



COLORADO
Office of Behavioral Health
Department of Human Services

The Costs and Effectiveness of Substance Use Disorder Programs Report (C.R.S. 27-80-110)

Annual Accounting of Forfeited Property Dollars Report (C.R.S. 16-13-701)

Fiscal Year 2015-2016

PREPARED FOR
The General Assembly
Colorado House Public Health Care and Human Services Committee
Colorado Senate Health and Human Services Committee

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Executive Summary

The following report provides a brief overview on the costs and effectiveness of alcohol and drug abuse programs for the individuals who received substance use services in Fiscal Year (FY) 2015-2016, the actual cost of serving these individuals, and the outcomes related to substance use treatment services.

- Fifty-nine percent of individuals receiving treatment services had moderate to high progress towards treatment goals by discharge. This progress was also reflected in positive family, socialization, employment/education, and medical health outcome trends.
- There was a decreased frequency of moderate and severe problems at discharge.
- There was a statistically significant decrease in primary drug use from admission to discharge (the cornerstone outcome measure for substance use disorder treatment).
- The average annual cost per client for providing substance use disorder treatment was \$946.
- In FY 2015-2016, \$190,502 in forfeited property revenues was expended on treatment and detoxification services.
- The Colorado Department of Human Services (the Department) has no recommendations for legislation in the field of alcohol and drug abuse.

Introduction

The Colorado Department of Human Services Office of Behavioral Health respectfully submits this FY 2015-2016 report titled, “The Costs and Effectiveness of Substance Use Disorder Programs in the State of Colorado; Annual Accounting of Forfeited Property Dollars Report,” to the Colorado House Public Health Care and Human Services Committee and the Senate Health and Human Services Committee in compliance with the following statutes:

1) Colorado Revised Statute 27-80-110 (2016)

27-80-110. Reports. The unit shall submit a report not later than November 1 of each year to the health and human services committees of the senate and house of representatives, or any successor committees, on the costs and effectiveness of alcohol and drug abuse programs in this state and on recommended legislation in the field of alcohol and drug abuse.

2) Colorado Revised Statute 16-13-701 (4) (2016)

16-13-701. Reporting of forfeited property. (4) The unit in the department of human services that administers behavioral health programs and services, including those related to mental health and substance abuse, shall prepare an annual accounting report of moneys received by the managed service organization pursuant to section 16-13-311 (3) (a) (VII) (B), including revenues, expenditures, beginning and ending balances, and services provided. The unit in the department of human services that administers behavioral health programs and services shall provide this information in its annual report pursuant to section 27-80-110, C.R.S.

Background

Accessible and effective community-based substance use disorder treatment helps reduce society's financial burden from problems associated with drug and alcohol use. As the national and state economies face escalating health care costs, needed substance use disorder treatment and recovery programs help reduce health and societal costs. The benefits of substance use disorder treatment far outweigh the costs. Even beyond the significant physical and psychological costs to the person with a substance use disorder and his/her family, substance use disorder treatment can save money by diminishing the financial consequences imposed on employers and taxpayers. Substance use disorder treatment has been shown to reduce associated health and social costs by far more than the cost of the treatment itself. Substance use disorder treatment is also much less expensive than its alternatives, such as incarcerating addicted persons.

For example, the average cost for one full year of substance use disorder treatment in Colorado is approximately \$946 per patient, whereas one full year of imprisonment costs approximately \$36,892¹ per person. Substance use disorders are treatable illnesses. Research in the science of treatment of substance use disorders has led to the development of evidence-based interventions that help people stop substance use and resume productive lives.

