



# STEPS TO SUCCESS

*Baltimore Drug and Alcohol Treatment Outcomes Study*

A report submitted to Baltimore Substance Abuse Systems, Inc.

January 24, 2002

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The report you are about to read, commissioned by Baltimore Substance Abuse Systems, Inc. (BSAS), shows conclusively that drug treatment is effective in Baltimore City. It is tempting, when presented with research of this caliber, to trumpet its findings with great fanfare; but addiction is nothing to celebrate. Many addicted Baltimore residents lead lives of quiet desperation, shielded from public view except when drug-related crime makes the front page of the morning paper.

For years, Baltimore has cited national studies on the effectiveness of drug treatment. Three years ago, we began our DrugStat program to closely monitor treatment program outcomes in order to strengthen performance. Now we have the first system-wide analysis demonstrating that, in Baltimore City, treatment works. In 1999, Baltimore City and the Maryland General Assembly began a partnership to substantially increase investment in drug treatment. This commitment, if fulfilled, would increase by \$25 million funding for Baltimore City's treatment system. Any wise investor would seek evidence that his/her dollars are well spent. This new data is proof of the logic and public health benefit of making treatment available "on demand."

This study shows that, as we continue to invest in drug treatment, we can expect dramatic reductions in crime, overdose deaths and drug-related emergency room visits. We are more confident than ever of the effectiveness of drug treatment and are armed with findings that prove what treatment practice and common sense have told us. As a result, we must redouble our efforts to provide drug treatment for all who need it.

We are indebted to the University of Maryland, Johns Hopkins University, and Morgan State University for their collaboration and commitment to excellence. Finally, I would like to offer a special thank you to the treatment providers of Baltimore City who labor long hours to meet incredible demand.

And yet, we cannot pause long to celebrate nor indulge much in congratulation, for with this data comes a public health responsibility to make "treatment on demand" a reality. I am heartened to open this new year, a fresh legislative session before us, with the much-anticipated release of the Baltimore Drug and Alcohol Treatment Outcomes Study. May it strengthen our convictions that our work makes a difference.

Peter L. Beilenson, M.D., M.P.H.  
Baltimore City Health Commissioner  
Chairman of BSAS Board of Directors

# **The Baltimore Drug and Alcohol Treatment Outcomes Study**

A Report Submitted to Baltimore Substance Abuse System by:

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## Evaluation Team

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As Principal Investigator, Dr. Johnson was responsible for the overall conduct of the study. Along with the evaluation team she participated in the design and methodology of the study. Dr. Johnson supervised the research assistants and data entry staff and was responsible for supervision of the data collection and data entry. She worked with Walter Powell and Jim Graham from Baltimore Substance Abuse Systems to create the data entry and transmission systems. She worked on the data analysis team with Bradford Plemons and Dr. Ashraf Ahmed. Finally, she was the principal author of this report.

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Dr. Ahmed conducted all of the data analysis for this project along with Dr. Johnson and Mr. Plemons. He worked with Dr. Hill on obtaining data from the Maryland Department of Public Safety of Correctional Services. He helped to edit the final report.

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Mr. Plemons assisted Dr. Johnson in the quality control of the data and in supervising the research assistant staff. He also played an integral role in the data analysis and wrote sections of the report.

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Dr. Schwartz, while at the University of Maryland, worked with the team in developing the study design, methodology and conceptualization of the data analysis. He also helped to write sections of the report based on the data analysis conducted by Dr. Johnson, Dr. Ahmed and Mr. Plemons.

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Mr. Graham, while the Director of Management Information Systems at BSAS worked closely with Dr. Johnson as liaison to the participating drug treatment programs. He also worked closely with Mr. Powell in creating and operating the data entry and transmission system created for the project.

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Dr. Brooner provided initial consultation on study design and methodology. In the first year of the project, he directed the assessment training for research staff and was responsible for developing the initial payment procedures for study participants. In the final stage of the project, he edited and wrote sections of the report, based on the final set of data analyses provided by Drs. Johnson and Ahmed and Mr. Plemons.

