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Northwest Professional Consortium

## Societal Outcomes And Cost Savings Of Drug And Alcohol Treatment In The State Of Oregon

*prepared for*

Office of Alcohol and Drug Abuse Programs  
Oregon Department of Human Resources

*prepared by*

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## EXECUTIVE SUMMARY

### Cost Savings/Societal Outcomes of Drug and Alcohol Treatment in the State of Oregon

- This study was designed to overcome some of the methodological limitations of past studies of the benefits and costs of drug and/or alcohol treatment. To this end the research design has been created with the following characteristics:
  - ❖ A representative sample of treatment completers with a matched comparison group of clients who received little or no treatment
  - ❖ Use of existing state agency databases rather than self-report data for maximum objectivity
  - ❖ Adequate study period of two years prior and three years subsequent to treatment completion
- With no statistically significant differences in arrest and conviction histories prior to treatment, treatment completers had significantly fewer arrests and convictions in the three-year period following treatment. For example, outpatient treatment completers were arrested at a rate 45% lower than the matched group during the three-year period subsequent to treatment.
- Treatment completion is associated with substantially fewer incarcerations in the state prison system and with fewer days of incarceration. For example, residential treatment completers were incarcerated at a rate of 70% lower than the matched group.
- In the period subsequent to treatment, treatment completers received 65% higher wages than those who didn't complete treatment. This difference is due to improvement in earning power and in number of weeks worked.
- The use of food stamps was reduced significantly for clients who completed treatment compared with those who were non-completers. Completers had only one-third the use of food stamps experienced by the early-leaver comparison group.
- For clients who completed treatment, open child welfare cases decreased by 50% subsequent to treatment.
- Medical expenses were substantially lower for those who completed treatment compared with the control group. For example, early-leavers showed a dramatic increase in the use of hospital emergency rooms during the period following treatment compared with the treatment group.
- The 1991–92 cohort of treatment completers produced cost savings of \$83,147,187 for the two and a half years following treatment. The cost for treating all adults in 1991–92 was \$14,879,128. Thus, every tax dollar spent on treatment produced \$5.60 in avoided costs to the taxpayer. This is most conservative for the following reasons:

- ❖ No unemployment cost savings are included.
  - ❖ We can assume some benefit accrued to those clients treated for weeks and/or months but who did not complete treatment. These savings are not included in this study.
  - ❖ There are other potential cost avoidances not included in this study, e.g., federal and local prison costs saved, institutional costs avoided, intoxicated driver costs avoided, business losses avoided, healthy rather than drug-affected babies born, etc.
- The accrual of positive societal outcomes resulting from alcohol and drug treatment were found to be significant for a period of at least three years.

In the summer of 1994, the Office of Alcohol and Drug Abuse Programs and the Governor's Council on Alcohol and Drug Abuse Programs requested an independent study of treatment outcomes for drug and/or alcohol treatment clients in publicly funded residential, outpatient, and methadone settings. Included in that request was a desire to augment the research with an assessment of the savings that might accrue (or cost that would be avoided) to Oregon taxpaying citizens from any positive outcomes of treatment. Because this assessment would be limited to the avoided costs that are measurable using existing Oregon state agency databases, it would be only a conservative estimation.

Over the past 30 years there have been a number of studies involving economic analyses of the benefits and costs of drug and/or alcohol treatment.<sup>1</sup> The usefulness of their results has often been weakened by limitations in their methodologies. These limitations include the following:

- No comparison or control group
- Failure to use a representative sampling design in selecting subjects
- Exclusive use of self-reported data
- Brief observation periods (usually focused on the time just before or just after treatment—not necessarily representative periods)
- Use of limited populations (e.g., enrollees in an HMO)
- Costs and benefits assessed only in a limited number of areas

Several studies of the costs and benefits of alcohol and drug abuse treatment have recently been conducted and have received national attention. The most notable include a national study by the Center for Substance Abuse Prevention—*Costs of Alcohol-Connected Crime* (1995) and the

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<sup>1</sup> For a thorough examination of all but the most recent research, the reader is referred to *Socioeconomic Evaluations of Addiction Treatment* prepared by the Center of Alcohol Studies at Rutgers University.

CALDATA study (1994).<sup>1</sup> The CSAP study is useful in that it provides some cost estimates of alcohol-related crime specific for Oregon; however, it is not a study of the outcomes of treatment. The CALDATA study is one of the largest studies ever attempted that combines a study of treatment outcomes with an estimate of the cost savings of treatment. The researchers selected a representative sample of discharged clients from substance abuse treatment programs (outpatient, residential, and methadone) statewide. They located 1826 clients who agreed to complete a retrospective interview that included questions about criminal and medical issues, substance use, income, and other concerns for the period 12 months before and after treatment. The study received national attention with its conclusion that for every dollar spent in treatment, seven dollars were saved in avoided costs to society. The study has had its critics who have accurately noted its methodological limitations. These include the following:

- The study relied primarily on retrospective self-reported data from clients who were required to remember the occurrence of events up to 36 months after they occurred.
- The observation time period was very brief. The period of 12 months before and after treatment is not necessarily representative of the before treatment and after treatment periods.
- The study used a pre–post design and had no comparison group.
- The subjects of the study were clients who had been discharged, not necessarily clients who had completed treatment.

This Oregon study has been designed to avoid (where possible) the methodological problems that have plagued previous studies. To this end the research design has been created with the following characteristics:

- Representative sampling of treatment completers
- Development of a matched comparison group using clients who enrolled in treatment but left before receiving an appreciable amount of treatment
- Use of existing Oregon state agency databases rather than self-reported data
- A time period of two years prior and three years subsequent to treatment completion

## METHOD

Using a quasi-experimental design, groups of clients who completed treatment were compared with groups of clients who had enrolled in treatment programs, but who terminated after receiving only minimal services. The sample was drawn from the 1991–1992 fiscal year in order to have up to three years of post-treatment outcome data. Using the Client Process Monitoring System (CPMS) database<sup>2</sup>, a representative random sample of clients for each service element (outpatient, residential, and methadone<sup>3</sup>) was selected. A comparison group of those who began treatment but did not follow through in keeping appointments was randomly selected and matched to the treatment completers so that no differences existed between the groups on age, gender, race, drug type, and severity of drug abuse. Based on a power analysis of needed sample size, a target of 250

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<sup>1</sup> CSAP Prevention Monograph *Costs of Alcohol-Connected Violent Crime*, 1995; Dean Gerstein, et. al. "Evaluating Recovery Services: The California Drug and Alcohol Treatment Assessment," Report to State of California Department of Alcohol and Drug Programs, (April 1994), 63.

<sup>2</sup> This database is the Oregon management information system for alcohol and/or drug treatment programs receiving public funds. Programs must report on clients at intake and at termination.

<sup>3</sup> Because of its small size, the entire population of methadone treatment completers was selected.

treatment and 250 comparison clients was set for each module, outpatient and residential. A total of 1267 clients was originally selected for the study sample.<sup>1</sup>

Existing state databases were used to collect outcome data for these clients from the periods prior and subsequent to their treatment episodes. The databases included the following: CPMS (Client Process Monitoring System), LEDES (Law Enforcement Data System),<sup>2</sup> OPS (Offender Profile System),<sup>3</sup> AFS (Adult and Family Services),<sup>4</sup> OMAP (Office of Medical Assistance Programs [Medicaid]),<sup>5</sup> and CSD (Children's Services Division). Permission to access these databases was gained and confidentiality of clients was protected at all times.<sup>6</sup>

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<sup>1</sup> There was, however, some inevitable attrition. For some individuals, insufficient identifiers were available to locate them in the database (or the identifiers were incorrect). Some individuals in the sample were deceased; others had moved. This reduced the useable sample to 1125. Finally, with the residential module, some of the non-completers were found to have had considerable treatment experience. For some analyses, they and their matches among the treatment completers were excluded. This attrition did not significantly diminish the power of the subsequent data analysis.

