Police: Hallucinogens

Hallucinogens are among the oldest known group of drugs that have been used for their ability to alter human perception and mood. For centuries, many of the naturally occurring hallucinogens found in plants and fungi have been used for medical, social, and religious practices. In more recent years, a number of synthetic hallucinogens have been produced, some of which are much more potent than their naturally occurring counterparts.

The biochemical, pharmacological ad physiological basis for hallucinogenic activity is not well understood. Even the name for this class of drugs is not ideal, since hallucinogens do not always produce hallucinations. However, taken in nontoxic dosages, these substances produce changes in perception, thought and mood. Physiological effects include elevated heart rate, increased blood pressure and dilated pupils. Sensory effects include perceptual distortions that vary with dose, setting and mood. Psychic effects include disorders of thought associated with time and space. Time may appear to stand still and forms and colors seem to change and take on new significance. This experience may be pleasurable or extremely frightening. It needs to be stressed that the effects of hallucinogens are unpredictable each time they are used.

Weeks or even months after some hallucinogens have been taken, the user may experience flashbacks--fragmentary recurrences of certain aspects of the drug experience in the absence of actually taking the

drug. The occurrence of a flashback is unpredictable, but is more likely to occur during times of stress and seem to occur more frequently in younger individuals. With time, these episodes diminish and become less intense.

The abuse of hallucinogens in the United States reached a peak in the late 1960s. A subsequent decline in their use may be attributed to real or perceived hazards associated with taking these drugs. However, a resurgence of use of hallucinogens in the 1990s, especially at the junior high school level, is cause for concern.

There is a considerable body of literature that links the use of some of the hallucinogenic substances to neuronal damage in animals; however, there is no conclusive scientific data that links brain or chromosomal damage to the use of hallucinogens n humans. The most common danger of hallucinogen use is impaired judgement that often leads to rash decisions and accidents.

NATURALLY OCCURRING HALLUCINOGENS

Peyote is a small, spineless cactus, Lophophora williamsii, whose principal active ingredient is the hallucinogen **Mescaline**. From earliest recorded time, peyote has been used by natives in northern Mexico and southwestern United States as a part of traditional religious rites. The top of the cactus above ground--also referred to as the crown--consists of disc-shaped buttons that are cut from the roots and dried. These buttons are generally chewed or soaked in water to produce an intoxicating liquid. The hallucinogenic dose for mescaline is about 0.3 to 0.5 grams (equivalent to about 5 grams of dried peyote) and lasts about 12 hours. While peyote produced rich visual hallucinations which were important to the native peyote cults, the full spectrum of effects served as a chemically induced model of mental illness. Mescaline can be extracted from peyote or produced synthetically.

Psilocybin and Psilocyn - Psilocybin and psilocyn are both chemicals obtained from certain mushrooms found in Mexico and Central America. Like peyote, the mushrooms have been used in native rites for centuries. Dried mushrooms contain about 0.2 to 0.4 percent psilocybin and only trace amounts of psilocyn. The hallucinogenic dose of both substances is about 4 to 8 milligrams or about 2 grams of mushrooms with effects lasting for about six hours. Both psilocybin and psilocyn can be produced synthetically.

Dimethyltryptamine (DMT) - Dimethyltryptamine, (DMT) has a long history of use worldwide as it is found in a variety of plants and seeds ad can also be produced synthetically. It is ineffective when taken orally unless combined with another drug that inhibits its metabolism.

Generally it is sniffed, smoked or injected. The effective hallucinogenic dose in humans is about 50 to 100 milligrams and last for about 45 to 60 minutes. Because the effects last only about an hour, the experience was called a "businessman's trip."

A number of other hallucinogens have very similar structures and properties to those of DMT. Diethyltryptamine (DET), for example, is an analogue of DMT and produces the same pharmacological effects but is somewhat less potent than DMT. Alphaethyltryptamine (AET) is another tryptamine hallucinogen recently added to the list of Schedule I substances in the CSA.

