in the follow-up survey are identical to the baseline questions except the time reference on some questions. At baseline, individuals were asked about the past 12 months and the past 30 days, whereas in the follow-up survey, individuals were asked about the past 6 months and the past 30 days. The 6-month reference was used in the follow-up survey to highlight the time period after discharge from Phase I and before the follow-up interview. Additional questions were included in the follow-up survey that asked individuals about their satisfaction with and work roles in the Recovery Centers.

DATA ANALYSIS

The research project examined change from baseline to follow-up using several major analytic approaches. First, change in the percent of individuals reporting abstinence from alcohol and drugs, different living situations, occupational statuses, educational achievement, mental health problems, involvement in the criminal justice system, and recovery supports are calculated. This calculation gives a rate of change. For example, if 100 individuals out of 400 (25%) reported working full-time at baseline and at follow-up, 150 individuals out of 400 (37.5%) reported working full-time, the absolute difference between the percent at baseline and follow-up is 12.5%. However, the rate of change is 50%; in other words, there was a 50% increase in the number of individuals employed full-time (50 additional individuals working full-time as a percent of the original 100 individuals who were working full-time at baseline). Percent of change is calculated based on n values at baseline (n_1) and follow-up (n_2) using the formula: $[(n_2 - n_1)/n_1] \times 100$. A positive percent change indicates an increasing trend, and a negative percent change indicates a decreasing trend. For variables that are categorical (such as the number of individuals in a particular category such as employed full-time or alcohol abstinent), a z test for proportions is calculated to determine if the change is statistically significant.

Analysis of change from baseline to follow-up for variables that are continuous (e.g., number of arrests, number of days incarcerated, income) was conducted with paired sample t -tests to determine if the change is statistically significant. For example (and this is hypothetical), by looking at the average incomes, we may find that the average income at baseline was \$600 and at follow-up the average income was \$750, but we do not know if this difference is likely due to chance or if it is large enough to likely be due to a real change in income. To give us guidance on whether this change is significant we rely on a paired sample t -test to tell us if the difference from baseline to follow-up is statistically significant.

This report makes use of recent research on the validity of the Addiction Severity Index (ASI) composite scoring, by examining change from baseline to follow-up in the percent of individuals who met a cutoff score indicative of alcohol or drug dependence. The ASI composite score thresholds have been positively correlated with DSM-IV diagnostic criteria for alcohol and drug dependence (Rikoon et al., 2006), which allows the research team to anchor findings in the clinical severity of individuals' self-reported substance use.

For this study, change was considered statistically significant if the probability of the finding was less than .05 (i.e., $p < .05$). Data on non-significant change is included in the report for completeness of data but differences should be interpreted as random differences, rather than as a meaningful change. Further, when discussing the findings, we sometimes use the shorthand of "significant increase" or "significant decrease" in place of "statistically significant increase" or "statistically significant decrease." This is an important point because statistical significance does not necessarily equate with meaningful significance in a practical sense.

1C. LIMITATIONS

The study findings must be considered within the context of the project's limitations. First, the data included in this write-up were self-reported by Recovery Center participants. There is reason to question the validity and reliability of self-reported data, particularly with regard to sensitive topics, such as illegal behavior and stigmatizing issues such as mental health and substance use. However, recent research has supported findings about the reliability and accuracy of individuals' reports of their substance use (Del Boca & Noll, 2000; Harrison, Marin, Enev, & Harrington, 2007; Rutherford, Cacciola, Alterman, McKay, & Cook, 2000; Shannon, Mathias, Marsh, Dougherty, & Liguori, 2007). Earlier studies found that the context of the interview influences reliability (Babor, Stephens, & Marlatt, 1987). During the informed consent process at the beginning of the follow-up survey, interviewers tell participants that the research team operates independently from the Recovery Centers and individuals' responses will be reported in group format and will not be identifiable at the individual level. These assurances of confidentiality and lack of affiliation with the data collectors may minimize individuals' concern about reporting stigmatizing behavior or conditions.

Recovery Centers did not begin data collection at the same time, therefore some programs are over-represented, and some programs are under-represented in this first annual report. For example, the majority of individuals included in this sample are female. There is reason to expect that the percent of individuals who are women will decrease over time to reflect increased participation in RCOS by Recovery Centers that serve men.

Even within the context of these limitations, this report provides important information about the participation in Kentucky's Recovery Centers.

SECTION 2. DESCRIPTION OF SAMPLE AT BASELINE

Recovery Centers began data collection at various times during 2009 and 2010. As centers opened and staff hiring stabilized, UK CDAR conducted training with the Recovery Center staff on how to use the electronic interview format and how to ask questions for the survey. Not all the centers had full recruitment of DOC residents at the time the centers opened their doors for service. Thus, the demographic composition of the follow-up sample is in part an artifact of the roll out of the data collection system in the Recovery Centers. In future annual outcome reports, the ratio of DOC individuals to non-DOC and the ratios of males to females should all be around 50%.

2A. SAMPLE CHARACTERISTICS

Again, as an artifact of when different centers began enrolling individuals, the majority of the sample for this annual report was female and White (see Table 2.1). The average client age was in the early 30s. At baseline, only a minority of participants was married or cohabiting, with larger percentages of individuals reporting they were never married or divorced.

Individuals reported on their usual living arrangements in the 12 months before baseline, and a majority reported living alone, with family, or with friends. Nearly one out of five individuals reported their usual living arrangement in the past 12 months was in a controlled environment (e.g. jail, prison, residential treatment). A small number of individuals reported their usual living arrangement was on the street or in a shelter (3.9%), or in a halfway house (1.9%).

TABLE 2.1 DEMOGRAPHIC CHARACTERISTICS OF THE FOLLOW-UP SAMPLE AT BASELINE (N = 206)

	Percent or Mean
Gender	
Female	61.7%
Mean age	33.1 years
Race^a	
White	90.7%
Black/African American	7.4%
Multiracial	0.5%
Other race/ethnicity (e.g., Native American, Hispanic, Asian, other)	1.5%
Marital status	
Never married	37.9%
Married	16.5%
Separated	11.7%
Divorced	29.6%
Cohabiting	3.4%
Widowed	1.0%
Usual living arrangement in the 12 months before baseline	
Stable living arrangement (alone, with partners, with children, family, or friends)	75.7%
In a controlled environment (jail, prison, hospital)	18.4%
No stable arrangement (street, shelter)	3.9%
Halfway house	1.9%

a—Response missing for two cases.

2B. EDUCATION, EMPLOYMENT, AND INCOME AT BASELINE

Table 2.2A presents data on education at baseline. About one out of five individuals had less than a high school diploma or GED, and 40.3% had a high school diploma or GED, and 38.3% had higher levels of education at baseline to Phase I.

TABLE 2.2A. EDUCATION AT BASELINE (N = 206)

	Percent or Mean
Highest level of education completed	
Less than GED or high school diploma	21.4%
GED or high school diploma	40.3%
Some vocational/technical school to graduate studies	38.3%

Due to changes in the wording of the baseline surveys across different fiscal years, there was some variation in employment questions and thus individuals in this follow-up sample have two different answer groups in Table 2.2B. The first set of responses about employment and income are for individuals who completed the baseline survey in FY 2010. Of these 145 individuals, 29.7% reported that their usual employment in the past 12 months was full-time and 15.9% reported part-time employment (including irregular, day work). The majority of these 145 individuals reported that their usual employment status in the 12 months before baseline was unemployed: either looking for work (40.7%) or not looking for work (13.8%) because they were retired, disabled, a student, a caregiver, or in a controlled environment. The mean monthly income from all sources in the 30 days before baseline for these 145 individuals was \$526.

The second subset of individuals completed the baseline survey in FY 2011 (n = 61) and thus they were asked different questions about their employment at baseline. The mean number of months they reported being employed (full-time or part-time) in the 12 months before baseline was 2.3. The vast majority of these individuals reported that they were not currently employed, and most of these unemployed individuals were in a controlled environment.

TABLE 2.2B. EMPLOYMENT AND INCOME AT BASELINE

	Percent or Mean
Usual employment status in the past 12 months	n = 145 ^a
Employed full-time	29.7%
Employed part-time (including irregular, day work)	15.9%
Unemployed, looking for work	40.7%
Unemployed, not looking for work (retired, disabled, student, in a controlled environment)	13.8%
Mean # of days paid for working in the past 30 days	6.1 days
Of those who were paid for work at least one day in the past 30 days (n = 40),	
Mean # of days paid for working	22.1 days
Mean income from all sources in the past 30 days	\$526
Employment	n = 61 ^b
Mean # of months employed in the past 12 months	2.3 months
Current Employment Status	
Full Time (>35 hours per week)	1.6%
Part Time (<35 hours per week)	0.0%
Not Currently Employed	98.4%
Looking for work	6.7%
On disability	5.0%
In a controlled environment	88.3%

a—Cases that were submitted on FY 2010 baseline survey

b—Cases that were submitted on FY 2011 baseline survey using different employment measures

2C. CRIMINAL JUSTICE SYSTEM INVOLVEMENT AT BASELINE

The majority of individuals in the sample reported being referred to the Recovery Center by the criminal justice system (see Table 2.3). Not all of those referred by the criminal justice system were considered DOC cases whose costs were covered by that Department. Small percentages of individuals were referred to the Recovery Center because of DUI charge or by a state child protective service agency. Similar percentages of individuals in the FY 2010 and FY 2011 baseline data collection reported that they were self-referred: 33.8% and 37.7%, respectively.

A little less than three-fourths of individuals (71.8%) reported they had been arrested in the 12 months before baseline. Of the 148 individuals who reported being arrested, there were reported an average of 2.6 arrests in the 12 months before baseline. Almost 10% of individuals reported that they were in Drug Court at baseline. Nearly half of individuals (44.7%) reported that they were on probation, and 13.6% reported they were on parole at baseline.

TABLE 2.3. REFERRAL TO THE RECOVERY CENTER AND CRIMINAL JUSTICE SYSTEM INVOLVEMENT AT BASELINE

	Percent or Mean
Admission/Referral Reason (n=206)	
Criminal justice system (judge, probation officer, parole board)	61.2%
State protective agency	2.4%
Self-referred	34.5%
Other reason	1.9%
Past 12 Months at Baseline (n=206)	
Arrested for any charge	71.8%
Of those with an arrest (n =148), mean number of arrests	2.6 arrests
In Drug Court	9.7%
On probation	44.7%
On parole	13.6%

Table 2.4 displays criminal charges among the total sample (n=206) compared to the only those individuals who had an arrest in the past 12 months (n=148). Among the total sample at baseline, 32.0% of individuals reported charges for drug-related crimes in the past 12 months. Among individuals who were arrested in the past 12 months, 44.6% had a drug charge. The next most commonly mentioned charges were for property crimes (29.1% vs. 40.5%), probation/parole violations (24.8% vs. 34.5%), and other crimes (24.3% vs. 33.8%) such as failure to pay child support, contempt of court, or disorderly conduct.

TABLE 2.4. PERCENT OF INDIVIDUALS ARRESTED AND CHARGED 12 MONTHS BEFORE BASELINE BY TYPE OF CHARGE

Types of Criminal Charges Reported at Baseline	Percent of Total Sample (n = 206)	Percent of the Sample with an Arrest in Past 12 months (n=148)
Crimes against a person	7.3 %	10.1%
Drug charge	32.0 %	44.6%
DUI	13.1 %	18.2%
Probation or parole violation	24.8 %	34.5%
Property crime	29.1 %	40.5%
Other crimes (e.g. contempt, criminal mischief, disorderly conduct, endangering minor, failure to pay child support, failure to comply with court order, moving violations, public intoxication, trespassing, resisting arrest)	24.3 %	33.8%

Around three fourths (74.8%) of the sample reported being incarcerated for at least one day in the past 12 months prior to baseline (See Table 2.5). The average incarceration time of 103.4 days was reported by the 154 individuals who were

incarcerated at least one day in the past 12 months. Of those who reported being arrested in the 12 months prior to baseline, 91.9% spent at least one day incarcerated with an average incarceration length of 81.3 days out of the past 12 months.

