

The DAWN Report

June 19, 2014

Emergency Department Visits Involving Methamphetamine: 2007 to 2011

Methamphetamine has a high potential for abuse and addiction. In low doses, methamphetamine stimulates the central nervous system, increasing alertness, concentration, and energy. Higher doses can induce mania with accompanying euphoria and increased libido.^{1,2} The intoxicating effects of methamphetamine alter judgment, reduce inhibitions, and lead users to engage in unsafe behaviors, including risky sexual acts. Negative health consequences of methamphetamine abuse include extreme weight loss, severe dental problems (“meth mouth”), anxiety, confusion, insomnia, mood disturbances, and violent behavior.³ Chronic methamphetamine abusers may display psychotic manifestations, including paranoia, visual and auditory hallucinations, and delusions (e.g., sensation of insects crawling under the skin). Persons being treated for psychosis may experience a resurgence of symptoms because methamphetamine can reduce the blood level of antipsychotic medications.⁴ Patients being treated with antidepressants may experience dangerously high blood pressure, overheating, seizures, heart attack, stroke, and kidney failure after taking methamphetamine. The increased libido that sometimes accompanies methamphetamine use coupled with impairments in judgment may contribute to increased risk taking, increases in the number of sexual partners, and an increased likelihood of contracting HIV, hepatitis, and other sexually transmitted diseases.⁵

Methamphetamine use began as a West Coast phenomenon in the early 1990s.⁶ It gained national attention in the late 1990s, when use increased and expanded to the east. This trend tapered off by 2008 but has since begun to increase again. According to the National Survey on Drug Use and Health (NSDUH), methamphetamine use fluctuated between 1.6 and 1.9 million persons between 2002 and 2006.⁷ After declining to between 0.7 and 0.8 million users between 2006 and 2008, the number of users rose to 1.0 million in 2011 and 1.2 million in 2012. The average age of first use has ranged between 17.8 and 22.2 years for the period from 2002 to 2012.⁷



IN BRIEF

Overall, the number of methamphetamine-related emergency department (ED) visits rose from 67,954 in 2007 to 102,961 in 2011, with similar patterns seen for males and females.

In 2011, a majority (62 percent) of ED visits involving methamphetamine also involved other drugs; about one quarter (29 percent) of visits involved combinations with one other drug, and one third (33 percent) involved combinations with two or more other drugs.

In 2011, about one fifth (22 percent) of methamphetamine-related visits involved combinations with marijuana, and one sixth (16 percent) involved combinations with alcohol; these were the same top two drug combinations found in 2008.

Of all methamphetamine-related ED visits in 2011, about 6 in 10 (64 percent) resulted in patients being treated and released.

Although a small amount of methamphetamine is produced legally for treatment of attention disorders and obesity, most methamphetamine is manufactured and sold illegally. It is available in the form of tablets, crystalline powder, and rock-like chunks known as “ice.” Pills can be swallowed whole or chewed first to produce more rapid absorption into the system. More immediate and stronger effects result if the drug is crushed and snorted nasally, smoked, or put into solution and injected. Abusers further enhance and/or modulate the effects of methamphetamine by combining it with other drugs. Street names vary depending on how the drug is ingested and what drugs are used in combination and may include crank (powder), crystal meth (“ice”), speed (powder), croak (with cocaine), shabu (with cocaine), and twisters (with crack).

