Will the Methamphetamine Problem Go Away?

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ABSTRACT. Methamphetamine use has clearly reached epidemic proportions in large parts of the western and midwestern US. Because of the regional specificity of methamphetamine use, there is speculation that it may be a temporary problem and not a long-term public health problem. Unfortunately there are a number of factors that suggest that significant methamphetamine problems may persist or even expand. For this reason, it is important that federal law enforcement, prevention, research and treatment agencies prepare strategies to address the likelihood of this persisting problem. This article reviews the issues concerning the future of the methamphetamine problem in the US and provides some recommendations for setting priorities to address the problem.

KEYWORDS. Methamphetamine, epidemic, public health

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INTRODUCTION

Methamphetamine use has increased to epidemic proportions in the US and currently poses a significant public health threat.[1] While major urban centers east of the Mississippi are being plagued with problems relating to increased availability of inexpensive, high purity heroin, methamphetamine use is the dominant drug problem in the western and, more recently, midwestern portions of the US, most severely impacting rural areas. Despite this trend, the federal drug abuse agenda has historically been dominated by concerns over problems in eastern urban areas, while non-east coast problems have garnered little attention, as demonstrated by the slow federal response to the methamphetamine epidemic during the 1980s and 1990s. Honolulu, San Diego and numerous rural communities in the west had been severely damaged by methamphetamine for almost a decade before federal law enforcement, treatment, and research initiatives recognized the need to address the issue. In fact, it took the personal intervention of General Barry McCaffrey to shift some attention and resources to the methamphetamine problem. Although there are some methamphetamine treatment and research initiatives currently being implemented, attention at the federal level to this problem is still well down on the list of priorities.

ILLICIT DRUG USE–PASSING FAD OR ENDEMIC PROBLEM?

There is little question that epidemics of illicit drug use in American society have shown a cyclic pattern, with heroin, cocaine, methamphetamine, hallucinogens and marijuana trading places as the "drug du jour." (Of course, throughout all of these ebbs and flows, tobacco and alcohol-related problems create far more morbidity and mortality than the rest combined.) However, over the past 50 years it has become apparent that three drugs, heroin, cocaine and marijuana, have escalated from periodic flare-up usage to ongoing endemic problems (endemic; Webster's definition: Present in a community or among a group of people; said of a disease prevailing continually in a region). The use of heroin, even with variations in purity, is a constant in major US communities. In the 1980s cocaine use also became epidemic and, although its use among middle class individuals has dramatically decreased over the past decade, the use of crack cocaine is still the single biggest blight on many large inner city communities. Whether or not one views marijuana use as a significant legal/health risk, it is difficult to argue that marijuana use is a momentary "flash in the pan" phenomenon. Use among teenagers shows periodic increases and decreases, but few drug abuse experts expect that marijuana use will disappear.

There have been two notable instances of drug epidemics that appear to have come and gone over the past 50 years, without becoming severe endemic problems. Use of hallucinogens, including LSD, psilopsybin and mescaline, gained major public attention in the late 1960s and early 1970s. The popularization of these powerful psychedelics by such widely read authors as Timothy Leary and Carlos Casteneda, and through rock music encouragement, created near social hysteria about their dangers. According to virtually all drug use indicators, use of hallucinogens over the past two decades has decreased to a very low level. Similarly, the use of phencyclidine (PCP) in some parts of the US during the late 1970s created very significant concerns among health and law enforcement officials. However, whether supplanted by the cocaine epidemic of the 1980s or simply losing momentum on its own, the PCP scare was for the most part a short-lived epidemic.

WHAT ABOUT METHAMPHETAMINE?

Will the methamphetamine problem "have legs" and continue into the next century as a significant health and law enforcement concern? Or, will it go the way of acid and PCP and be of interest to only a few devotees and drug abuse historians? While there are no crystal balls or drug abuse "psychics" who can flawlessly predict the future, there are some facts to consider.

