

Monitoring Health Concerns Related to Marijuana in Colorado: 2022 Summary

More information available at marijuanahealthreport.colorado.gov





COLORADO Department of Public Health & Environment

Introduction

When Colorado became one of the first states in the nation to open retail marijuana stores in 2014, the Colorado General Assembly mandated that the Colorado Department of Public Health and Environment (CDPHE) monitor the scientific data and medical literature on marijuana use patterns and health effects associated with marijuana use.

Every two years, CDPHE is required per §25-1.5-110, C.R.S to present a report of this information to the Colorado State Board of Health, Colorado Department of Revenue, and Colorado General Assembly. In 2018, CDPHE published the website <u>marijuanahealthreport.colorado.gov</u> to serve as this "report." The website is updated on a quarterly basis to share the latest scientific findings. This document serves as the executive summary of the information contained on the website.

The information presented on the website and in this summary are the products of the Retail Marijuana Public Health Advisory Committee and Marijuana Health Monitoring Section at CDPHE. All information and statements contained in this summary have been reviewed and approved by the Retail Marijuana Public Health Advisory Committee.

For more information, visit <u>marijuanahealthreport.colorado.gov</u> or email <u>marijuanainfo@state.co.us</u>.

BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM 2021 Among Colorado adults 18+:



19% of adults reported consuming marijuana within the past month.

 Colorado's average has been historically higher compared to U.S. estimates since before legalization.



Past month marijuana consumption was significantly higher among adults that were:

- Age 18-34 years
- Male 22.3% (female 15.8%)
- LGB and other sexual orientation



3.3% of adults drove after marijuana use.

Stable trend since 2014

Past month consumption among adults was only slightly higher than the state average in regions:

- Denver-Boulder (20.1%)
- Northwest (21%)
- Southwest (21.3%)





Among adult marijuana consumers (age 18+) in Colorado:



52.3% of adult consumers used marijuana daily or near daily.



Smoking marijuana remains the most prevalent method of use among adult consumers.

- 71.5% of adult consumers reported smoking marijuana in 2021, a decrease from 82.9% in 2014 when retail marijuana became available.
- Eating or drinking marijuana increased from 35.6% in 2014 to 46.8% in 2021 among adult consumers.



45.5% of adult consumers use multiple methods to consume marijuana.

- 17.5% of adult consumers reported driving after marijuana use.
 - A stable trend since 2014

Among adult consumers, four out of five thought daily marijuana use had no risk or slight risk.



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HEALTHY KIDS COLORADO SURVEY 2021 Among Colorado high school students:



13.3% of youth used marijuana within the past month.

- Decrease from 20.6% in 2019
- Past 30-day use of all substances, alcohol, vapor products (tobacco), marijuana, and cigarettes decreased significantly from 2019-2021.





8.8% of youth used THC concentrates, hash oil, or waxes in the past month.



Driving after using marijuana decreased (among youth who drove).

Dropping from 11.2% in 2019 to 5.5% in 2021

40.3% of youth believe it would be easy to get marijuana if they wanted.

Decrease from 51.4% in 2019



Increase from 50.1% in 2019

Among the 13.3% of high school students who used marijuana in the past month:



- Nearly two out of three current users reported using marijuana less than 10 times.
 - A stable trend since 2013



Vaping among current users increased

• Up from 10.6% in 2019 to 15.7% in 2021



22.1% of current users dabbed marijuana.

A stable trend since 2019



59.2% of current users said they used THC concentrates, hash oil, or waxes.



Current use highest among:

- Bisexual students
- 11th- and 12th-grade students



Current use was higher than the state average in health service regions 17 (21.4%), 9 (19.9%), and 7 (19.6%). Percentage (%)

- Region 17: Clear Creek, Gilpin, Park, and Teller counties
- **Region 9:** Archuleta, Dolores, La Plata, Montezuma, and San Juan counties
- Region 7: Pueblo County



*Regional estimates suppressed due to low response rate or total sample size < 30

30.0%

0.0%





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PREGNANCY RISK ASSESSMENT MONITORING SYSTEM 2020 Among Colorado mothers who recently gave birth:

Marijuana use before, during, or after (postpartum) pregnancy remains unchanged.



