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Heroin

Background

Heroin was first synthesized in 1874 from morphine, a naturally occurring substance extracted from the seed pod of certain varieties of poppy plants. It was commercially marketed in 1898 as a new pain remedy and became widely used in medicine in the early 1900s until it became a controlled substance in 1914 under the Harrison Narcotic Act. Heroin is a highly addictive drug and is considered the most abused and most rapidly acting opiate.

Heroin comes in various forms, but pure heroin is a white powder with a bitter taste. Most illicit heroin comes in powder form in colors ranging from white to dark brown. The colors are due to the impurities left from the manufacturing process or the presence of additives. "Black tar" is another form of heroin that resembles roofing tar or is hard like coal. Color varies from dark brown to black.

Effects

Heroin can be injected, smoked, or snorted. Intravenous injection produces the greatest intensity and most rapid onset of euphoria. Effects are felt in 7 to 8 seconds. Even though effects for sniffing or smoking develop more slowly, beginning in 10 to 15 minutes, sniffing or smoking heroin has increased in popularity because of the availability of high-purity heroin and the fear of sharing needles. Also, users tend to mistakenly believe that sniffing or smoking heroin will not lead to addiction.

After ingestion, heroin crosses the blood-brain barrier. While in the brain, heroin converts to morphine and binds rapidly to opioid receptors. Users tend to report feeling a "rush" or a surge of pleasurable sensations. The feeling varies in intensity depending on how much of the drug was ingested and how rapidly the drug enters the brain and binds to the natural opioid receptors. The rush is usually accompanied by a warm flushing of the skin, dry mouth, and a heavy feeling in the user's arms and legs. The user may also experience nausea, vomiting, and severe itching. Following the initial effects, the user will be drowsy for several hours with clouded mental function and slow cardiac function. Breathing is slowed, possibly to the point of death.

Repeated heroin use produces tolerance and physical dependence. Physical dependence causes the user's body to adapt to the presence of the drug and withdrawal symptoms occur if use is reduced. Withdrawal symptoms begin within a few hours of last use and can include restlessness, muscle and bone pain, insomnia, diarrhea, vomiting, cold flashes with goose bumps, and involuntary leg movements. These symptoms peak between 24 and 48 hours after the last dose and subside after about a week, but may persist for up to a month. Heroin withdrawal is not usually fatal in an otherwise healthy adult, but can cause death to the fetus of a pregnant addict.

Prevalence Estimates

Although it is difficult to obtain an exact number of heroin users because of the transient nature of this population, several surveys have attempted to provide estimates. A rough estimate of the hardcore addict population in the United States places the number between 750,000 and 1,000,000 users.

The U.S. Department of Health and Human Services' National Household Survey on Drug Abuse found that, in 2001, approximately 3.1 million Americans (1.4%) 12 years old and older had used heroin at least once in their lifetime. Persons ages 18 to 25 reported the highest percentage of lifetime heroin use with 1.6% in 2001 (see table 1).

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Table 1. Percentage of Americans reporting lifetime use of heroin, by age group, 1999–2001

Age	1999	2000	2001
12–17	0.4%	0.4%	0.3%
18–25	1.8	1.4	1.6
26–34	1.3	1.1	1.3
35 and older	1.5	1.4	1.5
Total population	1.4	1.2	1.4

Source: National Household Survey on Drug Abuse.

According to the University of Michigan's Monitoring the Future Study in 2002, 1.6% of 8th graders, 1.8% of 10th graders, and 1.7% of 12th graders surveyed reported using heroin at least once during their lifetime. That study also showed that 0.9% of 8th graders, 1.1% of 10th graders, and 1% of 12th graders reported using heroin in the past year.

Among college students surveyed in 2001, 1.2% reported using heroin during their lifetime and 0.1% reported using heroin in the 30 days before being surveyed. Of those young adults surveyed between ages 19 and 28, 2% reported using heroin during their lifetime and 0.3% reported using heroin within the 30 days before being surveyed.

In another study, of those high school students surveyed in 2001 as part of the Youth Risk Behavior Surveillance System, 3.1% reported using heroin at least once during their lifetime. Male students (3.8%) were more likely than female students (2.5%) to report lifetime heroin use.

Regional Observations

According to *Pulse Check: Trends in Drug Abuse,* during the first half of 2002, heroin was perceived to be the drug associated with the most serious consequences (medical, legal, and societal) in 15 of the 20 Pulse Check sites across the United States. Heroin users are predominantly white males, over age 30, who live in central city areas. Most heroin sellers tend to be young adults between the ages of 18 and 30.

The different forms of heroin vary in availability across the Pulse Check sites in the United States. High-purity, South American (Colombian) white heroin is widely available across the Northeast, South, and Midwest. Mexican black tar, a less pure form of heroin, is more commonly found in the West. Southeast Asian heroin is considered widely available in New Orleans, Portland, Maine, and Washington, D.C., and Southwest Asian heroin (the least common form of heroin) is only considered widely available in Chicago and New Orleans.