TABLE 2.5. INCARCERATION HISTORY AT BASELINE (N = 206)

Incarceration History at Baseline	Percent/Mean of Total Sample (n = 206)	Percent/Mean of the Sample with an Arrest in Past 12 months (n=148)
Incarcerated at least one day	74.8%	91.9%
Of those incarcerated	(n=154)	(n=136)
Mean # of days incarcerated in the past 12 months at baseline	103.4 days	81.3 days

2D. SUBSTANCE USE AT BASELINE

In the 12 months before entering the Recovery Center, the majority of the sample (90.3%) reported use of tobacco products (See Table 2.6). Almost three-fourths (73.8%) of individuals reported alcohol use in the past 12 months, and 67.5% reported alcohol use to intoxication. In addition, 69.9% reported illicit use of prescription opiates while little more than half (54.9%) used tranquilizers (including sedatives and benzodiazepines). Similarly, nearly half (54.4%) reported marijuana use. A little less than half (47.6%) reported cocaine use. Of the 109 individuals who were asked if they had used Buprenorphine (Suboxone, Subutex), a little over one third (35.8%) reported its use illicitly in the 12 months before baseline. Thirty five percent of individuals reported use of non-prescribed methadone. Furthermore, 35% reported use of amphetamines, and 31.1% reported specific use of methamphetamine. Less than one fourth (22.3%) of the sample reported use of barbiturates.

Similar patterns were found in the past 30-days substance use measure with fewer individuals reporting use of each substance. One exception in the overall pattern of use is that for the past 30-day substance use, the use of hallucinogens (1.5%) is the smallest reported percent.

TABLE 2.6. PERCENT OF INDIVIDUALS REPORTING USE OF SUBSTANCES IN THE 12 MONTHS AND 30 DAYS BEFORE BASELINE (N=206)

Substances	Percent	
	Past 12 Months	Past 30 Days
Tobacco	90.3%	79.1%
Alcohol	73.8%	44.2%
Alcohol to intoxication	67.5%	41.3%
Prescription opiates (illicit use)	69.9%	44.2%
Tranquilizers, sedatives, benzodiazepines	54.9%	32.0%
Marijuana	54.4%	30.6%
Cocaine	47.6%	19.9%
Non-prescribed buprenorphine (Suboxone, Subutex) ^a	35.8%	14.2%
Non-prescribed methadone	35.0%	15.0%
Amphetamines	35.0%	15.0%
Methamphetamine	31.1%	12.6%
Barbiturates	22.3%	11.2%
Heroin	20.4%	9.2%
Hallucinogens	14.6%	1.5%
Inhalants	9.2%	2.4%

a—Question about Subutex was not included for 97 cases, thus the percentage reported is of 109 cases

The majority of the follow-up sample (68.9%) reported having been in substance abuse treatment in their lifetime, with an average of 3.7 treatment episodes (not in a table). Among individuals who were not in a controlled environment all 30 days before baseline, the mean score on the alcohol severity composite score was .46 and the mean score for the drug severity composite score was .32 (See Table 2.7). Among individuals who were in a controlled environment all 30 days before baseline, the mean score for the alcohol severity composite score was .28 and the mean score for the drug severity composite score was .17. The majority of individuals who were in a controlled environment all 30 days before baseline and individuals who were not in a controlled environment all 30 days before baseline met or surpassed the Addiction Severity Index (ASI) composite score (CS) cutoff for alcohol dependence (0.17). Three fourths of individuals (75.8%) who were free to come and go as they pleased (not in a controlled environment) met or surpassed the ASI CS for drug dependence (0.16). Two out of five individuals, who were in a controlled environment all 30 days before baseline, met or surpassed the ASI CS for drug dependence (40.7%). The vast majority of both subsets of individuals had an ASI composite score (CS) that met or surpassed DSM-IV criteria for alcohol or drug dependence. These average cutoff scores include individuals with scores of 0 on the composites. The highest composite score is 1.0 for each of the two substance categories.

TABLE 2.7. SUBSTANCE ABUSE AND DEPENDENCE PROBLEMS AT BASELINE

Recent substance use problems among individuals who were...	<u>Not</u> in a controlled environment all 30 days before entering the Recovery Center (n=120)	In a controlled environment all 30 days before entering the Recovery Center (n=86)
Mean Addiction Severity Index composite score for alcohol use ^{-a}	.46	.28
Mean Addiction Severity Index composite score for drug use ^{-b}	.32	.17
Percent of Individuals with ASI CS equal to or greater than cutoff score for ...		
alcohol dependence	86.7%	83.7%
drug dependence	75.8%	40.7%
alcohol <u>or</u> drug dependence	95.8%	86.0%

^{-a} Score equal to or greater than .17 is indicative of alcohol dependence.

^{-b} Score equal to or greater than .16 is indicative of drug dependence.

SECTION 3. SATISFACTION WITH RECOVERY CENTER PROGRAMS

At the beginning of the follow-up survey, interviewers asked participants questions about their satisfaction with the Recovery Center program and their staff assistant/supervisor experiences in the program.

The majority of individuals reported they either agreed or strongly agreed with satisfaction statements regarding the Recovery Center program (See Table 3.1). Nearly all (98.5%) agreed or strongly agreed that “The facility was clean”. In addition, 95.6% agreed/strongly agreed with the statement that “You feel better about yourself as a result of your participation in the Recovery Center Program”. A high percent (94.7%) agreed/strongly agreed with the statement “You were treated with respect”. Around ninety four percent of individuals agreed/strongly agreed with the statement “You understood what was expected of you during your participation in the Recovery Center program”. “You received the services you needed to help you get better” was agreed/strongly agreed to by 93.2% and 91.3% agreed/strongly agreed “Staff explained your rights as a program participant”.

TABLE 3.1. PERCENT OF INDIVIDUALS WHO AGREED/STRONGLY AGREED WITH THE FOLLOWING STATEMENTS ABOUT THE RECOVERY CENTER PROGRAM AT FOLLOW-UP

Satisfaction Statements	Percent
“You were treated with respect”	94.7%
“Staff explained your rights as a program participant”	91.3%
“The facility was clean”	98.5%
“You understood what was expected of you during your participation in the Recovery Center program”	94.2%
“You received the services you needed to help you get better”	93.2%
“You feel better about yourself as a result of your participation in the Recovery Center program”	95.6%

The majority of individuals (76.2%) gave a positive rating of 8-10 for their experience in the Recovery Center program, where 10 represents the best experience (not in a table). The mean rating was 8.3 indicating an overwhelmingly positive experience rating by the sample.

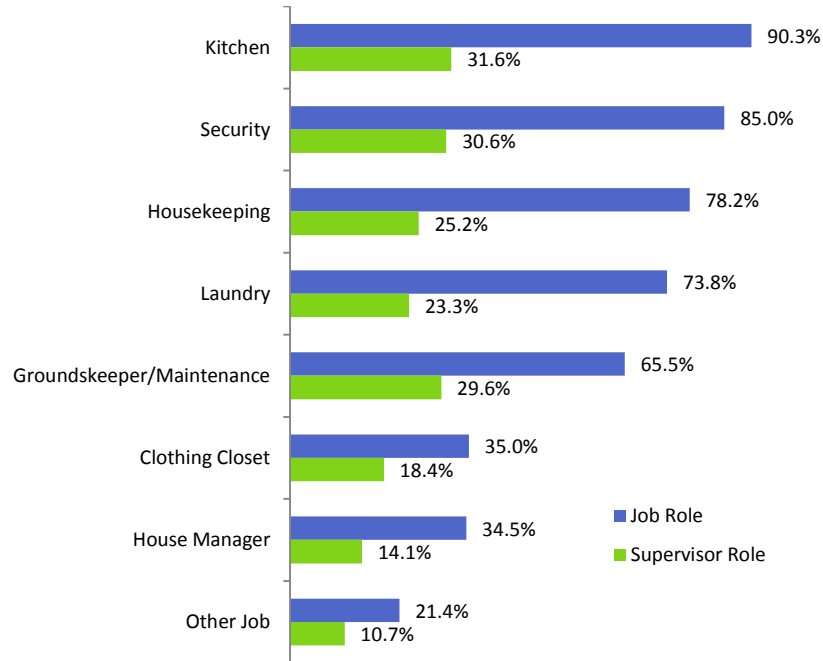
During the follow-up individuals were asked about their participation in various staff assistant/supervisor roles at the Recovery Center. Figure 3.1 shows the percent of individuals who reported being a staff assistant, supervisor in the different capacities during the Phase I stay. The differences in percent of individuals in each role are mostly about the demand for services – that is, some jobs require a larger number of workers.

A majority (90.3%) of followed up individuals reported working as an assistant in the kitchen while participating in the Recovery Center programs. Eighty five percent of individuals reported working as a security assistant. A little more than three fourths of the sample (78.2%) worked as an assistant in housekeeping. The work assignment of assistant to laundry was reported by 73.8%. In addition, 65.5% reported working as an assistant in groundskeeper/maintenance. The smallest percent of work assignment positions include 35.0% as assistants in clothing closet, 34.5% as assistants to house manager, and 21.4% reporting other job roles.

The pattern of followed-up individuals reporting work as a supervisor in work assignments at the Recovery Centers is similar to the pattern of followed-up individuals reporting work as an assistant with the exception of fewer individuals reporting positions as supervisors. Almost one third of individuals reported that they had worked as a supervisor in the

kitchen at the Recovery Center. The numbers in Figure 3.1 exceed 100% because individuals could report multiple job assignments.

FIGURE 3.1. PERCENT OF FOLLOWED-UP INDIVIDUALS WHO REPORTED SPECIFIC WORK ASSIGNMENTS IN THE RECOVERY CENTER (N=206)



SECTION 4. INDIVIDUAL RECOVERY OUTCOMES AT FOLLOW-UP

Changes in alcohol and drug use from baseline to follow-up were analyzed separately for individuals who were in a controlled environment (i.e., jail, prison, hospital) all 30 days before baseline. The assumption for this divided analysis is that being in a controlled environment inhibits opportunities for alcohol and drug use. Section 4A presents changes in abstinence for individuals who were NOT in a controlled environment all 30 days before baseline. Since these individuals were not in a controlled environment all 30 days before follow-up, they had greater opportunity to use alcohol or drugs at follow-up than they likely had at baseline.

4A. CHANGE IN SUBSTANCE USE FROM BASELINE TO FOLLOW-UP FOR INDIVIDUALS NOT IN A CONTROLLED ENVIRONMENT AT BASELINE

TOBACCO

The majority of individuals reported using tobacco in the 30 days before baseline (90.8%) and at follow-up (90.8%). Only 9.2% of individuals were abstinent from tobacco at baseline and follow-up (see Table 4A.1). Overall, there was no change in tobacco use from baseline to follow-up.

TABLE 4A.1. CHANGE IN TOBACCO ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
TOBACCO					
Men (n = 50)	3	6.0%	5	10.0%	66.7%
Women (n = 70)	8	11.4%	6	8.6%	-25.0%
Total (n = 120)	11	9.2%	11	9.2%	0.0%

*p < .05, **p < .01, ***p < .001.

ALCOHOL

Table 4A.2 shows that only 37.5% of the follow-up sample was alcohol abstinent at baseline. There was a significant 148.9% increase in the percent of individuals who reported being abstinent from alcohol at follow-up (93.3%). All but one of the men (98.0%) was alcohol abstinent at follow-up and 90.0% of women were alcohol abstinent at follow-up. The number of individuals who did not use alcohol to intoxication significantly increased 133.3% from baseline to follow-up.

TABLE 4A.2. CHANGE IN ALCOHOL AND ALCOHOL TO INTOXICATION ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
ALCOHOL					
Men (n = 50)	15	30.0%	49	98.0%	226.7%***
Women (n = 70)	30	42.9%	63	90.0%	110.0%***
Total (n = 120)	45	37.5%	112	93.3%	148.9%***
ALCOHOL TO INTOXICATION					
Men (n = 50)	17	34.0%	49	98.0%	188.2%***
Women (n = 70)	31	44.3%	63	90.0%	103.2%***
Total (n = 120)	48	40.0%	112	93.3%	133.3%***

*p < .05, **p < .01, ***p < .001.

In order to examine how many of the individuals who reported alcohol abstinence at baseline maintained their abstinence at follow-up, additional analyses were completed. Of the 45 individuals who were alcohol abstinent at baseline, 95.3% were alcohol abstinent at follow-up (see Table 4A.3). All but one of the men who were abstinent at baseline and all but one of the women who were alcohol abstinent at baseline maintained alcohol abstinence at follow-up. Similarly high percentages of men and women reported they did not use alcohol to intoxication at follow-up.