## Acknowledgements

We thank the hundreds of treatment participants who gave their time to this study. We wish them success in confronting their alcohol and drug problems. We salute Dr. Peter Beilenson and former Mayor Kurt Schmoke whose vision galvanized Baltimore to support treatment on demand and who initiated this project with Baltimore Substance Abuse Systems to evaluate and continually monitor and improve treatment efforts in the city.

The Directors of the participating treatment programs and their staff deserve great credit for supporting this work in their clinics. Baltimore Substance Abuse Systems (BSAS) was an outstanding research partner. We extend our heartfelt thanks to Andrea Evans, Bonnie Cypull, Jim Graham and Walter Powell and the many others who, while at BSAS, moved the project forward with grace and competence.

**Finally, we offer our thanks to Mayor Martin O'Malley for continuing support for these treatment efforts and to the many State officials who have made support for treatment throughout Maryland a top priority in order to save lives and money, prevent disease, reduce crime, and improve the quality of the lives of our citizens, families and communities.**

# Executive Summary

## Introduction

The Baltimore Drug and Alcohol Treatment Outcomes Study is the largest and most rigorously conducted drug treatment outcomes study that focuses on a single city. It is one of the key components of Baltimore's strategy to rigorously evaluate and continuously improve the public treatment system, as it expands to meet the needs of the city's uninsured citizens. Overall, the study found a marked reduction in drug and alcohol use, crime, risky health behaviors and depression among participants who voluntarily entered publicly funded outpatient drug and alcohol programs in Baltimore City. This comprehensive study is the result of an unprecedented collaboration among the University of Maryland, Johns Hopkins University and Morgan State University, with the cooperation of 16 treatment programs and nearly 1,000 treatment participants. Baltimore Substance Abuse Systems, the agency responsible for publicly funded treatment in the city, funded the study.

## Methodology

The data included in these analyses represent findings from 991 uninsured Baltimore City residents who voluntarily entered outpatient drug and alcohol treatment through 16 publicly funded programs from 1998-1999. Two kinds of programs are included in the study, those that treat heroin addicted individuals with methadone and counseling and those that treat alcohol, heroin, cocaine and other drug users with counseling only. All study participants provided informed consent and completed an initial assessment; the 991 reported in detail here also returned for at least one treatment session. Since this subset of 991 participants may have received as few as one treatment session, treatment outcomes represent conservative estimates of the benefits of treatment. In keeping with the methodology of earlier national studies, participants' self-reported behaviors at treatment entry were compared with those reported at one, six, and 12 months thereafter. While self-reports under confidential research conditions have been shown to be generally valid, investigators also examined objective measures of drug use and crime, including urine drug tests and official arrest and imprisonment records.

## Participants

The average participant in the Baltimore Drug and Alcohol Treatment Outcomes Study was 37 years old. Nearly 50 percent were women and 85 percent were African-American. Three-quarters of the clients treated were unemployed and had an average annual income well below the poverty line, indicating that the public treatment system is fulfilling its mission to serve individuals who otherwise could not afford to enter drug treatment. On average, participants reported using heroin on 18 of the 30 days prior to entering treatment entry, using cocaine on six of 30 days and drinking to intoxication on four of 30 days. Given the difficulty women often face in entering treatment, the large proportion of women who participated in the study indicates that stigma surrounding substance abuse is not an insurmountable barrier to seeking treatment.

