Health Risks of Drug Use:

Marijuana: refers to the dried leaves, flowers, stems, and seeds from the Cannabis sativa or Cannabis indica plant. The plant contains the mind-altering chemical THC and other similar compounds. People use marijuana by smoking, eating, drinking, or inhaling it. Smoking and vaping THC-rich extracts from the marijuana plant (a practice called dabbing) is on the rise.

Short-term effects:
- altered senses (for example, seeing brighter colors)
- altered sense of time
- changes in mood
- impaired body movement
- difficulty with thinking and problem-solving
- impaired memory
- hallucinations (when taken in high doses)
- delusions (when taken in high doses)
- psychosis (when taken in high doses)

Long-term effects:
Marijuana affects brain development. When people begin using marijuana as teenagers, the drug may impair thinking, memory, and learning functions and affect how the brain builds connections between the areas necessary for these functions. Researchers are still studying how long marijuana's effects last and whether some changes may be permanent. In addition, long-term use has been linked to mental effects in some people, including: temporary hallucinations, temporary paranoia, worsening symptoms in patients with schizophrenia. Some studies have found marijuana use has been linked to anxiety, depression, and suicidal thoughts.

Other effects:
Marijuana use may have a wide range of effects, both physical and mental:
- Breathing problems. Marijuana smoke irritates the lungs, and people who smoke marijuana frequently can have the same breathing problems as those who smoke tobacco. These problems include daily cough and phlegm, more frequent lung illness, and a higher risk of lung infections.
- Increased heart rate. Marijuana raises heart rate for up to 3 hours after smoking. This effect may increase the chance of heart attack.
- Problems with child development during and after pregnancy. Marijuana use during pregnancy is linked to lower birth weight and increased risk of both brain and behavioral problems in babies. If a pregnant woman uses marijuana, the drug may affect certain developing parts of the fetus's brain.
- Intense Nausea and Vomiting. Regular, long-term marijuana use can lead to some people experiencing regular cycles of severe nausea, vomiting, and dehydration, sometimes requiring emergency medical attention.

Effects of overdose:
There are no reports of teens or adults dying from marijuana alone. However, some people who use marijuana can feel some very uncomfortable side effects, especially when using marijuana products with high THC levels. People have reported symptoms such as anxiety and paranoia, and in rare cases, an extreme psychotic reaction (which can include delusions and hallucinations) that can lead them to seek treatment in an emergency room. While a psychotic reaction can occur following any method of use, emergency room responders have seen an increasing number of cases involving marijuana edibles.
Stimulants

Cocaine

Short-term effects include:
• constricted blood vessels
• nausea
• faster heartbeat
• extreme happiness and energy
• irritability
• paranoia

Long-term effects include:
• loss of sense of smell
• nosebleeds
• frequent runny nose
• problems with swallowing
• severe bowel decay
• higher risk of contracting HIV, hepatitis C, and other bloodborne diseases
• malnourishment
• restlessness
• severe paranoia with auditory hallucinations

Other effects:
• dilated pupils
• raised body temperature and blood pressure
• tremors and muscle twitches
• restlessness
• increased risk for movement disorders, including Parkinson’s disease

Effects of Overdose:
• Some of the post frequent and sever health consequences leading to overdose involve the heart and blood vessels, including: irregular heart rhythm, heart attacks, seizures, strokes
• Death could occur if the overdose is not treated

Methamphetamine

Short-term effects include:
• increased wakefulness and physical activity
• decreased appetite
• faster breathing
• rapid and/or irregular heartbeat
• increased blood pressure and body temperature

Long-Term effects include:
• extreme weight loss
• severe dental problems ("meth mouth")
• intense itching, leading to skin sores from scratching
• anxiety
• confusion
• sleeping problems
• violent behavior
• paranoia—extreme and unreasonable distrust of others
• hallucinations—sensations and images that seem real though they aren't

Other Effects:
• reduced coordination and impaired verbal learning
• emotional and cognitive problems
• increased risk of developing Parkinson’s disease
• increased risk of contracting infectious disease such as HIV and hepatitis B and C
• risky behaviors, such as unprotected sex

Effects of Overdose:

Methamphetamine overdose can lead to stroke, heart attack, or organ problems—such as kidney failure—caused by overheating. These conditions can result in death.

