



# TOXTALKS

A BULLETIN FOR HEALTHCARE PROFESSIONALS WHO MANAGE POISONED PATIENTS

Blue Ridge Poison Center

University of Virginia Health

August 2020

## SYNTHETIC CANNABINOIDS

### Introduction:

Synthetic cannabinoids emerged as major drugs of abuse in the early 2000s and continue to be used today. They are often marketed and sold legally as herbal incense which are not regulated by the FDA and avoid DEA regulation. They can cause a myriad of symptoms and can require hospitalization.

### What exactly are synthetic cannabinoids?

Cannabinoids are chemical compounds which bind cannabinoid receptors in the body. Cannabinoids can be endogenous (endocannabinoids), from plants (phytocannabinoid), or synthetic. The Cannabis plant, known colloquially as marijuana, contains over 100 cannabinoids. Two of the most known cannabinoids are phytocannabinoid tetrahydrocannabinol (delta 9 THC), which is responsible for the psychoactive properties of the Cannabis plant, and cannabidiol (CBD).

Synthetic cannabinoids were first developed in the 1960s for research but it was not until 2004 that a synthetic cannabinoid called JWH-018 was isolated from products marketed as herbal incense in Europe. Herbal incense laced with synthetic cannabinoids are also marketed in the United States and are often smoked by users much like marijuana but may also be brewed as tea or vaped in e-cigarettes.

### Are synthetic cannabinoids illegal?

There are many synthetic cannabinoids currently listed as Schedule I Controlled Substances in the US including the original compound JHW-018. Numerous variations have subsequently been introduced legally by modifying the original structure and are labeled “not for human consumption” to avoid further regulations. The DEA has worked to ban many of these synthetic cannabinoids but it is impossible to keep up with the rate at which new ones are created.

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### NEWS AND NOTES:



**WELCOME** to Dr. Avery Michienzi, DO, the newest member of our clinical team. Dr.

Michienzi is beginning her two year fellowship in medical toxicology at University of Virginia Health. She graduated from the West Virginia School of Osteopathic Medicine and completed her residency in emergency medicine at Wellspan York Hospital, York, PA. Dr. Michienzi's professional interests include envenomation and forensic toxicology. She is very interested travel and hopes to visit every country in the world. She is the author of this month's article on synthetic cannabinoids.

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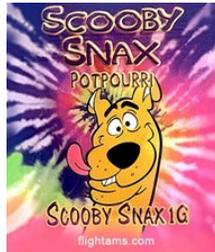
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## What names do people use when referring to synthetic cannabinoids?

Synthetic cannabinoids are found in many products marketed as herbal incense, fragrance or potpourri. Two of the earlier brands called “K2” and “Spice” are still frequently used in reference to synthetic cannabinoids much the same as one might say “Kleenex” when referring to a tissue. A few of the other brands that sell herbal incense containing synthetic cannabinoids include “Kush,” “Brass Knuckles,” “Scooby Snax,” “Mad Hatter,” “Dead Man Walking,” “Cloud 9,” and “Mr. Nice Guy.” It may also be referred to as “fake” marijuana or weed.

## What are the signs and symptoms of synthetic cannabinoid toxicity?

Synthetic cannabinoids are much more potent than THC and can cause a many different effects depending on the product. The most common symptoms of synthetic cannabinoid toxicity according to a 2016 review article include tachycardia, agitation, drowsiness, nausea, vomiting and hallucinations. The agitation seen in patients with synthetic cannabinoid toxicity is in contrast to what would be expected from phytocannabinoids. Many other symptoms are reported including seizures, psychosis, delusions, hallucinations, anxiety, aggression, depressed mood, catatonia, mania, headache, dizziness, respiratory symptoms, chest pain. Rare but serious adverse effects include respiratory failure, stroke and myocardial infarction, AKI and rhabdomyolysis. Death is possible but uncommon.

## How do I treat a patient with synthetic cannabinoid toxicity?

There is no antidote for synthetic cannabinoids and patients are treated with targeted supportive care based on their symptoms. Benzodiazepines are recommended for seizures and agitation. If psychosis or hallucinations present with agitation, antipsychotic such as haloperidol may be beneficial as well.

## Can I and should I test for synthetic cannabinoids?

It is not recommended to routinely test for synthetic cannabinoids as a positive test will generally not alter patient management. There are some cases in which testing can be helpful, such as from an epidemiologic standpoint or in a truly undifferentiated patient if exposure is a reasonable concern. If testing is desired, a urine sample can be sent to a reference laboratory, such as NMS labs. These reference labs have the most up to date databases for synthetic cannabinoids and can test for some of the previously identified compounds. As the reference labs can only test for known compounds, false negatives may occur.

*References available upon request.*

The Blue Ridge Poison Center receives funding from University of Virginia Health, the Virginia Department of Health, and the U.S. Health Resources Services Administration (HRSA). We are accredited by the American Association of Poison Control Centers. We've been proudly serving the Commonwealth since 1978.

Poison safety tips, free materials, & more:

