Kentucky Substance Abuse Treatment Outcome Study

2000 Follow-up Findings

Division of Substance Abuse
Frankfort, Kentucky

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INTRODUCTION

The mission of the Kentucky Department of Mental Health's Division of Substance Abuse is to provide policy direction, program funding, and program monitoring for substance abuse prevention and treatment programs throughout the Commonwealth. As partial fulfillment of this mission, the Division of Substance Abuse conducts outcome research to determine the effectiveness of state funded substance abuse treatment provided by the 14 state-funded Community Mental Health Centers and their affiliated agencies. The Division contracts with the University of Kentucky Center on Drug and Alcohol Research to conduct this research and to produce reports such as the annual Kentucky Substance Abuse Treatment Outcome Study Follow-up Findings reports. This 2000 report presents data on drug and alcohol use, criminal justice involvement, employment, and mental health complaints collected from substance abuse clients who entered treatment between January 1, 2000 and December 31, 2000. In addition, findings are presented that compare self reported substance abuse and related behaviors at treatment entry to self reports 12 months after treatment.

The findings in the 2000 study suggest dramatic improvements for clients served in state funded substance abuse treatment. These results not only indicate positive changes in the lives of those affected by substance abuse but also suggest an important cost offset for Kentucky taxpayers resulting from state-funded substance abuse treatment. The Kentucky Substance Abuse Treatment Outcome Study 2000 Report of Findings is available on the University of Kentucky Center on Drug and Alcohol Research web site at **www.uky.edu/rgs/cdar/ktos**.

If you have questions or would like to request copies of this report, please contact the Department of Mental Health's Division of Substance Abuse at (502) 564-3487.

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Executive Summary of Follow-up Findings

The Kentucky Substance Abuse Treatment Outcome Study 2000 Report of Findings includes baseline and follow-up data on 892 clients who consented to participate in the follow-up study. The changes that are presented in percentages are comparisons of clients' intake self report information with self report follow-up information 12 months after treatment. The Kentucky Substance Abuse Treatment Outcome Study 2000 Report of Findings is available on the University of Kentucky Center on Drug and Alcohol Research web site at **www.uky.edu/rgs/cdar/ktos**.

Increases in self reported employment from baseline to follow-up

- The number of clients reporting working full time 12 months after treatment increased by 27%

Reductions in self reported arrests from baseline to follow-up

- The number of clients who reported being arrested on all charges in the past 12 months was reduced by 66%
- The number of clients who reported being arrested for DUI in the past 12 months was reduced by 76%
- The number of clients who reported being arrested for alcohol intoxication in the past 12 months was reduced by 50%
- The number of clients who reported being arrested for drug trafficking or possession in the past 12 months was reduced by 89%
- The number of clients who reported being arrested for crimes against persons in the past 12 months was reduced by 65%
- The number of clients who reported being arrested for property crimes in the past 12 months was reduced by 59%

Reductions in self reported illicit substance use from baseline to follow-up

- Daily alcohol use 12 months after treatment was reduced by 61%
- Daily marijuana use 12 months after treatment was reduced by 71%
- Daily crack use 12 months after treatment was reduced by 78%
- Daily stimulant use 12 months after treatment was reduced by 67%
- Daily tranquilizer use 12 months after treatment was reduced by 92%
- Daily opiate use 12 months after treatment was reduced by 71%

Reductions in self reported psychological problems from baseline to follow-up

- Self reported serious depression in the past 12 months was reduced by 29%
- Self reported serious anxiety in the past 12 months was reduced by 13%
- Self reported suicidal thoughts in the past 12 months were reduced by 52%
- Self reported suicide attempts in the past 12 months were reduced by 73%
- Self reported trouble controlling violent behavior in the past 12 months was reduced by 34%

Avoided costs from substance abuse treatment

- Reductions in self reported arrests suggest that for every $1.00 spent on substance abuse treatment in Kentucky in 2000, there was a $4.16 avoided cost of crime

BACKGROUND

The Kentucky Division of Substance Abuse conducts the Kentucky Substance Abuse Treatment Outcome Study (KTOS) through a contract with the University of Kentucky Center on Drug and Alcohol Research. KTOS examines treatment outcomes for substance abuse clients who receive treatment in Kentucky's 14 Regional Mental Health Centers and affiliated substance abuse agencies. Each Mental Health Center or affiliated agency collects interview data from substance abuse clients as they enter treatment. The Mental Health Centers and affiliated agencies also obtain informed consent from clients. The data collection includes information on substance use, related clinical information, and information to locate clients 12 months after treatment. This study compares client self report information collected at treatment entry with data collected 12 months after treatment.

Study Overview

State funded substance abuse programs in Kentucky are required to collect data on substance abuse clients at intake. Outpatient programs collect KTOS data within the first three sessions at the beginning of treatment. Residential programs collect data within the first three days of the client's admission to treatment. Outpatient and residential treatment programs use the same instrument to collect information from clients. The KTOS study collects data at intake and at follow-up 12 months after treatment with clients who consent to follow-up interviews.

Baseline data consist of client self reported information that is collected by the treatment service providers at intake. The baseline data have two parts: 1) **The substance use profile information** and 2) **The client locator information** for follow-up purposes. State funded substance abuse programs collect the substance abuse profile information on all substance abuse clients as a part of the statewide client database. Like other states, Kentucky's administrative client-level data is generated by clinicians based on interview information shared by clients. There are required fields of information, but no structured interview or standardized questions for collecting the data. These data form the Client Data Set which can be used in monitoring and evaluating substance abuse treatment services (McCarty, McGuire, Harwood & Field, 1998).

In addition to the client data set fields, clinicians collect KTOS data using the Substance Use Profile which is a standardized data collection tool. The KTOS baseline is a set of direct interview questions asked of clients. The Substance Abuse Profile does not include clinical opinions or inferences about behavior. Clients supply the baseline substance use profile information during intake and they consent to data collection when they give permission for treatment. Clients who voluntarily agree to participate in the follow-up study must give informed consent to participate in the study before giving their personal information that is used to locate them for follow-up interviews 12 months after treatment. The consent process is approved by the University of Kentucky Institutional Review Board (IRB) and includes informing clients about the purpose of the follow-up study and the study's confidentiality protections.

Follow-up data are collected from a sample of clients 12 months after treatment**.** The University of Kentucky collects the follow-up data in telephone interviews with a sample of clients who have voluntarily consented to participate in the follow-up study. The follow-up data include the same items that were asked at baseline. This allows for comparisons of client data from baseline to follow-up 12 months after treatment.

Data Description

The 2000 KTOS baseline and follow-up data include variables in five major domains in addition to the identifying and locator information for clients who consent to participate in the follow-up study:

- Employment Status
- Legal Status
- Alcohol and Drug Use Status
- History of Alcohol and Drug Use
- Medical and Psychological Status

Each of the major domains is measured for the 12 months before treatment at intake and for the 12 months before the follow-up interview. The follow-up study examines change from the 12-month period *before* treatment to the 12-month period *after* treatment. The variables for the 2000 KTOS study were developed from the Addiction Severity Index (ASI) (McLellan, Kushner, Metzger, Peters, Smith, Grissom, Pettinati, & Argeriou, 1992) and the Drug Abuse Reporting Program (DARP) (Simpson, 1984; Simpson & Sells, 1982).

Study Protocol

The data collection for the KTOS study begins in state funded substance abuse treatment facilities. Under separate guidelines and contract provisions, state funded substance abuse treatment centers (including Community Mental Health Centers and their affiliated substance abuse treatment agencies) are required to complete the **Client Data Set** on each client including identifying a minimum of nineteen items of information that include provider and client information such as primary and secondary diagnoses, substance use patterns including route of administration, frequency and age of first use. These data are used in completing the Treatment Episode Data Set (TEDS) reports to CSAT. In addition, the state has included other life history event variables such as physical or sexual abuse and priority population information.

Baseline Protocol

Clients consent to the collection of this information and the submission of the information to the state as part of their permission/consent to treatment that specifies the release of personal information to the state. This consent process is part of the state requirement when state or block grant funds are used to support treatment costs. The substance abuse profile extends the basic client data set information by focusing primarily on substance use within the previous 30 days and within the past 12 months. The baseline KTOS data are submitted to the University of Kentucky Center on Drug and Alcohol Research (CDAR). The KTOS baseline data are collected by clinicians in either electronic or scan sheet forms.

Follow-up Protocol

Clients choose voluntarily to participate in the follow-up study. Clinicians, when collecting client dataset information and the substance abuse profile information, explain the follow-up study and ask clients about their interest in participating. Clients who agree to participate must give informed consent using the University of Kentucky Medical Institutional Review Board (IRB) approved consent form. This informed consent is administered by the clinician during an interview. Participation in the follow-up study means that the client will provide personal identifying information, including the names, telephone numbers, and addresses of persons who will be able help locate the client 12 months after treatment. The clients who consent to follow-up and who provide valid locator information are eligible for selection for follow-up interviews.

Sample

While a random sample of all consenting clients would be optimal to generalizable findings, study constraints regarding diversity of treatment modalities and variability of locator information limit sampling approaches. To arrive at an eligible sample, consenting clients' records are screened to identify records with at least two telephone numbers that can be used for follow-up. A stratified sampling approach called proportionate allocation was used in this study for sample selection (Pedhazur & Schmelkin, 1991). A proportionate allocation sample of the consenting clients is drawn for telephone follow-up using gender, outpatient and residential treatment settings as the frame for keeping the sample proportionate to the population of consenting clients. This means that the follow-up sample contains the same proportion of males and females in outpatient and residential treatment as in the overall baseline dataset. The proportionate stratification approach used in this study produces estimates that are as efficient as those of a simple random sample (Pedhazur & Schmelkin, 1991). The follow-up sample was classified into four groups: (1) Outpatient females; (2) Outpatient males; (3) Residential females; and (4) Residential males. Eligible follow-up clients were partitioned into the four groups and were then randomly selected from each group using randomized computer-assisted telephone dialing until the target sample was met for each group. Follow-up telephone interviews were completed by the University of Kentucky Survey Research Center.

This 2000 follow-up report focuses on the 12-month outcomes of 892 clients who received substance abuse treatment in state-funded substance abuse programs between 1 January 2000 and 31 December 2000. From the 7,766 clients who completed the KTOS baseline instrument, there were 4,291 clients at intake who gave consent to participate in a follow-up interview 12 months after treatment. Of the 4,291 client records, 2,819 clients were eligible to participate since they had face-valid contact information provided at baseline. Based on project timeframes for completion and cost of follow-up contacts, a target sample of 900 was established in four cell quotas (male outpatient, female outpatient, Male residential, female residential) proportionate to the distribution of clients in the total baseline population. Of the 2,819 eligible clients, 900 randomly dialed clients completed the interview; however, 8 were found to have begun treatment in a previous year and were excluded from the study. No attempt was made to contact 675 clients who were partitioned into cells that had already met their quotas. Another 200 clients were found to be ineligible (21 were deceased, 150 incarcerated, 2 with multiple entries in the sample, 15 who denied being in treatment and 12 who were out of the country). The never-contacted group consisted of 1000 who were never contacted due to exceeding the number of protocol attempts at contact, 14 with disconnected phones, 13 with wrong numbers, 65 not-reachables, and 95 with locatable contact persons but they could not establish contact with the clients and 599 who had numerous failed attempts at contact. Forty-four clients refused to participate in the follow-up interviews. The final follow-up number of 892 clients represents 41.6% of the eligible clients who received at least one attempted contact. The 892 follow-up clients represent 31.6% of the consenting clients who had face-valid contact information and 21.0% of the 4,291 clients who gave consent to follow-up, but who did not necessarily provide adequate locator information.

Limitations

There are several important limitations to this study that affect the generalizability of findings. First, the study uses client self reports and self reports can have validity problems. Second, the follow-up rate of 31.9% of the eligible clients is below the recognized standards for follow-up studies. Third, a randomized sample was not possible which could affect the representativeness of the sample.

Validity of Self Reports

While there can be reason to question the validity and reliability of self reports of substance use, recent research has supported earlier findings about the reliability and accuracy of substance users' reports (Del Boca & Noll, 2000; Rutherford, et al., 2000). Earlier studies found that the context of the interview influences reliability (Babor, et al., 1987) and generally self reports even at the beginning of treatment as well as during treatment have been shown to be reliable (Rutherford, et al., 2000). Concerns about deception in self reports is most likely at baseline where information is being collected by a clinician whom clients may see as affiliated with the courts, probation or parole systems. Distortion at follow-up, when the interviewer is unknown to the client may be less likely. Overall, studies have reported little evidence to support the idea that social undesirability of substance abuse behaviors is a major contributing factor to under-reporting substance use (Bradburn, 1983; Schwarz, et al, 1998). In addition, it is important to put substance abuse studies' reliance on self report in context with other health care and medical research. For example, research on other chronic health problems such as diabetes, chronic headache, obesity, hypertension and heart disease often depends on self reported diet, exercise, medication compliance, and weight reduction efforts (Holroyd, O'Donnell, Stensland, Lipchik, Cordingley & Carlson, 2001; Mokdad, Bowman, Ford, Vincior, Marks & Koplan, 2001; Pereira, Jacobs, Van Horn, Slattery, Kartashov & Ludwig, 2002). While there are concerns about the validity of self reports, health, mental health, and substance abuse research uses self report since lifestyle issues require information about clients' daily behaviors.

Comparison of the Follow-up Sample with Other Baselines

Random selection of a follow-up sample was not possible due to incomplete locator information on many clients. Also, many clients did not consent to participate in the follow-up interviews. As a result, the representativeness of the sample is limited as is the generalizability of findings. However, the use of a proportionate stratified sample may moderate some of these concerns. Another way to address concerns about representativeness is to compare the baseline characteristics of the follow-up sample with the baseline characteristics of clients who were not included in the follow-up.

In this study, there were 6,874 clients who were not included in the follow-up sample. A comparison of the baseline characteristics of the 6,874 with the 892 follow-up clients' baselines suggests that overall there were few differences in clinical and demographic characteristics. Specifically, there were no significant differences for age, gender, or education. However, there were significant differences in certain categories of living arrangements for the two groups. **All the reported differences between the follow-up sample and the non-follow-up group were significant at the p<.01 level**. The percent of follow-up clients living in someone else's home (35.6%) was greater than the percent of non-follow-ups (30.9%). There was no significant difference in the percent of clients living in their own home in the two groups. While the percent of clients reporting having lived in a shelter was small, fewer follow-up clients reported living in a shelter at baseline (0.6%) than non-follow-up clients (1.9%). The follow-up sample had a lower percent of clients (6.4%) who reported living in jail in the past several months than the non-follow-up group (9.8%).

More of the follow-up clients reported being on disability (13.9%) than the non-follow-up clients (9.8%). More of the non-follow-up clients reported living in a controlled environment in the past 30 days (4.9%) than the follow-up sample (2.7%). The follow-up sample reported more difficulty concentrating (43.8%) than did the non-follow-up clients (38.9%). Also, the follow-up clients had a greater percent of those who drank more than they intended (63.5%) contrasted to the non-follow-ups (55.1%). A higher percentage of follow-up clients reported needing a drink of alcohol in the morning (26.7%) than the non-follow-up clients (20.1%). The follow-up sample had a lower percent of clients reporting property crimes (10.4%) than the non-follow-up group (13.2%). There were no significant differences for other types of arrests. A greater percentage of the follow-up clients reported using tranquilizers in the past year (63.7%) than the non-follow-ups (54.1%). Likewise, a greater percentage of follow-up clients reported using opiates in the past year (61.4%) than the non-follow-ups (45.4%). This analysis of differences among the two groups suggests that the non-follow-ups may be less secure in their living arrangements but a greater percentage of the follow-up sample reported substance use. Also, the greater percent of follow-up clients reporting disability suggests greater clinical problems for the follow-up sample than for the non-follow-up clients.

2000 Data and Findings

This report includes positive outcomes in major substance abuse outcome behaviors. This report presents positive changes in (a) living situation and employment status, (b) legal status, (c) drug and alcohol use, and (d) psychological status. This report provides information about self reported changes in each of these categories. The change values presented in this report are overall average scores at two different points in time for the clients who participated in the follow-up. The study does not examine individual changes or responses to specific types of substance abuse treatment. The mean scores at baseline (i.e., during intake and at the beginning of treatment) are compared to aggregate mean scores at follow-up 12 months after treatment. The average days of substance use are calculated among those clients who reported any use of the particular substance at baseline. Thus, the average number of days of marijuana use at baseline is based on the average of all clients who reported at least one day of use in the past 30 days. For the follow-up average, the denominator consists of all clients who reported at least one day of use at the baseline interview. The overall averages at follow-up reflect the total days of use for the group of clients who reported any use at baseline.