TABLE 4A.3. ALCOHOL AND ALCOHOL TO INTOXICATION ABSTINENCE AT FOLLOW-UP FOR INDIVIDUALS WHO WERE ALCOHOL ABSTINENT IN THE 30 DAYS BEFORE BASELINE AND WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE (N = 45)

	ABSTINENT AT FOLLOW-UP	
	n	Valid %
ALCOHOL		
Men (n =15)	14	93.3%
Women (n = 30)	29	96.7%
Total (n = 45)	43	95.3%
ALCOHOL TO INTOXICATION		
Men (n =15)	14	93.3%
Women (n = 30)	29	96.7%
Total (n = 45)	43	95.6%

ILLICIT DRUG USE

There was a significant increase in illicit drug abstinence from baseline to follow-up (see Table 4A.4). At baseline, 28 of the 120 individuals (23.3%) who were not in a controlled environment all 30 days before baseline were abstinent from all illicit drugs and by follow-up this number had increased by 275.0% to 105 individuals (87.5%). The number of men who were abstinent from illicit drug use increased by 200.0% and the number of women who were abstinent from illicit drugs increased by 361.5%.

TABLE 4A.4. CHANGE IN ILLICIT DRUG ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
ILLICIT DRUGS					
Men (n =50)	15	30.0%	45	90.0%	200.0%***
Women (n = 70)	13	18.6%	60	85.7%	361.5%***
Total (n = 120)	28	23.3%	105	87.5%	275.0%***

*p < .05, **p < .01, ***p < .001.

In order to examine how many of the individuals who reported illicit drug abstinence at baseline maintained their abstinence at follow-up, additional analyses were conducted. Of the 28 individuals who were drug abstinent at baseline, 92.9% were still abstinent from illicit drug use at follow-up (see Table 4A.5).

TABLE 4A.5. ILLICIT DRUG ABSTINENCE AT FOLLOW-UP FOR INDIVIDUALS WHO REPORTED ABSTAINING FROM ILLICIT DRUGS IN THE 30 DAYS BEFORE BASELINE AND WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT FOLLOW-UP	
	n	Valid %
ILLICIT DRUGS		
Men (n =15)	15	100%
Women (n = 13)	11	84.6%
Total (n = 28)	26	92.9%

MARIJUANA

Over half of individuals reported that they were marijuana abstinent in the 30 days before baseline (See Table 4A.6). By follow-up, 95.8% of individuals reported they were marijuana abstinent, which represents a 66.7% increase from baseline to follow-up. Just over half of men reported marijuana abstinence at baseline. By follow-up, 96.0% of men reported marijuana abstinence, representing an 84.6% increase. There was a 55.8% increase in the number of women reporting marijuana abstinence from baseline (61.4%) to follow-up (95.7%).

TABLE 4A.6. CHANGE IN MARIJUANA ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	MARIJUANA				
Men (n =50)	26	52.0%	48	96.0%	84.6%***
Women (n = 70)	43	61.4%	67	95.7%	55.8%***
Total (n = 120)	69	57.5%	115	95.8%	66.7%***

*p < .05, **p < .01, ***p < .001.

OPIATES

Abstinence from prescription opiates increased significantly from baseline to follow-up (see Table 4A.7). Overall, 39.2% were abstinent from prescription opiates at baseline and by follow-up 96.7% were abstinent, representing a 146.8% increase in prescription opiate abstinence. Half of the men reported prescription opiate abstinence at baseline. At follow-up, 96.0% of men reported they were abstinent from prescription opiates, which was a 92.0% increase. At baseline, less than one third of women (31.4%) were abstinent from prescription opiates. At follow-up, 97.1% of women were abstinent from prescription opiates, which was a 209.1% increase.

TABLE 4A.7. CHANGE IN PRESCRIPTION OPIATE ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	PRESCRIPTION OPIATES				
Men (n =50)	25	50.0%	48	96.0%	92.0%***
Women (n = 70)	22	31.4%	68	97.1%	209.1%***
Total (n = 120)	47	39.2%	116	96.7%	146.8%***

*p < .05, **p < .01, ***p < .001.

Smaller percentages of individuals reported heroin use at baseline than prescription opiate abuse (see Table 4A.8). The majority of individuals were heroin abstinent at baseline, with significant increases for men and for the overall sample. At follow-up, 100% of the men reported they were abstinent from heroin, and 94.3% of the women reported they were abstinent from heroin.

TABLE 4A.8. CHANGE IN HEROIN ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	HEROIN				
Men (n =50)	44	88.0%	50	100.0%	13.6%*
Women (n = 70)	59	84.3%	66	94.3%	11.9%
Total (n = 120)	103	85.8%	116	96.7%	12.6%**

*p < .05, **p < .01, ***p < .001.

Just over three fourths of the individuals who were not in a controlled environment all 30 days before baseline reported they were abstinent from non-prescribed methadone at baseline (see Table 4A.9). By follow-up, all but one individual reported being abstinent from non-prescribed methadone, representing a 26.6% increase.

TABLE 4A.9. CHANGE IN NON-PRESCRIBED METHADONE ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	NON-PRESCRIBED METHADONE				
Men (n =50)	38	76.0%	50	100.0%	31.6%***
Women (n = 70)	56	80.0%	69	98.6%	23.2%***
Total (n = 120)	94	78.3%	119	99.2%	26.6%***

*p < .05, **p < .01, ***p < .001.

COCAINE

The majority of the follow-up sample that was not in a controlled environment all 30 days before baseline was cocaine abstinent at baseline, with significant increases in the number of men and women who reported being cocaine abstinent at follow-up (see Table 4A.10). The number of men who were abstinent from cocaine increased by 53.1% and the number of women who were abstinent from cocaine increased by 23.2%. By follow-up, 98.0% of men and 98.6% of women reported they were abstinent from cocaine.

TABLE 4A.10. CHANGE IN COCAINE ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	COCAINE				
Men (n =50)	32	64.0%	49	98.0%	53.1%***
Women (n = 70)	56	80.0%	69	98.6%	23.2%***
Total (n = 120)	88	73.3%	118	98.3%	34.1%***

*p < .05, **p < .01, ***p < .001.

AMPHETAMINES

Similar to changes in cocaine abstinence, the majority of individuals reported they were abstinent from amphetamines at baseline, with significant increases in abstinence at follow-up (see Table 4A.11). Just over three fourths of individuals who were not in a controlled environment all 30 days before baseline were amphetamine abstinent at baseline, and at follow-up, 96.7% were amphetamine abstinent, representing a 23.4% increase in abstinence.

TABLE 4A.11. CHANGE IN AMPHETAMINE ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
AMPHETAMINE					
Men (n =50)	41	82.0%	49	98.0%	19.5%**
Women (n = 70)	53	75.7%	67	95.7%	26.4%***
Total (n = 120)	94	78.3%	116	96.7%	23.4%***

*p < .05, **p < .01, ***p < .001.

TRANQUILIZERS/SEDATIVES/BENZODIAZEPINES

Just a little over half of individuals who were not in a controlled environment all 30 days before baseline reported they were abstinent from tranquilizers, sedatives, benzodiazepines at baseline (see Table 4A.12). At follow-up, 95.8% reported they were abstinent, which was a 79.7% increase. At follow-up, 100% of men and 92.9% of women reported they were abstinent from tranquilizers, sedatives, benzodiazepines.

TABLE 4A.12. CHANGE IN TRANQUILIZER, SEDATIVES, BENZODIAZEPINE ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
TRANQUILIZERS, SEDATIVES, BENZODIAZEPINES					
Men (n =50)	30	60.0%	50	100.0%	66.7%***
Women (n = 70)	34	48.6%	65	92.9%	91.2%***
Total (n = 120)	64	53.3%	115	95.8%	79.7%***

*p < .05, **p < .01, ***p < .001.

BARBITURATES

The majority of individuals (83.3%) were barbiturate abstinent at baseline, and at follow-up, all individuals were barbiturate abstinent, representing a 20.0% increase (See Table 4A.13). There were significant increases from baseline to follow-up in the number of men and women who reported they were abstinent from barbiturates.

TABLE 4A.13. CHANGE IN BARBITURATES ABSTINENCE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	BARBITURATES				
Men (n = 50)	39	78.0%	50	100%	28.2%***
Women (n = 70)	61	87.1%	70	100%	14.8%**
Total (n = 120)	100	83.3%	120	100%	20.0%***

*p < .05, **p < .01, ***p < .001.

OVERALL ABSTINENCE OUTCOMES

Given the strong commitment to self-help as an approach to recovery living in the Recovery Centers, the most desired outcome from participation is total abstinence. Abstinence from drug and alcohol use suggests the residential environment has made a beneficial impact on an individual and that the person has personally accepted abstinence as the desired outcome. Thus, when we examine data from individuals who were abstinent from all substances at baseline and at follow-up, we see a very large increase in the percent of individuals with abstinence by follow-up. Some individuals enter into Recovery Centers already abstinent, but still in need of the support of a recovery living environment to maintain and bolster their abstinence status. Table 4A.14 shows that only 7.8% of the individuals were abstinent from all substances at baseline, but fully 75.1% were abstinent by follow-up.

TABLE 4A.14. PERCENT OF INDIVIDUALS WHO WERE ABSTINENT FROM BOTH ALCOHOL AND ILLICIT DRUGS AT BASELINE OR FOLLOW-UP (N = 205)

		Baseline ^a		Follow-Up ^b	
		Frequency	Percent	Frequency	Percent
Past 12 Months ^a /Past 6 Months ^b	Men (n = 78)	7	9.0%	59	75.6%
	Women (n = 127)	9	7.1%	95	74.8%
	Total (n = 205)	16	7.8%	154	75.1%
Past 30 Days	Men (n = 78)	23	29.5%	65	83.3%
	Women (n = 127)	48	37.8%	109	85.8%
	Total (n = 205)	71	34.6%	174	84.9%

^a – Baseline is 12 month period

^b – Follow-up is 6 month period

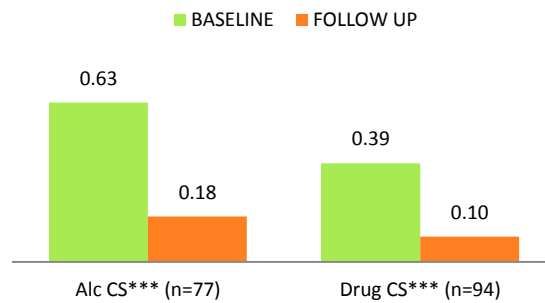
CHANGE IN ADDICTION SEVERITY

Another way to examine overall change in degree of severity of substance use disorder is to use the Addiction Severity Index (ASI) composite score (CS). This can be used to estimate the prevalence of individuals who are likely to meet criteria for active alcohol or drug dependence. We also use it to show overall mean reductions in severity scores for substance using individuals. Change in the mean ASI CS for alcohol and drugs was examined for individuals who were not in a controlled environment all 30 days before baseline. Individuals who reported abstaining from alcohol or drugs at baseline and follow-up were not included in the analysis of change for each composite score.

Figure 4A.1 displays the change in mean scores for individuals who were not in a controlled environment all 30 days before baseline. Mean score for the Alcohol CS significantly decreased from 0.63 at baseline to 0.18 at follow-up. The mean score for the Drug CS significantly decreased from 0.39 at baseline to 0.10 at follow-up. The number of individuals

in the Figure includes duplicates as some individuals might meet criteria for both types of substance use – alcohol and drug.

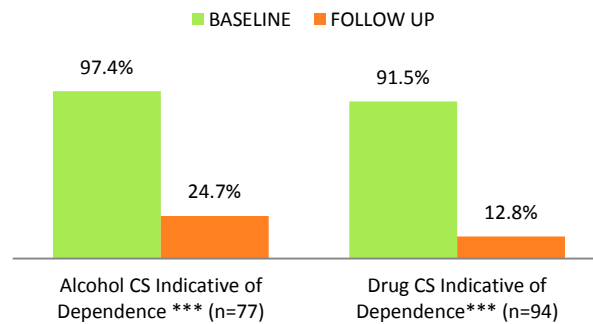
FIGURE 4A.1. MEAN ALCOHOL ASI ALCOHOL^a AND DRUG^b COMPOSITE SCORES AT BASELINE AND FOLLOW-UP FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE



a—The following numbers of cases were not included in the analysis of change in alcohol CS for the following reasons: 43 individuals reported abstaining from alcohol at baseline and follow-up.
 b— The following numbers of cases were not included in the analysis of change in drug CS for the following reasons: 26 individuals reported abstaining from drugs at baseline and follow-up.
 *p < .05, **p < .01, ***p < .001.

