



The CDC Injury Center's Role in Addressing Health Concerns Related to Cannabis and Cannabinoids

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Outline

- Cannabis and Cannabinoids 101
- History of Cannabis/Cannabinoid Activities at CDC
- New Oversight, Coordination and Leadership Role for NCIPC
- Engaging the NCIPC Board of Scientific Counselors (BSC)
 - Request for input regarding future strategic planning activities

Cannabis and Cannabinoids 101

- Cannabis or marijuana
 - Also referred to as “weed, pot, or dope”
 - The dried flowers and leaves of the cannabis plant
 - *Cannabis sativa*



- National Academies of Sciences Engineering, and Medicine,. The health effects of cannabis and cannabinoids: The current state of evidence and recommendations for research. Washington, DC: The National Academies Press. doi: 10.17226/24625. 2017.
- <https://plants.usda.gov/core/profile?symbol=CASA3>

Cannabis and Cannabinoids 101

- Cannabis or marijuana
 - Flowering tops contain >500 chemicals including >100 cannabinoids
 - Cannabinoids generally refer to compounds that bind cannabinoid receptors and include three major groups:
 - Endocannabinoids (endogenous)
 - Phytocannabinoids (plant-based): some examples include
 - Tetrahydrocannabinol (THC)
 - Cannabidiol (CBD)
 - Synthetic cannabinoids (man-made)

- National Academies of Sciences Engineering, and Medicine,. The health effects of cannabis and cannabinoids: The current state of evidence and recommendations for research. Washington, DC: The National Academies Press. doi: 10.17226/24625. 2017.
- Radhakrishnan R, et al. Medical Marijuana: What Physicians Need to Know. J Clin Psychiatry 80:5, Sept/Oct 2019. Epub ahead of print

Cannabis and Cannabinoids 101

- Synthetic cannabinoids
 - Sprayed onto plant material and sold as herbal products
 - People smoke them to get “high” as a cannabis alternative
 - Often dangerous and different health effects from cannabis
 - Illegal in many states but numerous ways to get around legal obstacles



Cannabis and Cannabinoids 101

- Outbreaks of acute illness from synthetic cannabinoid use

MMWR

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Morbidity and Mortality Weekly Report

February 15, 2013

Acute Kidney Injury Associated with Synthetic Cannabinoid Use — Multiple States, 2012

In March 2012, the Wyoming Department of Health was notified by Natrona County public health officials regarding three patients hospitalized for unexplained acute kidney injury (AKI), all of whom reported recent use of synthetic cannabinoids (SCs), sometimes referred to as “synthetic marijuana.” SCs are designer drugs of abuse typically dissolved in a solvent, applied to dried plant material, and smoked as an alternative to marijuana. AKI has not been reported previously in users of

or abdominal pain and we February 26–29. Local law and released a media ad with SC use.

The Wyoming Department to identify other cases. A case initially was defined as back pain and AKI.

Notes from the Field

Outbreak of Severe Illness Linked to the Vitamin K Antagonist Brodifacoum and Use of Synthetic Cannabinoids — Illinois, March–April 2018

Erin Moritz, PhD^{1,2}; Connie Austin, DVM²; Michael Wahl, MD³; Carol DesLauriers, PharmD³; Livia Navon, MS^{2,4}; Kelly Walblay, MPH^{2,5}; Monica Hendrickson, MPH⁶; Angie Phillips, MSN⁷; Janna Kerins, VMD^{1,8}; Audrey E. Pennington, PhD^{1,9}; Amy M. Lavery, PhD^{1,10}; Tharwat El Zahran, MD^{9,11}; Judy Kauerauf, MPH²; Luke Yip, MD¹²; Jerry Thomas, MD¹²; Jennifer Layden, MD²

Synthetic cannabinoids, also known as K2 and spice, are heterogeneous psychoactive compounds identified as substances of abuse (1,2). On March 22, 2018, the Illinois Department of Public Health was notified by the Illinois Poison Center of four patients seen in emergency departments (EDs) during the preceding 2 weeks with unexplained bleeding and high international normalized ratios (INRs; range from 5 to >20

BOX. Case definitions for unexplained bleeding after use of synthetic cannabinoids — Illinois, 2018

Clinical criteria

Bruising, nosebleeds, bleeding gums, bleeding disproportionate to injury, vomiting blood, coughing up blood, blood in urine or stool, or excessively heavy menstrual bleeding.