6.8% of new mothers reported using marijuana during pregnancy.

- Decrease from 8.2% in 2019
- 6.2% consumed during the first three months (first trimester)
- 2.3% consumed during the last three months (third trimester)

Marijuana use during pregnancy is:

- Less prevalent than alcohol use (15.4%)
- More prevalent than e-cigarette use (1.6%)
- About the same as cigarette use (4.4%)

3.7% of new mothers used marijuana during the first three months postpartum and currently breastfeeding.

• Decrease from 4.7% in 2019

Marijuana use during pregnancy remains highest among mothers who:

- Are younger, age 20-24
- Have less education (12 years or less)
- Had an unintended pregnancy





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Scientific Literature Review on Health Effects of Marijuana Use/Consumption Adolescents and young adults





Monitoring Health Concerns Related to Marijuana

Department of Public Health & Environmen

The relationships between adolescent and young adult marijuana use and cognitive abilities, academic performance, mental health, and future substance use.

Findings

Adolescents and young adults who use marijuana are more likely to experience psychotic symptoms as adults (such as hallucinations, paranoia, and delusional beliefs), future psychotic disorders (such as schizophrenia) and suicidal thoughts or attempting suicide. Evidence shows that adolescents who use marijuana are more likely to not graduate high school or attain a college degree, can become addicted to marijuana, and that treatment for marijuana addiction can decrease use and dependence.

Research recommendations

Promote and develop public education for adolescents, young adults, parents and caregivers, using optimal methods including social media. Focus should be on accurate information regarding cannabis use disorder and treatment for it, as well as the risk of developing future mental health symptoms and disorders, especially when using high THC concentration products. It is important to improve data quality by systematically collecting information on the frequency, amount, THC content, and method of marijuana use/consumption in both public health surveillance and medical care settings.



Public health statements

Benefits of quitting	Adolescents and young adults who quit marijuana use have a lower risk of developing mental health disorders than those who continue to use.	
	There are treatments for marijuana addiction that can reduce use and dependence.	
Cognitive and academic	Marijuana use by adolescents might not be associated with changes in future IQ scores.	$\overline{}$
	Weekly or more frequent marijuana use by adolescents and young adults is associated with impaired learning, memory, math and reading achievement, even 28 days after last use. These impairments increase with more frequent marijuana use.	
	Weekly or more frequent marijuana use by adolescents and young adults is associated with not attaining a college degree.	
	Weekly or more frequent marijuana use by adolescents is strongly associated with failure to graduate from high school.	۲
Mental health effects	Daily or near-daily marijuana use by adolescents and young adults is strongly associated with developing a psychotic disorder such as schizophrenia in adulthood.	
	Marijuana use by adolescents and young adults is associated with an increased likelihood of developing suicidal thoughts or attempting suicide, compared to those who do not use.	
	Marijuana use by adolescents and young adults is strongly associated with developing psychotic symptoms in adulthood, such as hallucinations, paranoia and delusional beliefs. The risk is higher with more frequent use and among those who start using marijuana at a younger age.	۲
Substance use, abuse and	Marijuana use by adolescents and young adults - even less-than-weekly use - is strongly associated with future high-risk use of alcohol, tobacco, and other drugs like cocaine, ecstasy, opioids and methamphetamine.	
addiction	Some marijuana users become addicted to marijuana. Starting marijuana use during adolescence or young adulthood is strongly associated with future marijuana addiction.	
THC concentrates (high % THC)	High THC concentration marijuana use by adolescents and young adults is associated with continued marijuana use.	
	High THC concentration marijuana use by adolescents and young adults is associated with development of future mental health symptoms and disorders.	

