

Drugs of Abuse & Adolescents



Fact Sheet Series for CLINICIANS treating teens with EMOTIONAL & SUBSTANCE USE PROBLEMS

This fact sheet series was created to provide information about several drugs of abuse. The topics included aim to assist clinicians who treat this adolescents with emotional problems who may be using substances to cop with distress. For each drug of abuse we cover the following topics:

- General Information
- Prevalence data among teens
- Reasons why teens might use the drug and the emotional states associated with use
- Reasons why teens might not want to use the drug and the negative consequences associated with use
- Healthier alternative for teens using drugs including coping strategies and treatment options
- Available resources where additional information can be found

This fact sheet series includes information on the following drugs of abuse:

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ALCOHOL

General Information

Definition and Background Information: Alcohol is typically ingested and rapidly absorbed into the bloodstream. In its purest form, alcohol is tasteless, colorless, and odorless. One unit, which is the typical amount of alcohol found in a 12 oz. can of beer, a 5 oz. glass of wine, or a 1.5 oz. shot of liquor, is the equivalent of 8 grams of pure alcohol and contains 80 calories. The amount of alcohol in liquor varies according to type of spirit and is measured according to “proof,” where a spirit’s proof is double the actual percentage of alcohol (40 proof = 20% alcohol).

Street Names: There are numerous street names for the different types of alcohol, including: Booze, brew, hooch, forty, brewsky, hard stuff, hard A, liquor, spirits, and various brand names.

Prevalence among Teenagers

Alcohol use among adolescents is a prominent health problem. Adolescents use alcohol more frequently than all other drugs combined. According to a survey conducted in 2002, 19.6% of 8th graders, 35.4% of 10th graders, and 48.6% of 12th graders report using alcohol in the preceding 30 days. Furthermore, 78% of high school seniors report having tried alcohol at least once. Additionally, 6.7%, 18.3%, and 30.3% of 8th, 10th, and 12th graders, respectively, reported having been drunk in the preceding 30 days. In 1999, 20% of all alcoholic beverages purchased were consumed by underage drinkers.

Reasons Teens Might Use Alcohol and Emotional States Associated with Use

Teens may use alcohol for a number of reasons, including peer pressure or wanting to “fit in,” to enhance social experiences, to cope with negative affect, or to enhance pleasurable experiences. In social situations, a user might feel less inhibited in actions and their speech, feeling at ease, happy and elated. Alcohol may also numb emotions (such as anxiety in social settings). Alcohol use can also serve as an escape for teenagers who are experiencing anxiety and depression. Younger adolescents report drinking to relieve tension while older adolescents say they drink primarily for the euphoric effects and altered social behaviors.

Reasons Teens Might NOT Want To Use Alcohol

(Negative Consequences Associated With Use)

Alcohol acts as a depressant on the body. It can have a multitude of harmful short-term effects, including, but not limited to, headaches, slowed reflexes, sluggish mental processing, impaired perception, lack of coordination, loss of consciousness, blackouts, memory lapses, and death. Long-term effects of alcohol include cirrhosis of the liver, ulcers, miscarriages in pregnant women, cancer of the mouth and throat, hypertension, hypoglycemia, and dependence. Research shows that teens that drink are more likely to be victims of crimes, particularly violent crimes. They often become sexually active at a younger age and have poor sexual decision making skills, leading to an increased risk of pregnancy and sexually transmitted diseases. They are more likely to have significant difficulties with their school work and are more prone to conduct problems. Teens that use alcohol are twice as likely as adults to be involved in a fatal traffic accident. Research has demonstrated that teens using alcohol are four times more likely to become dependent than someone who begins drinking as an adult.

Healthier Alternatives for Teens Using Alcohol

Coping Strategies: Although many teens use substances to feel good and cope with negative emotions, it is important for them to recognize the multiple negative consequences of use on their physical and emotional health, their family and peer relationships, as well as their social, academic, and community functioning.

Oftentimes, adolescents use alcohol to “fit in.” If alcohol use is a problem, the first step taken should be to find a setting where the adolescent can fit in without having to use alcohol. Peer pressure is a tremendous force in convincing a teen to use alcohol. Providing a peer group that offers healthier choices will reduce the chance that a teen will begin to use alcohol. Additionally, since adolescents may feel they need alcohol to be sociable, teaching social skills can be very beneficial. Many teens will use alcohol because they feel the need to compensate for nervous behavior or a lack of competence in social situations. Increasing interaction skills will decrease the perceived need for alcohol. For those using alcohol to relieve stress, learning behavioral relaxation strategies may prove to be useful. Teens using alcohol to cope with problems should learn to use healthier problem solving strategies or seek support from family and friends who may be able to direct them to more intensive care.

Treatment Options: Treatment for Alcohol Use Disorder (AUD) can include counseling, medication, or both. No single treatment has been found effective in all cases, and treatment should be adapted to suit an individual client’s needs. Additionally, the setting, resources, and client motivation must be taken into account when deciding on the best course of action for treating AUD.

Current psychosocial treatments include: 12-Step Self-Help Groups (including Alcoholics Anonymous), Cognitive-Behavioral Therapy (CBT), Motivational Enhancement Therapy (MET), and Multi-Dimensional Family Therapy (MDFT). Depending on the length and severity, medication to treat AUD may also be necessary. Benzodiazepines may be used initially to help clients during the acute withdrawal period. Additionally, medications such as naltrexone have been used to reduce cravings, leading to more successful treatment. Another medication, disulfiram, has been used to create unpleasant reactions such as nausea in clients who attempt to consume alcohol.