Among the individuals who were not in a controlled environment all 30 days before baseline and who did not report abstaining from the substance (alcohol, drugs) both at baseline and follow-up, the percent of individuals who had ASI CS that met the cutoff for dependence decreased significantly from baseline to follow-up (see Figure 4A.2). The vast majority of individuals had Alcohol CS and Drug CS that met the cutoff for dependence at baseline, while the percentages of individuals with Alcohol CS and Drug CS that met the cutoff for dependence decreased significantly at follow-up. Only 24.7% of individuals had an Alcohol CS that met the cutoff for dependence at follow-up, and only 12.8% had a Drug CS that met the cutoff for dependence at follow-up.

FIGURE 4A.2. PERCENT OF INDIVIDUALS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR ALCOHOL OR DRUG DEPENDENCE AT BASELINE AND FOLLOW-UP^a

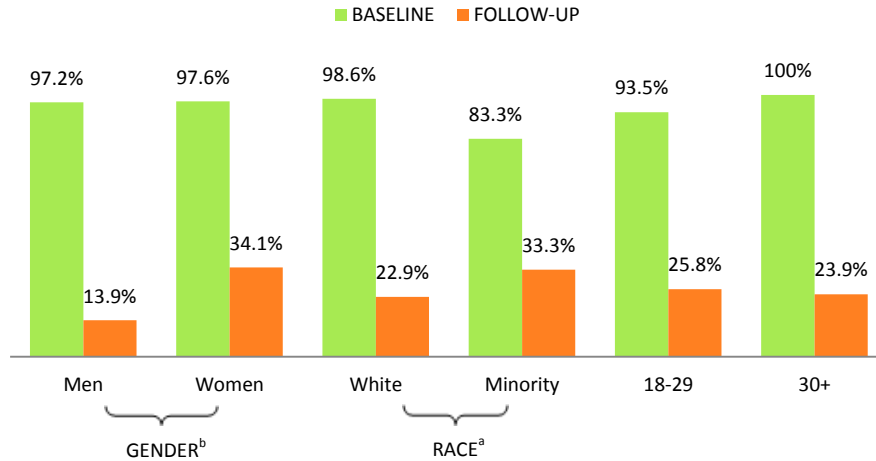


a—Significance tested with z test for proportions; *p < .05, **p < .01, ***p < .001.

The data were examined to determine whether individuals who had Alcohol CS indicative of dependence at baseline and follow-up differed by gender, race/ethnicity, or age (see Figure 4A.3). Significantly more women had an Alcohol CS indicative of dependence at follow-up than men. In addition a higher percentage of individuals who had an Alcohol CS

indicative of dependence were White than racial minorities at baseline. No differences were found between age groups (18-29 years old vs. 30 years or older).

FIGURE 4A.3. PERCENT OF ALCOHOL-USING INDIVIDUALS WITH AN ALCOHOL CS INDICATIVE OF DEPENDENCE AT BASELINE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 77)

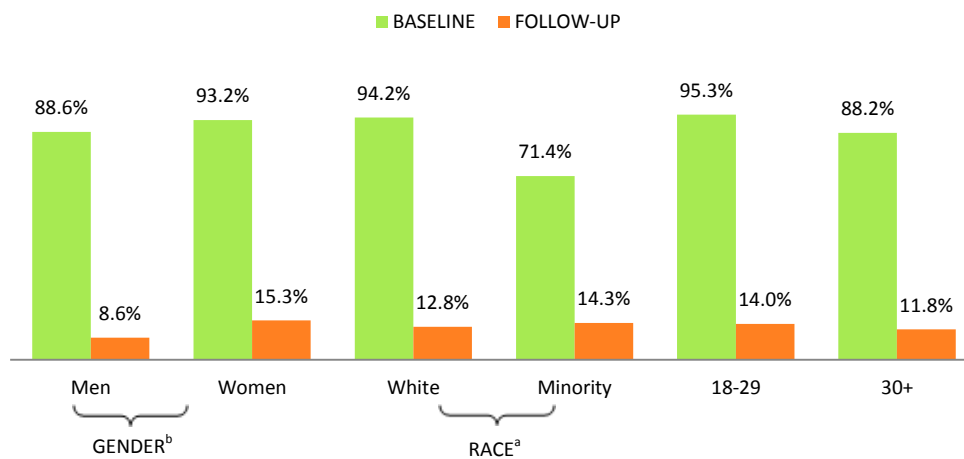


a—Indicates that there was a statistically significant difference ($p < .05$) in percent of individuals with alcohol CS equal to or greater than the cutoff score at baseline by group. Chi square tests were conducted.

b—Indicates that there was a statistically significant difference ($p < .05$) in percent of individuals with alcohol CS equal to or greater than the cutoff score at follow-up by group. Chi square tests were conducted.

Analyses were also conducted to determine if individuals who had a Drug CS indicative of dependence at baseline and follow-up differed by gender, race/ethnicity, or age (see Figure 4A.4). Significantly more individuals who had a Drug CS indicative of dependence at baseline were White than a racial minority. There were no other significant differences in the percent of individuals who had a Drug CS indicative of dependence at baseline or follow-up by gender or age group.

FIGURE 4A.4. PERCENT OF DRUG-USING INDIVIDUALS WITH A DRUG CS INDICATIVE OF DEPENDENCE AT BASELINE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 94)



a—Indicates that there was a statistically significant difference ($p < .05$) in percent of individuals with drug CS equal to or greater than the cutoff score at baseline by group. Chi square tests were conducted.

4B. CHANGE IN SUBSTANCE USE FROM BASELINE TO FOLLOW-UP FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT AT BASELINE

Changes in alcohol and drug use from baseline to follow-up were analyzed separately for individuals who were in a controlled environment (prison, jail, other drug-free residential facility) all 30 days before baseline because being in a controlled environment inhibits opportunities for alcohol and drug use. Section 4B presents changes in abstinence for individuals who were in a controlled environment all 30 days before baseline.

TOBACCO

Over one third of individuals who were in a controlled environment all 30 days before baseline reported they were abstinent from tobacco in the 30 days before baseline (see Table 4B.1). At follow-up, a significantly lower percent of individuals reported they were tobacco abstinent: 12.8%. This decrease in the number of tobacco abstinent individuals was statistically significant for men, women, and the overall subset of individuals who were in a controlled environment all 30 days before baseline.

TABLE 4B.1. CHANGE IN TOBACCO ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
TOBACCO					
Men (n =28)	11	39.3%	3	10.7%	-72.7%*
Women (n = 57)	21	36.6%	8	14.0%	-61.9%**
Total (n = 85)	32	37.6%	11	12.8%	-65.6%***

*p < .05, **p < .01, ***p < .001.

ALCOHOL

As expected, given their confinement to a controlled environment in the 30 days before baseline, the majority of individuals reported they were abstinent from alcohol at baseline (see Table 4B.2). Unlike tobacco abstinence, which decreased from baseline to follow-up, the percent of individuals who reported being alcohol abstinent at follow-up, increased, but not significantly. At follow-up, 88.2% of individuals reported they were alcohol abstinent, and 91.8% reported they had not used alcohol to intoxication.

TABLE 4B.2. CHANGE IN ALCOHOL AND ALCOHOL TO INTOXICATION ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
ALCOHOL					
Men (n =28)	19	67.9%	23	82.1%	21.1%
Women (n = 57)	50	87.7%	52	91.2%	4.0%
Total (n = 85)	69	81.2%	75	88.2%	8.7%
ALCOHOL TO INTOXICATION					
Men (n =28)	21	75.0%	25	89.3%	19.0%
Women (n = 57)	51	89.5%	53	93.0%	3.9%
Total (n = 85)	72	84.7%	78	91.8%	8.3%

*p < .05, **p < .01, ***p < .001

In order to examine how many of the individuals who reported alcohol abstinence at baseline maintained their abstinence at follow-up, additional analyses were run. Of the 69 individuals who were alcohol abstinent at baseline, 88.4% were alcohol abstinent at follow-up: 73.7% of the men and 94.0% of the women (see Table 4B.3). Also, the majority of individuals who were alcohol abstinent at baseline reported that they did not use alcohol to intoxication at follow-up.

TABLE 4B.3. ALCOHOL AND ALCOHOL TO INTOXICATION ABSTINENCE AT FOLLOW-UP FOR INDIVIDUALS WHO REPORTED ABSTAINING FROM ALCOHOL IN THE 30 DAYS BEFORE BASELINE AND WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT FOLLOW-UP	
	n	Valid %
ALCOHOL		
Men (n =19)	14	73.7%
Women (n = 50)	47	94.0%
Total (n = 69)	61	88.4%
ALCOHOL TO INTOXICATION		
Men (n =19)	16	84.2%
Women (n = 50)	48	96.0%
Total (n = 69)	64	92.8%

*p < .05, **p < .01, ***p < .001.

ILLICIT DRUGS

Of the individuals who were in a controlled environment all 30 days before baseline, 64.3% of the men and 73.7% of the women (70.6% overall) reported they were abstinent from all illicit drugs at baseline (see Table 4B.4). There was a significant increase in the number of women reporting illicit drug abstinence at follow-up; increased by 21.4%. Even though the number of men who reported illicit drug abstinence increased from 18 at baseline to 21 at follow-up, this change was not statistically significant. Overall, 84.7% of individuals reported they were abstinent from illicit drugs at follow-up.

TABLE 4B.4. CHANGE IN ILLICIT DRUG ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
ILLICIT DRUGS					
Men (n =28)	18	64.3%	21	75.0%	16.7%
Women (n = 57)	42	73.7%	51	89.5%	21.4%*
Total (n = 85)	60	70.6%	72	84.7%	20.0%*

*p < .05, **p < .01, ***p < .001.

Of the 60 individuals who were in a controlled environment all 30 days before baseline and who reported abstaining from illicit drugs at baseline, 86.7% reported at follow-up that they were abstinent from illicit drugs (see Table 4B.5).

TABLE 4B.5. ILLICIT DRUG ABSTINENCE AT FOLLOW-UP FOR INDIVIDUALS WHO REPORTED ABSTAINING FROM ILLICIT DRUGS IN THE 30 DAYS BEFORE BASELINE AND WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT FOLLOW-UP	
	n	Valid %
ILLICIT DRUGS		
Men (n =18)	13	72.2%
Women (n = 42)	39	92.9%
Total (n = 60)	52	86.7%

*p < .05, **p < .01, ***p < .001.

Of the individuals who reported being in a controlled environment all 30 days before baseline, 57 reported that they had abstained from alcohol and illicit drugs in the 30 days before baseline. The majority of these individuals (84.2%) reported that they had abstained from alcohol and illicit drugs at follow-up (see Table 4B.6).

TABLE 4B.6. ALCOHOL AND ILLICIT DRUG ABSTINENCE AT FOLLOW-UP FOR INDIVIDUALS WHO REPORTED ABSTAINING FROM ALCOHOL AND ILLICIT DRUGS IN THE 30 DAYS BEFORE BASELINE AND WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT FOLLOW-UP	
	n	Valid %
ALCOHOL AND ILLICIT DRUGS		
Men (n = 16)	10	62.5%
Women (n = 41)	38	92.7%
Total (n = 57)	48	84.2%

*p < .05, **p < .01, ***p < .001.

MARIJUANA

The majority of individuals who were in a controlled environment all 30 days before baseline reported they were abstinent from marijuana at baseline (see Table 4B.7). The number of individuals who reported they were abstinent from marijuana at follow-up increased, but not statistically significantly. At follow-up, 89.3% of men and 93.0% of women (91.8% overall) reported being marijuana abstinent.

TABLE 4B.7. CHANGE IN MARIJUANA ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	MARIJUANA				
Men (n =28)	21	75.0%	25	89.3%	19.0%
Women (n = 57)	52	91.2%	53	93.0%	1.9%
Total (n = 85)	73	85.9%	78	91.8%	6.8%

*p < .05, **p < .01, ***p < .001.

OPIATES

The majority of individuals (80.0%) who were in a controlled environment all 30 days before baseline reported that they were abstinent from prescription opiates at baseline: 75.0% of men and 82.5% of women (see Table 4B.8). There was a significant increase in the number of women who reported prescription opiate abstinence at follow-up, which explains

the significant increase in the number of individuals overall who reported abstinence from prescription opiates at baseline. At follow-up, 85.7% of men, 94.7% of women, and 91.8% of the sample were abstinent from prescription opiates.

