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Current Drugs of Abuse

Jed Grant

University of the Pacific, jgrant@pacific.edu

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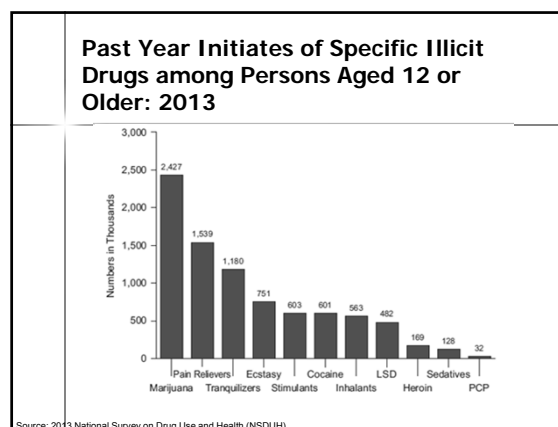
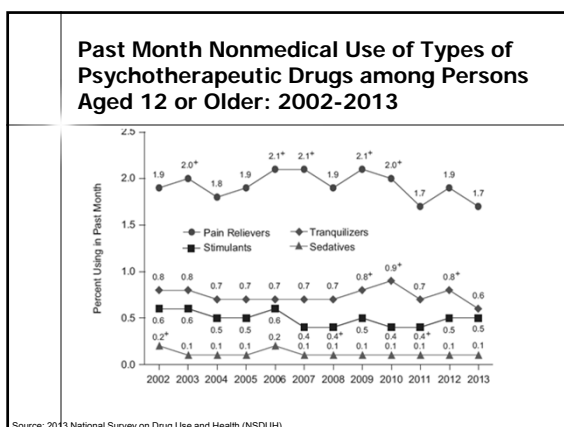
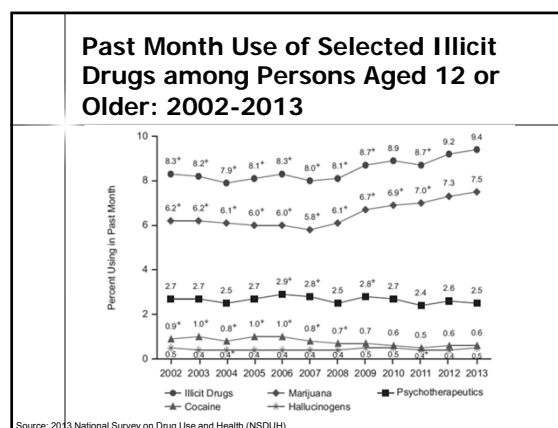
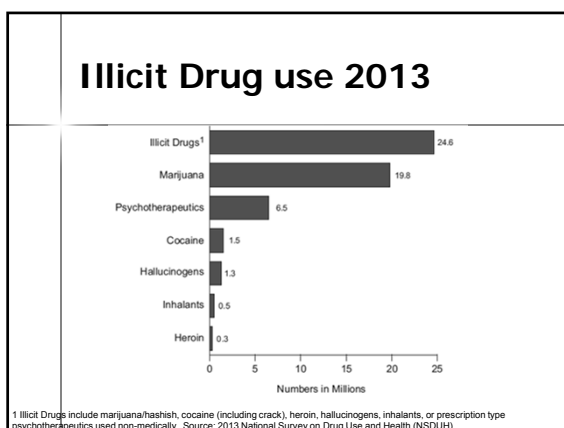


Current Drugs of Abuse

Jed Grant, PA-C
 Program Director, SJVC PA Program
 Staff PA, AMCH Emergency Department
 Reserve Police Officer, City of Visalia

Objectives

- Identify common and emerging drugs of abuse.
- Recognize physiologic effects of commonly abused illicit drugs.
- Manage acutely intoxicated patients appropriately.



Current Trends

- Marijuana availability appears to be increasing
- The abuse of synthetic designer drugs has rapidly increased over the past few years
 - Synthetic cannabinoids, such as “K2” and “Spice”
 - Synthetic cathinones, such as “bath salts”
- Controlled Prescription Drug (CPD) abuse continues to be the nation’s fastest growing drug problem.
 - Pain relievers are the most common type of CPDs taken illicitly and are the CPDs most commonly involved in overdose incidents.

National Drug Threat Assessment Summary 2013, Drug Enforcement Administration, US Department of Justice

Current Trends

- The availability of heroin continued to increase in 2012, likely due to high levels of heroin production in Mexico.
- Some metropolitan areas saw a recent increase in heroin overdose deaths, likely due to increased purity of the drug.
- Law enforcement and treatment officials throughout the country are also reporting that many prescription opioid users have turned to heroin as a cheaper and/or more easily obtained alternative to prescription drugs.

National Drug Threat Assessment Summary 2013, Drug Enforcement Administration, US Department of Justice

Current Trends

- Methamphetamine availability is likely increasing because of sustained production in Mexico—the primary foreign source for the US market—and ongoing small-scale domestic production.
- The trend of lower cocaine availability in the United States that began in 2007 continued in 2012.

National Drug Threat Assessment Summary 2013, Drug Enforcement Administration, US Department of Justice

What is an illicit drug?

- Controlled Substances Act (21 U.S.C. § 811)
- Substances are controlled by the DEA based upon the substance’s medical use, potential for abuse, and safety or dependence liability
- Proceedings to add, delete, or change the schedule of a drug or other substance may be initiated by the DEA, the Department of Health and Human Services (HHS), or by petition from any interested party.
- *If a drug does not have a potential for abuse, it cannot be controlled.*

What is an illicit drug?

- CSA has 5 categories
 - I: high potential for abuse, no accepted medical use, severe risk for dependence
 - II: high potential for abuse, accepted medical use with restrictions, severe risk for dependence
 - III: less risk for abuse than I or II, moderate risk for dependence
 - IV: low potential for abuse, limited dependence risk
 - V: lowest risk for dependence or abuse

What is an illicit drug?

- Any schedule I drug
- Use of any other schedule drug outside its intended medical use
- Use of controlled substance analogs (structurally or pharmacologically similar to controlled drugs) are treated as schedule I drugs.

