Synthetic and Designer Drugs Fact Sheet

What are they?
Synthetic drugs, a term that is often used interchangeably with the term designer drugs, are a growing class of man-made and/or chemically changed substances that are developed to mimic the effects of illegal drugs. Technically, a synthetic drug is any drug that is made in a lab, therefore prescription medications are synthetics. This term, however, mainly refers to man-made drugs that are created to resemble particular illegal drugs, in looks and impact. Designer drugs are substances in which the chemicals are altered. Both of these terms refer primarily to substances that exist to skirt current laws that control the use/sale/trafficking of illicit drugs.

Synthetic/designer drugs of today are mostly divided into two main groups, depending on their chemical composition: cannabinoids (popular names; K2 or Spice), or cathinones and designer phenethylamines (usually known as bath salts). These drugs are designed to mimic the effects of marijuana and speed. They are made to look and act like illicit drugs, but the composition is slightly different and is constantly tweaked, so they are legal, at least for a period of time.

The following are some of the current and recent synthetic/designer “legal highs”:

- **Mephedrone:** (cathinone) Also known as Meow Meow, Drone and M-Cat. Similar to amphetamines such as speed
- **Naphyrone:** (cathinone) Also known as NRG-1 and is similar to amphetamines.
- **MDAI:** (cathinone) Similar to MDMA, or ecstasy
- **Spice:** (cannabinoid) A synthetic cannabinoid that is similar to cannabis
- **BZP:** (cathinone) Belongs to a class of drugs called piperazines, which mimic the effects of MDMA, or ecstasy. Piperazines are used in industry to make plastics, resins, pesticides and brake fluid
- **Flakka:** (cathinone) Also known as A-PVP or gravel; primarily ordered from China.

Where do they come from?
Synthetic/designer drugs can come from anywhere throughout the world and are easily obtained through the internet. Many of them come from chemical suppliers and/or are manufactured in Southeast Asia. To camouflage their real purpose and skirt the Food and Drug Administration (FDA) regulatory control of the manufacturing process, synthetic marijuana and bath salts are often sold as “herbal incense” and “plant food”, and include the label “not for human consumption.” Synthetic/designer drugs can be purchased at neighborhood quick shops, gas stations, headshops, etc., but the main supplier is the world-wide web. As reported in the April, 2013, issue of New York Magazine, “Brick-and-mortar quasi-legal head shops are hard enough to stop, but the Internet vendors are fully whack-a-mole … The new drug dealer is the mailman.”

How do they affect us?
There is a recent spike in the abuse of “bath salts” which contain one or more synthetic derivatives of the natural stimulant cathinone. Low doses produce euphoria and heightened alertness, but high doses and/or chronic use can cause serious side effects such as extreme agitation, hallucinations, delirium, hyperthermia, tachycardia, addiction, and sometimes, death. As synthetic cathinones are banned, new ones appear on the market to replace them. The effect of “bath salts” use are akin to the effects of cocaine, LSD and methamphetamines: increased heart rate and blood pressure, intense paranoia, and violent behavior, which can cause users to hurt themselves and others.

“Spice” is the brand name of the herbal mixtures that produce effects similar to marijuana (cannabis) and marketed as “safe,” legal alternatives to the drug. It is sold under many names, including K2, fake weed, Yucatan Fire, Skunk, Moon Rocks, Dream, Aroma, and others — and labeled “not for human consumption.” “Spice” contains dried, shredded plant material and chemical additives that are responsible for the psychoactive (mind-altering) effects. The use of synthetic marijuana can cause severe and sometimes dangerous side effects such as; agitation, nausea, vomiting, tachycardia (racing heartbeat), tremors and seizures, elevated blood pressure, and dilated pupils. “Spice” chemicals are not easily detected in drug tests, so this along with easy access, and the misperception that it is “natural,” therefore it must be safe, makes it a very popular substance of abuse among young people. The effects are similar to marijuana: elevated mood,
relaxation, and altered perception—and in some cases, they are even stronger than those of marijuana, such as psychotic effects like extreme anxiety, paranoia, and hallucinations. The potency of synthetic cannabinoids can be up to 100% or more times greater than THC.

A number of state and local public health authorities and poison control centers have issued health warnings about the negative health impacts associated with the use of synthetic cannabinoids, substituted cathinones, and other such products. Since the emergence of synthetic drugs that mimic the effects of marijuana and speed, National Poison Control Centers and emergency departments throughout the country are collecting data to track the trends for these dangerous drugs. Reported symptoms include rapid heart rate, increased blood pressure, extreme paranoia, delusions, hallucinations, and even death.

According to the Centers for Disease Control and Prevention (CDC), monthly calls to all poison centers are tracked by the National Poison Data System, which reported that adverse health effects or concerns about possible adverse health effects related to synthetic cannabinoid use increased 330% from 349 in January 2015 to 1,501 in April 2015. Additionally, during the 2015 study period, poison centers reported 3,572 calls related to synthetic cannabinoid use, a 229% increase from the 1,085 calls during the same January-May period in 2014.

While calls made to poison control centers yield valid data, there are limitations to its interpretation. Going forward, statistics from multiple data providers will further define the nationwide scope of this problem to better address its prevention and mitigation.

**Conclusion**

The emergence of synthetic/designer drugs that are easily obtained and difficult to control is a growing problem throughout the world. Unfortunately the market is expanding for these drugs, despite the evidence of dangerous short-term, and possibly long-term, health consequences. Synthetic and designer drugs, and the chemicals contained within, can be made or altered in almost any lab. They are legal because they are changed constantly to stay ahead of the law. They subvert the assumption of truth in advertising, are readily available, have unpredictable and untested effects, and because of the nature of the beast, have no quality control.

The financial incentive for manufacturing and selling of synthetic drugs is huge, it's big business. What is needed is the creation of a sustained effort to cut off the huge cash flow enjoyed by manufacturers and retailers. Our federal Drug Enforcement Agency (DEA), along with Florida and a number of other states have acted as leaders to ban and outlaw these harmful synthetic substances.

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8 UF College of Medicine Division of Addiction Medicine, Drug Policy Institute. Policy Primer. The challenge of “Designer Drug” abuse in Florida.