

The Synthetic Drug Problem

Newly Designed Drugs Pose a Public Health Threat

Synthetic drugs are chemically enhanced substances that are designed to imitate, and in some cases surpass, the effects of drugs such as marijuana, methamphetamine, and cocaine. These substances became widely used around the country in 2008, thanks to easy availability and deceptive marketing. Sold at convenience stores, head shops, and gas stations, synthetic drugs are cleverly labelled as potpourri, incense, or air freshener and packaged in colorful foil or bottles in order to attract young customers. In addition, these products are labelled with the disingenuous warning of “not for human consumption,” which creates the air of legitimacy needed to circumvent oversight from the Food and Drug Administration and the Drug Enforcement Administration.

Though the packaging and disclaimers may make them seem innocuous to users, the effects of synthetic drugs are anything but harmless. According to the [American Association of Poison Control Centers](#), in 2017, poison control centers across the United States handled 1,959 calls related to the use of synthetic cannabinoids. Additionally, according to the Centers for Disease Control and Prevention, in 2017, synthetic opioids, like illegally produced fentanyl, were responsible for over 29,000 [fatalities](#)—an increase of about 10,000 deaths from the previous year.

The dangerous effects of these drugs have made lawmakers take notice and make attempts to curtail their distribution—but these efforts have proven difficult. While the majority of states have passed laws in recent years that prohibit the sale of synthetic drugs—and on the federal level, the Synthetic Drug Abuse Prevention Act classified several synthetic substances as Schedule I drugs—enforcement has been challenging. As soon as one law is passed, enterprising manufacturers can skirt the regulation by making slight alterations to the molecular structure of their products, which renders the new formula a different substance than the one covered by the law. The result has been a cat-and-mouse game between the producers of these illicit drugs and the government agencies tasked with keeping them out of the hands of the public.

Types of Synthetic Drugs

Like other narcotics, synthetic drugs are classified based on their chemical composition. The following are the commonly found synthetic drugs on the market.

The drug: Synthetic cannabinoids

Synthetic cannabinoids—which are sold under the names K2, Spice, Genie, Black Mamba, and Bliss—are synthesized to mimic the effects of delta-9-tetrahydrocannabinol (THC), the psychoactive ingredient in real marijuana, on the brain by attaching themselves to the same receptors. Originally created for legitimate medical uses by researchers at Clemson University, these substances were co-opted by illicit drug manufacturers after literature about the compounds was published in scientific journals. Since these drugs are made up of dried plant materials that have been sprayed with synthetic compounds,

they are often advertised as natural—which gives users the misconception that they are safe to consume. Like real marijuana, synthetic cannabinoid products can be smoked, and there are also liquid forms that can be inhaled through electronic cigarettes.

The dangers: Since being bastardized into a street drug, synthetic cannabinoids have wreaked havoc on their users. What begin as feelings of euphoric relaxation associated with natural marijuana can devolve into side effects like irregular heartbeats, nausea, anxiety, vomiting, hallucinations, suicidal thoughts, paranoia, and seizures.

The drug: Synthetic cathinones

Synthetic cathinones, or bath salts, are sold under the brand names Vanilla Sky, Lunar Wave, Cloud Nine, and Scarface. These substances are stimulants manufactured to mimic the effects of LSD, cocaine, and methamphetamines, and they are sold in powder form to be ingested by snorting, swallowing, and smoking.

The dangers: When taking bath salts, which are at least ten times more potent than cocaine, users experience increased friendliness and sex drive, as well as excited delirium, panic attacks, and hallucinations. The National Institute on Drug Abuse [reports](#) that synthetic cathinones are highly addictive, with studies on rats showing that when given access to the drugs, the animals will constantly self-administer doses. Also, people who take these substances have uncontrollable urges to use them that culminate in intense withdrawal symptoms—including depression, paranoia, tremors, and anxiety—when not given access to the drugs.

In addition, synthetic cathinones may cause erratic, dangerous behaviors among users that can put themselves and others at risk. Several instances of this have even made the news: For example, in [Louisiana](#), a man who snorted bath salts had a paranoid episode that led to him trying to slit his own throat, and then ultimately shooting himself to death. Similarly, a Florida woman was [charged](#) with attacking her elderly mother with a machete while high on bath salts.

The drug: Synthetic fentanyl

Although pharmaceutical fentanyl is an approved pain killer that is often used to treat patients with severe pain from cancer, major trauma, back surgery, and nerve damage, the synthetic version has been a major contributor to the country's exploding opioid crisis. Brought into the country from China and Mexico, illegal fentanyl is made to mimic the effects of morphine, but is anywhere from 50 to 100 times more powerful. In fact, according to the [National Institute on Drug Abuse](#), fentanyl is so dangerous that it only takes two milligrams to kill someone, and even emergency personnel working on patients can be put at risk from merely being in the presence of the drug. Sold under the street names China Girl, Goodfellas, and Murder 8, illegal fentanyl is produced in tablet or powder form for users to swallow or snort.

The dangers: Synthetic fentanyl binds to the opioid receptors in the brain, which are associated with emotions and pain control. Users have side effects similar to those related to heroin use, such as euphoria, confusion, nausea, and drowsiness. In extreme cases, users may experience unconsciousness, respiratory depression and arrest, or coma.

The drug: 3,4-methylenedioxy-methamphetamine (MDMA)

Generally available in nightclubs, MDMA is a synthetic hallucinogen that is sold under brand names like Scooby Snacks, Snowball, Beans, and Love Drug. Nicknamed Molly—short for molecular—and Ecstasy, the drug is taken orally through a tablet or capsule. MDMA was originally developed in 1912 in Germany to control bleeding, and in the 1970s and 1980s, some psychologists used it to treat patients, despite it not being approved by the FDA. It was subsequently classified as a Schedule I drug, but made a resurgence in the medical field in the 1990s, when it was approved by the FDA for the limited purpose of performing clinical trials to study its effectiveness as a pain killer for terminally ill patients.

The dangers: MDMA activates the norepinephrine, serotonin, and dopamine in the brain, which can result in a range of side effects such as increased energy, heart rate, and sexual arousal. In addition, users may experience blurred vision, anxiety, depression, and changes to sleep and appetite.

What Can Be Done to Address the Synthetic Drug Problem?

As synthetic drug use becomes an increasingly dangerous problem that the law has yet to catch up with, it's important for the health care industry and community organizations to work in concert to find solutions. Currently, the [Community Anti-Drug Coalitions of America](#) is working on education and advocacy in order to help prevent the use of these substances among young people. In addition, health care professionals around the country are investigating the use of naloxone in synthetic fentanyl overdose cases, which would help to mitigate the effects of the drug and save lives.