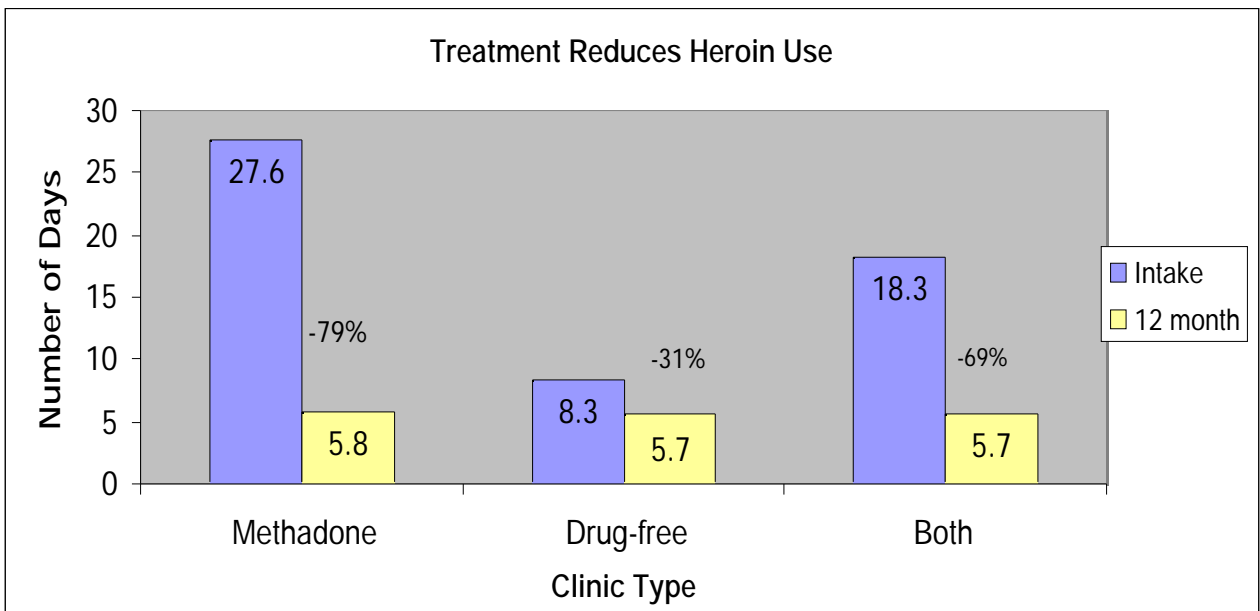


## Reduction in Drug Use

Overall drug use among participants was significantly reduced as early as 30 days after treatment and remained below the pre-treatment levels at 12 months. These reductions in drug use are consistent with those found in large multi-city trials that have been conducted over the past 20 years. Urine drug testing confirmed over 70 percent of the self-reports of cocaine abstinence and over 75 percent of the self-reports of heroin abstinence. These high rates of agreement between self-reported drug use and urine results are also consistent with earlier studies and support the accuracy of self-report data.

Heroin use declined at statistically significant rates for all treatment participants. Over the first 30 days of treatment, heroin use declined by 72 percent. This improvement was sustained at 12 months after intake (69 percent). Clients enrolled in methadone programs used heroin three times more frequently in the month prior to intake than clients enrolled in drug-free treatment. The decline in heroin use was greater for those enrolled in methadone programs at the one, six and 12 month follow-up interviews than for those enrolled in drug-free treatment.

Despite the widely recognized difficulty associated with discontinuing heroin use, drug treatment was associated with a remarkable and sustained reduction in heroin use up to one year from treatment entry. Heroin use contributes significantly to overdose death, emergency room visits and associated infections such as hepatitis B and C and HIV. The proven effectiveness of heroin treatment underscores the need for treatment capacity in those programs.

