



ISSUES SURROUNDING METHAMPHETAMINE USE

WHAT IS METHAMPHETAMINE

Methamphetamine (meth) is a powerful, highly addictive stimulant drug that activates certain systems in the brain producing an intensely pleasurable sensation known as a rush. This rush comes from the brain's release of high levels of dopamine – the substance in your brain that helps you feel pleasure. It is chemically related to amphetamine but, at comparable doses, the effects of meth are much more potent, longer lasting, and more harmful to the central nervous system.

Amphetamines, including methamphetamine, were first synthesized in the early part of the 20th century, although they were not identified for medical use until the 1930s. First manufactured as a bronchial dilator, they were quickly prescribed for a variety of other conditions – narcolepsy, attention deficit disorder, obesity, and fatigue. With an increasing problem of abuse of these drugs due to legal availability and easy access in the 1950s and 1960s, amphetamines/methamphetamines were made Schedule II substances in 1970. (Schedule II means it has a high potential for abuse and is available only through a prescription that cannot be refilled.) Through the next decade, further restrictions on prescriptions and on the precursor chemicals needed for manufacture resulted in reductions in use nationwide. Methamphetamine had faded from a previous national popularity rivaled only by marijuana until reappearing in Hawaii and the West in the 1980s. By the turn of the millennium it had reappeared in most areas of the United States.

HOW IS METHAMPHETAMINE MADE

Unlike drugs such as marijuana, cocaine, and heroin, which are derived from plants, meth can be manufactured using a variety of store bought chemicals.

It can be made in small, illegal laboratories, where its production endangers the people in the labs, neighbors, and the environment. Street meth is referred to by many names, such as "speed," "meth," and "chalk." Methamphetamine hydrochloride, clear chunk

crystals resembling ice, which can be inhaled by smoking, is referred to as "ice," "crystal," "glass," and "tina."

The most common ingredient in meth is pseudoephedrine or ephedrine, commonly found in cold medicine. Through a cooking process the pseudoephedrine or ephedrine is chemically changed into meth. The ingredients that are used in the process of making meth can include: ether, paint thinner, Freon, acetone, anhydrous ammonia, iodine crystals, red phosphorus, drain cleaner, battery acid, and lithium (taken from inside batteries).

Meth is often "cooked" in very crude laboratories. The labs are not sophisticated operations and do not require sophisticated chemistry equipment. Cooking meth is relatively simple, but highly dangerous and toxic.

In 2005 and 2006, the South Dakota Legislature enacted laws to restrict the sale and identify purchasers of products containing pseudoephedrine or ephedrine. (SDCL chapter 34-20D)

HOW DOES METHAMPHETAMINE AFFECT USERS

Methamphetamine is taken orally, intranasally (snorting the powder), by needle injection, or by inhalation (smoking). Each method has a different lag time of absorption. The slowest rate of absorption is within 20-30 minutes when the drug is taken orally (pill form). The most rapid rate of absorption is by injection or inhalation, where its effects are felt within 7-15 seconds. Users experience a euphoric rush and the high can be sustained for several hours. Abusers may become addicted quickly and become tolerant of the drug, needing higher and higher doses and more often.

In the short term meth causes an increase in energy and alertness, a decrease in appetite, and an intense euphoric "rush." During this "rush" the user is overly stimulated, shows rapid flights of ideas and speech, is highly assertive or confident, but may also display suspicious or paranoid behaviors. As the "high" declines the user then experiences a "crashing" period. The "crashing" period is marked by fatigue, hunger, thirst, cravings, and mental confusion. Without taking another dose, the user may show continued lack of energy, depression, anxiety, and insomnia. These unpleasant feelings encourage users to take repeated doses over an extended period of time.

With sustained use, a meth user can develop a tolerance to it. The user may take increasingly higher doses of meth trying to catch that high that was first experienced. Meth users may need to use it more frequently or go on binges. Continued use may also result in the user changing the way the meth is ingested. For example, a user may start by taking a pill but as a tolerance is developed, may begin injecting it.

In the long term, a person using meth may experience irritability, fatigue, headaches, anxiety, sleeplessness, confusion, aggressive feelings, violent rages, cravings for more meth, and depression. They may become psychotic and experience paranoia, auditory

hallucinations, mood disturbances, and delusions. The paranoia may lead to homicidal or suicidal thoughts.