According to the Community Epidemiology Work Group (CEWG), as of December 2002, heroin use indicators increased in four CEWG sites, decreased in one, were stable in seven, and were mixed in nine. Despite mixed patterns, heroin abuse indicators remain high in many CEWG areas. The sites where heroin indicators increased were Atlanta, Boston, Detroit, and Washington, D.C.

The Arrestee Drug Abuse Monitoring Program (ADAM) collects data on male arrestees testing positive for opiates at the time of arrest in 36 ADAM sites. During 2002, the percentage of adult male arrestees testing positive ranged from 0% in Woodbury, Iowa, to 26% in Chicago. Of the 28 ADAM sites collecting female arrestee data, the percentage of female arrestees testing positive for opiates at the time of arrest ranged from 0% in Woodbury, Iowa, to 18% in Portland, Oregon, and Washington, D.C. The ADAM program also collects data on reported drug use by arrestees in the past 30 days. For adult male arrestees during 2002, the average number of days that arrestees reported using heroin ranged from 0.7 days in Omaha to 21.5 days in Woodbury, Iowa. The average number of days reported by adult female arrestees ranged from zero days in Woodbury, Iowa, to 16 days in New York City.

Availability

According to *What America's Users Spend on Illegal Drugs,* heroin expenditures were an estimated $22 billion in 1990, and decreased to $10 billion in 2000. During 1990, Americans consumed 13.6 metric tons of heroin. Current estimates of heroin consumption remain relatively unchanged and show that 13.3 metric tons of heroin were consumed in 2000.

Production and Trafficking

According to the National Drug Intelligence Center's *National Drug Threat Assessment 2003*, heroin is cultivated from opium poppies in four source areas: South America, Mexico, and Southeast and Southwest Asia. Opium cultivation decreased from 5,082 metric tons during 2000 to 1,255 metric tons during 2001. This led to a reduction in heroin production from 482.2 metric tons during 2000 to 109.3 metric tons during 2001.

South American heroin is the most prevalent type of heroin in the United States. Colombian criminal groups, operating independently of major cocaine cartels, dominate the smuggling of South American heroin into the United States. Others involved in the transportation of South American heroin include Bahamian, Dominican, Guatemalan, Haitian, Jamaican, and Puerto Rican criminal groups.

Heroin is smuggled into the United States through the air, sea, land, and mail services. Once in the United States, heroin is distributed at the wholesale level, most frequently by Columbian, Dominican, Mexican, Nigerian, and Chinese criminal groups described as small, independent, and loosely structured. Retail- or street-level distribution of heroin is handled by a larger array of criminal groups. Gangs also are involved in the wholesale and retail distribution of heroin. Many members of national gangs, such as the Gangster Disciples, Vice Lords, and Latin Kings, keep links to heroin traffickers to guarantee a constant supply of the drug.

Price and Purity

During 2001, wholesale prices for South American heroin ranged from $50,000 to $250,000 per kilogram. Southeast and Southwest Asian heroin wholesale prices ranged from $35,000 to $120,000 per kilogram, and Mexican heroin ranged from $15,000 to $65,000 per kilogram. Street-level heroin usually sells for $10 per dose, although prices vary throughout the country.

According to the Drug Enforcement Administration (DEA), during 2000, retail purity levels of heroin ranged from 48.1% for South American heroin, to 34.6% for Southwest Asian heroin, to 20.8% for Mexican heroin. The national average purity for retail heroin from all sources was 36.8%.

Enforcement

Arrests

The Federal Bureau of Investigation estimates that, during 2001, heroin or cocaine and their derivatives accounted for 9.7% of drug arrests for sale and manufacturing and 23.1% of drug arrests for possession (estimates of heroin arrests alone are not available).

From October 1, 1999, to September 30, 2000, there were 3,557 arrests by DEA for opiates out of 38,411 total drug arrests. These figures represent only DEA's portion of heroin arrests nationwide during 2000.

Seizures

According to the Federal-wide Drug Seizures System (FDSS), 1,587 kilograms of heroin were seized from January to September 2002 by U.S. Federal law enforcement authorities, a decline from 2,493 kilograms in 2001. FDSS comprises information about drug seizures made within the jurisdiction of the United States by DEA, the Federal Bureau of Investigation, the U.S. Customs Service, and the U.S. Border Patrol, as well as maritime seizures made by the U.S. Coast Guard. FDSS eliminates duplicate reporting of seizures involving more than one Federal agency.

Adjudication

During FY 2001, 1,757 Federal drug offenders were convicted of committing an offense involving heroin. Of those convicted of a Federal drug offense for heroin, 61.3% were Hispanic, 23% were black, 14% were white, and 1.7% were of another race.

Corrections

In FY 2001, the average length of sentence received by Federal heroin offenders was 63.4 months, compared to 115 months for crack cocaine offenders, 88.5 months for methamphetamine offenders, 77 months for powder cocaine offenders, 38 months for marijuana offenders, and 41.1 months for other drug offenders. According to a 1997 Bureau of Justice Statistics survey of Federal and State prisoners, approximately 10% of Federal and 12.8% of State drug offenders were incarcerated for an offense involving heroin or other opiates.