TABLE 4B.8. CHANGE IN PRESCRIPTION OPIATE ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	OPIATES				
Men (n =28)	21	75.0%	24	85.7%	14.3%
Women (n = 57)	47	82.5%	54	94.7%	14.9%*
Total (n = 85)	68	80.0%	78	91.8%	14.7%*

*p < .05, **p < .01, ***p < .001.

HEROIN

Of the individuals in a controlled environment all 30 days before baseline, all of the men and all but two of the women reported they were abstinent from heroin at baseline (see Table 4B.9). Because almost all the individuals were heroin abstinent there was a non-significant change in the number of individuals reporting heroin abstinence at follow-up. At follow-up, 96.4% of the men and 100% of the women reported being heroin abstinent.

TABLE 4B.9. CHANGE IN HEROIN ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	HEROIN				
Men (n =28)	28	100.0%	27	96.4%	-3.6%
Women (n = 57)	55	96.5%	57	100.0%	3.6%
Total (n = 85)	83	97.6%	84	98.8%	1.2%

*p < .05, **p < .01, ***p < .001.

NON-PRESCRIBED METHADONE

The vast majority of individuals in a controlled environment all 30 days before baseline reported being abstinent from non-prescribed methadone at baseline and follow-up (see Table 4B.10). For men, 85.7% reported being abstinent from non-prescribed methadone at baseline, and at follow-up, there was a significant increase in the number of men who were abstinent, by 16.7%. All of the men were abstinent from non-prescribed methadone at follow-up. The vast majority of women were abstinent from non-prescribed methadone at baseline and follow-up.

TABLE 4B.10. CHANGE IN NON-PRESCRIBED METHADONE ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	METHADONE				
Men (n =28)	24	85.7%	28	100.0%	16.7%*
Women (n = 57)	56	98.2%	55	96.5%	-1.8%
Total (n = 85)	80	94.1%	83	97.6%	3.8%

*p < .05, **p < .01, ***p < .001.

COCAINE

Among the individuals who were in a controlled environment all 30 days before baseline, 89.4% were abstinent from cocaine at baseline, and at follow-up, 98.8% were cocaine abstinent, which represents a statistically significant increase, by 10.5% (see Table 4B.11). There was also a statistically significant increase from baseline to follow-up in the number of women who were cocaine abstinent, by 7.5%.

TABLE 4B.11. CHANGE IN COCAINE ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	COCAINE				
Men (n =28)	23	82.1%	27	96.4%	17.4%
Women (n = 57)	53	93.0%	57	100.0%	7.5%*
Total (n = 85)	76	89.4%	84	98.8%	10.5%**

*p < .05, **p < .01, ***p < .001.

AMPHETAMINES

The majority of individuals who were in a controlled environment all 30 days before baseline reported they were abstinent from amphetamines at baseline (94.1%). Because most individuals were amphetamine abstinent at baseline, there was little room for improvement in the numbers of individuals reporting amphetamine abstinence at follow-up. Overall, the number of amphetamine abstinent individuals increased (non-significantly) by 2.5% to 96.5% at follow-up (see Table 4B.12).

TABLE 4B.12. CHANGE IN AMPHETAMINE ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	AMPHETAMINE				
Men (n =28)	26	92.9%	28	100.0%	7.7%
Women (n = 57)	54	94.7%	54	94.7%	0.0%
Total (n = 85)	80	94.1%	82	96.5%	2.5%

*p < .05, **p < .01, ***p < .001.

TRANQUILIZERS, SEDATIVES, BENZODIAZEPINES

At baseline, the majority of individuals (89.4%) were abstinent from tranquilizers, sedatives, benzodiazepines (see Table 4B.13). At follow-up, 95.3% of individuals were abstinent from tranquilizers, sedatives, benzodiazepines, which was a non-significant increase. Similar percentages of men and women were abstinent from this class of drugs at follow-up (92.9% of men and 96.5% of women).

TABLE 4B.13. CHANGE IN TRANQUILIZER, SEDATIVES, BENZODIAZEPINE ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	TRANQUILIZERS, SEDATIVES, BENZODIAZEPINES				
Men (n =28)	22	78.6%	26	92.9%	18.2%
Women (n = 57)	54	94.7%	55	96.5%	1.9%
Total (n = 85)	76	89.4%	81	95.3%	6.6%

*p < .05, **p < .01, ***p < .001.

BARBITURATES

Of the individuals who were in a controlled environment all 30 days before baseline, all but three reported they were abstinent from barbiturates at baseline (96.5%). At follow-up, all individuals reported they were abstinent from barbiturates (see Table 4B.14).

TABLE 4B.14. CHANGE IN BARBITURATES ABSTINENCE FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE

	ABSTINENT AT BASELINE		ABSTINENT AT FOLLOW-UP		PERCENT CHANGE
	n	Valid %	n	Valid %	
	BARBITURATES				
Men (n =28)	27	96.4%	28	100%	3.7%
Women (n = 57)	55	96.5%	57	100%	3.6%
Total (n = 85)	82	96.5%	85	100%	3.7%

*p < .05, **p < .01, ***p < .001.

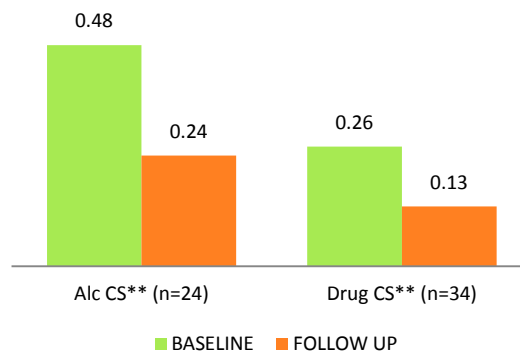
CHANGE IN ADDICTION SEVERITY FOR CONTROLLED ENVIRONMENT INDIVIDUALS

It is important to note that the ASI composite score assesses addiction severity even among those reporting no substance use in the past 30 days. Thus, it is not simply a way of measuring daily use of substances but a way of assessing impact of substance use on lives. Change in the mean ASI CS for alcohol and drugs was examined for individuals who were in a controlled environment all 30 days before baseline. Individuals who reported abstaining from alcohol or drugs at baseline and follow-up were not included in the analysis of change for each composite score.

See Figure 4B.1 for change in mean scores for individuals who were not in a controlled environment all 30 days before baseline. Mean score for the Alcohol CS significantly decreased from 0.48 at baseline to 0.24 at follow-up. The mean score for the Drug CS significantly decreased from 0.26 at baseline to 0.13 at follow-up.

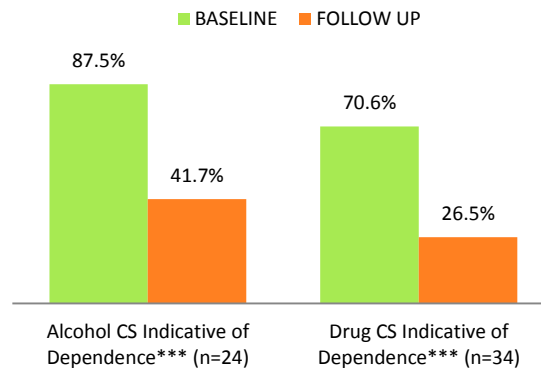
Among the individuals who were in a controlled environment all 30 days before baseline and who did not report abstaining from the substance (alcohol, drugs) at baseline and follow-up, the percent of individuals who had ASI CS that met the cutoff for dependence decreased significantly from baseline to follow-up (see Figure 4B.2). The majority of individuals had an Alcohol CS and Drug CS that met the cutoff for dependence at baseline (87.5% and 70.6% respectively), while the percentages of individuals with Alcohol CS and Drug CS that met the cutoff for dependence decreased significantly at follow-up. Less than half of individuals (41.7%) had an Alcohol CS that met the cutoff for dependence at follow-up, and only 26.5% had a Drug CS that met the cutoff for dependence at follow-up.

FIGURE 4B.1. MEAN ALCOHOL ASI ALCOHOL AND DRUG COMPOSITE SCORES AT BASELINE AND FOLLOW-UP FOR INDIVIDUALS WHO WERE IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE



a—Of the 86 cases where the individual was in a controlled environment all 30 days before baseline, 24 individuals used alcohol in the 30 days before baseline, follow-up or both periods.
 b— Of the 86 cases where the individual was in a controlled environment all 30 days before baseline, 34 individuals used drugs in the 30 days before baseline, follow-up or both periods.
 *p < .05, **p < .01, ***p < .001.

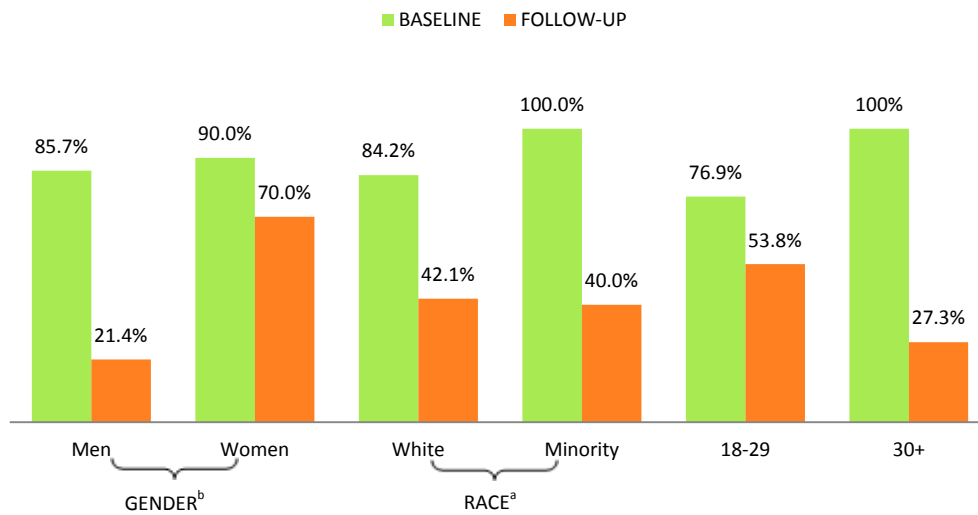
FIGURE 4B.2. PERCENT OF INDIVIDUALS IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE BASELINE WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR DEPENDENCE AT BASELINE AND FOLLOW-UP^a



a—Significance tested with z test for proportions; *p < .05, **p < .01, ***p < .001.

Analyses were also conducted to examine difference between individuals who had an Alcohol Composite Score indicative of dependence at baseline and follow-up by gender, race/ethnicity, or age (see Figure 4B.3). Significantly more women had an Alcohol CS indicative of dependence at follow-up than men. No other demographic differences were found at baseline or follow-up for the percentage of individuals who had an Alcohol CS indicative of dependence.

FIGURE 4B.3. PERCENT OF ALCOHOL-USING INDIVIDUALS WITH AN ALCOHOL COMPOSITE SCORES INDICATIVE OF DEPENDENCE AT BASELINE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 24)

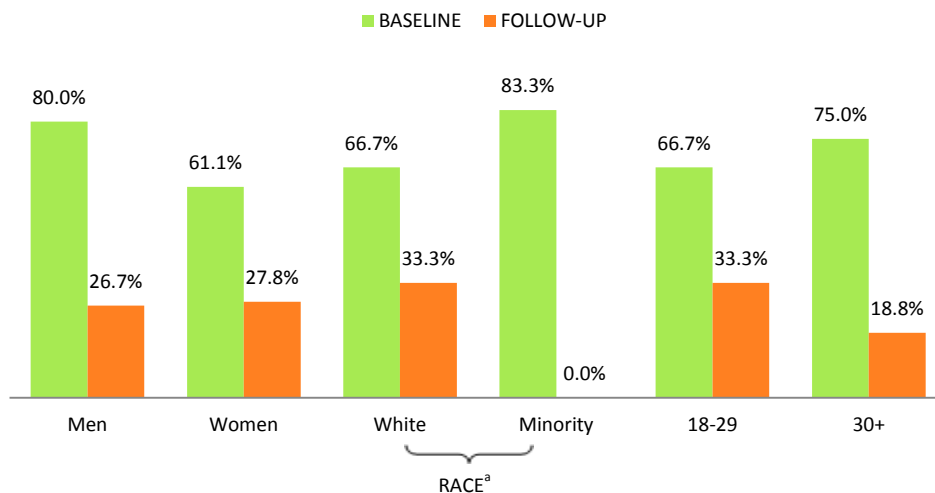


a—Indicates that there was a statistically significant difference ($p < .05$) in percent of individuals with alcohol CS equal to or greater than the cutoff score at baseline by group. Chi square tests were conducted.

b—Indicates that there was a statistically significant difference ($p < .05$) in percent of individuals with alcohol CS equal to or greater than the cutoff score at follow-up by group. Chi square tests were conducted.