1. Worldwide, amphetamine and methamphetamine are the most widely abused illicit drugs after cannabis. According to the WHO, over 35 million individuals regularly use/abuse amphetamine/methamphetamine. Cocaine use is limited to approximately 15 million world wide (mostly North America) and heroin is used by fewer than 10 million.

2. Production of methamphetamine is relatively easy and although access to the necessary precursor chemicals can be reduced, it cannot be eliminated. While international efforts to eradicate coca production and prevent coca importation might someday reduce cocaine supplies, availability of the ingredients needed for methamphetamine production cannot feasibility be eliminated.

3. Not only is methamphetamine likely to remain available, it is likely to remain inexpensive as well. Methamphetamine effects are long lasting (10-12 hours) and methamphetamine users typically spend about 25% as much money for methamphetamine as that spent by cocaine users for cocaine. In spite of this fact, methamphetamine users use more days per week and spend far more time under the influence than cocaine users do.

4. Knowledge of how to manufacture methamphetamine has, over the past 10 years, been disseminated from a few "biker gang cookers" to two very important new groups. Creative "mom and pop chemists" can now download the formulas for methamphetamine from the internet and produce small quantities

for personal and associate use, and organized drug trafficking cartels have moved into the manufacturing of methamphetamine. With the addition of these two groups into the world of methamphetamine manufacture and supply, the availability of methamphetamine is likely to increase as new markets are created.

5. Methamphetamine use is expanding from a purely Caucasian, English-speaking clientele to Hispanic and Asian populations. Although the use of methamphetamine appears to be minimal among African Americans, increases among these two groups suggest continued expansion of the methamphetamine problem to new markets.

6. Usefulness of the drug in reducing fatigue and sustaining work and the value of methamphetamine in weight reduction (primarily women) are two of the reasons cited by users for their initial attraction to methamphetamine. These socially acceptable/promoted functions of methamphetamine are quite effective for extended periods of time. Unless users begin injecting the drug, it is possible for many individuals to take methamphetamine for a period of years before intolerable negative consequences of the drug begin to occur. As long as people need to work long hours in tedious, physically demanding jobs, and as long as people want to lose weight, the attraction of methamphetamine is likely to remain.

At present, there are few signs to suggest that the methamphetamine epidemic of the 1990s will simply become an unpleasant memory, as did the PCP epidemic of the 1970s. One sign of hope recently was seen in some of the indicator data from the San Diego area, where there appears to be some sign of decreased use.[2] However, among the leading reasons suggested for the decreases seen in that area is the very aggressive and intensive effort of a multi-agency methamphetamine task force focused upon reducing methamphetamine manufacture and distribution in the local area. Unfortunately, despite the positive signs of impact, it is believed by law enforcement representatives that the manufacture/supply of methamphetamine has not been eliminated, but, rather, that it has been moved to areas outside San Diego County, where there are less intensive community eradication efforts.

WHAT DOES AN ENDEMIC METHAMPHETAMINE PROBLEM MEAN FOR US POLICY MAKERS?

If the use of methamphetamine continues into the next century as a significant endemic problem in some parts of the US, what influence will this have on US public resource allocation?

Criminal Justice System: If the production and distribution of methamphetamine continues to develop as a two source (small quantity cookers and large-scale distribution systems), law enforcement personnel will need added

training and equipment. Many law enforcement agencies, particularly those in small rural communities lack the resources and knowledge needed to safely enter and dismantle the idiosyncratic and unsafe methamphetamine laboratory settings. Furthermore, these same law enforcement agency personnel frequently lack the manpower and equipment needed to respond to the presence of sophisticated drug trafficking organizations involved with distribution of large shipments of methamphetamine.

The criminal justice system may play a larger role in initiating methamphetamine users into treatment than with other groups of drug users. The drug court movement may be a very timely development for speeding the "natural" course of treatment entry for methamphetamine users. Similarly, the prison and jail-based treatment efforts may be especially well suited to the needs of methamphetamine users. The linkage between criminal justice and treatment/monitoring efforts appears particularly fruitful in light of an observation made in a recent study of methamphetamine use suggesting that methamphetamine users appear to be slower to enter treatment than users of other types of drugs. Pennell and colleagues[3] noted that, at the time of treatment entry, methamphetamine users had used for a greater number of years prior to their first treatment episode. One explanation for this finding is that since many methamphetamine users use methamphetamine to sustain their ability to work rather than as a "party drug," it is possible that the use of methamphetamine remains a "controlled" application rather than an excessive binge-type application.

