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METHAMPHETAMINE IN MICHIGAN: ISSUES AND INTERVENTIONS

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Submitted to:
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Methamphetamine in Michigan: Issues and Interventions

Background

Methamphetamine abuse and manufacture has become an increasingly serious problem across the United States in recent years. Known more commonly as "meth," the drug is a type of synthetic stimulant that affects the body's central nervous system, and is highly addictive. The consequences of methamphetamine abuse are particularly serious in that not only is the drug very addictive but chronic use can result in significant and potentially irreversible damage to the brain. Methamphetamine works by stimulating excess release of dopamine, a neurotransmitter that is instrumental in regulating feelings of pleasure in the body. Users may smoke, inhale, inject or swallow meth, depending on the form of the drug at the time of use. The effects of meth may last up to 8 hours. Users often develop a tolerance to the effects and then increase the frequency and/or dosage of the drug that is needed in order to get high. According to an ONDCP report meth users tend to be white males, with an average age of 29. Users typically come from a low or low to middle socioeconomic group and many are unemployed.

Methamphetamine was originally developed for treatment of respiratory problems in the 1930s. The American Medical Association approved the use of amphetamines to treat a variety of ailments including ADD, Parkinson's, depression and narcolepsy. (Hunt, et. al, 2006) The effects on sleep and fatigue were recognized by the military and the armed forces in Japan and the United States utilized amphetamines and meth to combat fatigue. Available by prescription, more extensive civilian use commenced in the 1960s and was used by women for weight loss along with college students and truck drivers needing to stay awake for work or studying. In 1970, amphetamine and methamphetamine were classified as a Schedule II drug thus making them illegal to possess without a prescription. Until recently many of the precursors necessary to make meth were legal. In 2003 ephedrine was banned under the Ephedra Prohibition Act and in 2004 Oklahoma passed legislation restricting ephedrine/pseudoephedrine products and forced buyers to identify themselves at pharmacies where the product was now only kept behind the counter. Other states have adopted similar legislation. (Hunt et. al, 2006)

Despite these new laws, meth can be manufactured rather easily in clandestine or makeshift laboratories using inexpensive and readily available ingredients, allowing large quantities to be made at more affordable prices compared to other types of stimulant narcotics. The volatility of these labs creates extremely unsafe and often toxic and explosive situations. The highly addictive nature of the drug combined with the hazards associated with the makeshift labs has garnered increased attention from law enforcement agencies and treatment providers at both national and local levels.

Addiction Properties

According to NIDA, addiction is "a chronic, relapsing disease, characterized by compulsive drug-seeking and drug use which is accompanied by functional and molecular changes in the brain". (NIDA, 2002) Methamphetamine is a powerfully addictive stimulant. Like many similar stimulants meth users experience a "binge and crash" pattern. Tolerance for meth occurs quickly and users find themselves binging or using greater quantities more frequently to attempt to maintain the original high. (NIDA, 2002) Other "popular" stimulants include cocaine, crack, amphetamine, Ecstasy and Ritalin. In addition to addiction chronic users can display other symptoms of abuse including violent behavior, insomnia, delusions and paranoia. The route of administration for meth (dose and method of use) affects the

potential for addiction and negative effects to some extent. It is thought that ingestion, which results in a slower delivery and resulting high, may produce lower addiction rates. (TIP, 1999)

Cocaine and meth are considered structurally different although they have similar effects behaviorally and physiologically. While they both cause feelings of euphoria there are a few major differences between the two. Cocaine produces a high that lasts only 20-30 minutes compared to 8-12 hours for meth. Additionally, 50% of cocaine is metabolized and removed from the body in 1 hour while methamphetamine remains in the body for much longer leading to prolonged effects. (NIDA, 2002) Chest pains, strokes, seizures, hyperthermia and other potentially fatal physical effects are more likely to be seen in cocaine users rather than meth. (TIP, 1999) A comparison of cocaine and meth users found that, although both drugs are stimulants, they do not appeal to the same users. (Hunt et. al, 2006)

National Methamphetamine Trends:

In the past, both production and trafficking of methamphetamine occurred primarily in the Western states, particularly in California. More recently, however, the prevalence of the drug has spread eastward especially throughout the Midwest. While it is difficult to document the extent to which the methamphetamine problem has pervaded the United States, three indicators are routinely used to illustrate the scope of the problem: the number of meth labs seized, the number of meth related arrests, and self-reported meth usage.

Nationally, the number of meth labs that have been seized by federal law enforcement agencies saw a steady increase from the mid to late 1990s. According to the United States Department of Justice over 2,100 illegal labs were seized in 1999 compared to only 263 in 1994, an increase of almost 700 percent. While the National Institute on Drug Abuse (NIDA) has indicated that lab seizures across the country have slightly declined since 1999, it notes a dramatic increase in the seizure of meth labs in the Midwest since that time, providing further evidence that the meth has become a significant problem in this region. According to the DEA there were 12,139 meth lab incidents (labs, dumpsites, and chemical/glass/equipment) in 2005. This represents a 30% drop from 2004 (17,170 incidents). (www.usdoj.gov/dea/concern/map_lab_seizures)

According to the National Institute of Justice report on ADAM data, approximately 5% of arrested males and 9% of arrested females tested positive for methamphetamines at the time of their arrest in 2003 indicating their recent use of this drug. (NIJ, 2004)

The use of methamphetamine is certainly not limited to criminal offenders. Self reported use measured through the 2004 National Survey on Drug Use and Health indicated that nationwide almost 12 million individuals indicate that they have used methamphetamine. The Monitoring the Future survey of 12^{th} graders indicated a significant one year decrease in lifetime use in 2005 with 4.5% of the sample reporting any use. (Hunt et. al, 2006) Another youth survey instrument, the Youth Risk Behavioral Surveillance System (YBRSS) reported that national estimates for all grade levels in the survey were declining from 1999 highs.

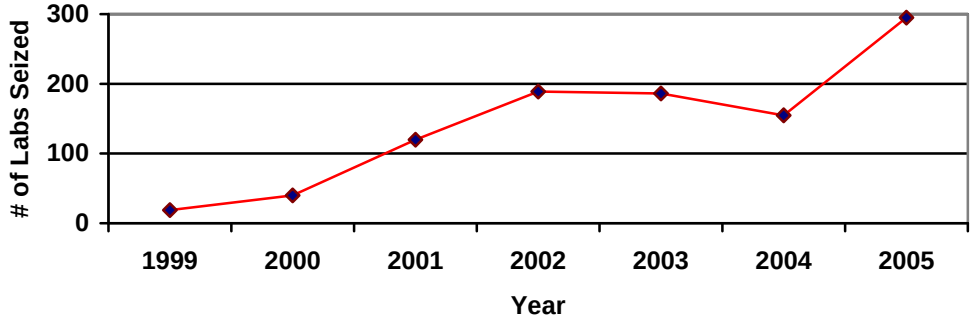
Data collected on treatment admissions with methamphetamine as the primary drug increased from 21,000 in 1993 to 117,000 in 2003. (NSDUH, 2005) The number of new methamphetamine users

(300,000) remained fairly constant from 2002-2004 according to the National Survey on Drug Use and Health (2005). The number of past month meth users who met criteria for abuse or dependence on one or more illicit drugs in the past 12 months increased from 164,000 in 2002 to 346,000 in 2004, a 59.3% increase.

Methamphetamine Trends in Michigan:

As noted above, there are many indications of the recent growth of methamphetamine use in the Midwest and Michigan is no exception to this regional trend. Figure 1 depicts the number of meth labs seized by the (Byrne funded) multi-jurisdictional task forces created to combat regional drug problems. With the exception of 2004, the number of labs seized has increased each year since 1999. Between 1999 and 2005 the number of meth labs seized has increase over 15 times to almost 300 in 2005. While the number of labs seized is certainly a reflection of the level of enforcement attention devoted to this problem, the fact that almost one lab per day was seized in 2005 certainly demonstrates the pervasiveness of this problem in Michigan.

Figure 1: Meth Labs Seized by State Drug Task Forces 1999-2005



In addition to meth lab seizures, the number of meth-related[1] arrests has also recently increased throughout the state. Available data measuring arrests by the drug task forces shows that there were 557 meth-related arrests in 2005 compared to 503 such arrests in 2004, an increase of approximately 11% over the past year. While these numbers provide a brief snapshot of the overall methamphetamine problem in Michigan, one particular area of the state, Southwestern Michigan, has experienced more severe problems associated with this drug.