Data were analyzed to examine whether individuals who had a Drug CS indicative of dependence at baseline and follow-up differed by gender, race/ethnicity, or age (see Figure 4B.4). No statistically significant differences were found at baseline or follow-up. This lack of finding of statistically significant differences may be in part explained by the small number of individuals included in these analyses ($n = 34$).

FIGURE 4B.4. PERCENT OF DRUG-USING INDIVIDUALS WITH A DRUG COMPOSITE SCORES INDICATIVE OF DEPENDENCE AT BASELINE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 34)^a



a—Chi square tests were conducted to examine differences by group in percent of individuals with drug CS indicative of dependence at baseline and follow-up. None of the tests were statistically significant.

4C. CHANGE IN LIVING SITUATION, EDUCATION, AND EMPLOYMENT FROM BASELINE TO FOLLOW-UP

LIVING SITUATION

Change in living situation from baseline to follow-up was examined for the RCOS follow-up sample (see Table 4C.1). The percent of individuals reporting stable housing arrangements did not change from baseline to follow-up significantly. There was a significant reduction, by 100.0%, in the percent of men and women who reported that they had lived in a controlled environment. There was a non-significant increase in the number of men who reported that they had lived in a shelter or on the street at follow-up. Also, significantly more individuals reported that they had lived in a Recovery Center or halfway house at follow-up compared to baseline.

TABLE 4C.1. CHANGE IN LIVING SITUATION FROM BASELINE TO FOLLOW-UP (N=206)

		Baseline	Follow-Up	Percent change ^a
Stable housing	Men	69.2%	67.9%	-1.9%
	Women	79.5%	81.1%	2.0%
	Total	75.6%	76.1%	0.6%
In a controlled environment	Men	19.2%	0.0%	-100.0%***
	Women	18.1%	0.0%	-100.0%***
	Total	18.5%	0.0%	-100.0%***
Shelter/on the street	Men	6.4%	10.3%	60.0%
	Women	2.4%	1.6%	-33.3%
	Total	3.9%	2.0%	-50.0%
Recovery Center or halfway house	Men	5.1%	29.5%	475.0%***
	Women	0.0%	17.3%	-- ^b
	Total	2.0%	22.0%	1025.0%***

a—Significance established using z test for proportions.

b—Percent change cannot be calculated because 0 cannot be a divisor.

*p < .05, **p < .01, ***p < .001.

EDUCATION

There were non-significant changes from baseline to follow-up in the highest level of education completed (see Table 4C.2). At baseline, 21.0% of the follow-up sample reported that they had completed less than a high school diploma or GED. At follow-up, 16.1% reported that they had completed less than a high school diploma or GED. At baseline, 38.5% of the follow-up sample had attended school beyond a high school diploma or GED and at follow-up the percent had slightly increased to 44.9%.

TABLE 4C.2. CHANGE IN HIGHEST LEVEL OF EDUCATION COMPLETED FROM BASELINE TO FOLLOW-UP (N = 205)^a

		Baseline	Follow-Up	Percent change ^b
Less than high school diploma or GED	Men	23.1%	12.8%	-44.4%
	Women	19.7%	18.1%	-8.0%
	Total	21.0%	16.1%	-23.3%
Completed high school diploma or GED	Men	42.3%	44.9%	6.1%
	Women	39.4%	35.4%	-10.0%
	Total	40.5%	39.0%	-3.6%
Vocational school to college	Men	34.6%	42.3%	22.2%
	Women	40.9%	46.5%	13.5%
	Total	38.5%	44.9%	16.5%

a—One person was transgender and was not included in this analysis.

b—Significance established using z test for proportions.

*p < .05, **p < .01, ***p < .001.

EMPLOYMENT

Because of changes in the questions about employment from FY 2010 to FY 2011 we had to analyze change in employment separately for individuals who completed a baseline survey in FY 2010 from individuals who completed a baseline survey in FY 2011. Among the 140 individuals who completed a baseline survey in FY 2010, there were non-significant changes in employment status from baseline to follow-up (see Table 4C.3).

TABLE 4C.3. CHANGE IN EMPLOYMENT FROM BASELINE TO FOLLOW-UP (N = 140)^A

		Baseline	Follow-Up	Percent change ^b
Employed full-time	Men (n =60)	31.7%	26.7%	-15.8%
	Women (n =80)	26.3%	32.5%	23.8%
	Total (n = 140)	28.6%	30.0%	5.0%
Employed part time	Men (n =60)	16.7%	25.0%	50.0%
	Women (n =80)	15.0%	20.0%	33.3%
	Total (n =140)	15.7%	22.1%	40.9%
Unemployed	Men (n =60)	51.7%	48.3%	-6.5%
	Women (n =80)	58.8%	47.5%	-19.1%
	Total (n =140)	55.7%	47.9%	-14.1%

a—Cases with FY 2010 baseline survey. Employment questions measured “usual employment in the past 12 months” at baseline and “current” employment at follow-up.

b—Significance established using z test for proportions.

*p < .05, **p < .01, ***p < .001.

Among the 61 individuals who completed a baseline survey in FY 2011, there were significant changes in employment status from baseline to follow-up (see Table 4C.4). There was an increase from 1.6% of individuals reporting current full-time employment at baseline to 29.5% reporting current full-time employment at follow-up, which represents a 1700.0% increase. At baseline none of the individuals was employed part-time, while at follow-up, 26.2% were employed part-time. At baseline, 98.4% of individuals were unemployed, and at follow-up, 44.3% were unemployed, which was a 55.0% decrease.

TABLE 4C.4. CHANGE IN CURRENT EMPLOYMENT FROM BASELINE TO FOLLOW-UP (N = 61)^A

		Baseline	Follow-Up	Percent change ^b
Employed full-time	Men (n =15)	6.7%	46.7%	600.0%*
	Women (n =46)	0.0%	23.9%	-- ^c
	Total (n = 61)	1.6%	29.5%	1700.0%***
Employed part time	Men (n =15)	0.0%	13.3%	-- ^c
	Women (n =46)	0.0%	30.4%	-- ^c
	Total (n =61)	0.0%	26.2%	-- ^c
Unemployed	Men (n =15)	93.3%	40.0%	-57.1%**
	Women (n =46)	100.0%	45.7%	-54.3%***
	Total (n =61)	98.4%	44.3%	-55.0%***

a—Cases with FY 2011 baseline survey. Employment questions measured current employment at baseline and follow-up.

b—Significance established using z test for proportions.

c—Percent change cannot be calculated because 0 cannot be a divisor.

*p < .05, **p < .01, ***p < .001.

To account for the fact that some of the follow-up participants were still involved in the Recovery Center program at follow-up and that this involvement might have an impact on their employment status, the data were categorized into three groups based on current employment status and current involvement in work as a staff assistant in the Recovery Center (see Table 4C.5). A small number of individuals in this sample reported peer mentor activity at follow-up (n=21).

Of those with peer mentor roles, 19.0% reported employment outside the Recovery Center, while the other 80.9% were working only at the Recovery Center as Peer Mentors at follow-up.

TABLE 4C.5. EMPLOYMENT OF INDIVIDUALS WITH INVOLVEMENT AS PEER MENTOR AT FOLLOW-UP (N = 201)^a

Peer Mentors at Follow-up (n=21)		Percent
Employed Outside the Recovery Center	Men (n =1)	4.7%
	Women (n =3)	14.3%
	Total (n =4)	19.0%
No Employment Outside the Recovery Center	Men (n =7)	33.3%
	Women (n =10)	47.6%
	Total (n =17)	80.9%

a—Four cases had missing values on employment at follow-up and one case was transgender and excluded from this analysis.

4D. CHANGE IN INVOLVEMENT IN THE CRIMINAL JUSTICE SYSTEM FROM BASELINE TO FOLLOW-UP

ARRESTS

At baseline individuals were asked about their arrests in the past 12 months. At follow-up the time period shifted to focus on the months between Phase 1 discharge and follow-up, thus individuals were asked about their arrests in the past 6 months. A little less than three fourths of individuals (71.4%) reported an arrest in the 12 months prior to baseline (see Table 4D.1). At follow up, this percentage had decreased significantly by 84.1% to 11.3%.

More specifically the percent of individuals reporting having been arrested for drug offenses decreased by 96.9% from 32.0% at baseline to 1.0% at follow up. The percent of individuals reporting an arrest for a DUI offense decreased 100% from 13.3% at baseline to 0.0% at follow up. Individuals reporting arrests for property offenses decreased by 88.1%, from 29.1% at baseline to 3.4% at follow up. There was a decrease by 93.3% in arrests for crimes against persons from 7.4% at baseline to 0.5% at follow up. The number of individuals reporting an arrest for a probation/parole violation decreased by 92%, from 24.6% at baseline to 2.0% at follow-up. Arrests for other offenses decreased from 24.1% at baseline to 5.4% at follow up, which was a decrease by 77.6%. The decreases in number of individuals reporting arrests for all the categories of criminal offenses were statistically significant.

TABLE 4D.1. CHANGE IN PERCENT OF INDIVIDUALS REPORTING ARRESTS FROM THE 12 MONTHS BEFORE BASELINE TO THE 6 MONTHS BEFORE FOLLOW-UP (N = 203)^a

		Baseline	Follow-Up	Percent change ^b
Any Arrests	Men (n =78)	65.4%	6.4%	-90.2%***
	Women (n =125)	75.2%	14.4%	-80.9%***
	Total (n =203)	71.4%	11.3%	-84.1%***
Drug Offenses	Men (n =78)	26.9%	1.3%	-95.2%***
	Women (n =125)	35.2%	0.8%	-97.7%***
	Total (n =203)	32.0%	1.0%	-96.9%***
DUI	Men (n =78)	17.9%	0.0%	-100.0%***
	Women (n =125)	10.4%	0.0%	-100.0%***
	Total (n =203)	13.3%	0.0%	-100.0%***
Property Offenses	Men (n =78)	29.5%	1.3%	-95.7%***
	Women (n =125)	28.8%	4.8%	-83.3%***
	Total (n =203)	29.1%	3.4%	-88.1%***
Crimes Against Persons	Men (n =78)	9.0%	0.0%	-100.0%**
	Women (n =125)	6.4%	0.8%	-87.5%*
	Total (n =203)	7.4%	0.5%	-93.3%***
Probation/Parole Violation	Men (n =78)	17.9%	0.0%	-100.0%***
	Women (n =125)	28.8%	3.2%	-88.9%***
	Total (n =203)	24.6%	2.0%	-92.0%***
Other Offenses	Men (n =78)	28.2%	3.8%	-86.4%***
	Women (n =125)	21.6%	6.4%	-70.4%***
	Total (n =203)	24.1%	5.4%	-77.6%***

a—Two cases had missing data on arrests in the 6 months before follow-up and one case was transgender and not included in this analysis.

b—Significance established using z test for proportions.

*p < .05, **p < .01, ***p < .001.

INCARCERATION

Three fourths (74.9%) of individuals reported spending at least one day in jail or prison in the 12 months prior to baseline (See Table 4D.2). At follow up, 11.3% of individuals reported spending at least one day incarcerated in the past 6 months; a decrease of 84.9%. Similar patterns of decreases in incarceration were found for men and women.

TABLE 4D.2. CHANGE IN PERCENT OF INDIVIDUALS REPORTING INCARCERATION IN THE 12 MONTHS BEFORE BASELINE TO THE 6 MONTHS BEFORE FOLLOW-UP (N = 203)^a

		Baseline	Follow-Up	Percent change ^b
Spent at least one day in jail or prison	Men (n =78)	74.4%	6.4%	-91.4%***
	Women (n =125)	75.2%	14.4%	-80.9%***
	Total (n =203) ^b	74.9%	11.3%	-84.9%***

a—Two cases had missing data for incarceration in the 6 months before follow-up and one individual was transgender.

b—Significance established using z test for proportions.

