



720 South Colorado Blvd.  
Suite 1000-N  
Denver, Colorado 80246-1926  
Phone (303) 756-9090  
Fax (303) 691-9490  
[www.neha.org](http://www.neha.org)

## **Policy Statement on Food Safety as Related to the Consumption of Cannabis-Infused Food Products**

Due to increasing legalization of cannabis for medical and recreational use, the consumption of cannabis-infused food products (CIFPs) has become popular in many communities. Many states are currently enacting laws that permit the inclusion of cannabis or its derivatives in food products. CIFPs raise questions as to how they should be regulated and inspected to protect consumers, considering that one in six Americans get sick from contaminated foods or beverages and 3,000 die each year (Centers for Disease Control and Prevention, 2017). The National Environmental Health Association (NEHA) recommends the adoption of current best practices in food safety by state, local, tribal, and territorial government agencies, along with industry food safety professionals.

The National Environmental Health Association (NEHA) advocates for national, state, local, tribal and territorial policies, regulation, research, and resources that will enhance the ability of environmental health professionals to ensure the production of safe food and protect the public's health. NEHA neither endorses nor repudiates the use of cannabis, its nutritional value or that of synergistic effects. If an authority is considering enactment of this type of regulation, however, NEHA supports the implementation of regulation that contains sufficient regulatory authority to prevent illness from these items, as well the inclusion of the following policies and actions:

- Agreement between all regulatory bodies that identifies the roles and responsibilities for each group and how they will best address and resolve issues.
- All ingredients for food items should be from approved sources. Raw agricultural commodities should be cultivated in accordance with good agricultural, manufacturing, and processing practices, including the inspection of fields or areas where crops are grown.
- CIFPs should be safe for human consumption. All ingredients should be within allowable medical and recreational concentrations for consumption and additional ingredients should not exceed the Code of Federal Regulations tolerance levels.
- Cannabis and its derivatives are a controlled substance and should be handled in foods in a manner similar to pharmaceutical production, including concentration, labeling, and homogeneity of the substance throughout the product.
- The production, processing, packaging, and service of CIFPs should meet the relevant portions of the authority's food laws.
- In accordance with a state's determined concentrations for medical and recreational use, CIFPs should be clearly labeled, individually packaged, and concentrations of cannabinoids should be clearly listed on the label per serving and as a total.

- Authorities should exercise oversight of enforcement of pertinent regulations including the ability for a compulsory recall and to cease production of items that are improperly labeled, adulterated, prepared in an unsafe facility or in an unsafe manner, otherwise pose a harm to human health, or are outside of regulatory agency product specifications.
- Authorities should prohibit the production and sale of CIFPs that appeal to children in terms of product shape, packaging, advertising, etc.

## **Background**

Cannabis is the most widely used illicit drug in the U.S. One study found that adult usage of cannabis increased from 4.1% in 2001 to 9.5% in 2015 (Hasin et al., 2015). In recent years, legalization of cannabis use has expanded. California was the first state to legalize medical cannabis use in 1996, while Colorado and Washington were the first states to legalize the retail sale of cannabis in 2012 (Barrus et al., 2016). In 2018, 29 states and Washington, DC, have legalized either the medicinal or recreational use of cannabis. Several more states have allowed the use of cannabidiol-only or low-tetrahydrocannabinol (THC) products (National Conference of State Legislatures, 2018).

With the legalization of medical and recreational cannabis, the inclusion of cannabis in food products such as baked goods, candies, and beverages has increased. In 2014, Colorado sold over 1.96 million units of medicinal edibles and 2.85 million units of recreational edibles, representing 45% of its total sales (Barrus et al., 2016; Hancock-Allen, Barker, VanDyke, & Holmes, 2015). This percentage does not include the sale of cannabis-infused oils that can be purchased for at-home cooking.

CIFPs have become the choice product for many users as they offer a discrete way to intake cannabis via ingestion as opposed to inhalation (Gourdet, Giombi, Kosa, Wiley, & Cates, 2017). There are also perceptions that ingestion eliminates the toxins and health risks associated with smoking or vaping cannabis (Barrus et al., 2016). Despite this perception, THC has been associated with health effects such as psychosis, anxiety, and depression, as well as heightening underlying or unknown psychiatric disorders (Monte, Zane, & Heard, 2015). In addition, THC can cause severe anxiety attacks and psychotic symptoms at high doses (MacCoun & Mello, 2015).