Methamphetamine in Southwestern Michigan:

Southwestern Michigan has experienced substantial meth problems in recent years. In fact, methamphetamine is the number one drug problem in this area. This fact becomes more apparent when looking at meth lab seizures and meth-related arrests in this area. The majority of meth labs seized are found in this region of the state. Of the 298 meth labs seized in 2005, 114 (38%) were located in Southwest Michigan. In 2004, over half of the labs seized in the state were in this region (79 of the 155

[1] A methamphetamine related arrest would include the offenses of possession, manufacture, or delivery of methamphetamine but not offenses that were believed to be brought about by the use of methamphetamine.

labs seized). Additionally, this region accounted for 35% of the total meth-related arrests in 2005 (191 out of 557 arrests) and 52% in 2004 (260 of 503). Two adjacent counties in this region, Allegan and Van Buren, have experienced particularly acute problems as a result of methamphetamine abuse.

In Allegan County, approximately one in four offenses involves methamphetamine. From January 2002 through March 2004, the prosecutor's office filed felony charges in 2,691 felony cases, 640 of which (24%) involved the possession, manufacturing, delivery of methamphetamine, or operating a meth lab. In addition, law enforcement and corrections officials observed a consistent pattern of repeat offenders with methamphetamine charges cycling in and out of jail in this community starting in about 2002. Van Buren County has experienced similar problems. In 2002, approximately 10% of all criminal charges in the county were for methamphetamine related offenses. In addition, jail staff noted the frequent readmission of meth offenders as well as the increasing erratic behavior of jail inmates indicating their use of and likely addiction to methamphetamine.

Treatment Approaches for Methamphetamine Abuse

Although the rising trends of methamphetamine abuse as well as the devastating effects of the drug are both alarming and cause for concern, recent research has shown that treatment for methamphetamine abuse is on the rise and can be effective in reducing subsequent use and criminal recidivism. For example, from 1992-2002 treatment admissions for methamphetamine abuse increased by 420% nationwide (Brecht, Greenwell, & Anglin, 2005). Furthermore, it has been reported that meth users who had received some type of treatment from any of Los Angeles County's 19 drug treatment agencies experienced reduced levels of reported methamphetamine use and committed less crimes during a one year follow-up period than those who did not receive treatment (Hser, Huang, Chou, Teruya, & Anglin, 2003). While these findings are encouraging, the question still remains as to what types of interventions are used to treat meth abuse and how effective they are in reducing future meth use and criminal activity.

This section reviews the various intervention approaches that have been used to treat methamphetamine addiction as well their effectiveness in doing so based upon the published literature. These approaches mainly consist of those that aim to treat the physical nature of meth addiction, such as pharmacological interventions and acupuncture or those that aim to treat the psycho-social nature of meth addiction, such as cognitive behavioral therapy and contingency management interventions. Although, these approaches are discussed separately to illustrate the variety of treatments currently being used, it should be noted that it has been recommended (Rawson, Gonzales, & Brethen, 2002) and is often-times the case that these interventions are used in conjunction with each other to provide a comprehensive treatment strategy.

Pharmacological Interventions

Pharmacological interventions use drugs or medications in an attempt to reduce the physical symptoms associated with drug addiction. In regard to methamphetamine abuse, the use of such interventions is argued to help meth abusers cope with the effects of prolonged abstinence from the drug as well as recover from the negative cognitive impairments associated with its use. In easing the physical effects of meth addiction, it is believed to also promote retention in other treatment strategies used in addition to these medications (Rawson, Gonzales, & et al., 2002).

Unfortunately, the use of pharmacological interventions to treat meth abuse have not fully developed as of yet (Rawson, Gonzales, & et al., 2002), and research has pointed out that "[d]espite extensive research, particularly in the area of cocaine, no pharmacotherapy has been proven effective in the management of psychostimulant disorders" (Shearer & Gower, 2004: 203). At least one study, however, has shown positive results when the drug, vigabatrin, was given to a sample of 30 meth users meeting DSM-IV criteria for dependence. Vigabatrin had been shown to block the body's chemical response to meth thereby reducing future use. Findings indicated that half of the sample tested negative for meth for 6 weeks during the study period, even though no other aspect of their lives were changed (e.g. living arrangements or access to the meth). However it should be noted that reaching a certain dosage of vigabatrin may produce harmful side effects that has delayed approval from the FDA (Brodie, Figueroa, Laska, & Dewey, 2005.

Acupuncture

A common criticism of using a pharmacological intervention as treatment is its use of narcotics to treat narcotic abuse (Latessa & Moon, 1992). In this sense, the substitute narcotic used to curb drug use may have addictive properties itself. The use of acupuncture arose as an alternative method of treatment for substance abuse. While this type of approach has been used as treatment for alcohol and drug dependence since the mid-1980s (Smith & Kahn, 1988), its effectiveness has only recently begun to be assessed for the treatment of methamphetamine dependence.

In terms of drug treatment, acupuncture requires the insertion of fine needles into specific points of the external part of the ear. In doing so, it alleviates symptoms of drug withdrawal in the detoxification stages of treatment and also prevents drug cravings. Like pharmacological interventions, acupuncture also only focuses on the physical aspects of addiction and it is recommended that it be used in conjunction with some type of psychological treatment component (Latessa & Moon, 1992; Smith & Kahn, 1988).

Although it has been said that acupuncture "continues to gain popularity as an adjunct to substance abuse treatment" (Russell, Sharp, & Gilbertson, 2000: 199), limited research examining its ability to effectively treat stimulant abuse has produced mixed findings. In a study of 274 addicts (who primarily listed cocaine as their drug of choice) randomly assigned to receive either acupuncture, a similar form of treatment, or no treatment, Latessa and Moon (1992) found no differences for program completion, re-arrests, convictions, or probation outcomes between the acupuncture group and the other two groups. In a more recent study that examined outcomes similar to the previous study, Russell and colleagues (2000) found that drug addicts that received acupuncture had significantly higher program retention rates up to 180 days after receiving treatment than those that received no treatment. However, when looking specifically at those addicted to methamphetamine, receiving the treatment only improved retention for up to 30 days. These mixed findings have led to a call for further research in this area before the viability of using acupuncture to treat methamphetamine abuse can be assessed (Russell et al., 2000).

Cognitive Behavioral Therapy

While both pharmacological interventions and acupuncture are aimed at treating the physical aspects of meth addiction, cognitive behavioral therapy (CBT) is aimed at treating the psycho-social addictive properties of the drug. CBT, in general, is a treatment strategy centered on the notion that changing individuals' cognitive thinking patterns can reduce the likelihood of them engaging in subsequent undesirable behaviors. This typically requires the use of a highly intensive and structured treatment protocol administered in a group setting that involves the use of standardized manuals that provide structured topic areas for each therapeutic session (Wilson, Bouffard, & Mackenzie, 2005). It is argued that the use of such an intensive and structured treatment approach allows individuals to "become aware of thought processes that lead to maladaptive behavioral responses and to actively change those processes in a positive way" (Wilson et al., 2005: 173). In terms of substance abuse treatment, the use of CBT aims at changing the individual's positive perceptions of drug use, instilling the benefits of remaining drug-free, and providing skills to allow the individual to cope with their life circumstances that had previously led them to drug use (Yen, Wu, Yen, & Ko, 2004).

Recent research in the field of criminal justice has shown that the use of CBT reduces criminal recidivism (Landenberger & Lipsey, 2005; Wilson et al., 2005). In an empirical review of previous research studies on two widely used CBT approaches in correctional settings, moral reconation therapy (MRT) and Reasoning and Rehabilitation (R&R), it was found that those receiving either MRT or R& R

experienced a recidivism rate reduction of 16% and 8% respectively compared to subjects not receiving the treatment (Wilson et al., 2005). The use of CBT as a form of substance abuse treatment, particularly for methamphetamine abuse, has also shown promising results.

Aos, Miller, and Drake (2006) reviewed eight evaluations of CBT treatment for drug offenders in correctional settings and found that on average CBT illustrated a statistically significant 6.8% reduction in recidivism rates compared to regular treatment (pg. 3). These positive findings appear to extend to methamphetamine as it has been noted that "[a]t the present time, CBT techniques have the strongest empirical support for application with stimulant abusers" (Rawson, Gonzales, & et al., 2002: 148). Such empirical support is derived from recent studies examining the effect of brief CBT interventions on methamphetamine abuse as well as from evaluations of the Matrix Model, a treatment strategy which emphasizes CBT in its curriculum.