Simon and colleagues[4] have confirmed this difference in drug use patterns between methamphetamine users and cocaine users. Under these "controlled use" circumstances, the user maintains functioning longer than with other "less controlled" patterns of use. One result of this drug use pattern is that although methamphetamine use is producing significant health, legal and social risks, the users of methamphetamine are slower to experience some of the severe consequences of addiction. If they are able to continue working with their "controlled at work" use patterns, the loss of employment and resulting loss of home and family may occur more slowly. Thus, they "hit bottom" more slowly than users of heroin (who have the severe consequence of opiate withdrawal to motivate treatment entry) or cocaine users (who experience the profound and rapid loss of jobs, money, home, and family due to the costly and uncontrolled binge pattern of smoked cocaine). For these reasons, methamphetamine users may be particularly suitable to treatment linked to criminal justice system sanctions.

Workplace and Educational Settings: Although methamphetamine users may continue to work during the course of their drug use, it does not imply that there are no problems created by methamphetamine use on the job. There have been no systematic studies focusing on methamphetamine use and the workplace. However, it is highly probable that the findings about drug use in the

workplace and the association with higher rates of accidents and other workplace incidents are applicable to the use of methamphetamine. If the observations noted above about methamphetamine use and work are accurate, it certainly would be advisable for employers in areas of high methamphetamine availability to maintain aggressive programs of workplace drug testing and to provide EAP and insurance benefits with substance abuse coverage. Furthermore, training for supervisors to increase their ability to detect the signs and symptoms of methamphetamine use would be a highly advisable effort.

In schools located in areas of methamphetamine availability, there are a number of areas of concern. For teachers and childcare personnel who work with small/elementary school children, it is important to learn how to recognize and stay alert for evidence of parental methamphetamine use. Neglect of children by methamphetamine-using parents is commonly reported. Since the methamphetamine users have suppressed appetites from the stimulant use, frequently children fail to receive adequate nutrition. Poor nutrition, grooming and hygiene, as well as fatigue and mood swings are commonly observed among children of methamphetamine users. When children live in settings where methamphetamine is being manufactured, they have been noted to have the powerful odor associated with methamphetamine cooking. Teachers and staff responsible for these children may have the opportunity to intervene in this extremely dangerous situation. Training in the signs and symptoms of parental methamphetamine use and understanding the reporting regulations for potentially abused/neglected children is of great importance in such cases.

In high school and college settings in areas where methamphetamine is readily available, student use is a concern. While there is certainly reason to be vigilant in looking for the typical signs of methamphetamine use, there are several very unlikely categories of students who may be at risk. In a substantial number of anecdotal reports, high achieving students have been reported to find methamphetamine use very helpful in maintaining the highly demanding schedules required to achieve good grades and to be socially active. There have been reports of high school valedictorians and super achieving physics and computer science students found to be severely dependent upon methamphetamine. Furthermore, methamphetamine use has been reported among students who require extreme performance capabilities (e.g., athletes, cheerleaders, models, medical students, and beauty pageant participants). Finally, methamphetamine is commonly mentioned as one of the "cocktail" of drugs used at parties and "raves." High school and college guidance and counseling personnel need to have the necessary knowledge and training to recognize the use of methamphetamine and know how to appropriately address the problem with these students.