Analysis of FY 2015-2016 Cost and Effectiveness Data

A Brief Overview of Persons Served in Services and Programs for Treatment, Detoxification and Driving Under the Influence

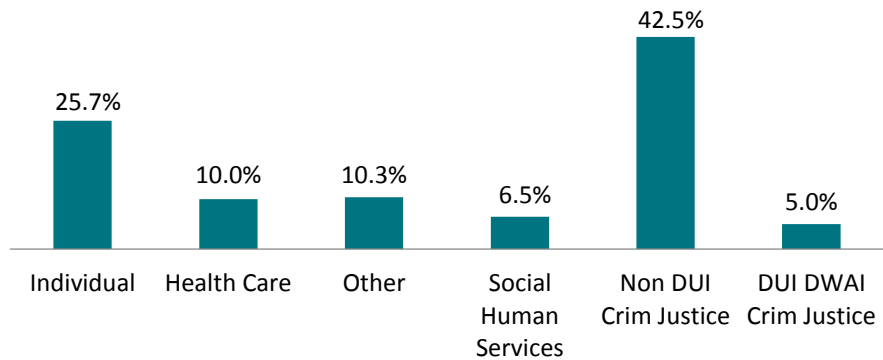
The following demographic data are based on the number of unique individuals in each substance use service category. The total number of unique individuals who received services across all categories and were also discharged in FY 2015-2016 was 75,164. Data were collected upon discharge to allow for the completion of services and to measure the change in issue prevalence between a client's admission and discharge (see Appendix I: Repeated Measures Analysis of Variance (ANOVA) Results for Treatment Outcomes, FY 2015-2016).

Treatment Clients

In FY 2015-2016, of the 30,190 discharges from substance use disorder treatment, 27,117 were unique clients. The criminal justice system referred 43% of treatment clients (excluding referrals related to driving under the influence [DUI] or driving while ability impaired [DWAI]). Approximately 31% of the unique clients worked full-time, and 79% had achieved a high school education or higher. Thirty-five percent of the unique individuals discharged from substance use disorder treatment had a combined total of 18,906 dependent children. Figure 1 (next page) provides details about referral sources.

¹ Colorado Department of Corrections, Cost Per Day Report 2015, <https://www.colorado.gov/pacific/cdoc/departamental-reports-and-statistics>

Figure 1. Referral Sources into Treatment, FY 2015-2016²



Further demographic analysis shows that 67% of individuals were male between 25 and 44 years of age with a median age of 32 years. The predominantly reported race categories were these: Caucasian/White (74%), African American/Black (7%), and American Indian/Alaska Native (4%).³ Twenty-six percent identified as being of Hispanic/Mexican ethnicity.⁴ On average, clients had been using their primary drug for approximately 16 years, and 58% reported starting their primary drug before the age of 18. Of the substance use disorder treatment discharges, 47% had a co-occurring mental health and substance use disorder at admission. Figure 2 (next page) provides demographic details for clients served across programs.

Detoxification (Detox) Services

There were 45,705 discharges from detox services (which exclude treatment and DUI services), 22,889 of which were unique clients. The median age for unique detox individuals was 34 years, and the primary age range was 25–44 years old. Sixty percent of those discharged were Caucasian.⁵ Twenty-four percent identified as of Hispanic/Latino ethnicity. The majority of individuals receiving detox services (79%) identified alcohol as the primary substance of use (see Figure 2). Fifty-four percent of these individuals started using substances before the age of 18. Detox clients had been using their primary substance for an average of 19.5 years. Seventy-two percent of unique clients served in detox were men. Eighty percent of unique clients had a 12th-grade education or higher, and 32% worked full-time. Twenty-one percent of clients had a combined total of 10,199 dependent children.

² Referral Source is a reported field in the Drug/Alcohol Coordinated Data System (DACODS) defined as “The person or agency referring the client to the alcohol or substance abuse treatment program” (DACODS, p. 56). Office of Behavioral Health (2013). Drug/Alcohol Coordinated Data System DACODS User Manual. Denver, CO: Colorado Department of Human Services. <https://sites.google.com/a/state.co.us/cdhs-behavioral-health/home/community-behavioral-health/reports-and-presentations/dacods-user-manual>.

³ Race categories are not mutually exclusive. Furthermore, individuals may decline to answer. Therefore, the total reported percentages across the race categories will not necessarily total 100%.

⁴ Ethnicity is used to capture the specific Hispanic ethnicity the client identifies with regardless of race (e.g. Hispanic/ Mexican- of Mexican origin; Hispanic/Puerto Rican- of Puerto Rican origin).