Two recent evaluations have examined the effect that brief CBT sessions (e.g. CBT treatment lasting from 2-5 sessions) has had on both meth users' perceived ability to cope with issues associated with use as well as abstinence rates. In 2004, it was found that meth users who received 5 CBT sessions which focused on motivational enhancement and the development of coping skills experienced significantly improved confidence scores for managing life issues that may lead to relapse (Yen et al., 2004). Another, more rigorous evaluation utilized a random experiment to test the effect of receiving 2-4 CBT sessions on abstinence rates and found that those receiving the treatment reported reduced daily methamphetamine usage and had significantly longer abstinence rates than those receiving a lesser form of treatment (Baker, Boggs, & Lewin, 2001). Although these results suggest that brief CBT treatment sessions can be an effective intervention, which is advantageous to areas that may not have the necessary resources to provide a more comprehensive treatment intervention (Baker et al., 2001; Yen et al., 2004), experts in methamphetamine treatment remain skeptical in the long term effectiveness of this type of treatment strategy.

In order for CBT to be effective, critics of the brief CBT sessions suggest that meth users should attend between 3-5 sessions per week initially, followed by a reduced 2-3 sessions per week for an additional three months (Rawson, Gonzales, & et al, 2002). The primary argument for this level of treatment intensity is that an "extended treatment period for [methamphetamine] users appears to be of critical importance to allow treatment to be maintained through the most difficult period of protracted abstinence…[and] cognitive disruption…" (Rawson, Gonzales, & et al., 2002: 148). The implementation of the Matrix Model to treat methamphetamine abuse, therefore, is an alternative to the brief CBT treatments presented above.

The Matrix Model is an outpatient treatment approach developed in the 1980s to treat stimulant abuse (Rawson, Marinelli-Casey, Anglin, Dickow, Frazier, Gallagher, & et al., 2004). Although the Matrix Model utilizes a number of different treatment strategies, it is founded on the principles of CBT (Rawson, Gonzales, & et al., 2002). Specifically, it combines CBT sessions with family education, support groups, individual counseling, and drug testing into a 16 week intervention approach that includes the use of standardized manuals and tapes for each therapy session so that the same structured curriculum can be readily and consistently applied (Obert, Brown, Zweben, Christian, Delmhorst, & et al., 2005; Rawson et al., 2004). Recent research has been conducted to assess the benefits of such intensive treatment to combat methamphetamine abuse.

In a random experiment comparing meth users receiving the Matrix Model method to those receiving regular treatment in eight outpatient treatment centers in the Western United States, Rawson and colleagues (2004) found that in almost every site those receiving the Matrix Model method of treatment had higher program retention rates, higher completion rates, and longer in-treatment abstinence rates than those receiving regular treatment. The only exception was a site that had a drug court as its regular treatment component. These positive findings, however, did not necessarily translate into such differences at a 6 month follow-up period. Although, those in the Matrix Model did report a significant reduction in meth use during the 6 months after discharge, this reduction was not statistically significant from those receiving regular treatment (Rawson et al., 2004).

In essence CBT has become one of the primary methods of treating methamphetamine abuse. While preliminary research has shown that such an approach produces positive results while meth abusers are in treatment and shortly thereafter, its long-term effectiveness is still debatable. One potential reason offered is that achieving "permanent behavioral changes [is] hard to maintain in many chronic illnesses" (Rawson et al., 2004: 716), particularly when achieving such changes requires improving both brain chemistry and functioning (Rawson, Gonzales, & et al., 2002). One potentially positive finding is that CBT may be beneficial when combined with other psycho-social forms of treatment. Recall that in the above multi-site study, the Matrix Model outperformed all other types of treatments provided except at the drug court site. It has been previously reported that interventions incorporating such contingency management intervention strategies (like drug courts) are effective (Rawson, Gonzales, & et al, 2002). Thus, integrating CBT with contingency management approaches may provide both the treatment and structure needed to effectively combat the negative effects of the drug.

Contingency Management Interventions / Drug Courts

Contingency management, although another form of psycho-social treatment, differs from cognitive-behavioral treatments in the sense that contingency management operates under the assumption of operant conditioning (Rawson, Huber, McCann, Shoptaw, Farabee, & et al., 2002). Thus, unlike CBT that tries to change the thinking patterns of individuals, contingency management uses positive reinforcement, or a system of rewards, to deter undesirable behavior. Within the context of drug use, individuals are provided with some form of reward for remaining drug free and the nature of the reward usually increases with prolonged abstinence from the drug. On the other hand, rewards are taken away or reduced when there is evidence of relapse (Roll, Huber, Sodano, Chudzynski, Moynier, & Shoptaw, 2006). Recent research has also garnered empirical support for the use of contingency management approaches in treating methamphetamine addiction.

In a recent study that attempted to identify an optimal reward system for methamphetamine users, Roll and colleagues (2006) found that longer abstinence rates for meth were recorded when participants were given lower initial rewards followed by moderate increases and bonuses for continued negative drug tests. However, positive tests resulted in reward "resets" to the initial value. Another study compared the effects of contingency management to CBT treatment for another type of stimulant abuse, cocaine dependence. Here it was found that both during treatment and a 16 week follow up contingency management outperformed CBT, but at 26 week and 52 week follow up periods, results for the two approaches were similar. It should be noted that receiving both contingency management and CBT did not produce any significant additive effects (Rawson, Huber, & et al., 2002). While this finding on

combining the two approaches to treat stimulant abuse is mixed, a similar intervention strategy within the field of criminal justice has shown promising results: drug courts.

Drug courts combine drug treatment strategies and contingency management approaches with an emphasis on intensive legal supervision. This type of intervention strategy arose out of the notion that drug addiction leads to criminal activity and providing treatment in a criminal justice setting will help individuals lead crime-free lives (Gottfredson, Najaka, & Kearley, 2003). The theory behind drug courts is that of therapeutic jurisprudence in which a combination of judicial supervision and drug treatment is used to "produce therapeutic or anti-therapeutic consequences for individuals involved in the legal process" (Senjo & Leip, 2001: 67). As a result, the main objectives of drug court programs are to reduce both drug use and criminal behavior of participants (Belenko, 2001).

Drug courts attempt to accomplish these objectives by combining intense, long periods of treatment (such as CBT) and positive reinforcement for good behavior with an added element of accountability. Drug court participants are required to attend treatment sessions and frequent meetings with the judge as well as being closely monitored by probation and law enforcement officers. If participants fail to stay in compliance with drug court requirements, then they run the risk of receiving immediate sanctions for noncompliance. Repeated noncompliance will lead to termination from the program and facing the individual with jail or prison time (Huddleston, 2005). The use of clear, direct guidelines, intense treatment, and rewards for prolonged abstinence has produced positive results for drug court jurisdictions that deal extensively with methamphetamine abuse.

Huddleston (2005) reports on the accomplishments of three drug courts in operation for 10 years that have had success in treating drug offenders primarily involved with methamphetamine. The Butte County, California drug court program operates in an area where meth has been the primary drug of choice for over three decades. Since its inception, the court has had 500 graduates and a reconviction rate of only 14.9% (felony or misdemeanor). Orange County, California has also implemented a drug court in an area where 60% of new probation cases each year test positive for meth. This program has had over 1,000 graduates and almost 75% have no new arrests for any type of crime. Finally, the Salt Lake County, Utah drug court has recently reported that only 15.4% of their drug court graduates were re-arrested compared to 64% of eligible offenders not attending and 39% of non-graduates (Huddleston, 2005: 9-10). These findings suggest that drug courts can be a useful approach for treating methamphetamine abuse.

Summary of Treatment Approaches

Current research has shown that a variety of treatment approaches have been implemented to address methamphetamine abuse. This research has generally indicated that psycho-social treatment strategies such as CBT and contingency management interventions have garnered the most empirical support for success. A common theme, however, is that effective treatment requires the use of a multitude of approaches to provide a set of comprehensive treatment components.