Health/Mental Service Agencies: While substance abuse treatment agencies provide the bulk of the ongoing treatment services for methamphetamine

users, methamphetamine users frequently present for treatment in other health-care settings. In areas with extensive methamphetamine use, hospital emergency room personnel often encounter intoxicated individuals who are experiencing methamphetamine-induced psychotic episodes, which is difficult to differentiate from acute schizophrenia. Rapid detection, drug toxicology capabilities are essential to the accurate and safe treatment of these individuals. Training and program development issues important to emergency room personnel in areas of elevated methamphetamine use include patient management skills that emphasize strategies to decrease the likelihood of precipitating violent responses from intoxicated individuals, and service linkages between emergency care settings and community substance abuse treatment programs. Other health service needs that are required to successfully address the needs of methamphetamine users include professionals who are well trained in the medical problems associated with acute and chronic methamphetamine use, such as cardiovascular problems (e.g., cardiac arrhythmia, myocardial infarction), respiratory disorders and liver and kidney dysfunction. The effects of methamphetamine use among pregnant women have received less study than the effects of alcohol, cocaine and heroin. However, it is known that methamphetamine use during pregnancy is associated with fetal loss and developmental defects, including developmental delay and possibly learning disabilities.

Finally, extensive evidence indicates that in many western US cities, methamphetamine is used extensively by gay males and is frequently associated with high-risk sexual behavior, a major factor in the transmission of HIV.[5-7] Within this particular group, treatment for methamphetamine dependence may be one of the most important strategies in reducing the spread of HIV and other associated communicable diseases.

In many of the rural communities affected by methamphetamine, mental health clinicians have been seriously impacted. In many of these communities, the mental health clinic or even individual clinicians are the only service resource for mental health and substance abuse patients. However, the severe psychotic and paranoid behavior demonstrated by methamphetamine users is frequently beyond the resources of the individual clinician. Training in recognizing methamphetamine-related problems in abusing/dependent individuals and developing regional resources to meet the treatment needs of these individuals are necessary components in responding to increased methamphetamine use. Although protocols for treating these patients are currently being developed (described below), it is clear that communities need a plan for addressing the challenges faced by individuals who use methamphetamine that includes the mental health, social service, and law enforcement agencies.

RESEARCH PRIORITIES FOR SUBSTANCE ABUSE AGENCIES

In responding to the methamphetamine problem, the National Institute on Drug Abuse (NIDA) has made extensive contributions, including a currently active, NIDA-funded program of research on methamphetamine-related issues. However, there is much new information needed to improve the response of communities and clinicians to the methamphetamine problem.

There are a number of federal agencies responsible for recognizing and alerting policymakers to the emergence of new drug trends. The Substance Abuse and Mental Health Services Administration (SAMHSA), the National Institute on Justice (NIJ), and NIDA all share responsibility for monitoring drug use and drug availability trends. One of the unfortunate lessons from the methamphetamine epidemic is that the drug use indicator system either did not work very well in recognizing the extensive methamphetamine problems occurring in parts of the western US, or the warnings went unheeded. Severe problems in Honolulu, San Diego, San Francisco and San Bernardino/Riverside, California were reported in numerous press accounts beginning in the mid 1980s. In fact, as early as 1987 the San Bernardino County Office of Alcohol and Drug Programs dedicated funds specifically toward addressing the methamphetamine problem. Surprisingly, it took until 1994 for the federal agenda to reflect the existence of the problem. Once on the federal agenda, a number of new data collection efforts were initiated including the addition of new NIJ ADAM sites that dramatically illustrated the tremendous extent of methamphetamine problems in Salt Lake City, Des Moines, Omaha and cities in central California.[2] Clearly it could have been a tremendous help to many communities to have better data sooner on the emergence of this serious problem. One lesson from the methamphetamine epidemic is that a more complete system of monitoring drug use trends is needed as well as a system that can pick up drug use outside a few major metropolitan areas.