Treatment referrals can be obtained from the National Drug and Alcohol Treatment Referral Service (a service of the Substance Abuse and Mental Health Services Administration) by contacting 1-800-662-4357 (HELP). To access SAMHSA’s online Substance Abuse Treatment Facility Locator, go to <http://dasis3.samhsa.gov>.

HALLUCINOGENS

General Information

Definition and Background Information: Hallucinogens are a class of illicit drugs that share an ability to alter perception and, in some cases, produce euphoria. They include LSD (lysergic acid diethylamide), PCP (Phencyclidine), ketamine, MDMA (methylenedioxymethamphetamine, a.k.a. Ecstasy), psilocybin (magic mushrooms), mescaline (a derivative of the peyote cactus) and DXM (dextromethorphan, an ingredient of medication sold over the counter). LSD is the primary drug that makes up the hallucinogen class and is also the most potent. It is often taken by mouth, added to squares of absorbent paper or gelatin, or sold in small tablets. The effect of an oral dose can last up to 12 hours.

PCP and ketamine were initially developed as general anesthetics for surgery. They produce perceptual distortions and dissociation, not hallucinations, and are thus known as “dissociative anesthetics.” Ketamine is available in pill, powder, or liquid form. It may be injected intravenously, snorted, smoked, or mixed into beverages. Ketamine is increasingly being used as a “club drug.” PCP is usually smoked in parsley or cigarettes, used as a dip on cigarettes (“sherm sticks”), mixed with marijuana (“wicky stick” or “donk”), or sprayed on a tobacco-like substance (“mint leaf” or “love leaf”). DXM is a widely available cough suppressant that can produce effects similar to PCP and ketamine when taken in high doses. In addition to readily available store-bought liquid, DXM can appear as a white powder packaged in clear, unmarked capsules.

Ecstasy is a newer synthetic drug that is amongst the most frequently reported club drugs. Ecstasy is typically taken in capsule or tablet format (available in different colors or imprints, “brands”). It is also available in a powder and is sometimes snorted or occasionally smoked, but rarely injected. The effects of Ecstasy last 3-6 hours.

Mescaline, a derivative of the peyote cactus, has been used for centuries in natural medicines and religious ceremonies. Mescaline can be smoked, brewed in tea, chewed, and incorporated into food. Typically, the cactus is cut into thick slices and dried, producing “mescal buttons” that are chewed and eventually swallowed. Mescaline is also produced synthetically in a salt-like crystal but may produce different effects from peyote in this form. Psilocybin is found in mushrooms native to North America and has also been used in religious rituals by Native Americans.

Street Names: LSD (acid, blotter, windowpane, microdot, trips, Lucy in the Sky with Diamonds), PCP (angel dust, peace, crystal, hog, rocket fuel), ketamine (special/vitamin/lady K, ketelar, ketaset), Ecstasy (E, X, XTC, Adam, rolls, candy, enhancements, vitamin E, blue lips, blue kisses, white dove), psilocybin (shrooms, magic mushrooms). LSD use has been called “tripping,” ketamine use “K-ing,” and Ecstasy and LSD used together is called “candy-flipping.”

Prevalence among Teenagers

Hallucinogen use is generally rare in the population, although higher amongst teens and young adults. According to the Monitoring the Future (MTF) study, the lifetime prevalence of LSD use in 2004 amongst 8th, 10th and 12th graders was 1.8%, 2.8% and 4.6% respectively, with current use reflecting a decline for 10th and 12th graders compared to previous years.

In 2002, 1% of eighth graders and 2% of tenth and twelfth graders had tried ketamine at some point during the past year. Lifetime prevalence of PCP amongst high school seniors in 2004 was 1.6%, and the lifetime prevalence of Ecstasy in 2004 amongst 8th, 10th and 12th graders was 2.8%, 4.3% and 7.5%, respectively, according to the annual MTF survey.

Reasons Teens Might Use Hallucinogens and Emotional States Associated with Use

Hallucinogens produce profound changes in sensory perceptions while allowing the user to maintain a relatively clear level of consciousness. The subjective effects of LSD use may include euphoria, labile mood, visual and auditory hallucinations, dissociation, and depersonalization. For example, intensification or alteration in colors and sound is perceived (synesthesia), usual objects appear novel or fascinating, and perception of time and space distortion frequently occurs.

In small doses, ketamine causes a dreamy, floating feeling of distancing from one's environment and body into an alternate reality. Similar to ketamine, PCP produces a sense of relaxation, tingling, and numbness when used in small doses. It does not produce true hallucinations like LSD but can cause floating sensations, distortions of body image, and euphoria.

Ecstasy produces feelings of euphoria and love, as well as a loss of inhibition and boundaries. Senses are heightened (e.g., visual perceptions are intensified) and perception of time and spatial relations is altered. Ecstasy increases a user's desire to interact with others and makes him/her feel more confident and accepted. Mescaline often produces visual hallucinations. Psilocybin is much less potent than LSD but produces similar effects.

Reasons Teens Might NOT Want To Use Hallucinogens

(Negative Consequences Associated With Use)

Hallucinations generally intensify whatever mood the user is in when the drug is taken and can amplify negative feelings, causing a dysphoric experience or a "bad trip." A bad trip (hallucinogen delusional disorder) is often characterized by a temporary episode of panic and/or fear of imminent insanity and paranoia. Flashbacks may also occur. Hallucinogen persisting perceptual disorder (HPPD) is rare, but does occur.