Substantial Robust scientific findings with no credible opposing scientific evidence	Moderate Strong scientific findings with some limitations	Limited Modest scientific findings with significant limitations	Mixed Supporting and opposing scientific findings	O Insufficient Not sufficiently studied	

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Relationship between marijuana use and cancer, including respiratory and non-respiratory-tract cancers.

Findings

Marijuana smoke, firsthand and secondhand, contains many of the same cancer-causing chemicals as tobacco smoke. Daily or near-daily marijuana smoking is strongly associated with pre-malignant lesions in the airways, but an association appears unlikely between less-frequent marijuana smoking and lung cancer. Men who use marijuana are more likely to develop nonseminoma testicular cancer than those who don't.

Research recommendations

Educate the public on the potential for additive risks to lung health related to smoking both tobacco and marijuana. Conduct studies assessing risk of lung, oropharyngeal, and non-respiratory-tract cancers related to marijuana use, including non-tobacco smokers. Improve documentation of marijuana use history in individuals diagnosed with cancer.



Public health statements			
Cancer and pre-cancerous lesions	An association appears unlikely between marijuana smoking and lung cancer when used less than a joint per day for 10 years.		
	Daily or near-daily marijuana smoking is strongly associated with pre-malignant lesions that may lead to cancer in the airways of your lungs.	\bigcirc	
	There is conflicting research on whether or not smoking marijuana more than a joint per day for 10 years is associated with lung cancer.	X	
Chemical content of marijuana smoke or vapor	Marijuana smoke from water pipes or bongs may contain more cancer-causing chemicals than smoke from a joint.		
	Marijuana smoke, both firsthand and secondhand, contains many of the same cancer-causing chemicals as tobacco smoke.	\bigcirc	
	Vaporized marijuana may contain fewer cancer-causing chemicals than smoke from a joint.		
Genitourinary cancer	Marijuana use is associated with increased risk of nonseminoma testicular cancer.		
	Marijuana use may be associated with increased risk of prostate cancer.	\bigcirc	

Substantial	Moderate	🔵 Limited	🔀 Mixed	O Insufficient	
Robust scientific findings with no credible opposing scientific evidence	Strong scientific findings with some limitations	Modest scientific findings with significant limitations	Supporting and opposing scientific findings	Not sufficiently studied	

How cannabis use affects the cardiovascular system or development of cardiovascular outcomes.

Findings

Marijuana users under the age of 55 have an increased risk of stroke, compared to those not using marijuana. Short term marijuana use might increase the risk of heart attack in adults and marijuana use in general might not increase risk of death related to a cardiovascular event.

Research recommendations

Promote public education about the potential cardiovascular risks of cannabis use. Conduct studies assessing the association between marijuana use and acute and chronic cardiovascular outcomes with improved data collection related to marijuana use patterns. Emergency department and hospitalization data should be monitored and analyzed for possible associations between marijuana use and cardiovascular outcomes.



Public health statements				
Cardiovascular	ular Acute marijuana use may be associated with increased risk of heart attack among adults.			
	Marijuana use is associated with increased risk of stroke in individuals younger than 55 years of age.			
	Marijuana use might not be associated with changes in the risk of death related to a cardiovascular event.			

🔵 Limited	🔀 Mixed	🔘 Insufficient	
fic findings with Modest scientific findings ons with significant limitations	Supporting and opposing scientific findings	Not sufficiently studied	
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Scientific Literature Review on Health Effects of Marijuana Use/Consumption Dose and drug interactions

This topic covers any possible interaction between marijuana use and prescription drugs (including opioids), how marijuana dosing impacts the subjective effects felt, and how different forms of marijuana impact the objective effects.

