



EPI WATCH

Monthly Epidemiology Newsletter



205 Dr. MLK Jr. St. N
St. Petersburg, FL 33701
(727) 824-6900

Director

Ulyee Choe, DO

Editor

Rachel Ilic, MPH, CPH, CIC
Rachel.Ilic@FLHealth.gov

Division of Disease Control and Health Protection

Disease Reporting

To report diseases and clusters of illness:

Phone: (727) 824-6932
Fax: (727) 484-3865
(excluding HIV/AIDS)

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Surveillance Room 3-138
205 Dr. MLK Jr St. N

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Vitamin K Dependent Coagulopathy Linked to Spice Contaminated with Brodifacoum

by Holly Clancy, CHES

Synthetic cannabinoids, also known as Spice or K2, are chemical compounds that have similar psychoactive and binding properties as tetrahydrocannabinol (THC), the active ingredient in cannabis. Spice is a popular alternative to cannabis because it is relatively cheaper, has a higher potency, is not detected in urine drug tests, and is not regulated by federal government. When THC was originally discovered in cannabis, pharmaceutical companies were interested in developing synthetic versions of THC for various medicinal and therapeutic use. Except for a handful of therapeutic drugs, most varieties of synthetic cannabinoids have not been developed due to potentially harmful side effects. Many illicit drug sellers make these products by spraying synthetic THC on dried plants. Unlike natural cannabis, synthetic THC can be more dangerous due to its unregulated and often disclosed composition, that may result in severe health consequences.

Due to the lack of regulations in place for Spice, manufacturers have liberty over what they use in their products. Spice is listed as a Schedule I substance under the Controlled Substance Act; however, illicit drug makers market these products as either incense or various aromatherapy blends. Due to the ambiguous packaging and composition of Spice, it can easily be found on the internet, in gas stations, and convenience stores without being detected by regulatory agencies.

Brodifacoum has been found in Spice and is a common anticoagulant rodenticide. Brodifacoum is used in Spice to create a prolonged high and makes the product stronger overall. Brodifacoum, along with other long-acting anticoagulant rodenticides (LAAR), works by binding directly to and inhibits vitamin K epoxide reductase. This results in depletion of vitamin K1 stores, which then prohibits the activation of coagulants and regulatory proteins that depend on vitamin K. Bleeding-related symptoms consistent with cannabinoid associated coagulopathy include bruising, melena, gross hematuria, epistaxis, intracranial hemorrhage, and hematemesis. Non-bleeding symptoms include abdominal pain and abnormal findings of the renal system. Diagnostic tests and measures include checking the prothrombin time (PT) for asymptomatic coagulopathy. For suspected brodifacoum poisoning, laboratories should identify the depletion of vitamin K-dependent coagulation factors while also ruling out other natural types of coagulopathies (e.g. liver disease).

Treatment for most LAARs consist of correcting the coagulopathy and to stop any bleeding symptoms. For brodifacoum, correcting the coagulopathy can include either providing a 4-factor prothrombin complex concentrate or fresh frozen plasma combined with vitamin K1. There is no recommended optimal initial dosing of vitamin K1 treatment; however, the range reported in various medical literatures is from 10-600 mg per day. Because brodifacoum has one of the longest half-lives out of most LAARs, the duration of vitamin K1 treatment is substantially longer and can last up to 730 days. Patients can stop taking the medication when drug levels are undetectable in the blood. The treatments can be problematic for patients due to the high cost of the medication. Outpatient medication can be supplied in either pills or in a liquid but is ultimately up to the provider in which method is the safest and most effective for the patient.

For additional information please visit [CDC MMRW Notes from the Field](https://www.cdc.gov/mmwr/notes).

World Leprosy Day

by Marcin Chmiel, MPH

January 30 marks the 68th anniversary of World Leprosy Day, which celebrates the leprosy community and creates an opportunity to raise public awareness of leprosy, also known as Hansen's Disease. While prevalence of the disease is low in the United States, with 150-200 new cases annually, new cases exceed 200,000 worldwide and an estimated 2-3 million people globally are living with disabilities caused by the disease. The day of awareness was established in 1954 by journalist and activist Raul Follereau.

Follereau selected the date to coincide with the anniversary of Mahatma Gandhi's death, as he was a tireless advocate for those suffering from Hansen's disease.

The two main missions of the day are to advocate for the equal treatment of those affected and to combat the historical misconceptions attached to the disease¹. Some common misconceptions include that it is highly contagious, only the poor are affected, it causes parts of your body to fall off and that it is a curse or punishment for wrongdoing².

Hansen's disease is a curable bacterial infection caused by *Mycobacterium Leprae*. These unique bacteria multiply at such a slow rate where signs of infection may take up to 20 years to develop, with 5 years being the average incubation period. Common signs and symptoms of the disease include discolored skin patches, growth of skin nodules, numbness of affected skin, muscle weakness that can lead to paralysis and eye problems that can progress to blindness if left untreated. The bacteria are only able to spread to others through sustained close contact with someone with untreated Hansen's disease over several months. One cannot contract the bacteria from casual contact with others such as hugging or sitting near those with the disease. The disease is not spread by sexual contact and cannot be passed from a mother to their child during pregnancy³.

Thankfully the disease is curable, and it is typically treated over a period of 1-2 years with a combination of 2-3 antibiotics also known as multidrug therapy (MDT). A combination of antibiotics is used to ensure the bacteria do not develop resistance to the drugs while being treated over time. Treatment for people with the disease in the U.S. is provided by the National Hansen's Disease Program, which provides special clinics for those affected. Since 1995 the World Health Organization has provided MDT treatment free of charge to those in need.