Laboratory criteria

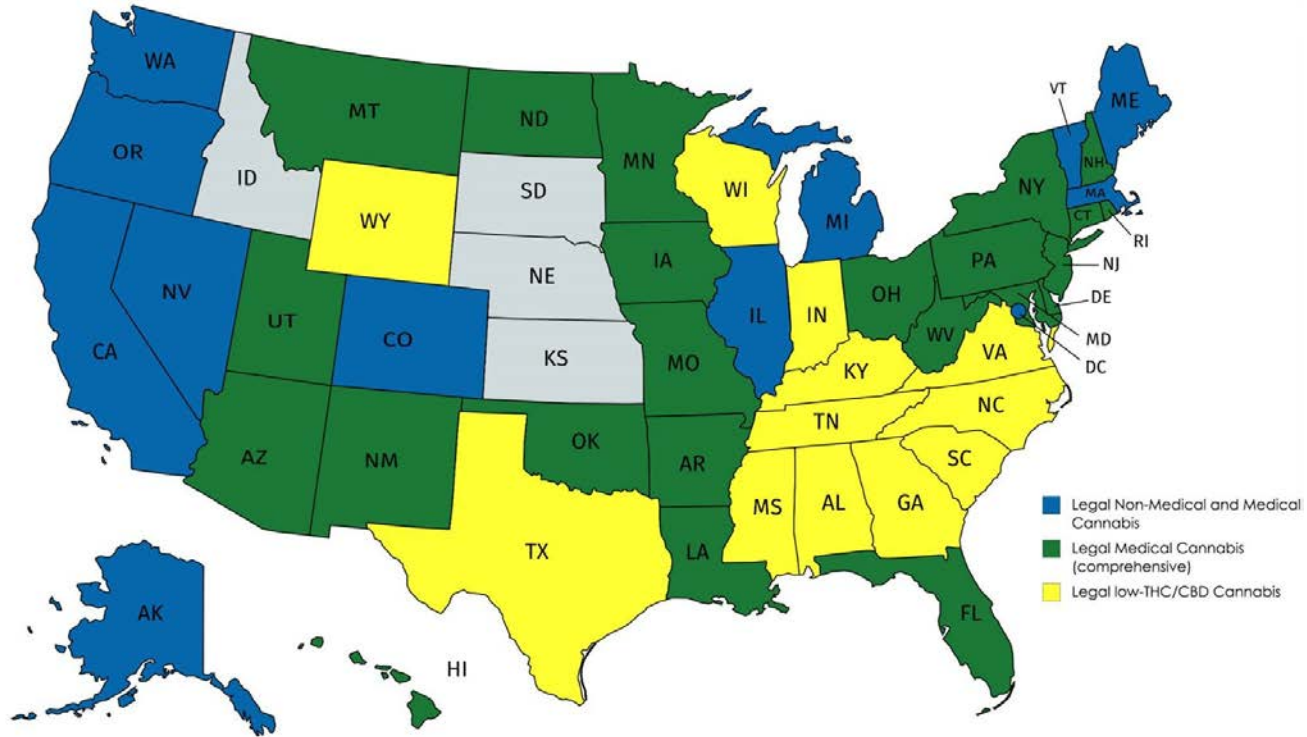
- Elevated international normalized ratios (INRs; ≥ 2.0) or abnormal coagulation profile (e.g., prothrombin time in absence of INR values) for which there is no other clinical explanation, or
- Detection of a long-acting anticoagulant (e.g., brodifacoum) in blood, serum, plasma, or urine, as determined by reference laboratory testing.

