



Methamphetamine Newsletter

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January 2007

Beating Addiction to Meth: Researchers Zero in on Brain Effects

The spread of methamphetamine production and abuse has sparked a flurry of research on the drug's health effects and possible new ways for treating the addiction. Until a few years ago, methamphetamine was considered a regional problem. Largely confined to the West Coast and Southwest, it was off the radar of federal drug offices in Washington, D.C. But as the drug swept into rural Midwestern communities in the mid-1990s, catching hospitals and treatment centers unprepared for its devastating effects, steps were taken to gain a better understanding of meth's toll on the body.

Methamphetamine, like cocaine, is a powerful stimulant. It produces physiological changes similar to the fight-or-flight response — it boosts heart rate, respiration, blood pressure and body temperature. Some people use it for the brief, intense "rush" it produces when smoked or injected. Others use it for functional reasons — as an appetite suppressant to lose weight or as an energy-booster to enable them to work more. When snorted or taken orally it doesn't produce an intense "rush" but rather a "high" that can last more than 12 hours. Both cocaine and meth boost brain levels of the neurotransmitter dopamine, which causes feelings of euphoria and increased energy, but go about it in different ways. Cocaine doesn't directly stimulate the release of dopamine; it prevents the normal recycling of the chemical messenger once it's released. Meth goes a step further — it actually gets into the nerve cell where it causes the excessive release of dopamine. Meth users can quickly become addicted to the spike in dopamine.

Abuse of methamphetamine is linked to several serious medical complications such as heart damage, stroke and psychosis. But perhaps the most frightening side effect is long-term neurological damage unlike anything seen with heroin or cocaine. While high levels of dopamine in the brain usually cause feelings of pleasure, too much can produce aggressiveness, irritability and schizophrenic-like behavior.

"Meth has more long-term, serious effects on the brain than cocaine," said Dr. Nora Volkow, senior scientist at Brookhaven National Laboratories in Upton, N.Y., who has studied the effects of both cocaine and methamphetamine on the brain for 15 years. Using brain-imaging techniques, scientists have discovered that the brains of former chronic users show a significant decrease in the number of dopamine transporters, a crucial component of a functional dopamine system.



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The most recent development comes from Volkow who, along with Dr. Linda Chang, collected the first data on what this decline in dopamine transporters means. They performed brain scans on 15 detoxified, former meth users and found a 24-percent loss in the normal number of dopamine transporters. This loss of transporters was linked to slowness in motor skills and poorer performance on verbal and memory tasks.

"We found the subjects with the most profound changes in the transporters were the ones with the most functional disturbances," said Volkow, whose research will be published in the *American Journal of Psychiatry* in March. "This is the first time anybody has reported that these neuron losses are functionally significant. It's not just that you lose brain cells and you keep living happily ever after; it translates into a disruption in your performance."

Volkow noted that the same association has been reported in Parkinson's disease patients, although they experience a more drastic loss of transporters.

"We need to look more at how and why it's having these long-term effects and whether in fact they are permanent," said Timothy Condon, associate director for science policy at the National Institute on Drug Abuse (NIDA). "As we unravel more about what functional changes are a result of those brain changes, they will impact how you go about treating someone."...

Scientists also plan to test medications that may be able to reverse some of the neurological damage and cognitive impairment caused by methamphetamine use. Experts say one of the most promising is selegiline, a treatment approved for some symptoms of Parkinson's disease. Selegiline has neuroprotective effects and has been shown to reduce HIV-related cognitive deficits (as reported by [Julia Sommerfield of MSNBC](#) on December 16, 2006).

Toxic Brew: University of Montana Researcher Unlocks Harm Done to Children From Poisons in Meth

The dope is cooked over a backpacking stove instead of on a putrid hot plate, and the woman in a white lab coat and latex gloves is a post-doctorate fellow, not a seedy drug manufacturer.

Her office is neither a converted motor home nor a backwoods trailer, but a chemistry lab at the University of Montana, where batches of acrid chemicals are stored neatly on steel shelving units or in lockers, rather than on a living room floor amid a young child's play toys.

She is Dr. Sandra Wells, and, standing beside a fume hood that swallows the toxic hydrochloric and phosphine gases associated with cooking and smoking crank, she's explaining how UM's Center for Environmental Health Sciences came to have a functioning methamphetamine lab in one of its academic buildings. The idea is simple: By simulating an environment where meth is smoked and manufactured - an experiment that's also been useful to chemists at the State Crime Lab in Missoula - Wells hopes to pinpoint the health hazards associated with exposing children to the drug.



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Even in its infancy, Wells' research is the only study of its kind to try and identify the health effects related to meth exposure, positioning UM as a national leader.

Already, her activism and involvement with the Montana Alliance for Drug Endangered Children, an offshoot of the federal program established to protect children who've been exposed to methamphetamine, has led to proposed legislation seeking to expand the offense of child endangerment in Montana. Passage of the bill would make exposing children to meth a felony under any circumstance, even if they weren't present at the time of a bust.