HOW DOES METHAMPHETAMINE AFFECT THE BODY/HEALTH – SHORT TERM

Like many other stimulants, methamphetamine affects multiple systems of the body. The body responds to methamphetamine as if it were preparing itself in an emergency situation. The heart rate elevates, metabolism increases, blood vessels constrict, pupils dilate, and body temperature rises. In a normal response to emergencies, these effects are short lived, and the body returns to normal when the crisis passes. With methamphetamine use, the effect is sustained for hours, placing extended stress on the nervous, circulatory, renal, and respiratory systems. Acute physical problems that come from this long period of stimulation include hyperthermia, palpitations, chills, hyper motor activity, kidney failure, mental confusion, dizziness, and tremors.

High doses of meth can elevate body temperature to dangerous, sometimes lethal, levels. High doses can also cause convulsions. People can die as a result of using meth. Because meth is so addictive, the distance between the short-term and long-term effects may not be very long.

OVERDOSE

Unlike other drugs, a methamphetamine overdose gives no immediate signs to users. Users can take a lethal dose and not immediately realize that they have just done so.

An overdose results in a rapid onset of physiological deterioration, eventually leading to a heart attack or stroke. Because of the rapid onset, death occurs suddenly and unexpectedly.

A meth overdose produces profuse sweating, rapid breathing, increased heart rate, and dilated pupils. A person who has overdosed on meth will have a high temperature, kidney failure and cardiovascular collapse – and it will all happen very quickly.

CRANK BUG

Because of the toxic nature of meth, a fairly common hallucination experienced by users is the so-called crank bug. The users get the sensation that there are insects creeping on top of, or underneath, their skin. The user will pick or scratch the skin trying to get rid of the imaginary bugs. This scratching and picking can create open sores that may become infected.

WITHDRAWAL

People withdrawing from methamphetamine experience mood disorder symptoms as well as physical symptoms and can alternate from wanting to sleep all the time, to not being able to sleep. Withdrawal symptoms can last for several weeks.

People who stop using methamphetamine experience a wide variety of symptoms, including: irritability; depression; fearfulness; loss of energy; and extreme craving for the drug.

Meth withdrawal also results in actual physical symptoms such as: shaking and tremors; nausea; palpitations; sweating; hyperventilation; and increased appetite.

HOW DOES METHAMPHETAMINE AFFECT THE BODY/HEALTH – LONG TERM

Meth abuse can lead to serious health conditions including brain damage, memory loss, psychotic-like behavior, heart damage, mood changes, impaired motor coordination, hepatitis, and HIV transmission. Methamphetamine abuse can produce extreme anorexia. Even over a short period of use, meth can cause drastic changes in the appearance of the user. Hyperthermia and convulsions can be fatal.

BRAIN CHANGES

The long-term use of methamphetamine can cause damage to the brain similar to that caused by stroke and epilepsy. People who have used meth may also have brain abnormalities similar to those seen in people with mood disorders or Alzheimer's. Methamphetamine can also cause irreversible damage to the blood vessels in the brain, resulting in a stroke. Some of the most frightening research findings suggest that prolonged meth use literally changes the brain in fundamental and long-lasting, even permanent, ways.

ADDICTION

Methamphetamine is highly addictive and users become physically dependent on the drug quickly. Meth, like amphetamine, produces a rapid pleasurable feeling, which is followed by feelings of depression and irritability when the drug wears off.

Users will seek and use more methamphetamine in order to get back that state of pleasure, or even just to feel "normal" again, which results in a physical dependence on the drug. It is a never-ending cycle.

METH MOUTH

Dental problems are common among meth users for several reasons. Many users have poor and irregular dental hygiene and do not see a dentist often. In addition to lifestyle choices of the user, the ingredients and the method of use damage teeth.

Lithium, muriatic and sulfuric acids, ether, red phosphorus and lye – key ingredients in meth manufacturing – are all corrosive and will cause skin burns even when properly used. When a person smokes meth, these substances are heated, vaporized and swirl throughout the user's mouth. They irritate and burn the sensitive skin inside the mouth, create sores and lead to infection. Chronic meth smoker's teeth are rotted to the gum line from the continuous affect of the vapors on tooth enamel. The overall neglect and abuse results in rotten teeth.

