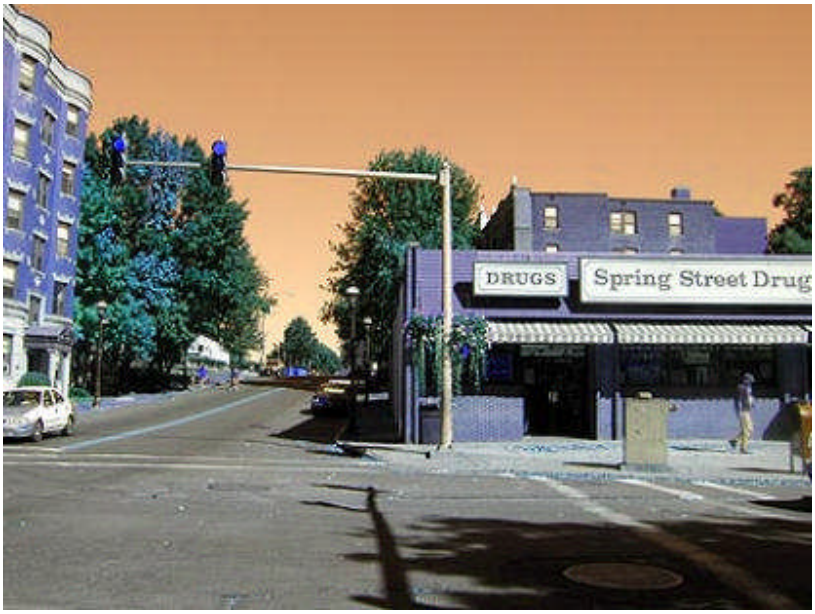
Region VIII
Continuing Education
February 2008

Street Drugs



Today

Objectives

1. List the latest trends in “recreational” street drugs
2. Discuss patient presentations with drug overdoses
3. Explain treatment for patients suspected of drug overdose
4. Compare and contrast addiction, dependence and tolerance to drugs

Street drugs included in this month’s continuing education include the following:

Cocaine
GHB
Heroine/Fentanyl
Dextromethorphan (Triple C)
Purple Drank
MDMA
Methamphetamine
Jenkem
2C-E
Flaming Moe

Drug abuse of legal and illegal substances are prevalent in today's society, no matter where you go. They know no social or economic boundaries. To understand the desire more fully, we must understand some of the terms. The following terms are necessary to understand the physical and/or psychological aspects of drug abuse.

- Addiction: Compulsive and overwhelming dependence on a drug; an addiction may be physiological, psychological or both.
- Dependence: May become accustomed to the drug. Will have withdrawal symptoms upon quitting. It may be physical or psychological.
- Tolerance: Decreased response to the same dose after repeated use. (Bledsoe)

Cocaine

Blow	Tornado
Nose candy	Wicky stick
Snowball	Perico (Spanish)

General Information

Cocaine is a powerfully addictive stimulant that directly affects the brain. Cocaine is one of the oldest known drugs. The pure chemical, cocaine hydrochloride, has been an abused substance for more than 100 years, and coca leaves, the source of cocaine, have been ingested for thousands of years.

Cocaine abuse has a long history and is rooted into the drug culture in the U.S. It is an intense euphoric drug with strong addictive potential. With the increase in purity, the advent of the free-base form of the cocaine ("crack"), and its easy availability on the street, cocaine continues to burden both the law enforcement and health care systems in America.

Pure cocaine was first extracted from the leaf of the *Erythroxylon* coca bush, which grows primarily in Peru and Bolivia, in the mid-19th century. In the early 1900s, it became the main stimulant drug used in most of the tonics/elixirs that were developed to treat a wide variety of illnesses.

The powdered form of cocaine can be snorted or dissolved in water and injected. Crack is cocaine that has not been neutralized by an acid to make the hydrochloride salt.
This form of cocaine comes in a rock crystal that can be heated and its vapors smoked. The term "crack" refers to the crackling sound heard when it is heated.

Legitimate Uses

Today, cocaine is a Schedule II drug under the Controlled Substances Act of 1970, meaning that it has high potential for abuse, but can be administered by a doctor for legitimate medical uses, such as local anesthesia for some eye, ear, and throat surgeries.

Effects, Signs and Symptoms

Cocaine's effects appear almost immediately after a single dose, and disappear within a few minutes or hours. Taken in small amounts (up to 100 mg), cocaine usually makes the user feel euphoric, energetic, talkative, and mentally alert, especially to the sensations of sight, sound, and touch. It can also temporarily decrease the need for

food and sleep. Some users find that the drug helps them perform simple physical and intellectual tasks more quickly, while others experience the opposite effect.

The duration of cocaine's immediate euphoric effects depends upon the route of administration. The faster the absorption, the more intense the high. Also, the faster the absorption, the shorter the duration of action.

Route	Onset	Duration
Snorting	Slow	15-30 minutes
Smoking	Rapid	5-10 minutes
Injected	Rapid	5-10 minutes

The short-term physiological effects of cocaine include constricted blood vessels; dilated pupils; and increased temperature, heart rate, and blood pressure. Large amounts (several hundred milligrams or more) intensify the user's high, but may also lead to bizarre, erratic, and violent behavior. These users may experience tremors, vertigo, muscle twitches, paranoia, or, with repeated doses, a toxic reaction closely resembling amphetamine poisoning. Some users of cocaine report feelings of restlessness, irritability, and anxiety. In rare instances, sudden death can occur on the first use of cocaine or unexpectedly thereafter. Cocaine-related deaths are often a result of cardiac arrest or seizures followed by respiratory arrest. (See NIDA InfoFacts below)

Cocaine's stimulant and addictive effects are thought to be primarily a result of its ability to inhibit the reabsorption of dopamine by nerve cells. Dopamine is released as part of the brain's reward system, and is either directly or indirectly involved in the addictive properties of every major drug of abuse.