Many adolescents report decreased involvement in daily activities, decreased school performance, and lack of social interaction. Behavioral toxicity may occur, such as accidents that occur while the user is driving, or other bizarre behavior, such as jumping off a building.

Unpleasant effects associated with ketamine use may include excitability, clumsiness, confusion, rapid shifts in emotion, and irrational behavior. Higher doses make it difficult to move; very high doses may cause a person to become anaesthetized or lose consciousness. Some people may not remember their experiences. At higher doses of PCP, some individuals develop a psychotic-like state including depersonalization, confusion, and intense anxiety that may last several days. It is easy to become injured under the influence of PCP or ketamine because the user is relatively anesthetized to pain, agitated, and/or irrational. Some users will not respond to being subjugated or subdued because they perceive to have "superhuman strength." Ketamine has been labeled a "date rape" drug because a user may become unable to move and more vulnerable to attack. It can also be easily added to someone's drink without their knowledge, thus making them more vulnerable to attack. Chronic use of ketamine/PCP may lead to dependence, disruptions in consciousness, "dulled" thinking and reflexes, loss of impulse control, lethargy, and depression.

Negative effects associated with Ecstasy use include mental slowing, decreased desire to do mental or physical tasks, increased heart rate and body temperature, anxiety, dry mouth, dehydration, bruxism, and occasionally nausea. In the short term, depression may occur in the 48 hours after use. With increased use, the perceived benefits of Ecstasy may be harder to attain, and users report fatigue and decreased euphoria. Research shows that these drugs may have long-lasting effects on the brain that can alter memory function and motor skills. Ecstasy can also cause arrhythmia of the heart. Nausea is common after eating mescal buttons.

Healthier Alternatives for Teens Using Hallucinogens

Coping strategies: Although many teens use substances to feel good and cope with negative emotions, it is important for them to recognize the multiple negative consequences of use on their physical and emotional health, their family and peer relationships, as well as their social, academic, and community functioning. Thus, teenagers must find alternative coping strategies to handle problems and situations that underlie their initial reasons for substance use. Rather than use hallucinogens to disengage from stressful experiences, teens could benefit from talking to and getting support from friends, relatives, or professionals to deal with their problems. Instead of using drugs to feel “high” and euphoric, they could try getting active by exercising or going dancing to release endorphins the natural way.

Treatment options: For most adolescents in treatment, hallucinogen consumption is part of an extensive drug use history; rarely do counselors see adolescents who abuse only hallucinogens.

A 2001 report by the University of Kansas on inpatient treatment for adolescent substance abuse surveyed a number of empirically based outcome studies. They found that:

- Residential and inpatient treatment were more effective than other treatments for use of hallucinogens and stimulants.
- Usage of hallucinogens, stimulants and illicit drugs (other than marijuana) increased in outpatient treatment settings.
- Adolescents are 4 times more likely to relapse if they do not attend AA/NA groups following discharge.
- Treatment had significant positive effects on reducing legal and school issues and increasing familial functioning, as well as symptoms of comorbid psychiatric issues.

Furthermore, based on the review, current successful inpatient treatment protocols for adolescents with substance abuse issues have included the following:

- Intense and structured milieu-based interventions including individual, family and group therapy, utilization of the AA/NA model and aftercare services (outpatient therapy, at least one meeting of AA/NA per week)
- Educational and vocational services, e.g. specialized school and vocational training
- Well-trained, experienced clinicians
- Length of stay: Mean stay of 6 weeks yielded significantly higher levels of success

Treatment referrals can be obtained from the National Drug and Alcohol Treatment Referral Service (a service of the Substance Abuse and Mental Health Services Administration) by contacting 1-800-662-4357 (HELP). To access SAMHSA’s online Substance Abuse Treatment Facility Locator, go to <http://dasis3.samhsa.gov>

CANNABIS

(Marijuana)

General Information

Definition and Background Information: Cannabis, which is derived from the hemp plant, is the most commonly used illegal substance in the United States. The form of cannabis that is most often used is marijuana, which consists of the dried leaves, stems, seeds, and flowers of the plant. Marijuana contains various levels of a psychoactive substance known as tetrahydrocannabinol (THC), typically 2-5%, but the amount of THC can be as high as 14%. Hashish is a stronger form of cannabis derived from the resin of the flowers and contains, on average, 8-14% THC. Hash oil, a black or red oily substance, is a purified form of hashish that typically contains 15-50% THC.

Marijuana is most often smoked after being rolled into a cigarette (“joint”) or cigar (“blunt”). It is also smoked through pipes or water pipes (“bongs”). When smoked, the THC in marijuana quickly enters the blood stream through the lungs, causing an immediate effect that lasts up to two hours. The odor of marijuana smoke is similar to that of burning leaves. Marijuana is less often consumed orally. When eaten, the body more slowly absorbs the THC in marijuana, resulting in a less intense, but more long-lasting, effect. Hashish is shaped into small rocks that can be smoked or orally ingested. Hash oil may be added to tobacco or heated in a pipe.

Street Names: There are numerous street names for marijuana and hashish, including: weed, pot, grass, herb, blunt, Mary Jane, spliff, shwag, boom, and chronic.