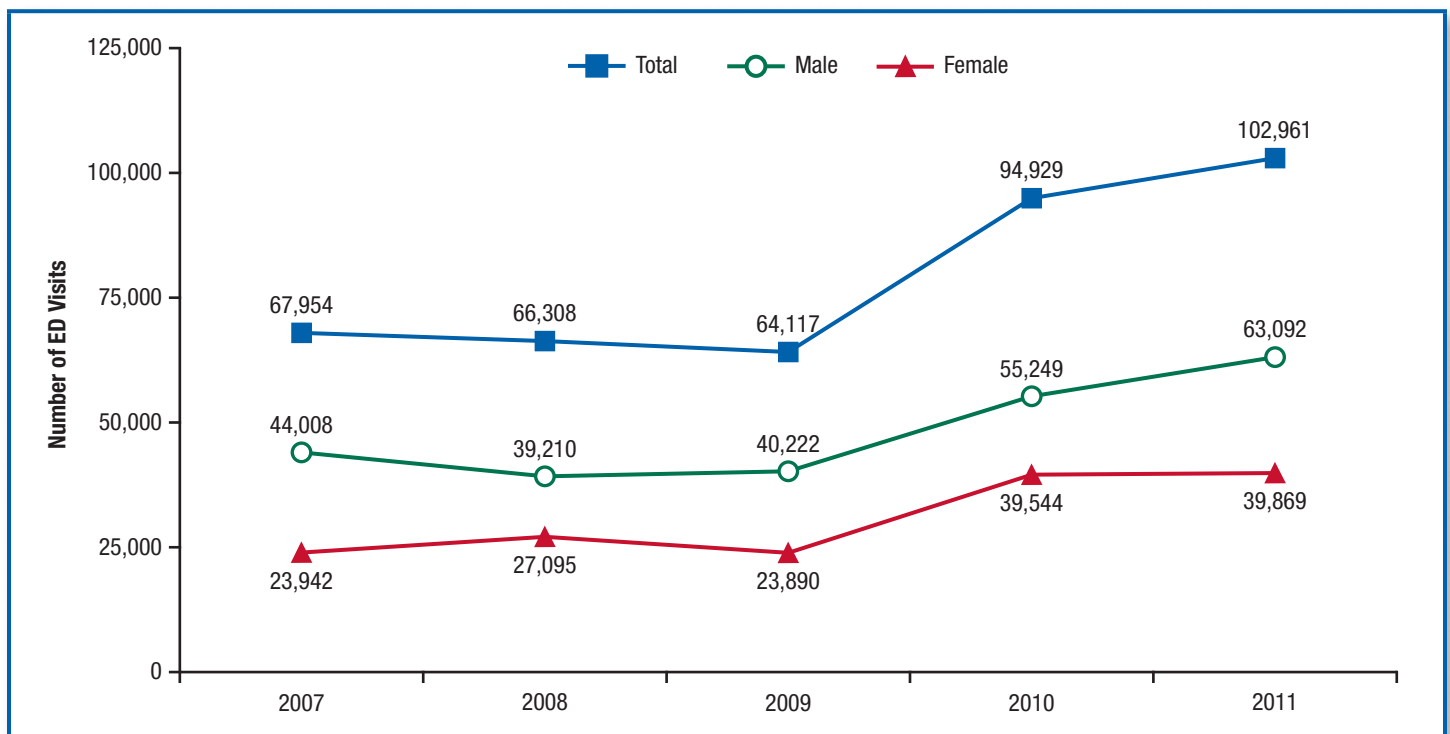
The Drug Abuse Warning Network (DAWN) is a public health surveillance system that monitors drug-related ED visits in the United States. To be a DAWN

case, an ED visit must have involved a drug, either as the direct cause of the visit or as a contributing factor. DAWN is able to estimate the annual number of ED visits involving the misuse and abuse of methamphetamine. SAMHSA previously reported on methamphetamine-related ED visits for the period from 2004 to 2008.⁸ This issue of *The DAWN Report* focuses on ED visits involving the misuse or abuse of methamphetamine in 2011 and provides a trends analysis that covers the period from 2007 to 2011.

Overall Trends in ED Visits

As reported in the 2010 DAWN report, ED visits related to methamphetamine had a statistically significant decrease between 2005 and 2007 and then remained static between 2007 and 2009.⁸ As shown in Figure 1, between 2009 and 2011 there was a significant increase in the number of ED visits involving methamphetamine, with numbers increasing from 64,117 in 2009 to 102,961 in 2011.

Figure 1. Trends in Emergency Department (ED) Visits Involving Methamphetamine, by Gender: 2007 to 2011



Differences between 2009 and 2010 are statistically significant at the .05 level; differences between 2009 and 2011 are statistically significant at the .05 level overall and for males and females.

Note: Because gender is unknown in a small number of visits, estimates by gender may not add to the total.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network, 2011.

Gender and Age

Trends by gender paralleled the overall reported trends. For males, there were 44,008 visits in 2007 and 40,222 in 2009; the number of visits rose significantly from 2009 to 2011, when the number for males reached 63,092 (Figure 1). From 2009 to 2011, there was a significant increase in the number of ED visits by women involving methamphetamine.

During 2011, about three quarters (78 percent) of methamphetamine-related ED visits were made by patients aged 18 to 44; 23 percent involved patients aged 18 to 24, 33 percent involved patients aged 25 to 34, and 22 percent involved patients aged 35 to 44 (Figure 2). Significant increases from 2007 to 2011 were observed for those aged 25 to 34 and those aged 55 or older.