An appreciable tolerance to cocaine's high may develop, with many addicts reporting that they seek but fail to achieve as much pleasure as they did from their first experience. Some users will frequently increase their doses to intensify and prolong the euphoric effects. While tolerance to the high can occur, users can also become more sensitive (sensitization) to cocaine's anesthetic and convulsant effects, without increasing the dose taken. This increased sensitivity may explain some deaths occurring after apparently low doses of cocaine.

Use of cocaine in a binge, during which the drug is taken repeatedly and at increasingly high doses, leads to a state of increasing irritability, restlessness, and paranoia. This may result in a full-blown paranoid psychosis, in which the individual loses touch with reality and experiences auditory hallucinations.

Who Is Using This Drug?

According to the National Survey on Drug Use and Health (NSDUH), the rate of past year use for cocaine (powder and crack combined) among individuals aged 12 and older (2.4%) has remained stable from 2002 to 2005. Among adults, NSDUH data show that rates of past year use for cocaine (powder and crack combined) among young adults (aged 18 to 25) are stable but remain the highest among all age groups. Monitoring the Future (MTF) and NSDUH also indicate stable rates of adolescent cocaine use. The number of treatment admissions to publicly funded treatment facilities for cocaine has decreased since the mid-1990s despite increased access to drug

treatment. Cocaine is the only major drug of abuse for which treatment admissions have decreased.

The following list represents students surveyed in 2005 admitting to cocaine use.

	2004	2005
8th graders	3.4%	3.7%
10th graders	5.4%	5.2%
12th graders	8.1%	8.0%

According to the National Survey on Drug Use and Health (NSDUH, 2004), 34.15 million Americans ages 12 and older (14.7% of this age group) had used cocaine once in their lifetime and 2.0 million were current users of cocaine in 2004. (1)

NIDA InfoFacts:

Added Danger: Cocaethylene

When people mix cocaine and alcohol consumption, they are compounding the danger. Each drug produces a complex chemical action within their bodies. NIDA-funded researchers have found that the human liver combines cocaine and alcohol and manufactures a third substance, cocaethylene, that intensifies cocaine's euphoric effects, while potentially increasing the risk of sudden death. (1)

The primary actions of cocaine include central nervous system (CNS) stimulation with increased dopaminergic effect, inhibition of catecholamine reuptake with resultant generalized sympathetic stimulation, alteration of serotonin release and reuptake, and local anesthesia via inhibition of sodium current. Clinically, the adrenergic stimulation produces sinus tachycardia and other arrhythmias, hypertension, hyperthermia, seizures, tremulousness, mydriasis, and death. Reported mechanisms of primary cardiac deaths include catecholamine-induced tachyarrhythmias, ischemic arrhythmias, bradycardias, myocardial depression, and aortic rupture.

If the mechanism underlying ventricular fibrillation and ventricular tachycardia (VFVT) is excessive catecholamine action, then the role of epinephrine in these rhythms needs to be explored. Its peripheral vasoconstriction with shunting of blood flow to the coronary and cerebral vessels during arrest remains desirable, but perhaps α-receptors are already maximally stimulated by the cocaine, and the direct cardiac effects of epinephrine may be more toxic than helpful in this setting. Alternatively, if the mechanism producing VFVT is either ischemia or direct myocardial depression from cocaine, then epinephrine is indicated. In bradycardic or asystolic arrests, epinephrine remains a vital part of resuscitation efforts. (2)

Treatment

Supportive care and refer to Toxicological Emergencies SOP. Be alert for stroke, AMI and seizures.

(1) http://www.nida.nih.gov/Infofacts/cocaine.html
(2) http://www.drugabuse.gov/pdf/monographs/123.pdf

Triple C

DXM or dex (for dextromethorphan)	Skittles
Candy	Red devils

That is Triple C?
Triple C is a slang term for the over-the-counter medication Coricidin HBP Cough & Cold, which contains dextromethorphan, or DXM. The medication is abused because it contains dextromethorphan which, when taken in doses that dramatically exceed those recommended by physicians and pharmacists, produces hallucinations and a sense of dissociation. The medication is used legitimately to treat the symptoms that typically result from colds or upper respiratory allergies.

What does Triple C look like?
Triple C (Coricidin HBP Cough & Cold) is available as red tablets containing 30 milligrams of dextromethorphan. It is likely that individuals abuse similar products, which may include Coricidin HBP Chest Congestion & Cough (available as softgels containing 10 milligrams of dextromethorphan) and Coricidin HBP Maximum Strength Flu (available as tablets containing 15 milligrams of dextromethorphan).

How is Triple C abused?
Triple C tablets generally are taken orally. Powdered extractions of dextromethorphan, which are either inhaled or repackaged in capsules and swallowed, are reportedly available, but it is unclear whether the drug has been extracted from Triple C or from other medications containing dextromethorphan.
Its accessibility and relatively low price make it particularly attractive to young people, especially compared to illicit drugs.

What are the risks?
Coricidin HBP products have proven to be safe and effective when users adhere to recommended doses (containing 10 to 30 milligrams of dextromethorphan taken every 6 hours). However, abusers typically consume many times the recommended dose, which produces hallucinations and dissociative effects similar to those experienced with PCP (phencyclidine) or ketamine. While under the influence of the drug, which can last for as long as 6 hours, abusers risk injuring themselves and others because of the drug's effects on visual perception and cognitive processes.

High doses of dextromethorphan result in an increased body temperature, which poses a particularly acute health threat if the drug is used in an environment such as a rave or dance club where users are dancing among crowds of people. Other risks and side effects associated with dextromethorphan abuse include

- Nausea
- Abdominal pain
- Vomiting
- Irregular heartbeat
- Possibly death
- High blood pressure,
- Loss of consciousness, seizure
- Brain damage
- Headache
- Numbness of fingers, toes

The risks to Triple C abusers are heightened because the medications that are abused contain additional ingredients such as expectorants, pain relievers, and antihistamines that produce additional side effects and compound the risks associated with dextromethorphan.