Prevalence among Teenagers

According to the 2004 Monitoring the Future Survey, approximately 46% of 12th graders reported using marijuana at some point in their lives, while 21% reported using marijuana in the past month. Thirty-five percent of 10th graders and 16% of 8th graders reported using marijuana at least one time, and 16% of 10th graders and 6% of 8th graders reported marijuana use in the past month. The study found a slight decrease in use compared to prevalence in 2003 and a statistically significant decrease compared to peak levels of use in 1996.

Cannabis use is associated with higher rates of mental health problems and academic problems. The most frequent emotional and behavioral problems associated with cannabis use are conduct disorder, ADHD, and internalizing disorders. Among a psychiatric inpatient population of adolescents, 60% of those with mood disorders, 63% of those with anxiety disorders, and 80% with schizophrenia also met criteria for substance abuse, most often marijuana abuse.

Reasons Teens Might Use Marijuana and Emotional States Associated with Use

People who use marijuana report that they experience a euphoric or relaxed feeling (being “high” or “stoned”). Others have reported that marijuana enhances pleasurable experiences, such as listening to music, tasting food, and having sexual intercourse. Marijuana use can also cause people to feel more sociable (at least temporarily). Other reasons adolescents might use marijuana is because they feel pressured by their peers, and using marijuana makes them feel more popular. Marijuana and cannabis use can also serve as an “escape” for teenagers who are experiencing anxiety, depression, or negative affect. Marijuana’s effect on the immune system has not fully been evaluated, however the discussion of the possible benefits can make the drug more enticing for some adolescents. The effects of marijuana vary widely depending on a number of factors, including the potency of the drug, the user’s previous experience with marijuana, how it is consumed, and if other substances (such as alcohol) have also been used.

Reasons Teens Might NOT Want To Use Marijuana (Negative Consequences Associated With Use)

Some users report increased anxiety and paranoia after using marijuana. Adolescents with a family history of schizophrenia, depression or other mood disorders who run a greater risk of developing these disorders are sometimes more susceptible to experiencing these negative effects and often do so at doses tolerated well by others. Other effects include increased hunger and sleepiness. Short-term effects may also include impairment in memory and attention, alterations in perception (such as blurry vision), loss of motor coordination, and rapid heart rate. As inexperienced drivers, adolescents may experience additional impairment in motor, cognitive and perception abilities relative to adults. The effects can also interfere with other daily activities, such as playing sports and focusing on schoolwork. Memory impairments caused by marijuana use can last days or weeks after the acute effects have worn off, which may have a deleterious effect on adolescents' academic performance. Because marijuana use can lead to impaired judgments, adolescents who use marijuana may engage in risky sexual behavior that makes them vulnerable to teen pregnancy and sexually transmitted diseases (such as AIDS). Chronic use of marijuana may increase the risk of lung cancer and/or other respiratory problems. Marijuana may suppress the immune system, causing one to be more susceptible to illnesses. Legal consequences of using marijuana are significant, including arrest, probation, suspension of driver's license, and incarceration. Regular use of marijuana in adolescence has shown to increase the risk of marijuana dependence, other illicit drug use, depression, suicidal ideation and suicide attempts and violent or property crimes occurring in young adulthood.

Healthier Alternatives for Teens Using Marijuana

Coping Strategies: Although many teens use substances to feel good and cope with negative emotions, it is important for them to recognize the multiple negative consequences of use on their physical and emotional health, their family and peer relationships, as well as their social, academic, and community functioning. Thus, teenagers must find alternative coping strategies to handle problems and situations that underlie their initial reasons for substance use. For teenagers who use marijuana/cannabis in order to relax or avoid negative emotions (such as anxiety and depression), progressive muscle relaxation and deep breathing techniques can be helpful ways of handling tension and stress. Adolescents should be encouraged to join constructive group activities where they have the opportunity to meet non-drug-using peers.

Treatment Options: For adolescents already using marijuana regularly, formal treatment may be warranted. Many adolescents are mandated to receive treatment for cannabis abuse after getting involved in the juvenile justice system (44%). Most adolescents who seek treatment services for cannabis abuse do so at outpatient clinics (80%). This "treatment as usual" approach has had a modest level of efficacy: in a study of adolescents receiving any type of treatment for cannabis abuse, there was a 10-18% reduction in cannabis use in the year after treatment compared to the year before treatment.

While there are no medications currently available for the treatment of cannabis abuse or dependence, there are several psychosocial treatments for adolescents that are promising, including Motivational Enhancement Therapy (MET), Cognitive Behavioral Therapy, and Family Therapy. The efficacy of these (and other) treatments was evaluated by the Cannabis Youth Treatment (CYT) study. Results showed that these treatments helped to decrease marijuana use and associated indicators of problem severity.

Treatment referrals can be obtained from the National Drug and Alcohol Treatment Referral Service (a service of the Substance Abuse and Mental Health Services Administration) by contacting 1-800-662-4357 (HELP). To access SAMHSA's online Substance Abuse Treatment Facility Locator, go to <http://dasis3.samhsa.gov>

OPIOIDS

General Information

Definition and Background Information: Opioids are derived from opium which is found in the seed of some poppy plants. Opioids are the most powerful known pain relievers and their analgesic and euphoric effects have been known since 4000 B.C. There are three classes of opioids: (1) direct derivatives of opium like morphine and codeine, (2) partially synthetic derivatives of morphine, and (3) synthetic compounds. Partially synthetic derivatives of morphine include dangerous street drugs like heroin and prescription pain medication that can be dangerous if used inappropriately, including oxycodone HCl (OxyContin), oxymorphone, and hydrocodone (Vicodin). Synthetic opioids include fentanyl, alfentanil, levorphanol, meperidine (Demerol), methadone, bitartrate, propoxyphene, acetaminophen (Tylenol, Percocet), and thebaine.