LSD - Lysergic acid diethylamide (LSD) is the most potent and highly studied hallucinogen known to man. It was originally synthesized in 1938 by Dr. Albert Hoffman, but its hallucinogenic effects were unknown until 1943 when Hoffman accidentally consumed some LSD. It was later found that an oral dose of as little as 0.025 mg (or 25 micrograms, equal to a few grains of salt) was capable of producing rich and vivid hallucinations.

Because of its structural similarity to a chemical present in the brain and its similarity in effects to certain aspects of psychosis, LSD was used as a research tool to study mental illness. Although there was a decline in its illicit use from its initial popularity in the 1960s. The average effective oral dose is from 20 to 80 micrograms with the effects of higher doses lasting for 10 to 12 hours. LSD is usually sold in the form of impregnated paper (blotter acid), tablets (microdots), or thin squares of gelatin (window panes).

Physical reactions may include dilated pupils, lowered body temperature, nausea, "goos bumps," profuse perspiration, increased blood sugar and rapid heart rate. During the first hour after ingestion, the user may experience visual changes with extreme changes in mood. In the hallucinatory state, the user may suffer impaired depth and time perception accompanied by distorted perception of the size and shape of objects, movements, color, sound, touch and the user's ability to perceive objects through the senses is distorted. He may describe "hearing colors" and "seeing sounds." The ability to make sensibly judgements and see common dangers is impaired, making the user susceptible to personal injury. He may also injure others by attempting to drive a car or by operating machinery.

After an LSD "trip," the user may suffer acute anxiety or depression for a variable period of time. Flashbacks have been reported days or even months after taking the last dose.

DOM, DOB, MDA, MDMA and 2C-B - Many chemical variations of mescaline and amphetamine have been synthesized for their "feel good" effects. 4-Methyl-2,5-dimethoxyamphetamine (DOM) was introduced into the San Francisco drug scene in the late 1960s, and was nicknamed STP, an acronym for "Serenity, Tranquillity, and Peace." Doses of 1 to 3 milligrams generally produce mood alterations and minor perceptual alterations while larger doses can produce pronounced hallucinations that last from 8 to 10 hours.

Other illicitly manufactured analogues include 4-bromo-2,5-dimethoxyamphetamine (DOB), 3,4-methylenedioxyamphetamine (MDA), 3,4-methylenedioxymethamphetamine (MDMA, also referred to as Ecstasy or XTC) and 4-bromo-2,5-dimethoxyphenethylamine (2C-B, NEXUS). These drugs differ from one another in their potency, speed of onset, duration of action and their capacity to modify mood with or without producing overt hallucinations. These drugs are widely used at "raves." (Raves are large all-night dance parties held in unusual settings, such as warehouses or railroad yards, that feature computer-generated, high volume, pulsating music.) The drugs are usually taken orally, sometimes snorted and rarely injected. Because they are produced in clandestine laboratories, they are seldom pure and the amount in a capsule or tablet is likely to vary considerably.

MDMA, called "Adam," "ecstasy," or "X-TC" on the street, is a synthetic, psychoactive (mind-altering) drug with hallucinogenic and amphetamine-like properties. Its chemical structure (3-4 methylenedioxymethamphetamine) is similar to two other synthetic drugs, MDA and methamphetamine, which are known to cause brain damage. MDMA is a so-called "designer drug," which, according to the Drug Enforcement Administration, has become a nationwide problem as well as a serious health threat. It is known to be the cause of at least two deaths.

Beliefs about ecstasy are reminiscent of similar claims made about LSD in the 1950s and 1960s, which proved to be untrue. According to its proponents, MDMA can make people trust each other and breaks down barriers between therapists and patients, lovers, and family members.

Many problems users encounter with MDMA are similar to those found with the use of amphetamines and cocaine. They are:

•psychological difficulties, including confusion, depression, sleep problems, drug craving, severe anxiety, and paranoia-during and sometimes weeks after taking MDMA (even psychotic episodes have been reported);

•physical symptoms such as muscle tension, involuntary teeth-clenching, nausea, blurred vision, rapid eye movements, faintness, and chills or sweating;

•increases in heart rate and blood pressure, a special risk for people with circulatory or heart disease.