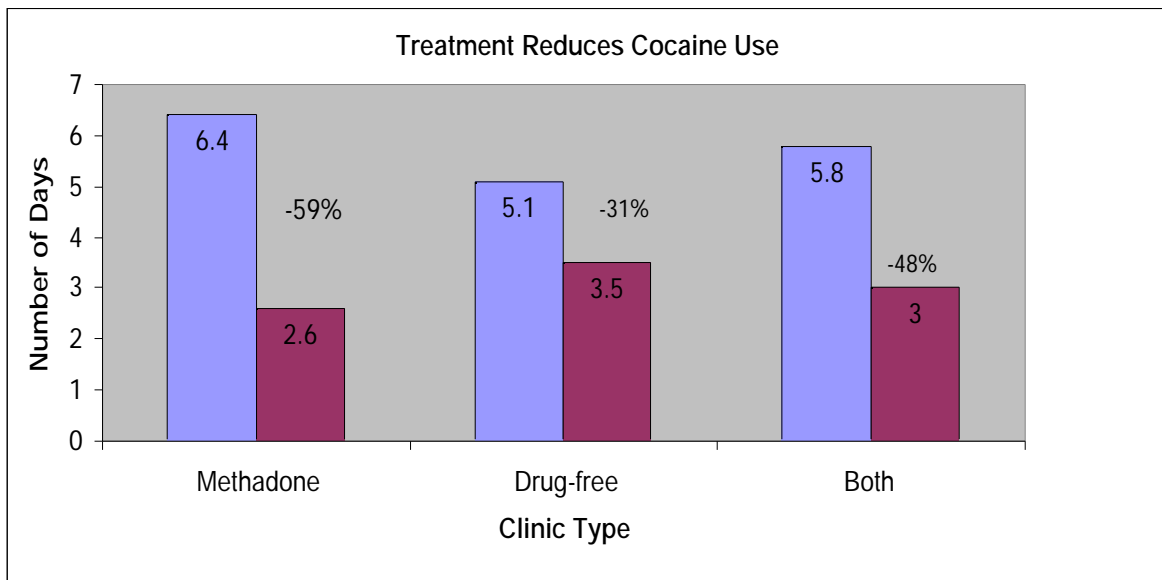


*This Figure shows the average number of days clients used heroin within the past 30 days prior to intake assessment and 12 months after initiating treatment services.*

## Cocaine Use

There was a statistically significant decrease in participants' cocaine use over the 12 months following treatment entry. Cocaine use declined by 64 percent at 30 days from intake, 43 percent at six months and 48 percent at 12 months. Clients enrolled in methadone treatment had a higher baseline level of cocaine use (6.4 days) than those enrolled in drug-free treatment (5.1 days). There was a greater decrease in cocaine use among participants in drug-free programs compared to participants in methadone programs over the first 30 days of treatment (70 percent vs. 59 percent). Although both groups maintain improvement at six and 12 months, cocaine use declined at a lower rate among participants in drug-free treatments than among those in methadone clinics.

The erosion in improvement for drug-free clients is probably due to the higher dropout rate seen in these clinics compared to methadone programs. Treatment retention has repeatedly been linked to improved outcomes. Efforts by Baltimore to improve treatment retention, such as its Drug Stat Program in which outcomes are reviewed monthly by the treatment program directors, BSAS staff and the Health Commissioner to hold programs accountable and improve performance, are therefore critical to increased success.