Most opioids can be administered in multiple ways, including sniffing, smoking, oral administration, or by injecting the drug. The death of people who use opioids is disproportionately high compared with that of people who use other intravenous drugs. Signs of use include drowsiness, nausea, vomiting, itchiness, contracted pupils, loss of appetite, sleep disruption, slowed breathing, sexual dysfunction, constipation, inflamed nasal mucosa (if drug is snorted), or needle marks (if drug is injected).

Street Names: There are numerous street names for heroin and other opioids, including smack, dope, horse, H, China white, black tar, chiva, junk, skag, brown sugar, Lady Jane, OC (OxyContin), vikes (Vicodin), perks (Percocet), and morph (morphine).

Prevalence Among Teenagers

Heroin use has increased over the last decade, particularly among adolescents; however overall heroin use remains low. A 2002 survey reported that 2% of 8th graders, 10th graders, and 12th graders reported using heroin at least once in their lifetime. Recently, concerns about the abuse of prescription painkillers, particularly those containing opiates (narcotics), including Vicodin, OxyContin, Percocet, Demerol, and Darvon, has risen dramatically in the U.S. The incidence of emergency department visits related to narcotic abuse has been increasing in the U.S. since the mid-1990s and more than doubled between 1994 and 2001. Overdoses of hydrocodone (Vicodin) rose 170%, and overdoses of oxycodone (OxyContin) increased 450%. Nationally, an estimated 14% of high school seniors have used prescription drugs for non-medical reasons at least once in their life time, making prescription drugs the second most commonly abused illegal substance by teenagers after marijuana.

Reasons Teens Might Use Opioids and Emotional States Associated with Use

Teens may first use drugs to have fun and feel good, to be accepted, feel popular, and because of peer pressure. Teens may turn to opioids to cope with stress, relieve physical or emotional pain, to forget unpleasant experiences, and to avoid negative emotions. Opioid use creates feelings of warmth and detachment, while providing almost instantaneous anxiety relief. Opioids also induce feelings of euphoria and analgesia. Heroin intoxication has been described as “God’s warmest blanket” by users. Users feel sedated and body functioning is slowed down.

Reasons Teens Might NOT Want To Use Opioids (Negative Consequences Associated With Use)

Negative side effects of opioids are often present from first use. These include nausea, vomiting, itchiness, sleep disruption, sexual dysfunction, respiratory depression, low blood pressure, urinary retention, and constipation. Opioids have very high addictive potential, putting users at high risk for long term consequences after just one use. Chronic use can result in tolerance which means users must take higher doses to achieve the same initial effects, which sometimes becomes more than the body can handle. Heroin is often used in combination with other drugs, increasing the risk of dangerous interactions and overdose. Consequences of opioid dependence include depression, sleep disturbance, lack of interest, selflessness, suicidal ideation, poor coping skills, delirium, coma, and death. In adolescents, school performance, family relations and social functioning decline significantly as the drug takes priority.

Long-term use also can lead to physical dependence and addiction, causing withdrawal symptoms if use is reduced or stopped. Symptoms of opioid withdrawal include unpleasant flu-like symptoms, fever, vomiting, tachycardia, profuse sweating, stomach cramps, high blood pressure, overall body pain, diarrhea, runny nose, hot and cold flashes, goose bumps, sleeplessness, depression, restlessness, and irritability. Opioid users are more likely to engage in antisocial behaviors such as shoplifting, drug dealing, robbery and prostitution to obtain the drug, putting them at risk for incarceration.

Sharing needles or using dirty needles to inject opioids can spread deadly infections such as HIV and Hepatitis B and C. Injecting drugs and/or sharing needles can contribute to other serious and life-threatening diseases and conditions, including endocarditis, embolism, botulism, tetanus, flesh-eating bacteria, or abscesses (a painful skin inflammation that may result in blood poisoning).

Healthier Alternatives for Teens Using Opioids

Coping Strategies: Although many teens use substances to feel good and cope with negative emotions, it is important for them to recognize the multiple negative consequences of use on their physical and emotional health, their family and peer relationships, as well as their social, academic, and community functioning. Thus, teenagers must find alternative coping strategies to handle problems and situations that underlie their initial reasons for substance use.

Treatment Options: Some of the treatments that have been used with heroin users include the following:

- **Medication:** The use of methadone is based on the principle of cross-tolerance in which one opioid is replaced with another and then slowly withdrawn. Since its use in 1964, this synthetic opioid has proven to be effective to reduce illicit drug consumption and other criminal behavior and secondarily improve productive social behavior. Other medications include LAAM, an alternative to methadone that blocks the effects of opioids for up to 72 hours, and naltrexone, an opioid blocker that is often employed for highly motivated individuals in treatment programs promoting complete abstinence.
- **Psychosocial Treatments:** Patients in methadone programs often benefit from cognitive-behavioral, supportive, or analytical oriented psychotherapies if they are added to standard drug counseling. Cognitive-behavioral techniques help patients acquire specific skills for resisting substance use and teach coping skills to reduce problems related to drug use. Group therapy and aversion therapy are other psychosocial treatments utilized with opioid users. Narcotics Anonymous (NA) can also provide needed support for those attempting abstinence.