⁵ Data indicated that 23% of individuals declined to report race.

Driving Under the Influence Services

There were 24,939 discharges from DUI services (which includes DWAI services but excludes other treatment and detox services). Of this number, 22,277 were unique clients. The population of unique individuals who received DUI services identified as Caucasian (74%), male (74%), and between the ages of 25 and 44. The median age was 32 years. Twenty-nine percent of individuals identified as being of Hispanic/Latino ethnicity. Ninety percent identified alcohol as the primary substance of use (see Figure 2). The majority (57%) started using their primary substance before the age of 18 years and had been using for an average of 18 years. This group receiving DUI/DWAI services was more likely to have a 12th-grade education or higher (86%) and work full-time (70%) compared to the treatment and detox group. Thirty-five percent of DUI clients were responsible for a combined total of 15,022 dependent children.

Figure 2. Model Snapshot of Individuals Served by Service Category, FY 2015-2016

Service Category	Primary Age Range	Race ⁶	Ethnicity	Primary Drug of Abuse ⁷
Treatment	25–44	Caucasian/White (74%) Declined to answer (15%) African American/Black (7%) American Indian/Alaska Native (4%)	Not Hispanic or Latino (68%) Mexican (19%) Other Hispanic/Latino (6%)	Alcohol (37%) Marijuana (18%) Methamphetamine (17%) Heroin (14%)
Detox	25–44	Caucasian/White (66%) Declined to answer (23%) African American/Black (7%) American Indian/Alaska Native (4%)	Not Hispanic or Latino (70%) Mexican (20%) Other Hispanic/Latino (4%)	Alcohol (79%) Methamphetamine (9%) Heroin (7%)
DUI	25–44	Caucasian/White (74%) Declined to answer (17%) African American/Black (6%) American Indian/Alaska Native (2%)	Not Hispanic or Latino (59%) Mexican (22%) Other Hispanic/Latino (6%)	Alcohol (90%) Marijuana (7%)

Substance Use Disorder Prevention and Treatment Resources in FY 2015-2016

Substance Use Disorder Prevention and Treatment Service Costs

As a part of the legislative directive related to cost and effectiveness of alcohol and drug abuse programs, this report includes FY 2015-2016 figures outlining the personnel, operating and service costs related to substance use disorder prevention, intervention, treatment, and recovery services in Colorado contracted by the Department. These figures include only those administrative and contract dollars administered by the Department and do not include resources administered by other state and local agencies.

⁶ Only the races with the largest percentages are reported here. Race categories not represented here are Asian & Hawaiian/Pacific Islander.

⁷ This item represents the most prevalent primary drug of abuse for individuals served. This does not capture polydrug use. These numbers are not representative of the prevalence for general population drug use.

Figure 3 illustrates the funding sources received by the Department to provide substance use disorder prevention, intervention, treatment and recovery services in Colorado.

Figure 3. Substance Use Disorder Prevention and Treatment Revenue by Source, FY 2015-2016