Classes of Illicit drugs (NIDA)

- Tobacco, ETOH, Diversion of CPD
- Cannabinoids
 - Marijuana, Hashish, (Spice)
- Opioids
 - Heroin
- Stimulants
 - Methamphetamine, Cocaine, Bath Salts
- Club Drugs
 - Ecstasy, GHB, Rohypnol,
- Dissociative Drugs
 - Ketamine, PCP, Salvia, dextromethorphan
- Hallucinogens
 - LSD, psilocibin, mescaline
- Others
 - Inhalants, anabolic steroids

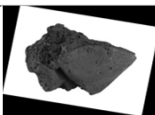
National Institute on Drug Abuse (NIDA), commonly abused drugs (chart), 2012

Classes of Illicit Drugs (DEA)

- Narcotics (opiates)
- Depressants
- Stimulants
- Hallucinogens
- Anabolic steroids/others

Narcotics (opiates)

- Natural
 - Derived from opium poppy
- Semi-synthetic
 - Synthesized from naturally occurring opium products
- Synthetic
 - Completely synthesized in lab



Physiologic Effects of Opiates

- Euphoria
- Drowsiness, feeling of heaviness in the body, sedation
- Impaired coordination, dizziness, confusion
- Nausea, flushing
- slowed or arrested breathing
- Miosis (pinpoint pupils)


Opiate Treatment

- Reversed with naloxone
 - Duration of opiate may be longer than that of the naloxone so repeat dosing or a drip may be required
- Supportive care until drug is metabolized.

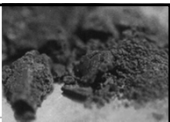
Opium




- Harvested by making incisions on the unripe seed pod of the opium poppy, collecting the milky fluid that seeps out, then drying the fluid.
- May also be collected from poppy straw process where alkaloids are extracted from dried mature plants.
- Has been collected for more than 7000 years by humans

	<h2>Opium</h2> 
	<ul style="list-style-type: none"> ■ Poppy straw is imported to the US by pharmaceutical companies to make morphine and other natural opiate drugs. ■ liquid, solid, or powder, but most poppy straw concentrate is available commercially as a fine brownish powder ■ Route depends on form, but most commonly swallowed or smoked

	<h2>Opium</h2>
	<ul style="list-style-type: none"> ■ Street names <ul style="list-style-type: none"> – Ah-pen-yen, Aunti, Aunti Emma, Big O, Black Pill, Chandoo, Chandu, Chinese Molasses, Chinese Tobacco, Dopium, Dover's Powder, Dream Gun, Dream Stick, Dreams, Easing Powder, Fi-do-nie, Gee, God's Medicine, Gondola, Goric, Great Tobacco, Guma, Hop/hops, Joy Plant, Midnight Oil, Mira, O, O.P., Ope, Pen Yan, Pin Gon, Pox, Skee, Toxy, Toys, When-shee, Ze, and Zero ■ May be combined with other drugs <ul style="list-style-type: none"> – "Black": opium, methamphetamine, marijuana – "Budda": opium soaked marijuana

	<h2>Heroin</h2> 
	<ul style="list-style-type: none"> ■ Black sticky substance or brown to white powder ■ May be sniffed, snorted, smoked or injected ■ Frequently diluted "cut" with other drugs or substances <ul style="list-style-type: none"> – sugar, starch, powdered milk, or quinine ■ Street names <ul style="list-style-type: none"> – Big H, Black Tar, Chiva, Hell Dust, Horse, Negra, Smack, Thunder, Junk, Skag

	<h2>Prescription Opiates</h2>
	<ul style="list-style-type: none"> ■ Hydromorphone <ul style="list-style-type: none"> – 7x more potent than morphine, but shorter duration and more sedating – Manufactured in US, diverted for abuse – Routes <ul style="list-style-type: none"> ■ Tablets may be ingested or crushed and injected ■ Injectable solutions – Street names <ul style="list-style-type: none"> ■ D, Dillies, Dust, Footballs, Juice, and Smack

	<h2>Prescription Opiates</h2>
	<ul style="list-style-type: none"> ■ Methadone <ul style="list-style-type: none"> – German scientists synthesized methadone during World War II because of a shortage of morphine. – Methadone was introduced into the United States in 1947 as an analgesic – Methadone is available as a tablet, disc, oral solution, or injectable liquid and can be swallowed or injected – Street Names <ul style="list-style-type: none"> ■ Amidone, Chocolate Chip Cookies, Fizzies, Maria, Pastora, Salvia, and Wafer 

	<h2>Prescription Opiates</h2>
	<ul style="list-style-type: none"> ■ Morphine <ul style="list-style-type: none"> – Principle constituent of opium and very effective pain reliever – Forms <ul style="list-style-type: none"> ■ Oral solutions, immediate-and sustained-release tablets and capsules, suppositories, and injectable preparations ■ Almost always injected by abusers – Street names <ul style="list-style-type: none"> ■ Dreamer, Emsel, First Line, God's Drug, Hows, M.S., Mister Blue, Morf, Morpho, and Unkie

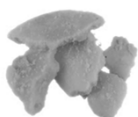
Prescription Opiates

- Oxycodone
 - Oxycodone is synthesized from thebaine, a constituent of the poppy plant
 - Forms: tabs and capsules
 - Routes
 - PO or IV
 - The tablets are crushed and sniffed or dissolved in water and injected.
 - Others may heat a tablet that has been placed on a piece of foil then inhale the vapors
 - Street names
 - Hillbilly Heroin, Kicker, OC, Ox, Roxy, Perc, and Oxy

Stimulants

- Physiologic effects
 - exhilaration, extended wakefulness
 - enhancement of self esteem, improved mental and physical performance, increased activity
 - loss of appetite, mydriasis (dilated pupil)
 - Tachycardia, hypertension, coronary vasospasm may be seen with cocaine
 - In higher doses
 - Dizziness, tremors, headache, flushed skin, chest pain with palpitations, excessive sweating, vomiting, and abdominal cramps

Stimulants



- Psychologic Effects
 - Chronic, high-dose use is frequently associated with agitation, hostility, panic, aggression, and suicidal or homicidal tendencies.
 - Paranoia, sometimes accompanied by both auditory and visual hallucinations, may also occur.
 - Tolerance can develop rapidly, and psychological dependence occurs.
 - Abrupt cessation is commonly followed by depression, anxiety, drug craving, and extreme fatigue, known as a "crash."