While the use of a proportionate allocation sample may limit analyses and generalizability, the categories of reported changes reflect significant improvement**. For change variables in this report, significance was established at the p< .01 level and z scores of 2.5 or greater for all measures. Change variables are also reported at the p< .05 level as approaching significance.** The analysis consists of frequencies, comparisons of frequencies and percent of change calculations. Crosstabs were included for analyses of variance in change scores by gender, treatment modality, and criminal justice involvement or referral. **Data are presented in tables throughout the text and in figures in Appendix A. All data in the tables are presented in percentages of change with increases expressed in positive numbers and decreases in parentheses.**

This study presents findings that are not only statistically significant but also clinically relevant. More importantly, the findings are consistent with findings from carefully controlled studies that include follow-up measures (Gossop, et al., 1999). In addition, this study focuses on a real-world clinical population rather than using a sample that has excluded subjects with complicating characteristics such as multiple drug use and mental health problems in addition to substance abuse. The study also includes clients who may have limited responses to treatment, given their limited economic status, employment problems at intake, and other complicating conditions (Leon, et al., 1999). These findings may have greater implications for the vulnerable populations served by state funded programs since no clients were excluded from the study due to specific eligibility criteria (Humphreys & Weisner, 2000). It is also important to note that addiction is a chronic disease with complex and enduring psychological, spiritual, and social factors (Leukefeld & Leukefeld, 1999; McLellan, Lewis, O'Brien & Kleber, 2000) as well as major biological factors that contribute to problems with achieving abstinence (Leshner, 1997). In fact, substance abuse problems can be compared to other chronic health problems such as diabetes mellitus, hypertensive disease, asthma, and obesity in terms of difficulty in achieving positive treatment outcomes. In addition, McLellan, et al. (2000) recently found that alcoholism treatment outcomes are at least as positive, if not better, than outcomes for the treatment of type 2 diabetes mellitus, hypertension, and asthma in spite of the fact that most drug abuse treatment is designed for an acute rather than chronic condition. This KTOS study's findings suggests that state funds for treating substance abuse produce positive treatment outcomes consistent with national findings from other studies.

2000 FOLLOW-UP CLIENT DEMOGRAPHIC CHARACTERISTICS

The average age of clients in the Kentucky 2000 follow-up sample was 33.5 years. Males constituted 69.9% of the sample and females comprised 30.1% of the sample.

CHANGES IN REPORTED EMPLOYMENT AND LIVING ARRANGEMENTS

The percentage of clients who reported working full-time in the previous 12 months increased substantially after treatment as presented in Table 1a. At treatment entry or baseline, 43.3% of clients reported working full-time. Twelve months after treatment 55% of the clients reported working full-time for an increase of 27.2% from baseline to follow-up. The percentage of clients who reported being unemployed in the past 12 months decreased substantially after treatment as shown in Table 1a. At treatment entry or baseline, 16% of clients reported being unemployed. Twelve months after treatment 8.4% of the clients reported being unemployed, which was a 47.5% decrease from baseline to follow-up.

Table 1a also shows that at baseline, 54% of clients were living in their own home or apartment and 59.4% were living in their own home or apartment at follow-up. This change approaches significance ($p<.05$).

In examining the number of days worked by those who were employed full-time, part-time or who were unemployed, but not disabled, there was a significant change as shown in Table 1b. At baseline, when clients entered treatment, the average number of reported days worked in the past 30 days was 11.5. At follow-up, the average of reported days worked was 18.6 for a 61.7% increase in the number of reported days worked in the past 30 days.

Table 1a. EMPLOYMENT AND LIVING ARRANGEMENTS

Employment	n	Baseline	Follow-up	Percent Change
Employed full time **	892	43.3%	55.0%	27.2%
Unemployed **	892	16.0%	8.4%	47.5%
Percent of clients living in their own home*	892	54.0%	59.4%	10.0%

Table 1b. EMPLOYMENT AND LIVING ARRANGEMENTS

Employment	n	Baseline	Follow-up	Percent Change
Number of days worked in the past 30 days ***	628	11.5	18.6	61.7%

* $p < .05$
** $p < .01$
*** $p < .001$

REDUCTIONS IN REPORTED ARRESTS

Average Number of Arrests in the Past 12 Months

There were several significant reductions in self reported arrests as presented in Table 2. Clients reported an average of 1.4 arrests for all charges at baseline and an average of 0.5 arrests at follow-up. Clients reported an average of 0.3 trafficking or possession arrests in the past 12 months at baseline and 0 at follow-up 12 months after treatment. This is a 99.9% decrease in the average number of self reported trafficking or possession arrests after substance abuse treatment. The average number of self reported DUI arrests was also significantly reduced with an average of 0.5 arrests at baseline and 0.1 at follow-up. This is an 80% reduction in the average number of DUI arrests from baseline to follow-up.

Table 2. AVERAGE NUMBER OF ARRESTS IN THE PAST 12 MONTHS

Total Arrests	Number who reported arrests	Baseline	Follow-up	Percent Reduction
Average number of **total arrests** in the past 12 months ***	730	1.4	0.5	64.3%
Average number of **DUI arrests** in the past 12 months ***	724	0.5	0.1	80.0%
Average number of **alcohol intoxication arrests** in the past 12 months	719	0.3	0.2	29.0%
Average number of **trafficking or possession arrests** in the past 12 months ***	727	0.3	0.0	99.9%
Average number of **crimes against persons arrests** in the past 12 months ***	724	0.2	0.1	50.0%
Average number of **property crime arrests** in the past 12 months ***	723	0.2	0.1	50.0%

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

Percent of Clients Who Reported Arrests in the Past 12 Months

The number of clients who reported having been arrested in the previous 12 months decreased significantly, as presented in Table 3. At baseline, 63.3% of the follow-up clients reported having been arrested on any charge in the past 12 months. At follow-up, only 21.3% reported having been arrested for a 66.4% reduction in the number of clients who reported an arrest on any charge in the 12 months after treatment. Likewise, at baseline, 33.6% reported having been arrested for DUI in the past 12 months. At follow-up, 8.0% reported having been arrested for DUI in the past 12 months for a 76.3% reduction in self reported alcohol intoxication arrests in the 12 months after treatment.

Table 3. PERCENT OF CLIENTS WHO REPORTED ARRESTS IN THE PAST 12 MONTHS

Arrest Type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who were **arrested on any charge** in the past 12 months **	892	63.3%	21.3%	66.4%
Percent of clients who reported **DUI arrests** in the past 12 months **	892	33.6%	8.0%	76.3%
Percent of clients who reported **alcohol intoxication arrests** in the past 12 months **	892	13.2%	6.6%	50.0%
Percent of clients who reported **trafficking or possession arrests** in the past 12 months **	892	15.4%	1.7%	89.1%
Percent of clients who reported **crimes against persons arrests** in the past 12 months **	892	10.2%	3.6%	64.8%
Percent of clients who reported **property crime arrests** in the past 12 months **	892	8.4%	3.5%	58.6%

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

CHANGES IN REPORTED ALCOHOL AND DRUG USE

Table 4 presents the average number of days of alcohol and illicit drug use in the past 30 days at both baseline and follow-up. Findings on inhalant and hallucinogen use are not reported since less than 3% of the sample reported any use of either substance in the past 30 days. In addition, only 2.7% reported inhalant use in the past 12 months and only 8.2% reported any use of hallucinogens in the past 12 months. The average number of days of self reported use of the seven commonly used substances in the past 30 days represents a significant decrease from baseline to follow-up. The average number of days of self reported cocaine use in the past 30 days showed the largest decrease from 0.9 days at baseline to 0.1 at follow-up with an 88.9% decrease. Average number of days of self reported alcohol use had the smallest decrease from 3.4 days at baseline to 1.8 days at follow-up with a 47.1% decrease in use.

Table 4. AVERAGE NUMBER OF DAYS OF ALCOHOL AND ILLICIT DRUG USE IN THE PAST 30 DAYS

Days of Use	n	Baseline	Follow-up	Percent Reduction
Average number of days of reported **drinking more than 3 drinks per hour** ***	892	3.4	1.8	47.1%
Average number of days of reported **marijuana** use ***	892	3.5	1.7	51.4%
Average number of days of reported **cocaine** use ***	892	0.9	0.1	88.9%
Average number of days of reported **crack** use ***	892	1.2	0.2	83.3%
Average number of days of reported **stimulant** use **	892	0.8	0.3	62.5%
Average number of days of reported **tranquilizer** use ***	892	2.8	0.4	85.7%
Average number of days of reported **opiate** use ***	892	2.2	0.7	68.2%

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

Table 5 presents the composite score for the average number of days of alcohol and illicit drug use in the past 30 days for those who used that specific substance at least once in the past 30 days at baseline and follow-up. To measure changes in specific substance use from baseline to follow-up, change data were analyzed only for clients who reported at least one day of use of the substance in the past 30 days at baseline. For example, to measure changes in the number of days of marijuana use in the past 30 days, *the only clients included in the analysis were those 263 clients who reported at least one day of marijuana use in the past 30 days at baseline*. The average number of days of self reported use in the past 30 days showed a significant decrease from baseline to follow-up for seven of the commonly used substances as seen in Table 5. The average number of days of self reported stimulant use in the past 30 days showed the largest decrease from 9.7 days in the past 30 days at baseline to 0.5 days in the past 30 days at follow-up for a 94.8% decrease. The average number of days of self reported alcohol use showed the smallest decrease from 9.8 days in the past 30 days at baseline to 3.5 days in the past 30 days at follow-up for a 64.3% decrease in use.

Table 5. AVERAGE NUMBER OF DAYS OF ALCOHOL AND ILLICIT DRUG USE IN THE PAST 30 DAYS FOR CLIENTS WHO HAD USED AT LEAST ONCE IN THE 30 DAYS BEFORE TREATMENT

Days of Use	Number Who Reported Use	Baseline	Follow-up	Percent Reduction
Average number of days of reported **drinking more than 3 drinks per hour** among those reporting **drinking more than 3 drinks per hour** in the past 30 days ***	309	9.8	3.5	64.3%
Average number of days of reported **marijuana** use for clients who used **marijuana** at least once in the past 30 days ***	263	11.7	3.4	70.9%
Average number of days of reported **cocaine** use for clients who used **cocaine** at least once in the past 30 days ***	107	7.8	0.5	93.6%
Average number of days of reported **crack** use for clients who used **crack** at least once in the past 30 days ***	95	10.7	1.3	87.9%
Average number of days of reported **stimulant** use for clients who used **stimulants** at least once in the past 30 days ***	72	9.7	0.5	94.8%
Average number of days of reported **tranquilizer** use for clients who used **tranquilizers** at least once in the past 30 days ***	188	13.3	0.7	94.7%
Average number of reported **opiate** use for clients who used **opiates** at least once in the past 30 days ***	118	16.7	3.2	80.8%

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

Several measures for alcohol use are incorporated in the KTOS instrument including: (1) Daily alcohol use; (2) Various levels of use in the past year; (3) The need for alcohol in the morning; (4) Drinking more than intended; and (5) The average number of days of drinking more than 3 drinks in one hour in the past 30 days.

Alcohol Use in the Past 12 Months

There were significant reductions from baseline to follow-up in alcohol use as presented in Tables 6a and 6b. Table 6a presents the number and percent of clients reporting not using alcohol in the past 12 months. At baseline, 155 clients (17.4%) reported not using alcohol in the past 12 months, while at follow-up 12 months after treatment, 389 (43.6%) of the clients reported not using alcohol. This represents over a 100% (150.9%) increase in the number of clients reporting not using alcohol 12 months after treatment.

Table 6b presents changes in the patterns of alcohol use in the past 12 months. At baseline, 16.7% of the clients reported using alcohol daily in the past 12 months. At follow-up 12 months after treatment, 6.5% reported daily alcohol use. This indicates a 61.1% reduction from baseline to follow-up. There were significant reductions in the number of clients who reported a need for alcohol in the morning or when waking up. Table 6b shows that 22.4% of this sample reported morning drinking at baseline. Only 7.1% reported needing a drink in the morning at follow-up 12 months after treatment. This represents a 68.5% reduction in the number of clients who reported a need for alcohol in the morning. Morning drinking can be an indicator of a dependent level of alcohol use since it can decrease withdrawal symptoms (American Psychiatric Association, 2001).

Table 6a. CLIENTS REPORTING NOT USING ALCOHOL IN THE PAST 12 MONTHS

Pattern of Use	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using alcohol** in the past 12 months **	155	17.4%	389	43.6%	150.9%

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

Table 6b. CHANGES IN ALCOHOL USE IN THE PAST 12 MONTHS

Pattern of Use	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using alcohol a few times** in the past 12 months	892	22.4%	20.6%	8.0%
Percent of clients who reported **using alcohol 1-3 times a month** in the past 12 months **	892	20.5%	17.2%	16.4%
Percent of clients who reported **using alcohol at least 1 time a week** in the past 12 months	892	39.0%	18.6%	52.3%
Percent of clients who reported **using alcohol 1-5 times a week** in the past 12 months **	892	22.3%	12.1%	45.7%
Percent of clients who reported **using alcohol daily** in the past 12 months **	892	16.7%	6.5%	61.1%
Percent of clients who reported **morning drinking** **	892	22.4%	7.1%	68.5%
Percent of clients who reported **drinking more than intended** **	892	53.3%	25.0%	53.1%

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

Marijuana Use in the Past 12 Months

There were significant reductions from baseline to follow-up in marijuana use as present in Tables 7a and 7b. Table 7a presents the number and percent of clients who reporting not using marijuana in the past 12 months at follow-up. At baseline, 401 clients (45%) reported not using marijuana in the past 12 months, while at follow-up 12 months after treatment, 688 (77.1%) of the clients reported not using marijuana. This represents a 71.6% increase in the number of clients reporting not using marijuana 12 months after treatment.

Table 7b also shows a significant decrease in the number of clients who reported daily marijuana use in the past 12 months at follow-up. At baseline 15.6% of the clients reported daily marijuana use in the past 12 months. At the follow-up 12 months after treatment, 4.5% of the clients reported daily marijuana use in the past 12 months for a 71.2% decrease in the number of clients who reported daily marijuana use from baseline to follow-up.

Table 7a. CLIENTS REPORTING NOT USING MARIJUANA IN THE PAST 12 MONTHS

Pattern of Use	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using marijuana** in the past 12 months **	401	45.0%	688	77.1%	71.6%

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

Table 7b. MARIJUANA USE IN THE PAST 12 MONTHS

Pattern of Use	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using marijuana a few times** over the past 12 months **	892	17.4%	8.3%	52.2%
Percent of clients who reported **using marijuana 1-3 times a month** over the past 12 months **	892	9.5%	5.2%	45.9%
Percent of clients who reported **using marijuana at least 1 time a week** over the past 12 months **	892	27.1%	9.3%	65.7%
Percent of clients who reported **using marijuana 1-5 times a week** over the past 12 months **	892	11.6%	4.8%	58.3%
Percent of clients who reported **using marijuana daily** over the past 12 months **	892	15.6%	4.5%	71.2%

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

Cocaine Use in the Past 12 Months

There were significant reductions from baseline to follow-up in cocaine use as present in Tables 8a and 8b. Table 8a presents the number and percent of clients reporting not using cocaine in the past 12 months. At baseline, 647 client (72.5%) reported not using cocaine in the past 12 months, while at follow-up 12 months after treatment, 845 (94.7%) of the clients reported not using cocaine. This represents a 30.6% increase in the number of clients reporting not using cocaine 12 months after treatment.

Table 8b also presents a significant decrease in the number of clients who reported cocaine use at least once a week in the past 12 months at follow-up. Table 8b indicates that at baseline 8.1% of the clients reported cocaine use at least once a week in the past 12 months. At the follow-up 12 months after treatment, only 1.1% of the clients reported using cocaine at least once a week in the past 12 months for an 86.1% decrease in the number of clients who reported once a week cocaine use from baseline to follow-up.

Table 8a. CLIENTS REPORTING NOT USING COCAINE IN THE PAST 12 MONTHS

Pattern of Use	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using cocaine** in the past 12 months **	647	72.5%	845	94.7%	30.6%

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

Table 8b. COCAINE USE IN THE PAST 12 MONTHS

Pattern of Use	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using cocaine a few times** over the past 12 months **	892	13.6%	3.1%	76.9%
Percent of clients who reported **using cocaine 1-3 times a month** over the past 12 months **	892	5.0%	1.0%	80.0%
Percent of clients who reported **using cocaine at least 1 time a week** over the past 12 months **	892	8.1%	1.1%	86.1%
Percent of clients who reported **using cocaine 1-5 times a week** over the past 12 months **	892	5.6%	1.1%	80.0%
Percent of clients who reported **using cocaine daily** over the past 12 months **	892	2.5%	0.0%	100.0%

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

Crack Use in the Past 12 Months

There were significant reductions from baseline to follow-up in crack use as present in Tables 9a and 9b. Table 9a presents a significant change in the number of clients who reported not using crack in the past 12 months at follow-up when compared to baseline. At baseline, 707 clients (79.3%) reported not using crack in the past 12 months, while at follow-up 12 months after treatment, 834 (93.5%) of the clients reported not using crack cocaine. This represents an 18% increase in the number of clients reporting not using crack cocaine 12 months after treatment.

Table 9b also indicates that at baseline 3.5% of the clients reported daily crack use. At the follow-up 12 months after treatment, only 0.8% of the clients reported daily crack use in the past 12 months for a 77.6% decrease in the number of clients who reported daily crack use.