Two programs currently operating in Southwestern Michigan have developed treatment strategies that mirror this theme. Using a combination of CBT and contingency management approaches in a criminal justice setting that holds program participants accountable for their actions, the Van Buren County Community Correctional Substance Abuse Abatement Project and the Allegan County Meth

Diversion Program have implemented novel strategies for dealing with meth problems in their specific jurisdictions. Byrne funds were allocated to these jurisdictions to develop and implement these interventions consistent with the Michigan Methamphetamine Control Strategy. Subsequent sections of this report will discuss the operations and accomplishments of these interventions.

Allegan County Methamphetamine Diversion Program

Section I: Program Background

Allegan County is located in a rural area with easy access to the key ingredients required for the production of methamphetamine. The production of methamphetamine is less likely to be detected by neighbors or law enforcement due to the relative isolation of housing. In addition, Allegan County is located between two larger cities making it a desirable location for the production and distribution of methamphetamine.

As noted above, local criminal justice agencies became aware of the emerging methamphetamine problem in Allegan County through the dramatic increase in the number of meth labs seized in this area as well as the high proportion of felony offenses that were directly related to the use, production, or delivery of methamphetamine. In addition there were a number of high profile cases involving the seizure of labs that were being operated in the presence of children. The increasing number of recidivating methamphetamine users further demonstrated the seriousness of this problem.

In response to this situation, the Methamphetamine Diversion Program was created. The overall purpose of the program was to reduce recidivism of methamphetamine addicted offenders through an intensive treatment focused intervention.

Program Goals

The Allegan Meth Program aims to reduce recidivism and addiction as well as reduce the peripheral offenses that may occur as a result of meth use or production. This intervention is based upon the creation of a cognitive behavioral based treatment program conducted within a structure emphasizing accountability.

Target population

The program was designed for male offenders who are methamphetamine addicted individuals who have committed offenses for which they are likely to be sentenced to prison. Thus individuals selected for participation should have a reasonable likelihood of going to prison based upon their criminal history and sentencing guideline score. Of particular focus are those offenders whose guideline scores fall into the so called “straddle cells” indicating likely jail or prison incarceration or those that fall into the presumptive prison sentence category.

Individuals in this program are eligible to participate in programming supported by Michigan’s community corrections act (PA 511). The focus is upon identifying those individuals who are both high risk and high needs in order to justify the intensive nature of this intervention.

Potential participants are identified through a review of arraignment lists for individuals having a charge related to methamphetamine and whose guideline scores meet the PA 511 criteria. A substance

abuse assessment is then conducted and these individuals are interviewed to ascertain their readiness for treatment.

This is a very rigorous screening process that identifies a group of likely prison bound offenders, having a serious methamphetamine addiction, and who possess a sufficient motivation to change. As such, there are only a small number of the most serious cases involved in this intensive intervention at any one time. The program has a maximum capacity of 20 participants at any one time and is designed to last 18 months. Given this small number, the program is able to focus considerable efforts on this select group of offenders.

Program Components

The treatment component of the program utilizes Hazelden's New Directions curriculum which was designed for criminal offenders and is particularly applicable for methamphetamine abusers. It employs a cognitive behavioral model that is oriented to changing the offender's thinking patterns and behavior through modules focusing upon relapse prevention, anger management, life and relationship skills building.

There are four phases of the program. The first of these is administered in the jail and lasts approximately 10 weeks. However, there are no set time lines for movement between the program phases as this is determined by staff assessments of participant's progress.

During the jail phase, group sessions are held twice per week and, as in all phases, there are self paced workbooks that the participants complete outside of the group sessions. Individuals in phase one are also required to attend AA/NA meetings while in the jail. A unique aspect of this program is that offenders who are in the later community phases of the program return to the jail to participate in these group sessions. This serves to motivate individuals in the initial phase from seeing the progress of individuals in the later program stages. In addition, these in jail sessions reinforce for those in the later stages how far they have come and remind them that they don't want to go back.

The second phase of the program begins when the offender is released from jail. One probation officer is assigned to all offenders in the program to ensure consistency of supervision and reinforcement of the program message across all cases. The offender reports to the probation officer once per week, in addition offenders meet with or speak to the case manager daily until they find regular employment. Group and individual treatment sessions continue in this phase with group sessions being held twice a week. In addition, offenders attend AA/NA meetings 3-4 times per week and have 7 drug tests per week, 4 of which are administered randomly. This level of intensity provides a highly structured environment and a strong link between treatment and supervision aspects of the program. It is anticipated that the offender will be in this phase approximately 6 months.

During the third phase of the program, there is a reduced level of supervision with reporting to the probation officer twice a month and fewer drug tests required. Group sessions in the jail are no longer required in this phase, but program staff report that offenders frequently attend such sessions voluntarily. Individual treatment sessions are held twice a month in this phase.

During phase four, individual sessions are held on a discretionary basis and work in AA/NA sessions continues as the offender prepares for exiting from the program. In each of the phases, the offender is expected to pay a program fee that offsets some of the costs for program services.

Section II: Allegan Participant Profiles

Participant Profile:

Demographic Information

Tables 1 and 2 present the demographic characteristics of the 18 participants. As of February 2007 nine were considered active, 5 had graduated, 3 were sent to prison and 1 was deceased. All of the participants were White (100%) and ninety-four percent were males. The average age of program participants was 33 years old though participants ranged in age from 20 to 49.

Table 1. Status of Program Participants (n=18)

	Number	Percent
Active Participants	9	50.0
Program Graduates	5	27.7
Deceased	1	5.6
Participants Sentenced to Prison	3	16.7
TOTAL	18	100.00

Table 2. Allegan Participant Characteristics (n=18)

	Number	Percent
Gender		
Male	17	94.4
Female	1	5.6
Race		
White	18	100

Qualifying Offense

All of the qualifying offenses for the Allegan program involved methamphetamine. The majority of charges were for methamphetamine possession (55.7%).

Table 3. Qualifying Offense (n=18)

	Number	Percent
Meth Possession	10	55.5
Del/Manufacturing Meth	1	5.6
Maintaining/Operating Lab	6	33.3
Meth Possession Attempt	1	5.6
Total	18	100.00

Based on the Sentencing Guideline Scores for the qualifying offense 7 out of 18 participants were considered straddle cell offenders (39%). Judges use offense variables and prior record variables in a grid system to determine the sentencing guidelines score for each offender. A score that falls within a "straddle cell" is one where the lower limit of the recommended range is 1 year or less and the upper limit is more than 18 months. Typically straddle cell offenders can be sentenced to probation, jail or prison. One participant fell into the presumptive category (SGL 12 months or greater) indicating that a state prison sentence could be expected to be imposed.

Prior involvement in CJ System

Table 4 presents the number of times participants have previously served jail, prison or probation sentences according to their Basic Information Report from the Department of Corrections. Additionally, the age at first arrest is documented. The mean age at first arrest was 20 (However, for most cases juvenile records are not available and thus this age may be inflated due to this situation). The majority of participants had served at least one jail sentence (94.4%) and one previous probation sentence (94.4%). Importantly, almost three- fourths (72%) had served two or more prior jail sentences. The mean number of jail sentences was 3.67 prior jail stays. Not surprisingly, most participants in this diversion program had no prior prison sentence (77.8%).

Table 4. Prior Criminal Justice System Involvement (n=18)

	Number	Percent
# of Prior Jail Sentences		
0	1	5.6
1	4	22.2
2	3	16.7
3	3	16.7
4	1	5.6
5	3	16.7
7	1	5.6
9	1	5.6
12	1	5.6
# of Prior Prison Sentences		
0	14	77.8
1	1	5.6
2	1	5.6
3	2	11.1
# of Prior Probation		
0	1	5.6
1	6	33.3
2	5	27.8
3	2	11.1
4	2	11.1
5	1	5.6
6	1	5.6

Section III: Re-arrests for Program Participants

Arrest data were collected from the Michigan State Police on any new arrests recorded after entrance into the program through February 16, 2007, for all program participants and program graduates. During this time period 3 program participants were sent to prison as probation violators for failure to follow the requirements of the program (16%). The average time to fail for these individuals was approximately 446 days with a minimum time to fail of 306 days and a maximum time to fail of 654 days.