Stimulants

- Abuse is often associated with a pattern of binge use — sporadically consuming large doses of stimulants over a short period of time.
- Heavy users may inject themselves every few hours, continuing until they have depleted their drug supply or reached a point of delirium, psychosis, and physical exhaustion.
- During heavy use, all other interests become secondary to recreating the initial euphoric rush.

Stimulant Treatment


- Supportive care with management of any complications acutely
 - Benzodiazepines are helpful
 - Essentially a hypermetabolic state
 - Cooling measures
 - Hydration
 - Sz precautions

Amphetamine

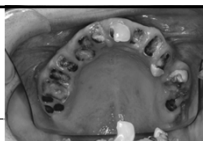



- Amphetamine was first marketed in the 1930s as Benzedrine in an over-the-counter inhaler to treat nasal congestion. By 1937 amphetamine was available by prescription in tablet form to treat narcolepsy
- Used today to treat narcolepsy and ADHD
 - methylphenidate (Ritalin or Ritalin SR),
 - amphetamine and dextroamphetamine (Adderall), and dextroamphetamine (Dexedrine).


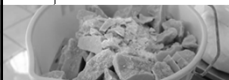
	Amphetamine
	<ul style="list-style-type: none"> ■ Onset is slower and duration is longer than cocaine, but has similar effects ■ Chronic abuse produces a psychosis that resembles schizophrenia <ul style="list-style-type: none"> – Paranoia, picking at the skin, preoccupation with one's own thoughts, and auditory and visual hallucinations. ■ Violent and erratic behavior is frequently seen among chronic abusers of amphetamines.

	Amphetamine	
	<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – Tabs or capsules – White to tan powder ■ Route <ul style="list-style-type: none"> – generally snorted, taken orally or injected ■ Street names <ul style="list-style-type: none"> – Bennies, Black Beauties, Speed, Uppers, Crosses, Hearts, LA Turnaround, Truck Drivers 	


	Methamphetamine
	

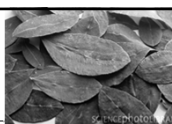
	Meth	
	<ul style="list-style-type: none"> ■ Dosoxyn is brand name ■ Was issued to medivac pilots in emergencies in Vietnam ■ Made with diverted products that contain pseudoephedrine in clandestine labs, mostly in Mexico ■ Methamphetamine is associated with profound dental decay 	


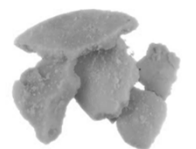

	Meth	
	<ul style="list-style-type: none"> ■ In some cases, meth abusers go without food and sleep while taking part in a form of bingeing known as a "run." ■ Meth users on a "run" inject as much as a gram of the drug every two to three hours over several days until they run out of meth or become too disorganized to continue. 	

	Meth	
	<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – Crystal meth resembles glass fragments or shiny blue-white crystalline material – Regular meth is a pill or tan-white powder ■ Routes <ul style="list-style-type: none"> – swallowed, snorted, injected, or smoked 	


	Methamphetamine
	<ul style="list-style-type: none"> Those who smoke or inject it report a brief, intense sensation, or rush. 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. Researchers have reported that as much as 50% of the dopamine-producing cells in the brain can be damaged after prolonged exposure to relatively low levels of meth. Serotonin-containing nerve cells may be damaged even more extensively.


	Meth	
	<ul style="list-style-type: none"> Street Names <ul style="list-style-type: none"> Batu, Bikers Coffee, Black Beauties, Chalk, Chicken Feed, Crank, Crystal, Fire, Glass, Go-Fast, Hiropon, Ice, Meth, Methlies Quick, Poor Man's Cocaine, Shabu, Shards, Speed, Stove Top, Tina, Trash, Tweak, Uppers, Ventana, Vidrio, Yaba, and Yellow Bam 	

	Cocaine	
	<ul style="list-style-type: none"> Cocaine is derived from coca leaves grown in central and south america. 90% of the cocaine in the US comes from Columbia. Readily absorbed via mucus membranes Causes local vasoconstriction and anesthesia, then a strong euphoria with a stimulant effect. <ul style="list-style-type: none"> Euphoric effect depends on much and how quickly the drug is absorbed. 	

	Cocaine	
		
		

	Cocaine
	<ul style="list-style-type: none"> Form <ul style="list-style-type: none"> white, crystalline powder often diluted with a variety of substances, most commonly sugars and local anesthetics cocaine base (crack) looks like small, irregularly shaped chunks (or "rocks") of a whitish solid


	Cocaine	
	<ul style="list-style-type: none"> Routes <ul style="list-style-type: none"> Powdered cocaine can be snorted or injected into the veins after dissolving in water. Cocaine base (crack) is smoked Street names <ul style="list-style-type: none"> Blow, Bump, C, Candy, Coca, Coke, Crack, Flake, Rock, Snow, and Toot 	


Khat	
<ul style="list-style-type: none"> ■ Flowering evergreen shrub native to East Africa and Arabian peninsula <ul style="list-style-type: none"> – leaves, twigs, and shoots of the Khat shrub are the portion that is usually abused ■ Active components are cathine and cathinone ■ use of Khat is an established tradition for many cultures ■ Causes brown staining of teeth 	

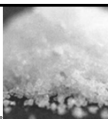
Khat	
<ul style="list-style-type: none"> ■ Khat's effects are similar to other stimulants, such as cocaine and methamphetamine. <ul style="list-style-type: none"> – Increased HR and BP – Can induce manic behavior with: <ul style="list-style-type: none"> ■ Grandiose delusions, paranoia, nightmares, hallucinations, and hyperactivity ■ Chronic Khat abuse can result in violence and suicidal depression. 	


Khat	
<ul style="list-style-type: none"> ■ Khat is typically chewed like tobacco, then retained in the cheek and chewed intermittently to release the active drug ■ Dried Khat leaves can be made into tea or a chewable paste, and Khat can also be smoked or sprinkled on food. 	

Khat	
<ul style="list-style-type: none"> ■ There are reports of liver damage (chemical hepatitis) and of myocardial infarctions among long-term chewers of khat or those who have chewed too large a dose. ■ Street Names <ul style="list-style-type: none"> – Abyssinian Tea, African Salad, Catha, Chat, Kat, and Oat 	

Bath Salts	
<ul style="list-style-type: none"> ■ Synthetic derivatives of cathinone, a CNS stimulant, which is an active chemical found naturally in khat <ul style="list-style-type: none"> – Mephedrone and MDPV are most commonly found active components ■ Manufactured in China and India and packaged for wholesale distribution in Eastern Europe ■ Usually marketed with the warning "not intended for human consumption." 	