<sup>2</sup> The statewide arrest database.

<sup>3</sup> Oregon Department of Corrections database.

<sup>4</sup> The statewide database containing public assistance payments which include welfare, food stamps, emergency assistance, etc.

<sup>5</sup> The statewide database containing medical assistance (Medicaid) payments.

<sup>6</sup> Access to the full Employment Division database was denied; however, some employment data were gathered in an earlier data collection from AFS case files. The employment data in this report are therefore limited to those individuals with AFS case files. These data were not used in the avoided cost analysis.

## RESULTS

### Arrests and Convictions

#### PERCENTAGE OF CLIENTS WHO HAVE ARRESTS AND CONVICTIONS (Total—all service modules)

Treatment completers had fewer arrests and convictions in the three-year period following treatment than did the non-completers. This is illustrated in the table below.

**TABLE 1**  
Percentage of clients with subsequent arrests and/or convictions<sup>1</sup>

	Treatment Complete	Treatment Incomplete	Percent Difference
Percentage who had at least one subsequent arrest	16.6	24.9	33%
<b>Percentage who had at least one subsequent conviction</b>	<b>10.5</b>	<b>15.9</b>	<b>34%</b>
Percentage who committed at least one subsequent drug crime	6.1	9.2	34%
Percentage who committed at least one subsequent property crime	5.8	9.7	40%
Percentage who committed at least one subsequent violent crime	3.6	4.7	23%

**There are no statistically significant differences in the arrest and conviction histories between treatment completers and non-completers prior to treatment.**

**Nearly half of those who completed treatment who had prior arrest records were arrest free in the three years subsequent to treatment.** In comparison, only a third of treatment non-completers with prior arrest records were arrest free in the subsequent period.

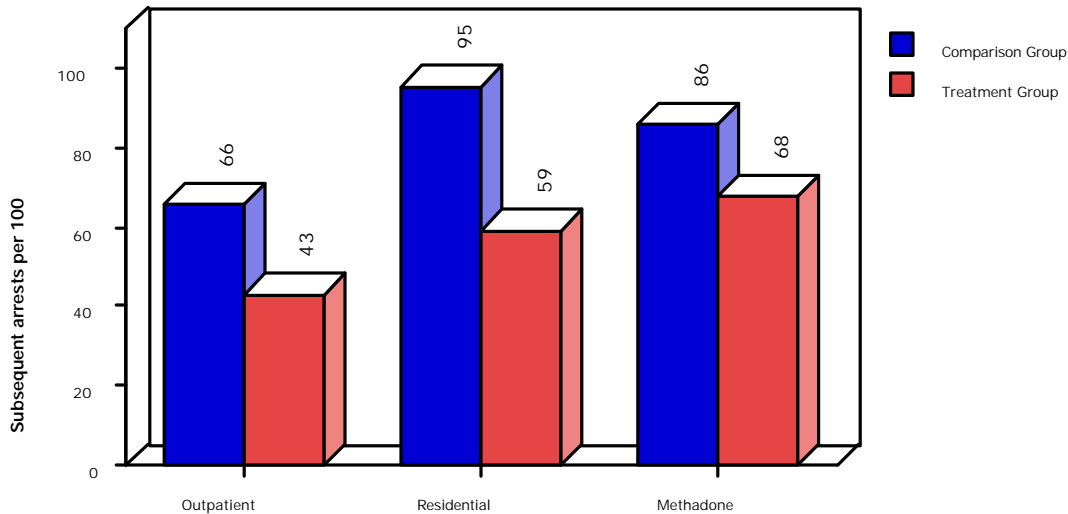
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<sup>1</sup> Chi-square tests, p<.05.

## Arrests by Treatment Module

Within each module, clients who completed treatment had significantly lower arrest rates than clients in the comparison group.<sup>1</sup>

**FIGURE 1**  
**Arrests per 100 clients in the three years subsequent to treatment**  
**By treatment modality**



For those that successfully completed *outpatient* treatment (discharged in 1991–1992), the rate of subsequent arrest is 43 per hundred clients, a rate 35% lower than the subsequent arrest rate (66 per hundred) of a matched group of clients with untreated alcohol and drug problems.

For those that successfully completed *residential* treatment (discharged in 1991–1992), the rate of subsequent arrest is 59 per hundred clients, a rate 38% lower than the subsequent arrest rate (95 per hundred) of a matched group of clients with untreated alcohol and drug problems. For untreated residential clients one can expect an average of about one arrest per person over a three-year period.

For those that successfully completed *methadone* treatment (discharged in 1991–1992), the rate of subsequent arrest is 68 per hundred clients, a rate 21% lower than the subsequent arrest rate (86 per hundred) of a matched group of those with untreated alcohol and drug problems.

<sup>1</sup> This analysis (and subsequent ones in this section) differs from that of Table 1 in that it compares the mean number of arrests between the groups and within each module. Tests for statistical significance were based on ANOVA F-ratios. Any differences in prior arrests or convictions between the groups within modules were controlled for in the ANOVA model. Effect of treatment completion vs.. non-completion on subsequent arrests:  $F=6.13$ ,  $p=.01$ .



Since it can be estimated that in Oregon there are 12 unreported crimes for every arrest,<sup>1</sup> the following may be suggested:

- For outpatient treatment clients, completion of treatment in 1991 was associated with 276 fewer crimes per hundred drug and alcohol clients or about 17,319 fewer crimes over the subsequent three-year period.<sup>2</sup>
- For residential treatment clients, completion of treatment in 1991 was associated with 432 fewer crimes per hundred drug and alcohol clients or about 11,452 fewer crimes over the subsequent three-year period.
- For methadone treatment clients, completion of treatment in 1991 was associated with 216 fewer crimes per hundred drug and alcohol clients or about 318 fewer crimes over the subsequent three-year period.

In summary, it may be concluded that the completion of treatment by the FY 1991–1992 clients resulted in an estimated **29,089 fewer crimes** over a three-year period.<sup>3</sup> In addition, there continued to be treatment completion cohorts (i.e., 1992–1993, 1994–1995) who would have contributed further to the numbers of avoided crimes during that three-year period.

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<sup>1</sup> The Bureau of Justice Assistance reported in 1991 that only 38% of all crimes are reported to police (National Crime Victimization Survey Report, 1991, p. 102). According to the BJA Sourcebook of Criminal Justice Statistics, 1991 (p. 462), only 21.6% of offenses reported to police result in an arrest. This means that only about 8% of crimes result in arrest or about one in twelve. Of course, that rate varies by type of crime, with some crimes (e.g., murder) having a higher percentage of arrest and others (e.g., rape) having an even lower percentage of arrest.

<sup>2</sup> The total number of avoided crimes was calculated for each module by multiplying the number of avoided crimes per person by the total number of clients who completed treatment in that module in 1991.

<sup>3</sup> This does not include traffic offenses (except DUII and motor vehicle theft) or other minor offenses.