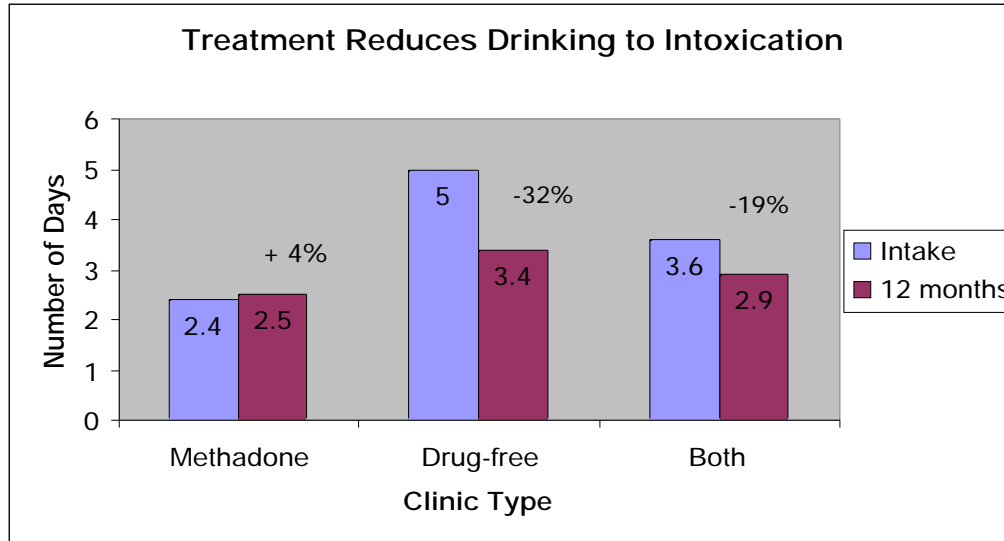


*This figure shows the average number of days clients used cocaine within the 30 days prior to intake assessment and the 12 months after initiating treatment services.*

## Reduction in Alcohol Use

The study finds a statistically significant reduction in overall alcohol use during the 12 months following treatment entry. The average number of days of drinking to intoxication declined by 64 percent at one month after intake and 34 percent at six months. By 12 months after intake, participants reported drinking to intoxication 19

percent less than they had at intake. These findings indicate that treatment significantly reduces heavy drinking over the first month of treatment and, though the improvement attenuates over time, heavy drinking remains considerably less frequent (19 percent) even after one full year after the start of treatment. Participants treated in drug-free programs had greater alcohol problems at baseline and showed greater and more sustained improvement than those participants enrolled in methadone treatment.

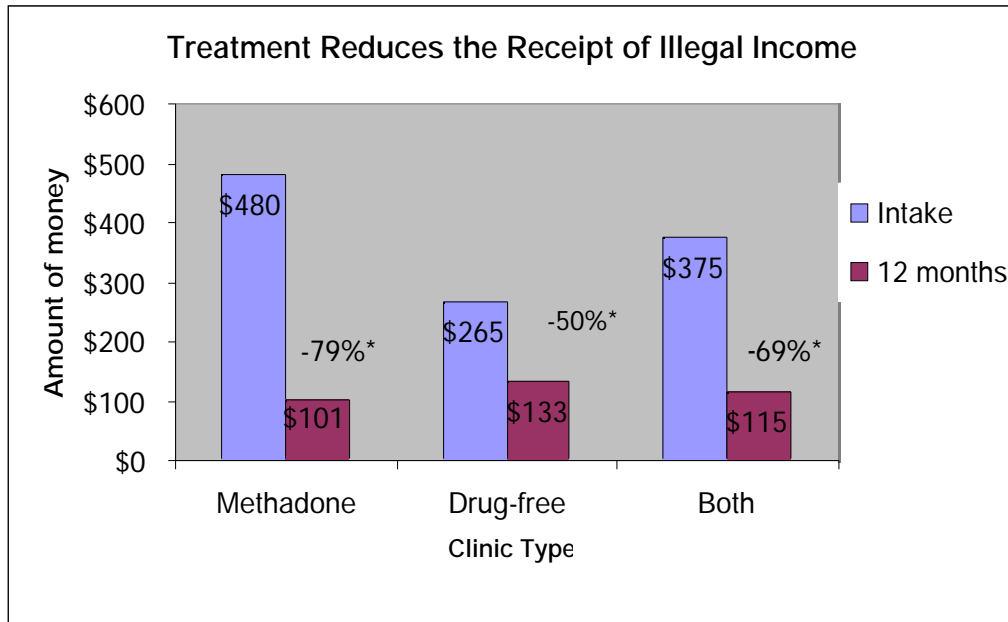


*This figure shows the average number of days clients drank to intoxication within the 30 days prior to intake assessment and the 12 months after initiating treatment services.*