Bath Salts	
<ul style="list-style-type: none"> ■ Physiologic effect <ul style="list-style-type: none"> – CNS stimulant – Rapid heart rate, chest pains, nosebleeds, seizures, sweating, nausea, and vomiting. ■ Psychologic effects <ul style="list-style-type: none"> – Similar to other stimulants – Agitation, insomnia, irritability, dizziness, paranoia, delusions, suicidal thoughts, psychosis and panic attacks. – impaired perception of reality, reduced motor control, and decreased ability to think clearly 	

	Bath Salts	
	<ul style="list-style-type: none"> ■ “Bath salt” stimulant products are sold in powder form in small plastic or foil packages of 200 and 500 milligrams under various brand names. ■ Mephedrone is a fine white, off-white, or slightly yellow-colored powder. <ul style="list-style-type: none"> – It can also be found in tablet and capsule form. ■ MDPV is a fine white or off-white powder. 	

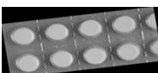
	Bath Salts	
	<ul style="list-style-type: none"> ■ Route <ul style="list-style-type: none"> – Usually ingested by sniffing/snorting. – They can also be taken orally, smoked, or put into a solution and injected into veins. ■ Street Names <ul style="list-style-type: none"> – Bliss, Blue Silk, Cloud Nine, Drone, Energy-1, Ivory Wave, Lunar Wave, Meow Meow, Ocean Burst, Pure Ivory, Purple Wave, Red Dove, Snow Leopard, Stardust, Vanilla Sky, White Dove, White Knight, White Lightening 	


	Depressants
	<ul style="list-style-type: none"> ■ Physiologic effects <ul style="list-style-type: none"> – Generally similar to ETOH – Reduced reaction time, impaired mental functioning and judgment, confusion, somnolence, relaxation, sedation, amnesia for some – Slurred speech, loss of motor coordination, lightheadedness, blurred vision, dizziness, nausea, vomiting, low blood pressure, and slowed breathing

	Depressants
	<ul style="list-style-type: none"> ■ Management of acute intoxication <ul style="list-style-type: none"> – Protect the airway – Supportive care until drug is metabolized – Consider undiscovered sexual assault – Flumazenil will work for flunitrazepam but is probably not needed and could be dangerous if patient is chronic benzo user

	Barbituates
	<ul style="list-style-type: none"> ■ In use since early 1900s for sedation, seizure control, anesthesia ■ Varying duration of action ■ Overdose frequently leads to death ■ Taken orally or injected ■ Street names <ul style="list-style-type: none"> – Barbs, Block Busters, Christmas Trees, Goof Balls, Pinks, Red Devils, Reds & Blues, and Yellow Jackets

	Benzodiazepines
	<ul style="list-style-type: none"> ■ Developed as alternative to barbituates <ul style="list-style-type: none"> – Much lower toxicity ■ Alprazolam and diazepam are the two most frequently encountered illicitly. ■ Abuse is particularly common among teens/young adults and heroin and cocaine abusers ■ Taken orally, may crush and snort tabs ■ Street Names <ul style="list-style-type: none"> – Trade names, benzos, downers

	Flunitrazepam (Rohypnol)
	<ul style="list-style-type: none"> ■ Benzodiazepine not approved in USA <ul style="list-style-type: none"> – Usually obtained in Mexico ■ Similar effects to midazolam (Versed) ■ Frequently abused as date rape drug due to counter-inhibitory and amnestic effects ■ Routes <ul style="list-style-type: none"> – tablet can be swallowed whole, crushed and snorted, or dissolved in liquid 


	Flunitrazepam (Rohypnol)
	<ul style="list-style-type: none"> ■ Prior to 1997, Rohypnol® was manufactured as a white tablet, and when mixed in drinks, was colorless, tasteless, and odorless. ■ In 1997, the manufacturer responded to concerns about the drug's role in sexual assaults by reformulating the drug. ■ Rohypnol® is now manufactured as an oblong olive green tablet with a speckled blue core that when dissolved in light-colored drinks will dye the liquid blue. ■ Generic versions of the drug may not contain the blue dye. 

	Flunitrazepam (Rohypnol)
	<ul style="list-style-type: none"> ■ Street names <ul style="list-style-type: none"> – Circles, Forget Pill, Forget-Me-Pill, La Rocha, Lunch Money Drug, Mexican Valium, Pingus, R2, Reynolds, Roach, Roach 2, Roaches, Roachies, Roopies, Robutal, Rochas Dos, Rohypnol, Roofies, Rophies, Ropies, Roples, Row-Shay, Ruffies, and Wolfies

	Gamma-Hydroxybutyric acid (GHB)
	<ul style="list-style-type: none"> ■ Metabolite of GABA occurring naturally in small amounts ■ Sodium oxybate (Xyrem) is salt of GHB and is FDA approved for cataplexy in narcolepsy ■ GHB is produced illegally in both domestic and foreign clandestine laboratories. <ul style="list-style-type: none"> – The major source of GHB on the street is through clandestine synthesis by local operators. ■ At bars or "rave" parties, GHB is typically sold in liquid form by the capful or "swig" for \$5 to \$25 per cap. ■ Analogues that are often substituted for GHB include GBL (gamma butyrolactone) and BD (1,4-butanediol)

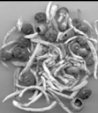


	GHB analogs
	<ul style="list-style-type: none"> ■ GBL and BD are sold as "fish tank cleaner," "ink stain remover," "ink cartridge cleaner" and "nail enamel remover" for approximately \$100 per bottle — much more expensive than comparable products. ■ Available legally as industrial solvents used to produce polyurethane, pesticides, elastic fibers, pharmaceuticals, coatings on metal or plastic, and other products. They are also sold illicitly as supplements for bodybuilding, fat loss, reversal of baldness, improved eyesight, and to combat aging, depression, drug addiction, and insomnia. ■ Routine toxicological screens do not detect the presence of these analogues.

	GHB
	<ul style="list-style-type: none"> ■ Primary Effects <ul style="list-style-type: none"> – Euphoria, drowsiness, decreased anxiety, confusion, and memory impairment – slowed heart rate, greatly slowed breathing, lower body temperature, vomiting, nausea, coma – GHB can also produce both visual hallucinations and paradoxical excited and aggressive behavior. – GHB greatly increases the CNS depressant effects of alcohol and other depressants.