## Female Clients

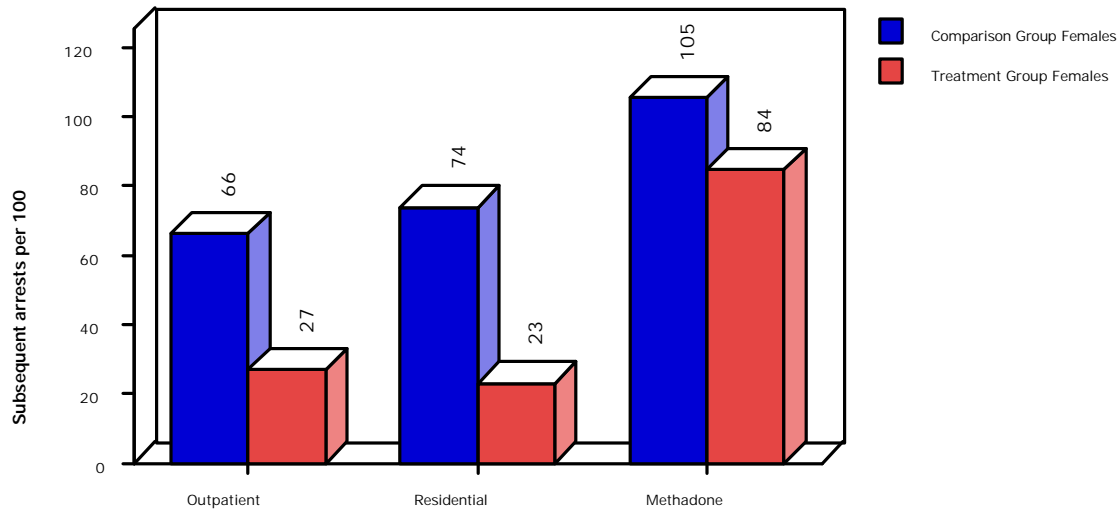
The effect of treatment completion on the arrest rate of females is particularly dramatic for outpatient and residential clients.

**FIGURE 2**

**Arrests per 100 female clients in the three years subsequent to treatment<sup>1</sup>**

**Female client arrests**

**By treatment modality**



For those female clients that successfully completed *outpatient* treatment (discharged in 1991–1992), the rate of subsequent arrest is 27 per hundred clients, a rate **59% lower** than the subsequent arrest rate (66 per hundred) of a matched group of clients with untreated alcohol and drug problems.

For those that successfully completed *residential* treatment (discharged in 1991–1992), the rate of subsequent arrest is 23 per hundred clients, a rate **69% lower** than the subsequent arrest rate (74 per hundred) of a matched group of clients with untreated alcohol and drug problems.

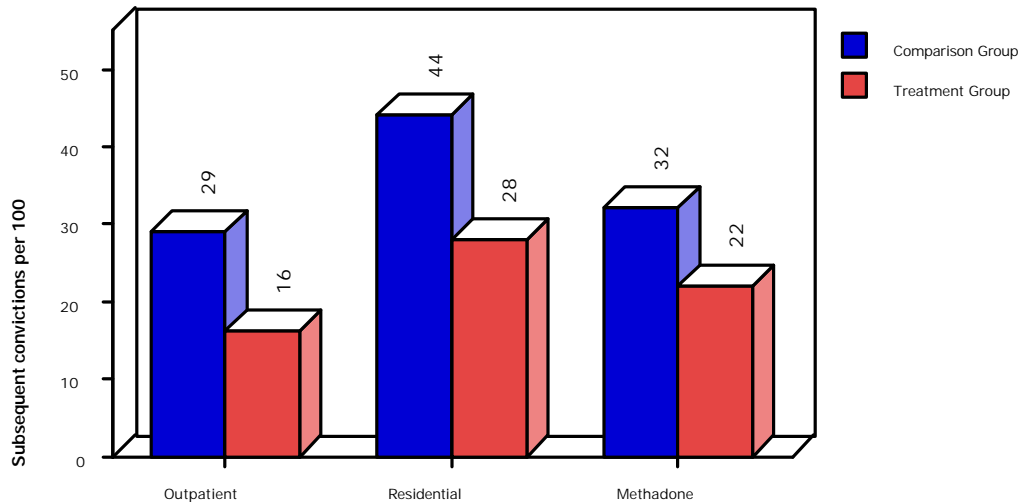
For those that successfully completed *methadone* treatment (discharged in 1991–1992), the rate of subsequent arrest is 84 per hundred clients, a rate **20% lower** than the subsequent arrest rate (105 per hundred) of a matched group of those with untreated alcohol and drug problems.

<sup>1</sup> Effect of treatment completion vs.. non-completion on subsequent arrests: F=3.3, p=.06..

## Convictions by Treatment Module

There is also a significantly lower conviction rate for those who completed treatment.

**FIGURE 3**  
**Convictions per 100 clients in the three years subsequent to treatment**  
**By treatment modality<sup>1</sup>**



For those that successfully completed *outpatient* treatment (discharged in 1991–1992), the rate of subsequent conviction is 16 per hundred clients, a rate 45% lower than the subsequent arrest rate (29 per hundred) of a matched group of clients with untreated alcohol and drug problems.

For those that successfully completed *residential* treatment (discharged in 1991–1992), the rate of subsequent conviction is 28 per hundred clients, a rate 36% lower than the subsequent conviction rate (44 per hundred) of a matched group of clients with untreated alcohol and drug problems.

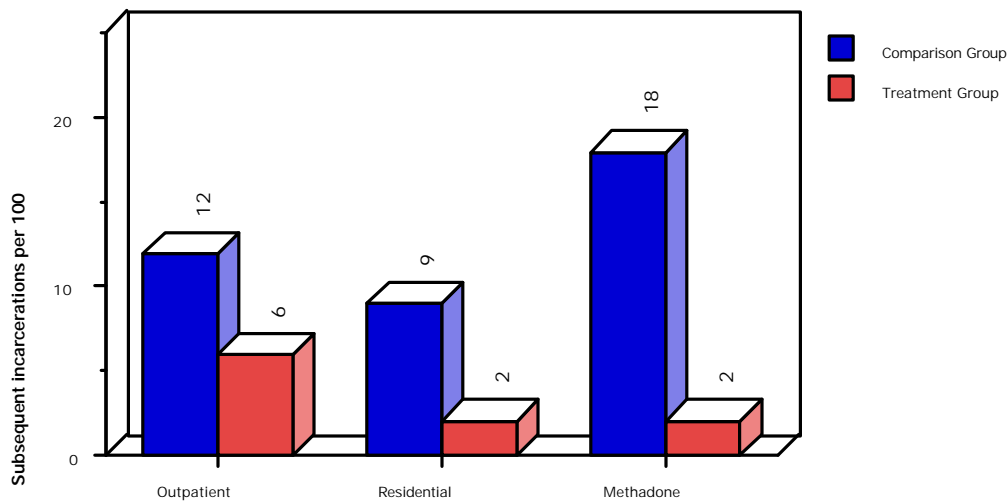
For those that successfully completed *methadone* treatment (discharged in 1991–1992) the rate of subsequent conviction is 22 per hundred clients, a rate 31% lower than the subsequent conviction rate (32 per hundred) of a matched group of those with untreated alcohol and drug problems.

<sup>1</sup> Effect of treatment completion vs.. non-completion on subsequent convictions: F=5.2, p=.02.

## Incarceration

The following represents only those clients incarcerated in the state prison system in the three-year period subsequent to treatment. While Department of Corrections data on state prison incarceration were available to us, data on local jail time for specific clients (actual time served) are difficult to acquire and are not included. This, therefore, is a conservative estimate of the reduction of incarceration time for those who completed treatment since it does not include local jail time. Because the data previously presented show reduced arrests and convictions for treatment completers compared to non-completers, we would anticipate that those who completed treatment would also have reduced local jail time.

**FIGURE 4**  
**Incarceration episodes per 100 clients in the three years subsequent to treatment<sup>1</sup>**  
**By treatment modality**



Treatment completion is associated with substantially fewer incarcerations in the state prison system and fewer days incarcerated.

