NIDA NATIONAL INSTITUTE ON DRUG ABUSE 30 Years 1974-2004

Heroin

Heroin is a highly addictive drug, and its use is a serious problem in America. Recent studies suggest a shift from injecting heroin to snorting or smoking because of increased purity and the misconception that these forms of use will not lead to addiction.
Heroin is processed from morphine, a naturally occurring substance extracted from the seedpod of the Asian poppy plant. Heroin usually appears as a white or brown powder. Street names for heroin include "smack," "H," "skag," and "junk." Other names may refer to types of heroin produced in a specific geographical area, such as "Mexican black tar."

Health Hazards

Heroin abuse is associated with serious health conditions, including fatal overdose, spontaneous abortion, collapsed veins, and infectious diseases, including HIV/AIDS and hepatitis.

The short-term effects of heroin abuse appear soon after a single dose and disappear in a few hours. After an injection of heroin, the user reports feeling a surge of euphoria ("rush") accompanied by a warm flushing of the skin, a dry mouth, and heavy extremities. Following this initial euphoria, the user goes "on the nod," an alternately wakeful and drowsy state. Mental functioning becomes clouded due to the depression of the central nervous system. Long-term effects of heroin appear after repeated use for some period of time. Chronic users may develop collapsed veins, infection of the heart lining and valves, abscesses, cellulitis, and liver disease. Pulmonary complications, including various types of pneumonia, may result from the poor health condition of the abuser, as well as from heroin's depressing effects on respiration.

In addition to the effects of the drug itself, street heroin may have additives that do not readily dissolve and result in clogging the blood vessels that lead to the lungs, liver, kidneys, or brain. This can cause infection or even death of small patches of cells in vital organs. Reports from SAMHSA's 1995 Drug Abuse Warning Network (DAWN), which collects data on drug-related hospital emergency room episodes and drug-related deaths from 21 metropolitan areas, rank heroin second as the most frequently mentioned drug in overall drug-related deaths. From 1990 through 1995, the number of heroin-related episodes doubled. Between 1994 and 1995, there was a 19 percent increase in heroin-related emergency department episodes.

Tolerance, Addiction, and Withdrawal

With regular heroin use, tolerance develops. This means the abuser must use more heroin to achieve the same intensity or effect. As higher doses are used over time, physical dependence and addiction develop. With physical dependence, the body has adapted to the presence of the drug and withdrawal symptoms may occur if use is reduced or stopped. Withdrawal, which in regular abusers may occur as early as a few hours after the last administration, produces drug craving, restlessness, muscle and bone pain, insomnia, diarrhea and vomiting, cold flashes with goose bumps ("cold turkey"), kicking movements ("kicking the habit"), and other symptoms. Major withdrawal symptoms peak between 48 and 72 hours after the last dose and subside after about a week. Sudden withdrawal by heavily dependent users who are in poor health is occasionally fatal, although heroin withdrawal is considered much less dangerous than alcohol or barbiturate withdrawal.

Treatment

There is a broad range of treatment options for heroin addiction, including medications as well as behavioral therapies. Science has taught us that when medication treatment is integrated with other supportive services, patients are often able to stop heroin (or other opiate) use and return to more stable and productive lives.

In November 1997, the National Institutes of Health (NIH) convened a Consensus Panel on Effective Medical Treatment of Heroin Addiction. The panel of national experts concluded that opiate drug addictions are diseases of the brain and medical disorders that indeed can be treated effectively. The panel strongly recommended (1) broader access to methadone maintenance treatment programs for people who are addicted to heroin or other opiate drugs; and (2) the Federal and State regulations and other barriers impeding this access be eliminated. This panel also stressed the importance of providing substance abuse counseling, psychosocial therapies, and other supportive services to enhance retention and successful outcomes in methadone maintenance treatment programs. The panel's full consensus statement is available by calling 1-888-NIH-CONSENSUS (1-888-644-2667) or by visiting the NIH Consensus Development Program Web site at http://consensus.nih.gov.

Methadone, a synthetic opiate medication that blocks the effects of heroin for about 24 hours, has a proven record of success when prescribed at a high enough dosage level for people addicted to heroin. *LAAM*, also a synthetic opiate medication for treating heroin addiction, can block the effects of heroin for up to 72 hours. Other approved medications are *naloxone*, which is used to treat cases of overdose, and *naltrexone*, both of which block the effects of morphine, heroin, and other opiates. Several other medications for use in heroin treatment programs are also under study.