NIDA has arranged to have MDMA synthesized so that qualified researchers can conduct studies on the drug's long-term neurotoxicity and abuse potential. It is believed that this research will indicate that MDMA causes brain damage, just as MDA and methamphetamine do.

MDA, the parent drug of MDMA, is an amphetamine-like drug that also has been abused and is similar in chemical structure to MDMA. According to NIDA-supported researchers, Drs. L.S. Seiden and C.R. Schuster of the University of Chicago, MDA destroys serotonin-producing neurons, which play a direct role in regulating aggression, mood, sexual activity, sleep, and sensitivity to pain. It is probably this action on the serotonin system that gives MDA its purported properties of heightened sexual experience, tranquility, and conviviality.

MDMA also is related in structure and effects to methamphetamine. Methamphetamine has been shown by the Chicago researchers to cause degeneration of neurons containing the neurotransmitter dopamine. Damage to these neurons is the underlying cause of the motor disturbances seen in Parkinson's disease.

In laboratory experiments, a single exposure to methamphetamine at high doses or prolonged use at low doses destroys up to 50 percent of the brain cells that use dopamine. Although this damage may not be immediately apparent, scientists believe that with aging or exposure to other toxic agents, Parkinsonian symptoms may eventually emerge. These symptoms begin with lack of coordination and tremors and may eventually result in a form of paralysis.

DEA (Drug Enforcement Administration) officials have said that MDMA is available in at least 21 States and Canada and is especially popular with college students and young professionals. Areas of concentrated use include California, Texas, Florida, New York, and New England. Treatment authorities in California reported at least three or four MDMA-related cases per month in 1985.

In June 1985, DEA banned MDMA, placing the drug in the Schedule I classification of the Controlled Substances Act. Schedule I drugs are generally dangerous narcotics that have a high potential for abuse and no medical usefulness. The emergency scheduling was effective July 1, 1985. Other drugs in Schedule I include heroin, LSD, and MDA.

Manufacturers and sellers of Schedule I drugs are subject to fines of up to $125,000 and 15-year prison terms. The scheduling will be effective for 1 year, during which time authorities will decide how best to classify MDMA in light of hearings and scientific research. Until it became illegal, MDMA was used by some psychiatrists and therapists as an aid in psychotherapy.

The Justice Department has proposed legislation to combat designer drugs such as MDMA. "Designer drug" is a term used to refer to a substance that appears in the illicit drug market that is a chemical analog or variation of another psychoactive drug. Underground chemists produce these new drugs by slightly changing the chemical composition of illegal drugs so that they are technically legal. In many cases, the new designer drugs are more dangerous and more potent than the original drug. Legislation would call for a 15-year prison sentence and $250,000 fine for those convicted of producing such drugs.

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"Club drugs", a name which generally includes MDMA, Ketamine, 2C-B, LSD, psilocybin, and a range of other hallucinogens, are increasingly mentioned this quarter. We have discussed the appearance of several of these drugs (MDMA, LSD, Ketamine, Rohypnol) in prior Pulse Check reports. 2C-B (4-bromo-2, 5-dimethoxyphenethylamine), one of the earliest of the "club drugs" mentioned in the Northeast area, is now appearing in other parts of the country (the Mid-Atlantic and the South). 2C-B, often called "Nexus," "bromo" or "toonies, "is an illegal synthetic hallucinogen. It was originally sold in adult bookstores, nightclubs and health food stores until it was deemed to have no medical or commercial uses in 1994. Once touted as a "natural" drug by claiming that one of its ingredients (a fictional ingredient called brominated cathinine) was derived from the khat plant, Nexus had attracted a following who view it as a "healthy drug." In fact, the active ingredient is the synthetic 2C-B and this claim was simply a marketing tool. It now has a temporary status as a Schedule I controlled substance. 2C-B is available in capsule or powder and is taken either orally or snorted in 10-20 mg doses. It produces visual effects and euphoria lasting several hours at low doses and hallucinogenic effects similar to LSD at higher doses.