Is Triple C illegal?
No.[3]

Heroin

Smack	Big H
Thunder	Nose drop
Hell dust	

Description/Overview

Heroin is an illegal, highly addictive drug. It is both the most abused and the most rapidly acting of the opiates. Heroin is processed from morphine, a naturally occurring substance extracted from the seed pod of certain varieties of poppy plants. It is typically sold as a white or brownish powder or as the black sticky substance known on the streets as “black tar heroin.” Although purer heroin is becoming more common, most street heroin is “cut” with other drugs or with substances such as sugar, starch, powdered milk, or quinine. Street heroin can also be cut with fentanyl, strychnine or other poisons. Because heroin abusers do not know the actual strength of the drug or its true contents, they are at risk of overdose or death. Heroin also poses special problems because of the transmission of HIV and other diseases that can occur from sharing needles or other injection equipment.

First synthesized from morphine in 1874, heroin was not extensively used in medicine until the early 1900s. Commercial production of the new pain remedy was first started in 1898. It initially received widespread acceptance from the medical profession, and physicians remained unaware of its addiction potential for years. The first comprehensive control of heroin occurred with the Harrison Narcotic Act of 1914. Today, heroin is an illicit substance having no medical utility in the United States

Heroin can be injected, smoked, or sniffed/snorted. Injection is the most efficient way to administer low-purity heroin. The availability of high-purity heroin, however, and the fear of infection by sharing needles has made snorting and smoking the drug more common. National Institute on Drug Abuse (NIDA) researchers have confirmed that all forms of heroin administration are addictive

Short Term Effects

Route	Onset
Injected	7-8 seconds
Intramuscular	5-8 minutes
Smoking	10-15 minutes

In addition to the initial feeling of euphoria, the short-term effects of heroin include a warm flushing of the skin, dry mouth, and heavy extremities.

(3) http://www.yorkcounty.gov/dare/what_is_triple_c.htm

Long-Term Effects

Chronic users may develop collapsed veins, infection of the heart lining and valves, abscesses, cellulites, 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 really 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

One of the most significant effects of heroin use is addiction. With regular heroin use, tolerance to the drug develops. Once this happens, the abuser must use more heroin to achieve the same intensity or effect that they are seeking. As higher doses of the drug are used over time, physical dependence and addiction to the drug develop.

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 less dangerous than alcohol or barbiturate withdrawal.

USE/USER POPULATION

Among students surveyed as part of the 2005 Monitoring the Future study, 1.5% of eighth, tenth, and twelfth graders reported lifetime use of heroin.

The Centers for Disease Control and Prevention (CDC) also conducts a survey of high school students throughout the United States called the Youth Risk Behavior Surveillance System (YRBSS). Among students surveyed for the 2005 YRBSS, 2.4% reported using heroin at least one time during their lifetimes. [(4)]

Heroin/Fentanyl

These are the initial results published in 2006 by the Philadelphia MEO relating to fentanyl laced heroin deaths reflecting approximately a one month period in 2006. This reinforces the concept of poly-drugs: It is difficult to blame, necessarily, a single substance and an individual’s response to any or all.

(4) http://www.usdoj.gov/dea/concern/heroin.html
(5) http://www.whitehousedrugpolicy.gov/news/fentnyl_heroin_forum/fentanyl_laced_heron_wingert.pdf

Heroin laced with fentanyl and other poisons have been known to cause death within hours.

- 74 total fentanyl related deaths
- Morphine detected in 57 (77%)—NOT FROM PRESCRIPTIONS!
- 6-acetyl morphine (definitive marker for heroin) detected in 28 (49% of morphine +s)
- Cocaine or metabolite detected in 45 (61%)
- Methadone detected in 13 (18%)
- Benzodiazepines detected in 20 (27%)
- Ethanol detected in 12 (16%)
- PCP detected in 7 (9%)
- Antidepressants such as sertraline and mirtazapine seen occasionally (5)

And the "Latest and Greatest" new twist: "Cheese". It's a mixture of heroin and OTC cold medications. Its intended target group is the younger kids. The name is intended to be more "kid-friendly".(6)

Methamphetamine

Speed	Uppers	Shabu
Meth	Black Beauties	Crystal Meth
Ice	Glass	Stove Top
Crystal	Bikers Coffee	Trash
Chalk	Methlies Quick	Go-Fast
Crank	Poor Man's Cocaine	Yaba
Tweak	Chicken Feed	Yellow Bam

Description/Overview

Today, methamphetamine is second only to alcohol and marijuana as the drug used most frequently in many Western and Midwestern states. Seizures of dangerous laboratory materials have increased dramatically—in some states, fivefold. In response, many special task forces and local and Federal initiatives have been developed to target methamphetamine production and use. Legislation and negotiation with earlier source areas for precursor substances have also reduced the availability of the raw materials needed to make the drug.

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

The drug has limited medical uses for the treatment of narcolepsy, attention deficit disorders, and obesity.

(5) http://www.whitehousedrugpolicy.gov/news/fentnyl_heroin_forum/fentanyl_laced_heron_wingert.pdf
(6) http://www.msnbc.msn.com/id/18557266/wid/11915773/

Short Term Effects
As a powerful stimulant, methamphetamine, even in small doses, can increase wakefulness and physical activity and decrease appetite. A brief, intense sensation, or rush, is reported by those who smoke or inject methamphetamine. Oral ingestion or snorting produces a long-lasting high instead of a rush, which reportedly can continue for as long as half a day. Both the rush and the high are believed to result from the release of very high levels of the neurotransmitter dopamine into areas of the brain that regulate feelings of pleasure.

Methamphetamine has toxic effects. In animals, a single high dose of the drug has been shown to damage nerve terminals in the dopamine-containing regions of the brain. The large release of dopamine produced by methamphetamine is thought to contribute to the drug's toxic effects on nerve terminals in the brain. High doses can elevate body temperature to dangerous, sometimes lethal, levels, as well as cause convulsions.