Findings

Research recommendations

Caution should be taken when consuming marijuana while taking prescription medications as some have known interactions and others may have interactions that have yet to be identified. Smoking or vaporizing 10 mg of THC or more, or consuming an edible with more than 15 mg of THC, can lead to blood levels which can be used to support a conviction for driving under the influence. However, typical secondhand exposure to marijuana smoke is unlikely to result in a failed drug test. Consuming an edible marijuana product can take up to 4 hours to reach full effects and reach maximum blood levels of THC, so consumers should use caution when consuming another THC product and refrain from driving or other safety-sensitive activities.

Research should identify interactions between marijuana and prescription drugs, possible biomarkers of cannabinoids to assess exposure, measure the impacts of secondhand smoke exposures, and identify possible differences in health effects from different methods of marijuana use. Educate the public on possible interactions when using marijuana with medications, potential secondhand smoke effects, THC concentration and subsequent risks of mental health effects or use disorder, and encourage safe and responsible use. Monitor data on THC content of products in Colorado and by-products from different methods of maijuana use.

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Public healt	:h statements	
Drug-drug interactions	Use caution when taking medications and marijuana at the same time. Some medications have known interactions with marijuana, and others may have interactions that have not yet been identified.	
Marijuana and opioids	Legalization of medical marijuana may be associated with a reduction in opioid overdose hospitalizations and deaths; however, this reduction may be due to other policy and social changes that have occurred in states with legalized medical marijuana.	\bigcirc
	Marijuana use may be associated with a decrease in opioid use by chronic pain patients.	\bigcirc
	There is conflicting research on whether or not marijuana use is associated with a decrease in opioid use by individuals with a history of opioid addiction treatment or injection drug use.	X
Secondhand (passive) exposure	Extreme secondhand exposure to marijuana smoke (such as one hour of exposure in an unventilated space), may be associated with psychomotor impairment and an increase in heart rate.	
	Typical secondhand exposure to marijuana smoke is unlikely to result in a failed workplace urine test or a failed driving impairment blood test.	\bigcirc
THC levels resulting from	Inhaling THC concentrate may be associated with higher blood levels of THC when compared to smoking marijuana flower.	
	It takes up to 4 hours after consuming an edible marijuana product to reach maximum bloodlevels of THC and feel the full effects. It is important to delay consuming another THC-containing product or engaging in safety-sensitive activities like driving until the effects from the first edible serving are known, especially for new or less-than-weekly users.	
	Smoking or vaporizing more than 10mg THC, or consuming an edible marijuana product with more than 15mg THC can lead to a blood THC level above 5ng/mL, which can be used to support a conviction for driving under the influence.	\bigcirc

Substantial	Moderate	🔵 Limited	🔀 Mixed	O Insufficient	Drug interaction study
Robust scientific findings with no credible opposing scientific evidence	Strong scientific findings with some limitations	Modest scientific findings with significant limitations	Supporting and opposing scientific findings	Not sufficiently studied	Potential drug interactions with marijuana



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Related to Marijuana

Monitoring Health Concerns



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How various marijuana products, patterns of marijuana use, and timing of use impact driving ability and safety.

Findings

Evidence supports a positive relationship between blood THC levels and motor vehicle crash risk and that blood THC levels of marijuana impaired drivers are higher now than in the past. Acute marijuana use and combining marijuana use with alcohol increase the risk of motor vehicle crash. Caution should be used when driving after using any form of marijuana product; wait at least 6 hours after smoking 35mg THC and 8 hours after eating or drinking marijuana containing 18mg or less THC. Especially for less-than-weekly users as consuming 10mg or more of THC is strongly associated with impairment that affects your ability to drive, bike, or perform other safety-sensitive activities.

Research recommendations

Educate the public on marijuana-related impairment, including riding with impaired drivers, minimum time to wait before driving after using various products, and on the combined effects and increased risk when using marijuana with alcohol or other substances. Increase understanding of marijuana impairment based on tolerance and method of use and how saliva, urine, and blood levels of marijuana biomarkers relate to impairment. Conduct research to improve road-side marijuana testing and identify reliable methods of assessing tolerance to marijuana.