Section IV: Promising characteristics of the Allegan Meth Program

While the program is relatively new and it is too early to determine the ultimate outcomes and impacts of this initiative there are several promising aspects of this program. First, prior research has demonstrated that the most successful intervention programs are those that are characterized by high intensity and duration. Changing behavior is a difficult task and it is quite unreasonable to expect to alter a lifetime of behavior patterns through minimal interventions. As noted above this program is very intense with considerable program contacts throughout each phase and is expected to last a year and a half. Second, the program is focused upon offenders who are likely to be prison bound. Although this is a more difficult population, the payoffs are greater from investment in this group than with offenders who may be more amenable. Third, given that these are often likely prison bound individuals the potential cost savings are greater for this group than from a program whose participants were facing principally community sanctions.

Van Buren County Substance Abuse Abatement Project

Section I: Program Background

Van Buren County is located adjacent to Allegan County and shares many of its characteristics that make it an attractive location for methamphetamine production. As noted above, the county has experienced a dramatic growth in methamphetamine offenses in recent years. Particularly of note is the fact that in 1999 there were 5 methamphetamine labs seized in the county and by 2003 that number had grown to 37, a 740% increase over this four year period. As in Allegan County, there were increasing numbers of methamphetamine offenses in the justice system and a high rate of recidivism among those offenders who were methamphetamine addicted.

In addition, there was a notable lack of treatment resources available for criminal offenders in the county. The only in-jail program was Alcoholics Anonymous and the only other available treatment was through the Probation Residential Service Program, which had a capacity of 8 inmates per month. Thus, unless offenders had the financial means to enter treatment, there were few treatment resources.

It was clear to area administrators that the problems presented by methamphetamine could not be addressed in the same manner that had been used to address problems presented by other types of drug use. Further, given the high rate of recidivism for these offenders, criminal justice administrators noted that it was apparent that traditional enforcement and sanctioning strategies were not effective. Thus a collaborative effort was initiated between the Van Buren County Sheriff's Office and the Van Buren/Cass County District Health Department to design and implement an innovative strategy providing treatment and supervision for methamphetamine abusing offenders.

Program Goals

Program staff identified three primary goals of the program that can be used to gauge its effectiveness: short term, intermediate and long term goals. Treatment retention was identified as the short term goal of the program. The program staff communicated that in order for treatment to be successful; participants had to stay in the program. Successful completion of the program, or graduation, was identified as the intermediate goal. Finally, by being able to accomplish the previous two goals, the long term goal of the program is to reduce recidivism and drug use among program graduates.

Target Population

Offenders from Van Buren and surrounding counties who have identified substance abuse problems (priority is given to those offenders who are involved with methamphetamine) are eligible for participation upon referral to the program. While referrals can be made from judges, probation officers, or jail personnel, most participants are self-referred during their stay in jail prior to sentencing. This is likely a result of the

fact that program participants receive a reduction in jail time from what they likely would be serving upon conviction.

Potential participants are identified early in their stay in jail, and typically can begin participating in the program within 10 days of referral. Once eligibility is determined the judge will enter a plea agreement for a 180 day jail sentence, part of which will be suspended upon successful completion of the jail phase of the program. While most participants begin the program through the in jail component it is possible for individuals to enter directly into the program in the out of custody phases.

Program Components

The program also uses Hazelden's New Directions treatment curriculum. There are four phases of the program, an in custody jail phase followed by three community phases.

Group sessions are held twice a week in the jail phase. Promotion to the out of custody phases is dependent upon treatment performance. Each week the therapist assigns a score (0, 1, or 2) to each individual that reflects their level of participation and progress. When the therapist feels that the individual has made sufficient progress, a recommendation is made to the custody staff regarding release. Then a recommendation is made to the program committee who recommends to the probation officer and the judge who makes the final decision regarding early release. This procedure reflects the integration and inclusion of both treatment and correctional staff in the decision process, an important program characteristic. If the judge concurs with release, an order is prepared suspending the remainder of the 180 day sentence which can be invoked for subsequent program violations. This is also an important program element providing continued incentives for program compliance and drug abstinence. The jail phase typically lasts 30-60 days.

There are three out of custody phases. The first level meets for weekly sessions continuing the New Directions curriculum. Promotion to additional levels is made on the basis of treatment progress at the discretion of the treatment staff. Subsequent levels of the program come with less frequent treatment sessions moving to every other week and then to once a month.

Drug testing is an important and rigorous component of the program. All individuals are tested at the weekly group sessions. In addition, 12 individuals are tested randomly each week (based upon a call in system). Participants may be tested at court proceedings or upon other home visits by the testing officer. The testing officer is a particularly valuable member of the team providing feedback from his interaction with offenders and not simply conducting drug tests.

A consistent and firm sanctioning process is also a critical component of the program. At program implementation the sanctioning process was inconsistent and somewhat lax and participants took advantage of this situation. A revised sanctioning procedure was implemented that provides for a more consistent response to program violations. A typical sanction for a positive drug test or program noncompliance is 14 days in jail and

rejoining the first level group. This is an example of a critical implementation issue regarding the importance of integrating custody and treatment perspectives into a common understanding concerning program operations and the sanctioning process.

Section II: New Directions Program Participant Profile

The New Directions program has provided treatment to 256 individuals since its October 2003. Table 1 illustrates that as of February, 2007, 35 of the 256 total participants (approximately 14%) are currently active in the program while another 55 (approximately 22%) have successfully completed treatment. During this time, 49 participants (approximately 19% of all participants) have been terminated from the program during the out of custody group (OCG) phase. In order to be eligible for termination, participants had to acquire three violations involving either non-attendance of programming or positive drug tests. Any combination of three violations resulted in termination. The remaining 117 participants left the program due to one of several reasons. Some of these individuals bonded out of jail after attending a few of the in-jail treatment sessions with no further contact with the program staff. This group defined by program staff as the No Count group, included 55 of the total participants (approximately 22%). Eleven quit the program while in jail or during out of custody group (OCG) programming because they had no legal condition to continue to participate. Thirty four participated in programming while in jail but due to their crimes were sentenced to prison, and therefore, could not continue in the program. Finally, another 17 participants were transferred to another county, also precluding continuance in the New Directions Program.

Table 1: Status of New Directions Program Participants (N=256)

	Number	Percent
Active Participants	35	13.7
Program Graduates	55	21.5
Terminations	49	19.1
No Count Group	55	21.5
Participants Sentenced to Prison	34	13.3
Participants who Quit	11	4.3
Transfers	17	6.6
TOTAL	**256**	**100%**

Due to the fact that almost 46 percent of the total number of participants (117 out of 256) left the program under conditions that could not be controlled by program staff, it is perhaps best to examine only those individuals who had the opportunity to participate fully in the treatment program. While the descriptive statistics in Table 1 present an overview of the trajectories for all of the participants originally involved in the program, subsequent analyses are based upon the 139 participants who had the opportunity for full participation. When looking at this group of individuals, 90 (65%) were either active participants or graduates while 49 (35%) were terminated for non-compliance as of February, 2007. Thus, the following sections focus on these three groups and include demographic, qualifying offense, and criminal history comparisons. It should be noted

that any future references to program participants within the report, pertains only to these three groups.

New Directions Participant Profile: Demographic Information

Table 2 presents the demographic characteristics of the New Directions participants. The majority of program participants are White (94.2%) and male (71.2%). The average age of entry into the program is approximately 34 years, although participants ranged from 17 to 54 years of age. Furthermore, the majority of program participants had either graduated from high school or received a GED (55.4%). Few participants, however, had received a college education (3.6%).

The data in Table 2 also report demographic information broken down by program status: active participants, graduates, and terminations. Subsequent analyses on these data were conducted to determine if the group of individuals who have been terminated from the program are significantly different from the group of individuals who are either currently actively participating or have graduated. Results of these analyses show two differences worth noting.

First, results of a chi square test reveal a marginally significant difference between participant race and participant status (chi square = 2.85, df=1, $p<.10$). Specifically, a slightly higher number of African American participants had been terminated than what would be expected by chance given the distribution of these variables. However, it is highly likely that this is due to the very small number (4) of African American participants to enter the program. Second, the results of a t-test revealed a statistically significant difference between participant age and program status ($t = 2.02$, $p<.05$). Thus, participants who were terminated from the program were, on average, approximately three years younger than the group of active participants and program graduates.