Cannabis is a Schedule I controlled substance under the jurisdiction of the U.S. Drug Enforcement Administration, and is considered an adulterated food product under the U.S Food and Drug Administration (FDA), and as such, there is no federal regulation of cannabis processing, labeling, or consumption by FDA. For this reason, CIFPs present a serious food safety concern. The lack of consistency across production and labeling pose numerous health threats to users. While 10–30 mg of THC is recommended per serving in Colorado, packages generally contain around 100 mg of THC (Monte, Zane, & Heard, 2015). Products labeled as containing 100 mg of THC have been shown to contain anywhere from 0–146 mg of THC (Monte, Zane, & Heard, 2015). Vandrey and coauthors (2015) found that 83% of CIFP labels differed from actual product content by over 10%. Additionally, they found that only 17% of the products were labeled correctly.

Labelling is particularly important for CIFPs because inhalation and ingestion of cannabis present different effects over different time periods that many users might not fully understand. In short, inhalation exhibits initial effects within minutes, whereas the initial effects of CIFPs are not felt for 30–90 minutes (Barrus et al., 2016). Depending on the weight, metabolism, gender, and eating habits of the user, effects might be felt at different rates and could lead users to ingest higher than recommended doses (MacCoun & Mello, 2015). As these products can look like regular candies, they can pose a risk to children. Colorado,

among other states, has enacted policies to regulate the sale of CIFPs that resemble candies that might be appealing to children.

Finally, the lack of federal oversight means that testing of CIFPs for contaminants, pesticides, or microbes such as *E. coli* or *Salmonella* varies by state (Gourdet et al., 2017). Limited research has been conducted on the pesticides used in cannabis cultivation, although Colorado regulatory authorities have issued numerous recalls due to pesticide contamination (Gourdet et al., 2017). In addition, storage conditions of CIFPs could potentially affect the chemical makeup and safety of the food product (Gourdet et al., 2017). Moving forward, it is essential for states to regulate the food safety of CIFPs to ensure consumer safety.

## Justification

The legalization of cannabis and the availability of CIFPs are potentially related to spikes in calls to poison control centers and emergency department visits regarding child exposures. These include:

- The number of cases reported to the National Poison Data System regarding unintentional exposure to CIFPs in children increased from 2005 to 2011. States that legalized cannabis saw a 30.3% increase in calls per year, whereas states undergoing the transition to legalize cannabis saw a 11.5% increase in calls and states without legalized cannabis showed a 1.5% increase in calls (Barrus et al., 2016).
- Ingestion of CIFPs was cited as the cause of a 2.4% increase in Colorado emergency department room visits after the legalization of cannabis. Emergency department room visits related to CIFP ingestion in children almost doubled from 2013–2014 with an increase from 85 to 168 per 10,000 visits (Barrus et al., 2016).

Food safety concerns over CFIPs have also caused an increase in product recalls due to unapproved pesticides and other public health concerns, such as the grade of oils used and different ingredients allowed by various states. These include:

- **Arizona:** In February 2017, a dispensary in Coconino County voluntarily recalled CIFPs for not meeting processing and packaging requirements (Gaither et al., 2018; Suerth, 2017).
- **Colorado:** In July 2014, Denver’s first recall of CIFPs occurred because they were created in an unapproved environment. From September 2015–November 2017, the Colorado Department of Revenue and the Denver Department of Public Health and Environment (DDPHE) issued recalls on CIFPs, as well as other cannabis products, due to unapproved pesticides such as myclobutanil, avermectin, and other unknown pesticides. In August 2017 and December 2017, DDPHE recalled candies and beverages due to the presence of nonfood grade essential oils that could present a health risk (Baca, 2017).
- **Oregon:** In March 2017, the Oregon Liquor Control Commission issued a recall after CIFPs were found to have pesticide residue levels greater than the state approved limit (Mortenson, 2017).

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### **NEHA Committee Members**

Melissa Bartshe, Intern, School of Community Health Sciences, University of Nevada, Las Vegas

Eric Bradley, MPH, REHS, CP-FS, DAAS, Environmental Health Coordinator, Scott County (IA) Health Department

Shane Green, Food Service Consultant, Food & Dairy Division, Michigan Department of Agriculture and Rural Development

Jack Guzewich, Food Safety Consultant

Donald Howell, Director, Brand Standards & Quality Assurance, Huddle House Restaurants

Kara Lavaux, CP-FS, Food Safety and Cannabis Program Supervisor, Public Health Inspection Division, Denver Department of Public Health and Environment

Joe Lillis, CP-FS, Managing Partner, CannWell Advisors

Adopted by the NEHA Board of Directors: April 30, 2018  
Sunsets: April 30, 2021