Hallucinogens: diverse group of drugs that alter perception, thoughts and feelings
Common hallucinogens include the following: Ayahuasca, DMT, LSD, Peyote, psilocybin, DXM, Ketamine, PCP, salvia

Short-term effects:
• hallucinations
• increased heart rate
• nausea
• intensified feelings and sensory experiences
• changes in sense of time (for example, time passing by slowly)
• increased blood pressure, breathing rate, or body temperature
• loss of appetite
• dry mouth
• sleep problems
• mixed senses (such as "seeing" sounds or "hearing" colors)
• spiritual experiences
• feelings of relaxation or detachment from self/environment
• uncoordinated movements
• excessive sweating
• panic
• paranoia—extreme and unreasonable distrust of others
• psychosis—disordered thinking detached from reality

Long-term effects:
Little is known about the long-term effects of hallucinogens. Researchers do know that ketamine users may develop symptoms that include ulcers in the bladder, kidney problems, and poor memory.
Repeated use of PCP can result in long-term effects that may continue for a year or more after use stops, such as: speech problems, memory loss, weight loss, anxiety, depression and suicidal thoughts. Though rare, long-term effects of some hallucinogens include the following:

- Persistent psychosis—a series of continuing mental problems, including: visual disturbances, disorganized thinking, paranoia, mood changes
- Flashbacks—recurrences of certain drug experiences. They often happen without warning and may occur within a few days or more than a year after drug use. In some users, flashbacks can persist and affect daily functioning, a condition known as hallucinogen persisting perceptual disorder (HPPD). These people continue to have hallucinations and other visual disturbances, such as seeing trails attached to moving objects.

**Other effects:**

- Some psilocybin users risk poisoning and possibly death from using a poisonous mushroom by mistake.
- High doses of PCP can cause seizures, coma, and death, though death more often results from accidental injury or suicide during PCP intoxication. Interactions between PCP and depressants such as alcohol and benzodiazepines (prescribed to relieve anxiety or promote sleep—alprazolam [Xanax®], for instance) can also lead to coma.
- Some bizarre behaviors resulting from hallucinogens that users display in public places may prompt public health or law enforcement personnel intervention.
- While hallucinogens' effects on the developing fetus are unknown, researchers do know that mescaline in peyote may affect the fetus of a pregnant woman using the drug.

**Effects of overdose:**

According to the Drug Enforcement Administration, deaths exclusively from acute overdose of LSD, magic mushrooms, and mescaline are extremely rare. Deaths generally occur due to suicide, accidents, and dangerous behavior, or due to the person inadvertently eating poisonous plant material. A severe overdose of PCP and ketamine can result in: respiratory depression, coma, convulsions, seizures, and death due to respiratory arrest.

**Heroin:** an opioid drug made from morphine, a natural substance taken from the seed pod of various opium poppy plants.

**Short-term effects:**

- a surge of pleasure, or euphoria
- dry mouth
- warm flushing of the skin
- heavy feeling in the arms and legs
- nausea and vomiting
- severe itching
- clouded mental functioning
- going "on the nod," a back-and-forth state of being conscious and semiconscious

**Long-term effects:**

People who use heroin over the long term may develop:

- insomnia
• collapsed veins for people who inject the drug
• damaged tissue inside the nose for people who sniff or snort it
• infection of the heart lining and valves
• abscesses (swollen tissue filled with pus)
• constipation and stomach cramping
• liver and kidney disease
• lung complications, including pneumonia
• mental disorders such as depression and antisocial personality disorder
• sexual dysfunction for men
• irregular menstrual cycles for women

Other effects:
• Heroin often contains additives, such as sugar, starch, or powdered milk, that can clog blood vessels leading to the lungs, liver, kidneys, or brain, causing permanent damage.
• Sharing drug injection equipment and having impaired judgment from drug use can increase the risk of contracting infectious diseases such as HIV and hepatitis

Effects of overdose:
A heroin overdose occurs when a person uses enough of the drug to produce a life-threatening reaction or death.

When people overdose on heroin, their breathing often slows or stops. This can decrease the amount of oxygen that reaches the brain, a condition called hypoxia. Hypoxia can have short-and long-term mental effects and effects on the nervous system, including coma and permanent brain damage.