Table 9a. CLIENTS REPORTING NOT USING CRACK IN THE PAST 12 MONTHS

Pattern of Use	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using crack** in the past 12 months **	707	79.3%	834	93.5%	18.0%

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

Table 9b. CRACK USE IN THE PAST 12 MONTHS

Pattern of Use	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using crack a few times** over the past 12 months **	892	8.1%	3.5%	56.9%
Percent of clients who reported **using crack 1-3 times a month** over the past 12 months **	892	3.4%	1.0%	69.9%
Percent of clients who reported **using crack at least 1 time a week** over the past 12 months **	892	8.2%	2.0%	75.3%
Percent of clients who reported **using crack 1-5 times a week** over the past 12 months **	892	4.7%	1.2%	73.9%
Percent of clients who reported **using crack daily** over the past 12 months **	892	3.5%	0.8%	77.6%

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

Stimulant Use in the Past 12 Months

There were significant reductions from baseline to follow-up in stimulant use as presented in Tables 10a and 10b. Table 10a presents the number and percent of clients who reported not using stimulant in the past 12 months at follow-up when compared to baseline. At baseline, 723 (81.1%) of the clients reported not using stimulants in the past 12 months. At follow-up 12 months after treatment, 827 (92.7%) of the clients reported not using stimulants in the past 12 months for a 14.4% increase in the number of clients who reported not using stimulants in the past 12 months.

Table 10b also indicates that at baseline 6.4% of the clients reported using stimulants at least once a week in the past 12 months. At follow-up 12 months after treatment, only 1.8% of the clients reported using stimulants at least once a week in the past 12 months for a 72% decrease in the number of clients who reported using stimulants at least once a week in the past 12 months.

Table 10a. CLIENTS REPORTING NOT USING STIMULANTS IN THE PAST 12 MONTHS

Pattern of Use	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using stimulants** in the past 12 months **	892	81.1%	827	92.7%	14.4%

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

Table 10b. STIMULANT USE IN THE PAST 12 MONTHS

Pattern of Use	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using stimulants a few times** over the past 12 months **	892	7.5%	4.0%	46.2%
Percent of clients who reported **using stimulants 1-3 times a month** over the past 12 months **	892	3.7%	1.5%	60.5%
Percent of clients who reported **using stimulants at least 1 time a week** over the past 12 months **	892	6.4%	1.8%	72.0%
Percent of clients who reported **using stimulants 1-5 times a week** over the past 12 months **	892	3.4%	0.8%	76.8%
Percent of clients who reported **using stimulants daily** over the past 12 months **	892	3.0%	1.0%	66.7%

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

Tranquilizer Use in the Past 12 Months

Tables 11a and 11b show a significant reductions form baseline to follow-up in tranquilizer use. Table 11a presents the number and percent of clients reporting not using tranquilizer in the past 12 months. At baseline, 559 (62.7%) of clients reported not using tranquilizers. At the follow-up 12 months after treatment, 798 (89.5%) of clients reported not using tranquilizers in the past 12 months for a 42.7% increase in the number of clients reporting not using tranquilizers.

Table 11b also shows a significant decrease in the number of clients who reported using tranquilizers at least once a week in the past 12 months at follow-up when compared to baseline. At baseline 15.5% of clients reported using tranquilizers at least once a week in the past 12 months. At follow-up 12 months after treatment, 2.9% of clients reported using tranquilizers at least once a week for an 81.2% decrease in the number of clients who reported using tranquilizers at least once a week from baseline to follow-up.

Table 11a. CLIENTS REPORTING NOT USING TRANQUILIZERS IN THE PAST 12 MONTHS

Pattern of Use	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using tranquilizers** in the past 12 months **	559	62.7%	798	89.5%	42.7%

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

Table 11b. TRANQUILIZER USE IN THE PAST 12 MONTHS

Pattern of Use	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using tranquilizers a few times** over the past 12 months **	892	13.8%	5.7%	58.5%
Percent of clients who reported **using tranquilizers 1-3 times a month** over the past 12 months **	892	7.2%	1.9%	73.4%
Percent of clients who reported **using tranquilizers at least 1 time a week** over the past 12 months **	892	15.5%	2.9%	81.2%
Percent of clients who reported **using tranquilizers 1-5 times a week** over the past 12 months **	892	7.4%	2.2%	69.7%
Percent of clients who reported **using tranquilizers daily** over the past 12 months **	892	8.1%	0.7%	91.7%

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

Opiate Use in the Past 12 Months

There were significant reductions from baseline to follow-up in opiate use as present in Tables 12a and 12b. Table 12a presents the number and percent of clients who reported not using opiates in the past 12 months. Opiates include heroin as well as prescription narcotic analgesics such as oxycodone, OxyContin (OCs) and hydrocodone. At baseline, 668 (74.9%) of the clients reported not using opiates in the past 12 months, while at follow-up 12 months after treatment, 823 (92.3%) of the clients reported not using opiates. This represents a 23.2% increase in the number of clients reporting not using opiates 12 months after treatment.

Table 12b also shows a significant decrease in the number of clients who reported daily opiate use in the past 12 months at follow-up when compared to baseline. At baseline 9.2% of the clients reported daily opiate use in the past 12 months. At follow-up 12 months after treatment, 2.7% of the clients reported daily opiate use in the past 12 months for a 70.7% decrease in daily use.

Table 12a. CLIENTS REPORTING NOT USING OPIATES IN THE PAST 12 MONTHS

Pattern of Use	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using opiates** in the past 12 months **	668	74.9%	823	92.3%	23.2%

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

Table 12b. OPIATE USE IN THE PAST 12 MONTHS

Pattern of Use	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using opiates a few times** over the past 12 months **	892	8.9%	2.7%	(69.6%)
Percent of clients who reported **using opiates 1-3 times a month** over the past 12 months	892	2.2%	1.1%	(50.0%)
Percent of clients who reported **using opiates at least 1 time a week** over the past 12 months **	892	12.4%	3.9%	(68.5%)
Percent of clients who reported **using opiates 1-5 times a week** over the past 12 months **	892	3.3%	1.2%	(62.2%)
Percent of clients who reported **using opiates daily** over the past 12 months **	892	9.2%	2.7%	(70.7%)

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

REDUCTIONS IN MENTAL HEALTH PROBLEMS

Mental Health Problems in the Past 12 Months

Table 13 presents decreases in the report of mental health problems including a significant decrease in depression in the past 12 months from baseline to follow-up. At baseline, 48% of the clients reported depression. At follow-up 12 months after treatment, only 34.3% of clients reported depression in the past 12 months for a 28.5% reduction in the number of clients reporting serious depression from baseline to follow-up. Table 13 also shows a significant decrease in both suicidal thoughts and suicide attempts. At baseline, 22.7% of the clients reported suicidal thoughts in the 12 months before treatment. At follow-up only 11% of clients reported suicidal thoughts in the previous 12 months for a 51.5% reduction in the number of clients reporting suicidal thoughts from baseline to follow-up. At baseline, 13.8% of clients reported suicide attempts in the 12 months before treatment. At follow-up only 3.7% of clients reported suicide attempts in the past 12 months for a 73.2% decrease in the number of clients reporting suicide attempts from baseline to follow-up.

Table 13. MENTAL HEALTH PROBLEMS IN THE PAST 12 MONTHS

Mental Health Problem	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **depression** **	892	48.0%	34.3%	28.5%
Percent of clients who reported **serious anxiety** **	892	47.4%	41.3%	13.0%
Percent of clients who reported **hallucinations**	892	9.3%	7.1%	24.1%
Percent of clients who reported **trouble concentrating** *	892	43.2%	38.0%	12.0%
Percent of clients who reported **trouble controlling violent behavior** **	892	21.2%	14.0%	33.9%
Percent of clients who reported **suicidal thoughts** **	892	22.7%	11.0%	51.5%
Percent of clients who **reported suicide attempts** **	892	13.8%	3.7%	73.2%

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

REPORTED REDUCTIONS BY GENDER

Mental Health Problems by Gender in the Past 12 Months

Table 14 shows changes in the report of mental health problems by gender. At baseline, 42.5% of male clients reported depression in the previous 12 months and 30% of male clients reported serious depression at follow-up 12 months after treatment. This represents a 29.4% decrease in the number of male clients reporting serious depression in the past 12 months from baseline to follow-up for male clients At baseline, 60.8% of female clients reported serious depression in the past 12 months, while 44.4% of female clients reported serious depression at follow-up. This represents a 27% reduction in the number of female clients reporting serious depression from baseline to follow-up. The largest decrease from baseline to follow-up was for suicide attempts. At baseline, 10% of male clients reported suicide attempts, and 22.8% of female clients reported suicide attempts. At follow-up 12 months after baseline, 2.6% of male clients reported suicide attempts and 6.3% of female clients reported suicide attempts. This represents a 74.2% reduction in the number of male clients reporting suicide attempts and a 72.1% reduction in the number of female clients reporting suicide attempts from baseline to follow-up.

Table 14. MENTAL HEALTH PROBLEMS BY GENDER IN THE PAST 12 MONTHS

Mental Health Problem	Gender	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **serious depression** **	**Male**	623	42.5%	30.0%	29.4%
Percent of clients who reported **serious depression** **	**Female**	268	60.8%	44.4%	27.0%
Percent of clients who reported **serious anxiety**	**Male**	623	42.1%	36.8%	12.6%
Percent of clients who reported **serious anxiety** *	**Female**	268	60.1%	51.5%	14.3%
Percent of clients who reported **hallucinations**	**Male**	623	8.5%	7.4%	13.3%
Percent of clients who reported **hallucinations** *	**Female**	268	11.2%	6.3%	43.3%
Percent of clients who reported **trouble concentrating**	**Male**	623	37.4%	34.8%	6.9%
Percent of clients who reported **trouble concentrating** *	**Female**	268	56.3%	45.5%	19.2%
Percent of clients who reported **trouble controlling violent behavior** **	**Male**	623	20.1%	13.5%	32.8%
Percent of clients who reported **trouble controlling violent behavior** *	**Female**	268	23.5%	14.9%	36.5%
Percent of clients who reported **suicidal thoughts** **	**Male**	623	18.6%	9.6%	48.3%
Percent of clients who reported **suicidal thoughts** **	**Female**	268	32.1%	14.2%	55.8%
Percent of clients who reported **suicide attempts** **	**Male**	623	10.0%	2.6%	74.2%
Percent of clients who reported **suicide attempts** **	**Female**	268	22.8%	6.3%	72.1%

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

Alcohol Use by Gender in the Past 12 Months

Tables 15a and 15b show changes in alcohol use by gender. Table 15 a shows a significant increase in the number of male and female clients reporting not using alcohol. At baseline, 98 (15.7%) of male clients reported not using alcohol in the past 12 months while 240 (38.5%) reported not using alcohol at follow-up. This represents over a 100% increase (144.9%) in the number of clients reporting not using alcohol. At baseline, 57 (21.3%) of female clients reported not using alcohol in the past 12 months while at follow-up, 149 (55.6%) of female clients reported not using alcohol in the past 12 months. Specifically, this is over a 100% increase (161.4%) in the number of females at follow-up who reported not using alcohol in the past 12 months.

Table 15b also indicates that at baseline, 18.3% of male clients reported daily alcohol use in the past 12 months, while 13.1% of female clients reported daily alcohol use. At follow-up 12 months after treatment, only 8.5% of male clients reported daily alcohol use in the past 12 months, while 1.9% of female clients reported daily alcohol use. This represents a 53.5% decrease from baseline to follow-up in the number of male clients reporting daily alcohol use and an 85.7% decrease in the number of female clients reporting daily alcohol use from baseline to follow-up.

Table 15a. CLIENTS REPORTING NOT USING ALCOHOL BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using alcohol** in the past 12 months **	**Male**	98	15.7%	240	38.5%	144.9%
Clients who reported **not using alcohol** in the past 12 months **	**Female**	57	21.3%	149	55.6%	161.4%

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

Table 15b. ALCOHOL USE BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using alcohol a few times** in the past 12 months	**Male**	623	19.9%	18.9%	4.8%
Percent of clients who reported **using alcohol a few times** in the past 12 months	**Female**	268	28.4%	24.6%	13.2%
Percent of clients who reported **using alcohol 1-3 times a month** in the past 12 months	**Male**	623	20.7%	18.9%	8.5%
Percent of clients who reported **using alcohol 1-3 times a month** in the past 12 months *	**Female**	268	20.2%	12.7%	37.0%
Percent of clients who reported **using alcohol at least 1 time a week** in the past 12 months **	**Male**	623	43.0%	23.6%	45.1%
Percent of clients who reported **using alcohol at least 1 time a week** in the past 12 months **	**Female**	268	29.5%	7.1%	75.9%
Percent of clients who **reported using alcohol 1-5 times a week** in the past 12 months **	**Male**	623	24.7%	15.1%	39.0%
Percent of clients who **reported using alcohol 1-5 times a week** in the past 12 months **	**Female**	268	16.4%	5.2%	68.2%
Percent of clients who reported **using alcohol daily** in the past 12 months **	**Male**	623	18.3%	8.5%	53.5%
Percent of clients who reported **using alcohol daily** in the past 12 months **	**Female**	268	13.1%	1.9%	85.7%
Percent of clients who reported **morning drinking** **	**Male**	623	23.3%	8.7%	62.7%
Percent of clients who reported **morning drinking** **	**Female**	268	20.2%	3.4%	83.3%
Percent of clients who reported **drinking more than intended** **	**Male**	623	55.7%	28.3%	49.3%
Percent of clients who reported **drinking more than intended** **	**Female**	268	47.4%	17.2%	63.8%

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

Marijuana Use by Gender in the Past 12 Months

Tables 16a and 16b present changes in marijuana use by gender. Table 16a presents the number and percent of clients by gender not using marijuana in the past 12 months. At baseline, 289 (46.4%) of male clients and 112 (41.8%) of female clients reported not using marijuana in the past 12 months. At follow-up, 468 (75.1%) of male clients and 200 (74.6%) of female clients reported not using marijuana in the past 12 months. This represents a 61.9% increase in the number of male clients and a 78.6% increase in the number of female clients who reported not using marijuana at follow-up.

Table 16b also shows that 14.8% of male clients and 17.5% of female clients reported daily use of marijuana in the past 12 months. At follow-up 12 months after treatment, only 5% of male clients and 3.4% of female clients reported daily use of marijuana. This represents a 66.3% reduction in the number of male clients and an 80.8% reduction in the number of female clients reporting daily marijuana use from baseline to follow-up.

Table 16a. CLIENTS REPORTING NOT USING MARIJUANA BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using marijuana** in the past 12 months **	**Male**	289	46.4%	468	75.1%	61.9%
Clients who reported **not using marijuana** in the past 12 months **	**Female**	112	41.8%	200	74.6%	78.6%

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

Table 16b. MARIJUANA USE BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using marijuana a few times** in the past 12 months **	**Male**	623	16.5%	7.7%	53.4%
Percent of clients who reported **using marijuana a few times** in the past 12 months **	**Female**	268	19.4%	9.7%	50.0%
Percent of clients who reported **using marijuana 1-3 times a month** in the past 12 months	**Male**	623	9.2%	6.1%	33.3%
Percent of clients who reported **using marijuana 1-3 times a month** in the past 12 months **	**Female**	268	10.5%	2.6%	75.0%
Percent of clients who reported **using marijuana at least 1 time a week** in the past 12 months **	**Male**	623	27.1%	10.9%	59.8%
Percent of clients who reported **using marijuana at least 1 time a week** in the past 12 months **	**Female**	268	26.9%	5.6%	79.2%
Percent of clients who **reported using marijuana 1-5 times a week** in the past 12 months**	**Male**	623	12.4%	5.9%	51.9%
Percent of clients who **reported using marijuana 1-5 times a week** in the past 12 months**	**Female**	268	9.3%	2.2%	76.0%
Percent of clients who reported **using marijuana daily** in the past 12 months **	**Male**	623	14.8%	5.0%	66.3%
Percent of clients who reported **using marijuana daily** in the past 12 months **	**Female**	268	17.5%	3.4%	80.8%

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

Cocaine Use by Gender in the Past 12 Months

Tables 17a and 17b present changes in cocaine use by gender. Table 17a presents the number and percent of clients reporting not using cocaine in the past 12 months. At baseline, 473 (75.9%) of male clients and 173 (64.6%) of female clients reported not using cocaine in the past 12 months. At follow-up, 591 (94.9%) of male clients and 253 (94.4%) of female clients reported not using cocaine in the past 12 months. This represents a 24.9% increase in the number of male clients and a 46.2% increase in the number of female clients who reported not using cocaine at follow-up.

Table 17b presents changes in the patterns of cocaine use. At baseline, 1.4% of male clients reported daily use of cocaine in the past 12 months, and none reported daily cocaine use at follow-up. At baseline, 4.9% of female clients reported daily cocaine use in the past 12 months while none reported daily use at follow-up 12 months after treatment. Table 17b also shows a significant reduction in weekly cocaine use. At baseline, 6.4% of male clients reported using cocaine at least once a week in the past 12 months, while 11.9% of female clients reported using cocaine at least once a week in the past 12 months. At follow-up 12 months after treatment admission, only 1% of male clients and 1.5% of female clients reported using cocaine at least once a week. This represents an 85% reduction in the number of male clients and an 87.5% reduction in the number of female clients reporting cocaine use at least once a week from baseline to follow-up.