Snorting meth causes chemical damage to teeth. Snorting draws the caustic substances down the nasal passages, draining in the back of the throat and bathing the teeth with corrosive substances. Meth use also reduces the amount of protective saliva around the teeth. Meth users often consume excess sugared, carbonated soft drinks, tend to neglect personal hygiene, grind their teeth and clench their jaws. Teeth can eventually fall out.

Symptoms:

Dry Mouth – Saliva acts as a buffer against acidic substances in the mouth, neutralizing it and protecting teeth against acidic foods and stomach acids. Meth dries out the salivary glands. Without saliva, the acidic substances can eat away at the minerals in tooth enamel, causing holes or weak spots that turn into cavities.

Tooth Decay – Often meth users try to treat the dry mouth symptom with lots of sugary soda. The bacteria that feed on the sugars in the mouth secrete acid, which leads to more tooth decay. Add to this the fact that meth users aren't likely to floss, brush and rinse when high.

Cracked Teeth – Clenching and grinding teeth because of the anxiety and nervousness side effects, may lead to cracked and broken teeth.

Gum Disease – Reduced blood supply to the oral tissues causes shrinking. With repeated shrinking, the blood vessels don't recover and tissues die.

HOW DOES METHAMPHETAMINE AFFECT EVERYONE ELSE

The chemicals used to manufacture meth are toxic. All those toxic chemicals take a toll on the environment. Every pound of meth made can generate five-six pounds of toxic waste that may seep into the soil, reach the ground water and affect the eco system. Further, unsuspecting citizens such as trash collectors and motel cleaning staff, may become exposed and injured when they attempt to dispose of waste. Leftover chemicals from the methamphetamine labs have been found on highways, in parks, groundwater, and sewer systems.

The manufacture of methamphetamine involves a number of toxic chemicals which can burn skin eyes and nasal passages. If the toxic fumes are inhaled, serious injury to lung tissue can result. In addition, many of the chemicals used can lead to explosions or fires. Cleaning up a meth lab requires hazardous waste protection and can cost thousands of dollars.

Meth Use During Pregnancy

Meth abuse during pregnancy has an adverse affect on the fetus. It is known to cause low birth weight, cleft palates and other malformations. Recent studies also suggest a single prenatal dose of meth may be enough to cause long-term neurodevelopmental problems in babies.

Methamphetamine appears to restrict the nutrient-rich flow to blood into the placenta, increasing the risk that the newborn will be "small for gestational age." Meth affected babies, even if they are full-term, act like premature infants. They experience difficulty

sucking and swallowing, sensitivity to touch, shaking or tremors, and often demonstrate abnormal reflexes and extreme irritability.

Meth use during pregnancy can also reduce blood flow to the fetal brain and cause the placenta to pull away from the uterine wall. It increases the incidence of birth defects and miscarriages. Some babies suffer brain hemorrhages – strokes – before birth. These children often continue to have physical, emotional, and mental difficulties as they grow.

South Dakota Codified Law includes prenatal exposure to abusive use of alcohol or any controlled drug or substance in the definition of child abuse or neglect. (SDCL 26-8A-2)

DRUG ENDANGERED CHILDREN IN SOUTH DAKOTA

South Dakota Child Protection Services monitors the impact of meth on children's lives every year. Since 2003, the number of youngsters placed in state custody/foster care because of meth related causes was:

2003	58
2004	110
2005	183
2006	124

Many others may be put into protective custody following neglect or abuse investigations that don't involve police reports of meth. Unfortunately, still others may be suffering through the daily impact of meth in their lives without help or intervention.

There are several aspects of child abuse or neglect in drug endangered homes. The environments themselves are frequently so dangerous that simply allowing a child to live in the home constitutes child endangerment. Substance abuse also affects the caregiver's ability to parent, placing the child at additional risk.

The specific hazards to children living in these labs are numerous. The children are exposed to toxic fumes. Clothing and skin contact of chemicals, chemical waste dumped in play areas, and potential explosion and fires are all possible. The children are frequently exposed to accessible drugs, drug users, cooks and dealers, hypodermic needles, glass smoking pipes, razor blades and other drug paraphernalia, and weapons left accessible.