Public healt	h statements	
Combined marijuana and alcohol use	Using alcohol and marijuana together increases impairment and the risk of a motor vehicle crash more than using either substance alone.	\bigcirc
Impairment and crash risk	Driving soon after using marijuana increases the risk of a motor vehicle crash.	\bigcirc
	The standard serving size for a marijuana edible is 10 mg. For less-than-weekly marijuana users, eating or drinking marijuana containing 10mg or more of THC is likely to cause impairment that affects your ability to drive, bike, or perform other safety-sensitive activities.	\bigcirc
	The typical marijuana cigarette or joint in Colorado contains approximately 0.5 grams of marijuana, and the THC content in marijuana ranges from 12-23% THC; therefore, a typical joint contains between 60-115 mg THC. For less-than-weekly marijuana users, smoking marijuana containing 10mg or more of THC is likely to cause impairment that affects your ability to drive, bike, or perform other safety-sensitive activities.	\bigcirc
Time to wait before driving	The standard serving size for a marijuana edible is 10 mg. Wait at least 8 hours after eating or drinking marijuana containing less than 18 mg THC before driving, biking, or performing other safety-sensitive activities. If you have consumed more than 18 mg, wait longer.	\bigcirc
	The typical marijuana cigarette or joint in Colorado contains approximately 0.5 grams of marijuana, and the THC content in marijuana ranges from 12-23% THC; therefore, a typical joint contains between 60-115 mg THC. Wait at least 6 hours after smoking marijuana containing less than 35 mg THC before driving, biking, or performing other safety-sensitive activities. If you have smoked more than 35 mg, wait longer.	\bigcirc

Substantial	🖱 Moderate	🥃 Limited	🔀 Mixed	O Insufficient	
Robust scientific findings with no credible opposing scientific evidence	Strong scientific findings with some limitations	Modest scientific findings with significant limitations	Supporting and opposing scientific findings	Not sufficiently studied	

<u> https://marijuanahealthreport.colorado.gov/</u>



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Relationships between marijuana use and cannabinoid hyperemesis syndrome and reproductive effects in both males and females,

Findings

Research recommendations

Using marijuana daily or near-daily for a long time is associated with cannabinoid hyperemesis syndrome, a type of severe recurrent vomiting. Scientific research is currently mixed or limited for an association between marijuana use and female and male fertility, respectively.

Educate the public about the potential for Cannabinoid Hyperemesis Syndrome (CHS) with long-time daily or near-daily marijuana use. Improve understanding of CHS pathophysiology and diagnostic criteria, study methods of CHS treatment, including effectiveness of marijuana cessation, and improve documentation of marijuana use history during hospitalizations related to CHS. High quality studies measuring reproductive function related to marijuana use.



Public health statements			
Cannabinoid Hyperemesis Syndrome	Long-time, daily or near-daily marijuana use is associated with severe recurrent vomiting (cannabinoid hyperemesis syndrome).		
	Marijuana users who experience cyclic vomiting may find relief by stopping marijuana use.	\bigcirc	

Substantial	Moderate	🔵 Limited	🔀 Mixed	O Insufficient	
Robust scientific findings with no credible opposing scientific evidence	Strong scientific findings with some limitations	Modest scientific findings with significant limitations	Supporting and opposing scientific findings	Not sufficiently studied	



Department of Public Health & Environmen

How marijuana use affects various types of injury; including physical dating violence, workplace, and other non-driving related injuries.

Findings

Research recommendations

Current evidence does not support a relationship between marijuana use and physical dating violence perpetration among young adult men or women. Electronic or vaping devices can explode and extracting hash oil with flammable substances can cause severe burns, both causing serious injury. Research is conflicting for whether or not marijuana use increases risk of workplace injuries or other non-driving related injuries. Educate the public on marijuana-related impairment, risks of recreational and workplace injury, potential hazards of exploding electronic smoking devices, and hazards of home hash oil extraction. Accurately measure timing of marijuana use and THC blood testing in recreational, workplace, or any other injury requiring medical attention. It is important to use a better quality measure of marijuana use exposure, rather than self-report, for studies of impairment and accidents, and to report measures separately by age group, gender, and other characteristics important to findings.