There is currently a rapidly emerging wealth of information from animal and human brain research that has led to remarkable changes in the way methamphetamine addiction is understood. Research efforts in these areas have provided an entirely new perspective on the impact of drug use on basic neurophysiological systems. Alan Leshner's conceptualization of addiction as a "brain disease" is easily understood as the data on methamphetamine and its effect on the human brain is better understood. Although individuals initiate their use of methamphetamine for a variety of psychological and sociological reasons, once methamphetamine has been administered to the human brain, profound changes begin to occur.[8] These brain structure and brain chemistry changes influence the basic biological unit of brain functioning–the neuron. Methamphetamine appears to damage the neuron in ways that are different than, and in some ways more severe than, other drugs of abuse.[9] However,

while there are profound changes, many of the changes appear to be reversible. The key ingredients for the necessary neurophysiological/neurochemical "healing" are ample amounts of time (6-12 months) and abstinence from methamphetamine use. This knowledge has a direct application on the design and funding for methamphetamine treatment.

Clearly there are many important unanswered questions that require aggressive investigation. For example, there is a rudimentary understanding of the manner in which methamphetamine affects the brain, but for the successful development of treatments, more information is needed. Why does methamphetamine produce such dramatic paranoia and other profound psychotic symptomatology? How are these symptoms similar to or different from schizophrenia? Do some people become schizophrenic as a direct result of methamphetamine? What neurobiological systems are involved in reversing the effects of methamphetamine? Does the disruption in cognitive function recover as the brain recovers? What are the effects of methamphetamine on a developing fetus?

In parallel with collecting new knowledge about brain function, are the research efforts to develop medications to aid in the treatment of methamphetamine-related disorders. Currently there are no medications that can quickly and safely reverse life threatening methamphetamine overdoses. Similarly, there are no medications that can reduce the paranoia and psychotic symptoms that frequently contribute to episodes of dangerous and violent behavior associated with methamphetamine use. As clinicians will attest, it would be tremendously helpful to have medications that could help methamphetamine users recover more quickly from the effects of chronic use. Medication(s) that could reduce symptoms in the early days and weeks of recovery could be extremely valuable in promoting engagement and retention in behavioral and psychosocial treatments. The problem of relapse to methamphetamine use is a complex process. However, one important set of contributing factors is the unpleasant emotional and cognitive impairments that accompany the protracted abstinence syndrome for months after methamphetamine use is discontinued. Medications that could lessen the severity of these symptoms could be of tremendous value in providing more successful treatments.

NIDA and CSAT have both sponsored research to evaluate the efficacy of several behavioral and cognitive behavioral treatments for stimulant use disorders. NIDA has also produced several manuals that have been empirically tested with stimulant-using populations. Although the NIDA materials have been developed and tested with cocaine and crack users, there is evidence to suggest that cocaine and methamphetamine users respond quite similarly to behavioral and cognitive-behavioral strategies.[10] Currently, CSAT is funding a seven-site evaluation of a manualized outpatient approach (Matrix Model) across a varied group of treatment settings and with a range of methamphet-

amine using populations. Information from the first year of this trial is currently being prepared for publication.[11] Although these treatment development efforts have delivered several empirically supported treatment protocols, the success of these approaches leaves much room for improvement. Efforts to establish novel psychotherapy/behavioral treatments are essential, as are studies to determine how to modify existing protocols to more effectively address the needs of special populations. The recently initiated NIDA Clinical Trials Network will provide a valuable research vehicle for assessing new methamphetamine treatments and evaluating their application in real world community clinics.

PRIORITIES FOR PREVENTION AGENCIES

There is minimal data to suggest how to specifically target methamphetamine use with effective prevention messages. However, if methamphetamine remains a significant drug problem on an ongoing basis, drug prevention messages certainly need to continue to present accurate information about the negative sequellae of methamphetamine. At particularly high risk are women for whom methamphetamine offers a quick and effective method of weight control. Prevention messages to young women may find it useful to question the desirability of aspiring to the anorexic body type of the fashion models seen in magazines and TV, and often viewed as role models. Similarly, among high achieving high school and college students, effective educational messages about the legal, medical and neuropsychiatric dangers of methamphetamine use may help to stigmatize the use of methamphetamine from a "useful study aide" to an unacceptable socially deviant behavior. Finally, in workplaces where employees are required to labor long hours engaged in physically demanding, tedious work, aggressive drug testing, drug education and trained EAP programs may be very helpful in deterring use and in moving users into treatment as quickly as possible.

