



Marijuana Use and Neurological, Cognitive and Mental Health Findings Summary

Retail Marijuana Public Health Advisory Committee

The Colorado Department of Public Health and Environment (CDPHE) was assigned the responsibility to appoint a panel of health care professionals with expertise in cannabinoid physiology to monitor the emerging science and medical information relevant to the health effects associated with marijuana use (C.R.S. Sec. 25-1.5-111). This panel is the Retail Marijuana Public Health Advisory Committee and consists of 13 members who are physicians, scientists, or public health officials. Currently, the committee has members with expertise in drug epidemiology, surveillance epidemiology, medical toxicology, pediatric medicine, psychiatry, drug addiction, pharmacology, pulmonary medicine, neonatal and perinatal medicine, and public health prevention. The duties of this advisory committee are to:

- Review the scientific literature currently available on health effects of marijuana use.
- Judge and openly discuss the science using expert medical opinion.
- Come to consensus on population health effects of marijuana use based on current science.
- Come to consensus on translation of the science into public health messages.
- Recommend public health related policies based on the current science and expert medical discussion.
- Recommend public health surveillance activities to address any gaps in knowledge discovered.
- Identify and prioritize gaps in science important to public health.

More information on the topics and schedule of this advisory committee can be viewed at: <https://www.colorado.gov/pacific/cdphe/retail-marijuana-public-health-advisory-committee>

This document provides an overview of the major findings of the Retail Marijuana Public Health Advisory Committee. This overview represents information that has been officially approved by the committee. A full report on this and other topics will be available no later than January 31, 2015.



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Evidence Statements

Evidence statements are based on systematic scientific literature reviews performed by CDPHE staff with oversight and approval by the Retail Marijuana Public Health Advisory Committee.

1. We found substantial evidence that adults who use marijuana heavily are more likely than non-users to have memory impairments for at least seven days after last using.
2. We found substantial evidence that THC intoxication can cause acute psychotic symptoms, which are worse with higher doses.
3. We found moderate evidence that adults who use marijuana regularly are more likely than non-users to have symptoms or diagnosis of depression.
4. We found limited evidence that adults who use marijuana regularly are more likely than non-users to have impaired decision making for up to two days without use.
5. We found limited evidence that adults who use marijuana are more likely than non-users to have symptoms or diagnosis of anxiety.
6. We found limited evidence that adults who use marijuana are more likely than non-users to have symptoms or diagnosis of psychosis, and increasing likelihood with greater marijuana use.
7. We found mixed evidence for whether or not adults who use marijuana are more likely than non-users to have impaired executive functioning, after not using for a short time.
8. We found mixed evidence for whether or not adults who use marijuana heavily are more likely than non-users to have impairment of memory or other cognitive functions for at least 28 days after last use.



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Public Health Statements

Public health statements are plain language translations of the major findings (Evidence Statements) from the systematic literature reviews. These statements have been officially approved by the Retail Marijuana Public Health Advisory Committee.

1. Heavy use of marijuana is associated with impaired memory, persisting a week or more after quitting.
2. Regular use of marijuana is associated with depression and may be associated with other mental health disorders like anxiety and psychosis.
3. Use of THC, a component of marijuana, can cause acute psychotic symptoms during intoxication.

Public Health Recommendations

Public health recommendations have been suggested and approved by the Retail Marijuana Public Health Advisory Committee with the goals of: 1) Improving knowledge regarding population-based health effects of retail marijuana use, 2) Developing and targeting public health education and prevention strategies for high-risk sub populations.

Data Quality Issues:

- Standardization of data collection on dose, amount, frequency and method of marijuana use in medical records and other surveillance data sources.
- Specify marijuana use as separate from other drug use in medical records and other surveillance data sources.

Surveillance:

- Population based monitoring of mental health conditions through surveys such as the Behavioral Risk Factor Surveillance System (BRFSS)
- Monitoring marijuana-related hospitalizations and emergency department (ED) visits.
- Monitoring marijuana addiction treatment rates.

Education

- Public education.



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Research Gaps

Research gaps are suggested and approved by the Retail Marijuana Public Health Advisory Committee to identify important gaps in the scientific literature that may impact public health policies and prevention strategies.

1. Studies incorporating number of times used rather than number of days used.
2. More on duration of impact (after various lengths of abstinence).
3. Effects of higher potency marijuana, especially dabbing (high dose rate).
4. Effects of different methods of use.
5. Effects of other cannabinoids, especially cannabidiol (CBD).