Case classification

Cannabis and Cannabinoids 101

- Complicated policy issues for cannabis
 - Still a Schedule I Drug by U.S. Drug Enforcement Administration
 - *“Drugs with no currently accepted medical use and a high potential for abuse”*
 - Increasing number of states legalizing cannabis for medical and/or non-medical use
 - 23 states have comprehensive medical use legalization, but no non-medical use legalization
 - 11 states and the District of Columbia have now legalized non-medical and medical use of cannabis
 - 12 states allow legal use of low-THC/CBD cannabis products

State Cannabis Policies, as of June, 2019



Cannabis and Cannabinoids 101

- Cannabis/cannabinoid use intersects with multiple public health areas
 - Medical care
 - Science
 - Policy
 - Communication
 - Legal issues
 - Economics



Cannabis and Cannabinoids 101

- Growing areas of public health interest and burden:
 - Injury (poisoning, impaired driving, polysubstance use, health impacts of medical cannabis/cannabinoids)
 - Youth initiation and brain development
 - Addiction and mental health
 - Chronic diseases including smoking related health effects (especially secondhand marijuana smoke)
 - Reproductive health with a focus on the pre, peri and postnatal periods (e.g., breastfeeding)

History of Cannabis/Cannabinoid Activities at CDC

- Cannabis and cannabinoid related work at CDC is spread out over several Centers, Institute, and Offices (CIOs)
 - Poisoning, impaired driving, polysubstance use (NCIPC)
 - Smoking, reproductive health, chronic diseases (NCCDPHP)
 - Cannabis biomarker development (NCEH)
 - Population use surveillance indicator work
 - BRFSS (NCCDPHP)
 - YRBS (NCHHSTP/DASH)
 - NHANES (NCHS)

History of Cannabis/Cannabinoid Activities at CDC

- Strategic planning efforts in 2015-16
- Coordinated by senior staff out of the Office of the Deputy Director for Non-Infectious Diseases (DDNID)
- Mission of these strategic planning activities:
 - Identify health outcomes associated with marijuana
 - Prevent known and potential health harms of marijuana
 - Prevent youth initiation and use of marijuana

History of Cannabis/Cannabinoid Activities at CDC

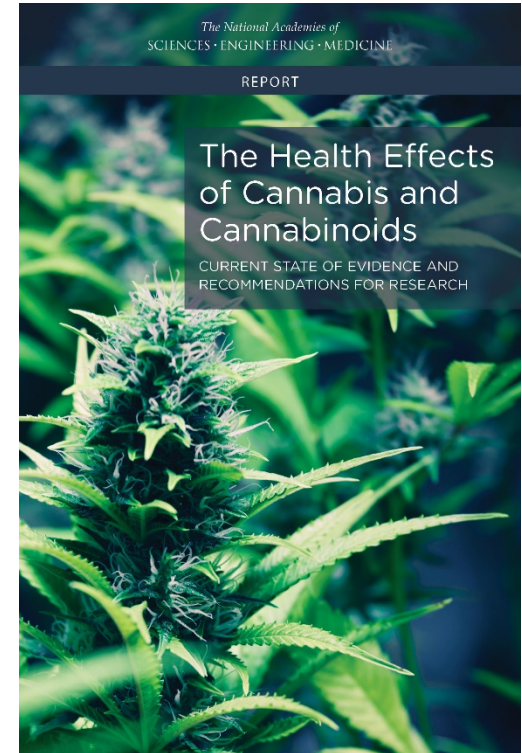
- Early strategic priorities
 - Increase capacity of CDC and state jurisdictions to study public health outcomes
 - Increase capacity to identify, monitor and evaluate policy to prevent cannabis-related harms
 - Create and disseminate evidence-based communication products
 - Assess public health impacts of cannabis and its policies