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GHB

General Information

Definition and Background Information: Gamma hydroxybutyrate (GHB) was initially developed in 1960 and studied for use as an anesthetic. It was withdrawn because of its side effects. GHB began being abused widely in the early 1990s in the United States. Its over the counter sale was banned in 1993 in the U.S. after a form of it was readily available at health food stores in the 1980s and early 1990s. It is often abused by young and predominantly white partygoers in combination with various other drugs at raves and other gatherings. It is often taken with alcohol. It has been used in a number of sexual assaults and, like the drug Rohypnol, is known as a “date-rape drug” because of its ability to sedate and impair the memory of potential assault victims. Some bodybuilders also use GHB for its purported growth-enhancing properties. GHB generally comes mixed with water or in its pure powder form. It is commonly available in small hotel shampoo-sized bottles, which generally cost only about \$10 and usually contain about 10 “hits.”

Street Names: GHB is known by many street names, including grievous bodily harm, scoop, liquid ecstasy, cherry meth, soap, easy lay, growth hormone booster, liquid x, max, goop, somatmax, and Georgia homeboy.

Prevalence among Teenagers

GHB use has greatly increased in recent years, with the most prevalent use observed in the southeastern and western United States. The 2003 Monitoring of the Future Survey (www.drugabuse.gov) found that 1.4% of 10th and 12th graders reported using GHB at least once in the past year. Ninety-four percent of people presenting to hospitals with GHB ingestion are of European ethnicity, and 79% of GHB users are male. Two thirds of patients presenting to an Emergency Department for GHB ingestion are between 18 and 25 years old. In 2000, GHB related emergency department visits peaked at 4,969 visits (<http://oas.samhsa.gov/2k4/clubdrugs/clubdrugs.cfm>).

Reasons Teens Might Use GHB and Emotional States Associated with Use

Those who take it in a club setting reportedly use it for its euphoric and relaxing properties and its tendency to cause amnesia. Withdrawal effects include increased heart rate, restlessness, feelings of anxiety and agitation, delirium and sleep disruptions. The fact that GHB has been sold in health food stores has likely added to the perception of GHB as a “safe drug.” Purportedly, some bodybuilders take GHB for its growth enhancing properties, though no studies have yet demonstrated any weight loss or increased muscle growth associated with GHB use. In the United States, GHB is used to treat a small subset of people suffering from narcolepsy with muscle weakness or paralysis. In Europe, it is still used as an anesthetic, for narcolepsy therapy, and for alcohol and opiate addiction therapy. Most use of GHB in the United States is illicit.

Typically, a person who has taken GHB experiences a short period of euphoria followed by a rapid and profound decline in the level of consciousness. The use of GHB can result in the following: drowsiness, nausea, vomiting, headache, loss of consciousness, loss of reflexes, seizures, coma, and death. Deaths from GHB often occur after combining use with alcohol. The combination of inconsistent purity and potency of individual doses of GHB and the fact that some regular users report needing increasing doses to achieve the effects increases the potential for overdose. Combining GHB with other CNS depressants increases the chance of death. Individuals who report to emergency departments for GHB intoxication usually present with a decreased level of consciousness or even coma. The drug produces tolerance and dependence with severe and potentially lethal withdrawal symptoms.

Healthier Alternatives for Teens Using GHB

Coping strategies: Although many teens use substances to feel good and cope with negative emotions, it is important for them to recognize the multiple negative consequences of use on their physical and emotional health, their family and peer relationships, as well as their social, academic, and community functioning. Thus, teenagers must find alternative coping strategies to handle problems and situations that underlie their initial reasons for substance use. Teens using GHB for its sedative effects can benefit from learning alternative ways to manage anxiety, stress, and sleep deprivation. Behavioral relaxation strategies, such as deep breathing, and engaging in relaxing activities like yoga can help calm the body and decrease anxiety.

Treatment options: Even one dose of GHB can be fatal. If someone ingests GHB, he or she should be taken to a hospital right away or emergency services (911) should be called immediately. Inpatient or outpatient counseling can be helpful for people attempting to quit GHB. In addition, if the user is also suffering from addiction to alcohol or other drugs, the treatment must address the multiple addictions.

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INHALANTS

General Information

Definition and Background Information: Inhalants are breathable chemical vapors that produce psychoactive effects. Initial use causes a feeling of stimulation, but repeated inhalation causes a loss of inhibitions, a feeling of less control, and possible loss of consciousness. Sniffing inhalants is often referred to as “huffing.” Inhalants can also be used by placing the inhalant in a bag and then sniffing into the bag or putting the bag over the head (“bagging”). They are very easy to find, aren’t illegal, and are less expensive than most drugs. Inhalants can be obtained from many common household and workplace products. The different categories of inhalants are as follows:

Volatile solvents (vaporize at room temperature)

- Paint thinners, paint removers (e.g. nail polish remover), degreasers, dry-cleaning fluids, gasoline, glue, correction fluids, felt-tip-marker fluid, electronic contact cleaners

Aerosols and gases (sprays that contain propellants and solvents)

- Butane lighters, propane tanks, aerosols/dispensers (whipped cream --“Whippets”, refrigerant gases, vegetable cooking spray, spray paint, hair or deodorant sprays, fabric protector sprays, aerosol computer cleaning products), medical anesthetic gases (ether, chloroform, halothane, nitrous oxide, “laughing gas”)

Nitrites (Nitrites do not work directly on the central nervous system to alter mood like other inhalants; rather, they dilate blood vessels and relax muscles, and they are often used as sexual enhancers).