### **Reduction in Crime**

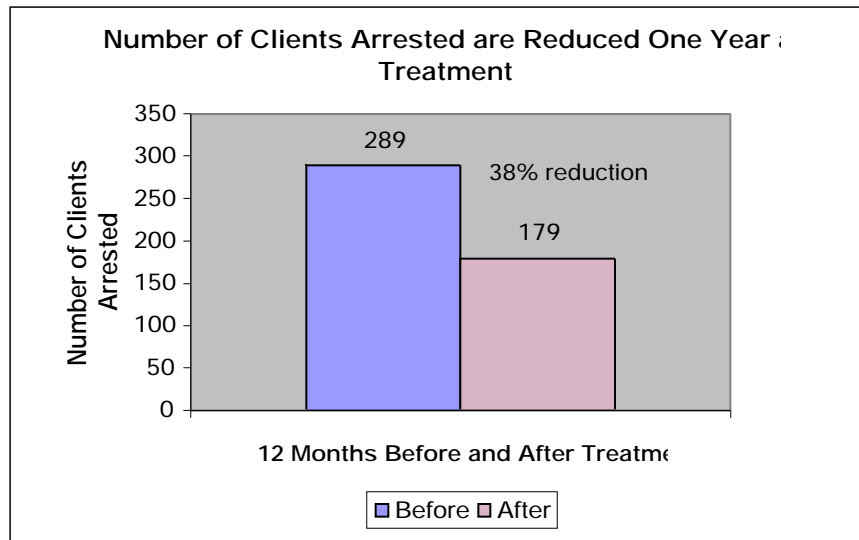
Researchers and law enforcement experts have linked the illegal nature of behaviors associated with drug addiction to crime. The legal problems of study participants improved significantly over the 12-month study follow up period, confirming previous national studies that indicate that addiction-related crime decreases significantly as a result of effective treatment.

Participants engaged in illegal activities 64 percent less at 12 months after treatment entry. Participants also significantly reduced the amount of illegal income they received by 77 percent at one month after treatment entry. At 12 months after treatment entry, the amount of illegal income remained low at 69 percent below levels at the start of treatment. This decrease occurred among participants in both kinds of treatment, although the methadone participants started at a higher level of illicit income and improved more markedly than the drug-free clients. The other self-reported drops in crime days, illegal income and drug use all underscore the importance of drug treatment as a key part of Baltimore's crime reduction strategy.



*This figure shows the amount of illegal income received by the clients in the 30 days prior to intake and the 12 months after initiating treatment services.*

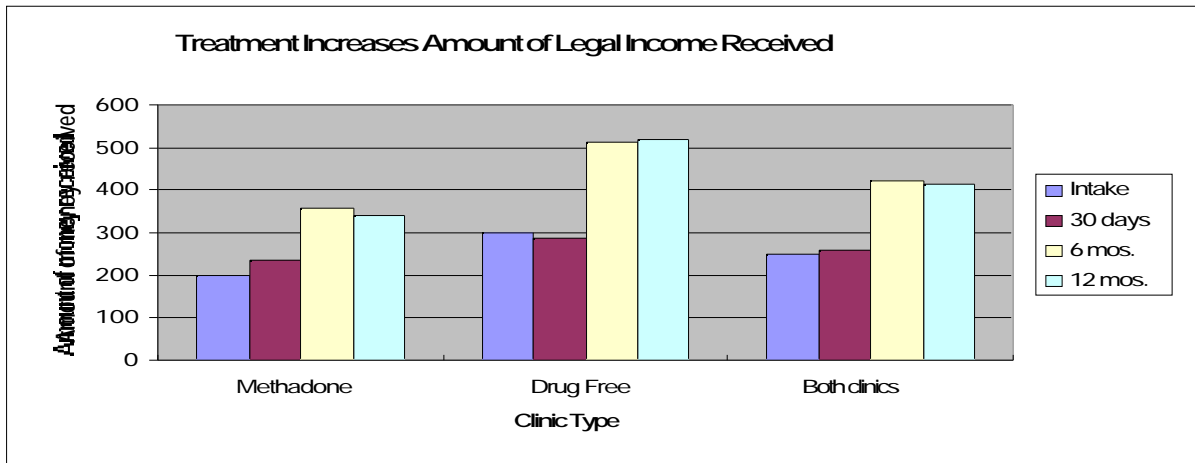
Official arrest records show a 38 percent decline in the number of treatment participants whose arrest led to an imprisonment in the 12 months prior to treatment (289 participants) compared to the 12 months after treatment entry (179 participants). These data must be considered preliminary, as there is often a time lag for sentencing, which results in an underreporting of the number of imprisonments during the follow-up period. Future reports, using additional data will update these preliminary findings.