Long Term Effects
Long-term methamphetamine abuse results in many damaging effects, including addiction. Addiction is a chronic, relapsing disease, characterized by compulsive drug-seeking and drug use which is accompanied by functional and molecular changes in the brain. In addition to being addicted to methamphetamine, chronic methamphetamine abusers exhibit symptoms that can include violent behavior, anxiety, confusion, and insomnia. They also can display a number of psychotic features, including paranoia, auditory hallucinations, mood disturbances, and delusions (for example, the sensation of insects creeping on the skin, which is called "formication"). The paranoia can result in homicidal as well as suicidal thoughts.
With chronic use, tolerance for methamphetamine can develop. In an effort to intensify the desired effects, users may take higher doses of the drug, take it more frequently, or change their method of drug intake. In some cases, abusers forego food and sleep while indulging in a form of binging known as a "run," injecting as much as a gram of the drug every 2 to 3 hours over several days until the user runs out of the drug or is too disorganized to continue.
In addition, oral hygene is neglected and termed "meth mouth". "Meth mouth is characterised by rampant tooth decay and teeth described by meth users as blackened, stained, rotting, crumbling or falling apart," Dr Brandjord explains. "The extensive tooth decay of meth mouth is attributed to the drug's dry-mouth effect and its propensity to cause cravings for high-calorie carbonated beverages, tooth grinding and clenching, and extended periods of poor oral hygiene."(7)

(7) http://www.nature.com/bdj/journal/v201/n8/full/4814183a.html

Examples of “meth mouth”[8]

Although there are no physical manifestations of a withdrawal syndrome when methamphetamine use is stopped, there are several symptoms that occur when a chronic user stops taking the drug. These include depression, anxiety, fatigue, paranoia, aggression, and an intense craving for the drug.

In scientific studies examining the consequences of long-term methamphetamine exposure in animals, concern has arisen over its toxic effects on the brain. Researchers have reported that as much as 50 percent of the dopamine-producing cells in the brain can be damaged after prolonged exposure to relatively low levels of methamphetamine. Researchers also have found that serotonin-containing nerve cells may be damaged even more extensively. Whether this toxicity is related to the psychosis seen in some long-term methamphetamine abusers is still an open question.

Use/User Populations

According to the 2004 National Survey on Drug Use and Health, approximately 11.7 million Americans ages 12 and older reported trying methamphetamine at least once during their lifetimes. Approximately 1.4 million (0.6%) reported past year methamphetamine use and 583,000 (0.2%) reported past month methamphetamine use.

Among students surveyed as part of the 2005 Monitoring the Future study, 3.1% of eighth graders, 4.1% of tenth graders, and 4.5% of twelfth graders reported lifetime use of methamphetamine. In 2004, these percentages were 2.5%, 5.3%, and 6.2%, respectively.

The Youth Risk Behavior Surveillance (YRBS) study by the Centers for Disease Control and Prevention (CDC) surveys high school students on several risk factors including drug and alcohol use. Results of the 2005 survey indicate that 6.2% of high school students reported using methamphetamine at some point in their lifetimes. This is down from 7.6% in 2003 and 9.8% in 2001.

Available data on typical methamphetamine users reveal that most are white, are in their 20’s or 30’s, have a high school education or better, and are employed full- or part-time. Methamphetamine is used by housewives, students, club-goers, truckers, and a growing number of others. Almost as many women as men use methamphetamine (55 percent male, 45 percent female.)

(8) www.mappsd.org/Meth%20Mouth%20Photo%20Gallery.htm

Recognizing Meth Labs and Production

- Methamphetamine is essentially a mixture of pharmaceutical extracts and poisonous materials.
- Ingredients for making methamphetamine are found in over-the-counter cold medicines and diet pills and in such household products as lithium camera batteries, matches, tincture of iodine, and hydrogen peroxide. Flammable products, such as charcoal lighter fluid, gasoline, kerosene, paint thinner, rubbing alcohol, and mineral spirits are often used in the methamphetamine production process.
- Methamphetamine is easily manufactured in clandestine laboratories (meth labs). Cold medicines containing ephedrine or pseudoephedrine and other ingredients are "cooked" in meth labs, often using common household utensils, to produce methamphetamine.
- In making methamphetamine, corrosive products such as muriatic acid, sulfuric (battery) acid, and sodium hydroxide from lye-based drain cleaners also may be used.
- Anhydrous ammonia—potentially explosive and lethal—is used in the "Nazi method" of illegal methamphetamine manufacture. In the environment, it can cause serious harm to people making methamphetamine, emergency responders, and others. In places where anhydrous ammonia is used as a fertilizer, farmers report that their ammonia tanks are being tapped by "cooks," who use this highly toxic chemical to produce methamphetamine.
- Nearly all of the chemicals used to produce methamphetamine are flammable and corrosive poisons.
- The costs of secondary cleanup, including removing contaminated soil and structures, are often left to the landowner or landlord. Some States place liens on properties until cleanup is completed. When property is deemed commercially or agriculturally unusable, losses to owners can be in the millions of dollars.
- The waste produced during meth manufacture—corrosive liquids, acid vapors, heavy metals, solvents, and other harmful materials—can cause disfigurement or death when touched or inhaled.
- The environmental impact of methamphetamine manufacture is often severe. Producing one pound of methamphetamine involves creating 5 to 7 pounds of toxic waste material, and meth production releases poisonous gas into the atmosphere. Many meth lab operators dump the toxic waste down household drains, in fields and yards, or along roads and highways.
- *Because of these toxic meth lab wastes, first response personnel may incur injury when dealing with the hazardous substances. The most common symptoms they suffer are respiratory and eye irritations, headaches, dizziness, nausea, and shortness of breath.***
- Since meth labs can be portable and are easily dismantled, stored, or moved, it is easy for their operators to avoid law enforcement authorities. Meth labs have been found in apartments, hotel rooms, rented storage spaces, and trucks. Meth labs also have been known to be boobytrapped, and their operators are likely to be well armed.