Prescription CNS Depressants: Central Nervous System (CNS) depressants are medicines that include sedatives, tranquilizers, and hypnotics. These drugs can slow brain activity, making them useful for treating anxiety, panic, acute stress reactions, and sleep disorders.

Examples include: Valium, Xanax, Ambien, and Mebaral.

Most prescription CNS depressants come in pill, capsule, or liquid form, which a person takes by mouth. People misuse prescription CNS depressants by taking medicine in a way or dose other than prescribed, taking someone else’s medicine, or taking medicine for the effect it causes — to get high.

Effects of use and misuse:
• Sleepy and uncoordinated (usually first few days until the body adjusts to side effects)
• slurred speech
• poor concentration
• confusion
• headache
• light-headedness
• dizziness
• dry mouth
• problems with movement and memory
• lowered blood pressure
• slowed breathing
If a person takes CNS depressants long term, they might need larger doses to achieve therapeutic effects. Continued use can also lead to dependence and withdrawal when use is abruptly reduced or stopped. Suddenly stopping can also lead to harmful consequences like seizures, shakiness, anxiety, hallucinations, severe cravings, increased heart rate and blood pressure, anxiety, insomnia, and overactive reflexes.

**Effects of Overdose:**
When people overdose on a CNS depressant, their breathing often slows or stops. This can decrease the amount of oxygen that reaches the brain, a condition called hypoxia. Hypoxia can have short- and long-term mental effects and effects on the nervous system, including coma and permanent brain damage.

**Prescription Opioids:** Opioids are a class of drugs naturally found in the opium poppy plant. Some prescription opioids are made directly from the plant, and others are made by scientists in labs using the same chemical structure. Prescription opioids are used mostly to treat moderate to severe pain, though some opioids can be used to treat coughing and diarrhea. People misuse prescription opioids by taking the medicine in a way or dose other than prescribed, taking someone else's prescription medicine, or taking the medicine for the effect it causes-to get high.

Common prescription opioids include: hydrocodone (Vicodin®), oxycodone (OxyContin®, Percocet®), oxymorphone (Opana®), morphine (Kadian®, Avinza®), codeine, fentanyl

**Short-term and long-term effects:**
In the short term, opioids can relieve pain and make people feel relaxed. However, opioids can also have harmful effects, including: drowsiness, confusion, nausea, constipation, euphoria, slowed breathing. Opioid misuse can cause slowed breathing, which can cause hypoxia, a condition that results when too little oxygen reaches the brain. Hypoxia can have short- and long-term psychological and neurological effects, including coma, permanent brain damage, or death.

Long-term use of prescription opioids, even as prescribed can cause some people to develop a tolerance, which means they need higher and/or more frequent doses of the drug to get the desired effects. Drug dependence occurs with repeated use, causing the neurons to adapt so they only function normally in the presence of the drug. The absence of the drug causes several physiological reactions, ranging from mild in the case of caffeine, to potentially life threatening, such as with heroin.

Other effects:
- Older adults are at higher risk of accidental misuse or abuse because they typically have multiple prescriptions and chronic diseases, increasing the risk of drug-drug and drug-disease interactions, as well as a slowed metabolism that affects the breakdown of drugs.
- Sharing drug injection equipment and having impaired judgment from drug use can increase the risk of contracting infectious diseases such as HIV and from unprotected sex.
- Prescription opioid misuse is a risk factor for starting heroin use as prescription opioids and heroin are chemically similar and can produce a similar high.
- If a woman uses prescription opioids when she's pregnant, the baby could develop dependence and have withdrawal symptoms after birth. This is called neonatal abstinence syndrome, which can be treated with medicines. Use during pregnancy can also lead to miscarriage and low birth weight.
**Effects of overdose:**
An opioid overdose occurs when a person uses enough of the drug to produce life-threatening symptoms or death. When people overdose on an opioid medication, their breathing often slows or stops. This can decrease the amount of oxygen that reaches the brain, which can result in coma, permanent brain damage, or death.

**Prescription Stimulants:** medicines generally used to treat attention-deficit hyperactivity disorder (ADHD) and narcolepsy—uncontrollable episodes of deep sleep. They increase alertness, attention, and energy.

Common prescription stimulants: dextroamphetamine (Dexedrine®), dextroamphetamine/amphetamine combination product (Adderall®), methylphenidate (Ritalin®, Concerta®).