The use of illegal drugs or excessive amounts of alcohol affects the caregiver's judgment, rendering them unable to provide the consistent supervision and guidance that children need for development. Therefore, substance abuse in adults is a critical factor in the child welfare system. With specific reference to methamphetamine, children are frequently neglected during their caregiver's long periods of sleep while "crashing" from a drug binge. The caregivers commonly display inconsistent and paranoid behavior. They are often irritable and have little patience, which may

ultimately lead to physical abuse. Children in these homes are also often exposed to violence.

Unfortunately, children whose caregivers are substance abusers are frequently neglected. They may not have enough food, are not adequately groomed, and usually do not have appropriate sleeping conditions. These children are frequently not well supervised, placing them at additional risk of injury or delinquency. Additionally, they may be exposed to pornographic material, be emotionally abused and have an increased risk of sexual abuse.

On July 1, 2005, South Dakota Law expanded the definition of an abused or neglected child to include exposing children to an environment being used for the manufacturing, use or distribution of Methamphetamine or any unlawfully manufactured controlled drug or substance. (SDCL 26-8A-2) Additionally, South Dakota law requires certain professionals to report any instance where he or she has reasonable cause to suspect that a child under the age of 18 has been abused or neglected. (SDCL 26-8A-3)

TREATMENT

There are unique challenges associated with treating methamphetamine users. Stimulant users in general and methamphetamine users in particular are some of the most difficult drug treatment patients. They have unusually high rates of relapse, experience extended periods of depression and may experience continued episodes of confusion and paranoia. Symptoms of meth use can continue even after long periods of abstinence.

Methamphetamine abusers need more time in intensive outpatient or residential drug treatment programs than cocaine or heroin abusers. The most effective treatment for methamphetamine combines detoxification and behavioral therapy, a process that can take well over a year. Because meth treatment is cognitive, a regular meth user will need more time to detox before treatment can even begin to regain essential thinking and decision-making skills. Since meth effects can last up to six months for just one use, and the drug can do damage to a person's physical, behavioral and thinking functions, 6 to 18 month programs are required. This time factor is one reason why so many meth treatments fail.

SPECIALIZED METHAMPHETAMINE PROGRAMS IN SOUTH DAKOTA

There are three Specialized Methamphetamine programs that are running within the State of South Dakota: City/County Alcohol & Drug Programs, Keystone Correctional Methamphetamine Program, and the Intensive Methamphetamine Treatment Program at the South Dakota Women's Prison.

City/County Alcohol & Drug Program:

The Specialized Methamphetamine Treatment Program at the City/County Alcohol Drug Program is a long term Day Treatment Program at the Friendship Halfway House in

Rapid City, SD. The program consists of six months of residential programming at the halfway house followed by six months of aftercare. This program originated as a research project for male methamphetamine addicts. There are 25-30 slots per year in the program. Phase One-Stabilization consists of having the client admitted and after not experiencing any withdrawal symptoms, he will be moved into Phase Two-Intensive Treatment. Intensive Treatment will consist of 20 hours a week of group therapy for 8 weeks. During Phase Three-Structured Living he will be admitted to an Intensive Outpatient Treatment setting consisting of 15 hours of group therapy a week for 8 weeks in the Half-Way House. In Phase Four-Community Placement, each client will reside in the Half-Way House for a Low Intensity Residential Treatment Program for 90 days. They will continue to have a minimum of 5 hours of group therapy a week. During this phase clients will be reintegrated into the community and be assigned a mentor for social support. This phase also consists of 6 months of aftercare. In FY07, 25 clients were placed in this program. Since inception in 2005, 62 clients have been placed in this program, with 37 (60%) either completing or still involved in the program.

Keystone Correctional Methamphetamine Program

The Keystone Correctional Methamphetamine Program is an Intensive Inpatient Long Term Treatment Program that is utilized only in extreme cases and when all other means of treatment have been exhausted. This program is an alternative to sending a client to prison or violating the conditions of parole/probation and returning the client to a correctional institution. There are 20-25 slots per year in this program. Phase One-Stabilization consists of having the client admitted and if not experiencing any withdrawal symptoms, he/she must be moved into Phase Two within three working days. This phase is completed at the Keystone Treatment Center in Canton, SD. Phase Two-Intensive Treatment includes education, individual, group, and family therapy. Medical, behavioral, and mental health interventions are also applied as indicated and appropriate. Phase One and Phase Two combined are approximately 30 days. In Phase Three-Structured Living, each individual will be admitted to a High Intensity Residential stay facility, such as a Half-Way House or Community Transition Program. This phase lasts 90 days and will include 6-8 weeks of Intensive Outpatient Treatment Programming, followed by continuing care services. During Phase Four-Community Placement, each client will return to the home community and link with existing community resources for the remainder of the year long continuum of care. This phase is approximately eight months. In FY07, 23 clients were placed in this program. Since inception, 69 clients have been placed in this program, with 42 (61%) either completing or still involved in the program.