For those that successfully completed *outpatient* treatment (discharged in 1991–1992), the rate of subsequent incarceration episodes is 6 per hundred clients, a rate 50% lower than the subsequent incarceration rate (12 per hundred) of a matched group of clients with untreated alcohol and drug problems.

For those that successfully completed *residential* treatment (discharged in 1991–1992), the rate of subsequent incarceration episodes is 2 per hundred clients, a rate 78% lower than the subsequent incarceration rate (9 per hundred) of a matched group of clients with untreated alcohol and drug problems.

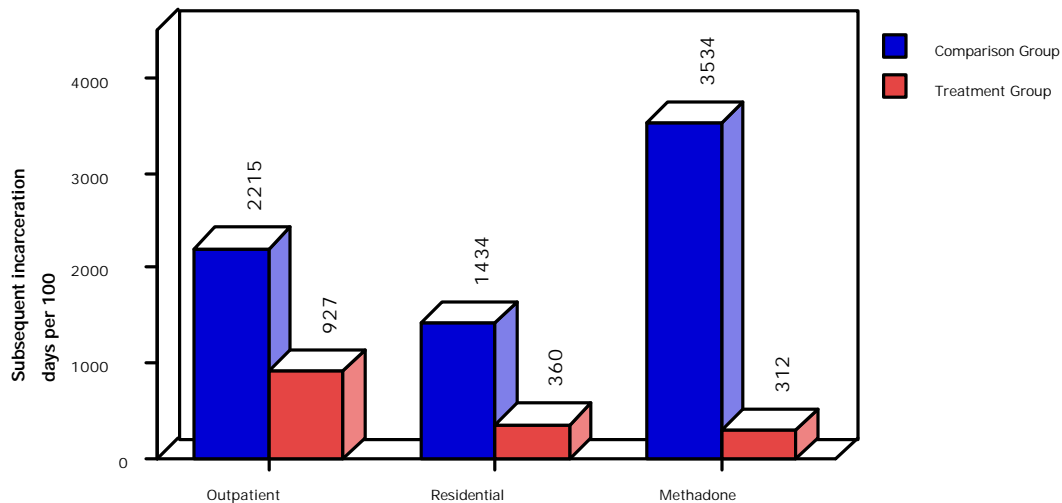
For those that successfully completed *methadone* treatment (discharged in 1991–1992), the rate of subsequent incarceration episodes is 2 per hundred clients, a rate 89% lower than the subsequent

<sup>1</sup> Effect of treatment completion vs.. non-completion on subsequent incarcerations:  $F=8.7$ ,  $p=.003$ .

incarceration rate (18 per hundred) of a matched group of those with untreated alcohol and drug problems.

These lower incarceration rates result in substantially fewer days incarcerated per hundred clients as seen in the figure below.

**FIGURE 5**  
**Incarceration days per 100 clients in the three years subsequent to treatment<sup>1</sup>**  
**By treatment modality**



For those that successfully completed *outpatient* treatment (discharged in 1991–1992), the rate of subsequent incarceration days is 927 per hundred clients, a rate 58% lower than the subsequent days of incarceration rate (2215 days per hundred clients) of a matched group of clients with untreated alcohol and drug problems.

For those that successfully completed *residential* treatment (discharged in 1991–1992), the rate of subsequent incarceration days is 360 days per hundred clients, a rate 75% lower than the subsequent days of incarceration rate (1434 days per hundred) of a matched group of clients with untreated alcohol and drug problems.

For those that successfully completed *methadone* treatment (discharged in 1991–1992), the rate of subsequent incarceration days is 312 per hundred clients, a rate 91% lower than the subsequent days of incarceration rate (3534 per hundred) of a matched group of those with untreated alcohol and drug problems.

<sup>1</sup> Effect of treatment completion vs.. non-completion on subsequent arrests: F=10.6, p=.001.

## Employment

Data on employment were gathered from AFS (Adult and Family Services) files.<sup>1</sup> These data show that, for this sample, in the period subsequent to treatment, the wages paid to treatment completers were 65% higher than the wages paid to those who did not complete treatment. The advantage in subsequent wages is observed for clients in all service modules (outpatient, residential, and methadone) but is greatest in the methadone module where treatment completers earned more than twice as much as non-completers.

**TABLE 2**  
**Earnings in the three years subsequent to treatment**  
**By treatment modality<sup>2</sup>**

<b>GROUP</b>	<b>EARNINGS</b> (3 years after treatment episode)	<b>PERCENT DIFFERENCE</b>
<b>Outpatient Comparison</b>	\$12,935	
<b>Outpatient Treatment</b>	\$19,240	49%
<b>Residential Comparison</b>	\$9,250	
<b>Residential Treatment</b>	\$16,226	75%
<b>Methadone Comparison</b>	\$4,532	
<b>Methadone Treatment</b>	\$10,673	136%

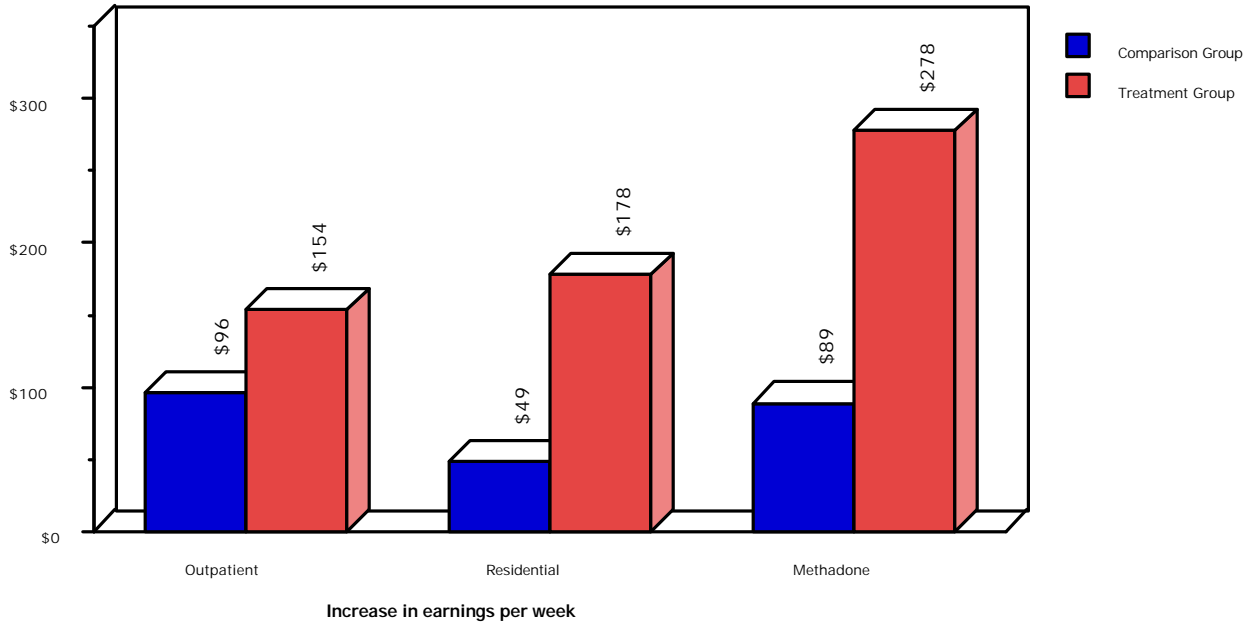
This increase in wages earned was due to two factors: an improvement in the earning power of clients (per week) and an improvement in the number of weeks worked in the period subsequent to treatment.