*The preliminary data in this figure are restricted to a subgroup of clients who were found guilty of crimes that led to imprisonment by the Division of Corrections.*

## Increased Earned Income

Treatment participants worked 52 percent more and earned 67 percent higher wages in the 30 days prior to the 12-month follow-up interview than they did in the 30 days prior to entering treatment. These improvements included "off the books" employment, which constitute an important source of income for marginalized populations. This informal labor market does not include illegal income but is characterized by a lack of health and other benefits, poor job stability and low pay. Though participants' income increased to an average of \$415 per month, it remained considerably below the poverty level.



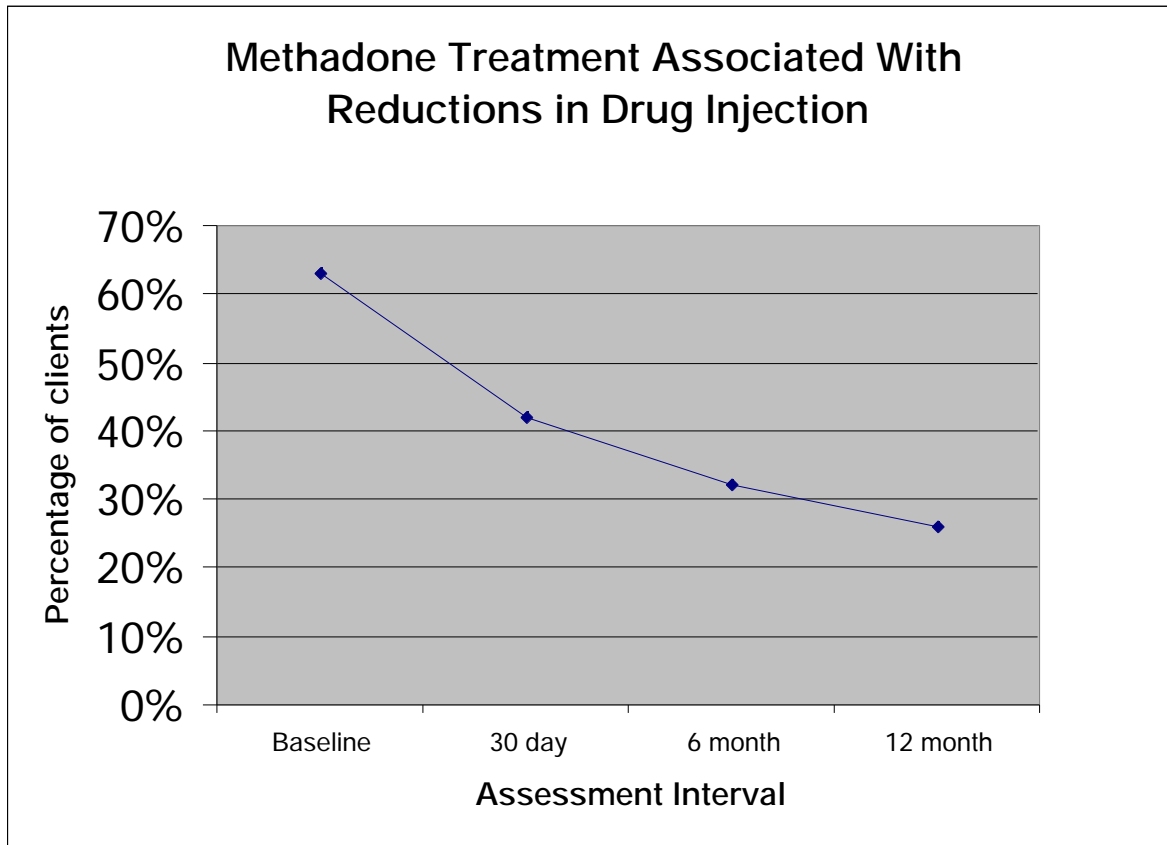
*This figure shows the increase in the average amount of money earned within the past 30 days at each assessment period, separated by the type of clinic the client attended; then, both clinics are combined for an average of the clinics.*