Public health statements			
Burns	Electronic smoking or vaporizing devices can explode, causing serious injury.	*	
	Extracting hash oil yourself with flammable substances can cause severe burns requiring hospitalization.	\ast	
Physical dating violence	Marijuana use by adolescent boys may be associated with a higher risk of being the victim of physical violence from their dating partners.	\bigcirc	
	Marijuana use by adolescent girls may be associated with a higher risk of committing physical violence against their dating partners.	\bigcirc	
Workplace, recreation, other non-driving injury	There is conflicting evidence for whether or not marijuana use is associated with an increased risk of non-driving related workplace injuries.	X	
	There is conflicting research on whether or not marijuana use combined with alcohol increases the risk of other non-driving related injury among adults.	X	
	There is conflicting research on whether or not marijuana use increases the risk of other non-driving related injury among adults.	X	

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https://marijuanahealthreport.colorado.gov/



COLORADO Monitoring Health Concerns Related to Marijuana

Department of Public Health & Environment

THC, a main component of marijuana, is psychoactive; so the relationship between marijuana use and neurological, cognitive, and mental health effects in adults, must be examined.

Findings

Research recommendations

Marijuana users can become addicted to marijuana, which is also referred to as cannabis use disorder. However, there are treatments for marijuana addiction that can reduce use and dependence. THC can cause acute psychotic symptoms during intoxication and these symptoms are worse with higher doses. Daily or near-daily marijuana users are more likely to experience impaired memory lasting a week or more after quitting and withdrawal symptoms when abstaining. Using marijuana with high THC concentration and using marijuana daily or near-daily can lead to development of psychotic disorders such as schizophrenia.

Educate the public on potential cognitive and mental health effects of marijuana use, including accurate information about cannabis use disorder. Continue to monitor adult patterns of use through surveys and population-based monitoring of mental health conditions, marijuana-related hospitalizations and emergency department visits. Increase understanding of the effects of THC content, different methods of use, and other cannabinoids on mental health outcomes. Investigate temporality of mental health and cognitive effects of marijuana use and how duration of marijuana use impacts these outcomes.



Public health statements				
Cognitive effects	Daily or near-daily use of marijuana is strongly associated with impaired memory, persisting a week or more after quitting.			
Mental health effects	Daily or near-daily use of marijuana is strongly associated with development of psychotic disorders such as schizophrenia.	\bigcirc		
	THC, a component of marijuana, can cause acute psychotic symptoms such as hallucinations, paranoia, delusional beliefs, and feeling emotionally unresponsive during intoxication. These symptoms are worse with higher doses.			
Substance use, abuse and addiction	Daily or near-daily marijuana users can experience withdrawal symptoms when abstaining.	\bigcirc		
	Marijuana users can become addicted to marijuana.	\bigcirc		
	There are treatments for marijuana addiction that can reduce use and dependence.	\bigcirc		

Substantial	Moderate	imited	🔀 Mixed	O Insufficient	
Robust scientific findings with no credible opposing scientific evidence	Strong scientific findings with some limitations	Modest scientific findings with significant limitations	Supporting and opposing scientific findings	Not sufficiently studied	



Department of Public Health & Environment

Relationship between maternal marijuana use in the perinatal period and various birth and child outcomes.

Findings

Biological evidence has shown THC is passed through the placenta and breast milk of women who use marijuana during pregnancy and breastfeeding, respectively. Children born to mothers who used marijuana during pregnancy are more likely to be born small for gestational age, experience attention problems and reduced cognitive function in childhood, and have decreased academic ability including reduced IQ scores. There is currently no known safe amount of marijuana use during pregnancy and negative effects have been observed regardless of when marijuana is used during pregnancy.