Drug Combinations

In 2011, a majority (62 percent) of methamphetamine-related ED visits involved combinations with alcohol, another illicit drug(s), and/or pharmaceutical drug(s) (Table 1). About one quarter (29 percent) of visits

involved methamphetamine combined with one other drug, and about one third (33 percent) involved methamphetamine combined with two or more other drugs. By way of comparison, among all ED visits involving misuse or abuse of any drug, 49 percent of visits involved multiple drugs (data not shown).

Table 1 displays the drugs found in combination with methamphetamine for 2011. About one fifth of methamphetamine-related ED visits involved marijuana (22 percent). Combinations with alcohol or opiates/opioids (e.g., narcotic pain relievers) each accounted for about 15 percent of visits, whereas combinations with amphetamines, cocaine, and benzodiazepines each accounted for between 10 and 15 percent; methamphetamine was combined with heroin in 7 percent of visits.

Disposition of ED Visits

Of all methamphetamine-related ED visits in 2011, about 6 out of 10 (64 percent) resulted in patients being treated and released (Figure 3). This is similar to all drug-related ED visits involving misuse or

Figure 2. Age Distribution of Emergency Department (ED) Visits Involving Methamphetamine: 2011

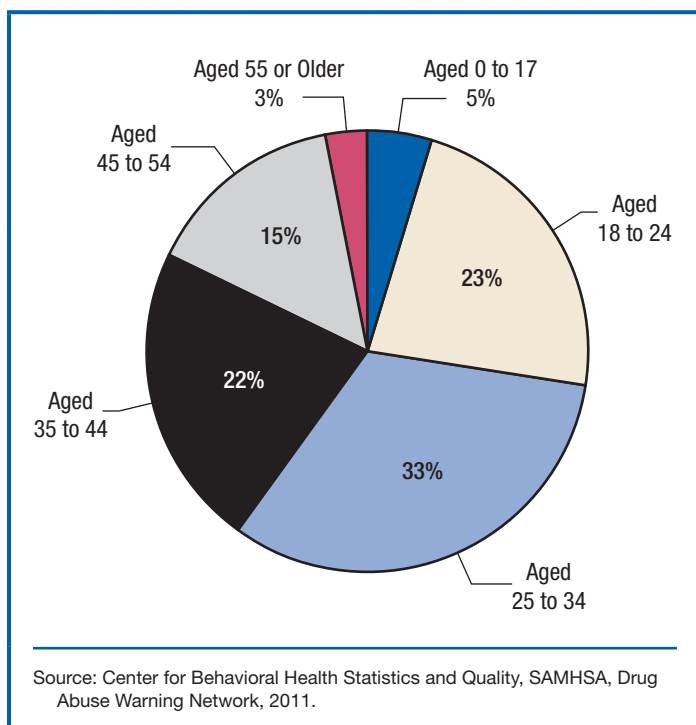


Table 1. Selected Drug Combinations in Methamphetamine-Related Emergency Department (ED) Visits: 2011

	Number of ED Visits*	Percentage of ED Visits*
Total ED Visits Involving Methamphetamine	102,961	100
Methamphetamine Only	39,434	38
Methamphetamine in Combination	63,527	62
Marijuana	22,671	22
Alcohol	16,270	16
Opioids/Opiates	15,733	15
Amphetamines	13,959	14
Cocaine	12,687	12
Benzodiazepines	11,663	11
Heroin	7,336	7

* Because multiple drugs may be involved in each visit, estimates of visits by drug may add to more than the total number of visits, and percentages may add to more than 100 percent.

Source: Center for Behavioral Health Statistics and Quality, SAMHSA, Drug Abuse Warning Network, 2011.

abuse of any drug, in which 62 percent of patients were treated and released. About 1 in 6 (16 percent) methamphetamine-related ED visits resulted in patients being admitted to a hospital, compared with 25 percent of all drug misuse or abuse-related visits. One in five visits (20 percent) resulted in another type of discharge (e.g., patient transfers, patient leaving against medical advice, death, or some other type of discharge), compared with 13 percent of all drug misuse or abuse-related visits.