"The fact that there is no good data out there, nothing to record any of the dangers these children are facing, that's concerning," Wells said. "We should be able to tell (state officials) with certainty what constitutes child endangerment."

To be fair, Montana lawmakers have taken steps to create an increasingly unfriendly environment for meth cooks and distributors, but there is no concrete evidence to show how children are being impaired, or even if there are long-term health effects associated with exposure to methamphetamine.

Not surprisingly, horrifying bits of anecdotal information abound as social workers, law enforcement officials and pediatricians come into contact with a steady stream of children who have been exposed to meth, pulling them from squalid homes and placing them into protective custody. Matted or missing hair, dental decay, dirty diapers, lice, rashes, scabies, signs of neglect, sexualized behavior are all standard fare.

But there are no data to show that a child will experience long-term lung problems, like asthma or pulmonary fibrosis, if he or she lives at a residence where meth is cooked, Wells said.

"It's not like secondhand cigarette smoke where we know for a fact that exposure is harmful," Wells said. "We treat meth as though it's radioactive, but in fact it's been approved for medicinal use at lower levels. I expect there probably is a safe level of exposure to meth, we're just not sure what it is."

And that's the trouble. Without sound data, it's impossible to convey with any measure of certainty just how endangered these children have become, or how urgent their care should be (as reported by [The Missoulian](#)).

New Science to Service Awards Honor Implementation of Evidence-Based Mental Health and Substance Abuse Interventions

As part of its mission of building resilience and facilitating recovery, the Substance Abuse and Mental Health Services Administration (SAMHSA) has advanced a Science to Service Initiative to facilitate knowledge dissemination, promote the rapid implementation of effective, evidenced-based mental health and substance abuse interventions into routine clinical and community-based practice, and strengthen feedback from the field to influence and frame services research programs. As part of the initiative, SAMHSA has created the Science to Service Awards as a way of recognizing community-based organizations and/or coalitions that successfully have implemented one or more recognized evidence-



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based mental health and substance abuse interventions into routine clinical and community-based practice, and strengthen feedback from the field to influence and frame services research programs. As part of the initiative, SAMHSA has created the Science to Service Awards as a way of recognizing community-based organizations and/or coalitions that successfully have implemented one or more recognized evidence-based interventions to benefit consumers and/or communities. SAMHSA plans to pilot test this award process by bestowing these awards annually over the next three years.

Eligibility - To be eligible for a Science to Service Award, an organization must have successfully implemented a recognized evidence-based intervention. Recognized interventions include those that are published in the scientific literature and/or appear on a Federal and/or state registry of evidence-based interventions. The organization implementing the evidence-based intervention should be able to demonstrate positive outcomes from the intervention in at least one of the following categories: (1) Substance abuse prevention; (2) Treatment of substance abuse and recovery support services; (3) Mental health promotion; and (4) Treatment of mental illness and recovery support services. Community-based organizations and/or coalitions wishing to voluntarily submit information regarding their implementation of one or more evidence-based interventions are eligible for award selection. Both public sector (State, local, territorial, tribal) and private sector organizations are eligible to compete for these awards. Interested organizations should use the format outlined below (in "Application Process") to provide relevant information. Developers of an evidence-based intervention, or their research collaborators, will not be eligible for these awards. In addition, Federal agencies and past winners of the Science to Service Award will not be eligible for these awards.

Awards - A maximum of three awards will be made in each of the four categories (Substance abuse prevention; Substance abuse treatment; Mental health promotion; and Mental health treatment). Award winners will be notified in 2007, and will travel to Washington D.C. expenses-paid for a Science to Service Awards Ceremony. Each organizational recipient will receive a commemorative award, and will be further recognized by SAMHSA for its successful implementation efforts. To be considered, completed applications must be received by February 28, 2007 (as reported by the [Substance Abuse and Mental Health Services Administration](#)).

Tribes Work to Fight Meth

In the rural areas of the Osage Nation reservation, tribal officials say a silent epidemic is spreading, causing domestic abuse, child abuse, child neglect and an overall decline in the quality of life for some Osages.

Methamphetamine use is on the rise, and tribal leaders passed an anti-meth bill this week that would set minimum penalties for the use, possession and distribution of meth. The bill, which was passed Wednesday in the Osage Nation Congress, is a starting point in the Osage Nation's battle against the "methamphetamine epidemic," Osage Congresswoman Debbie Littleton said.



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Littleton worked diligently to get the legislation passed because she said she had seen firsthand the effects of the drug on family members. "It's something I've been concerned with a long time," Littleton said. "It didn't seem like there was anything being done about it."

About 69.2 percent of the open Indian child welfare cases in the tribe are related to methamphetamine, said Lee Collins, director of social services for Osage Nation. The tribe, which occupies Osage County in northeastern Oklahoma, has about 3,200 members living on its reservation. Collins said the 2004 Oklahoma law that restricted access to products containing pseudoephedrine, a key meth ingredient, helped to bring down usage numbers on the reservation, but the trend has reversed as meth trafficking in the area has increased.