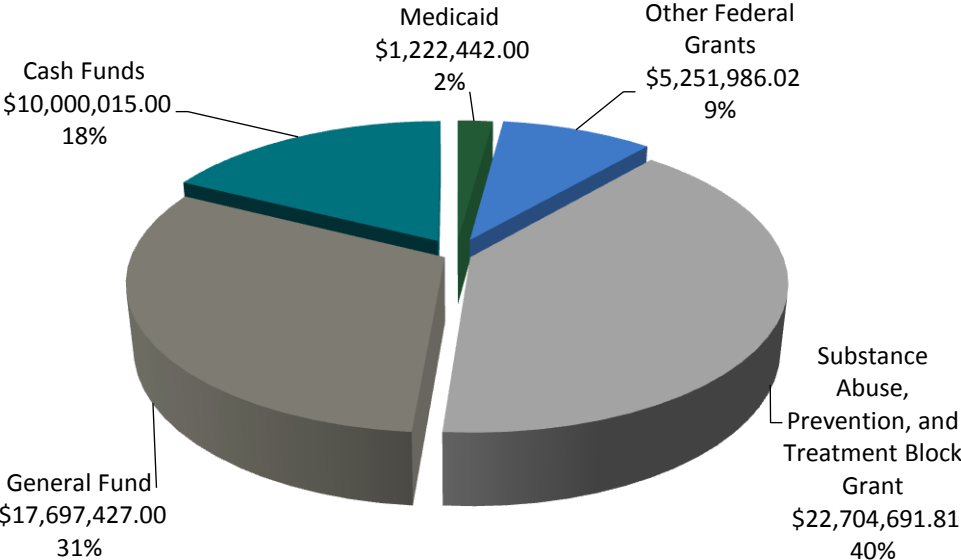


Figure 4 illustrates the FY 2015-2016 expenditures for client care – primary prevention services, treatment and detox services, and administrative activities.

Figure 4. Expenditure by Program, FY 2015-2016

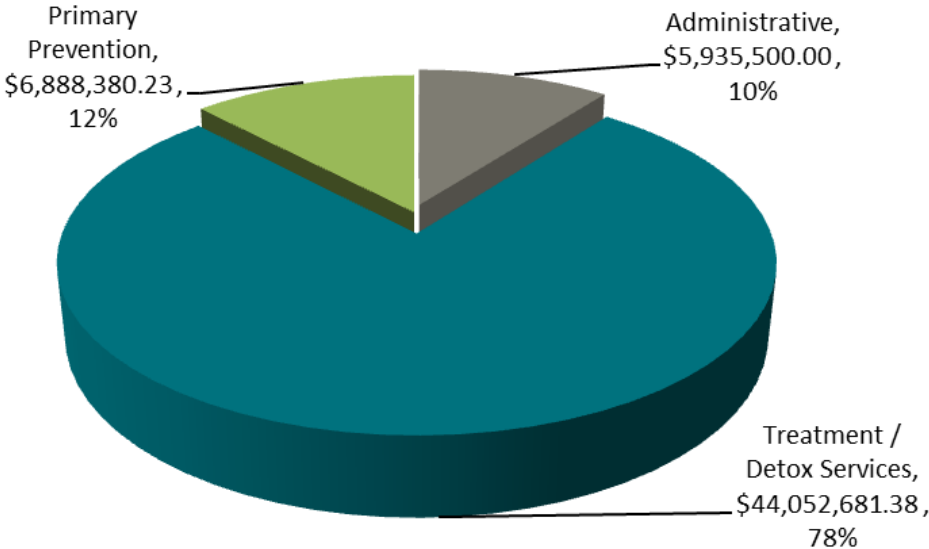


Figure 5 demonstrates the Department’s expenditure history for substance use disorder treatment and detox for FY 2012-2016 with a general increase in funding. Figure 6 illustrates the history of the Department’s expenditure of State General Fund dollars for the last five years steadily increased.

Figure 5. Department of Human Services Substance Use Disorder Treatment and Detox Funding History Total Expenditures, FY 2012-2016