- The U.S. Department of Justice estimates that approximately 15 percent of meth labs are discovered as the result of a fire or explosion. However, a source referenced in the Centers for Disease Control and Prevention's *Morbidity & Mortality Weekly Report*, dated April 15, 2005, puts the percentage of meth labs found due to a fire or explosion at 20 to 30 percent.
- Under regulations of the Environmental Protection Agency, the Drug Enforcement Administration's (DEA's) Hazardous Waste Disposal Program contracts for the cleanup of contaminated meth lab sites. The DEA says that the number of such cleanups has "skyrocketed" in recent years, although the cost of these cleanup operations is declining, thanks to improved systems. In FY 2002, DEA estimated that the average cleanup cost was approximately $3,300, which by 2005 had declined to approximately $2,000. At sites of large-scale meth manufacturing, or "super labs," these costs may be considerably higher. (9)

(9) http://www.arkansasdec.org/methlabproduction/
** Emphasis added by CE packet author

What are Predatory Drugs?
Rohypnol, Ketamine, and GHB and its analogues GBL, and BD 1,4 have gained notoriety as drugs used to facilitate sexual assault, adding an urgency to law enforcement efforts to pursue traffickers of these drugs.

The Dangers of Predatory Drugs
- These drugs render the victim incapable of resisting sexual advances.
- Sexual Assaults facilitated by these drugs can be difficult to prosecute or even recognize because:
    - Victims may not be aware that they ingested a drug at all. The drugs are invisible and odorless when dissolved in water. They are somewhat salty tasting, but are indiscernible when dissolved in beverages such as sodas, juice, liquor, or beer.
    - Due to memory problems induced by these drugs, the victim may not be aware of the attack until 8-12 hours after it occurred.
    - The drugs are metabolized quickly, so there may be little physical evidence to support the claim that the drugs were used to facilitate an assault.
    - Memory impairment caused by the drugs also eliminates evidence about the attack.

GHB Basics

GHB/ GBH	Blue Verve
G	Grievous Bodily Harm
Liquid X	Georgia home boy
Liquid E	Goop
Gamma-oh	EZLay

DESCRIPTION

GHB (gamma hydroxybutyrate) is a naturally occurring component of human cells and in wine. It is used most commonly in the form of a chemical salt (Na-GHB or K-GHB) which is taken recreationally as a depressant with effects quite similar to those of alcohol. These salts are powders but are most often mixed with water for recreational use. While GHB is most notorious for a few cases where it has been given to unsuspecting individuals, it is more commonly used as a recreational intoxicant like alcohol, as a sleep-aid, or as a supplement by body-builders.

One of the major concerns with GHB is that the recreational dosage range is narrow and even small overdoses can cause temporary unrousable unconsciousness (a type of coma) and large overdoses (poisonings) can be life-threatening. There are two other chemicals which are used as GHB equivalents: 1,4-butanediol and gamma butyrlactone.

Dose

A standard recreational dose of pure GHB powder is between 1 - 3 g, though some people use as much as 4-5 grams in a single dose: especially frequent users who have developed a tolerance. Unfortunately, GHB is most frequently found in liquid form of widely variable concentration. 1 gram of GHB powder can be dissolved into as little as 1 ml of water (this makes 5 g per tsp) or a much greater volume and there is virtually no way to tell the concentration once it's in liquid form. The only way to know the concentration of liquid GHB is to know and trust information provided by the source. Users should be extremely careful about GHB dosages as even small overdoses can result in temporarily unrousable sleep.

Law

GHB is illegal to possess or sell in the United States. It became schedule I (federally) in March, 2000 though it was scheduled in many states between 1997 and 1999. Gamma butyrlactone (GBL) is not federally scheduled but is now a list 1 chemical requiring that paperwork be filed for large sales. GBL is scheduled in some states.

Chemistry

GHB is most commonly produced by combining gamma butyrlactone and a strong base such as sodium hydroxide (lye). These two substances react chemically and form the unique chemical GHB.

EFFECTS

Onset

As with alcohol and many other substances, the onset of GHB will be affected by how much and how recently one has eaten. Generally some effects begin between 10-20 minutes and continue to get stronger for 30-60 minutes.

Duration

The primary effects of GHB last approximately 1.5 - 2 hours. For many people there is an additional period of time (1-2 hrs) of more subtle effects. Some recreational users consume GHB in a manner similar to alcohol, sipping it slowly over an evening rather than drinking a full dose all at once. In this case the duration will be longer as the period of ingestion is stretched out over time. Some lingering effects continue for hours longer.

History FYI

GHB was developed in the early 60s as a human anesthetic, but was discontinued due to unwanted side effects. It's use as a sleep aid and body building supplement in the 80s and as a recreational psychoactive in the 90s led to it being scheduled in the U.S. in March of 2000.

The Experience

The effects of GHB at recreational doses are physically quite similar to those of alcohol. At lower doses effects include relaxation, reduction of social inhibitions, decreased motor skills, mood lift and other effects similar to mild alcohol intoxication. At higher recreational doses effects can include dizziness, difficulty focusing the eyes, positive mood changes, increased appreciation of music, dancing, and talking, slurring of speech, nausea, and grogginess. The line between high recreational dose and overdose can be a narrow one. At the overdose level, individuals may experience extreme grogginess (nodding in and out of consciousness) or unconsciousness, extreme dizziness and disorientation, and vomiting. During higher overdoses (poisonings), users may experience unconsciousness, convulsions, vomiting, aspiration and potentially depressed breathing.

PROBLEMS

Unfortunately, GHB has a few prominent problems which, in combination, can be quite dangerous. The difference between a recreational dose and a mild overdose (temporarily unarousable sleep) can be as little as 1-2 grams, the equivalent of a single dosage unit. Combining GHB with alcohol can lead to nausea, vomiting, and unconsciousness at even lower levels. Also, because GHB often comes in liquid form and because the concentration of this liquid is difficult to determine, it is relatively common for people to accidentally take a larger dose of GHB than they think they are taking.

Another problem associated with GHB is the issue of rape & assault that goes along with chemicals which can be added to drinks and given to unsuspecting victims.

Addiction Potential

The addiction potential of GHB is not well known, but from reports it appears that GHB can be both physically addicting and mentally habituating for a small percentage of users. We (Erowid) have received reports from a few individuals of severe withdrawal

symptoms lasting for several days following repeated daily use. These symptoms include a strong desire to repeat the experience, difficulty sleeping, vertigo, and worrisome chest pains. We have not received any reports from users who find it difficult to stay off GHB once the withdrawal period is over.