## Decreased Depression

A substantial minority of people enrolling in drug and alcohol treatment had symptoms of depression at treatment entry. Study findings show a statistically significant decrease in depression scores across the study's follow-up intervals. Participants enrolled in methadone programs had more severe depression and more marked improvement than people treated in drug-free clinics. While many symptoms of depression improve with abstinence from drugs or alcohol, it is important to have anti-depressant medications and psychotherapy available for those clients whose depression does not spontaneously remit after drug and alcohol treatment alone.

## Reduction in HIV Risk Behavior

Alcohol and drug dependence increases the risk of transmitting HIV, Hepatitis B and C and other sexually transmitted diseases through sharing injection equipment and unsafe sex. Study findings show a 59 percent reduction in drug injection among methadone clients at 12 months from the start of treatment. These robust reductions in drug injection reduce the risk of disease transmission.



*This figure shows data from methadone clinics and is based on the response to the question, "Have you injected drugs in the past 30 days?" All time points cover the 30 days immediately preceding the evaluation.*

Shooting galleries are buildings in which intravenous drug users congregate. They are a site of the spread of HIV, hepatitis and other sexually transmitted diseases through sharing of needles and other drug paraphernalia, as well as through trading sex for drugs. There was a statistically significant decline in the number of participants frequenting shooting galleries over the 12 months after entering treatment.

## Benefits of Treatment- on-Demand

The benefits of treatment-on-demand for alcohol and drug dependent people can be measured by comparing participants' behaviors during the 30 days before they entered treatment with those reported in the first 30 days after entering treatment. Based on the average drop in drug use and crime in the first 30 days of treatment compared to the 30 days prior to treatment entry, treatment of an additional 1,000 people per year avoids: 164,000 days of heroin use, 45,600 days of cocaine use, 63,600 days of crime and \$3.2 million in illegal income.

## Negative Impacts on People and Society Resulting from Delays in the Onset of Treatment Services (for 1,000 people)

Behavioral Domain	30-Day Delay	6-Month Delay	12-Month Delay
<u>Additional Drug Use</u>			
Days of Heroin Use	13,700	82,200	164,400
Days of Cocaine Use	3,800	22,800	45,600
<u>Additional Crime</u>			
Days of Crime	5,300	31,800	63,600
Illegal Income	\$267,850	\$1,607,100	\$3,214,200

## Conclusions

The findings of Baltimore Drug and Alcohol Treatment Outcome Study are compelling as they confirm and build upon the results of other nationwide studies and upon documented trends in the past year in Baltimore (e.g., decrease in drug-related emergency room visits, overdose deaths and crime). Even after one year from treatment entry, participants significantly reduced their heroin, cocaine and alcohol use, decreased the number of crimes they committed, improved their psychological functioning, increased their legal income and reduced their risk of getting and transmitting life threatening diseases such as HIV and hepatitis. These findings support the efforts of the City of Baltimore and the State of Maryland to expand and improve the city's treatment system. Expanding the capacity of the public system will enable all city residents to have rapid access to high quality treatment services resulting in improved health and well-being for them, and their families and communities.