There are many effective behavioral treatments available for heroin addiction. These can include residential and outpatient approaches. Several new behavioral therapies are showing particular promise for heroin addiction. *Contingency management* therapy uses a voucher-based system, where patients earn "points" based on negative drug tests, which they can exchange for items that encourage healthful living. *Cognitive-behavioral interventions* are designed to help modify the patient's thinking, expectancies, and behaviors and to increase skills in coping with various life stressors.

Extent of Use

Monitoring the Future Study (MTF)**

According to the 1999 MTF, rates of heroin use remained relatively stable and low since the late 1970s. After 1991, however, use began to rise among 10th- and 12th-graders, and after 1993, among 8th-graders. In 1999, prevalence of heroin use was comparable for all three grade levels. Although past year prevalence rates for heroin use remained relatively low in 1999, these rates are about two to three times higher than those reported in 1991.

Heroin Use by Students, 1999: Monitoring the Future Study

	8th-Graders	10th-Graders	12th-Graders
Ever Used*	2.3%	2.3%	2.0%
Used in Past Year*	1.4	1.4	1.1
Used in Past Month*	0.6	0.7	0.5

Community Epidemiology Work Group (CEWG)*

In June 2000, CEWG members reported that heroin indicators showed mixed trends. Mortality figures were mixed, with deaths increasing notably in Austin, Detroit, Minneapolis/St. Paul, and Phoenix, and declining in Miami, Philadelphia, St. Louis, San Diego, and Seattle. Emergency room admissions were also mixed, with 10 cities showing decreases (significant in San Francisco and Washington, D.C.), and 10 showing increases (particularly Baltimore and Miami). Heroin continues to account for a substantial proportion of treatment admissions in some CEWG areas (e.g., 47.8 percent in Baltimore, 43 percent in New York City, and 32 percent in Detroit). Heroin injection characterizes a large proportion of primary heroin treatment admissions (e.g., 90 percent in Texas). During the second quarter of 1999, the highest purity levels were found in Philadelphia (71 percent); New York (63.6 percent); Boston (61.4 percent); Newark (60.7 percent); Atlanta (57.8 percent); and San Diego (57.6 percent). Purity levels in other CEWG areas ranged from 11.8 percent in Dallas to 46.7 percent in Detroit. Injecting is on an upward trend among younger users in Baltimore, Boston, Minneapolis/St. Paul, Newark, New York City, and Seattle. In Boston, Chicago, Denver, Miami, and Washington, D.C., snorting seems to be increasing and is often the starting route for new users.

National Household Survey on Drug Abuse (NHSDA)§

The 1999 NHSDA study reports the use of illicit drugs by those people age 12 and older. The lifetime prevalence (at least one use in a persons lifetime) for heroin for those people age 12 and older was 1.4 percent.

By age category, 0.4 percent were in the 12-17 range; 1.8 percent were 18-25; and 1.4 percent were users age 26 and older.

"Lifetime" refers to use at least once during a respondent's lifetime. "Past year" refers to an individual's drug use at least once during the year preceding their response to the survey. "Past month" refers to an individual's drug use at least once during the month preceding their response to the survey.

** State Resources and Services Related to Alcohol and Other Drug Problems for Fiscal Year 1995: An Analysis of State Alcohol and Drug Abuse Profile Data, written by the National Association of State Alcohol and Drug Abuse Directors (NASADAD), July 1997, is available from NASADAD at 202-293-0090.*

*** The MTF survey is conducted by the University of Michigan's Institute for Social Research and is funded by National Institute on Drug Abuse, National Institutes of Health; it has tracked 12th graders' illicit drug use and related attitudes since 1975. In 1991, 8th and 10th graders were added to the study. For the 1998 study, 49,866 students were surveyed from a representative sample of 422 public and private schools nationwide. Copies of the latest survey are available from the National Clearinghouse for Alcohol and Drug Information at 1-800-729-6686.*

**** CEWG is a NIDA-sponsored network of researchers from 20 major U.S. metropolitan areas and selected foreign countries who meet semiannually to discuss the current epidemiology of drug abuse. CEWG's most recent report is Epidemiologic Trends in Drug Abuse, Volume I, June 2000.*

§ NHSDA is an annual survey conducted by the Substance Abuse and Mental Health Services administration. Copies of the latest survey are available from the National Clearinghouse for Alcohol and Drug Information at 1-800-729-6686.