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<sup>1</sup> Direct access to Employment Department records was not possible. Employment information was gathered through the AFS data system after clients were identified by a case number, name, and date of birth search. Thus, the employment data that we have reflect only those clients that could be tracked in the AFS files. (Six hundred ninety-seven cases, about two thirds of the sample, were trackable in AFS; 483 had employment earnings.) For all modules, trackable and non-trackable clients were fairly evenly distributed between treatment completers and non-completers. The individuals for whom information was found likely represent the poorest clients in the sample, and since our interest here is in assessing the expenditure of public assistance money on this population, these clients are clearly the most relevant to the study.

<sup>2</sup> Effect of treatment completion vs.. non-completion on subsequent earnings, controlling for prior earnings: F=17.0, p=.0001.

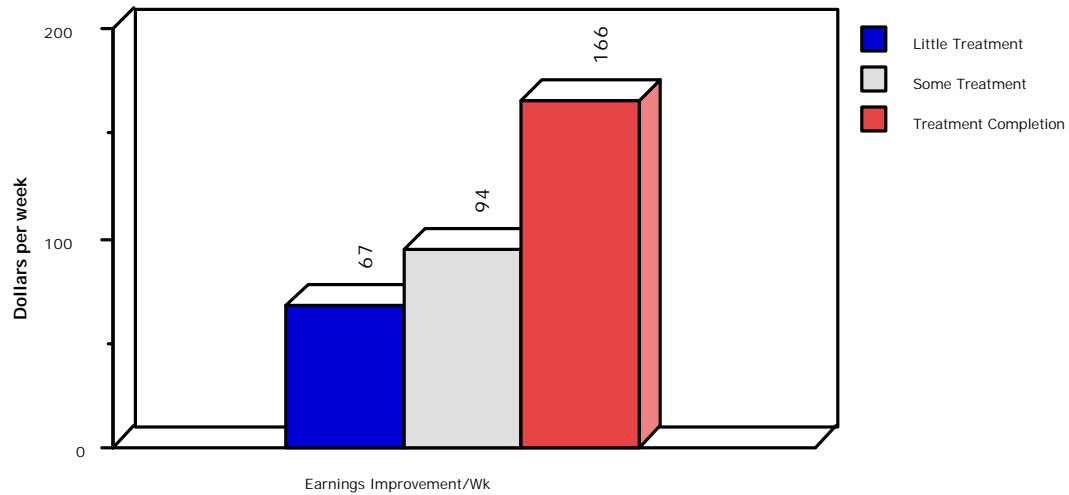
**FIGURE 6**  
**Improvement in earnings per week<sup>1</sup>**  
**(Pre-treatment to post-treatment)**  
**By treatment modality**



While treatment non-completers also had modest increases in their average earnings in the weeks in which they worked, treatment completers had far greater increases. This occurred across every module. For example, residential treatment non-completers earned about \$49 more per week in the weeks they worked during the three-year period subsequent to their incomplete treatment than they had in the two-year period prior to treatment. However, residential treatment completers earned about \$178 more per week in the weeks they worked during the three-year period subsequent to their treatment than they had in the two-year period prior to treatment. This represents a 250% better earnings performance by treatment completers than by non-completers.

<sup>1</sup> Effect of treatment completion vs.. non-completion on improvement in earnings per week: F=3.9, p=.05.

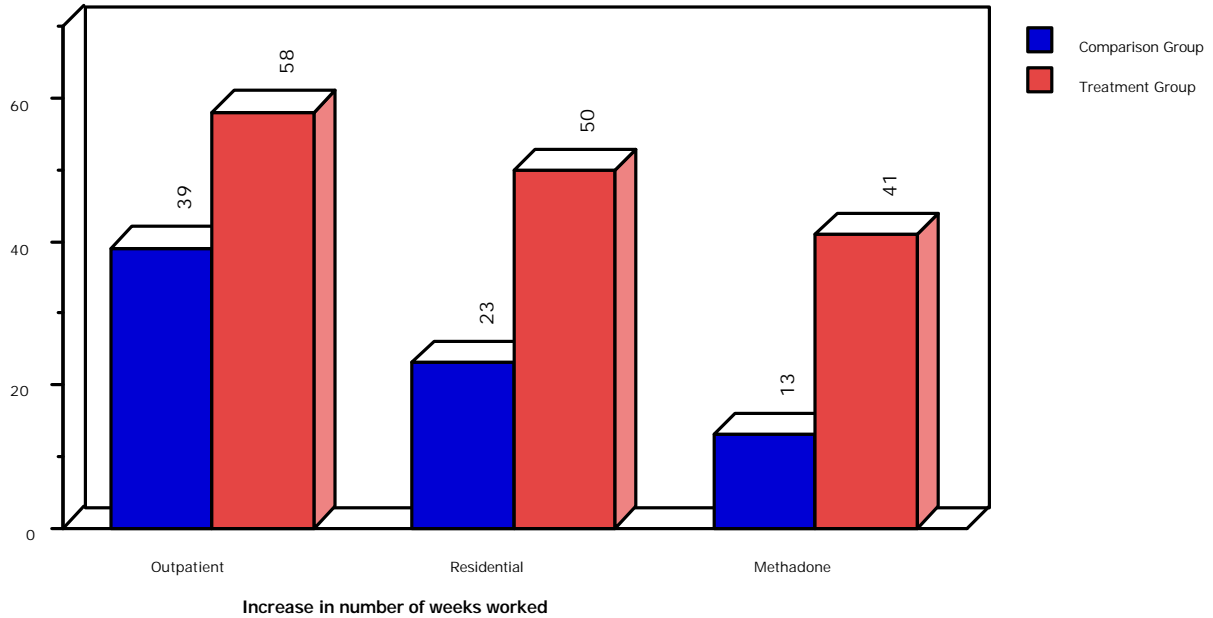
**FIGURE 7**  
**Improvement in Earnings per Week**  
**(Pre-treatment to post-treatment)**



Among the non-completers, those who had even some treatment had greater improvements in their average earnings in the subsequent period than those non-completers whose only exposure to treatment was an intake session.



**FIGURE 8**  
**Improvement in the number of weeks worked<sup>1</sup>**  
**(Pre-treatment to post-treatment)**  
**By treatment modality**



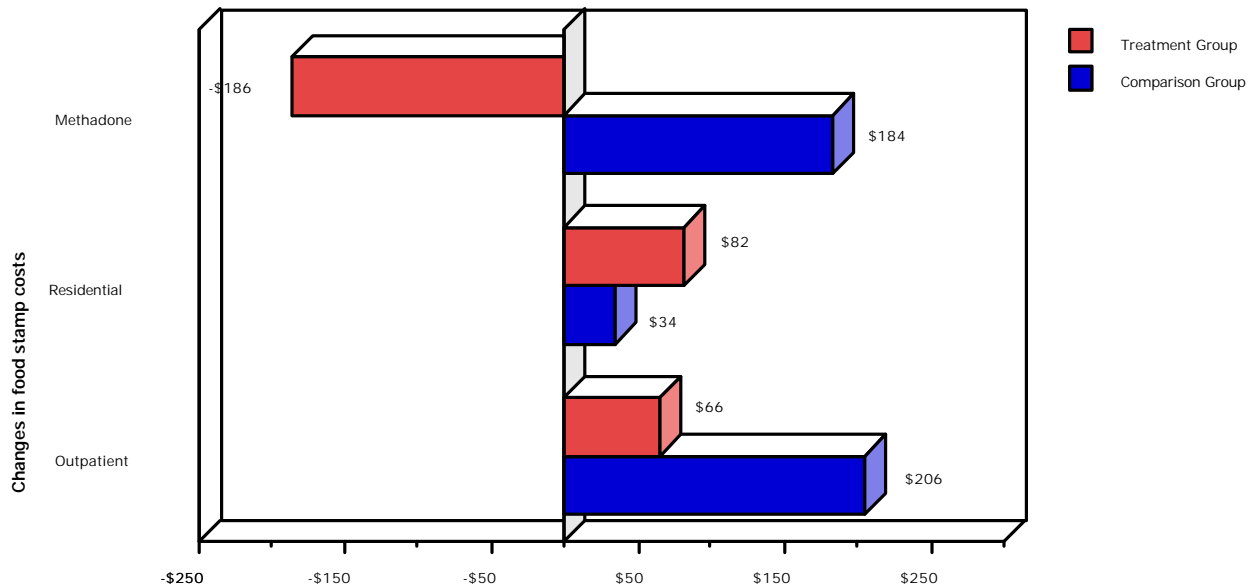
While treatment non-completers also had modest increases in their average number of weeks worked, treatment completers had far greater increases. This occurred across every module. For example, residential treatment non-completers worked an average of 23 more weeks during the three-year period subsequent to their incomplete treatment than they had worked in the two-year period prior to treatment. However, residential treatment completers worked an average of 50 more weeks during the three-year period subsequent to their treatment than they had worked in the two-year period prior to treatment. This represents a 117% better performance by treatment completers than by non-completers.