Contraindications

- Taking GHB with alcohol causes cumulative depressive effects as well as increased nausea and vomiting. This can be an extremely dangerous combination.[10]

MDMA

MDMA	E, X	Adams
Ecstasy	Beans	Hug Drug
XTC	Disco Biscuit	Go

DESCRIPTION/OVERVIEW

MDMA (3,4-methylenedioxymethamphetamine) is a synthetic, psychoactive drug chemically similar to the stimulant methamphetamine and the hallucinogen mescaline. Users claim the following experiences with MDMA:

- Euphoria
- Feelings of closeness
- Empathy
- Sexuality
- Reduce inhibitions.
- Stimulant
- Psychedelic
- Producing an energizing effect
- Distortions in time and perception
- Enhanced enjoyment from tactile experiences

Adolescents and young adults use it to promote euphoria, feelings of closeness, empathy, sexuality and to reduce inhibitions. It is considered a "party drug" and obtained at "rave" or "techno" parties. However, its abuse has expanded, to include other settings outside of the rave scenes, such as a college campus.

Although MDMA is known universally among users as ecstasy, researchers have determined that many ecstasy tablets contain not only MDMA but also a number of other drugs or drug combinations that can be harmful as well. Adulterants found in MDMA tablets purchased on the street include methamphetamine, caffeine, the over-the-counter cough suppressant dextromethorphan, the diet drug ephedrine, and cocaine. Also, as with many other drugs of abuse, MDMA is rarely used alone. It is not uncommon for users to mix MDMA with other substances, such as alcohol and marijuana.

(10) http://www.erowid.org/

SHORT-TERM EFFECTS
In high doses, MDMA can interfere with the body's ability to regulate temperature. On rare but unpredictable occasions, this can lead to a sharp increase in body temperature (hyperthermia), resulting in liver, kidney, and cardiovascular system failure, and death. Because MDMA can interfere with its own metabolism (breakdown within the body), potentially harmful levels can be reached by repeated drug use within short intervals. Users of MDMA face many of the same risks as users of other stimulants such as cocaine and amphetamines. These include increases in heart rate and blood pressure, a special risk for people with circulatory problems or heart disease, and other symptoms such as muscle tension, involuntary teeth clenching, nausea, blurred vision, faintness, and chills or sweating.
Almost 60 percent of people who use MDMA report withdrawal symptoms, including fatigue, loss of appetite, depressed feelings, and trouble concentrating.

LONG-TERM EFFECTS
Research in animals links MDMA exposure to long-term damage to neurons that are involved in mood, thinking, and judgment. A study in nonhuman primates showed that exposure to MDMA for only 4 days caused damage to serotonin nerve terminals that was evident 6 to 7 years later. While similar neurotoxicity has not been definitively shown in humans, the wealth of animal research indicating MDMA's damaging properties suggests that MDMA is not a safe drug for human consumption.

USE/USER POPULATION
Among students surveyed as part of the 2005 Monitoring the Future study, 2.8% of eighth graders, 4.0% of tenth graders, and 5.4% of twelfth graders reported lifetime use of MDMA. In 2004, these percentages were 2.8%, 4.3%, and 7.5%, respectively.

The Youth Risk Behavior Surveillance (YRBS) study by the Centers for Disease Control and Prevention (CDC) surveys high school students on several risk factors including drug and alcohol use. Results of the 2005 survey indicate that 6.3% of high school students reported using MDMA at some point in their lifetimes. This is down from 11.1% in 2003.

Last but not least…

OxyContin, a prescription narcotic taken orally by teens is on the rise.[13] The internet has made prescription drugs more accessible without physician's approval. .[14] Oxycontin is the time-release form of oxycodone, usually prescribed for chronic and severe pain. Because it contains a larger amount of oxycodone, it has become one of the most abused prescription drugs in the United States.

Street Names: Oxy, O.C., killer and hillbilly heroin.

How is Oxyconton used: It is generally prescribed to be taken twice a day to help patients with chronic pain, such as cancer patients or patients with neck and back pain, to help decrease pain and improve function.

How is oxycontin abused: Abusers either crush the tablet and ingest or snort it or they dilute it in water and inject it. Crushing or diluting the tablet disarms the time released action of the medication, but crushing oxycontin in this way can give the user a potentially fatal dose.

Effects: When crushed, snorted or injected, the drug produces a quick and powerful "high" that some abusers compare to the feeling they get when doing heroin. NIDA reports that in some areas of the country, Oxycontin abuse rates are actually higher than heroin abuse. Because it is a central nervous system depressant an overdose can cause respiratory failure and death.

Symptoms of Oxycontin Overdose:

- Respiratory depression
- Cold, clammy skin
- Seizures
- Dizziness
- Weakness
- LOC
- Coma
- Confusion

Tiredness or fatigue

small pupils

nausea and vomiting

Like all opioids, Oxycontin is highly addictive. Even patients who are prescribed the drug are advised not to suddenly stop taking the medication, but gradually reduce the dosage to avoid withdrawal symptoms.
Withdrawal symptoms can begin as soon as six hours after the last dose and can last up to one week.(alcoholism.about.com/od/oxy/a/oxycontin.htm)

And Now for Something Completely Different

2C-E (2,5-dimethoxy-4ethylphenethylamine) is a psychedelic drug being seen in the high schools within the last year.

It is relatively easy to produce and requires very small doses to achieve the psychedelic effects. It is commonly active in the 10-20mg range, taken orally, and highly dose sensitive. Administering the chemical nasally requires a much lower dose, usually not exceeding 5mg, but tends to cause intense pain to the nasal mucosa. It is most found in powder or crystal form.