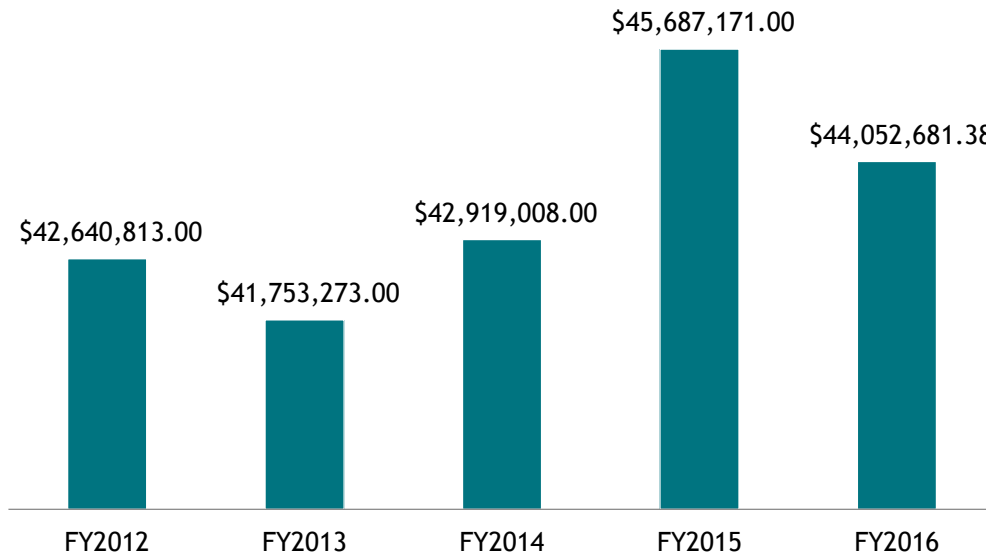
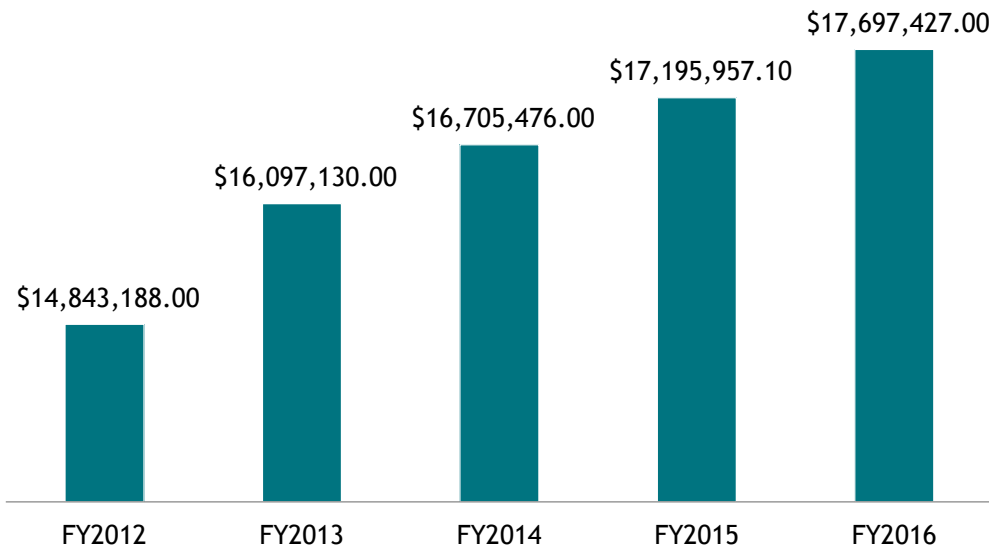


Figure 6. Department of Human Services Substance Use Disorder Programs’ State General Fund Expenditure History, FY 2012-2016



Service cost related to substance use disorder treatment services in Colorado are displayed in Figure 7 steadily increased from 2014 -2016.

Figure 7. Average Annual Cost Per Client for Treatment Services Funded by the Department of Human Services, FY 2014-2016

State Fiscal Year	Department Funded Average Cost/Client ⁸	Department with Other Payer Source Funded Average Cost/Client
FY2014	\$744	\$12,786,082
FY2015	\$777	\$12,901,685
FY2016	\$946	\$12,982,469

The Benefits and Outcomes of Substance Use Disorder Treatment Services FY 2015-2016

Treatment Outcomes for FY 2015-2016

Based on Drug/Alcohol Coordinated Data System (DACODS) data, client discharges from treatment modalities (e.g., residential, intensive outpatient and outpatient treatment modalities) were used to evaluate the change in outcomes from admission to discharge. Detox was excluded as a treatment modality because its primary goal is to provide a safe, short-term environment in which the client may detox from a particular substance (e.g., alcohol, methamphetamine, etc.) and then be referred to treatment. DUI programs were excluded as treatment modalities because DUI programs focus on reducing the practice of driving while intoxicated, rather than treating substance use behavior exclusively. Based on the exclusions of DUI and detox modalities, 30,190 discharges from substance use disorder treatment, of those 27,117 were unique individuals discharged from treatment services in FY 2015-2016.