Table 17a. CLIENTS REPORTING NOT USING COCAINE BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using cocaine** in the past 12 months **	**Male**	473	75.9%	591	94.9%	24.9%
Clients who reported **not using cocaine** in the past 12 months **	**Female**	173	64.6%	253	94.4%	46.2%

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

Table 17b. COCAINE USE BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using cocaine a few times** in the past 12 months **	**Male**	623	13.0%	3.1%	76.5%
Percent of clients who reported **using cocaine a few times** in the past 12 months **	**Female**	268	14.9%	3.4%	77.5%
Percent of clients who reported **using cocaine 1-3 times a month** in the past 12 months **	**Male**	623	3.9%	1.1%	70.9%
Percent of clients who reported **using cocaine 1-3 times a month** in the past 12 months **	**Female**	268	7.8%	0.8%	90.4%
Percent of clients who reported **using cocaine at least 1 time a week** in the past 12 months **	**Male**	623	6.4%	1.0%	85.0%
Percent of clients who reported **using cocaine at least 1 time a week** in the past 12 months **	**Female**	268	11.9%	1.5%	87.5%
Percent of clients who **reported using cocaine 1-5 times a week** in the past 12 months **	**Male**	623	5.0%	1.0%	80.7%
Percent of clients who **reported using cocaine 1-5 times a week** in the past 12 months **	**Female**	268	7.1%	1.5%	79.0%
Percent of clients who reported **using cocaine daily** in the past 12 months **	**Male**	623	1.4%	0.0%	100.0%
Percent of clients who reported **using cocaine daily** in the past 12 months **	**Female**	268	4.9%	0.0%	100.0%

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

Crack Use by Gender in the Past 12 Months

Tables 18a and 18b show the change in crack use by both male and female clients at baseline and at follow-up. Table 18a presents the number and percent of client reporting not using crack in the past 12 months. At baseline, 519 (83.3%) of male clients reported not using crack cocaine in the past 12 months, while 591 (94.9%) of male clients reported not using crack cocaine at follow-up 12 months after treatment. This represents a 13.9% increase in the number of male clients who reported not using crack cocaine from baseline to follow-up. At baseline, 187 (69.8%) of female clients reported not using crack cocaine in the past 12 months while 242 (90.3%) of female clients reported not using crack cocaine at follow-up. This represents a 29.4% increase in the number of female clients reporting not using crack from baseline to follow-up.

Table 18b also shows a significant decrease in the percentage of male and female clients who used crack at least once in the past week. At baseline, 5.6% of male clients and 14.2% of female clients reported using crack at least once a week. At follow-up 12 months after treatment, only 1.6% of male clients and 3.0% of female clients reported using crack at least once a week. This represents a 71.4% reduction in the number of male clients and a 78.9% reduction in the number of female clients reporting weekly crack use from baseline to follow-up.

Table 18a. CLIENTS REPORTING NOT USING CRACK BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using crack** in the past 12 months **	**Male**	519	83.3%	591	94.9%	13.9%
Clients who reported **not using crack** in the past 12 months **	**Female**	187	69.8%	242	90.3%	29.4%

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

Table 18b. CRACK USE BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using crack a few times** in the past 12 months **	**Male**	623	6.9%	2.6%	62.8%
Percent of clients who reported **using crack a few times** in the past 12 months *	**Female**	268	10.8%	5.6%	48.2%
Percent of clients who reported **using crack 1-3 times a month** in the past 12 months **	**Male**	623	3.1%	1.0%	68.5%
Percent of clients who reported **using crack 1-3 times a month** in the past 12 months *	**Female**	268	4.1%	1.1%	72.7%
Percent of clients who reported **using crack at least 1 time a week** in the past 12 months **	**Male**	623	5.6%	1.6%	71.4%
Percent of clients who reported **using crack at least 1 time a week** in the past 12 months **	**Female**	268	14.2%	3.0%	78.9%
Percent of clients who **reported using crack 1-5 times a week** in the past 12 months **	**Male**	623	4.0%	0.8%	80.0%
Percent of clients who **reported using crack 1-5 times a week** in the past 12 months *	**Female**	268	6.3%	2.2%	64.7%
Percent of clients who reported **using crack daily** in the past 12 months	**Male**	623	1.6%	0.8%	50.3%
Percent of clients who reported **using crack daily** in the past 12 months **	**Female**	268	7.8%	0.8%	90.4%

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

Stimulant Use by Gender in the Past 12 Months

Tables 19a and 19b show the changes in stimulant use in the past 12 months from baseline to follow-up for both male and female clients. Table 19a presents the number and percent of clients reporting not using stimulants in the past 12 months. At baseline, 520 (83.5%) of male clients reported not using stimulants in the past 12 months, while 575 (92.3%) of male clients reported not using stimulants at follow-up 12 months after treatment. This represents a 10.6% increase in the number of male clients who reported not using stimulants from baseline to follow-up. At baseline, 202 (75.4%) of female clients reported not using stimulants in the past 12 months while 251 (93.7%) of female clients reported not using stimulants at follow-up. This represents a 24.3% increase in the number of female clients reporting not using stimulants from baseline to follow-up.

Table 19b presents changes in the patterns of stimulant use in the past 12 months. At baseline, a small number of clients reported using stimulants weekly. At baseline, 4.3% of male clients and 11.2% of female clients reported using stimulants at least once a week. At follow-up 12 months after treatment, only 2.1% of male clients and 1.1% of female clients reported using stimulants at least once a week. This represents a 51.7% reduction in the number of male clients and a 90% reduction in the number of female clients reporting stimulant use at least once a week from baseline to follow-up.

Table 19a. CLIENTS REPORTING NOT USING STIMULANTS BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using stimulants** in the past 12 months **	**Male**	250	83.5%	575	92.3%	10.6%
Clients who reported **not using stimulants** in the past 12 months **	**Female**	202	75.4%	251	93.7%	24.3%

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

Table 19b. STIMULANT USE BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using stimulants a few times** in the past 12 months *	**Male**	623	7.2%	4.5%	37.8%
Percent of clients who reported **using stimulants a few times** in the past 12 months **	**Female**	268	8.2%	3.0%	63.6%
Percent of clients who reported **using stimulants 1-3 times a month** in the past 12 months **	**Male**	623	3.4%	1.1%	66.8%
Percent of clients who reported **using stimulants 1-3 times a month** in the past 12 months *	**Female**	268	4.5%	2.2%	50.0%
Percent of clients who reported **using stimulants at least 1 time a week** in the past 12 months *	**Male**	623	4.3%	2.1%	51.7%
Percent of clients who reported **using stimulants at least 1 time a week** in the past 12 months **	**Female**	268	11.2%	1.1%	90.0%
Percent of clients who **reported using stimulants 1-5 times a week** in the past 12 months	**Male**	623	2.4%	1.1%	53.5%
Percent of clients who **reported using stimulants 1-5 times a week** in the past 12 months **	**Female**	268	5.6%	0.0%	100.0%
Percent of clients who reported **using stimulants daily** in the past 12 months	**Male**	623	1.9%	1.0%	50.3%
Percent of clients who reported **using stimulants daily** in the past 12 months **	**Female**	268	5.6%	1.1%	80.0%

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

Tranquilizer Use by Gender in the Past 12 Months

Tables 20a and 20b present the changes in tranquilizer use in the past 12 months from baseline to follow-up for both male and female clients. Table 20a presents the number and percent of clients reporting not using tranquilizers in the past 12 months. At baseline, 411 (66%) of male clients reported not using tranquilizers in the past 12 months, while 557 (89.4%) of male clients reported not using tranquilizers at follow-up 12 months after treatment. This represents a 35.5% increase in the number of male clients who reported not using tranquilizers from baseline to follow-up. At baseline, 147 (54.9%) of female clients reported not using tranquilizers in the past 12 months, while 240 (89.6%) of female clients reported not using tranquilizers at follow-up. This represents a 63.3% increase in the number of female clients reporting not using stimulants from baseline to follow-up.

Table 20b also shows a significant reduction in the use of tranquilizers 1-5 times a week. At baseline, 6.6% of male clients and 9.3% of female clients reported using tranquilizers at one to five times a week. At follow-up 12 months after treatment, only 2.4% of male clients and 1.9% of female clients reported using tranquilizers one to five times a week. This represents a 63.4% decrease in the number of male clients and an 80% decrease in the number of female clients reporting tranquilizer use one to five times a week.

Table 20a. CLIENTS REPORTING NOT USING TRANQUILIZERS BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using tranquilizers** in the past 12 months **	**Male**	411	66.0%	557	89.4%	35.5%
Clients who reported **not using tranquilizers** in the past 12 months **	**Female**	147	54.9%	240	89.6%	63.3%

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

Table 20b. TRANQUILIZER USE BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using tranquilizer a few times** in the past 12 months **	**Male**	623	13.0%	5.6%	56.8%
Percent of clients who reported **using tranquilizer a few times** in the past 12 months **	**Female**	268	15.7%	6.0%	61.9%
Percent of clients who reported **using tranquilizer 1-3 times a month** in the past 12 months **	**Male**	623	6.9%	1.9%	72.0%
Percent of clients who reported **using tranquilizer 1-3 times a month** in the past 12 months **	**Female**	268	7.8%	1.9%	76.1%
Percent of clients who reported **using tranquilizer at least 1 time a week** in the past 12 months **	**Male**	623	13.0%	3.1%	76.5%
Percent of clients who reported **using tranquilizer at least 1 time a week** in the past 12 months **	**Female**	268	21.3%	2.6%	87.7%
Percent of clients who **reported using tranquilizer 1-5 times a week** in the past 12 months **	**Male**	623	6.6%	2.4%	63.4%
Percent of clients who **reported using tranquilizer 1-5 times a week** in the past 12 months **	**Female**	268	9.3%	1.9%	80.0%
Percent of clients who reported **using tranquilizer daily** in the past 12 months **	**Male**	623	6.4%	0.6%	90.0%
Percent of clients who reported **using tranquilizer daily** in the past 12 months **	**Female**	268	11.9%	0.8%	93.7%

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

Opiate Use by Gender in the Past 12 Months

Tables 21a and 21b show changes in opiate use in the past 12 months from baseline to follow-up for both male and female clients. Table 21a presents the number and percent of clients reporting not using opiates in the past 12 months. At baseline, 483 (77.5%) of male clients reported not using opiates in the past 12 months, while 573 (92%) of male clients reported not using opiates at follow-up 12 months after treatment. This represents an 18.6% increase in the number of male clients who reported not using opiates from baseline to follow-up. At baseline, 184 (68.7%) of female clients reported not using opiates in the past 12 months, while 249 (92.9%) of female clients reported not using opiates at follow-up. This represents a 35.3% increase in the number of female clients reporting not using opiates from baseline to follow-up.

Table 21b presents changes in the patterns of opiate use in the past 12 months. At baseline, 6.9% of male clients and 14.6% of female clients reported using opiates daily. At follow-up 12 months after treatment, only 2.7% of male clients and 2.6% of female clients reporting using opiates daily. This represents a 60.4% decrease in male clients and an 82.1% decrease in female clients reported use of opiates daily.

Table 21a. CLIENTS REPORTING NOT USING OPIATES BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using opiates** in the past 12 months **	**Male**	483	77.5%	573	92.0%	18.6%
Clients who reported **not using opiates** in the past 12 months **	**Female**	184	68.7%	249	92.9%	35.3%

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

Table 21b. OPIATE USE BY GENDER IN THE PAST 12 MONTHS

Pattern of Use	Gender	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using opiate a few times** in the past 12 months **	**Male**	623	9.0%	2.4%	73.2%
Percent of clients who reported **using opiate a few times** in the past 12 months *	**Female**	268	8.6%	3.4%	60.8%
Percent of clients who reported **using opiate 1-3 times a month** in the past 12 months	**Male**	623	2.3%	1.3%	43.1%
Percent of clients who reported **using opiate 1-3 times a month** in the past 12 months	**Female**	268	2.2%	0.8%	66.5%
Percent of clients who reported **using opiate at least 1 time a week** in the past 12 months **	**Male**	623	10.0%	4.3%	56.5%
Percent of clients who reported **using opiate at least 1 time a week** in the past 12 months **	**Female**	268	18.3%	3.0%	83.6%
Percent of clients who **reported using opiate 1-5 times a week** in the past 12 months	**Male**	623	3.1%	1.6%	47.2%
Percent of clients who **reported using opiate 1-5 times a week** in the past 12 months **	**Female**	268	3.7%	0.4%	90.1%
Percent of clients who reported **using opiate daily** in the past 12 months **	**Male**	623	6.9%	2.7%	60.4%
Percent of clients who reported **using opiate daily** in the past 12 months **	**Female**	268	14.6%	2.6%	82.1%

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

SELF REPORTED CHANGES FROM BASELINE TO FOLLOW-UP BY TREATMENT TYPE

Mental Health Problems by Treatment Type in the Past 12 Months

Table 22 shows changes in the report of mental health problems by treatment type. At baseline, 58.5% of residential clients reported serious depression in the past 12 months, while 39.4% of outpatient clients reported serious depression at baseline. At follow-up 12 months after treatment, only 36.1% of residential clients reported serious depression in the past 12 months, while 32.9% of outpatient clients reported depression. This represents a 38.3% decrease in the number of residential clients reporting serious depression from baseline to follow-up and a 16.6% decrease from baseline to follow-up in the number of outpatient clients reporting depression. The largest decrease from baseline to follow-up was for suicide attempts for both groups. This is comparable to the decreases in suicide attempts among residential and outpatient clients represented in Table 22. At baseline, 17.4% of residential clients reported suicide attempts, and 10.8% of outpatient clients reported suicide attempts. At follow-up 12 months after baseline, 4.5% of residential clients reported suicide attempts in the past 12 months and 3.1% of outpatient clients reported suicide attempts. This represents a 74.3% reduction from baseline to follow-up in the number of residential clients who reported suicide attempts and a 71.7% decrease from baseline to follow-up in the number of outpatient clients who reported suicide attempts.

Table 22. MENTAL HEALTH PROBLEMS BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **serious depression** **	**Residential**	402	58.5%	36.1%	38.3%
Percent of clients who reported **serious depression** *	**Outpatient**	490	39.4%	32.9%	16.6%
Percent of clients who reported **serious anxiety** *	**Residential**	402	52.2%	44.8%	14.3%
Percent of clients who reported **serious anxiety**	**Outpatient**	490	43.5%	38.4%	11.7%
Percent of clients who reported **hallucinations** *	**Residential**	402	12.9%	8.2%	36.6%
Percent of clients who reported **hallucinations**	**Outpatient**	490	6.3%	6.1%	3.3%
Percent of clients who reported **trouble concentrating** *	**Residential**	402	49.8%	42.5%	14.5%
Percent of clients who reported **trouble concentrating**	**Outpatient**	490	37.8%	34.3%	9.2%
Percent of clients who reported **trouble controlling violent behavior** *	**Residential**	402	24.9%	17.7%	29.0%
Percent of clients who reported **trouble controlling violent behavior** *	**Outpatient**	490	18.2%	11.0%	39.3%
Percent of clients who reported **suicidal thoughts** **	**Residential**	402	27.4%	12.9%	52.7%
Percent of clients who reported **suicidal thoughts** **	**Outpatient**	490	18.8%	9.4%	50.0%
Percent of clients who reported **suicide attempts** **	**Residential**	402	17.4%	4.5%	74.3%
Percent of clients who reported **suicide attempts** **	**Outpatient**	490	10.8%	3.1%	71.7%

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

Alcohol Use by Treatment Type in the Past 12 Months

Tables 23a and 23b present changes in alcohol use by treatment type. Table 23a presents the number and percent of clients reporting not using alcohol in the past 12 months. At baseline, only 54 (13.4%) of residential treatment clients reported not using alcohol in the past 12 months, while 187 (46.5%) of residential treatment clients reported not using alcohol at follow-up 12 months after treatment. This represents a more than double an increase in the number of residential treatment clients who reported not using alcohol from baseline to follow-up. At baseline, 101 (20.6%) of outpatient treatment clients reported not using alcohol in the past 12 months, while 202 (41.2%) of outpatient treatment clients reported not using alcohol at follow-up. This represents a 100% increase in the number of female clients reporting not using alcohol from baseline to follow-up.

All alcohol use measures showed decreases except for the category of one to three times per month. Table 23b presents an increase in the number of clients who reported using alcohol one to three times a month by both residential and outpatient clients. However, at baseline, 28.4% of residential clients reported using alcohol one to five times a week in the past 12 months, while 17.4% of outpatient clients reported using alcohol one to five times a week in the past 12 months. At follow-up 12 months after treatment 11.4% of residential clients reported using alcohol one to five times a week, while 12.7% of outpatient clients reported using alcohol one to five times a week in the past 12 months. This represents 59.7% decrease in the number of residential clients who reported using alcohol one to five times a week in the past 12 months and a 27.1% decrease in the number of outpatient clients who reported using alcohol one to five times a week. Table 23b also indicates a significant change in daily alcohol use. At baseline, 24.6% of residential clients reported daily alcohol use in the past 12 months, while 10.2% of outpatient clients reported daily alcohol use. At follow-up 12 months after treatment, only 8.7% of residential clients reported daily alcohol use in the past 12 months, while 4.7% of outpatient clients reported daily alcohol use. This represents a 64.6% decrease from baseline to follow-up in the number of residential clients reporting daily alcohol use and a 54% decrease from baseline to follow-up in the number of outpatient clients reporting daily use.