2C-E Duration
Oral

Total Duration	4-9 Hours
Onset	20-90 minutes
Coming Up	15-30 minutes
Plateau	3-7 hours
Coming Down	1-2 hours
After Effects	2-4 hours
Hangover/ Day After	6-24 Hours

Effects;

Positive

- Sense of well being (enhanced sense of inner peace)
- Increase in energy
- Increase in creative thinking
- Increased awareness and appreciation of music
- Increased awareness of senses
- Increased tactile sensations
- Closed and open eye visuals
- Insight into personnel issues
- Profound life changing spiritual experiences

Neutral

- Pupil dilation
- Difficulty focusing, restlessness
- Change in perception of time
- Slight increase in body temperature
- Slight increase in heart rate

- Negative Effects

- Muscle tension and aching
- Pupil dilation
- Difficulty focusing, restlessness
- Change in perception of time
- Increase in perspiration
- Gastrointestinal discomfort nausea and vomiting
- Dizziness and confusion
- Paranoia, fear
- Over awareness/over sensitization to noise and music

Flaming Moe's

Alcoholic cocktail made using the last drops from liquor bottles and children's cough medicine. By adding a flame it increases the effects of the alcohol. This has become increasingly popular with preteens and teenagers since seen on an episode of the *Simpsons'* third season.

Plot: Moe and his tavern are in serious financial trouble. After he runs out of beer, Homer decides to tell him about a drink recipe that he accidentally invented one night, called the "Flaming Homer".
Homer explains that after Patty and Selma made the Simpson family watch slides from their latest vacation, he was unable to find a beer. He decided to mix together drops of liquor from near- empty liquor bottles and accidentally included a bottle of cough syrup. When Patty dropped cigarette ash in the drink and set it on fire, Homer discovered that fire greatly enhanced the flavor of the drink. Moe steals Homer's recipe and begins serving the "Flaming Moe " as his own concoction. (wikepedia.org/wiki/Flaming Moe)

Purple Drank

Purple drank is an illegal recreational drink popular in the Southern United States, but gaining rapid popularity in the Midwest. Its main ingredient is prescription-stregneth cough syrup containing codeine and promethazine.
The purple-ish hue of Purple Drank comes from dyes in the cough syrup. Recently, the term has expanded to cover mixtures including over the counter cough syrups.
Other terms for Purple Drank include **Sizzurp, Purple Tonic, Texas Tea, Memphis Mud, P-Flav, Purple Sprite, PG Tips, and Purp.**

The active ingredient of purple drank is codeine, a narcotic medication contained in prescription cough syrup. It is not made with over the counter cough syrups such as Robitussin, which may contain dextromethorphan as well as other drugs. Some prescription cough syrups also contain antihistamine medication, such as promethazine,

which have a mild sedative effect. When taken in large quantities both medications can lead to sedation and altered levels of consciousness. The syrup usually used in purple drank contains 10 mg of codeine and 6.25mg of promethazine per 5 ml. Users ingest roughly 120-250 mg of codein with this dose. When hydrocodone is substituted, the dose can be overwhelming, leading to vomiting and symptoms related to mild- moderate opiate overdose symptoms. (wickipedia.org/wiki/Purple_drank).

Quick Reference

Drug	Signs and Symptoms	Vital Signs	Addictive Properties
Cocaine	(Some S/S are dose/route related) • Dilated pupils • Constricted blood vessels • Euphoria • Energetic • Talkative • Enhanced sensation to sight, sound and touch • Anorexia • Increased temperature • Tachycardia • Hypertension • Tremors • Vertigo • Muscle twitches • Paranoia • Seizures • Respiratory arrest • Death	• Tachycardia • Hypertension • Increased temperature	Yes
Triple C (dextromethorphan)	• Hyperthermia • Nausea • Abdominal pain • Vomiting • Dysrrhythmias • Hypertension • Headache • Drowsy • Dizzy • Numbness fingers/toes • Cyanosis fingers/lips • Seizure • Unconsciousness • Death	• Hypertension • Hypotension • Cardiac irregularities and tachycardia • Respiratory depression	Yes

Heroin	• Euphoria • Flushed skin • Dry mouth • Collapsed veins • Various infections • Absecess • Cellulites • Liver disease • Pneumonia • Emboli: lungs, brain (stroke) liver, kidneys • Withdrawls: • Restlessness • Muscle/bone pain • Insomnia • Diarrhea • Vomiting • Cold flashes • Death	• Hypotension • Respiratory depression • Bradycardia	Highly	
Methamphetamine	• Increased activity level • Anorexia • “Rush” • Hyperthermia • Violence • Anxiety • Confusion • Insominia • Paranoia • Auditory hallucinations • Mood disturbances • Delusions • Depression • Anorexia • Suicidal • Homicidal • Death	• Hyperthermia	Yes	

GHB	• Relaxation • Socially inhibitions reduced • Decreased motor skills • Dizziness • Difficulty focusing visually • Mood change • Higher appreciation for music, dancing, talking • Slurred speech • Nausea • Grogginess • Unconsciousness • Disorientation • Vomiting/aspiration • Seizures • Respiratory depression • Death		Yes	
MDMA	• Euphoria • Time/perception distortion • Reduced inhibitions • Stimulant • Hallucinations • Muscle tension • Teeth clenching (watch for pacifiers, lollipops, etc.) • Nausea • Blurred vision • Syncopal episodes • Chills/sweating • Fatigue • Anorexia • Depression • Death	• Hyperthermia • Tachycardia • Hypertension		There are little data available on whether addiction, dependence or tolerance develops with continued use of MDMA.[13]