*p < .05, **p < .01, ***p < .001.

The percent of individuals reporting drug court participation rose from 9.8% at baseline to 10.2% at follow up, a 5% increase, which was not statistically significant (See Table 4D.3). At baseline, 44.4% of individuals reported probation status and at follow up 40.5% reported being on probation. In addition, there was a decrease of 14.3% of individuals reporting parole status from 13.7% at baseline to 11.7% at follow up. None of these changes were statistically significant.

TABLE 4D.3. CHANGE IN PERCENT OF INDIVIDUALS REPORTING DRUG COURT PARTICIPATION, PROBATION AND PAROLE STATUS IN THE 12 MONTHS BEFORE BASELINE TO THE 6 MONTHS BEFORE FOLLOW-UP (N = 205)^a

		Baseline	Follow-Up	Percent change ^b
In Drug Court	Men (n =78)	7.7%	7.7%	0.0%
	Women (n =127)	11.0%	11.8%	7.1%
	Total (n =205)	9.8%	10.2%	5.0%
On Probation	Men (n =78)	43.6%	34.6%	-20.6%
	Women (n =127)	44.9%	44.1%	-1.8%
	Total (n =205)	44.4%	40.5%	-8.8%
On Parole	Men (n =78)	15.4%	11.5%	-25.0%
	Women (n =127)	12.6%	11.8%	-6.3%
	Total (n =205)	13.7%	11.7%	-14.3%

a-- One individual reported gender as transgender and is not included in this analysis.

b—Significance established using z test for proportions.

*p < .05, **p < .01, ***p < .001.

It is important to keep in mind that the period examined at baseline was 12 months and at follow-up it was 6 months, so there was a greater opportunity for more arrests and more days of incarceration at baseline.

At baseline, the mean number of times individuals reported being arrested in the past 12 months was 1.8 (See Table 4D.4). In the 6 months before follow up, the mean number of times arrested was 0.2, which was a statistically significant decrease. Men’s self-reported number of arrests was significantly lower at follow-up (1.7) than at baseline (0.1). Similarly, women’s self-reported number of arrests was significantly lower at follow-up (1.9) than at baseline (0.2).

There was a significant decrease in the mean number of days spent in jail or prison from 78.1 days at baseline to 4.3 days at follow up. Men’s self-reported number of days incarcerated decreased significantly from 90.2 at baseline to 3.0 at follow-up. Women’s self-reported number of days incarcerated decreased significantly from 70.6 at baseline to 5.2 at follow-up.

TABLE 4D.4. CHANGE IN NUMBER OF TIMES ARRESTED AND DAYS INCARCERATED IN THE 12 MONTHS BEFORE BASELINE AND 6 MONTHS BEFORE FOLLOW-UP^a

		Baseline	Follow-Up
Mean number of times arrested	Male (n=78)	1.7 (2.4)	0.1 (0.4)***
	Female (n=125)	1.9 (3.9)	0.2 (0.5)***
	Total (n=203) ^b	1.8 (3.4)	0.2 (0.5)***
Mean number of days spent in jail or prison	Male (n=78)	90.2 (124.2)	3.0 (18.3)***
	Female (n=125)	70.6 (96.3)	5.2 (19.7)***
	Total (n=203) ^b	78.1 (108.0)	4.3 (19.2)***

a—Significance established using paired t-test.

b—Two cases had missing data for incarceration in the 6 months before follow-up and one individual was transgender.

*p < .05, **p < .01, ***p < .001.

4E. CHANGE IN MENTAL HEALTH PROBLEMS FROM BASELINE TO FOLLOW-UP

Change in the number of individuals reporting mental health problems in the 12 months before baseline and the 6 months before follow-up was examined (see Table 4E.1). Most of the changes were reductions in mental health problems, although the only statistically significant changes were decreases in the number of individuals who reported having thoughts of suicide and attempting suicide. About three out of ten individuals reported serious depression at baseline (31.3%) and 23.1% reported serious depression at follow-up. The percentages of individuals who reported serious anxiety or tension and hallucinations were stable from baseline to follow-up. Just over one third of individuals (34.7%) reported having cognitive difficulties at baseline, with a slight non-significant decrease to 27.8% at follow-up. A minority of individuals reported having trouble controlling violent behavior at baseline (13.2%) and 7.6% reported the same problem at follow-up. The number of individuals who reported having thoughts of suicide decreased significantly by 63.6% from 15.3% at baseline to 5.6% at follow-up. Also, there was a statistically significant decrease in the number of individuals reporting that they had attempted suicide, from 11.1% at baseline to 0.7% at follow-up, which was a reduction by 93.8%.

TABLE 4E.1. CHANGE IN PERCENT OF INDIVIDUALS REPORTING MENTAL HEALTH PROBLEMS IN THE 12 MONTHS BEFORE BASELINE TO THE 6 MONTHS BEFORE FOLLOW-UP (N = 144)^a

		Baseline	Follow-Up	Percent change ^b
Serious depression	Men (n = 63)	27.0%	25.4%	-5.9%
	Women (n =80)	34.6%	21.3%	-39.3%
	Total (n =143) ^c	31.3%	23.1%	-26.7%
Serious anxiety or tension	Men (n = 63)	39.7%	42.9%	+8.0%
	Women (n =80)	39.5%	35.0%	-12.5%
	Total (n =143) ^c	39.6%	38.5%	-3.5%
Hallucinations	Men (n = 63)	4.8%	3.2%	-33.3%
	Women (n =81)	2.5%	1.2%	-50.0%
	Total (n =144)	3.5%	2.1%	-40.0%
Cognitive difficulties (e.g., trouble understanding, concentrating, remembering)	Men (n = 63)	41.3%	27.0%	-34.6%
	Women (n =81)	29.6%	28.4%	-4.2%
	Total (n =144)	34.7%	27.8%	-20.0%
Trouble controlling violent behavior	Men (n = 63)	15.9%	7.9%	-50.0%
	Women (n =81)	11.1%	7.4%	-33.3%
	Total (n =144)	13.2%	7.6%	-42.1%
Thoughts of suicide	Men (n = 63)	15.9%	6.3%	-60.0%
	Women (n =81)	14.8%	4.9%	-66.7%
	Total (n =144)	15.3%	5.6%	-63.6%**
Attempted suicide	Men (n = 63)	11.1%	0.0%	-100.0%**
	Women (n =81)	11.1%	1.2%	-88.9%**
	Total (n =144)	11.1%	0.7%	-93.8%***

a—144 cases had the mental health questions on the baseline survey and one case reported gender as transgender.

b—Significance established using z test for proportions.

c—One case had a missing value at follow-up.

*p < .05, **p < .01, ***p < .001.

4F. CHANGE IN RECOVERY SUPPORTS FROM BASELINE TO FOLLOW-UP

At baseline, a little less than half (45.3%) of individuals reported going to mutual help recovery group meetings (e.g., AA, NA, or faith-based) in the past 30 days (See Table 4F.1). At follow-up, there was a significant increase by 79.1%, with 81.1% of individuals reporting they had gone to mutual help recovery group meetings in the past 30 days. The increase in the number of men who had attended mutual help recovery meetings was even greater than the increase for women, an increase by 116.7%, from 38.5% at baseline to 83.3% at follow-up.

At follow-up, significantly more individuals (98.5%) reported that they had interactions with family and friends who were supportive of their recovery in the past 30 days compared to baseline (83.9%). The number of men who reported having recent interactions with family and friends who were supportive of their recovery increased by 24.6% from baseline to follow-up. The number of women reporting having recent interactions with family and friends who were supportive of their recovery increased by 13.5% from baseline to follow-up.

TABLE 4F.1. CHANGE IN RECOVERY SUPPORTS FROM BASELINE TO FOLLOW-UP (N=205)

		Baseline	Follow-Up	Percent Change ^c
Went to self-help meetings in the past 30 days	Male (n=78)	38.5%	83.3%	+116.7%***
	Female (n=123)	49.6%	79.7%	+60.7%***
	Total (n=201) ^a	45.3%	81.1%	+79.1%***
Recovery supportive interactions with family/friends in the past 30 days	Male (n=78)	78.2%	97.4%	+24.6%***
	Female (n=127)	87.4%	99.2%	+13.5%***
	Total (n=205) ^b	83.9%	98.5%	+17.4%***

a—Four cases had missing data for mutual help recovery group meetings at follow-up.

b—One case reported transgender as gender and is excluded from this analysis.

c—Significance established using z test for proportions.

*p < .05, **p < .01, ***p < .001.

The mean number of people individuals reported that they could count on for support increased significantly by 84.7%, from 20.2 people at baseline to 37.3 people at follow up (See Table 4F.2). At baseline, men reporting having significantly fewer individuals they could count on for support compared to women. However, at follow-up there was no difference between men and women in the average number of people individuals could count on for support.

TABLE 4F.2. CHANGE IN THE NUMBER OF PEOPLE INDIVIDUALS SAID THEY COULD COUNT ON FOR SUPPORT (N = 205)^a

		Baseline	Follow-Up
Mean number of people individual reported he/she can count on for support	Male	10.7 (17.5)	38.7 (63.3)***
	Female	26.2 (36.8)	36.5 (95.9)
	Total	20.2 (31.7)	37.3 (84.6)**

a—One case reported transgender as gender and is excluded from this analysis.

b—Significance established using paired t-test.

*p < .05, **p < .01, ***p < .001.

SECTION 5. COST AND IMPLICATIONS FOR KENTUCKY

COST SAVINGS FROM RECOVERY CENTERS

There is great policy interest in examining cost reductions or avoided costs to society after Recovery Center participation. Thorough analysis of cost savings, while increasingly popular in policy making settings, is extremely difficult and complex. Immediate proximate costs can be examined relatively easily. However thorough assessment requires a great number of econometrics. In order to accommodate these complexities at an aggregate level, we extrapolate data from two large federal studies accepted and referenced by the U.S. Office of Drug Control Policy.

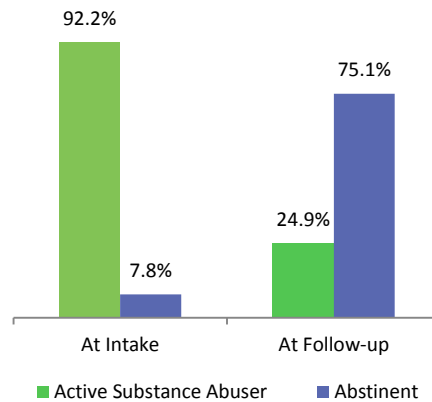
Most studies on the estimates of cost offsets from interventions with substance abuse focus on savings in various forms after substance abuse treatment participation. Recovery services are not treatment and thus call for separate analysis. Among the Recovery Centers sponsored by Recovery Kentucky and the Kentucky Housing Corporation, daily cost of care is very low. However, individuals stay in residential care for extended periods of time and these two factors mark Recovery Center services as very different from treatment programs where residential stays average less than 20 days statewide. In addition, Recovery Centers use considerable volunteer effort from residents and peer mentors who assist in running day-to-day activities such as housekeeping, kitchen work, and other duties.

METHOD

The two sources for data for this cost analysis are listed at the end of this report. These reports factor in all the many explicit and implicit costs of substance abuse to the nation such as the costs of lost labor due to illness, accidents, the costs of crime to victims, costs of incarceration, hospital and other medical treatment, social services, motor accidents, and other costs. Thus each of these reports analyze all the hidden and obvious costs that are caused by individuals with substance abuse. For this analysis, we took the national costs of alcohol abuse/dependence and the cost of drug abuse/dependence and updated the findings from those reports to 2010 dollars using a CPI indexing from a federal reserve bank (<http://www.minneapolisfed.org>).