Most prescription stimulants come in tablet, capsule, or liquid form, which a person takes by mouth. Someone misuses a prescription stimulant by taking medicine in a way or dose other than prescribed, taking someone else’s medicine, or taking medicine only for the effect it causes—to get high.

**Short-term effects**
People who use prescription stimulants report feeling a "rush" (euphoria) along with the following:
- increased blood pressure and heart rate
- increased breathing
- decreased blood flow
- increased blood sugar
- opened-up breathing passages

At high doses, prescription stimulants can lead to a dangerously high body temperature, an irregular heartbeat, heart failure, and seizures.

**Long-term effects**
Misure of prescription stimulants can lead to a substance use disorder. Long-term use of stimulants, even as prescribed by a doctor, can cause a person to develop a tolerance, which means that they need a higher and/or more frequent doses of the drug to get the desired effects.

**Other effects**
Repeated misuse of prescription stimulants, even within a short period, can cause psychosis, anger, or paranoia. If the drug is injected, it is important to note that sharing drug injection equipment and having impaired judgment from drug misuse can increase the risk of contracting infectious diseases such as HIV and hepatitis.

**Effects of overdose**
When people overdose on a prescription stimulant, they most commonly experience several different symptoms, including restlessness, tremors, overactive reflexes, rapid breathing, confusion, aggression, hallucinations, panic states, abnormally increased fever, muscle pains and weakness. They also may have heart problems, including an irregular heartbeat leading to a heart attack, nerve problems that can lead to a seizure, abnormally high or low blood pressure, and circulation failure.
Stomach issues may include nausea, vomiting, diarrhea, and abdominal cramps. In addition, an overdose can result in convulsions, coma, and fatal poisoning.

**Synthetic Drugs**

Synthetic Cannabinoids (K2/Spice): a growing number of human-made mind-altering chemicals sprayed on dried, shredded plant material or vaporized to produce a high.

Synthetic cannabinoids are sometimes misleadingly called "synthetic marijuana" because they act on the same brain cell receptors as THC, the mind-altering ingredient in marijuana. So far, there have been few scientific studies of the effects of synthetic cannabinoids on the human brain, but researchers do know that some of them bind more strongly than marijuana to the cell receptors affected by THC, and can produce much stronger effects. The resulting health effects can be unpredictable and dangerous.

Synthetic cannabinoid users report some effects similar to those produced by marijuana:
- elevated mood
- relaxation
- altered perception—awareness of surrounding objects and conditions
- symptoms of psychosis—delusional or disordered thinking detached from reality

**Psychotic effects include:**
- extreme anxiety
- confusion
- paranoia—extreme and unreasonable distrust of others
- hallucinations—sensations and images that seem real though they are not

Other health effects:
- rapid heart rate
- vomiting
- violent behavior
- suicidal thoughts

Synthetic cannabinoids can also raise blood pressure and cause reduced blood supply to the heart, as well as kidney damage and seizures. Use of these drugs is associated with a rising number of deaths. Source: National Institute on Drug Abuse; National Institutes of Health; U.S. Department of Health and Human Services

**Synthetic cathinones (bath salts):** human-made stimulants chemically related to cathinone, a substance found in the khat plant.

**Health effects:**
Synthetic cathinones can produce effects that include:
- paranoia—extreme and unreasonable distrust of others
- hallucinations—experiencing sensations and images that seem real but are not
- increased friendliness
- increased sex drive
- panic attacks
• excited delirium—extreme agitation and violent behavior

Other health effects:
• Raised heart rate, blood pressure, and chest pain are some health effects of synthetic cathinnes.
• People who experience delirium often suffer from dehydration, breakdown of skeletal muscle tissue, and kidney failure.
• The worst outcomes are associated with snorting or needle injection.

Overdose effects:
Intoxication from synthetic cathinones has resulted in death.

Inhalants: various substances that people typically take only by inhaling
These substance include: solvents (liquids that become gas at room temperature), aerosol sprays, gases, nitrites (prescription medicines for chest pain)

Short-term effects:
Most inhalants affect the central nervous system and slow down brain activity. Short-term effects include:
• slurred or distorted speech
• lack of coordination (control of body movement)
• euphoria (feeling "high")
• dizziness/light-headed
• hallucinations

With repeated inhalations, many people feel less self-conscious and less in control. Some may start vomiting, feel drowsy for several hours, or have a headache that lasts a while.