Research recommendations

Educate pregnant women and healthcare providers on known risks of marijuana use during pregnancy and breastfeeding. Increase the number of studies on the effects of marijuana use, including other cannabinoids such as CBD, during pregnancy and breastfeeding on birth outcomes and developmental outcomes months or years after birth. Study the effects of varying levels of THC content and method of marijuana use on health effects of exposed offspring. Include reasoning behind a subject's marijuana use during pregnancy and breastfeeding in research. Monitor prevalence of marijuana use by pregnancy and breastfeeding women, reasons for use and perception of risks, including breakdowns by age and other demographics. Enhance surveillance for birth outcomes of concern.



Public health statements				
Passage of THC through the placenta	THC can pass from mother to the unborn child through the placenta. The unborn child is exposed to THC used by the mother during pregnancy.	*		
Preterm delivery or abnormal birthweight Maternal use of marijuana during pregnancy is strongly associated with infants being born small for gestational age (birth weight less than 10th percentile for gestational age).				
Effects of prenatal	Marijuana use during pregnancy may be associated with increased depression symptoms and delinquent behaviors in exposed offspring.	\bigcirc		
exposed offspring	Maternal use of marijuana during pregnancy is associated with decreased academic ability in exposed offspring. This effect may not appear until adolescence.			
	Maternal use of marijuana during pregnancy is associated with negative effects on exposed offspring, including decreased cognitive function and attention. These effects may not appear until adolescence.			
	Maternal use of marijuana during pregnancy may be associated with negative effects on exposed offspring, including decreased growth.	\bigcirc		
Birth defects	Marijuana use during pregnancy may be associated with an increased risk of heart defects (isolated simple ventricular septal defects) in exposed offspring.	\bigcirc		
Mental health and substance use	Marijuana use during pregnancy may be associated with increased depression symptoms and delinquent behaviors in exposed offspring.	\bigcirc		
Presence of THC in breast milk THC can be passed from the mother's breast milk, potentially affecting the baby.		\ast		

 Substantial Moderate Stong scientific findings with no credible opposing scientific evidence Supporting and opposing scientific findings Supporting and opposing scientific findings Supporting and opposing scientific findings Supporting and opposing Supporting and opposing	ing an outcome
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Respiratory effects of marijuana smoking or vaporizing and how patterns of marijuana use impact respiratory health outcomes.

Findings

Research recommendations

Daily or near-daily marijuana smokers are more likely to experience chronic bronchitis, including cough, sputum production, and wheezing. One-time marijuana use improves immediate, short-term (1 to 6 hours) airflow in the lungs.*

Educate the public on marijuana use and chronic respiratory diseases, that marijuana smoking is not a long-term treatment for asthma, and the potential additive risks to lung health when smoking both tobacco and marijuana. Increase understanding of marijuana use, specifically among non-tobacco smokers, related to lung function, COPD, bullous lung disease, and how this changes over time. Research potential respiratory effects of different methods of marijuana use and improve measures to determine cumulative marijuana exposure.



*While these effects have been scientifcally observed, marijuana should not be used to intentionally improve short-term lung airflow.

Public health statements				
Smoked marijuana	Daily or near-daily marijuana smoking is strongly associated with chronic bronchitis, including chronic cough, sputum production and wheezing.			
	Daily or near-daily marijuana smoking may be associated with a specific type of lung damage called bullous lung disease, resulting in a collapsed lung, in individuals younger than 40 years of age.			
	Marijuana smoke may deposit more particulate matter in the lungs per puff compared to tobacco smoke.			
	One-time marijuana use (edible or smoked) is strongly associated with immediate, short-term (1 to 6 hours) improved airflow in the lungs.			
	There is conflicting research on whether or not long-term daily or near-daily marijuana smoking is associated with decreased airflow from the lungs.	X		
Vaporized marijuana	Compared with weekly or daily marijuana smoking, short-term marijuana vaporizing (vaping) may be associated with fewer respiratory symptoms and improved pulmonary function.			