PRIORITIES FOR TREATMENT AGENCIES

In many parts of the US where methamphetamine use has become widespread, the public and private treatment systems have historically had little experience treating individuals with illicit drug dependencies. In the western and midwestern US, many communities have had little exposure to the challenge of providing treatment services to users of drugs like heroin and cocaine. In a number of these communities the major drug problems before methamphetamine have been alcohol and marijuana. Treatment programs and personnel that have for decades delivered traditional 12-step based alcoholism treatment

are unprepared for the influx of methamphetamine users. Although some traditional treatment elements may be appropriate for methamphetamine users, many treatment staff report feeling unprepared to address many of the clinical challenges presented by methamphetamine users. Poor treatment engagement rates, high drop out rates, severe paranoia, high relapse rates, ongoing episodes of psychosis, severe craving and protracted dysphoria and anhedonia are clinical challenges that are frequently far more problematic than is seen with standard treatment populations. In many small communities it is unclear which agency other than the police is the agency with the proper skills and knowledge to address the needs of methamphetamine users.

Information is available to provide new treatment programming options for clinicians faced with the challenge of treating methamphetamine users. The CSAT TIP #33, Treatment of Stimulant Abuse, is a useful resource that presents a review of the existing knowledge about treatment effectiveness with stimulant users, including methamphetamine users.[7] In addition, this document provides educational information and practical, applied recommendations for treating methamphetamine users. The TIP has an appendix with handout materials that can be used in clinical exercises in treatment sessions. Although there is information available to guide clinicians in treating methamphetamine users, in many areas affected by methamphetamine there is neither the expertise nor the resources to implement these new treatment strategies. For traditional alcoholism counselors, whose clinical expertise is primarily based upon their personal history of alcoholism, the severe psychiatric symptomatology of methamphetamine users is frequently beyond their clinical experience.

Training for these staff may be part of the answer. However, it may be necessary to add clinical staff with more professional background and training in working with severely mentally ill patient populations to adequately meet the clinical challenges of this patient population. Several of the clinical problems frequently encountered when working with methamphetamine users that are often unfamiliar to counselors who have primarily alcoholism treatment experience are the issues of methamphetamine and sexual behavior (with men), methamphetamine and weight gain (with women), and methamphetamine and ongoing paranoia. As discussed in the CSAT TIP #33, these issues are clinically quite commonly encountered when treating methamphetamine users and treatment knowledge in these areas is very important.

While training and development of knowledgeable clinical personnel are essential, they are insufficient if the funding necessary to deliver these treatment recommendations is not available. In many areas, the treatment system funding is divided into treatment for residential care (21 days-12 months), short-term detoxification (3-5 days), and outpatient treatment. Unfortunately, this combination of funding options frequently is not optimal for the needs of

methamphetamine users. As described in TIP #33, intensive outpatient treatment is viewed as the primary treatment setting for methamphetamine users. While the optimal frequency and duration of treatment sessions are not well established, the consensus panel that produced the TIP suggests that 3-5 visits per week for the first several weeks may be necessary, with 2-3 sessions per week for at least 90 days, or probably longer. The 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 dysphoria, cognitive disruption, and anhedonia.

Treatment funding policies that promote short duration or non-intensive outpatient services are inappropriate for providing adequate funding for methamphetamine users. One specific practice is a managed care practice of providing a maximum benefit of 20 outpatient sessions for the treatment of individuals with methamphetamine use disorders. As referenced in the research section above, methamphetamine use disorders involve profound changes in multiple areas of human brain chemistry and brain functioning. Brief superficial treatment benefits frequently promoted by managed substance abuse benefit policies are in direct opposition to what is known about the treatment needs of methamphetamine users. In areas in which methamphetamine use is a significant presence, financing policies for the treatment of these patients should be made consistent with evidence about their treatment needs.