Case note data on program terminations were provided by program staff as of 6/30/06. As indicated above, participants were terminated after having 3 violations (either be positive drug tests or attendance violations. Nineteen participants were terminated for 3 positive drug tests (38.7%). The remainder was terminated for a combination of positive drug tests and attendance violations, outstanding warrants, or other, undocumented reasons. Participants were enrolled in the program for an average of 131 days before they were terminated. Twenty were terminated in the first 90 days and 21 were terminated between 3 months and 15 months. Data were missing on 7 terminations. It is worth noting that this length of time prior to termination is considerably longer than in many other criminal justice community interventions that often report a short time to failure. This length of time is indicative of the fact that it is common to expect initial failure on drug tests for an addicted population and this program's willingness to continue to work with these individuals thorough these problems after sanctions for program violations were applied.

Table 2: New Directions Participant Demographic Characteristics

Demographic Characteristics	Active Participants (N=35)	Program Graduates (N=55)	Program Terminations (N=49)	Participant Totals (N=139)
Gender	**Number (%)**	**Number (%)**	**Number (%)**	**Number (% of Total)**
Male	26 (26.3)	41 (41.4)	32 (32.3)	99(71.2)
Female	8 (20.5)	14 (35.9)	17 (43.6)	39(28.1)
Missing Data	1 (100.0)	0	0	1(0.7)
Race	**Number (%)**	**Number (%)**	**Number (%)**	**Number (% of Total)**
White	33 (25.2)	53 (40.5)	45 (34.3)	131(94.2)
African American	1 (25.0)	0	3 (75.0)†	4(2.9)
Missing Data	1 (25.0)	2 (50.0)	1 (25.0)	4(2.9)
Education	**Number (%)**	**Number (%)**	**Number (%)**	**Number (% of Total)**
High School Graduate	12 (25.5)	22 (46.8)	13 (27.7)	47(33.8)
Non-Graduate	10 (24.4)	11 (26.8)	20 (48.8)	41(29.5)
GED	6 (20.0)	15 (50.0)	9 (30.0)	30(21.6)
Attended College	1 (20.0)	2 (40.0)	2 (40.0)	5(3.6)
Missing Data	6 (37.5)	5 (31.3)	5 (31.3)	16(11.5)
Age	**Mean**	**Mean**	**Mean**	**Mean**
Average Age of Entry	34.9	34.7	31.7*	33.7

†p<.10, *p<.05

New Directions Participant Profile: Qualifying Offense Information

Table 3 presents the offenses for program participants that qualified them for the New Directions program. The majority of offenses were methamphetamine related (approximately 60%) with the most common being for possession, followed by delivery and manufacturing. When assessing methamphetamine offenses across the three status groups, the numbers are relatively similar. This indicates that there are likely little differences between participant status groups regarding the types of offenses that qualified them for the program. Finally, when looking at qualifying offenses other than methamphetamine related charges, violations of probation comprised the largest amount of these other offense categories (15.1%).

Table 3: Qualifying Offense Information

Qualifying Offenses	Active Participants (N=35)	Program Graduates (N=55)	Program Terminations (N=49)	Participant Totals (N=139)
	Number (%)	Number (%)	Number (%)	Number (% of Total)
Meth Related Offenses				
Meth Possession	17 (48.6)	18 (32.7)	22 (44.9)	57 (41.0)
Meth Delivery/ Manufacturing	4 (11.4)	7 (12.7)	4 (8.2)	15 (10.8)
Maintaining/Operating Lab	1 (2.9)	5 (9.1)	3 (6.1)	9 (6.5)
Anhydrous Amm. Tampering	0	2 (3.6)	0	2 (1.4)
TOTALS	**22 (62.9)**	**32 (58.2)**	**29 (59.2)**	**83 (59.7)**
Other Drug Related Offenses				
Marijuana Possession	1 (2.9)	0	0	1 (0.7)
Cont. Substance Possession	0	0	2 (4.0)	2 (1.4)
Maintaining a Drug House	0	1 (1.8)	0	1 (0.7)
TOTALS	**1 (2.8)**	**1 (1.8)**	**2 (4.1)**	**4 (2.8)**
Other Offenses				
Assault/Robbery	1 (2.9)	0	0	1 (0.7)
Probation Violation	3 (8.6)	10 (18.2)	8 (16.3)	21 (15.1)
Larceny	1 (2.9)	0	0	1 (0.7)
Retail Fraud	1 (2.9)	0	0	1 (0.7)
UDAA	1 (2.9)	0	0	1 (0.7)
Uttering and Publishing	1 (2.9)	0	0	1 (0.7)
FTA	1 (2.9)	0	0	1 (0.7)
Contempt	0	2 (3.6)	0	2 (1.4)
Escape/Flight	0	0	1 (2.0)	1 (0.7)
Missing Data	3 (8.6)	10 (18.2)	9 (18.4)	22 (15.8)
TOTALS	**12 (34.3)**	**22 (40.0)**	**18 (36.7)**	**52 (37.4)**

In addition to qualifying offense information, data were also obtained on participants' Sentencing Guideline (SGL) Scores for the qualifying offense. Judges use offense variables and prior record variables in a grid system to determine sentencing guidelines. A score that falls within a "straddle cell" is one where the lower limit of the recommended sentencing range is 1 year or less and the upper limit is more than 18 months. Typically straddle cell offenders can be sentenced to probation, jail, or prison, however, they are considered to be a priority population group for entrance into community corrections programs such as the New Directions program.

Of the 139 total program participants, SGL scores were available for 121 individuals (87%). Out of these 121 participants, 22 percent (27 out of 121) could be categorized as straddle cell offenders. Further breakdown of the data showed that 39 percent of active participants (9 out of 23), 22 percent of program graduates (9 out of 41), and 26 percent of program terminations (9 out of 35) possessed SGL scores that would

categorize them as straddle cell offenders. Lastly, 9 offenders were presumptives with a SGL low of 12 months or greater.

New Directions Participant Profile: Criminal History

Table 4 shows the average number of times participants have served jail, prison or probation sentences according to their Basic Information Report from the Department of Corrections. Additionally, the age at first arrest is documented. The mean age at first arrest is approximately 20 years of age (not surprising given that juvenile records were not available for this group of offenders). On average, all participants had previously served approximately 3 jail terms and approximately 2 probation sentences. However, few participants had served a prior prison sentence.

When looking at criminal histories across program status groups, the results in Table 4 show that, on average, program graduates had slightly fewer prior jail and probation sentences compared to active participants and terminations. Furthermore, individuals terminated from the program were, on average, slightly younger than active participants and graduates. Subsequent bivariate analyses, however, revealed no statistically significant differences between groups.

Table 4: Program Participant Criminal Histories

	Active Participants (N=34)	Program Graduates (N=51)	Program Terminations (N=45)	Participant Totals (N=130)
Prior Jail Sentences				
Mean	3.85	2.12	3.40	3.02
Standard Deviation	3.51	2.84	3.73	3.40
Minimum	0	0	0	0
Maximum	12	12	18	18
Prior Probation Sentences				
Mean	2.12	1.63	2.02	1.89
Standard Deviation	1.95	1.37	1.66	1.64
Minimum	0	0	0	0
Maximum	7	6	6	7
Prior Prison Sentences				
Mean	0.35	0.08	0.20	0.19
Standard Deviation	0.85	0.44	0.51	0.64
Minimum	0	0	0	0
Maximum	3	3	2	3
Age at First Arrest				
Mean	20.68	20.76	19.04	20.15
Standard Deviation	7.82	5.84	7.49	6.97
Minimum	13	14	9	9
Maximum	48	37	43	48

Section III: Predicting Program Graduation and Termination

The previous section presented the descriptive characteristics of participants in the New Directions program. While preliminary analyses of these characteristics showed that, with the exception of a few demographic characteristics, little differences existed between active participants and program graduates when compared to program terminations. The question remains, however, whether any of these descriptive characteristics significantly predict graduation or termination from the program. In other words, do any of the characteristics described in the previous section help to explain successful and/or unsuccessful completion of the New Directions program?

In order to answer this question, two sets of regression analyses were conducted: one set predicted program graduation and the other set predicted program termination. Within these sets, separate models were run for each descriptive category discussed in the previous section (e.g., demographics, qualifying offenses, and criminal histories). When appropriate, an additional model was estimated combining all relevant characteristics from the separate models into a final model. It should be noted that information on participants' race and prior prison sentences could not be included in the models due to the fact that there was little variation across status groups (i.e., 97% of participants were White and the majority had never served a prior prison sentence).

