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**CDC HEALTH UPDATE**

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## **Update—Outbreak of Life-threatening Coagulopathy Associated with Synthetic Cannabinoids Use**

### **Summary**

The Centers for Disease Control and Prevention (CDC) is providing information on: 1) the current status of a multistate outbreak of coagulopathy from exposure to synthetic cannabinoid products containing a vitamin K-epoxide cycle antagonist, brodifacoum; 2) the emergence of 2 new clinical scenarios; and 3) recommendations to help clinicians make decisions related to these 2 new clinical scenarios.

This is an update to the Health Alert Network (HAN) advisory released on May 25, 2018 titled *Outbreak of Life-threatening Coagulopathy Associated with Synthetic Cannabinoids Use* (<https://emergency.cdc.gov/han/han00410.asp>).

### **Outbreak Update**

Since the index patient with hypocoagulopathy associated with synthetic cannabinoids use was identified on March 8, 2018 in Illinois, at least 324 people have presented to healthcare facilities with serious bleeding from possible exposure. The largest number of patients were in Illinois (164), followed by Wisconsin (86), Maryland (44), Florida (6), Pennsylvania (6), Missouri (5), North Carolina (5), Indiana (5), Kentucky (1), Virginia (1), and West Virginia (1). Laboratory investigation confirmed brodifacoum exposure in at least 150 patients. There have been at least eight (8) fatalities. Vitamin K1 continues to be the recommended therapy. Since the original HAN advisory on May 25, 2018, two (2) new clinical scenarios have emerged:

1. Several patients have outpatient follow-up blood brodifacoum concentrations that are higher than their initial blood brodifacoum concentrations.
2. At least one patient has become pregnant since starting outpatient oral Vitamin K1 treatment.

When patients are found to have outpatient follow-up blood brodifacoum concentrations higher than their initial blood brodifacoum concentrations, it strongly suggests that they have continued or resumed using synthetic cannabinoid products containing brodifacoum while on oral vitamin K1 therapy. The consequences of re-exposure to brodifacoum include:

1. Risk of life-threatening hemorrhage,
2. Oral vitamin K1 dosing may need to be increased, and
3. Oral vitamin K1 treatment duration may need to be extended.

Pregnancies in patients who are on oral vitamin K1 treatment for brodifacoum toxicity are high-risk pregnancies. Brodifacoum crosses the placenta. Both mother and fetus are at risk for serious bleeding. Brodifacoum may also be a teratogen because its chemical structure is similar to warfarin, a known teratogen.

### **Recommendations for Clinicians**

1. Maintain a high index of suspicion for continued or resumed use of synthetic cannabinoid products containing brodifacoum in patients who are on oral vitamin K1 therapy. Ask these patients about continued or resumed use of synthetic cannabinoid products.
2. Counsel against resuming or continuing use of synthetic cannabinoid products. Refer patients to the Substance Abuse and Mental Health Services Administration (SAMHSA) national helpline, 1-800-

662-HELP(4357), a free, confidential, 24/7, 365-day-a-year treatment referral and information service in English and Spanish for individuals and families facing mental and/or substance use disorders; substance abuse counseling is also available.

3. Advise patients that their current oral vitamin K1 dosing may not prevent recurrent coagulopathy from re-exposure to brodifacoum in synthetic cannabinoid products and the duration of oral vitamin K1 treatment may need to be extended.
4. Consider periodic quantitative testing of patients' blood for brodifacoum during outpatient follow-up visits to inform if patients continued or resumed use of synthetic cannabinoid products containing brodifacoum. In addition, serial blood brodifacoum concentrations allow for calculation of blood brodifacoum half-life and assist in determining duration of oral vitamin K1 therapy.
5. Ask all women of childbearing age who are on oral vitamin K1 therapy about the possibility of being pregnant and counsel them about reliable contraceptive techniques. A periodic pregnancy test should be performed on all women of childbearing age who are on oral vitamin K1 therapy. Pregnant patients on oral vitamin K1 should be referred for high-risk pregnancy management and follow-up.
6. Contact your local poison control center (1-800-222-1222) for questions on diagnostic testing and management of these patients.
7. Promptly report possible cases to your local or state health department.

### **Recommendations for the Public**

1. CDC recommends that people do not use synthetic cannabinoid products. Synthetic cannabinoid products are always dangerous because it is impossible for people to know what chemicals are in the product, how much they are being exposed to, and how their body will react to the chemicals. The synthetic cannabinoid products associated with this outbreak are especially dangerous because they contain brodifacoum, a chemical used as rat poison that can cause uncontrolled bleeding.
2. People who have used synthetic cannabinoid products in the past three months and are concerned about their health should contact their healthcare provider. Synthetic cannabinoid products users who develop any unusual bruising or bleeding should immediately seek medical attention.
3. People who are currently on oral vitamin K1 treatment for brodifacoum poisoning should not use synthetic cannabinoid products, as this can cause new or worsening bleeding and may prolong the course of vitamin K1 treatment. Substance Abuse and Mental Health Services Administration (SAMHSA) national helpline, 1-800-662-HELP(4357), is a free, confidential, 24/7, 365-day-a-year treatment referral and information service in English and Spanish for individuals and families facing mental and/or substance use disorders.
4. Women who are currently on oral vitamin K1 treatment for brodifacoum poisoning should use an effective contraceptive method to prevent pregnancy while being treated. .

### **For More Information**

1. CDC Clinician Outreach and Communication Activity: Outbreak Alert Update: Potential Life-Threatening Vitamin K-Dependent Antagonist Coagulopathy Associated With Synthetic Cannabinoids Use.  
<https://content.govdelivery.com/accounts/USCDC/bulletins/21e1a0f>
2. Synthetic cannabinoids: What are they? What are their effects?  
<https://www.cdc.gov/nceh/hsb/chemicals/sc/default.html>
3. Synthetic cannabinoids: An Overview for Healthcare Providers.  
<https://www.cdc.gov/nceh/hsb/chemicals/sc/healthcare.html>

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