	GHB	
	<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – GHB is usually sold as a liquid or as a white powder that is dissolved in a liquid, such as water, juice, or alcohol. – GHB dissolved in liquid has been packaged in small vials or small water bottles. – In liquid form, GHB is clear and colorless and slightly salty in taste. 	

	GHB	
	<ul style="list-style-type: none"> ■ Route <ul style="list-style-type: none"> – Usually take orally mixed with a beverage – The average dose ranges from 1 to 5 grams (depending on the purity of the compound, this can be 1-2 teaspoons mixed in a beverage). – The concentrations of these “home-brews” have varied so much that users are usually unaware of the actual dose they are drinking. 	

	GHB	
	<ul style="list-style-type: none"> ■ Street names <ul style="list-style-type: none"> – Easy Lay, G, Georgia Home Boy, GHB, Goop, Grievous Bodily Harm, Liquid Ecstasy, Liquid X, and Scoop 	

	Hallucinogens	
	<ul style="list-style-type: none"> ■ Hallucinogens are found in plants and fungi or are synthetically produced and are among the oldest known group of drugs used for their ability to alter human perception and mood. ■ Hallucinogens can be synthetically produced in illicit laboratories or are found in plants. ■ Physiologic effects include elevated heart rate, increased blood pressure, and dilated pupils. ■ The most commonly abused hallucinogens among junior and senior high school students are hallucinogenic mushrooms, LSD, and MDMA or ecstasy. 	
		


	Hallucinogens	
	<ul style="list-style-type: none"> ■ Sensory effects include perceptual distortions that vary with dose, setting, and mood. ■ Psychic effects include distortions of thought associated with time and space. Time may appear to stand still, and forms and colors seem to change and take on new significance. ■ Weeks or even months after some hallucinogens have been taken, the user may experience flashbacks — fragmentary recurrences of certain aspects of the drug experience in the absence of actually taking more of the drug. ■ The occurrence of a flashback is unpredictable, but is more likely to occur during times of stress and seems to occur more frequently in younger individuals. With time, these episodes diminish and become less intense. 	

	Hallucinogens	
	<ul style="list-style-type: none"> ■ Supportive care <ul style="list-style-type: none"> – Most deaths are from injury due to altered perception or eating wrong mushroom ■ Ketamine and PCP are associated with respiratory depression, coma, convulsions, seizures, and death due to respiratory arrest ■ MDMA is associated with hypermetabolic state and resulting dehydration 	

	Ecstasy/MDMA
	<ul style="list-style-type: none"> ■ MDMA (methylenedioxymethamphetamine) ■ Seized MDMA in the U.S. is primarily manufactured in clandestine laboratories in Canada and, to a lesser extent, the Netherlands. ■ MDMA acts as both a stimulant and psychedelic, producing an energizing effect, distortions in time and perception, and enhanced enjoyment of tactile experiences. <ul style="list-style-type: none"> – amphetamine-like stimulation and mild mescaline-like hallucinations

	Ecstasy/MDMA
	<ul style="list-style-type: none"> ■ Many Ecstasy tablets contain not only MDMA but also a number of other drugs or drug combinations that can be harmful, such as: <ul style="list-style-type: none"> – Methamphetamine, ketamine, cocaine, dextromethorphan (DXM), ephedrine, and caffeine – other drugs similar to MDMA, such as MDA or PMA, are often sold as Ecstasy <ul style="list-style-type: none"> ■ A number of deaths have been attributed to <i>para</i>-methoxyamphetamine (PMA), a hallucinogenic amphetamine, being sold as ecstasy. ■ PMA is unique in its ability to quickly elevate body temperature and heart rate at relatively low doses, especially in comparison to MDMA.

	MDMA
	<ul style="list-style-type: none"> ■ High doses of MDMA can interfere with the ability to regulate body temperature, resulting in hyperthermia, leading to liver, kidney and cardiovascular failure. ■ Severe dehydration can result from the combination of the drug's effects and the crowded and hot conditions in which the drug is often taken (Rave drug). ■ Bruxism is a common side effect

	MDMA 
	<ul style="list-style-type: none"> ■ Form <ul style="list-style-type: none"> – MDMA is mainly distributed in tablet form. MDMA tablets are sold with logos, creating brand names for users to seek out. <ul style="list-style-type: none"> ■ The colorful pills are often hidden among colorful candies. – MDMA is also distributed in capsules, powder, and liquid forms.

	MDMA
	<ul style="list-style-type: none"> ■ Route <ul style="list-style-type: none"> – MDMA use mainly involves swallowing tablets (50-150 mg), which are sometimes crushed and snorted, occasionally smoked but rarely injected. – MDMA abusers usually take MDMA by "stacking" (taking three or more tablets at once) or by "piggy-backing" (taking a series of tablets over a short period of time). – One trend among young adults is "candy flipping," which is the co-abuse of MDMA and LSD.

	MDMA
	<ul style="list-style-type: none"> ■ Street Names <ul style="list-style-type: none"> – Adam, Beans, Clarity, Disco Biscuit, E, Ecstasy, Eve, Go, Hug Drug, Lover's Speed, MDMA, Peace, STP, X, and XTC

Ketamine	
	<ul style="list-style-type: none"> ■ Ketamine is a dissociative anesthetic that has some hallucinogenic effects and is related to PCP. ■ It distorts perceptions of sight and sound and makes the user feel disconnected and not in control. ■ Ketamine can induce a state of sedation, immobility, relief from pain, and amnesia ■ It is abused for its ability to produce dissociative sensations and hallucinations. ■ Ketamine has also been used to facilitate sexual assault.