Consequences of Use

Chronic heroin use can lead to medical consequences such as scarred and/or collapsed veins, bacterial infections of the blood vessels and heart valves, abscesses and other soft-tissue infections, and liver or kidney disease. Poor health conditions and depressed respiration from heroin use can cause lung complications, including various types of pneumonia and tuberculosis.

Addiction is the most detrimental long-term effect of heroin use because it is a chronic, relapsing disease characterized by compulsive drug seeking and use, as well as neurochemical and molecular changes in the brain.

Long-term effects of heroin use also can include arthritis and other rheumatologic problems and infection of bloodborne pathogens such as HIV/AIDS and hepatitis B and C (which are contracted by sharing and reusing syringes and other injection paraphernalia). It is estimated that injection drug use has been a factor in one-third of all HIV and more than half of all hepatitis C cases in the United States.

Heroin use by a pregnant woman can result in a miscarriage or premature delivery. Heroin exposure in utero can increase a newborns' risk of SIDS (sudden infant death syndrome).

Street heroin is often cut with substances such as sugar, starch, powdered milk, strychnine and other poisons, and other drugs. These additives may not dissolve when injected in a user's system and can clog the blood vessels that lead to the lungs, liver, kidneys, or brain, infecting or killing patches of cells in vital organs. In addition, many users do not know their

heroin's actual strength or its true contents and are at an elevated risk of overdose or death.

According to Drug Abuse Warning Network (DAWN) emergency department (ED) data, there were 93,064 reported mentions of heroin in 2001, an increase of 47.4% since 1994 (see table 2). Preliminary ED data for the first half of 2002 revealed that there were 42,571 mentions of heroin. A drug mention refers to a substance that was recorded (mentioned) during a visit to the ED. Heroin represented 15% of 638,484 total ED episodes in 2001. Approximately 56% of heroin ED mentions were for people ages 35 and older. Almost half (43%) of heroin ED mentions were for whites.

According to DAWN's 2001 mortality data, of the 42 metropolitan areas studied, 19 areas saw a decrease in the number of heroin/morphine mentions, while 9 areas reported an increase in heroin/morphine mentions.

Table 2. Number of emergency department mentions of heroin, 1994–2001

1994	1995	1996	1997	1998	1999	2000	2001
63,158	69,556	72,980	70,712	75,688	82,192	94,804	93,064

Source: Drug Abuse Warning Network.

Treatment

According to Treatment Episode Data Set, heroin accounted for 15.2% of all treatment admissions in 2000 (243,523 admissions). Males accounted for 66.9% of heroin treatment admissions. Treatment admissions by race/ethnicity ranged from 47.3% white, to 24.7% Hispanic, to 24.2% black.

Eighty-one percent of heroin treatment admissions reported daily use of the drug. Almost 80% of heroin admissions had been in treatment before the current episode and 25% had been in treatment five or more times. Methadone treatment was planned to be used for 40% of primary heroin admissions.

Methadone has been used to treat opioid addiction for more than 30 years. This synthetic narcotic suppresses opioid withdrawal symptoms for 24 to 36 hours. Although the patient remains physically dependent on the opioid, the craving from heroin use is reduced and the highs and lows are blocked. This permits the patient to be free from the uncontrolled, compulsive, and disruptive behavior associated with heroin addiction.

Other pharmaceutical approaches to heroin treatment include detoxification, naloxone and naltrexone, LAAM (levo-alpha-acetyl-methadol), and buprenorphine.

Detoxification relieves the withdrawal symptoms experienced when substance use is discontinued. Detoxification is not a treatment for addiction, although it can be used to aid in the transition to long-term treatment.

Naloxone and naltrexone are medications that inhibit the effects of opiates such as morphine and heroin. LAAM, a synthetic opiate similar to methadone, is used to treat heroin addiction. This treatment's long duration of action (up to 72 hours) allows patients to administer their dosage three times a week instead of daily. Buprenorphine, another opiate treatment, causes weaker opiate effects and is not as likely to cause overdose. Buprenorphine creates a lower level of physical dependence and makes it easier for patients to discontinue medication.

Scheduling and Legislation

Heroin was first controlled in the United States under the Harrison Narcotic Act of 1914. Currently, heroin falls under Schedule I of the Controlled Substances Act. A Schedule I Controlled Substance has a high potential for abuse, is not currently accepted for medical use in treatment in the United States, and lacks accepted safety for use under medical supervision.

Street Terms

Street terms for heroin

Al Capone	Isda
Antifreeze	Jee gee
Ballot	Joy
Bart Simpson	Junk
Big bag	Lemonade
Big H	Mexican brown
Brown sugar	Nice and easy
Capital H	Noise
Cheese	Ogoy
Chip	Old Steve
Crank	Orange line
Dead on arrival	P-dope
Dirt	Pangonadalot
Dr. Feelgood	Peg
Ferry dust	Perfect high
George smack	Poison
Golden girl	Pure
Good horse	Rawhide
Hard candy	Ready rock
Hazel	Salt
Hero	Sweet dreams
Hombre	Train
Horse	White boy
HRN	Zoquete

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