For more information, please visit [WHO Leprosy \(Hansen's disease\)](https://www.who.int/news-room/fact-sheets/detail/hansen-disease).

References:

1. Centers for Disease Control and Prevention Hansen's disease (leprosy) <https://www.cdc.gov/leprosy/index.html>
2. Centers for Disease Control and Prevention World leprosy day: Bust the myths, learn the facts. Centers for Disease Control and Prevention <https://www.cdc.gov/leprosy/world-leprosy-day/index.html>
3. Exposing the myths around leprosy Leprosy Mission International <https://www.leprosymission.org/leprosy-champions/exposing-the-myths-around-leprosy/>

Mystery Illness Under Investigation in South Sudan

By: Becky Bohinc, MPH, CPH

On November 13, 2021, the Ministry of Health (MOH) in South Sudan was notified of several deaths from a mystery illness among residents of Fangak County in Jonglei State of South Sudan¹. South Sudan is in the northeastern region of Africa and the affected region was recently devastated by severe flooding contributing to the potential spread of illnesses such as malaria or cholera. In addition, malnutrition of residents and contamination of local water sources further increased the possibility of disease outbreaks².

Populations seemingly most affected by the mystery illness include the elderly and children under 14 with reported symptoms of cough, diarrhea, fever, headache, chest pain, joint pain, loss of appetite and body weakness. A team of health officials was deployed to investigate the outbreak. The response team did initially observe the expected increase of malaria in the region while samples tested for cholera were negative, a suspected source of the outbreak. Local flooding in Fangak County hindered both the local residents when attempting to seek medical care but also the response teams during their investigation. Latest reports published at the end of December 2021 noted a total of 97 fatalities attributed to outbreak.



References:

1. Govt. South Sudan. (2021, December). Ministry of Health Press statement on the reported deaths in Fangak County, Jonglei state, South Sudan. <https://reliefweb.int/report/south-sudan/ministry-health-press-statement-reported-deaths-fangak-county-jonglei-state-south>
2. Lea, Robert. (2021, December 24). Elderly Woman Latest To Die of Mysterious Illness in South Sudan That Has Killed Almost 100. <https://www.newsweek.com/elderly-woman-latest-die-mysterious-illness-south-sudan-that-has-killed-almost-100-1662961>

Select Reportable Diseases in Pinellas County

Disease	Pinellas		YTD Total		Pinellas County Annual Totals		
	December 2021	December 2020	Pinellas 2021	Florida 2021	2020	2019	2018
A. Vaccine Preventable							
Measles	0	0	0	0	0	1	7
Mumps	0	0	1	8	1	3	2
Pertussis	0	0	1	58	8	27	32
Varicella	1	1	25	381	17	33	67
B. CNS Diseases & Bacteremias							
Creutzfeldt-Jakob Disease (CJD)	0	0	1	22	0	3	1
Meningitis (Bacterial, Cryptococcal, Mycotic)	1	2	6	90	5	7	9
Meningococcal Disease	0	0	1	27	2	1	1
C. Enteric Infections							
Campylobacteriosis	18	23	215	3921	245	305	264
Cryptosporidiosis	1	1	28	344	36	64	34
Cyclosporiasis	0	0	9	253	9	28	4
<i>E. coli Shiga Toxin (+)</i>	1	1	16	580	10	22	14
Giardiasis	4	1	29	710	28	52	41
Hemolytic Uremic Syndrome (HUS)	0	0	0	4	0	1	0
Listeriosis	0	0	2	58	2	2	1
Salmonellosis	16	22	182	6431	199	201	233
Shigellosis	5	3	37	540	19	22	40
D. Viral Hepatitis							
Hepatitis A	1	0	6	211	3	377	113
Hepatitis B: Pregnant Woman +HBsAg	0	0	11	0	18	21	14
Hepatitis B, Acute	1	8	51	674	40	71	52
Hepatitis C, Acute	6	11	89	1912	117	75	40
E. VectorBorne/Zoonoses							
Animal Rabies	0	0	0	0	0	2	0
Rabies, possible exposure	10	4	135	3794	118	128	130
Chikungunya Fever	0	0	0	1	0	0	0
Dengue	0	0	0	0	0	0	0
Eastern Equine Encephalitis	0	0	0	0	0	0	0
Lyme Disease	0	0	6	282	11	19	12
Malaria	0	0	2	45	2	5	3
West Nile Virus	0	0	0	12	0	0	0
Zika Virus Disease	0	0	0	0	0	0	0
F. Others							
Chlamydia	339	326	4090	n/a	3956	4575	4355
Gonorrhea	135	150	1882	n/a	1634	1526	1416
Hansen's Disease	0	0	0	14	0	0	0
Legionellosis	2	3	36	506	33	30	26
Mercury Poisoning	0	0	2	19	1	1	1
Syphilis, Total	54	42	626	n/a	479	493	434
Syphilis, Infectious (Primary and Secondary)	20	17	273	n/a	212	218	190
Syphilis, Early Latent	23	10	236	n/a	166	197	152
Syphilis, Congenital	0	2	5	n/a	5	6	3
Syphilis, Late Syphilis (Late Latent; Neurosyphilis)	11	13	112	n/a	96	72	89
Tuberculosis	2	3	19	n/a	24	24	33
<i>Vibrio Infections</i>	0	1	13	236	8	11	4

*YTD up to December 31, 2021. n/a = not available at this time

Reportable diseases include confirmed and probable cases only. All case counts are current and provisional. Data is collected from the Merlin Reportable Disease database, surveillance systems maintained at the Florida Department of Health in Pinellas County, and Florida CHARTS <http://www.floridacharts.com/charts/default.aspx>. STD data in STARS is continually updated. Please note, data from the previous month takes up to an additional month or more to be correctly updated.