South Dakota Women's Prison Intensive Methamphetamine Treatment Program

The Intensive Methamphetamine Treatment (IMT) Program at the South Dakota Women's Prison has the capacity for three groups, with eight inmates in each group for 15 months of programming; including three months in the main Prison for Stabilization, three months in the Therapeutic Community for Intensive Treatment, three months in a Half Way House for Structured Living, and six months of Aftercare while living in their own residence in the community. This approach is evidenced based and monitored by assessment tools to prove efficacy. The IMT Program at the Women's Prison started on

August 21, 2006. During FY07, 60 of the 75 inmates (80%) who started the IMT program were still successfully involved.

UJS DRUG COURT

In FY08, the South Dakota Unified Judicial System, Fourth Judicial Circuit began a pilot program referred to as the Northern Hills Drug Court. The Drug Court is a post adjudication, intensively supervised treatment court. The program is a voluntary program which includes counseling and drug testing. The Drug Court is based in Sturgis, SD, and has capacity for 10 participants.

The Drug Court participant will be required to be employed, attend school, or participate in community service until employment can be found. The Drug Court can assist with referrals for housing, education, skills training, and job placement.

The Drug Court Probation Officer supervises each participant by conducting home visits, interviewing employers, and/or school officials. The Drug Court participant is drug screened on a regular basis throughout the program. A minimum of three drug tests per week are conducted on each participant.

Treatment Phases:

Pre-Treatment Orientation and Assessment: screening which lasts no less than one week.

Phase I-Intensive Outpatient Program (IOP): 20 sessions-Early Recovery Skills/Relapse Prevention/Family Education; Mandatory attendance of 12 Step Support Group Meetings (1-3 weekly); Must be clean and sober for 30 days before advancing to Phase II.

Phase II-Intensive Outpatient Program (IOP): 33 sessions-Relapse Prevention 2/week and Family Education or Social Support; Life Skills/Dual-diagnosis Group; Mandatory attendance at AA/NA 12 Step Support Group Meetings (1-3 weekly); Must be clean and sober for 90 days before advancing to Phase III.

Phase III-Intensive Outpatient Program (IOP): 35 session-Continued Care; Mandatory attendance at AA/NA 12 Step Support Group meetings (1-3 weekly); Must have at least 180 day clean and sober before advancing to Phase IV.

Phase IV-Living Sober: 12-18 months-Monthly Continued Care Group or Individual Counseling Session.

THE NUMBERS

In FY07 a total of 15,069 clients received services through 61 accredited treatment facilities through the State of South Dakota. These clients received services ranging from crisis intervention to structured treatment programs. Overall, methamphetamine remains the third most common drug of choice for clients at the time of admission.

The primary drugs of choice during the last 8 fiscal years were:

	Alcohol	Cannabis	Methamphetamine	Other amphetamine
FY07	60%	11%	8%	<1%
FY06	70%	15%	9%	1%
FY05	66%	14%	6%	2%
FY04	64%	13%	5%	1%
FY03	64%	13%	4%	1%
FY02	64%	13%	2%	1%
FY01	66%	13%	1%	1%
FY00	68%	12%	1%	1%

Specific numbers of methamphetamine abuse:

Adults:

FY07 – 859 primary 736 secondary 474 tertiary
FY06 – 1021 primary 633 secondary 480 tertiary

Youth under the age of 18:

FY07 – 12 primary 16 secondary
FY06 – 46 primary 36 secondary

(As reported in the South Dakota Department of Human Services Client Services Summary.)

This issue memorandum was written by Sue Cichos, Senior Fiscal Analyst for the Legislative Research Council. It is designed to supply background information on the subject and is not a policy statement made by the Legislative Research Council. The information contained in the memorandum is accurate as of the date of publication.