"If we looked at the past three months we'd see that number go up significantly," Collins said. "I've worked with families (involved with meth), and in the past 11 years I've seen one mother get off meth and stay off." Even those who seek treatment for their addiction don't last and they wind up back in the system, she said.

Other problems that go hand-in-hand with methamphetamine use are child neglect and abuse. "People who have used meth don't supervise their children. They party, sleep, and their children are subject to things such as sexual abuse by strangers the parents have let stay at their homes," Collins said.

If all of Oklahoma's tribes would work together in applying for grants, they might be more successful in getting the funds needed to create two-year treatment programs, Collins said. Right now the Osage Nation only has a 28-day treatment program that Collins said is insufficient for any meth addict. She said a true addict would need at least a two-year program to stay clean.

"It's not just tribes -- it's all of society," Collins said. "We've got to do a better job of protecting our children so the parents can get the treatment they need."

Other tribes like the Cherokee Nation and the Choctaw Nation are working to get meth prevention grants to aid in their fight to keep the drug out. The Cherokee Nation has received a \$350,000 methamphetamine prevention grant that will be used to educate the community -- particularly the 16 to 20-year-old population -- and raise awareness about the drug. B.J. Boyd, deputy director of Cherokee Nation Behavioral Health, said the tribe wants to help communities develop their own drug prevention plans and programs.

Boyd said the tribe doesn't have exact numbers on meth use within the Cherokee jurisdiction, but the tribe has the sense that it's there just by talking to tribal law enforcement. "What we have in our area, it's not just an Indian problem," Boyd said. "We're very integrated with other people who aren't Indian, and it's a problem for the whole community. We don't see that one group is source of the problem"(as reported by the [Casper Star Tribune](#)).



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APPA Launches New Project on Re-Entry of Methamphetamine-Addicted Individuals

The American Probation and Parole Association (APPA) recently received a grant from the Bureau of Justice Assistance to help community corrections agencies assess their supervision and programming strategies for addressing the needs of people addicted to methamphetamine (meth) who are released from prison or jail.

According to a 2006 study published by the US Department of Justice, meth addiction is seen as one of the most difficult substance abuse problems to treat. Individuals addicted to meth need careful supervision upon release from incarceration that is geared not only towards successful termination of their probation or parole term, but also towards their long-term sobriety and effective use of community resources. APPA will work to identify promising supervision and programming approaches for this population and offer technical assistance to up to three sites to help state and local jurisdictions enhance, develop, and implement effective strategies (as reported by the Re-entry Policy Council Newsletter, 12/20/2006, click [here](#) for more information).

Resources

SAMHSA's National Mental Health Services Locator

SAMHSA offers the [National Mental Health Services Locator](#) provides you with comprehensive information about mental health services and resources and is useful for professionals, consumers and their families, as well as the public. It allows you to search by city, county for local mental health services. You can access this information in several ways by selecting a State or U.S. Territory from the provided map or drop-down menu.

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Monitoring the Future Data Tables

National Institute on Drug Abuse (NIDA) and University of Michigan (December, 2006)

These data tables present results of the 2006 [Monitoring the Future](#) study, which provides information about substance use, including methamphetamine use, among 8th, 10th, and 12th graders. The data shows that teen drug use has declined 23 percent in the past 5 years with significant declines in meth and marijuana use.

NSDUH Report: State Estimates of Past Year Methamphetamine Use

Substance Abuse and Mental Health Services Administration (December, 2006)

The [National Survey on Drug Use and Health \(NSDUH\)](#) presents estimates of past year methamphetamine use among persons aged 12 or older in each of the 50 States and the District of Columbia.



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NACO's The Criminal Effect of Meth on Communities Survey Available

If you are interested in obtaining a hard copy of our July 2006 survey exploring the impact of meth use on local criminal justice systems and the communities they serve, we have a number of copies. To obtain the survey please just contact Justin Carmody at jcarmody@naco.org or (202) 942-4279 giving your address and number of copies you would like to receive.

Funding Opportunities

Tribal Community Methamphetamine Enforcement Training and Technical Assistance Program

The [Bureau of Justice Assistance](#) offers this grant to assist tribal communities in forming an effective law enforcement response to methamphetamine in their jurisdictions. Applications are due January 16, 2007.

Justice Assistance Grant (JAG) Program State Solicitation

The [Bureau of Justice Assistance's](#) JAG Program allows states and local governments to support a broad range of activities to prevent and control crime and to improve the criminal justice system. Applications are due by February 20, 2007.

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Texas Alliance for Drug Endangered Children (DEC) Regional Training

[Texas Alliance for Drug Endangered Children](#). Date: February 9, 2007. Location: Wichita Falls, Texas. This training is designed to provide awareness and understanding of the issues drug endangered children face and empower communities with steps to take in order to help these children.

The purpose of this monthly electronic newsletter is to provide county officials, administrators, criminal justice and mental health professionals, and other interested parties relevant information on the nation's methamphetamine problem. Information is gathered from many sources each month through a grant from the Bureau of Justice Assistance. *If you have questions or comments regarding the content of this newsletter, please send a message to jcarmody@naco.org.*