While intensive outpatient treatment protocols do appear to provide the primary treatment paradigm for most methamphetamine users, several groups require other treatment resources. Those individuals who enter treatment with such severe psychiatric impairment that they are unable to safely function on an outpatient basis require admission and stabilization in a medically supervised treatment setting where short term use of anti-psychotic and tranquilizer medications can be administered to reduce paranoia, psychosis, and agitation. The duration of treatment in this setting is variable. Many individuals require only 48-72 hours to resolve these debilitating psychiatric symptoms. Once these symptoms are resolved to allow the patient to be safely treated on an outpatient basis, transfer to this setting is appropriate. However, there are individuals whose psychiatric symptomatology is not quickly resolved. These patients require longer stays under medical/psychiatric supervision and may need ongoing treatment with anti-psychotic medications. In addition to these psychiatrically compromised individuals, there are other groups of methamphetamine users who may require more intensive levels of care to be effectively treated. Pregnant women and women with small children frequently require increased levels of care. While it may be possible to treat pregnant women in intensive outpatient treatment, attention must be given to monitoring and promoting proper prenatal care with these women while in treatment. In addition, it is important that clinical staff be capable of working with pregnant women who re-

lapse in treatment. Frequently there is an extreme lack of empathy exhibited by staff and other patients toward women who relapse during their pregnancy. Clinical staff who can properly address these treatment situations and effectively move these patients to more intensive levels of care when necessary is essential. Women with small children frequently require an increased level of support, either via a women's and children's residential setting or an intensive day treatment setting with sober housing for women and children. The combined burdens of work, home care, childcare, and other family responsibilities, plus attending treatment frequently can induce such a level of exhaustion and fatigue that methamphetamine use may appear to be the only way to acquire sufficient energy to accomplish all of the responsibilities. Clearly under these circumstances, special treatment considerations are needed.

Other methamphetamine using groups with special treatment needs include the homeless and the gay community. It is difficult to achieve and sustain abstinence from methamphetamine while living in a box on the street, in your car, or in a methamphetamine manufacturing and/or trafficking location. Many homeless individuals can be successfully treated in outpatient settings if combined with sober housing for the first weeks or months of recovery.

The needs of gay male methamphetamine users, especially those in some of the large gay enclaves on the west coast, may require special treatment programming. The use of methamphetamine by gay male methamphetamine users frequently becomes inextricably intertwined with their sexual and social behaviors. The unique and powerful nature of this conditioned pathology presents a clinical syndrome that often cannot be effectively discussed in mixed patient groups with heterosexuals. The importance of this issue and the difficulty of discussing it in mixed patient groups frequently results in very poor treatment engagement and early treatment dropout. The importance of successful treatment with this group is of particular importance as the sexual behavior of this group is a tremendously critical vector in the spread of HIV. The challenges of working with this patient group and strategies for improving treatment response has recently been described.[5]

Finally, as mentioned above under the criminal justice section, one common deterrent to successful treatment efforts with methamphetamine users is their inability/unwillingness to recognize the problematic nature of their drug use. However one conceptualizes this problem, as "denial," "ambivalence," or "pre-contemplation stage of change," the fact remains that many methamphetamine users are reluctant to enter treatment and once in treatment there is an unacceptably high early drop out rate. One very strong finding in the research literature is that stimulant users respond well to the effective use of contingency procedures.[12] Fortunately, this finding on the value of contingencies to effectively influence the behavior of stimulant users dovetails nicely with the very enthusiastic movement to use drug court strategies. Drug courts are based

upon the rapid and certain application of contingent consequences based upon the behavior of the drug user. Drug court participants who successfully exhibit desired behaviors (e.g., treatment attendance and clean urinalyses) can earn their way to progressively less demanding treatment requirements and ultimately to removal of legal sanctions. Those who are unable to produce the necessary desired behaviors are required to move to more intensive levels of care or enter periods of incarceration. The confluence of the methamphetamine user characteristics and the drug court movement appear to have a tremendous potential for synergy.