Long-term effects:
• liver and kidney damage
• hearing loss
• bone marrow damage
• loss of coordination and limb spasms (from nerve damage)
• delayed behavioral development (from brain problems)
• brain damage (from cut-off oxygen flow to the brain)

Overdose effects:
Inhalant overdose can lead to seizures or cause the heart to stop. Many solvents and aerosol sprays are highly concentrated, meaning they contain a large amount of chemicals with a lot of active ingredients. Sniffing these products can cause the heart to stop within minutes. This condition, known as sudden sniffing death, can happen to an otherwise healthy young person the first time they use an inhalant. Using inhalants with a paper or plastic bag or in a closed area may cause death from suffocation.

Anabolic Steroids: synthetic variations of the male sex hormone testosterone

Short-Term Effects
Abuse of anabolic steroids may lead to mental problems, such as: paranoid (extreme, unreasonable) jealousy, extreme irritability, delusions—false beliefs or ideas, impaired judgment. Extreme mood swings can also occur, including angry feelings and behavior that may lead to violence.

**Long-Term Effects:**
Anabolic steroid abuse may lead to serious, even permanent, health problems such as: kidney problems or failure; liver damage; enlarged heart; high blood pressure; and changes in blood cholesterol, all of which increase the risk of stroke and heart attack, even in young people.

Several other effects are gender- and age-specific:

**In men:**
- shrinking testicles
- decreased sperm count
- baldness
- development of breasts
- increased risk for prostate cancer

**In women:**
- growth of facial hair or excess body hair
- male-pattern baldness
- changes in or stop in the menstrual cycle
- enlarged clitoris
- deepened voice

**Other Effects:**
- Aside from mental problems, steroid use commonly causes severe acne. It also causes the body to swell, especially in the hands and feet.
- People who inject steroids increase their risk of contracting or transmitting HIV/AIDS or hepatitis.

**Tobacco:** Tobacco is a plant grown for its leaves, which are dried and fermented before being put in tobacco products. Tobacco contains nicotine, an ingredient that can lead to addiction.

People can smoke, chew, or sniff tobacco. Smoked tobacco products include cigarettes, cigars, bidis, and kreteks. Some people also smoke loose tobacco in a pipe or hookah (water pipe). Chewed tobacco products include chewing tobacco, snuff, dip, and snus; snuff can also be sniffed.

**Short-term effects:**
The nicotine in any tobacco product readily absorbs into the blood when a person uses it. Upon entering the blood, nicotine immediately stimulates the adrenal glands to release the hormone epinephrine (adrenaline). Epinephrine stimulates the central nervous system and increases blood pressure, breathing, and heart rate.

**Long-term effects:**
Although nicotine is addictive, most of the severe health effects of tobacco use comes from other chemicals. Tobacco smoking can lead to lung cancer, chronic bronchitis, and emphysema. It increases the risk of heart disease, which can lead to stroke or heart attack. Smoking has also been linked to other
cancers, leukemia, cataracts, and pneumonia. All of these risks apply to use of any smoked product, including hookah tobacco. Smokeless tobacco increases the risk of cancer, especially mouth cancers. Pregnant women who smoke cigarettes run an increased risk of miscarriage, stillborn or premature infants, or infants with low birth weight. Smoking while pregnant may also be associated with learning and behavioral problems in exposed children.

**Effects of overdose:**
Nicotine is poisonous and, though uncommon, overdose is possible. Nicotine poisoning usually occurs in young children who accidentally chew on nicotine gum or patches used to quit smoking or swallow e-cigarette liquid. Symptoms include difficulty breathing, vomiting, fainting, headache, weakness, and increased or decreased heart rate.

**Electronic cigarettes** (e-cigarettes, e-vaporizers, electronic nicotine delivery systems): battery-operated devices that people use to inhale an aerosol, which typically contains nicotine (though not always), flavorings, and other chemicals. They can resemble traditional tobacco cigarettes (cig-a-likes), cigars, or pipes, or even everyday items like pens or USB memory sticks.