Table 5 presents the regression models predicting program graduation. Examination of the models reveals two significant results. Specifically, the effect of education in the demographic model and the effect of the number of prior jail sentences in the criminal history model significantly predicted the likelihood of program graduation. When entering these variables into a final model and controlling for factors in the separate models that had substantial (but non-significant effects), the results for education and prior number of jail sentences remained significant.[2]

The results in the final model of Table 5 indicate that with respect to education, not having a high school degree or equivalent decreases the odds of graduation by 61%. Similarly, increases in the number of prior jail sentences served by program participants decrease the odds of graduation by 37%. Thus from the available data, it appears that participants with at least a high school education or equivalent and participants with fewer prior stays in correctional settings have a greater likelihood of graduation from the New Directions program.

[2] Although the variable, meth related charges, had a substantial (but non-significant) effect size in the qualifying offense model, this variable could not be included in the final model due to the large amount of cases (25%) that would be dropped due to missing data.

Table 5: Binary Logistic Regression Models Predicting Program Graduation

Variables	Demographics (N=119)			Qualifying Offenses (N=108)			Criminal History (N=130)			Final Model (N=119)		
Demographics	b	S.E.	Exp(b)	b	S.E.	Exp(b)	b	S.E.	Exp(b)	b	S.E.	Exp(b)
Male	.33	.43	1.39	---	---	---	---	---	---	.76	.46	2.13
Age of Program Entry	.03	.02	1.03	---	---	---	---	---	---	---	---	---
Non-H.S. Graduate	-.90*	.43	0.41	---	---	---	---	---	---	-.93*	.44	0.39
Qualifying Offense												
Meth Related Charge	---	---	---	.30	.45	1.35	---	---	---	---	---	---
Straddle Cell Offender	---	---	---	-.22	.47	0.80	---	---	---	---	---	---
Criminal History												
Prior Jail Sentences	---	---	---	---	---	---	-.49*	.20	0.61	-.47*	.20	0.63
Prior Prob. Sentences	---	---	---	---	---	---	.23	.21	1.25	.15	.22	1.17
Age at First Arrest	---	---	---	---	---	---	-.01	.03	0.99	---	---	---
Model Fit												
% Variance Explained	7.4%			0.8%			8.9%			15.2%		

*p<.05

Table 6 reports the results of the regression models predicting termination from the program. Findings from the models indicate that two participant demographic variables had significant effects on the likelihood of being terminated from the program. First, there was a significant, negative effect for age of entry into the program. Specifically, participants who were older at the time of entry are less likely to be terminated as each additional year of age participants entered was associated with a 5% decrease in the odds of being terminated from the program. Second, a significant effect was found for participant education. Participants without a high school degree or the equivalent were more likely to be terminated from the program. Specifically, not having at least a high school degree or equivalent was associated in a 130% increase in the odds of termination. It should be noted that since none of the other effects of the variables in the subsequent models were substantial, a final model was not estimated. Thus, from the data provided it appears that younger and less educated participants were more likely to be unsuccessful in fulfilling the treatment requirements of the program.

Table 6: Binary Logistic Regression Models Predicting Program Termination
*p<.05

Variables	**Demographics (N=119)**			**Qualifying Offenses (N=108)**			**Criminal History (N=130)**		
Demographics	b	S.E.	Exp(b)	b	S.E.	Exp(b)	b	S.E.	Exp(b)
Male	-.51	.45	0.60	---	---	---	---	---	---
Age of Program Entry	-.05*	.01	0.95	---	---	---	---	---	---
Non-H.S. Graduate	.83*	.42	2.30	---	---	---	---	---	---
Qualifying Offense									
Meth Related Charge	---	---	---	-.19	.45	0.83	---	---	---
Straddle Cell Offender	---	---	---	-.13	.49	0.88	---	---	---
Criminal History									
Prior Jail Sentences	---	---	---	---	---	---	.06	.18	1.06
Prior Prob. Sentences	---	---	---	---	---	---	.05	.20	1.05
Age at First Arrest	---	---	---	---	---	---	-.03	.03	0.97
Model Fit									
% Variance Explained	11.0%			0.4%			2.5%		

Section IV: Re-arrests for Program Participants & Comparison Group Members

A long term goal of the New Directions program was to reduce recidivism among participants. In order to assess the outcome of this goal, arrest data were collected from the Michigan State Police on any new arrests recorded after entrance into the New Directions program through February 16, 2007, for active participants, program graduates, and program terminations. In addition, it is also useful to examine recidivism in comparison to a group of similar offenders that did not receive treatment in order to gain a better understanding of the potential benefits of the program. To accomplish this, a comparison group was also selected based upon drug charges that occurred within the same time period of the operation of the New Directions program. These offenders consist of 73 individuals placed on bond with a drug offense who were ordered to submit to testing by the court. Many of these offenders (40%) had methamphetamine related charges (e.g., possession, manufacturing, distributing or operating a lab). Other charges included possession or distribution of cocaine, marijuana possession, larceny, UDAA, FTA, assault/robbery, retail fraud, probation violations, uttering and publishing, many of which were consistent with qualifying offense charges for the program participants. Re-arrest data were collected on these offenders from the time of the charge that would have coincided with the New Directions program through February 16, 2007.

Table 8 presents descriptive information for the comparison group. The majority were White (90%) and male (84%). The average age of the comparison group was approximately 35 years old, though members ranged from 18 to 63 years. Approximately 46 percent had not received at least a high school degree or the equivalent. Table 8 also shows the number of times the comparison group had served jail or probation sentences as well as whether they had ever served time in prison. Members of the comparison group had served, on average, approximately 2.5 and just fewer than 2 jail and probation sentences, respectively. However, only 12 percent had served a prior prison sentence. Additionally, the mean age at first arrest is 20 and 10 percent could be classified as straddle cell offenders. Thus this group is quite comparable to the offenders who participated in the New Directions program.

Table 8: Descriptive Statistics for Comparison Group (N=72)

Variables	Mean	Standard Deviation	Min.	Max.
Demographics				
Male	.84	.37	0	1
White	.90	.30	0	1
Non-H.S. Graduate	.46	.50	0	1
Age	35.28	10.38	18	63
Qualifying Offense				
Meth. Related Charge	.40	.49	0	1
Straddle Cell Offender	.10	.30	0	1
Criminal History				
Prior Jail Sentences	2.52	3.21	0	15
Prior Prob. Sentences	1.71	1.70	0	7
Prison (1=Yes)	.12	.33	0	1
Age at First Arrest	20.16	5.93	11	47

Descriptive Data: Comparisons of Number & Types of Re-arrests

Active Participants and Program Graduates:

Analysis of the re-arrest data revealed that, during this time period, only four out of ninety participants/graduates (approximately 4.4%) had been re-arrested. The average time to re-arrest for these individuals was approximately 375 days with a minimum time to arrest of 181 days and a maximum time to arrest of 548 days. Of these four arrests, only one was for a drug related charge and it was not methamphetamine related. The rest were for rather minor offenses such as driving on a suspended license, fleeing police, and filing a false police report. In addition, only one of the participants was re-arrested multiple times.

Program Terminations:

A much higher percentage of individuals terminated from the program, however, had been re-arrested. Of the 49 individuals terminated from the program, 26 (approximately 53%) were re-arrested. The average time to arrest for program terminations was approximately 335 days with a minimum of 34 days and a maximum of just over 3 years. In addition, out of the 26 terminations that had been re-arrested, 13 were re-arrested for methamphetamine related charges. The remaining re-arrests covered a wide range of charges, such as driving on a suspended license, larceny, retail fraud, breaking and entering, assault with a dangerous weapon, or assaulting a police officer. Finally, eight of the terminated individuals were re-arrested multiple times with a minimum of two re-arrests and a maximum of five re-arrests.

Comparison Group:

Members of the comparison group had 32 total new arrests among 23 individuals (approximately 32%). The average time to re-arrest was 319 days with a minimum of 26 days and a maximum of just over 3 years. Fourteen of these arrests were for drug related charges and three of these were methamphetamine related. The remaining offenses were typically more serious than the non-drug related arrests for the program participants. For example, non-drug related re-arrests for the comparison group also included larcenies, home invasion, breaking and entering, and one assault on a police officer. Furthermore, five of the 23 individuals had multiple re-arrests with some being re-arrested as many as six times over the course of the study.

While initial comparisons show that program terminations and members of the comparison group had a much higher percentage of re-arrests within a shorter period of time than active participants and program graduates, it is necessary to examine these data with respect to individuals' time at risk for re-offending as well as in terms of the composition of the groups in order to better understand these differences.