<sup>1</sup> Effect of treatment completion vs.. non-completion on improvement in weeks worked subsequent to treatment: F=13.3, p=.0001.

## Food Stamp Assistance

Records of the history of food stamp assistance provided to clients through AFS were available on microfiche. A search was made for the clients in the sample for the period two years prior and three years subsequent to treatment.

**FIGURE 9**  
**Food stamp assistance in the three years subsequent to treatment<sup>1</sup>**  
**By treatment modality**



The average increase in food stamp assistance was reduced significantly for outpatient clients who completed treatment compared to those who were non-completers. The treatment group had an increase per hundred clients that was one-third of the increase in food stamp assistance experienced by the comparison group. Methadone clients who completed treatment had a significant decline in food stamp assistance while clients in the non-completing comparison group had significant increases. Residential treatment completers showed a reverse trend although it was not statistically significant.

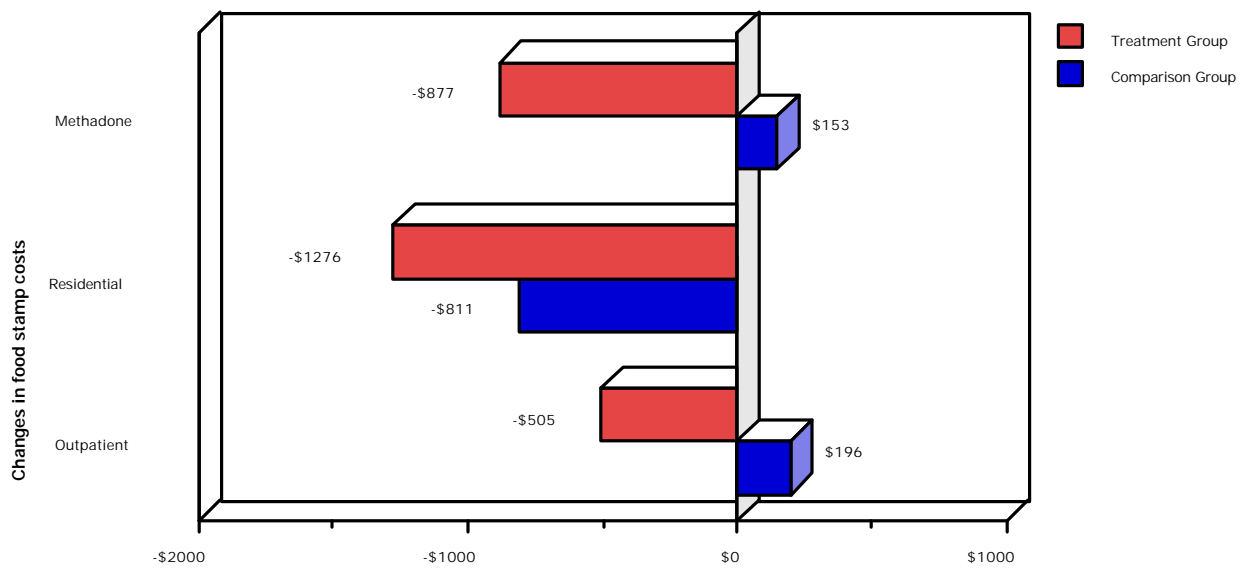
The above data reflect the total increase in food stamp assistance per hundred clients in the period subsequent to treatment. As such, it includes persons who were not receiving food stamps in the pre-treatment period. One aspect of residential treatment, which involves more “case management,” is an effort to ensure that clients receive food stamps if they are eligible. Residential providers actually receive food stamps as income for their programs during the period that clients are in residency, motivating residential providers to apply for food stamps for any eligible client who is not currently receiving them. Residential clients may also be encouraged to change employment as a treatment option, thereby potentially increasing food stamp usage temporarily.

<sup>1</sup> Effect of treatment completion vs.. non-completion on decreases in food stamp assistance:  $F=3.2$   $p=.07$ .

These factors tend to produce temporary increases in food stamp use by residential treatment completers (and by methadone completers as well).

A separate analysis was undertaken to look at only those clients who had a record of food stamp assistance in the pre-treatment period in order to isolate the specific effects of treatment on food stamp assistance. Records of these clients were examined for both pre-treatment and three year post-treatment periods.

**FIGURE 10**  
**Changes in food stamp assistance<sup>1</sup>**  
**(Pre-treatment to post-treatment)**  
**By treatment modality**



All three treatment completion groups showed dramatic decreases in their use of food stamps in the three-year period subsequent to the completion of treatment. All the decreases are significant beyond the .01 level. Clearly, treatment completion is associated with a dramatic drop in food stamp use for those clients who used food stamps in the pre-treatment period. Oddly, the residential non-completers who were on food stamps in the pre-treatment period also showed a decline in food stamp assistance (although less than the matched treatment completing clients). One possible explanation is that since this group is arrested and convicted at much higher rates than any of the other groups (see previous graphs in the criminal justice section of this report), they perhaps spend enough time in jail or on the run in the subsequent period to significantly reduce their ability to use food stamps.

<sup>1</sup> Effect of treatment completion vs.. non-completion on decreases in food stamp assistance:  $F=3.2$ ,  $p=.07$ .

## **Children's Services Division<sup>1</sup> Involvement**

Data from Adult and Family Services' files were used to determine whether clients in these samples were connected to cases in which the Children's Services Division had become involved. Although CSD involvement implies that some kind of child mistreatment may be occurring, assessing the actual responsibility of the sample clients is complex. It is not always possible to know absolutely that a particular client is at fault in a case. Nonetheless, CSD cases are costly to the taxpayer even to investigate, and because the purpose of this study is to examine where costs were avoided, these data are included.

Results show the following: the percentage of treatment completers with CSD (Children's Services Division) involvement decreased from 7.8% before treatment to 3.9% after treatment, a 50% reduction; the percentage of non-completers with CSD involvement decreased from 7.6% before treatment to 5.9% after treatment, a 22% reduction. Whether, in individual cases, the decrease is due to the effects of treatment completion per se is conjectural, but the avoided costs to taxpayers for the group of treatment completers can be assessed.

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<sup>1</sup> Very recently CSD has changed its name to SCF (State Office for Services to Children and Families).

## Medical Costs

Medical claims for public assistance were available through the Office of Medical Assistance Programs (Medicaid) in the Oregon Department of Human Resources. Data were searched for claims from the 1989 to 1995 period.