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Impact of child-resistant packaging and increased legal access to marijuana on unintentional pediatric exposures

Findings

poisonings.

Research recommendations

More unintentional marijuana exposures in children occur in states with increased Educate parents and caregivers about keeping marijuana and marijuana products away from children and in child resistant packaging. Evaluate the impact of legal access, however, child-resistant packaging reduces unintentional pediatric various laws, beliefs, and regulations on unintentional marijuana exposures and data collection should include amount, type, and THC content of marijuana. Continue to monitor pediatric emergency department visits, hospitalizations, and poison center calls resulting from unintentional marijuana exposure.



Public health statements			
Packaging	While little data are available for marijuana, evidence indicates that child resistant packaging prevents exposure to children from potentially harmful substances.		
Pediatric Exposure	Legal marijuana access is strongly associated with increased numbers of unintentional exposures in children which can lead to hospitalizations.	\bigcirc	

Substantial
Robust scientific findings with
no credible opposing scientific evidence

Moderate Strong scientific findings with some limitations

🔵 Limited Modest scientific findings with significant limitations

对 Mixed Supporting and opposing scientific findings Insufficient Not sufficiently studied



COLORADO HOSPITAL ASSOCIATION 2021 Emergency Department (ED) discharges with marijuana-related billing codes



ED discharges with any marijuana-related billing code have decreased to the lowest rate since 2016.

- 672.0 per 100,000 in 2021 compared to 1,065.1 in 2016
- Although decreased, rates remained highest among:
 - o Ages 18-25 years
 - o Males
 - o Black and Unknown race/ethnicity

Rate of children under age 6 with a marijuanarelated poisoning billing code remains stable.

75.9 per 100,000 ED discharges

The rate of ED discharges with any marijuana-related billing code were significantly higher than the state average of 6.7 per 1,000 discharges in the following counties:



- Phillips •
- Gunnison
 - Otero
- Crowley
 - Rio Blanco
- Lincoln
- Pueblo
- Las
 - Animas
- Moffat
 - Boulder



COLORADO HOSPITAL ASSOCIATION 2021 Hospital discharges with marijuana-related billing codes



Hospital discharges with marijuana-related billing codes have decreased to the lowest rate since 2016.

- 3,258.8 per 100,000 discharges in 2021 compared to 3,516.6 in 2016
- Although decreased, rates remained highest among:
 - o Ages 18-25 years
 - o Black
 - o Males



- 1,082.0 per 100,000 hospital discharges in 2021 compared to 568.9 in 2019
- Rate of billing codes for newborns affected by maternal marijuana use increased from 2019 to 2020, but remained stable in 2021.
 - 158.1 per 100,000 hospital discharges in 2021
 - Code does not mean marijuana caused a health event
 - Affected does not mean a birth defect or withdrawal symptoms

The rate of hospital discharges with any marijuana-related billing code were significantly higher than the state average of 32.6 per 1,000 discharges in the following counties:



- Bent
- Otero
- Pueblo
- Park
- Denver
- Arapahoe
- Boulder

0.0

-*Counties with n<11 or total discharges<50 are suppressed Rate per 1,000

- Larimer
- Adams





Figure Note

MARIJUANA EXPOSURES REPORTED TO COLORADO'S POISON CENTER

Data from Rocky Mountain Poison and Drug Safety



Poison center reports involving marijuana have increased.

- In 2021, ~1% of exposures reported included marijuana products.
 o Increase compared to ~0.5% from 2014-2019 and ~0.1% from 2000-2013
- Largest increases when medical and retail markets opened



Demographics

In 2021, increases were attributed to:

48.7%	56.5%	57.5%
years old and younger	Edible	Unintentional

- These characteristics have represented the highest percentage of exposures since 2016.
- Unintentional exposures are unforeseen/unplanned improper use of products.

For more information, visit marijuanahealthreport.colorado.gov/ health-data