Table 23a. CLIENTS REPORTING NOT USING ALCOHOL BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using alcohols** in the past 12 months **	**Residential**	54	13.4%	187	46.5%	246.4%
Clients who reported **not using alcohols** in the past 12 months **	**Outpatient**	101	20.6%	202	41.2%	100.0%

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

Table 23b. ALCOHOL USE BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using alcohol a few times** in the past 12 months	**Residential**	402	20.2%	19.2%	5.0%
Percent of clients who reported **using alcohol a few times** in the past 12 months	**Outpatient**	490	24.3%	21.8%	10.1%
Percent of clients who reported **using alcohol 1-3 times a month** in the past 12 months **	**Residential**	402	12.2%	14.2%	*(16.3%)*[1]
Percent of clients who reported **using alcohol 1-3 times a month** in the past 12 months	**Outpatient**	490	27.4%	19.6%	28.4%
Percent of clients who reported **using alcohol at least 1 time a week** in the past 12 months **	**Residential**	402	53.0%	20.2%	62.0%
Percent of clients who reported **using alcohol at least 1 time a week** in the past 12 months **	**Outpatient**	490	27.6%	17.4%	37.0%
Percent of clients who **reported using alcohol 1-5 times a week** in the past 12 months **	**Residential**	402	28.4%	11.4%	59.7%
Percent of clients who **reported using alcohol 1-5 times a week** in the past 12 months *	**Outpatient**	490	17.4%	12.7%	27.1%
Percent of clients who reported **using alcohol daily** in the past 12 months **	**Residential**	402	24.6%	8.7%	64.6%
Percent of clients who reported **using alcohol daily** in the past 12 months **	**Outpatient**	490	10.2%	4.7%	54.0%
Percent of clients who reported **morning drinking** **	**Residential**	402	32.8%	10.2%	68.9%
Percent of clients who reported **morning drinking** **	**Outpatient**	490	13.9%	4.5%	67.7%
Percent of clients who reported **drinking more than intended** **	**Residential**	402	58.0%	27.1%	53.2%
Percent of clients who reported **drinking more than intended** **	**Outpatient**	490	49.4%	23.3%	52.9%

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

[1] *An increase in the number of clients who reported using alcohol one to three times a month by both residential and outpatient clients*

Marijuana Use by Treatment Type in the Past 12 Months

Tables 24a and 24b present the changes in marijuana use in the past 12 months from baseline to follow-up for both residential and outpatient clients. Table 24a presents the number and percent of clients reporting not using marijuana in the past 12 months by treatment type. At baseline, 128 (31.8%) of residential treatment clients reported not using marijuana in the past 12 months, while 300 (74.6%) of residential treatment clients reported not using marijuana at follow-up 12 months after treatment. This represents a greater than 100% increase (134.4%) in the number of residential treatment clients who reported not using marijuana from baseline to follow-up. At baseline, 273 (55.7%) of outpatient treatment clients reported not using marijuana in the past 12 months, while 388 (79.2%) of outpatient treatment clients reported not using marijuana at follow-up. This represents a 42.1% increase in the number of female clients reporting not using marijuana from baseline to follow-up.

Table 24b also presents a significant decrease in daily marijuana use by treatment type. At baseline, 20.9% of residential clients and 11.2% of outpatient clients reported using marijuana daily. At follow-up 12 months after treatment, only 4.7% of residential clients and 4.3% of outpatient clients reported using marijuana daily. This represents a 77.4% decrease from baseline to follow-up in the number of residential clients reporting using marijuana on a daily basis 12 months after treatment. This also represents a 61.8% decrease from baseline to follow-up in the percent of outpatient clients reporting daily use of marijuana at follow-up 12 months after treatment.

Table 24a. CLIENTS REPORTING NOT USING MARIJUANA BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using marijuana** in the past 12 months **	**Residential**	128	31.8%	300	74.6%	134.4%
Clients who reported **not using marijuana** in the past 12 months **	**Outpatient**	273	55.7%	388	79.2%	42.1%

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

Table 24b. MARIJUANA USE BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using marijuana a few times** in the past 12 months **	**Residential**	402	19.9%	9.5%	52.5%
Percent of clients who reported **using marijuana a few times** in the past 12 months **	**Outpatient**	490	15.3%	7.4%	52.0%
Percent of clients who reported **using marijuana 1-3 times a month** in the past 12 months **	**Residential**	402	10.5%	5.5%	47.7%
Percent of clients who reported **using marijuana 1-3 times a month** in the past 12 months *	**Outpatient**	490	8.8%	4.9%	44.2%
Percent of clients who reported **using marijuana at least 1 time a week** in the past 12 months **	**Residential**	402	36.3%	10.2%	71.9%
Percent of clients who reported **using marijuana at least 1 time a week** in the past 12 months **	**Outpatient**	490	19.6%	8.6%	56.3%
Percent of clients who **reported using marijuana 1-5 times a week** in the past 12 months **	**Residential**	402	15.4%	5.5%	64.5%
Percent of clients who **reported using marijuana 1-5 times a week** in the past 12 months **	**Outpatient**	490	8.4%	4.3%	48.7%
Percent of clients who reported **using marijuana daily** in the past 12 months **	**Residential**	402	20.9%	4.7%	77.4%
Percent of clients who reported **using marijuana daily** in the past 12 months **	**Outpatient**	490	11.2%	4.3%	61.8%

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

Cocaine Use by Treatment Type in the Past 12 Months

Tables 25a and 25b show changes in cocaine use by treatment type. Table 25a presents the number and percent of clients reporting not using cocaine in the past 12 months. At baseline, 228 (56.7%) of residential treatment clients reported not using cocaine in the past 12 months, while 380 (94.5%) of residential treatment clients reported not using cocaine at follow-up 12 months after treatment. This represents a 66.7% increase in the number of residential treatment clients who reported not using cocaine from baseline to follow-up. At baseline, 419 (85.5%) of outpatient treatment clients reported not using cocaine in the past 12 months, while 465 (94.9%) of outpatient treatment clients reported not using cocaine at follow-up. This represents an 11% increase in the number of outpatient clients reporting not using cocaine from baseline to follow-up.

Table 25b presents changes in the patterns of cocaine use in the past 12 months. At baseline, 19.2% of residential treatment clients reported using cocaine a few times in the past 12 months, while 9% of outpatient clients reported using cocaine a few times in the past 12 months. At follow-up 12 months after treatment admission, only 2.7% of residential clients and 3.5% of outpatient clients reported using cocaine a few times. This represents an 85.7% decrease from baseline to follow-up in the number of residential treatment clients reporting cocaine use a few times in the past 12 months and a 61.4% decrease in the number of outpatient clients reporting this level of cocaine use.

Table 25a. CLIENTS REPORTING NOT USING COCAINE BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using cocaine** in the past 12 months **	**Residential**	228	56.7%	380	94.5%	66.7%
Clients who reported **not using cocaine** in the past 12 months **	**Outpatient**	419	85.5%	465	94.9%	11.0%

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

Table 25b. COCAINE USE BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using cocaine a few times** in the past 12 months **	**Residential**	402	19.2%	2.7%	85.7%
Percent of clients who reported **using cocaine a few times** in the past 12 months **	**Outpatient**	490	9.0%	3.5%	61.4%
Percent of clients who reported **using cocaine 1-3 times a month** in the past 12 months **	**Residential**	402	8.0%	1.2%	84.4%
Percent of clients who reported **using cocaine 1-3 times a month** in the past 12 months *	**Outpatient**	490	2.7%	0.8%	69.1%
Percent of clients who reported **using cocaine at least 1 time a week** in the past 12 months **	**Residential**	402	14.9%	1.5%	90.0%
Percent of clients who reported **using cocaine at least 1 time a week** in the past 12 months *	**Outpatient**	490	2.5%	0.8%	66.5%
Percent of clients who **reported using cocaine 1-5 times a week** in the past 12 months **	**Residential**	402	10.2%	1.5%	85.4%
Percent of clients who **reported using cocaine 1-5 times a week** in the past 12 months	**Outpatient**	490	1.8%	0.8%	55.4%
Percent of clients who reported **using cocaine daily** in the past 12 months **	**Residential**	402	4.7%	0.0%	100.0%
Percent of clients who reported **using cocaine daily** in the past 12 months	**Outpatient**	490	0.6%	0.0%	100.0%

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

Crack Use by Treatment Type in the Past 12 Months

Tables 26a and 26b show the change in crack use by both residential and outpatient clients at baseline and at follow-up. Table 26 a presents the number and percent of clients reporting not using crack in the past 12 months. At baseline, 251 (62.4%) of residential treatment clients reported not using crack cocaine in the past 12 months, while 355 (88.3%) of residential treatment clients reported not using crack cocaine at follow-up 12 months after treatment. This represents a 41.4% increase in the number of residential treatment clients who reported not using crack cocaine from baseline to follow-up. At baseline, 456 (93.1%) of outpatient treatment clients reported not using crack cocaine in the past 12 months, while 479 (97.8%) of outpatient treatment clients reported not using crack cocaine at follow-up. This represents a 5.1% increase in the number of outpatient clients reporting not using crack from baseline to follow-up. While small numbers of clients reported using crack, other reductions were significant.

In Table 26b, residential treatment and outpatient treatment clients reported reductions in using crack a few times in the past 12 months. At baseline, 13.2% of residential treatment clients reported using a few times in the past 12 months while 6.7% reported this level of use at follow-up. This represents a 49% reduction from baseline to follow-up in the number of residential clients reporting occasional crack use in the past 12 months. Outpatient reductions from baseline to follow-up were greater with a 78.9% reduction in the number of clients reporting occasional crack use in the past 12 months.

Table 26a. CLIENTS REPORTING NOT USING CRACK BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using crack** in the past 12 months **	**Residential**	251	62.4%	355	88.3%	41.4%
Clients who reported **not using crack** in the past 12 months **	**Outpatient**	456	93.1%	479	97.8%	5.1%

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

Table 26b. CRACK USE BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using crack a few times** in the past 12 months **	**Residential**	402	13.2%	6.7%	49.0%
Percent of clients who reported **using crack a few times** in the past 12 months **	**Outpatient**	490	3.9%	0.8%	78.9%
Percent of clients who reported **using crack 1-3 times a month** in the past 12 months **	**Residential**	402	6.5%	1.7%	73.1%
Percent of clients who reported **using crack 1-3 times a month** in the past 12 months	**Outpatient**	490	0.8%	0.4%	50.0%
Percent of clients who reported **using crack at least 1 time a week** in the past 12 months **	**Residential**	402	15.9%	3.2%	79.7%
Percent of clients who reported **using crack at least 1 time a week** in the past 12 months	**Outpatient**	490	1.8%	1.0%	44.6%
Percent of clients who **reported using crack 1-5 times a week** in the past 12 months **	**Residential**	402	9.2%	1.7%	81.1%
Percent of clients who **reported using crack 1-5 times a week** in the past 12 months	**Outpatient**	490	1.0%	0.8%	19.6%
Percent of clients who reported **using crack daily** in the past 12 months **	**Residential**	402	6.7%	1.5%	77.8%
Percent of clients who reported **using crack daily** in the past 12 months	**Outpatient**	490	0.8%	0.2%	75.6%

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

Stimulant Use by Treatment Type in the Past 12 Months

Tables 27a and 27b present the changes in stimulant use in the past 12 months from baseline to follow-up for both residential and outpatient clients. Table 27a presents the number and percent of clients reporting not using stimulants in the past 12 months by treatment type. At baseline, 296 (76.3%) of residential treatment clients reported not using stimulants in the past 12 months, while 368 (91.5%) of residential treatment clients reported not using stimulants at follow-up 12 months after treatment. This represents a 24.3% increase in the number of residential treatment clients who reported not using stimulants from baseline to follow-up. At baseline, 427 (87.1%) of outpatient treatment clients reported not using stimulants in the past 12 months, and 459 (93.7%) of outpatient treatment clients reported not using stimulants at follow-up. This represents a 7.5% increase in the number of outpatient treatment clients reporting not using stimulants from baseline to follow-up.

Table 27b also indicates a significant decrease in the levels of stimulant use from baseline to follow-up. At baseline, 9.5% of residential clients and 5.9% of outpatient clients reported using stimulants a few times in the past 12 months. At follow-up 12 months after treatment, 5% of residential clients and 3.3% of outpatient clients reported using stimulants a few times in the past 12 months. This represents a 47.3% decrease in the number of residential clients who reported use of stimulants a few times in the past 12 months and a 44.8% decrease from baseline to follow-up in the number of outpatient clients who reported use of stimulants a few times in the past 12 months.

Table 27a. CLIENTS REPORTING NOT USING STIMULANTS BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using stimulants** in the past 12 months **	**Residential**	296	73.6%	368	91.5%	24.3%
Clients who reported **not using stimulants** in the past 12 months **	**Outpatient**	427	87.1%	459	93.7%	7.5%

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

Table 27b. STIMULANT USE BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using stimulant a few times** in the past 12 months *	**Residential**	402	9.5%	5.0%	47.3%
Percent of clients who reported **using stimulant a few times** in the past 12 months *	**Outpatient**	490	5.9%	3.3%	44.8%
Percent of clients who reported **using stimulant 1-3 times a month** in the past 12 months *	**Residential**	402	5.2%	2.2%	57.1%
Percent of clients who reported **using stimulant 1-3 times a month** in the past 12 months *	**Outpatient**	490	2.5%	0.8%	66.5%
Percent of clients who reported **using stimulant at least 1 time a week** in the past 12 months **	**Residential**	402	10.0%	1.2%	87.5%
Percent of clients who reported **using stimulant at least 1 time a week** in the past 12 months	**Outpatient**	490	3.5%	2.2%	35.4%
Percent of clients who **reported using stimulant 1-5 times a week** in the past 12 months**	**Residential**	402	5.0%	0.8%	84.9%
Percent of clients who **reported using stimulant 1-5 times a week** in the past 12 months	**Outpatient**	490	2.0%	0.8%	59.8%
Percent of clients who reported **using stimulant daily** in the past 12 months **	**Residential**	402	5.0%	0.5%	90.0%
Percent of clients who reported **using stimulant daily** in the past 12 months	**Outpatient**	490	1.4%	1.4%	0.0%

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

Tranquilizer Use by Treatment Type in the Past 12 Months

Tables 28a and 28b present the changes in tranquilizer use in the past 12 months from baseline to follow-up for both residential and outpatient clients. Table 28a presents the number and percent of clients reporting not using tranquilizers in the past 12 months. At baseline, 225 (56%) of residential treatment clients reported not using tranquilizers in the past 12 months, while 356 (88.6%) of residential treatment clients reported not using tranquilizers at follow-up 12 months after treatment. This represents a 58.2% increase in the number of residential treatment clients who reported not using tranquilizers from baseline to follow-up. At baseline, 234 (47.8%) of outpatient treatment clients reported not using tranquilizers in the past 12 months, and 442 (90.2%) of outpatient treatment clients reported not using tranquilizers at follow-up. This represents an 88.9% increase in the number of outpatient treatment clients reporting not using tranquilizers from baseline to follow-up.

Table 28b also shows a significant decrease in weekly tranquilizer use. At baseline, 17.4% of residential clients and 13.9% of outpatient clients reported using tranquilizers at least once a week. At follow-up 12 months after treatment, only 3.2% of residential clients and 2.7% of outpatient clients reported using tranquilizers at least once a week. This represents an 81.4% decrease from baseline to follow-up in the number of residential clients and an 80.9% decrease in the number of outpatient clients who reported use of tranquilizers at least once a week.

Table 28a. CLIENTS REPORTING NOT USING TRANQUILIZERS BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using tranquilizers** in the past 12 months **	**Residential**	225	56.0%	356	88.6%	58.2%
Clients who reported **not using tranquilizers** in the past 12 months **	**Outpatient**	234	47.8%	442	90.2%	88.9%

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

Table 28b. TRANQUILIZER USE BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using tranquilizers a few times** in the past 12 months **	**Residential**	402	15.9%	6.5%	59.4%
Percent of clients who reported **using tranquilizers a few times** in the past 12 months **	**Outpatient**	490	12.0%	5.1%	57.6%
Percent of clients who reported **using tranquilizers 1-3 times a month** in the past 12 months **	**Residential**	402	9.7%	1.7%	82.1%
Percent of clients who reported **using tranquilizers 1-3 times a month** in the past 12 months **	**Outpatient**	490	5.1%	2.0%	60.0%
Percent of clients who reported **using tranquilizers at least 1 time a week** in the past 12 months **	**Residential**	402	17.4%	3.2%	81.4%
Percent of clients who reported **using tranquilizers at least 1 time a week** in the past 12 months **	**Outpatient**	490	13.9%	2.7%	80.9%
Percent of clients who **reported using tranquilizers 1-5 times a week** in the past 12 months**	**Residential**	402	9.7%	3.2%	66.7%
Percent of clients who **reported using tranquilizers 1-5 times a week** in the past 12 months**	**Outpatient**	490	5.5%	1.4%	74.0%
Percent of clients who reported **using tranquilizers daily** in the past 12 months **	**Residential**	402	7.7%	0.0%	100.0%
Percent of clients who reported **using tranquilizers daily** in the past 12 months **	**Outpatient**	490	8.4%	1.2%	85.4%

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

Opiate Use by Treatment Type in the Past 12 Months

Tables 29a and 29b present changes in opiate use in the past 12 months from baseline to follow-up for both residential and outpatient clients. Table 29a presents the number and percent of clients reporting not using opiates in the past 12 months by treatment type. At baseline, 288 (71.6%) of residential treatment clients reported not using opiates in the past 12 months and 366 (91%) of residential treatment clients reported not using opiates at follow-up 12 months after treatment. This represents a 27.1% increase in the number of residential treatment clients who reported not using opiates from baseline to follow-up. At baseline, 380 (77.6%) of outpatient treatment clients reported not using opiates in the past 12 months, and 457 (93.3%) of outpatient treatment clients reported not using opiates at follow-up. This represents a 20.3% increase from baseline to follow-up in the number of outpatient treatment clients reporting not using opiates.