Ketamine	
	<ul style="list-style-type: none"> ■ Most ketamine is obtained through diversion or smuggled in from Mexico ■ Distribution of ketamine typically occurs among friends and acquaintances, most often at raves, nightclubs, and at private parties <ul style="list-style-type: none"> – street sales of ketamine are rare

Ketamine	
	<ul style="list-style-type: none"> ■ A couple of minutes after taking the drug, the user may experience an increase in heart rate and blood pressure that gradually decreases over the next 10 to 20 minutes. ■ Ketamine can make users unresponsive to stimuli. Onset of this state is associated with: <ul style="list-style-type: none"> – Involuntarily rapid eye movement, dilated pupils, salivation, tear secretions, and stiffening of the muscles ■ Users typically return to baseline after 30-60 mins depending on dose


Ketamine	
	<ul style="list-style-type: none"> ■ Various kinds of "trips" described by abusers <ul style="list-style-type: none"> – "K-land" (refers to a mellow & colorful experience) – "K-hole" (refers to the out-of-body, near death experience) – "Baby food" (users sink in to blissful, infantile inertia) – "God" (users are convinced that they have met their maker) ■ Flashbacks may occur for several weeks

Ketamine	
	<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – Clear liquid and a white or off-white powder. – Powdered ketamine (100 milligrams to 200 milligrams) typically is packaged in small glass vials, small plastic bags, and capsules as well as paper, glassine, or aluminum foil folds.


Ketamine	
	<ul style="list-style-type: none"> ■ Routes <ul style="list-style-type: none"> – Powdered ketamine is cut into lines known as "bumps" and snorted, or it is smoked, typically in marijuana or tobacco cigarettes. – Liquid ketamine is injected or mixed into drinks. – Oral has a slower onset

	Ketamine
	<ul style="list-style-type: none"> ■ Street Names <ul style="list-style-type: none"> – Cat Tranquilizer, Cat Valium, Jet K, Kit Kat, Purple, Special K, Special La Coke, Super Acid, Super K, and Vitamin K


	PCP
	<ul style="list-style-type: none"> ■ Phencyclidine (PCP) was developed in the 1950s as an intravenous anesthetic but, due to the side effects of hallucinations, delirium, and mania, its development for human medical use was discontinued in the 1960s <ul style="list-style-type: none"> – Ketamine, was then developed and is structurally similar to PCP


	PCP	
	<ul style="list-style-type: none"> ■ Physiological effects of PCP include a slight increase in breathing rate and a more pronounced rise in blood pressure and pulse rate. ■ Respiration becomes shallow, and flushing and profuse sweating occur. ■ A blank stare, rapid and involuntary eye movements (rotary nystagmus), and an exaggerated gait 	

	PCP
	<ul style="list-style-type: none"> ■ A moderate amount of PCP often causes users to feel detached, distant, and estranged from their surroundings. ■ Numbness of the extremities, slurred speech, and loss of coordination may be accompanied by a sense of strength and invulnerability. ■ Auditory hallucinations, image distortion, severe mood disorders, and amnesia may also occur. ■ In some users, PCP may cause acute anxiety and a feeling of impending doom; in others, paranoia and violent hostility, and in some, it may produce a psychosis indistinguishable from schizophrenia


	PCP
	<ul style="list-style-type: none"> ■ <i>Prone to violence and suicidal behavior, these patients are very dangerous to themselves and others.</i>
	


	PCP
	<ul style="list-style-type: none"> ■ Form <ul style="list-style-type: none"> – white crystalline powder that readily dissolves in water or alcohol and has a distinctive bitter chemical taste – On the illicit drug market, PCP contains a number of contaminants causing the color to range from a light to darker brown with a powdery to a gummy mass consistency with a strong chemical smell (ether)


PCP	
<ul style="list-style-type: none"> ■ It is available in a variety of tablets, capsules, and colored powders, which are either taken orally or by insufflation ("snorted"). ■ The liquid form of PCP is actually PCP base dissolved most often in ether, a highly flammable solvent. ■ For smoking, PCP is typically sprayed onto leafy material such as mint, parsley, oregano, or marijuana. ■ PCP may also be injected 	


PCP	
<ul style="list-style-type: none"> ■ Street Names ■ Amp, Angel Dust, Embalming Fluid, Fry, Formaldehyde, Hog, Love Boat, Peace Pill, Rocket Fuel, Sherms, Sherm Stick, Tick, Wet, Water 	

Lysergic acid diethylamide (LSD)	
<ul style="list-style-type: none"> ■ Derived from ergotamine for psychiatric uses ■ Potent hallucinogen even at very small doses ■ Physiologic effects <ul style="list-style-type: none"> – Dilated pupils, higher body temperature, increased heart rate and blood pressure, sweating, loss of appetite, sleeplessness, dry mouth, and tremors 	

LSD	
<ul style="list-style-type: none"> ■ Psychologic effects <ul style="list-style-type: none"> – During the first hour after ingestion, users may experience visual changes with extreme changes in mood. – While hallucinating, the user may suffer impaired depth and time perception accompanied by distorted perception of the shape and size of objects, movements, colors, sound, touch and the user's own body image. – The ability to make sound judgments and see common dangers is impaired, making the user susceptible to personal injury. – It is possible for users to suffer acute anxiety and depression after an LSD "trip" and flashbacks have been reported days, and even months, after taking the last dose. 	

LSD	
<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – LSD is sold on the street in tablets, capsules, and occasionally in liquid form. – It is an odorless and colorless substance with a slightly bitter taste. – LSD is often added to absorbent paper, such as blotter paper, and divided into small decorated squares, with each square representing one dose. 	


LSD	
<ul style="list-style-type: none"> ■ Route <ul style="list-style-type: none"> – Oral ■ Street Names <ul style="list-style-type: none"> – Acid, Blotter Acid, Dots, Mellow Yellow, and Window Pane 	

	<h2>K2/Spice</h2> 
	<ul style="list-style-type: none"> ■ Mixture of herbs and spices that is typically sprayed with a synthetic compound chemically similar to THC, the psychoactive ingredients in marijuana. ■ K2 is commonly purchased in head shops, tobacco shops, various retail outlets, and over the Internet. <ul style="list-style-type: none"> – It is often marketed as incense or “fake weed.” – Purchasing over the Internet can be dangerous because it is not usually known where the products come from or what amount of chemical is on the organic material. – Most come from China


	<h2>K2/Spice</h2>
	<ul style="list-style-type: none"> ■ Psychological effects are similar to those of marijuana and include paranoia, panic attacks, and giddiness. ■ Physiologic effects include increased heart rate and blood pressure. ■ It appears to be stored in the body for long periods of time <ul style="list-style-type: none"> – long-term effects are not fully known.

	<h2>K2/Spice</h2>
	<ul style="list-style-type: none"> ■ Form <ul style="list-style-type: none"> – K2 is typically sold in small, silvery plastic bags of dried leaves and marketed as incense that can be smoked. – Resembles potpourri ■ Route <ul style="list-style-type: none"> – K2 products are usually smoked in joints or pipes, but some users make it into a tea.