Outcome measures for substance use treatment are captured in the DACODS form. These measures are clinician-rated scales of the severity of individuals’ presenting issues/problems and are collected at admission as well as discharge. The following measures were analyzed: family, socialization, education/employment-based concerns, and medical issues. In order to calculate the outcomes (i.e., change over time), evaluation staff analyzed only data of clients who were enrolled in treatment with more than one data point; therefore, single assessments were excluded from the analysis. This exclusion provided a final number of 27,117 remaining individuals with outcomes to analyze.

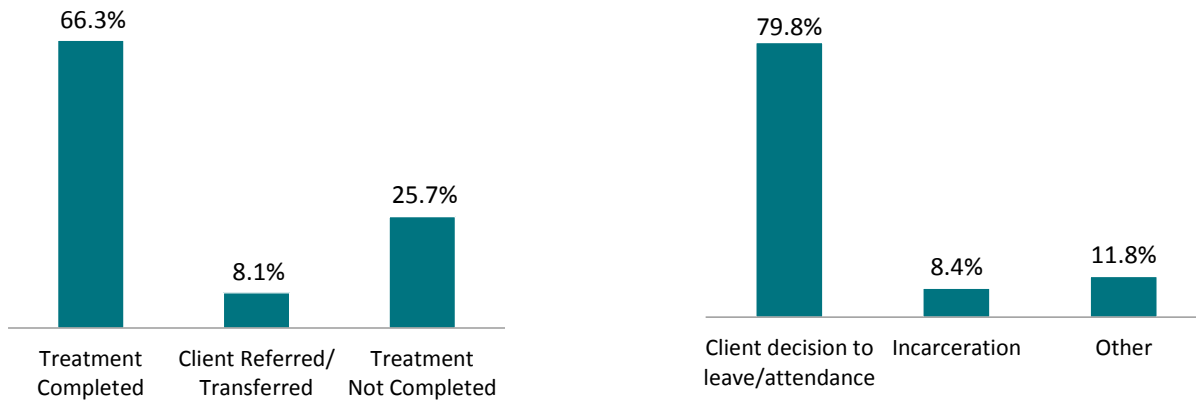
Reason for Discharge

The DACODS system collects two measures on discharge: one captures the “outcome of treatment at discharge status” and the other captures “reason for discharge.” *Discharge status* captures treatment completion, while *discharge reason* further examines why those who did not

⁸ The Department no longer operates under the shared-cost principle. Cost Sharing is that portion of a total sponsored project or program costs that are paid from sources other than the funds provided by the funding agency.

complete treatment did not finish. Sixty-six percent of individuals completed treatment (Figure 8). Of those who did not complete treatment, 80% were assigned the reason of “client decision” (e.g., attendance, client stopped coming, or client decision to leave)⁹ as the reason for discharge (Figure 9). The next most-assigned reason for discharge was “other” (11.8%).¹⁰

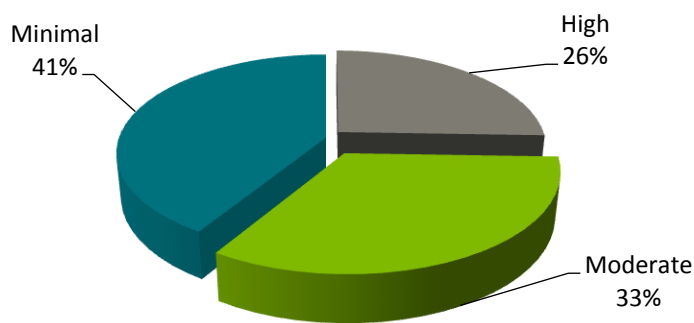
Figure 8. Treatment Completion Status (% of Individuals)¹¹ Figure 9. Reason for Discharge (% of Individuals)