Common nicknames for e-cigarettes: e-cigs, e-hookahs, hookah pens, vapes, vape pens, mods (customizable, more powerful vaporizers)

**Short-term effects:**
The nicotine in e-liquids readily absorbs into the bloodstream when a person uses an e-cigarette. Upon entering the blood, nicotine stimulates the adrenal glands to release the hormone epinephrine (adrenaline). Epinephrine stimulates the central nervous system and increases blood pressure, breathing, and heart rate.

**Other effects:**
Some research suggests that e-cigarettes might be less harmful than cigarettes when people who regularly smoke switch to them as a complete replacement. But nicotine in any form is a highly addictive drug. Research suggests it can even prime the brain’s reward system, putting vapers at risk for addiction to other drugs.

E-cigarette use exposes the lungs to a variety of chemicals, including those added to e-liquids, and other chemicals produced during the heating/vaporizing process. A study of some e-cigarette products found the vapor contains known carcinogens and toxic chemicals, as well as potentially toxic metal nanoparticles from the device itself. More research is needed on the health consequences of repeated exposure to these chemicals.


**Definition of Controlled Substance Schedules**
Drugs and other substances that are considered controlled substances under the Controlled Substances Act (CSA) are divided into five schedules. An updated and complete list of the schedules is published annually in Title 21 Code of Federal Regulations (C.F.R.) §§ 1308.11 through 1308.15. Substances are placed in their respective schedules based on whether they have a currently accepted medical use in
treatment in the United States, their relative abuse potential, and likelihood of causing dependence when abused. Some examples of the drugs in each schedule are listed below.

**Schedule I Controlled Substances**
Substances in this schedule have no currently accepted medical use in the United States, a lack of accepted safety for use under medical supervision, and a high potential for abuse.

Some examples of substances listed in Schedule I are: heroin, lysergic acid diethylamide (LSD), marijuana (cannabis), peyote, methaqualone, and 3,4-methylenedioxymethamphetamine ("Ecstasy").

**Schedule II/IIN Controlled Substances (2/2N)**
Substances in this schedule have a high potential for abuse which may lead to severe psychological or physical dependence.

Examples of Schedule II narcotics include: hydromorphone (Dilaudid®), methadone (Dolophine®), meperidine (Demerol®), oxycodone (OxyContin®, Percocet®), and fentanyl (Sublimaze®, Duragesic®). Other Schedule II narcotics include: morphine, opium, codeine, and hydrocodone.

Examples of Schedule IIN stimulants include: amphetamine (Dexedrine®, Adderall®), methamphetamine (Desoxyn®), and methylphenidate (Ritalin®).

**Other Schedule II substances include:** amobarbital, glutethimide, and pentobarbital.

**Schedule III/IIN Controlled Substances (3/3N)**
Substances in this schedule have a potential for abuse less than substances in Schedules I or II and abuse may lead to moderate or low physical dependence or high psychological dependence.

Examples of Schedule III narcotics include: products containing not more than 90 milligrams of codeine per dosage unit (Tylenol with Codeine®), and buprenorphine (Suboxone®).

Examples of Schedule IIN non-narcotics include: benzphetamine (Didrex®), phendimetrazine, ketamine, and anabolic steroids such as Depo®-Testosterone.

**Schedule IV Controlled Substances**
Substances in this schedule have a low potential for abuse relative to substances in Schedule III.

Examples of Schedule IV substances include: alprazolam (Xanax®), carisoprodol (Soma®), clonazepam (Klonopin®), clorazepate (Tranxene®), diazepam (Valium®), lorazepam (Ativan®), midazolam (Versed®), temazepam (Restoril®), and triazolam (Halcion®).

**Schedule V Controlled Substances**
Substances in this schedule have a low potential for abuse relative to substances listed in Schedule IV and consist primarily of preparations containing limited quantities of certain narcotics.

Examples of Schedule V substances include: cough preparations containing not more than 200 milligrams of codeine per 100 milliliters or per 100 grams (Robitussin AC®, Phenergan with Codeine®), and ezogabine.
Education plays a critical role in preventing substance abuse. Drugs of Abuse, A DEA Resource Guide, is designed to be a reliable resource on the most commonly abused and misused drugs in the United States. This comprehensive guide provides important information about the harms and consequences of drug use by describing a drug’s effects on the body and mind, overdose potential, origin, legal status, and other key facts. [http://www.justice.gov/dea/druginfo/ftp3.shtml](http://www.justice.gov/dea/druginfo/ftp3.shtml)