SPECIFIC RECOMMENDATIONS

- Maintain a senior level advisory taskforce (such as the existing Methamphetamine Advisory Taskforce, headed by General McCaffrey and Attorney General Reno) to keep a focus on the unique set of problems resulting from methamphetamine. This type of senior level advisory group has the unique perspective to keep the multiple agencies involved pursuing answers and coordinating efforts toward the methamphetamine problem.
- Support a methamphetamine research, treatment and training center that can focus on the needs of methamphetamine impacted regions. This center should have a major emphasis on promoting integrated agency initiatives and the transfer of research findings into clinical practice.
- Increase efforts to develop new behavioral and pharmacological treatments. Expand knowledge regarding methods for accelerating treatment entry and promoting treatment engagement. These methods should include, but not be limited to, drug court techniques.
- Provide recommendations/requirements to treatment funding agencies that funding levels and reimbursement rates recognize and accommodate the special treatment needs of methamphetamine users. Particular attention should be given to providing extended duration treatments in light of the protracted brain recovery period.

SUMMARY

Methamphetamine use has escalated to epidemic levels in the western and midwestern US. It is unlikely that methamphetamine will be a passing fad and quickly disappear from the drug abuse landscape. In fact, there are a number of reasons to expect that methamphetamine use and related problems will become part of the ongoing challenge faced by the federal and local agencies that address substance abuse problems. This prediction has significant implica-

tions for law enforcement, health service, and educational institutions. Recent research efforts on methamphetamine has produced new knowledge and it has become increasingly clear that a strategic program of research, prevention and treatment must be developed, properly funded, and coordinated with community agencies if we are to minimize the impact of this serious public health problem.

REFERENCES

1. Cunningham JK, Thielemier MA. 24 Trends and Regional Variations in Amphetamine-Related Emergency Admissions: California, 1984-1993. CA: Public Statistics Institute. 1995.

2. National Institute of Justice. Annual report of methamphetamine use among arrestees. Results from the ADAM Program. 1999.

3. Pennell S. Meth Matters: A report from 5 cities. NIJ Report, US Department of Justice. 1999.

4. Simon SL, Richardson K, Dacey J, et al. A comparison of patterns of methamphetamine and cocaine use. J Addic Dis. 2002; 21(1):21-34.

5. Frosch D, Shoptaw S, Huber A, et al. Sexual HIV risk among gay and bisexual male methamphetamine users. J Subst Abuse Treat. 1996; 13:483-486.

6. Gorman EM, Morgan P, Lambert EY. Qualitative research considerations and other issues in the study of methamphetamine use among men who have sex with other men. In: Lambert EY, Ashery RS, and Needle RH (Eds.), Qualitative Methods in Substance Abuse and HIV Research, NIDA Research Monograph. 1995; 157, 156-181.

7. SAMHSA. The Treatment of Stimulant Use Disorders. TIP #33. 1999 DHHS Publication No. (SMA) 99-3296.

8. Mathias R. Like methamphetamine, ecstasy may cause long-term brain damage. NIDA Notes. 1996; 11, p.7.

9. Cho AK. Ice: A new dosage form of an old drug. Science. 1990; 249: 631-634.

10. Rawson R, Huber A, Brethen P, et al. Methamphetamine and cocaine users: Differences in characteristics and treatment retention. J Psychoactive Drugs 2000; 32(2):233-238.

11. Anglin, MD, Rawson, RA. Methamphetamine: Special issue. J Psychoactive Drugs. 2000; 32(2):135-136.

12. Higgins S, Wong C. Treating cocaine abuse: What does research tell us? In: Higgins ST and Katz JL (Eds.). Cocaine Abuse Research: Pharmacology. 1998.

13. Drug Abuse Warning Network. Substance Abuse and Mental Health Services Administration. 1997; //http: HYPERLINK http://www.samhsa.gov 24 www.samhsa.gov

14. Behavior and Clinical Application. San Diego, CA. Academic Press.

15. Reback, CJ. The social construction of a gay drug: Methamphetamine use among gay and bisexual males in Los Angeles (Report# 93427). City of Los Angeles, AIDS Coordinator. 1997.