Progress Towards Treatment Goals

During the treatment process, behavioral health professionals collaborate with their clients to develop individualized treatment plans. These plans identify the goals individuals wish to attain from their treatment. At the time of discharge, counselors and clients assess progress made toward these goals. In FY2015-2016, 59% of all treatment clients had made moderate to high progress toward their treatment plan goals.¹²

Figure 10. Progress Towards Treatment Goals, FY 2015-2016



⁹ Client decision/attendance includes three DACODS items: client decision, attendance, client stopped coming. “Client decision” is defined as *client left treatment or service against professional advice; he/she dropped out or walked away from treatment. AWOL/Absconded.*

“Attendance” is defined as *the client was not following attendance guidelines/regulations--missed too many sessions.* “Client discontinued and contact efforts failed” is defined as *the client has stopped attending their treatment and the provider has been unable to contact them* (DACODS, 106).

¹⁰ Other discharge reasons include: financial/payments, lack of progress, medical reasons, military deployment, moved, died, or agency closed/no longer in business.

¹¹ “Transferred” is defined as *transferred or referred to another substance abuse treatment program for completion of their course of treatment or service* (DACODS Manual, p. 105).

¹² “High progress towards goals” is defined as *completing all phases of the treatment plan established at the beginning of the treatment episode, or completed between 66-100% of the goals.* “Moderate progress” is defined as *completing 33-66% of treatment goals* (DACODS Manual, p. 114).

Outcomes Summary

The following information provides an overview of the outcomes an individual achieved during substance use disorder treatment. The goal is to decrease the magnitude of each issue or problem for each measure from admission to discharge. See Appendix 1 for a complete statistical analysis of treatment outcomes.

Family Issues/Problems. “Family Issues/Problems” is defined as the degree of family issues and problems the client is currently experiencing. Examples of topics covered include occasional friction or discord with family, or frequent disruptions or turbulence in family functioning. The percentage of clients with moderate and severe family issues decreased at discharge (Admission: 37.6%- Discharge: 32.1% = 5.5 % Decrease).

Socialization Issues. “Socialization” is defined as having the ability and social skills to form relationships with others. Examples of topics covered include able to form good relationships with others, difficulty developing or maintaining relationships, inadequate social skills resulting in tenuous and strained relationships, and unable to form relationships. The percentage of clients with moderate and severe problems at admission decreased at discharge (Admission: 49.1%- Discharge: 43.8% = 5.3% Decrease).

Education/Employment Issues. The number of clients with moderate or severe education or employment issues at admission, such as comfortable and competent in school or at work, occasional or mild disruption of performance at school or work, occasional major or frequent minor disruptions; rarely meets expectations, and serious incapacity, absent motivation and ineffective functioning. The percentage of clients with moderate and severe problems at admission decreased at discharge (Admission: 47.3%- Discharge: 38.8% = 8.5% Decrease).

Employment. From admission to discharge, there was an increase in the percent employed full-time (Admission: 26.7%- Discharge: 30.5% = 3.8% Increase). Moreover, there was a corresponding decrease in the percent of individuals unemployed at discharge (Admission: 41.3%- Discharge: 36.5% = 4.8% Decrease). An increase in employment reflects a benefit to the society by increasing economic contributions.

Medical/Physical Issues. The proportion of clients with no medical/physical problems increased from admission to discharge. Examples of these types of problems include no physical problems or well-controlled chronic conditions, occasional or mild problems that interfere with daily living, frequent or chronic health problems, or incapacitated due to medical/physical problems. The proportion of clients with moderate and severe problems decreased at discharge (Admission: 27.2% -Discharge: 22.0% = 5.2% Decrease).

Reduction in Use. For treatment services, the seminal treatment outcome measure is the reduction of use in the primary drug of abuse in the last 30 days. In FY 2015-2016, there was a statistically significant decrease in the average substance use from admission to discharge (Figure 11).¹³

Figure 11. Average Frequency of Primary Drug Use in the Past 30 Days from Admission to Discharge, FY 2015-2016

Average Substance Use in Past 30 Days	Admission	Discharge
Mean (Standard Deviation)	7.93 (11.234)	1.97 (6.109)

Reason in Arrest. The average number of arrests that were not DUI-related decreased from admission to discharge (Figure 12).