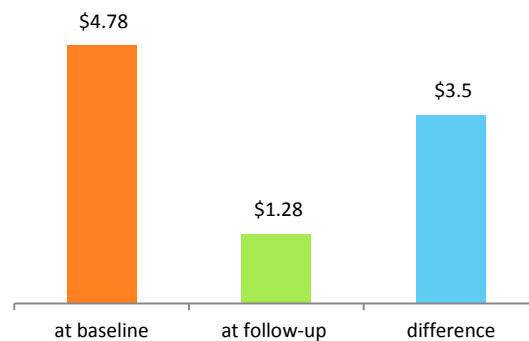
Next, we took those updated national costs and divided them by the latest federally derived estimates of the number of individuals with substance abuse in the nation. We then applied these per/person costs to the population used in this study to estimate the cost to society for the year before individuals were in recovery and then for the same individuals during the period after leaving Phase I. Given the high prevalence of very severe substance abuse among the individuals entering Recovery Centers, analyses hinged on estimating the differences in cost to society between persons who are in active addiction compared to those who are abstinent from drug and/or alcohol use. This report examines this change in cost to society and then shows specific areas of reduced cost from lower rates of crime after residential stays at the Recovery Centers. Thus we examine the role that abstinence plays in reducing costs to society since abstinent individuals are far less likely to be arrested, more likely to be employed or spending time volunteering, less likely to be drawing down social services supports, and less likely to be dependent on other family members. Figure 5.1 shows the change in the percent of individuals who were abstinent from all substances at baseline and follow-up. The change is very dramatic. Only 7.8% were abstinent from all substances at baseline, but fully 75.1% were abstinent at follow-up.

FIGURE 5.1 CHANGES IN THE PERCENT OF INDIVIDUALS WHO ARE ACTIVE SUBSTANCE USERS FROM BASELINE TO FOLLOW-UP



The average annual cost to society of an active alcohol or drug user in 2011 dollars is \$25,189. Thus, when we apply this average annual cost per individual active substance abuser to the 92.2% who were active users at baseline, we arrive at an annual cost to society of \$4,785,910. By follow-up after a Recovery Center stay of about 6 months, the cost of the 24.9% who were still active users and not yet abstinent can be estimated at \$1,284,639. Thus, as shown in Figure 5.2, after participation in a Recovery Center, the aggregate cost to society for these 206 individuals was reduced by \$3,501,271.

FIGURE 5.2. CHANGE IN COST TO SOCIETY AT BASELINE AND FOLLOW-UP (AMOUNTS IN MILLIONS OF DOLLARS) (N=206)



The daily cost of participation in a Recovery Center is \$31.88 per person (Kentucky Housing Corporation communication). The cost of six months of residential recovery for the 206 individuals was at most \$1,198,514 assuming all 206 stayed a full six months. Funding sources for the per diem cost includes the Kentucky Department of Corrections, Supplemental Nutrition Assistance Program (SNAP), Section 8 Housing Assistance, and the Community Development Block Grant (CDBG). When the cost of recovery is subtracted from the cost savings from increased alcohol and drug abstinence, there is a net gain to society of \$2,302,757 for serving this sample of 206 individuals. Examining the total avoided costs in relation to expenditures on recovery services, these figures suggest that for **every dollar spent on recovery, there was a \$2.92 return in avoided costs.**

In addition, we examined specific reductions in reported crime among the 206 individuals from baseline to follow-up. While the data given above reflect crime costs in general for the substance abusing population, the Recovery centers serve a population that has much higher crime rates than the typical substance abuser would have. Thus, to estimate the

costs of crimes for this sample, the total arrests for the past 12 months at baseline and the past 6 months at follow-up were analyzed using the specific types of self-reported arrests indicated at both times.

Table 5.3 shows the *victim costs* of crime before and after Recovery Center participation based upon the self-reported number of arrests at baseline and follow-up. Table 5.3 also shows the reduction in these victim-associated crime costs. Drug crime cost data are from Finigan’s (1999) article assessing cost off-sets resulting from drug court services. These studies include victims’ treatment costs in the crime cost estimates. The remaining costs of crime were derived from Miller, Cohen, and Wiersema’s (1996) report on victim cost of crime. All dollar amounts were adjusted to 2010 dollars for comparability using the Federal Reserve Bank CPI indexing system values which can be located at the following web address: <http://www.minneapolisfed.org>.

These data suggest a 93% reduction in victim costs of crime based upon reported arrests at baseline compared to arrests at follow-up.

TABLE 5.3. PAST 12 MONTH ARRESTS AT BASELINE AND AT FOLLOW-UP AND ESTIMATED VICTIM COSTS OF CRIME (N=206)

Arrests by type of crime	Estimated cost per arrest	Past 12 month arrests at baseline	Cost of crimes at baseline	Past 12 month arrests at follow-up	Cost of crimes at follow-up	Reduction in cost
Drug	\$4,133	65	\$268,645	2	\$8,266	\$260,379
Property	\$17,803	59	\$1,050,377	7	\$124,621	\$925,756
Violence	\$41,274	15	\$619,110	1	\$41,274	\$577,836
DUI	\$27,171	27	\$733,617	0	0	\$733,617
Total	--	166	\$2,671,749	10	\$174,161	\$2,497,588

Table 5.4 presents changes in costs associated with incarceration time from baseline to follow-up for the entire sample. Clients reported 15,923 nights incarcerated in prison during the past 12 months at baseline. At follow-up clients reported 882 nights incarcerated in prison during the past 6 months which is a 94.4% reduction in the number of nights incarcerated in prison or jail. Using Kentucky incarceration costs developed by the Kentucky Department of Corrections at an average between jail and prison costs (\$59.31 and \$33.98) per night, the total cost of prison time for the 12 months before baseline would be \$742,808 for this sample (Kentucky Department of Corrections, 2011). At follow-up, the nights in prison or jail in the past 6 months were estimated to cost \$41,145, for a \$701,663 reduction in incarceration costs to Kentucky.

TABLE 5.4. REDUCTION IN NIGHTS IN INCARCERATION AND RELATED COSTS (N=206)

Jail time and costs	12 months prior to baseline	6 months prior to follow-up	Reduction
Overall number of nights spent in jail or prison in the past 12 months*	15,923	882	15,041
Annualized total estimated cost of prison stays at an average of \$46.65 per night	\$742,808	\$41,145	\$701,663

Combining reduced victim costs of crime with reduced time in prison or jail results in a net savings of \$3,199,251 for this sample of participants in Recovery Center stays.

Table 5.5 presents increases in employment and estimated changes in employment earnings from baseline to follow-up. Using an estimated labor value of \$7.25 per hour (minimum wage), annualized employment earnings increased from baseline to follow-up by \$612,480 in employment earnings for the entire sample 12 months after baseline (a 70% increase). With Kentucky’s six percent state tax (income or sales) on these employment earnings estimated at a possible \$36,749, there are additional modest offsets to the treatment costs for this sample of clients.

TABLE 5.5. INCREASED EMPLOYMENT EARNINGS

Employment variable	Baseline	Follow-up	Increase
Number of clients working full or part-time	63	107	44
Annualized – days worked in the past 30 days for follow-up sample	15,120	25,680	10,560
Total annualized hours of paid work	120,960	205,440	84,480
Annualized total estimated labor value at \$7.25 per hour times total hours	\$876,960	\$1,489,440	\$612,480
Estimated tax value (@6%) of labor income	\$52,618	\$89,366	\$36,749

IMPLICATIONS

The finding of reductions in costs to victims associated with crime, reductions in incarceration costs, and overall cost reduction related to increased abstinence suggest that commitment of public funds to Recovery centers is a solid investment in the futures of many Kentucky citizens. While this study was not resourced to examine net effects of human capital investment, the past research suggests that individuals who commit themselves to recovery and abstinence go on to have gainful employment and reduced involvement with public sector services in their future years.

These preliminary findings suggest that both the behavioral outcomes and cost savings from recovery services are parallel to the outcomes from substance abuse treatment. The fact that Recovery Centers focus on individuals needing longer term residential support means that they add an important new component to the array of publicly supported substance abuse interventions. State-funded treatment programs typically focus on shorter residential stays and a wide array of outpatient services. Recovery Centers complement these services with longer term residential care and provide critical support to the aims of HB 463.

This preliminary study will need replication over several years to ascertain whether these successes are sustainable. However, these preliminary findings are encouraging and form the first systematic evaluation of long-term residential recovery supports in the nation. Further study will lead to more research to validate the continuing value of recovery services as a key part of state commitment to intervening with the growing problem of substance abuse in Kentucky.

APPENDIX A. PHASE I DISCHARGE STATUS

Table A1 presents the percent of individuals included in the follow-up sample for this annual report that had a discharge record from participating Recovery Centers. Nearly one fourth of individuals were discharged from Phase I at the George Privett Recovery Center. Programs with the next highest number of individuals were the Women’s Addiction Recovery Manor and the Brighton Center. Some programs were not represented in the FY 2011 follow-up sample because they began collecting data later.

TABLE A1. PERCENT OF FOLLOWED UP INDIVIDUALS WITH A PHASE I DISCHARGE RECORD SUBMITTED TO UK CDAR

(n=206)	Percent
George Privett Recovery Center	24.8
Women’s Addiction Recovery Manor	19.9
Brighton Center	16.0
Morehead Inspiration Center	11.2
Cumberland Hope Community Center for Women	9.7
Liberty Place Recovery Center for Women	4.8
The Healing Place Women’s Program	4.8
The Hope Center for Women	4.4
Trilogy Center	2.4
Owensboro Regional Recovery Center	1.5
The Healing Place Men’s Program	0.5

Table A2 shows the discharge from Phase I status for the individuals included in the RCOS FY 2011 follow-up sample. About two thirds (67.7%) completed the requirements for Phase I, with 18.5% leaving the program against advice. Less than 6% their participation in the Recovery Center program terminated for rule violations. About 4% were terminated for an unknown reason. Less than 3% were terminated from the program for drug use and 1.0% were terminated from the program for alcohol use.

TABLE A2. PERCENT OF FOLLOWED UP INDIVIDUALS WITH DIFFERENT PHASE I DISCHARGE STATUSES^a

(n=195)	Percent
Completed requirements for Phase I	67.7
Left against advice	18.5
Terminated for rule violation	5.6
Other status: unknown	4.1
Terminated for drug use	2.6
Terminate for alcohol use	1.0
Incarcerated	0.5
Transferred to another program	0.0

a—Data on Phase I discharge status was not available for 11 cases because this data was not collected at the beginning of the research project.

APPENDIX B. LOCATING EFFORTS

For Fiscal Year 2010 a total of 206 surveys were completed out of a possible 268 included in the follow-up sample. Individuals were eligible for participation in a follow-up survey if they: (1) had a completed baseline survey, (2) they had a discharge record from Phase I (for any reason). Individuals were included in this year's Annual Report if they met the above criteria and they were eligible for a follow-up interview on or before June 30, 2011. Target dates for follow-up surveys were calculated as 6 months after the discharge date entered into the discharge record. The follow-up period began one month before the target month and spanned until two months after the target month. For example, if an individual was eligible for the follow-up survey in May, then the interviewers would attempt to complete the follow-up survey for this individual from April to the end of July.

Individuals were considered ineligible for follow-up if they were living in a controlled environment during the follow-up period (see Table B1). A total of 51 individuals were ineligible for follow-up. Specifically, 46 individuals were ineligible for the follow-up survey because they were incarcerated during the follow-up period. Three individuals were ineligible for the follow-up survey because they were in residential treatment during the follow-up period. Finally, when interviewers were attempting to contact individuals, they learned that two individuals were deceased.

Of the remaining 217 individuals, interviewers completed follow-up surveys with 206 individuals, representing a follow-up rate of 94.9% (see Table B1). Of the eligible individuals, 10 were never successfully contacted or if they were contacted, interviewers were not able to complete a follow-up survey with them during the follow-up period. We refer to these cases as expired. Of the eligible individuals, 4.6% were expired cases. One person refused to complete the follow-up survey when the interviewer contacted him/her. The refusal rate was 0.5%. The project interviewers' efforts accounted for 258 cases included in the follow up sample. The only cases not considered accounted for are those individuals who are classified as expired. Thus, the percent of cases that were accounted for out of the total 268 was 96.3%.

TABLE B1. FINAL CASE OUTCOMES FOR FOLLOW-UP EFFORTS

	Number of Records (n = 268)	Percent
Ineligible for follow-up survey	51	19.0%
	Number of cases eligible for follow-up (n = 217)	
Completed follow-up surveys	206	
Follow-up rate is calculated by dividing the number of completed surveys by the number of eligible cases and multiplying by 100		94.9%
Expired cases (i.e., never contacted, did not complete the survey during the follow up period)	10	
Expired rate ((the number of expired cases/eligible cases)*100)		4.6%
Refusal	1	
Refusal rate (the number of refusal cases/eligible cases)*100)		0.5%
Cases accounted for (i.e., records ineligible for follow-up + completed surveys + refusals)	258	
Percent of cases accounted for ((# of cases accounted for/total number of records in the follow-up sample)*100		96.3%

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