Table 29b also shows a significant decrease in opiate use at least once a week. At baseline, 12.7% of residential clients and 12.2% of outpatient clients reported using opiates at least once a week. At follow-up 12 months after treatment, only 4.2% of residential clients and 3.7% of outpatient clients reported using opiates daily. This represents a 66.7% decrease from baseline to follow-up in residential clients who reported using opiates at least once per week and a 70% decrease in outpatient clients' use of opiates at least once a week.

Table 29a. CLIENTS REPORTING NOT USING OPIATES BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using opiates** in the past 12 months **	**Residential**	288	71.6%	366	91.0%	27.1%
Clients who reported **not using opiates** in the past 12 months **	**Outpatient**	380	77.6%	457	93.3%	20.3%

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

Table 29b. OPIATE USE BY TREATMENT TYPE IN THE PAST 12 MONTHS

Pattern of Use	Treatment type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using opiates a few times** in the past 12 months **	**Residential**	402	10.2%	3.2%	68.3%
Percent of clients who reported **using opiates a few times** in the past 12 months **	**Outpatient**	490	7.8%	2.2%	71.1%
Percent of clients who reported **using opiates 1-3 times a month** in the past 12 months	**Residential**	402	3.0%	1.5%	50.2%
Percent of clients who reported **using opiates 1-3 times a month** in the past 12 months	**Outpatient**	490	1.6%	0.8%	49.7%
Percent of clients who reported **using opiates at least 1 time a week** in the past 12 months **	**Residential**	402	12.7%	4.2%	66.7%
Percent of clients who reported **using opiates at least 1 time a week** in the past 12 months **	**Outpatient**	490	12.2%	3.7%	70.0%
Percent of clients who **reported using opiates 1-5 times a week** in the past 12 months	**Residential**	402	4.2%	2.0%	53.0%
Percent of clients who **reported using opiates 1-5 times a week** in the past 12 months *	**Outpatient**	490	2.5%	0.6%	75.1%
Percent of clients who reported **using opiates daily** in the past 12 months **	**Residential**	402	8.5%	2.2%	73.5%
Percent of clients who reported **using opiates daily** in the past 12 months **	**Outpatient**	490	9.8%	3.1%	68.8%

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

Arrests in the Past 12 Months by Treatment Type

The percentage of both residential and outpatient clients who reported having been arrested in the past 12 months decreased significantly, as presented in Table 30. At baseline, 64.2% of the residential clients and 62.7% of the outpatient clients reported having been arrested on any charge in the past 12 months. At follow-up, only 23.6% of the residential clients and 19.4% of the outpatient clients reported having been arrested. This represents a 63.2% reduction in the number of residential clients and a 69.1% reduction in the number of outpatient clients who reported an arrest on any charge in the 12 months after treatment. Table 30 also presents a significant decrease in DUI arrests for both residential and outpatient clients. At baseline, 22.6% residential clients and 42.7% of outpatient clients reported having been arrested for DUI in the past 12 months. At follow-up, 15.4% of residential clients and 11.6% of outpatients reported having been arrested for DUI in the past 12 months. This represents a 31.9% reduction from baseline to follow-up in the number of residential clients who reported DUI arrests in the past 12 months and a 72.7% reduction from baseline to follow-up in the number of outpatient clients who reported DUI arrests. Clients reporting trafficking arrests in the previous 12 months decreased from baseline to follow-up by 87.6% for residential treatment clients and 91.1% for outpatient treatment clients.

Table 30. ARRESTS IN THE PAST 12 MONTHS BY TREATMENT TYPE

Pattern of Arrests	Treatment type	n	Baseline	Follow-up	Percent Reduction
Percent of clients who were **arrested on any charge** in the past 12 months **	**Residential**	892	64.2%	23.6%	63.2%
Percent of clients who were **arrested on any charge** in the past 12 months **	**Outpatient**	892	62.7%	19.4%	69.1%
Percent of clients who reported **DUI arrests** in the past 12 months **	**Residential**	892	22.6%	15.4%	31.9%
Percent of clients who reported **DUI arrests** in the past 12 months **	**Outpatient**	892	42.7%	11.6%	72.7%
Percent of clients who reported **alcohol intoxication arrests** in the past 12 months **	**Residential**	892	17.7%	5.7%	67.6%
Percent of clients who reported **alcohol intoxication arrests** in the past 12 months	**Outpatient**	892	9.6%	7.4%	23.4%
Percent of clients who reported **trafficking or possession arrests** in the past 12 months **	**Residential**	892	20.2%	2.5%	87.6%
Percent of clients who reported **trafficking or possession arrests** in the past 12 months **	**Outpatient**	892	11.4%	1.0%	91.1%
Percent of clients who reported **crimes against persons arrests** in the past 12 months **	**Residential**	892	12.2%	4.5%	63.2%
Percent of clients who reported **crimes against persons arrests** in the past 12 months **	**Outpatient**	892	8.6%	2.9%	66.6%
Percent of clients who reported **property crime arrests** in the past 12 months **	**Residential**	892	11.4%	4.2%	63.0%
Percent of clients who reported **property crime arrests** in the past 12 months *	**Outpatient**	892	5.9%	2.9%	51.7%

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

SELF REPORTED CHANGES BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE

Mental Health Problems by Criminal Justice and Other Referral Type in the Past 12 Months

Table 31 presents changes in self reported mental health problems by criminal justice and other referral source clients. At baseline, 36.3% of criminal justice clients reported depression in the past 12 months, while 60.8% of other clients reported depression at baseline. At follow-up 12 months after treatment, only 24.5% of criminal justice clients reported depression in the past 12 months, while 45.4% of other clients reported depression. This represents a 32.5% decrease from baseline to follow-up for criminal justice clients and a 25.3% decrease for other referred clients. The largest decrease from baseline to follow-up was for suicide attempts. At baseline, 9.5% of criminal justice clients reported suicide attempts, and 18.7% of other clients reported suicide attempts. At follow-up 12 months after baseline, 2.4% of criminal justice clients reported suicide attempts and 5.2% of other clients reported suicide attempts. This represents a 74.9% decrease from baseline to follow-up in the number of criminal justice referred clients reporting suicide attempts for criminal justice clients and a 72.2% decrease in the number of other referred clients reporting suicide attempts in the past 12 months.

Table 31. MENTAL HEALTH PROBLEMS BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Mental Health Problem	Referral source	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **serious depression ****	**Criminal justice**	465	36.3%	24.5%	32.5%
Percent of clients who reported **serious depression ****	**Other**	423	60.8%	45.4%	25.3%
Percent of clients who reported **serious anxiety**	**Criminal justice**	465	35.7%	30.1%	15.7%
Percent of clients who reported **serious anxiety ***	**Other**	423	60.5%	53.7%	11.3%
Percent of clients who reported **hallucinations**	**Criminal justice**	465	6.2%	4.3%	31.1%
Percent of clients who reported **hallucinations**	**Other**	423	12.8%	10.2%	20.4%
Percent of clients who reported **trouble concentrating**	**Criminal justice**	465	32.5%	28.2%	13.2%
Percent of clients who reported **trouble concentrating**	**Other**	423	54.6%	48.9%	10.4%
Percent of clients who reported **trouble controlling violent behavior ****	**Criminal justice**	465	16.6%	10.5%	36.4%
Percent of clients who reported **trouble controlling violent behavior ****	**Other**	423	26.0%	17.5%	32.7%
Percent of clients who reported **suicidal thoughts ****	**Criminal justice**	465	15.7%	8.6%	45.2%
Percent of clients who reported **suicidal thoughts ****	**Other**	423	30.5%	13.7%	55.0%
Percent of clients who reported **suicide attempts** **	**Criminal justice**	465	9.5%	2.4%	74.9%
Percent of clients who reported **suicide attempts** **	**Other**	423	18.7%	5.2%	72.2%

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

Alcohol Use by Criminal Justice and Other Referral Type in the Past 12 Months

Tables 32a and 32b present changes in alcohol use by referral source. Table 32a presents the number and percent of clients reporting not using alcohol in the past 12 months. At baseline, only 98 (21.1%) of criminal justice referred clients reported not using alcohol in the past 12 months, while 206 (44.3%) of criminal justice referred clients reported not using alcohol at follow-up 12 months after treatment. This represents over a 100% increase (110.2%) in the number of criminal justice referred clients who reported not using alcohol from baseline to follow-up. At baseline, 55 (13%) of other referred clients reported not using alcohol in the past 12 months, while 181 (42.8%) of other referred clients reported not using alcohol at follow-up. This represents a greater than double increase (229.2%) from baseline to follow-up in the number of other referred clients reporting not using alcohol. All alcohol use measures showed decreases from baseline to follow-up.

Table 32b also presents a significant decrease in daily alcohol use. At baseline, 9.7% of criminal justice referred clients reported daily alcohol use in the past 12 months, while 24.6% of other referred clients reported daily alcohol use. At follow-up 12 months after treatment, only 5% of criminal justice clients reported daily alcohol use in the past 12 months, while 8.3% of other referred clients reported daily alcohol use. This represents a 48.9% decrease from baseline to follow-up in the number of criminal justice referred clients reporting daily alcohol use and a 66.4% decrease in the number of other referred clients.

Table 32a. CLIENTS REPORTING NOT USING ALCOHOL BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using alcohol** in the past 12 months **	**Criminal justice**	98	21.1%	206	44.3%	110.2%
Clients who reported **not using alcohol** in the past 12 months **	**Other**	55	13.0%	181	42.8%	229.2%

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

Table 32b. ALCOHOL USE BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using alcohol a few times** in the past 12 months	**Criminal justice**	465	24.1%	20.4%	15.2%
Percent of clients who reported **using alcohol a few times** in the past 12 months	**Other**	423	20.8%	21.0%	*(1.2%)*[2]
Percent of clients who reported **using alcohol 1-3 times a month** in the past 12 months	**Criminal justice**	465	21.7%	17.6%	18.8%
Percent of clients who reported **using alcohol 1-3 times a month** in the past 12 months	**Other**	423	19.4%	16.3%	15.9%
Percent of clients who reported **using alcohol at least 1 time a week** in the past 12 months **	**Criminal justice**	465	32.7%	17.6%	46.1%
Percent of clients who reported **using alcohol at least 1 time a week** in the past 12 months **	**Other**	423	45.9%	19.9%	56.7%
Percent of clients who reported **using alcohol 1-5 times a week** in the past 12 months **	**Criminal justice**	465	23.0%	12.7%	44.9%
Percent of clients who reported **using alcohol 1-5 times a week** in the past 12 months **	**Other**	423	21.3%	11.6%	45.6%
Percent of clients who reported **using alcohol daily** in the past 12 months **	**Criminal justice**	465	9.7%	5.0%	48.9%
Percent of clients who reported **using alcohol daily** in the past 12 months **	**Other**	423	24.6%	8.3%	66.4%
Percent of clients who reported **morning drinking** **	**Criminal justice**	465	12.7%	4.3%	66.1%
Percent of clients who reported **morning drinking** **	**Other**	423	33.1%	10.2%	69.3%
Percent of clients who reported **drinking more than intended** **	**Criminal justice**	465	46.5%	21.3%	54.2%
Percent of clients who reported **drinking more than intended** **	**Other**	423	60.8%	29.1%	52.1%

* p <.05
** p <.01
*** p <.001
[2] *Increase in the percent of clients who reported using alcohol a few times in the past 12 months from baseline to follow-up*

Marijuana Use by Criminal Justice and Other Referral Type in the Past 12 Months

Tables 33a and 33b present the changes in marijuana use in the past 12 months from baseline to follow-up for both criminal justice and other clients. Table 33a presents the number and percent of clients reporting not using marijuana in the past 12 months by referral type. At baseline, 242 (52%) of criminal justice referred clients reported not using marijuana in the past 12 months, and at follow-up 363 (78.1%) of criminal justice referred clients reported not using marijuana. This represents a 50% increase from baseline to follow-up in the number of criminal justice referred clients who reported not using marijuana. At baseline, 157 (37.1%) of other referred clients reported not using marijuana in the past 12 months, while at follow-up, 322 (76.1%) of other referred clients reported not using marijuana. This represents a greater than 100% increase (105.1%) from baseline to follow-up in the number of other referred clients reporting not using marijuana.

Table 33b also presents a significant decrease in daily marijuana use for both criminal justice referred and other referred clients. At baseline, 12.3% of criminal justice clients and 19.2% of other clients reported using marijuana daily. At follow-up 12 months after treatment, only 3.4% of criminal justice clients and 5.7% of other clients reported using marijuana daily. This represents a 71.9% decrease from baseline to follow-up in the number of criminal justice referred clients and a 70.4% decrease in the number of other referred clients' use of marijuana daily.

Table 33a. CLIENTS REPORTING NOT USING MARIJUANA BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using marijuana** in the past 12 months **	**Criminal justice**	242	52.0%	363	78.1%	50.0%
Clients who reported **not using marijuana** in the past 12 months **	**Other**	157	37.1%	322	76.1%	105.1%

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

Table 33b. MARIJUANA USE BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using marijuana a few times** in the past 12 months **	**Criminal justice**	465	16.8%	8.6%	48.7%
Percent of clients who reported **using marijuana a few times** in the past 12 months **	**Other**	423	18.2%	8.0%	55.8%
Percent of clients who reported **using marijuana 1-3 times a month** in the past 12 months *	**Criminal justice**	465	8.4%	5.0%	41.0%
Percent of clients who reported **using marijuana 1-3 times a month** in the past 12 months **	**Other**	423	10.9%	5.2%	52.2%
Percent of clients who reported **using marijuana at least 1 time a week** in the past 12 months **	**Criminal justice**	465	22.4%	8.2%	63.5%
Percent of clients who reported **using marijuana at least 1 time a week** in the past 12 months **	**Other**	423	32.2%	10.6%	66.9%
Percent of clients who **reported using marijuana 1-5 times a week** in the past 12 months **	**Criminal justice**	465	10.1%	4.7%	53.2%
Percent of clients who **reported using marijuana 1-5 times a week** in the past 12 months **	**Other**	423	13.0%	5.0%	61.8%
Percent of clients who reported **using marijuana daily** in the past 12 months **	**Criminal justice**	465	12.3%	3.4%	71.9%
Percent of clients who reported **using marijuana daily** in the past 12 months **	**Other**	423	19.2%	5.7%	70.4%

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

Cocaine Use by Criminal Justice and Other Referral Type in the Past 12 Months

Tables 34a and 34b show changes in cocaine use by referral source. Table 34a presents the number and percent of clients reporting not using cocaine in the past 12 months. At baseline, 375 (80.7%) of criminal justice referred clients reported not using cocaine in the past 12 months, and at follow-up 447 (96.1%) of criminal justice referred clients reported not using cocaine. This represents a 19.2% increase from baseline to follow-up in the number of criminal justice referred clients who reported not using cocaine. At baseline, 269 (63.6%) of other referred clients reported not using cocaine in the past 12 months, while at follow-up, 394 (93.1%) of other referred clients reported not using cocaine. This represents a 46.5% increase from baseline to follow-up in the number of other referred clients reporting not using cocaine.

Table 34b also shows a significant decrease in the report of cocaine use a few times in the past 12 months by criminal justice and other clients. At baseline, 10.5% of criminal justice clients reported using cocaine a few times in the past 12 months, while 16.8% of other clients reported using cocaine a few times in the past 12 months. At follow-up 12 months after treatment admission, only 2.2% of criminal justice clients and 4.3% of other clients reported using cocaine a few times. This represents a 79.6% decrease from baseline to follow-up in the number of criminal justice referred clients reporting using cocaine a few times in the past year and a 74.6% decrease in the number of other referred clients.