Figure 12. Mean Arrests from Admission to Discharge, FY 2015-2016

Mean Arrests over the Past 30 Days	Admission	Discharge
Mean (Standard Deviation)	.13 (1.152)	.10 (1.798)

Length of Stay

It is important to consider the length of treatment when determining appropriate system costs. The most frequently reported length of treatment was over 120 days (34%). Thirty-one percent were in treatment for 0-30 days. This bimodal (120 days and 30 days) distribution is consistent regardless of living situation (e.g., independent living, correctional facility/jails, and homeless). The modal length of stay also differed depending on the type of services (e.g., inpatient versus outpatient). For outpatient services, the modal length of stay was seven days of treatment, whereas the modal length of stay for inpatient services was 13 days. The Centers for Medicare & Medicaid Services limits an average length of stay allowed for Medicaid-eligible members to 15 to 30 days depending on the level of care of the treatment setting.

Tracking Civil Forfeiture for FY 2015-2016

As required by C.R.S. 16-13-311 (3)(a) (VII) (B) and 16-13-701 (4), the designated Managed Service Organizations allocate monies to substance use disorder treatment and detoxification programs in the judicial districts in which forfeiture proceedings were prosecuted. These monies are in addition to the appropriated funds through the Department’s Office of Behavioral Health and the Managed Service Organizations. The following table details the reporting of civil forfeiture funds for FY 2015-2016 by three Colorado Managed Service Organizations, as

¹³ T(27094)=93.052, p<.000: This number reflects a reduction in use for the primary drug reported on the DACODs. This statistic does not reflect reduction in polydrug use.

required by statute. One of the four Managed Service Organizations, Mental Health Partners, did not receive any funds from civil forfeiture. Please refer to Figure 16, for more detailed information.

Figure 16. Civil Forfeiture, FY 2015-2016

MSO Provider / Description	Signal	West Slope	AspenPointe	Mental Health Partners	Total All	Prior SFY
Beginning Balance	\$143,545.92	\$29,566.31	\$2,816.78	\$0.00	\$175,929.01	\$191,041.92
Distribution	\$190,502.16	\$0.00	\$0.00	\$0.00	\$190,502.16	\$279,056.72
Revenue Received	\$247,311.91	\$0.00	\$2,115.70	\$0.00	\$249,427.61	\$255,700.99
Ending Balance	\$200,355.67	\$29,566.31	\$4,932.48	\$0.00	\$234,854.46	\$167,686.19

Civil Forfeiture Summary

Signal expended \$190,502.16 of forfeiture funds during the year. Of that, \$165,528.46 was expended on treatment and detox services and \$24,973.77 was expended on administrative costs (15% of total funds distributed). West Slope Casa had no reported disbursements for services during the year from forfeiture funds. AspenPointe had no reported disbursements for services during the year from forfeiture funds. Mental Health Partners had no reported disbursements for services during the year from forfeiture funds. For FY 2015-16, a combined total of \$249,427.61 in forfeiture revenues was collected and a total of \$190,502.16 was expended on treatment and detoxification services (including administrative charges). The revenue received represents a 2.5% decrease in revenue from the previous year.

Recommendation

The Department has no recommendations for legislation in the field of alcohol and drug abuse at this time.

Appendix

Appendix I: Repeated Measures Analysis of Variance (ANOVA) Results for Treatment Outcomes, FY 2015-2016

Treatment Outcome	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared ¹⁴
Family issues	317.158	1.000	317.158	938.878	.000*	.033
Medical physical issues	169.396	1.000	169.396	622.613	.000*	.022
Education/ employment issues	393.823	1.000	393.823	1093.179	.000*	.039
Socialization issues	57.413	1.000	57.413	142.948	.000*	.005

¹⁴ While all outcome changes were statistically significant, note the small partial eta squared statistics. These small partial eta squared statistics represent small effect sizes across all outcome changes.