	<h2>K2/Spice</h2>
	<ul style="list-style-type: none"> ■ Street names <ul style="list-style-type: none"> – Bilss, Black Mamba, Bombay Blue, Fake Weed, Genie, K2, Spice, Zohai 

	<h2>Marijuana</h2> 
	<ul style="list-style-type: none"> ■ Mind-altering (psychoactive) drug, produced by the <i>Cannabis sativa</i> plant. ■ Marijuana contains over 480 constituents. ■ THC (delta-9-tetrahydrocannabinol) is the main ingredient that produces the psychoactive effect.

	<h2>Marijuana</h2>
	<ul style="list-style-type: none"> ■ Psychologic effects: <ul style="list-style-type: none"> – Disinhibition, relaxation, increased sociability, and talkativeness – Merriment, happiness, and even exhilaration at high doses – Enhanced sensory perception, giving rise to increased appreciation of music, art, and touch – Heightened imagination leading to a subjective sense of increased creativity – Time distortions – Impaired judgment, emotional lability, incongruity of affect, dysphoria, – Disorganized thinking, inability to converse logically – Agitation, paranoia, confusion, restlessness, anxiety, and panic attacks may occur, especially in inexperienced users or in those who have taken a large dose – short-term memory impairment ■ Physiologic effects <ul style="list-style-type: none"> – Sedation, blood shot eyes, increased heart rate, coughing, increased appetite, and decreased blood pressure, reduced coordination, and ataxia, dizziness, nausea, tachycardia, facial flushing, dry mouth and tremor

Marijuana	
	<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – dry, shredded green/brown mix of flowers and leaves from the <i>Cannabis sativa</i> plant. <ul style="list-style-type: none"> ■ The mixture typically is green, brown, or gray in color and may resemble tobacco – Hashish (hash) consists of the THC-rich resinous material of the cannabis plant, which is collected, dried, and then compressed into a variety of forms, such as balls, cakes, or cookie like sheets. – Hashish Oil (hash oil, liquid hash, cannabis oil) is produced by extracting the cannabinoids from the plant material with a solvent. <ul style="list-style-type: none"> ■ The color and odor of the extract will vary, depending on the solvent used. ■ A drop or two of this liquid on a cigarette is equal to a single marijuana joint.

Marijuana	
	<ul style="list-style-type: none"> ■ Routes <ul style="list-style-type: none"> – Marijuana is usually smoked as a cigarette (called a joint) or in a pipe or bong. – It is also smoked in blunts, which are cigars that have been emptied of tobacco and refilled with marijuana, sometimes in combination with another drug. – Marijuana is also mixed with foods or brewed as a tea.

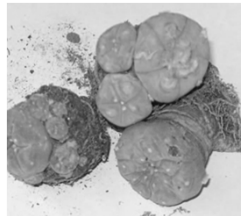
Marijuana	
	<ul style="list-style-type: none"> ■ Street names <ul style="list-style-type: none"> – Aunt Mary, BC Bud, Blunts, Boom, Chronic, Dope, Gangster, Ganja, Grass, Hash, Herb, Hydro, Indo, Joint, Kif, Mary Jane, Mota, Pot, Reefer, Sinsemilla, Skunk, Smoke, Weed, and Yerba

Peyote/Mescaline	
	<ul style="list-style-type: none"> ■ Peyote is a small, spineless cactus. ■ The top of the peyote cactus is referred to as the "crown" and consists of disc-shaped buttons that are cut off. ■ The active ingredient in peyote is the hallucinogen mescaline. <ul style="list-style-type: none"> – Mescaline can be extracted from peyote or produced synthetically. ■ Used for many years as part of Native American ceremonies

Peyote/Mescaline	
	<ul style="list-style-type: none"> ■ Intense nausea, vomiting, dilation of the pupils, increased heart rate, increased blood pressure, a rise in body temperature that causes heavy perspiration, headaches, muscle weakness, and impaired motor coordination

Peyote/Mescaline	
	<ul style="list-style-type: none"> ■ Illusions, hallucinations, altered perception of space and time, and altered body image ■ Users may also experience euphoria, which is sometimes followed by feelings of anxiety.


	Peyote/Mescaline
	<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – The fresh or dried buttons are chewed or soaked in water to produce an intoxicating liquid. – Peyote buttons may also be ground into a powder that can be placed inside gelatin capsules to be swallowed, or smoked with a leaf material such as cannabis or tobacco.

	Peyote/Mescaline
	<ul style="list-style-type: none"> ■ Street Names <ul style="list-style-type: none"> – Buttons, Cactus, Mesc, and Peyote 

	Psilocybin
	<ul style="list-style-type: none"> ■ Psilocybin is a chemical obtained from certain types of fresh or dried mushrooms found in Mexico, Central America, and the United States. ■ A major danger lies in other poisonous mushrooms being consumed by mistake

	Psilocybin
	<ul style="list-style-type: none"> ■ Physiologic effects <ul style="list-style-type: none"> – Nausea, vomiting, muscle weakness, and lack of coordination ■ Psychologic effects <ul style="list-style-type: none"> – hallucinations and an inability to discern fantasy from reality – Panic reactions and psychosis also may occur, particularly with a large dose.

	Psilocybin
	<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – Mushrooms containing psilocybin are available fresh or dried and have long, slender stems topped by caps with dark gills on the underside. – Fresh mushrooms have white or whitish-gray stems <ul style="list-style-type: none"> ■ The caps are dark brown around the edges and light brown or white in the center. – Dried mushrooms are usually rusty brown with isolated areas of off-white.

		
	Psilocybin	

Psilocybin

- **Route**
 - Psilocybin mushrooms are ingested orally.
 - They may also be brewed as a tea or added to other foods to mask their bitter flavor.
- **Street Names**
 - Magic Mushrooms, Mushrooms, and Shrooms

Dextromethorphan (DXM)

- DXM is a cough suppressant found in more than 120 OTC cold medications, either alone or in combination with other drugs
- DXM is abused in high doses to experience euphoria and visual and auditory hallucinations.
- Abusers take various amounts depending on their body weight and the effect they are attempting to achieve. Some abusers ingest 250 to 1,500 milligrams in a single dosage
 - The typical adult dose for cough is 15 or 30 mg taken three to four times daily.