Table 34a. CLIENTS REPORTING NOT USING COCAINE BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using cocaine** in the past 12 months **	**Criminal justice**	375	80.7%	447	96.1%	19.2%
Clients who reported **not using cocaine** in the past 12 months **	**Other**	269	63.6%	394	93.1%	46.5%

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

Table 34b. COCAINE USE BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using cocaine a few times** in the past 12 months **	**Criminal justice**	465	10.5%	2.2%	79.6%
Percent of clients who reported **using cocaine a few times** in the past 12 months **	**Other**	423	16.8%	4.3%	74.6%
Percent of clients who reported **using cocaine 1-3 times a month** in the past 12 months **	**Criminal justice**	465	3.4%	0.9%	75.0%
Percent of clients who reported **using cocaine 1-3 times a month** in the past 12 months **	**Other**	423	6.9%	1.2%	82.8%
Percent of clients who reported **using cocaine at least 1 time a week** in the past 12 months **	**Criminal justice**	465	4.3%	0.9%	80.0%
Percent of clients who reported **using cocaine at least 1 time a week** in the past 12 months **	**Other**	423	12.3%	1.4%	88.4%
Percent of clients who **reported using cocaine 1-5 times a week** in the past 12 months *	**Criminal justice**	465	2.8%	0.9%	69.3%
Percent of clients who **reported using cocaine 1-5 times a week** in the past 12 months**	**Other**	423	8.8%	1.4%	83.8%
Percent of clients who reported **using cocaine daily** in the past 12 months **	**Criminal justice**	465	1.5%	0.0%	100.0%
Percent of clients who reported **using cocaine daily** in the past 12 months **	**Other**	423	3.6%	0.0%	100.0%

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

Crack Use by Criminal Justice and Other Referral Type in the Past 12 Months

Tables 35a and 35b show the change in crack use by both criminal justice and other clients at baseline and at follow-up. Table 35a presents the number and percent of clients reporting not using crack in the past 12 months by referral type. At baseline, 410 (88.2%) of criminal justice referred clients reported not using crack cocaine in the past 12 months, and at follow-up 447 (96.1%) of criminal justice referred clients reported not using crack cocaine. This represents a 9% increase from baseline to follow-up in the number of criminal justice referred clients who reported not using crack cocaine. At baseline, 294 (69.5%) of other referred clients reported not using crack cocaine in the past 12 months, while at follow-up, 383 (90.5%) of other referred clients reported not using crack. This represents a 30.3% increase from baseline to follow-up in the number of other referred clients who reported not using crack cocaine.

Table 35b also presents a significant decrease in weekly crack use in both criminal justice and other clients. At baseline, 3.2% of criminal justice clients and 13.7% of other clients reported using crack at least once in the past week. At follow-up, only 0.9% of criminal justice clients and 3.3% of other clients reported using crack at least once in the past week. This represents a 73.4% decrease from baseline to follow-up in the number of criminal justice referred clients reporting past week cocaine use and a 75.9% decrease in the number of other referred clients reporting past week cocaine use.

Table 35a. CLIENTS REPORTING NOT USING CRACK BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using crack** in the past 12 months **	**Criminal justice**	410	88.2%	447	96.1%	9.0%
Clients who reported **not using crack** in the past 12 months **	**Other**	294	69.5%	383	90.5%	30.3%

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

Table 35b. CRACK USE BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using crack a few times** in the past 12 months **	**Criminal justice**	465	5.6%	2.2%	61.5%
Percent of clients who reported **using crack a few times** in the past 12 months **	**Other**	423	10.6%	5.0%	53.4%
Percent of clients who reported **using crack 1-3 times a month** in the past 12 months	**Criminal justice**	465	2.2%	0.9%	60.0%
Percent of clients who reported **using crack 1-3 times a month** in the past 12 months **	**Other**	423	4.7%	1.2%	75.1%
Percent of clients who reported **using crack at least 1 time a week** in the past 12 months *	**Criminal justice**	465	3.2%	0.9%	73.4%
Percent of clients who reported **using crack at least 1 time a week** in the past 12 months **	**Other**	423	13.7%	3.3%	75.9%
Percent of clients who **reported using crack 1-5 times a week** in the past 12 months	**Criminal justice**	465	1.9%	0.9%	55.7%
Percent of clients who **reported using crack 1-5 times a week** in the past 12 months **	**Other**	423	7.8%	1.7%	78.8%
Percent of clients who reported **using crack daily** in the past 12 months *	**Criminal justice**	465	1.3%	0.0%	100.0%
Percent of clients who reported **using crack daily** in the past 12 months **	**Other**	423	5.9%	1.7%	72.1%

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

Stimulant Use by Criminal Justice and Other Referral Type in the Past 12 Months

Tables 36a and 36b show the changes in stimulant use in the past 12 months from baseline to follow-up for both criminal justice and other clients. Table 36a presents the number and percent of client reporting not using stimulants in the past 12 months by referral type. At baseline, 395 (85%) of criminal justice referred clients reported not using stimulants in the past 12 months, and at follow-up 431 (92.7%) of criminal justice referred clients reported not using stimulants. This represents a 9.1% increase from baseline to follow-up in the number of criminal justice referred clients who reported not using stimulants. At baseline, 324 (76.6%) of other referred clients reported not using stimulants in the past 12 months, while at follow-up, 392 (92.7%) of other referred clients reported not using stimulants. This represents a 21% increase from baseline to follow-up in the number of other referred clients who reported not using stimulants.

Table 36b also presents a significant decrease in the frequency of stimulant use by referral source. At baseline, 4.5% of criminal justice clients and 8.5% of other clients reported using stimulants a last least once a week in the last 12 months. At follow-up 12 months after treatment, 1.9% of criminal justice clients and 1.7% of other clients reported using stimulants at least one time in the past 12 months. This represents a 57.1% decrease from baseline to follow-up in the number of criminal justice referred clients reporting using stimulants at least one time in the past 12 months and a 80.6% decrease in the number of other referred clients reporting use of stimulants at least one time in the past 12 months.

Table 36a. CLIENTS REPORTING NOT USING STIMULANTS BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using stimulants** in the past 12 months **	**Criminal justice**	395	85.0%	431	92.7%	9.1%
Clients who reported **not using stimulants** in the past 12 months **	**Other**	324	76.6%	392	92.7%	21.0%

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

Table 36b. STIMULANT USE BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using stimulants a few times** in the past 12 months *	**Criminal justice**	465	6.5%	3.4%	46.7%
Percent of clients who reported **using stimulants a few times** in the past 12 months *	**Other**	423	8.8%	4.7%	45.9%
Percent of clients who reported **using stimulants 1-3 times a month** in the past 12 months	**Criminal justice**	465	3.0%	1.9%	35.5%
Percent of clients who reported **using stimulants 1-3 times a month** in the past 12 months **	**Other**	423	4.5%	1.0%	78.8%
Percent of clients who reported **using stimulants at least 1 time a week** in the past 12 months *	**Criminal justice**	465	4.5%	1.9%	57.1%
Percent of clients who reported **using stimulants at least 1 time a week** in the past 12 months **	**Other**	423	8.5%	1.7%	80.6%
Percent of clients who **reported using stimulants 1-5 times a week** in the past 12 months	**Criminal justice**	465	2.2%	1.3%	40.0%
Percent of clients who **reported using stimulants 1-5 times a week** in the past 12 months **	**Other**	423	4.7%	0.2%	94.9%
Percent of clients who reported **using stimulants daily** in the past 12 months *	**Criminal justice**	465	2.4%	0.7%	72.6%
Percent of clients who reported **using stimulants daily** in the past 12 months *	**Other**	423	3.8%	1.4%	62.4%

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

Tranquilizer Use by Criminal Justice and Other Referral Type in the Past 12 Months

Tables 37a and 37b show the changes in tranquilizer use in the past 12 months from baseline to follow-up for both criminal justice and other clients. Table 37a presents the number and percent of clients reporting not using tranquilizers in the past 12 months. At baseline, 328 (70.5%) of criminal justice referred clients reported not using tranquilizers in the past 12 months, and at follow-up 424 (92.1%) of criminal justice referred clients reported not using tranquilizers. This represents a 29.3% increase from baseline to follow-up in the number of criminal justice referred clients who reported not using tranquilizers. At baseline, 228 (53.9%) of other referred clients reported not using tranquilizers in the past 12 months, while at follow-up, 370 (87.5%) of other referred clients reported not using tranquilizers. This represents a 62.3% increase from baseline to follow-up in the number of other referred clients who reported not using tranquilizers.

Table 37b also shows a significant decrease in daily tranquilizer use for both criminal justice and other clients. At baseline, 5.6% of criminal justice clients and 10.6% of other clients reported using tranquilizers daily over the past 12 months. At follow-up 12 months after treatment, only 0.4% of criminal justice clients and 1% of other clients reported using tranquilizers daily. This represents a 92.3% decrease from baseline to follow-up in the number of criminal justice clients reporting daily tranquilizer use and a 91.1% decrease in the number of other clients reporting daily tranquilizer use.

Table 37a. CLIENTS REPORTING NOT USING TRANQUILIZERS BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using tranquilizers** in the past 12 months **	**Criminal justice**	328	70.5%	424	91.2%	29.3%
Clients who reported **not using tranquilizers** in the past 12 months **	**Other**	228	53.9%	370	87.5%	62.3%

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

Table 37b. TRANQUILIZER USE BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using tranquilizers a few times** in the past 12 months **	**Criminal justice**	465	12.5%	5.0%	60.3%
Percent of clients who reported **using tranquilizers a few times** in the past 12 months **	**Other**	423	15.4%	6.6%	56.9%
Percent of clients who reported **using tranquilizers 1-3 times a month** in the past 12 months **	**Criminal justice**	465	5.6%	1.9%	65.3%
Percent of clients who reported **using tranquilizers 1-3 times a month** in the past 12 months **	**Other**	423	9.0%	1.9%	79.0%
Percent of clients who reported **using tranquilizers at least 1 time a week** in the past 12 months **	**Criminal justice**	465	10.3%	1.9%	81.2%
Percent of clients who reported **using tranquilizers at least 1 time a week** in the past 12 months **	**Other**	423	21.0%	4.0%	80.9%
Percent of clients who **reported using tranquilizer 1-5 times a week** in the past 12 months**	**Criminal justice**	465	4.7%	1.5%	68.1%
Percent of clients who **reported using tranquilizers 1-5 times a week** in the past 12 months**	**Other**	423	10.4%	3.1%	70.5%
Percent of clients who reported **using tranquilizer daily** in the past 12 months **	**Criminal justice**	465	5.6%	0.4%	92.3%
Percent of clients who reported **using tranquilizers daily** in the past 12 months **	**Other**	423	10.6%	1.0%	91.1%

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

Opiate Use by Criminal Justice and Other Referral Type in the Past 12 Months

Tables 38a and 38b show the changes in opiate use in the past 12 months from baseline to follow-up for both criminal justice and other clients. Table 38a presents the number and percent of client reporting not using opiates in the past 12 months by referral type. At baseline, 380 (81.7%) of criminal justice referred clients reported not using opiates in the past 12 months, and at follow-up 440 (94.6%) of criminal justice referred clients reported not using opiates. This represents a 15.8% increase from baseline to follow-up in the number of criminal justice referred clients who reported not using opiates. At baseline, 284 (67.1%) of other referred clients reported not using opiates in the past 12 months, while at follow-up, 379 (89.6%) of other referred clients reported not using opiates. This represents a 33.5% increase from baseline to follow-up in the number of other referred clients who reported not using opiates.

Table 38b also shows a significant decrease in opiate use by both criminal justice and other clients. At baseline, 7.5% of criminal justice clients and 10.4% of other clients reported using opiates a few times over the past 12 months. At follow-up 12 months after treatment, only 1.7% of criminal justice clients and 3.8% of other clients reported using opiates a few times over the past 12 months. This represents a 77.2% decrease from baseline to follow-up in the number of criminal justice referred clients reporting occasional opiate use and a 63.7% decrease in the number of other referred clients who reported use of opiates a few times over the past 12 months.

Table 38a. CLIENTS REPORTING NOT USING OPIATES BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	Baseline Number	Baseline Percent	Follow-up Number	Follow-up Percent	Percent Change
Clients who reported **not using opiates** in the past 12 months **	**Criminal justice**	380	81.7%	440	94.6%	15.8%
Clients who reported **not using opiates** in the past 12 months **	**Other**	284	67.1%	379	89.6%	33.5%

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

Table 38b. OPIATE USE BY CRIMINAL JUSTICE AND OTHER REFERRAL TYPE IN THE PAST 12 MONTHS

Pattern of Use	Referral source	n	Baseline	Follow-up	Percent Reduction
Percent of clients who reported **using opiates a few times** in the past 12 months **	**Criminal justice**	465	7.5%	1.7%	77.2%
Percent of clients who reported **using opiates a few times** in the past 12 months **	**Other**	423	10.4%	3.8%	63.7%
Percent of clients who reported **using opiates 1-3 times a month** in the past 12 months	**Criminal justice**	465	1.7%	0.9%	50.0%
Percent of clients who reported **using opiates 1-3 times a month** in the past 12 months	**Other**	423	2.8%	1.4%	50.0%
Percent of clients who reported **using opiates at least 1 time a week** in the past 12 months **	**Criminal justice**	465	8.0%	2.8%	64.8%
Percent of clients who reported **using opiates at least 1 time a week** in the past 12 months **	**Other**	423	17.5%	5.2%	70.3%
Percent of clients who **reported using opiate 1-5 times a week** in the past 12 months	**Criminal justice**	465	2.2%	0.9%	60.0%
Percent of clients who **reported using opiates1-5 times a week** in the past 12 months *	**Other**	423	4.5%	1.7%	63.3%
Percent of clients who reported **using opiates daily** in the past 12 months **	**Criminal justice**	465	5.8%	1.9%	66.6%
Percent of clients who reported **using opiates daily** in the past 12 months **	**Other**	423	13.0%	3.6%	72.7%

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

AVOIDED COSTS FROM SUBSTANCE ABUSE TREATMENT IN KENTUCKY

Cost savings that result from substance abuse treatment can be difficult to calculate since many economic factors associated with crime reduction, increased employment, changes in health status and health utilization are usually considered. For example, in 1994, the state of California commissioned an evaluation of its state funded substance abuse recovery services. Using broad estimates of costs of treatment and reduced crime, the California Drug and Alcohol Treatment Assessment (CALDATA) report suggested substantial savings to Californians resulting from substance abuse treatment expenditures. The approaches used in the CALDATA study have been applied to other states to estimate cost offsets and savings from treatment services for substance abuse. Other states, as well as federal agencies, have conducted cost-benefit studies (French, 1995; French & Martin, 1996; French, et al, 1996; French, et al., 1991; Zarkin, et al., 1994). These studies use different methodologies and different assumptions about societal costs associated with substance abuse. However, even with very different methodologies, these studies support the idea that substance abuse treatment results in cost savings to society at large and to taxpayers in particular. Generally, these studies have examined changes in rates of substance use, criminal behavior, and unemployment *after* treatment compared to the same factors *before* treatment. These studies compare the estimated costs of the reduced rates of criminal behavior and unemployment to pre-treatment rates.

Cost savings studies also examine the direct costs of substance abuse treatment and the costs associated with substance abuse, including lost wages and the costs of crime. Some studies report substantial savings as a ratio of public treatment expenditures to public costs of crime and lost wages. For example, the CALDATA report suggested that for every dollar spent in 1991 on treatment, taxpayers netted seven dollars in savings or cost offsets (Gerstein, Johnson, Harwood, Fountain, Suter & Malloy, 1994). These estimates are similar to more recent analyses of cost savings resulting from substance abuse treatment. Flynn, Kristiansen, Porto & Hubbard, (1999) reported a range of cost benefit ratios from 1.68 to 2.73 that are explained by different assumptions about treatment outcomes for cocaine abuse and crime. It is difficult to compare the cost-saving findings from nationally recognized studies to Kentucky. For example, most of the nationally recognized outcome studies focus on treatment modalities such as long-term residential treatment (Hubbard, et al., 1989), which are not used in Kentucky. These studies, which include the Treatment Outcome Prospective Study (TOPS) (French, Zarkin, Hubbard & Rachal, 1993), the Drug Abuse Treatment Outcome Study (DATOS) (Hubbard, Craddock, Flynn, Anderson & Etheridge, 1997), and the California Drug and Alcohol Treatment Assessment (CALDATA) (Gerstein, et al., 1994) included long-term residential treatment services. This costly treatment modality is not included in the array of state-funded community-based treatment provided in Kentucky.

For this analysis of avoided costs in Kentucky, detailed clinical services information was examined for 784 clients in this 2000 follow-up sample who received services which were funded by the Kentucky Division of Substance Abuse. KTOS clients who were in residential treatment (including detoxification) received an average of 14.9 days of treatment during the report period. This suggests a decrease in the average number of residential days from the 1999 KTOS report of 19.5 average days of residential treatment. Clients who received outpatient services received an average of 7.0 outpatient visits. For the 134 clients who received case management services, the average number of case management services was 21.3 per client. These clients used 40,406 state-funded services including medical and non-medical detoxification, outpatient counseling, intensive outpatient, case management, and therapeutic rehabilitation. The cost of all treatment services for this sample of 784 clients was developed using Cost Report rates from the Kentucky Department of Mental Health. The total treatment cost for this sample was $2,043,727 or $2,607 per client. In contrast, Flynn, et al., (1999) using NDATUS data on 300 clients from 10 national sites, reported treatment costs for cocaine users at $8,920 per residential episode and $2,908 per outpatient episode. In Kentucky, the average cost in 2000 per residential episode (not including detoxification) (23.4 days) was $2,461. This total cost of $2,607 per client per year includes all state or SAPT Block Grant funded services - residential, outpatient, case management, psychiatric, and therapeutic rehabilitation services during the year.