**TABLE 3**  
**Increases in medical claims<sup>1</sup>**  
**By treatment modality**

<b>GROUP</b>	<b>PRE-TREATMENT COSTS</b>	<b>POST-TREATMENT COSTS</b>	<b>INCREASE IN MEDICAL COSTS</b>
<b>Outpatient Comparison</b>	\$495	\$1114	\$619
<b>Outpatient Treatment</b>	\$480	\$1007	\$527
<b>Residential Comparison</b>	\$133	\$489	\$356
<b>Residential Treatment</b>	\$213	\$403	\$190
<b>Methadone Comparison</b>	\$803	\$4812	\$4009
<b>Methadone Treatment</b>	\$1845	\$2194	\$349

All categories of clients showed increases in paid claim amounts from the pre-treatment period to the post-treatment period. However, in all cases the increases for clients who completed treatment are lower, often substantially lower than for those who were non-completers. The results particularly illustrate the staggering expense to the medical system of opiate-using clients who are candidates for methadone treatment but who fail to remain in treatment.

A situation that brings complexity to the interpretation of these data is the tendency of some clients who complete treatment to use medical facilities more initially following treatment than they had before, as their new clean and sober status allows them to tend to unmet medical needs. Another complexity affecting these data is that the 1991–92 period was one in which a number of slots for pregnant women were opened, particularly in residential treatment. As a result, many of the women who completed treatment filed numerous medical claims in the post-treatment period reflecting the expenses surrounding their pregnancies. When the analysis of claims is separated by gender, a clearer pattern emerges.

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<sup>1</sup> Effect of treatment completion vs.. non-completion on increases in medical costs: F=5.5, p=.02.

**TABLE 4**  
**Post-treatment paid medical claims**  
**By treatment modality and gender**

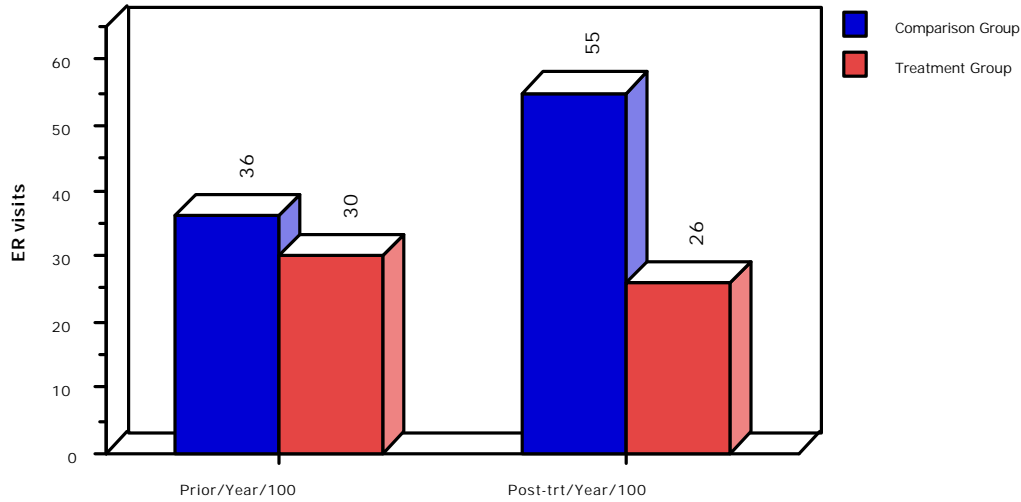
<b>GROUP</b>	<b>MALE</b>	<b>FEMALE</b>
<b>Outpatient Comparison</b>	\$1015.04	\$1333.58
<b>Outpatient Treatment</b>	\$890.74	\$1245.73
<b>Residential Comparison</b>	\$323.89	\$786.07
<b>Residential Treatment</b>	\$141.89	\$883.74
<b>Methadone Comparison</b>	\$2572.74	\$6433.42
<b>Methadone Treatment</b>	\$757.07	\$3096.26

Female paid claims for treatment completers are considerably higher than for males (particularly in residential care). The difference is at least partly an artifact of the preference given to pregnant women who entered into the treatment system during this period (1991–1992) and completed treatment.<sup>1</sup> When only male clients are examined, the reduction in paid claims accruing from treatment completion is apparent across all treatment modalities.

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<sup>1</sup> This information came from a canvas of treatment providers.

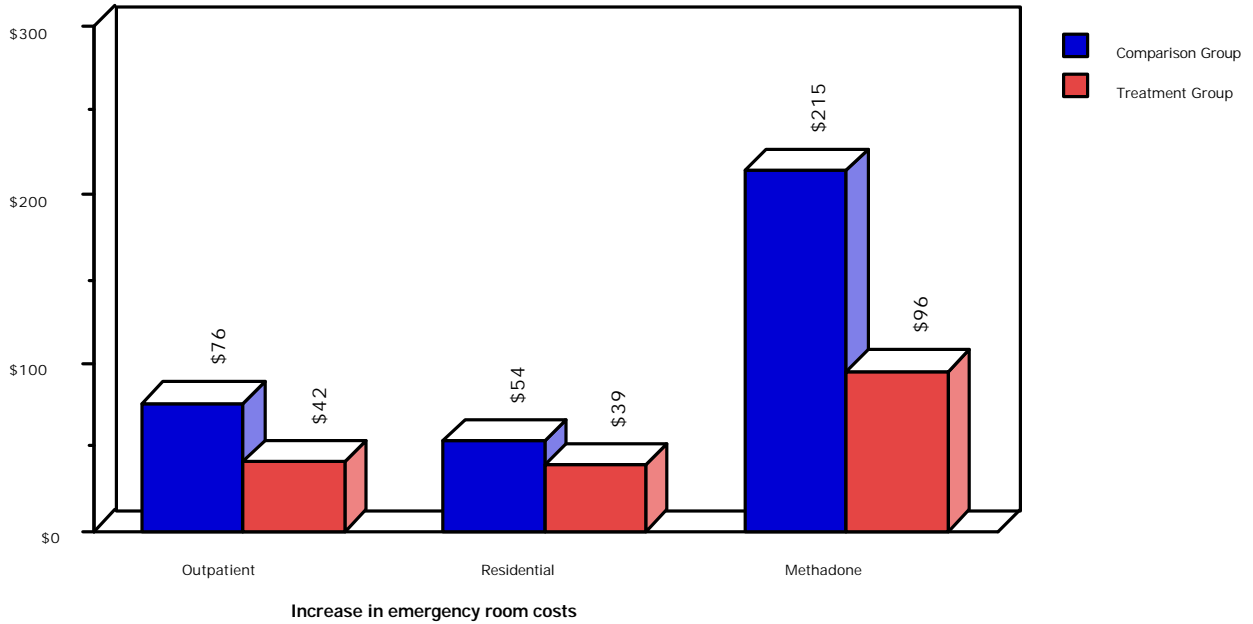
**FIGURE 11**  
**Number of Emergency Room Visits per Year per Hundred Clients**  
**(Pre-treatment to post-treatment)**



The national research literature indicates that impoverished alcohol and drug clients tend to use hospital emergency room services for routine care rather than using these services only in true emergencies. The data for Oregon clients show a dramatic increase in the use of the emergency room during the period following treatment by those who did not complete treatment compared to a slight decrease of emergency room use by those who did complete treatment. In the post-treatment period, treatment completers had 53% fewer emergency room visits than clients who did not complete treatment.

It follows that the cost of claims for emergency room use were less for the treatment group than for the comparison group. (see Figure 12)

**FIGURE 12**  
**Emergency room costs<sup>1</sup>**  
**(Pre-treatment to post-treatment)**  
**By treatment modality**



The average cost increase in emergency room claims for those who completed treatment was lower than the increase for non-completers in all modules. The cost increase for outpatient treatment completers was 45% less, for residential completers it was 30% less, and for methadone completers it was 55% less than for the clients in the respective comparison groups.