- Organic nitrites--“poppers” or “snappers”--cyclohexyl, butyl, and amyl nitrites—often sold in small brown bottles and labeled “video head cleaner,” “room odorizer,” “leather cleaner,” or “liquid aroma.”

Street Names: There are numerous street names for the various categories of inhalants, including: huffing, bagging, whippets, poppers and snappers, as listed above.

Prevalence among Teenagers

Inhalants are most likely to be used by children and adolescents because they are easy to obtain. About 3.0% of U.S. children have tried inhalants by fourth grade. In 2003, more females (9.6%) than males (7.7%) in 8th grade used inhalants, but there were more male (5.2%) than female (2.9%) users in 12th grade. Males are more likely to exhibit sustained abuse of inhalants. According to (SUBSTANCE USE DISORDERS CHAPTER) “the prevalence of inhalant use in young boys exceeds the prevalence of marijuana use and is more frequent in boys in adverse socioeconomic conditions. Poverty, childhood abuse, poor grades, and early school dropout are associated with greater inhalant abuse.”

Reasons Teens Might Use Inhalants and Emotional States Associated with Use

When asked why they sniff inhalants, children typically report that it’s fun and they enjoy the feeling of intoxication. Inhalants can cause altered perception, disorientation, and a slight buzz. They work like anesthetics, slowing down the body’s functions and causing a brief (few minutes) feeling of intoxication. Repeatedly breathing in inhalants can cause this feeling to last for several hours. Nitrates in particular have a stimulating rather than depressant effect and are often used to enhance sexual activity.

Reasons Teens Might NOT Want To Use Inhalants (Negative Consequences Associated With Use)

Inhalant use can cause a host of short and long-term medical, psychological, social, and neurological problems. In the short term, inhalant intoxication is similar to alcohol intoxication, producing anxiety relief, and feelings of relaxation and disinhibition. Increased intoxication leads to slurred speech, impairments in balance and fine motor movements, and eventually loss of consciousness and even coma. Combining inhalant use and strenuous activity often results in impaired cardiac function and arrhythmias. The use of inhalants can result in headache, muscle weakness, abdominal pain, nausea, fatigue, nosebleeds, severe mood swings, and violent behavior. It can have long-term negative effects on sensory abilities, including: numbness and tingling of hands and feet, decrease or loss of sense of smell, and hearing loss. Chronic use can cause severe damage to internal organs and systems, including the liver, lungs, kidneys, and central nervous system, including the brain. Chronic use is associated with hepatitis or peripheral neuropathy. Sniffing highly concentrated amounts can cause rapid heart failure and death, even in a first time user. Suffocation, asphyxiation, or choking (on vomit) is possible when using inhalants. Abusers often have severe cognitive deficits, including short attention spans.

Healthier Alternatives for Teens Using Inhalants

Coping Strategies: Although many teens use substances to feel good and cope with negative emotions, it is important for them to recognize the multiple negative consequences of use on their physical and emotional health, their family and peer relationships, as well as their social, academic, and community functioning. Thus, teenagers must find alternative coping strategies to handle problems and situations that underlie their initial reasons for substance use. For teenagers who use inhalants to relax or avoid negative emotions, there are several alternative coping strategies. Progressive muscle relaxation and deep breathing techniques are behavioral relaxation strategies that can be helpful ways of handling tension and stress. Teenagers can be taught formal problem-solving techniques, whereby they learn to generate (and then evaluate) multiple solutions to a given problem. Adolescents can be encouraged to join constructive group activities, such as sports and dance classes, where they have the opportunity to meet non-drug-using peers.

Treatment Options: Chronic or long-term inhalant users are the most difficult drug users to treat; they often have cognitive impairment, neurological dysfunction, and multiple psychological and social problems. The treatment of inhalant addiction requires more resources than other drug abuse treatment programs to treat the multiple problems, so there are fewer treatment centers who will accept these cases. Inhalants can stay in the body for weeks, so detoxification can extend for a month. Abusers often cannot begin therapy until after detoxification. Abusing inhalants causes cognitive deficits, so abusers tend to have short attention spans and require short initial therapy sessions (15-20 minutes), with therapy lasting as long as 2 years. Inhalant abuse is often a group activity, so abusers must often find new peer groups. Other drug abusers often look down on inhalant users, so group therapy must be introduced gradually. Relapse is common.

Treatment referrals can be obtained from the National Drug and Alcohol Treatment Referral Service (a service of the Substance Abuse and Mental Health Services Administration) by contacting 1-800-662-4357 (HELP). To access SAMHSA's online Substance Abuse Treatment Facility Locator, go to <http://dasis3.samhsa.gov>.

NICOTINE

General Information

Definition and Background Information: Nicotine is one of the most frequently used addictive drugs. It is a clear liquid that turns brown when burned. The tobacco smell occurs when it interacts with air. Nicotine enters the bloodstream through absorption in the nose and mouth or by inhalation in the lungs. It increases dopamine levels in the reward circuits which activates feelings of pleasure. When inhaled as via cigarettes, nicotine is absorbed through the lungs and reaches the brain within 20 seconds of each puff.

Nicotine addiction in the United States is primarily accounted for by cigarette smoking. Most American cigarettes contain 10mg or more of nicotine, of which 1-2mg of which are inhaled, on average.

Street Names: Cigarettes can be called cigs, butts, smokes, squares, or fags. Chewing tobacco is often referred to as dip, chew, or snuff. Sometimes cigars are referred to as blunts.