Dextromethorphan (DXM)

- Illicit use of DXM is referred to on the street as "Robotripping," "skittling," or "dexing."
- Particularly high use by teenagers and young adults
 - Probably due to easy OTC availability
- 5-10% of caucasians are poor metabolizers of DXM
 - Risk for OD

DXM

- **Effects**
 - Depending on dose from marijuana like effects, to those similar to Ecstasy, and in high doses much like ketamine and PCP.
 - Confusion, inappropriate laughter, agitation, paranoia, and hallucinations
 - feeling of floating and changes in hearing and touch
 - Over-excitability, lethargy, loss of coordination, slurred speech, sweating, hypertension, and involuntary spasmodic movement of the eyes
 - Users describe 4 distinct dose related plateaus


Effects of DXM

Plateau	Dose Range (mg)	Effects
1 st	100-200	Mild stimulation
2 nd	200-400	Euphoria and hallucinations
3 rd	300-600	Distorted visual perceptions Loss of motor coordination
4 th	500-1500	Out-of-body sensations

DXM

- Available alone in high OTC concentrations
- Often mixed with several other drugs in OTC preparations, which may cause toxicity
 - APAP, chlorpheniramine, guaifenesin
 - Simple procedure to remove other products available on internet


	DXM
	<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – Cough syrup, tablets, capsules, or powder ■ Route <ul style="list-style-type: none"> – Almost always taken orally ■ Street names <ul style="list-style-type: none"> – CCC, Dex, DXM, Poor Man's PCP, Robo, Rojo, Skittles, Triple C, and Velvet


	Salvia divinorum	
	<ul style="list-style-type: none"> ■ <i>Salvia divinorum</i> is a perennial herb in the mint family that is abused for its hallucinogenic effects. ■ Salvia is native to certain areas of the Sierra Mazateca region of Oaxaca, Mexico. <ul style="list-style-type: none"> – It is one of several plants that are used by Mazatec Indians for ritual divination. ■ Plants can be grown successfully outside of this region. <ul style="list-style-type: none"> – They can be grown indoors and outdoors, especially in humid semitropical climates. 	


	Salvia
	<ul style="list-style-type: none"> ■ Physiologic effects <ul style="list-style-type: none"> – Loss of coordination, dizziness, and slurred speech ■ Psychic effects include <ul style="list-style-type: none"> – perceptions of bright lights, vivid colors, shapes, and body movement, as well as body or object distortions. – may also cause fear and panic, uncontrollable laughter, a sense of overlapping realities, and hallucinations. ■ Salvinorin A is believed to be the ingredient responsible for the psychoactive effects of <i>Salvia divinorum</i>.



	Salvia
	<ul style="list-style-type: none"> ■ The plant has spade-shaped variegated green leaves that look similar to mint. ■ The plants themselves grow to more than three feet high, have large green leaves, hollow square stems, and white flowers with purple calyces.

	Salvia
	<ul style="list-style-type: none"> ■ Salvia can be chewed, smoked, or vaporized. ■ Street names <ul style="list-style-type: none"> – Maria Pastora, Sally-D, and Salvia

	Inhalants	
	<ul style="list-style-type: none"> ■ Invisible, volatile substances found in common household products that produce chemical vapors that are inhaled to induce psychoactive or mind altering effects ■ There are more than 1,000 products that are very dangerous when inhaled <ul style="list-style-type: none"> – typewriter correction fluid, air conditioning refrigerant, felt tip markers, spray paint, air freshener, butane, and cooking spray. 	

	<h2>Inhalants</h2> 
	<ul style="list-style-type: none"> ■ Inhalant abuse can cause damage to the parts of the brain that control thinking, moving, seeing, and hearing. <ul style="list-style-type: none"> – Cognitive abnormalities can range from mild impairment to severe dementia. ■ Depending on the degree of abuse, the user can experience slight stimulation, feeling of less inhibition or loss of consciousness.

	<h2>Inhalants</h2> 
	<ul style="list-style-type: none"> ■ Within minutes of inhalation, the user experiences intoxication along with other effects similar to those produced by alcohol. ■ Prolonged sniffing of the highly concentrated chemicals in solvents or aerosol sprays can induce fatal arrhythmias and lead to heart failure <ul style="list-style-type: none"> – Sudden sniffing death is particularly associated with the abuse of butane, propane, and chemicals in aerosols. ■ Asphyxia may also occur with rapid repetitive use

	<h2>Inhalants</h2> 
	<ul style="list-style-type: none"> ■ Forms <ul style="list-style-type: none"> – Common household products such as glue, lighter fluid, cleaning fluids, and paint all produce chemical vapors that can be inhaled. – May be sold as room odorizers ■ Route <ul style="list-style-type: none"> – Inhalation ■ Street names <ul style="list-style-type: none"> – Gluey, Huff, Rush, and Whippets 

	<h2>Classes of Illicit drugs (NIDA)</h2>
	<ul style="list-style-type: none"> ■ Tobacco, ETOH, Diversion of CPD ■ Cannabinoids <ul style="list-style-type: none"> – Marijuana, Hashish, (Spice) ■ Opioids <ul style="list-style-type: none"> – Heroin ■ Stimulants <ul style="list-style-type: none"> – Methamphetamine, Cocaine, Bath Salts ■ Club Drugs <ul style="list-style-type: none"> – Ecstasy, GHB, Rohypnol, ■ Dissociative Drugs <ul style="list-style-type: none"> – Ketamine, PCP, Salvia, dextromethorphan ■ Hallucinogens <ul style="list-style-type: none"> – LSD, psilocibin, mescaline ■ Others <ul style="list-style-type: none"> – Inhalants, anabolic steroids

National Institute on Drug Abuse (NIDA), commonly abused drugs (chart), 2012

	<h2>Sources</h2>
	<ul style="list-style-type: none"> ■ <u>Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings</u>, Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, US Department of Health and Human Services. ■ www.erowid.org, multiple subjects, accessed Aug 2014 ■ <u>National Drug Threat Assessment Summary 2013</u>, Drug Enforcement Administration, US Department of Justice ■ <u>Drugs of Abuse</u>, 2011 Ed, Drug Enforcement Administration, US Department of Justice ■ <u>Currently Abused Drugs</u>, 2012 Ed, National Institute on Drug Abuse, National Institute of Health, US Department of Health and Human Services.