History of Cannabis/Cannabinoid Activities at CDC

- Products of this work
 - Website, numerous other communication products
 - Capturing some limited data on population use
 - Technical assistance and support for state health departments
 - Cannabis surveillance data collection tools for states
 - State policy tracking for situational awareness
 - The 2017 National Academy of Sciences (NAS) Report on Marijuana
 - Multiple sponsoring organizations

History of Cannabis/Cannabinoid Activities at CDC

- 2017 National Academy of Sciences: The Health Effects of Cannabis and Cannabinoids
 - Evidenced-based conclusions regarding the existing published literature on:
 - Therapeutic use
 - Specific health topics
 - Recommendations for direction of future work



The 2017 NAS Report on Marijuana

- Health topics
 - Cancer
 - Cardio-metabolic risk
 - Respiratory disease
 - Immunity
 - Injury and death
 - Pre, peri, and postnatal exposure to cannabis
 - Psychosocial
 - Mental health
 - Problem cannabis use
 - Cannabis use and abuse of other substances

The 2017 NAS Report on Marijuana

- Brief summary of select key findings regarding therapeutic effects*
 - Cannabis/cannabinoids are effective for treating:
 - Some chronic pain
 - Chemotherapy-induced nausea and vomiting
 - Improving patient-reported multiple sclerosis spasticity symptoms

The 2017 NAS Report on Marijuana

- Brief summary of select key findings regarding health effects*
 - Associations between cannabis use and:
 - Some respiratory problems
 - Increased risk of motor vehicle crashes
 - Lower birth weight of offspring
 - Development of schizophrenia and psychoses
 - Being male and the severity of problem cannabis use
 - Initiating cannabis use at an earlier age is a risk factor for problem cannabis use

New Oversight, Coordination and Leadership Role for NCIPC

- Oversight, coordination and leadership activities transferred to NCIPC's Division of Unintentional Injury Prevention (DUIP) in 2019
- Vision for core roles of NCIPC for cannabis/cannabinoids at the Agency
 - Scientific oversight
 - Subject matter expertise (epidemiological, clinical, toxicological)
 - Communication and health messaging
 - Coordination of activities across CDC CIOs
- *“Speaking with one voice”*

New Oversight, Coordination and Leadership Role for NCIPC

- Cannabis and cannabinoid related work
 - Funding and resource dependent
 - No current specific cannabis/cannabinoid-specific appropriation but current work is anchored to other Injury focus areas
 - Overdose, impaired driving, polysubstance use, possibly youth substance use, other potential areas
 - NCIPC will also continue supporting cross-Agency coordination and communication activities
- Strategic planning in progress to define the NCIPC and CDC mission
 - Several questions to guide BSC input

Engaging the NCIPC Board of Scientific Counselors

1. In which topic areas might NCIPC focus efforts to have the greatest impact on Injury burden?
 - Outcomes such as overdose, impaired driving, polysubstance use, quality of life related to medical use, youth use and associated impacts such as mental health and other substance use?
 - Non-medical vs medical use of cannabis? Both?
2. Where should priorities be placed in the:
 - Short-term, with limited resources?
 - Long-term, should new resources become available?

Engaging the NCIPC Board of Scientific Counselors

3. Investments in which of the following hold the most promise for having the most meaningful impact for Injury and public health practice?
 - Surveillance
 - Laboratory
 - Toxicology
 - Education
 - Evaluation activities (e.g., policy, program, prevention etc...)
 - State technical assistance activities
 - Partnerships (schools, public safety, etc....)
 - Other?

Engaging the NCIPC Board of Scientific Counselors

4. Who are the most important key stakeholders for NCIPC to partner with to achieve critical outcomes?
 - Federal
 - State
 - Non-governmental organizations
 - Foundations
 - Public safety
 - Law enforcement
 - Other?

Thank you!

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For questions please email cdcmarijuanafaq@cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.