Phencyclidine (PCP) and Related Drugs - In the 1950s, phencyclidine was investigated as an anesthetic but, due to the side effects of confusion and delirium, its development for human use was discontinued. It became commercially available for use as a veterinary anesthetic in the 1960s under the trade name of Sernylan and was placed in Schedule III of the CSA. In 1978, due to considerable abuse

of phencyclidine, it was transferred to Schedule II of the CSA and manufacturing of Sernylan was discontinued. Today, virtually all of the phencyclidine encounter on the illicit market in the U.S. is produced in clandestine laboratories. Phencyclidine, more commonly known as PCP, is illicitly marketed under a number of other names including Angel Dust, Supergrass, killer Weed, Embalming Fluid, and Rocket Fuel, reflecting the range of its bizarre and volatile effects. In its pure form, it is a white crystalline powder that readily dissolves in water. However, most PCP on the illicit market contains a number of contaminates as a result of makeshift manufacturing causing the color to range from tan to brown and the consistency from powder to a gummy mass. Although sold in tablets and capsules as well as lin powder and liquid form, it is commonly applied to a leafy material, such as parsley, mint, oregano or marijuana, and smoked. See Error! Bookmark not defined.

The drug's effects are as varied as its appearance. A moderate amount of PCP often causes the user to feel detached, distant and estranged from his surroundings. Numbness, slurred speech and loss of coordination may be accompanied by a sense of strength and invulnerability. A blank stare, rapid and involuntary eye movements, and an exaggerated gait are among the more observable effects. Auditory hallucinations, image distortion, severe mood disorders, and amnesia may also occur. In some users, PCP may cause acute anxiety and a feeling of impending doom, in others paranoia and violent hostility, and in some it may produce a psychoses indistinguishable from schizophrenia. PCP use is associated with a number of risks and many believe it to be one of the most dangerous drugs of abuse.

Health Hazards

PCP was first introduced as a street drug in the late 1960s and quickly gained a reputation as a drug that could cause bad reactions and was not worth the risk. Many people, after using the drug once, will not knowingly use it again. Yet others use it consistently and regularly. The reasons often cited by users as factors in their continued PCP use are feelings of strength, power, and invulnerability and a numbing effect on the mind that often results in anger, rage, and the disappearance of unpleasant memories. Recent studies, including those of men arrested for criminal activity, indicate that if PCP induces violent or criminal behavior, it does so infrequently.

At low to moderate doses, physiological effects of PCP include a slight increase in breathing rate and a more pronounced rise in blood pressure and pulse rate. Res-piration becomes shallow, and flushing and profuse sweating occur. Generalized numbness of the extremities and muscular incoordination also may occur. Psychological effects

include distinct changes in body awareness, similar to those associated with alcohol intoxication. Use of PCP among adolescents may interfere with hormones related to normal growth and development as well as with the learning process.

At high doses of PCP, there is a drop in blood pressure, pulse rate, and respiration. This may be accompanied by nausea, vomiting, blurred vision, flicking up and down of the eyes, drooling, loss of balance, and dizziness. Psychological effects at high doses include illusions and hallucinations. PCP can cause effects that mimic certain primary symptoms of schizophrenia, such as delusions, mental turmoil, and a sensation of distance from one's environment. Often speech is sparse and garbled.

People who use PCP for long periods report memory loss, speech difficulties, depression, and weight loss. When given psychomotor tests, PCP users show loss of fine motor skills and short-term memories. Mood disorders also have been reported. PCP has sedative effects, and interactions with other central nervous system depressants such as alcohol and benzodiazepines can lead to coma or accidental overdose.

Modification of the manufacturing process may yield chemically related analogue capable of producing psychic effects similar to PCP. Four of these substances (N-ethyl-1-phenylcyclohexylamine or PCE, 1-(phenylcyclohexyl)-pyrrolidine or PCPy. 1-[1-(2-thienyl)-cyclohexyl]-piperdine or TCP, and 1-[1-(2-thienyl)cyclohexyl]pyrrolidine or TCPy have been encountered on the illicit market had have been placed in Schedule I of the CSA. LSD is also a Schedule I hallucinogen.