Re-Arrest and Time at Risk Comparisons

Since New Directions participants entered the program at different points in time and comparison group members had different charge dates, it is necessary to control for individual time at risk (e.g., differences in opportunities to re-offend) when examining re-arrests. In order to do this, a risk variable was created and represents the number of days in between specific start and end dates. The start dates used include the date of entry for program participants or the charge dates for comparison group members. End dates used include the date of re-arrest for the individuals who had been re-arrested or the date at which re-arrest data was collected (e.g., 2/16/2007) for those who had not been re-arrested at the

time of this study. In essence, this variable standardizes individuals' risk for re-offending and allows for the assessment of re-arrest across various intervals of time.

Table 9 compares re-arrests for program participants and comparison group members at different risk intervals. The results indicate that both program terminations and the comparison group had higher percentages of re-arrests, particularly at earlier points in time. For example, approximately 30 percent of program terminations and16 percent of the comparison group members who had been at risk for at least one year had been re-arrested. Furthermore, approximately 15 percent of terminations who had been at risk for 18 months and 14 percent of the comparison group who had been at risk for two years had been re-arrested. On the other hand, only 2.2 percent of New Directions active participants and graduates who had been at risk for a year and 3.8 percent who had been at risk for two years had been re-arrested. Such differences in re-arrests provide preliminary support for the success of the New Directions program in reducing recidivism.

Table 9: Re-Arrests for Program Groups & Comparison Group by Time at Risk
[a]Note: Time at Risk data were missing for 7 individuals

Time At Risk	Actives/Graduates (N=90)		Terminations (N=48)		Comparison Group (N=66)		Total (N=204)[a]
	Total	% Re-Arrested	Total	% Re-Arrested	Total	% Re-Arrested	# (% Re-Arrested)
6 months	90	0.0	48	10.4	66	13.7	204 (6.9)
12 months	90	2.2	42	30.2	57	15.8	189 (11.6)
18 months	74	0.0	27	14.8	40	7.5	141 (5.0)
24 months	52	3.8	19	5.3	22	13.6	93 (6.5)
30 months	29	0.0	14	7.1	11	9.1	54 (3.7)
36 months	19	0.0	9	0.0	5	0.0	33 (0.0)
42 months	11	0.0	2	50.0	1	100.0	14 (14.3)
43 months >	1	0.0	0	0.0	0	0.0	1 (0.0)

Predicting Re-Arrest and Drug Related Re-Arrest for Active/Graduates & the Comparison Group Members

In addition to the fact that active participants/graduates and comparison group members had different times at risk for re-offending, there may be additional differences in the composition of the two groups that may also explain the higher percentages of re-arrests across the two groups. Subsequent statistical tests on the descriptive statistics presented in Table 8 were conducted to determine the extent to which the comparison group was similar to active participants and graduates. The results highlighted three significant differences between the two groups. First, program actives/graduates were more likely than the comparison group to have received a high school education or equivalent (chi square = 5.97, df=1, $p<.05$). Second, the comparison group had a higher number of African American individuals in the group (chi square = 6.04, df=1, $p<.05$). Finally, the comparison group had a lower number of individuals with methamphetamine related charges as their qualifying offense (chi square = 12.44, df=1, $p<.001$). It should be noted that the two groups were not found to be significantly different on the remaining variables in Table 8. Even though the two groups are similar in terms of gender, age, and criminal histories, it is important to note that the differences found may introduce some bias into analyses and, as such, it is necessary to control for these characteristics as well.

Table 10 presents the results of two regression models predicting the likelihood of re-arrest and drug related re-arrest. The main variable of interest for predicting the likelihood of re-arrest is whether the individual was a New Directions active participant/graduate or not. However, it is also important to note that the models control for time at risk, demographic characteristics, qualifying offenses, and criminal histories. In other words, the models control for potential biases associated with individual differences for time at risk as well as for compositional differences between the two groups. This allows for a more accurate estimation for the effect of the program on recidivism.

The results of the models illustrate that the odds of re-arrest were significantly reduced for New Directions actives/graduates. Specifically, being a program participant reduced the odds of re-arrest by 94 percent while controlling for time at risk and compositional differences. Furthermore, the odds of re-arrest for a drug related offense were also significantly reduced for New Directions actives/graduates. Here, being a program participant reduced the odds of re-arrest by 95 percent while controlling for time at risk and compositional differences. Thus, the results of these two models also provide support for the potential of the program to reduce recidivism.

Table 10: Binary Logistic Regression Predicting Re-Arrest (N=122)

Variables	Re-Arrest			Drug Related Re-Arrest		
	b	S.E.	Exp(b)	b	S.E.	Exp(b)
New Directions Participant	-2.89**	.89	0.06	-3.03*	1.23	0.05
Time at Risk	-.01**	.001	0.99	-.004*	.002	0.99
Demographics						
Male	-1.29	.82	0.27	-.73	.99	0.48
White	-1.17	1.53	0.31	-.88	1.43	0.42
Non-H.S. Graduate	.31	.66	1.36	-2.15*	.92	0.12
Age of Entry/Charge	-.09*	.05	0.91	-.01	.05	0.99
Qualifying Offense						
Meth Related Charge	.66	.76	1.94	.06	.92	1.06
Straddle Cell Offender	1.32	1.02	3.73	.13	1.14	1.14
Criminal History						
Prior Jail Sentences	.27	.26	1.31	.02	.28	1.02
Prior Prob. Sentences	.04	.29	1.04	-.14	.35	0.87
Prison	-1.35	1.25	0.26	N/A	N/A	N/A
Age at First Arrest	-.06	.09	0.94	-.21	.14	0.81
Model Fit						
% Variance Explained	56.5%			49.5%		

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

Section V: Promising Characteristics of the New Directions Program

The above results highlight a number of promising characteristics of Van Buren's New Directions program. The program involves intense services blending treatment and supervision within a collaborative program structure and targets individuals with identified substance abuse problems, particularly problems of methamphetamine abuse. The characteristics of program participants suggest that the program staff is making a strong effort to reach this target population as the majority of participants qualified for the program due to a methamphetamine related offense. Other benefits of the program can be discussed in relation to the program goals identified by program staff: 1) retention of participants, 2) graduation of participants, and 3) reducing recidivism.

First, retention of participants in treatment was identified as a key to treatment success, and the program appears to be able to keep individuals involved at a high rate. Of the 139 total participants over two-thirds (64.7%) are either active or have graduated from the program. Forty-nine of the 139 participants had been terminated from the program due to noncompliance. While this retention rate is high for such programs, the current findings suggest that retention may be increased further by addressing certain factors, specifically, the effect of educational level on the likelihood of termination. Participants without at least a high school education or equivalent were significantly, and substantially, more likely to

be terminated from the program. Although this could be the result of a number of reasons, one plausible possibility is that this group of participants has increased difficulty in responding to the cognitive behavioral component of treatment due to differences in cognitive abilities compared to those with higher levels of education. Therefore, it may be beneficial for program staff to look further into this finding. Regardless, the program appears to be meeting its identified short term goal of program retention.

Second, program staff identified graduation from the program as another program goal. Results from the study show that the program graduates a high percentage of participants. Approximately 53 percent of participants eligible have graduated from the program. Consistent with the prior discussion of program retention, this percentage could be further increased when examining the effect of education and prior jail sentences as participants with lower levels of education and greater numbers of prior jail sentences were less likely to graduate. Overall, the program does; however, appear to be meeting its intermediate goal of program graduation.

Finally, active participants and graduates of the New Directions program had relatively few new contacts with the criminal justice system. Only four actives/graduates had been re-arrested. When compared to a similar group of offenders, re-arrests were much lower than the comparison group and occurred after much longer periods of time. The results showed a strong reduction in the likelihood of re-arrest for individuals participating in the program. Furthermore, the offenses for which program participants were re-arrested for were rather minor in nature and none were methamphetamine related. It should be mentioned that those terminated from the program also had higher numbers of re-arrests. It is also important to recognize that these groups were not randomly selected as the participants volunteered (with potential sentence reduction inducements) for participation and thus there may have been differences in the motivation of this group of offenders. However even considering these caveats, the program has produced results that are quite encouraging. All in all, Van Buren's New Directions program seems promising as a viable treatment approach for reducing both methamphetamine abuse and recidivism among substance abusing offenders.

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