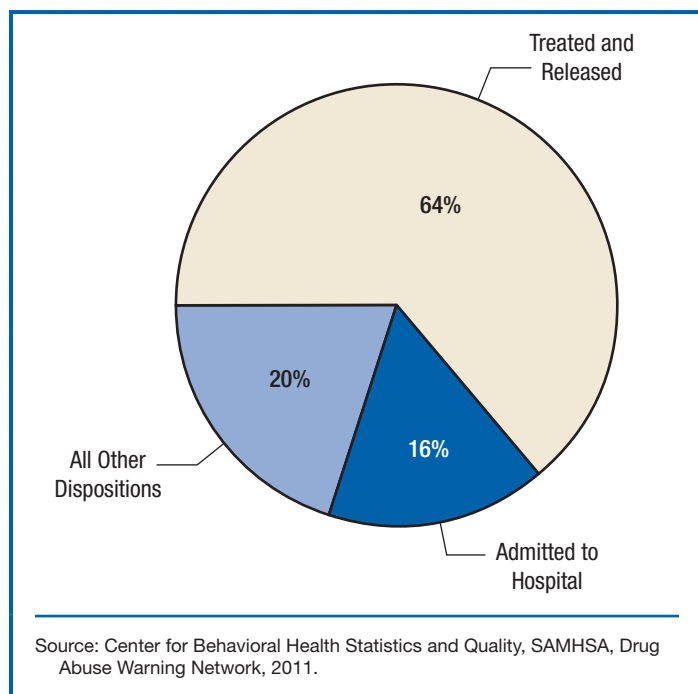
Discussion

Paralleling other indicators of methamphetamine use, the number of ED visits involving methamphetamine generally increased between 2009 and 2011. Although it is beyond the scope of DAWN data to explain the reasons behind the resurgence of use, studies of supply and demand may give some clues. Other research has associated rises in methamphetamine indicators with new supplies of the drug combined with refinements

of production methods that appear to produce purer and more potent formulations of methamphetamine.⁹ This was confirmed by the U.S. Department of Justice Drug Enforcement Administration in its 2013 National Drug Threat Assessment Summary, which reported that between 2007 and 2012, the price of methamphetamine decreased more than 70 percent, while its purity increased 130 percent.¹⁰

In summary, it appears that increasing numbers of people are using this highly addictive drug. Given that a majority of patients seen for medical emergencies involving methamphetamine are simply treated and released, an ED visit may present an important opportunity to intervene with methamphetamine users. Hospital staff can be instrumental in educating patients and their families about the negative physical and mental health consequences of continued use and provide referrals to treatment or counseling services. Because the majority of ED visits involving methamphetamine also involved other drugs, ED staff could educate patients on the additional risks associated with taking methamphetamine in combination with other illicit drugs, alcohol, or certain prescription drugs. ED staff could assess whether methamphetamine was interacting with any physician-prescribed medications being taken, such as antidepressants or antipsychotics.

Figure 3. Disposition of Emergency Department (ED) Visits Involving Methamphetamine: 2011



End Notes

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The Substance Abuse and Mental Health Services Administration (SAMHSA) is the agency within the U.S. Department of Health and Human Services that leads public health efforts to advance the behavioral health of the nation. SAMHSA's mission is to reduce the impact of substance abuse and mental illness on America's communities.

The Drug Abuse Warning Network (DAWN) is a public health surveillance system that monitors drug-related morbidity and mortality. DAWN uses a probability sample of hospitals to produce estimates of drug-related emergency department (ED) visits for the United States and selected metropolitan areas annually. DAWN also produces annual profiles of drug-related deaths reviewed by medical examiners or coroners in selected metropolitan areas and States.

Any ED visit related to recent drug use is included in DAWN. All types of drugs—licit and illicit—are covered. Alcohol involvement is documented for patients of all ages if it occurs with another drug. Alcohol is considered an illicit drug for minors and is documented even if no other drug is involved. The classification of drugs used in DAWN is derived from the Multum *Lexicon*, copyright 2012 Lexi-Comp, Inc., and/or Cerner Multum, Inc. The Multum Licensing Agreement governing use of the *Lexicon* can be found at <http://www.samhsa.gov/data/DAWN.aspx>.

DAWN is one of three major surveys conducted by SAMHSA's Center for Behavioral Health Statistics and Quality (CBHSQ). For more information on other CBHSQ surveys, go to <http://www.samhsa.gov/data/>. SAMHSA has contracts with Westat (Rockville, MD) and RTI International (Research Triangle Park, NC) to operate the DAWN system and produce publications.

For publications and additional information about DAWN, go to <http://www.samhsa.gov/data/DAWN.aspx>.



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