<sup>1</sup> Effect of treatment completion vs.. non-completion on increases in emergency room costs: F=10.3, p=.001.



## COSTS AND AVOIDED COSTS OF TREATMENT

### Method

Current research has calculated the benefits of treatment primarily by focusing on “avoided costs.” These are costs that would have accrued had the alcohol or drug clients not received treatment. This approach is used in this study.<sup>1</sup>

The specific strategy used here is a “Cost to Taxpayers” approach that focuses on the costs related to untreated substance abuse that come directly from the pockets of taxpaying citizens. The focus is not so much on the benefits (or avoided costs) to successful substance abuse treatment completers in their own lives as it is on the benefits (or avoided costs) to non-substance abusing citizens. In this approach, any cost that is the result of untreated substance abuse and that directly impacts a citizen (either through tax-related expenditures or the results of being a victim of a crime perpetrated by a substance abuser) is used in calculating the avoided costs of substance abuse treatment.

### Avoided Costs to Taxpaying Citizens

In assessing the avoided costs resulting from the positive outcomes of treatment described earlier, we have defined the following as costs:

**Criminal Justice System Costs:** the cost of police protection services, prosecution, adjudication, public defense, and corrections (incarceration and parole/probation).

**Victim Losses:** victim expenditures on medical care, repairs of damaged property, and lost time from work that results from predatory crimes.

**Theft Losses:** the estimated value of property or money stolen during a crime, excluding any property damage or other victim losses.

**Health Care Service Utilization:** the economic cost to the taxpayer in public assistance of inpatient, outpatient, and emergency medical care, and inpatient and outpatient mental health care that could have been avoided.

**Public assistance:** the economic values of such public assistance as food stamps, emergency assistance, public disability payments, and other public assistance

The following sources have been used. Wherever it was possible, actual Oregon data were used in the calculations of costs.

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<sup>1</sup> In examining costs, current research has distinguished two main strategies: “Costs to Society” and “Cost to Taxpayers” (see CALDATA, 1994; Rice, et al 1990, Harwood, 1984). The “Costs to Society” strategy measures the avoided costs accruing from substance abuse treatment in terms of the loss to society’s net productivity. The net loss of productivity and income because of drug or alcohol abuse is measured and used as a benefit (avoided cost) of treatment. The value of goods stolen by substance abusers who commit crimes is viewed simply as an economic transfer (from one pocket to another) and no net loss to society. Although the approach has some value, it is not used in this study.

**TABLE 5**  
**Data sources**

<b>Components</b>	<b>Sources of Data</b>
<b>CRIMINAL JUSTICE</b>	
Police Protection from Crime	Oregon data from Bureau of Justice Statistics, 1991
Adjudication	Data from a sample of local courts and Oregon data from Bureau of Justice Statistics
Jail	Sample of five Oregon jails includes booking record data
Corrections	Oregon Department of Corrections, data on sample from Oregon Department of Corrections' Offender Profile System
Victim Costs	Center for Substance Abuse Prevention data on Oregon Bureau of Justice Assistance Criminal Victimization Report,
1991	
<b>HEALTH</b>	
Hospital Costs	Office of Medical Assistance Programs (OMAP) data
Physician Costs	OMAP data
Emergency Room	OMAP data
<b>PUBLIC ASSISTANCE</b>	
CSD	Data from Adult and Family Services (AFS) system
Employment	Data from AFS system
AFS	Data from AFS system. Archived data on micro-fiche/case

The method of calculating the costs involved has been kept similar to that used in the CALDATA study for purposes of comparison.

## RESULTS

The process of gathering and analyzing these data has been complex. However, the following conservative estimations can be made using the completed analysis of costs per person and the total avoided costs to Oregon taxpayers for the 1991–1992 cohort of drug treatment completers:

**TABLE 6**  
**Avoided costs by treatment module**

<b>MODULE</b>	<b>COST PER PERSON</b>	<b>1991-92 CLIENTS COMPLETING TREATMENT</b>	<b>TOTAL SAVINGS</b>
<b>OUTPATIENT</b>			
Comparison	\$22,047		
Treatment	\$13,938	6275	
<b>SAVINGS</b>	<b>\$8,109</b>	X 6275 =	\$50,884,666
<b>RESIDENTIAL</b>			
Comparison	\$30,039		
Treatment	\$18,494	2651	
<b>SAVINGS</b>	<b>\$11,545</b>	X 2651 =	\$30,604,523
<b>METHADONE</b>			
Comparison	\$31,763		
Treatment	\$20,484	147	
<b>SAVINGS</b>	<b>\$11,279</b>	X 147 =	\$1,657,998
<b>TOTAL</b>			<b>\$83,147,187</b>

We can estimate that the 1991–1992 cohort of treatment completers (for residential, outpatient, and methadone modules combined) produced avoided costs to Oregon taxpayers of \$83,147,187 in the two and a half years of full data collection from 1992–1995. It should be noted that these are the cost savings produced by treatment completers only. There is another group of clients (who were not part of this study) who received a good deal of treatment in the 1991–92 FY, but who did not complete treatment. From the data on employment (Figure 7) and from other research, we can expect this group of clients to also have positive societal outcomes and avoided costs. This indicates that the avoided cost estimates are conservative.

The costs can be distributed in the following way among these cost categories.

**TABLE 7**  
**Avoided costs categories**

<b>CATEGORY</b>	<b>AVOIDED COSTS</b>
Criminal Justice	\$21,222,945
Public Assistance	\$3,222,963
Victim	\$23,480,512
Theft	\$35,220,767
Total	\$83,147,187

Approximately \$24,450,000 of the total are costs avoided by state and local governments. These are costs that would have to be assumed by these governmental budgets if treatment completion had not occurred. The costs include increased expenditures for police protection, court costs, supervision costs, jail and prison costs,<sup>1</sup> increased medical assistance, food stamps, and other public assistance. Victim and theft costs represent the probable cost resulting from increased criminal activity to taxpaying citizens from their own pockets. It should be noted that in all cases where actual costs could not be measured, the estimates are conservative. In addition, access to some avoided cost data (such as unemployment compensation data) was unavailable. It is likely therefore that these figures represent the minimum savings.

### **The Costs of Treatment vs.. the Cost Savings of Treatment**

According to figures from the Office of Alcohol and Drug Abuse Programs, an estimated \$14,879,128 in tax money was spent on the 1991–1992 cohort of clients who received treatment. With the estimated total of \$83,147,187 of avoided costs savings, we calculate that every taxpayer dollar spent on those who completed treatment in 1991–1992 produced \$5.60 of avoided costs savings to the taxpayer. Furthermore, additional (unknown) savings presumably accrued from those clients who received a good amount of treatment but who did not complete treatment.

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<sup>1</sup> It has been argued that some fixed costs for jails and prisons should not be included in these estimates since some additional new prisoners might be absorbed into the system. However, here we are estimating the impact of thousands of new arrests and convictions on an already overcrowded jail and prison system, making necessary the building of new jails and prisons.

## **CONCLUSION**

These results, similar to results found in studies in other states, suggest that successful drug and alcohol treatment can have positive societal outcomes. While previous studies have shown the positive effects of treatment for the time period of one year, this study indicates that these gains are sustained over longer periods of time (up to three years). By using existing state databases rather than self-reported data (often used in other studies), this study has the advantage of providing estimates of actual behavior (arrests, food stamp use, etc.). Taken together, this study and others that have preceded it, represent a strong case that drug and alcohol treatment does have positive societal benefits. Using an avoided cost estimates approach, we have been able to estimate the cost savings to taxpayers, either directly in their avoidance of criminal losses or indirectly in the avoidance of the expenditure of their tax dollars, which accrue from the positive societal outcomes of treatment.