



## METHAMPHETAMINE

(Trade Name: Desoxyn®; Street Names: Meth, Speed, Crystal, Glass, Ice, Crank, Yaba)

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### Introduction:

Methamphetamine is a highly addictive drug with potent central nervous system (CNS) stimulant properties. In the 1960s, methamphetamine pharmaceutical products were widely available and extensively diverted and abused. The placement of methamphetamine into schedule II of the Controlled Substance Act (CSA) in 1971 and the removal of methamphetamine injectable formulations from the United States market, combined with a better appreciation for its high abuse potential, led to a drastic reduction in the abuse of this drug. However, a resurgence of methamphetamine abuse occurred in the 1980s and it is currently considered a major drug of abuse. The widespread availability of methamphetamine today is largely fueled by illicit production in large and small clandestine laboratories throughout the United States and illegal production and importation from Mexico. In some areas of the country methamphetamine abuse has outpaced heroin and cocaine.

### Licit Uses:

Methamphetamine was originally used in nasal decongestants and bronchial inhalers (the levo isomer of methamphetamine is still utilized for these indications). Later it was available in tablets and injectable formulations and used for weight control, depression, and to increase alertness and prevent sleep. A broad segment of society used methamphetamine products for stimulant effects. Today, there is only one product, Desoxyn®, currently marketed in 5 mg tablets. Desoxyn® has very limited use in the treatment of obesity and attention deficit hyperactivity disorder. IQVIA™ reports approximately 11,000 and 10,000 prescriptions for methamphetamine were dispensed in the U.S. for 2016 and 2017, respectively. The following year, approximately 9,000 prescriptions of methamphetamine were dispensed and sold to individuals in 2018.

### Chemistry/Pharmacology:

Methamphetamine is chemically and pharmacologically similar to amphetamine although it has more potent effects on the CNS that can last for 6 to 8 hours. Methamphetamine increases the release of the neurotransmitter, dopamine, which stimulates brain cells, enhancing mood and energy. At low doses, methamphetamine produces such effects as increased wakefulness, increased physical activity, increased heart rate and blood pressure, decreased appetite, increased respiration and body temperature (hyperthermia), and euphoria. High-dose chronic use has been associated with irritability, tremors, convulsions, anxiety, paranoia, and neurotoxic effects that cause damage to neurons and blood vessels. Aggressive and violent behavior, often directed at spouses and children, pose a significant risk to those individuals in contact with methamphetamine addicts. Death has resulted from extreme anorexia, hyperthermia, convulsions, and cardiovascular collapse (including stroke and heart attacks).

### Illicit Uses:

Methamphetamine is abused for its stimulant and euphoric effects. It can be taken orally, snorted, smoked, and injected. Smoking or injecting methamphetamine results in intense euphoria and is often associated with binge use, large escalation in dose with rapid tissue tolerance, and high rates

of dependence and addiction. "Ice," "Glass," and "Crystal" are all terms for concentrated *d*-methamphetamine HCl chunks that are smoked. Yaba is a Thai name for a colored tablet containing methamphetamine combined with caffeine which is gaining popularity among individuals who frequent "raves." According to the National Survey on Drug Use and Health (NSDUH), 14.5 million individuals, aged 12 and older, reported nonmedical use of methamphetamine at least once in their lifetime, and 1.4 million within the past year. For 2017, lifetime use continued to increase with 14.7 million individuals, aged 12 and older, with 1.6 million in the past year. And, for the same age group in 2018, lifetime use was 14.9 million with 1.9 million in the past year. The 2017 Monitoring the Future (MTF) survey indicates a past year prevalence of 0.5% for 8th graders, 0.4% for 10th graders, and 0.6% for 12<sup>th</sup> graders. These levels are the lowest ever recorded for 10<sup>th</sup> and 12<sup>th</sup> graders and very near the lowest for 8<sup>th</sup> graders. For 2018, the past year prevalence was 0.4%, 0.4%, and 0.5% for 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> graders, respectively. In 2016, the American Association of Poison Control Centers reported a total of 6,576 poison exposures, 3,343 single substance exposures, and 12 deaths related to methamphetamine. In 2017, there were a total of 7,519 case mentions, 3,503 single exposures, and 191 deaths.

### Illicit Distribution:

Mexican drug trafficking organizations have become the primary manufacturers and distributors of methamphetamine to cities in the Midwest and West. These criminal organizations are able to supply large amounts of methamphetamine at high purity and low cost. Domestic independent laboratory operators also produce and distribute methamphetamine but usually on a smaller scale. Of particular concern is the toxic waste associated with these labs and the fact that many individuals, including children, are at risk of exposure to these toxic chemicals.

DEA's National Forensic Laboratory Information System (NFLIS) and System to Retrieve Information from Drug Evidence (STRIDE)/STARLiMS data indicate that law enforcement officials submitted 335,438 exhibits and 381,773 exhibits identified as methamphetamine by federal, state and local forensic laboratories in 2016 and 2017, respectively. For 2018, there were approximately 416,988 methamphetamine exhibits.

There are many ways to manufacture methamphetamine. The methods used are directly impacted by the availability of precursor chemicals and ease of synthesis. Drug traffickers are continually looking for loopholes in chemical control regulations and altering their methods of synthesis in order to continue their illegal activity. Phenylacetone (P2P) was the most widely used precursor in the synthesis of amphetamine/methamphetamine in the U.S. until 1980 when it was controlled in Schedule II of the CSA. P2P was then replaced by ephedrine and pseudoephedrine as the most widely used precursors for methamphetamine production. In the late 1990s, the use of P2P increased in clandestine methamphetamine labs because of the increased controls on pseudoephedrine and ephedrine. Traffickers are currently using new precursors to P2P in efforts to circumvent international chemical controls. This trend continues today.

### Control Status:

Methamphetamine is controlled in schedule II of the Controlled Substances Act.