Prevalence among Teenagers

In 1998, 4.1 million Americans between the ages of 12 and 17 were smokers (18% of this age group).

The percentage of use of nicotine by high school students is as follows:

- Cigarettes—34.7% male, 34.9% female, 38.6% white, 19.7% black, 32.7% Hispanic
- Smokeless—14.2% male, 1.3% female, 10.4% white, 1.3% black, 3.9% Hispanic
- Cigars—25.4% male, 9.9% female, 18.8% white, 13.7% black, 16.7% Hispanic

Women are more likely to smoke fewer cigarettes per day and inhale less deeply. This may indicate that women have a greater sensitivity to nicotine than men. In addition, women are less likely than men to quit smoking, which is due to several factors: they are less likely to initiate quitting, find nicotine replacement methods less effective (does not reduce craving as much as for men), appear to experience more intense withdrawal symptoms, and are more likely to gain weight.

Research suggests that adolescents are more susceptible to rapid development of nicotine addiction. Measurable symptoms of dependence are observable after only a few weeks of casual use.

Reasons Teens Might Use Nicotine and Emotional States Associated with Use

Using tobacco is associated with enhanced concentration, improved attention to task performance, quicker reaction time and better problem solving. Smokers also report improved mood including enhanced pleasure and reduced anger, tension, depression and stress.

Because of the unique delivery system of nicotine—with one puff being the equivalent of one hit—beginning smokers are able to individualize and control their intake in a way not possible with other drugs.

Young people often begin smoking as a result of influence from peers or admiration for an adult who smokes.

Reasons Teens Might NOT Want To Use Nicotine (Negative Consequences Associated With Use)

Using tobacco can lead to addiction, heart problems, cancer, bronchitis, respiratory problems such as emphysema and asthma and problems during pregnancy. Less serious consequences include stained fingers and teeth, halitosis, aging of the skin resulting in premature wrinkles and lingering smell on hair, skin and clothing.

Healthier Alternatives for Teens Using Nicotine

Coping Strategies Other than Drug Use:

1. Learning alternative ways to relax (behavioral relaxation strategies).
2. Instead of avoiding unpleasant emotions by using drug to try to forget problems or negative situations, the adolescent should learn to use problem solving strategies or seek support from friends and family.

Treatment Options: There are many treatment options for nicotine use. A combination of behavioral and pharmacological treatments can double the success rate over placebo treatment. Smoking cessation has an immediate positive effect; a 35-year-old man who quits smoking will increase life expectancy by 5.1 years on average. The rates of relapse diminish after 3 months.

Some treatment options for nicotine use cessation are as follows:

- **Nicotine Replacement Treatments** include nicotine gum, the transdermal patch, nasal spray, and inhaler. They are used to relieve withdrawal symptoms by giving lower nicotine levels than tobacco. They have little abuse potential because they do not deliver the pleasurable effects of tobacco products and do not contain the carcinogens and gases of tobacco smoke. All replacement treatments appear to be equally effective.
- **Non-Nicotine Therapies** include the non-nicotine prescription drug bupropion, which is actually an antidepressant marketed as Zyban.
- **Behavioral Treatment** employs behavioral methods used to 1) discover high-risk relapse situations, 2) create an aversion to smoking, 3) develop self-monitoring of smoking behavior, and 4) establish competing smoking responses.

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For More Information

- Drug Enforcement Administration (DEA): <http://www.usdoj.gov/dea>
- Greater Dallas Council on Alcohol and Drug Abuse (GDCADA): <http://www.gdcada.org>
- The National Institute of Alcoholism and Alcohol Abuse: <http://www.niaaa.nih.gov>
- National Clearinghouse for Alcohol & Drug Information: <http://www.health.org>
- National Institute on Drug Abuse (NIDA): <http://www.nida.nih.gov/>
- Monitoring the Future: A continuing study of American youth: <http://www.monitoringthefuture.org>
- Substance Abuse and Mental Health Services Administration (SAMHSA): <http://www.samhsa.gov>
- Street-Drugs.org: <http://www.street-drugs.org>
- NIDA Principles of Drug Addiction Treatment: A Research Based Guide: <http://www.drugabuse.gov/PODAT/PODATIndex.html>
- GHB toxicity information: <http://www.emedicine.com/emerg/topic848.htm>
- Facts about Drugs: Marijuana. <http://www.safety1st.org/>
- Marijuana: Facts for Teens, National Institute on Drug Abuse: <http://www.nida.nih.gov/MarijBroch/Marijteenstxt.html>
- NIDA InfoFacts: Marijuana, National Institute on Drug Abuse web site: <http://www.nida.nih.gov/Infofax/marijuana.html>
- The Cannabis Youth Treatment (CYT) experiment: rationale, study design and analysis plans. In the Journal *Addiction* in the year 2002.
- National Institute of Drug Abuse (NIDA), Heroin Abuse and Addiction Research Report <http://www.drugabuse.gov/ResearchReports/heroin/heroin.html>.
- Opioid Abuse at E Medicine: <http://www.emedicine.com/med/topic1673.htm>.
- SAMHSA's National Clearinghouse for Alcohol & Drug Information: Facts About Inhalants: <http://store.health.org/catalog/facts.aspx?topic=5>
- Signs and symptoms: Long term effects, National Inhalant Prevention Coalition: <http://www.inhalants.org/symptm.htm>
- Recent information on inhalants: <http://ncadi.samhsa.gov/govpubs/prevalert/v6/11.aspx>

For additional references, please contact atssa@bu.edu

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