[13]http://www.nida.nih.gov/Meetings/MDMA/MDMAExSummary.html

Drug of the Month

Narcan

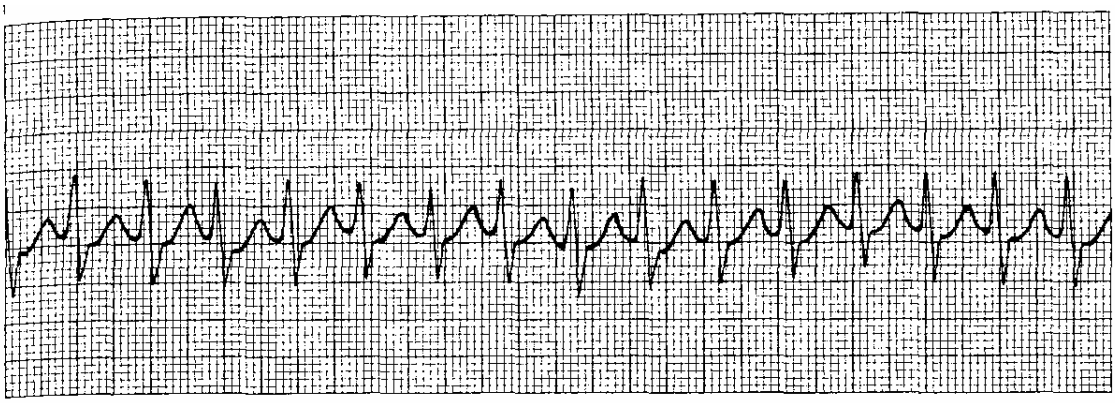
Narcan (naloxone)	**Dose/Route Adult** 2 mg IVP, may repeat every 5 min. Also see intranasal administration	**Dose/Route Pediatrics** <20 kg 0.1 mg/kg IV/IO ≥20 kg 2 mg IV/IO Also see intranasal administration	**Action** Narcotic antagonist. Reverses effects of opioid drugs.	**Indications** Known overdose of synthetic or natural narcotic or opiate	**Contra-indications** Hypersensitivity to Narcan.	**Side Effects** Withdrawal symptoms, ↑ HR & BP, seizures. Consider restraint use

Other side effects of Narcan include:
Conduction Disorder of the Heart, Excitement, Hyperhidrosis (excessive sweating), Hypertension, Hypotension, Irritability, Nausea, Nervousness, Tachyarrhythmia, Tremors, Vomiting(13)

Little Pearls: Patients with adequate respiratory rates do not need Narcan.

ECG of the Month

Supraventricular Tachycardia



Regularity: **Regular**
Rate: **150 beats per minute**
P Wave: **Not visible**
PRI: **None**
QRS: **0.10 seconds**
Interp: **Supraventricular tachycardia**

As heart rate increases, cardiac output decreases. As cardiac output decreases, perfusion suffers. The patient may present with syncopal complaints, unconsciousness or sudden death.

SOPs to be familiar with for this Month:
Toxicologic Emergencies

(13) http://www.drugs.com/cdi/narcan.html

Scheduling from the Controlled Substance Act (CSA)

In determining into which schedule a drug or other substance should be placed, or whether a substance should be decontrolled or rescheduled, certain factors are required to be considered. Specific findings are not required for each factor. These factors are listed in Section 201 (c), [21 U.S.C. 811 (c)] of the CSA as follows:

1. **The drug's actual or relative potential for abuse.**

2. **Scientific evidence of the drug's pharmacological effects.** The state of knowledge with respect to the effects of a specific drug is, of course, a major consideration. For example, it is vital to know whether or not a drug has a hallucinogenic effect if it is to be controlled due to that effect. The best available knowledge of the pharmacological properties of a drug should be considered.

3. **The state of current scientific knowledge regarding the substance.** Criteria (2) and (3) are closely related. However, (2) is primarily concerned with pharmacological effects and (3) deals with all scientific knowledge with respect to the substance.

4. **Its history and current pattern of abuse.** To determine whether or not a drug should be controlled, it is important to know the pattern of abuse of that substance, including the socio-economic characteristics of the segments of the population involved in such abuse.

5. **The scope, duration, and significance of abuse.** In evaluating existing abuse, the DEA Administrator must know not only the pattern of abuse, but whether the abuse is widespread. In reaching a decision, the Administrator should consider the economics of regulation and enforcement attendant to such a decision. In addition, the Administrator should be aware of the social significance and impact of such a decision upon those people, especially the young, that would be affected by it.

6. **What, if any, risk there is to the public health.** If a drug creates dangers to the public health, in addition to or because of its abuse potential, then these dangers must also be considered by the Administrator.

7. **The drug's psychic or physiological dependence liability.** There must be an assessment of the extent to which a drug is physically addictive or psychologically habit forming, if such information is known.

8. **Whether the substance is an immediate precursor of a substance already controlled.** The CSA allows inclusion of immediate precursors on this basis alone into the appropriate schedule and thus safeguards against possibilities of clandestine manufacture.

After considering the above listed factors, the Administrator must make specific findings concerning the drug or other substance. This will determine into which schedule the drug or other substance will be placed. These schedules are established by the CSA. They are as follows:

Schedule I

• The drug or other substance has a high potential for abuse.
• The drug or other substance has no currently accepted medical use in treatment in the United States.
• There is a lack of accepted safety for use of the drug or other substance under medical supervision.
• Examples of Schedule I substances include heroin, lysergic acid diethylamide (LSD), marijuana, and methaqualone.

Schedule II
• The drug or other substance has a high potential for abuse.
• The drug or other substance has a currently accepted medical use in treatment in the United States or a currently accepted medical use with severe restrictions.
• Abuse of the drug or other substance may lead to severe psychological or physical dependence.
• Examples of Schedule II substances include morphine, phencyclidine (PCP), cocaine, methadone, and methamphetamine.

Schedule III
• The drug or other substance has less potential for abuse than the drugs or other substances in schedules I and II.
• The drug or other substance has a currently accepted medical use in treatment in the United States.
• Abuse of the drug or other substance may lead to moderate or low physical dependence or high psychological dependence.
• Anabolic steroids, codeine and hydrocodone with aspirin or Tylenol®, and some barbiturates are examples of Schedule III substances.

Schedule IV
• The drug or other substance has a low potential for abuse relative to the drugs or other substances in Schedule III.
• The drug or other substance has a currently accepted medical use in treatment in the United States.
• Abuse of the drug or other substance may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in Schedule III.
• Examples of drugs included in schedule IV are Darvon®, Talwin®, Equanil®, Valium®, and Xanax®.

Schedule V
• The drug or other substance has a low potential for abuse relative to the drugs or other substances in Schedule IV.
• The drug or other substance has a currently accepted medical use in treatment in the United States.
• Abuse of the drug or other substances may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in Schedule IV.

• Cough medicines with codeine are examples of Schedule V drugs.

http://www.usdoj.gov/dea/pubs/abuse/1-csa.htm

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