To estimate the potential cost savings for Kentucky associated with state or SAPT Block Grant funded substance abuse treatment, this study compared inferred costs relating to the follow-up sample *before* treatment with the same inferred cost factors *after* treatment. Costs related to changes in arrests and employment provide useful indicators of overall savings to society and to taxpayers. One of the major justifications for substance abuse treatment is the reduction in crime related to positive treatment outcomes (Hubbard, et al., 1989). Violent crime cost data are from the SAMHSA report Costs of Alcohol-Connected Violent Crime (Miller, Galbraith, & Levy, 1996) and the property crime and driving under the influence (DUI) cost estimates are from Miller, Cohen, and Wiersama (1996). These two studies include the treatment costs for crime victims in the crime cost estimates. Since the current study includes self report information, actual crime data could not be used and thus self reported arrests are used as proxies for crime.

Crime Reductions

Table 39 presents the changes in number of self reported arrests by four categories of crime and the net decrease in self reported arrests after treatment.

Table 39. CHANGES IN NUMBER OF SELF REPORTED ARRESTS (n = 892)

Type of Arrest	Baseline Arrests	Follow-up Arrests	Changes in Arrests
Trafficking & Possession	184	19	(89.7%)
Property	117	42	(64.1%)
Violence	118	46	(61.0%)
DUI	340	84	(75.3%)
TOTAL	759	191	(74.8%)

Table 40 presents the cost of crimes reported in the previous 12 months by the clients at baseline, which includes crimes committed in the past 12 months before treatment. Violent crime carries a much higher cost due to victim injury as well as more criminal justice involvement. All dollar amounts are adjusted to 2000 dollars for comparability. The Woodrow Federal Reserve Bank CPI indexing system (http://woodrow.mpls.frb.fed.us/research/data/us/calc/) was used to convert dollar amounts into 2000 values.

Table 40. COSTS OF CRIME FOR BASELINES (n = 892)

Type of Arrest	Baseline Arrests	Cost per Arrest	Cost of Crimes
Trafficking & Possession	184	$3,214[1]	$591,376
Property	117	$4,880[2]	$570,960
Violence	118	$31,199[3]	$3,681,482
DUI	340	$20,917[1]	$7,111,780
TOTAL	759	n/a	$11,955,598

[1]Source: Miller, Cohen, & Wiersama, 1996 –converted to 2000 dollars.
[2]Source: Average of property crimes from Miller, Cohen, & Wiersama, 1996 –converted to 2000 dollars.
[3]Source: SAMHSA Costs of Alcohol-Connected Violent Crime, 1996 –converted to 2000 dollars.

Table 41 presents the cost of crimes reported for the previous 12 months at follow-up. There are substantial reductions in the number of reported arrests for the previous 12 months at follow-up. Also, the costs decreased after treatment.

Table 41. COSTS OF CRIME AT FOLLOW-UP
(n = 892)

Type of Arrest	Follow-up Arrests	Cost per Arrest	Cost of Crimes
Trafficking & Possession	19	$3,214[1]	$61,066
Property	42	$4,880[2]	$204,960
Violence	46	$31,199[3]	$1,435,154
DUI	84	$20,917[1]	$1,757,028
TOTAL	191	n/a	$3,458,208

[1]Source: Miller, Cohen, & Wiersama, 1996 –converted to 2000 dollars.
[2]Source: Average of property crimes from Miller, Cohen, & Wiersama, 1996 –converted to 2000 dollars.
[3]Source: SAMHSA Costs of Alcohol-Connected Violent Crime, 1996 –converted to 2000 dollars.

Table 42 shows the amount of avoided costs after substance abuse treatment. This table includes arrests during treatment as well as after treatment. These data suggest a substantial difference in costs to society from arrests that are reported at follow-up. It should be noted that study data for DUI arrests do not reflect whether clients reporting DUI arrests also have had accidents with resulting injury or deaths. A single DUI offense with loss of life is estimated to cost society $3,315,394 and one offense resulting in disability is estimated to cost $210,336 (Miller, et al., 1996). Other physical injury secondary to a DUI is estimated to cost $67,733 (Miller, et al., 1996). If treatment for 892 clients resulted in no more than avoiding one DUI related death, there would be a return of $1.62 for each dollar spent on treatment. Looking at the overall reductions in average crime related costs for these clients, the Commonwealth avoided an estimated $4.16 for a 12-month period of arrest costs for every $1.00 spent on a year of substance abuse treatment.

Table 42. AVOIDED COSTS RELATED TO CRIME AFTER TREATMENT
(n = 892)

Type of Arrest	Baseline Costs	Follow-up Cost	Reduction in Costs
Trafficking & Possession	$591,376	$61,066	$530,310
Property	$570,960	$204,960	$366,000
Violence	$3,681,482	$1,435,154	$2,246,328
DUI	$7,111,780	$1,757,028	$5,354,752
TOTAL	$11,955,598	$3,458,208	$8,497,390

Employment Increases

Increased employment also represents a benefit to society resulting from treatment. Table 43 shows changes in self-reported employment status for days worked in the past 30 days. Annualizing past 30 day employment suggest that the follow-up sample increased from 97,080 days worked per year before treatment to 140,196 days worked per year after treatment. Using a wage assumption of $7.00 per hour, there is a net increase of $2,420,740 in wages earned per year by clients who reported full or part time work after treatment. Return to work following treatment may represent other avoided costs in disability and other welfare benefits. Assuming a 6% state income tax on the increased earnings, there would be a $145,244 increase in state government receipts that would offset approximately 7% of the year's cost of substance abuse treatment for the follow-up sample in this study.

Table 43. CHANGES IN ESTIMATED EMPLOYMENT EARNINGS

Employment Variable	Baseline	Follow-up	Increases in employment
Number of clients working full or part time	568	632	64
Annualized – **days worked** in the past 30 days for follow-up sample	97,080	140,196	43,116
Total annualized hours of paid work	652,376	998,196	345,820
Annualized total **estimated labor value** at $7.00 per hour times total hours	$4,566,632	$6,987,372	$2,420,740

Kentucky Avoided Costs

Using client self report data on arrests and estimated costs per crime, an estimate of the total crime costs can be made for the follow-up sample before and after treatment. In addition, treatment event data and cost report information from the Kentucky Department of Mental Health was used for specific treatment costs for the follow-up sample.

The reductions in self reported arrests for Kentucky clients, combined with cost estimates for their crimes, suggest a cost avoidance for Kentucky taxpayers which is estimated at a ratio of 4.16 to 1. In other words, Kentucky saved $4.16 for every dollar spent on treatment during 2000. These estimated savings do not include recovered wages or decreased substance use. Using these follow-up clients with an estimated labor value added to the total avoided cost, there would be total avoided cost of $10,918.130. **This is a saving of $5.34 for every dollar spent on treatment for this follow-up sample**

The avoided costs estimates presented in this report have several limitations. First, the arrest data were self reports. While the literature suggests that client self reports can be valid (Del Boca, et al, 2000; Rutherford, et al., 2000) the validity of self reports is unknown in this study. There are also limitations on access to third-party data. State government data, which includes paid unemployment benefits, welfare, corrections, and law enforcement, were not used in this study. However, these costs were included in the SAMHSA cost-per-crime estimates. In addition, national rather than specific state cost estimates were used, except for the violent crime cost, which have been developed for Kentucky. Finally, there are potential avoided costs to society that were not included that might affect cost savings estimates. However, data presented here are an appropriate approximation of savings that result from Kentucky state-funded substance abuse treatment.

Limitations

This report includes information on 892 clients who received substance abuse treatment during calendar year 2000 in Kentucky publicly funded programs. There are several limitations to the findings presented in this report. Both the baseline data and the outcome data are self reported. While self reports have been shown to be valid in comparison to urinalyses (Rutherford, Cacciola, Alterman, McKay & Cook, 2000) the reliance on self reports in this study may be an important limitation. Also, unlike many outcome studies, this study does not focus on a single treatment modality or a set of pre-selected treatment modalities such as residential treatment, or any one approach such as social skills training. This study examines client characteristics at intake in several treatment modalities including residential, outpatient (which includes intensive outpatient and case management services) as well as some clients who may have been in correctional or detention facilities at the beginning of treatment. This study uses overall average baseline and follow-up scores for the key instrument variables rather than modeling individual change patterns from baseline to follow-up. This can limit the validity and generalizability of findings.

Another study limitation is that it includes many different modalities and clinical approaches as well as dual diagnosis treatment approaches that may include medication and psychiatric care along with substance abuse counseling. Also, this study depends on clinicians for baseline data collection, including the collection of locator information on consenting clients. The baseline data are collected by clinicians with varying levels of training and skill with structured interviewing. Consequently, reliability for substance use and other items may pose another limitation. Also, clinicians may have limited awareness of the importance of collecting accurate locator information. Limitations in the availability of locator information can affect follow-up contact rates and, consequently, the representativeness of the sample.

CONCLUDING REMARKS

This 2000 KTOS report presents information on 892 substance abuse clients in Kentucky who participated in a follow-up interview. The client self reports on substance use and related behavior suggest that the goals of treatment are being addressed by the state-funded substance abuse treatment services provided by the Community Mental Health Centers and the substance abuse affiliated programs produce positive outcomes. These outcome findings represent a benefit to substance abuse clients, their families, and the Commonwealth.

Specifically, substance abuse treatment results in significant reductions in substance use and crime as well as other problems associated with substance abuse. These findings parallel other national treatment outcome studies that use controlled designs. This study reports changes in problem behavior following treatment in Kentucky's state-funded treatment centers. The reported changes are significant both statistically and clinically.

In this study, clients who received substance abuse treatment in state funded substance abuse treatment programs reported a 61% reduction in daily alcohol use and a 71% reduction in daily marijuana use. Alcohol and marijuana continue to be the most prevalent and problematic abused substances in Kentucky. Hence, these reductions are important for treatment providers as well as policy makers. The number of clients reporting daily use of other drugs was also greatly reduced with a 100% reduction in the number of clients reporting daily cocaine use, a 67% reduction in the number reporting stimulant use, a 92% reduction in daily tranquilizer use and a 71% reduction for those reporting daily opiate use.

Self reported arrests were also reduced. Specifically, the percent of all clients who reported arrests in the past 12 months was reduced by 66%. The number of clients reporting DUI arrests in the past 12 months was reduced by 76% and the number reporting alcohol intoxication arrests was reduced by 50%. The percent of clients reporting drug trafficking or possession in the past 12 months was reduced by 89% and the percent of clients with arrests for crimes against persons was reduced by 65%. The percent of clients reporting property crime arrests was reduced by 59%.

Mental health symptoms and emotional difficulties also were reduced from baseline to follow-up. For example, the number of clients reporting serious depression was reduced by 29%, the number reporting serious anxiety by 13%, suicidal thoughts by 52% and suicide attempts by 73%. The number of clients reporting trouble controlling violent behavior also was reduced by 34%.

REFERENCES

American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders (4th ed., text revision).Washington, DC: American Psychological Association.

Babor, T.F., Stephens, R.S. & Marlatt, A. (1987). Verbal report methods in clinical research on alcoholism: Response bias and its minimization. Journal of Studies on Alcoholism. 48: 410-424.

Bradburn, N.M. (1983). Response effects. In P.E. Rossi & J.D. Wright, (Eds), Handbook of Survey Research. New York, NY: Academic Press. pp. 289-328.

Del Boca, F.K & Noll, J.A. (2000). Truth or consequences: The validity of self report data in health services research on addictions. Addiction. 95, 347-360.

Flynn, P.P., Kristiansen, P.L., Porto, J.V., & Hubbard, R.L. (2000). Costs and benefits of treatment for cocaine addiction in DATOS. Drug and Alcohol Dependence. 57:167-174.

French, M.T. (1995). Economic evaluation of drug abuse treatment programs: Methodology and findings. American Journal of Drug and Alcohol Abuse. 21: 111-135.

French, M.T., & Martin, R.F. (1996). The costs of drug abuse consequences: A summary of research findings. Journal of Substance Abuse Treatment. 13: 453-466.

French, M.T., Mauskopf, J.A., Teague, J.L., & Roland, J. (1996). Estimating the dollar value of health outcomes from drug abuse interventions. Medical Care. 34: 890-910.

French, M.T., Zarkin, G.A., Hubbard, R.L., & Rachal, J.V. (1991). The impact of time in treatment on the employment and earnings of drug abusers. American Journal of Public Health. 81: 904-907.

Gerstein, D.; Johnson, R.A.; Harwood, H.J.; Fountain, D.; Suter, N.; and Malloy, K. (1994). Evaluating Recovery Services: The California Drug and Alcohol Treatment Assessment (CALDATA). Sacramento: State of California, Department of Alcohol and Drug Programs.

Gossop, M., Marsden, J., Stewart, D., & Rolfe, A. (2000). Treatment retention and 1 year outcomes for residential programmes in England. Drug and Alcohol Dependence. 57: 89-98.

Holroyd, K.A., O'Donnell, F.J., Stensland, M., Lipchik, G.L., Cordingley G.E. & Carlson, B.W. (2001). Management of chronic tension-type headache with tricyclic antidepressant mediaction, stress management therapy, and their random combination. JAMA, 285, 2208-2214.

Hubbard, R.L., Craddock, S.G., Flynn, P.M., Anderson, J., & Etheridge, R.M. (1997). Overview of 1-year follow-up outcomes in the Drug Abuse Treatment Outcome Study (DATOS). Psychology of Addictive Behavior. 11: 261-278.

Hubbard, R.L., Marsden, M.E., Rachal, J.V., Harwood, H.J., Cavanaugh, E.R., & Ginzburg, H.M. (1989). Drug abuse treatment: A national study of effectiveness. Chapel Hill, NC: University of North Carolina Press.

Humphreys, K. & Weisner, C. (2000). Use of exclusion criteria in selecting research subjects and its effect on the generalizability of alcohol treatment outcome studies. American Journal of Psychiatry. 157: 588-594.

Leon, S.C., Kopta, S.M., Howard, K.I., & Lutz, W. (2000). Predicting patients' responses to psychotherapy: Are some more predictable than others? Journal of Consulting and Clinical Psychology. 67: 698-704.

Leshner, A.I. (1997). Addiction is a brain disease, and it matters. Science. 278: 45-47.

Leukefeld, C.G. & Leukefeld, S. (1999). Primary socialization theory and a bio/psycho/spiritual practice model for substance use. Substance Use and Misuse. 34,983-991.

McCarty, D., McGuire, T.G., Harwood, H.J. & Field, T. (1998). Using state information systems for drug abuse research. American Behavioral Scientist, 41: 1090-1106.

McLellan, A.T. Lewis, D.C., O'Brien, C.P., & Kleber, H.D. (2000). Drug dependence, a chronic medical illness: Implications for treatment, insurance, and outcomes evaluation. JAMA. 284, 1689-1695.

McLellan, A.T., Kushner, H., Metzger, D. Peters, R. Smith, I. Grissom, G. Pettinati, H. & Argeriou, M. (1992). The fifth edition of the Addiction Severity Index. Journal of Substance Abuse Treatment, 9, 199-213.

Miller, T., Cohen, M. & Wiersama, B. (1996) Victim Costs and Consequences: A New Look. (NCJ-155282) Washington, DC: National Institute of Justice.

Miller, T. Galbraith, M.S. & Levy, D.T. (1996). Costs of Alcohol-Connected Violent Crime. Substance Abuse and Mental Health Services Administration, Center on Substance Abuse Prevention. Rockville, MD: U.S. Government Printing Office.

Mokdad, A.H., Bowman, B.A., Ford, E.S., Vinicior, F., Marks, J.S. & Koplan, J.P. (2001). The continuing epidemics of obesity and diabetes in the United States. JAMA, 286, 1195-1200.

Pedhazur, E.J. & Schmelkin, L.P. (1991). Measurement, Design, and Analysis: An Integrated Approach. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Pereira, M.A., Jacobs, D.R., Van Horn, L., Slattery, M.L., Kartashov, A.I. & Ludwig, D.S. (2002). Dairy consumption, obesity, and the insulin resistance syndrome in young adults. JAMA, 287, 2081-2089.

Rutherford, M.J., Cacciola, J.S., Alterman, A.I., McKay, J.R. & Cook, T.G. (2000). Contrasts between admitters and deniers of drug use. Journal of Substance Abuse Treatment. 18: 343-348.

Simpson, D.D (1984). National treatment system evaluation based on the drug abuse reporting program (DARP) follow-up research. In F.M. Tims & J.P.Ludford, (Eds.), Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects. NIDA Research Monograph 51. Rockville, MD: National Institute on Drug Abuse. pp. 29-39.

Simpson, D.D. & Sells, S.B. (1982). Effectiveness of treatment for drug abuse: An overview of the DARP research program. Advances in Alcohol and Substance Abuse, 2,7-29.

Zarkin, G.A., French, M.T., Anderson, D.W., & Bradley, C. J. (1994) A conceptual framework for the economic evaluation of substance abuse interventions. Evaluation and Program Planning. 17: 409-418.

Appendix A

Appendix B