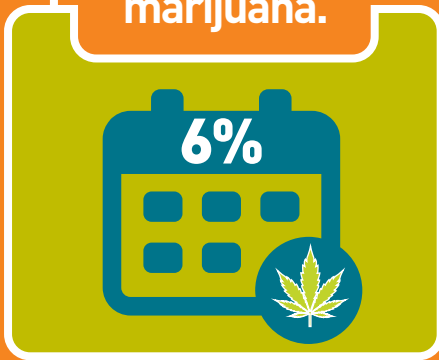


MARIJUANA

1 in 3 teens has tried marijuana by 12th grade.



Almost 6% of high school seniors are daily users of marijuana.



Young e-cigarette users are **3.5x** more likely to use marijuana.



A 2019 surgeon general's advisory warned that marijuana use is harmful to developing brains.



Vaping marijuana has been linked with lung illnesses.

(as of November 20, 2019)



11 states have fully legalized marijuana.



22 states have approved medical marijuana.



Legalization of marijuana has increased across states in recent years. **1 in 5 states have decriminalized the sale and/or possession of marijuana and more than half overall have legalized adult use for medicinal purposes.** Despite greater legal access, marijuana use among youth has not increased in legalized states and marijuana usage patterns nationwide have remained steady. However, **the rise of e-cigarette use among youth offers a new way to consume marijuana and the dual use of tobacco and marijuana threatens the health of today's young people**, whose developing brains are negatively impacted by both marijuana and tobacco use.

This resource presents information about the current state of legalization and changing state laws, as well as marijuana use patterns among youth and adults and the health effects resulting from such use.

MORE THAN 20% OF STATES HAVE LEGALIZED MARIJUANA

Marijuana is currently the most commonly used illicit drug in the United States.⁶ Despite its federal status as an illegal substance, **11 states plus the District of Columbia have legalized adult use** for those aged 21 and up and another **33 states and D.C. have legalized marijuana use for medicinal purposes.**⁷

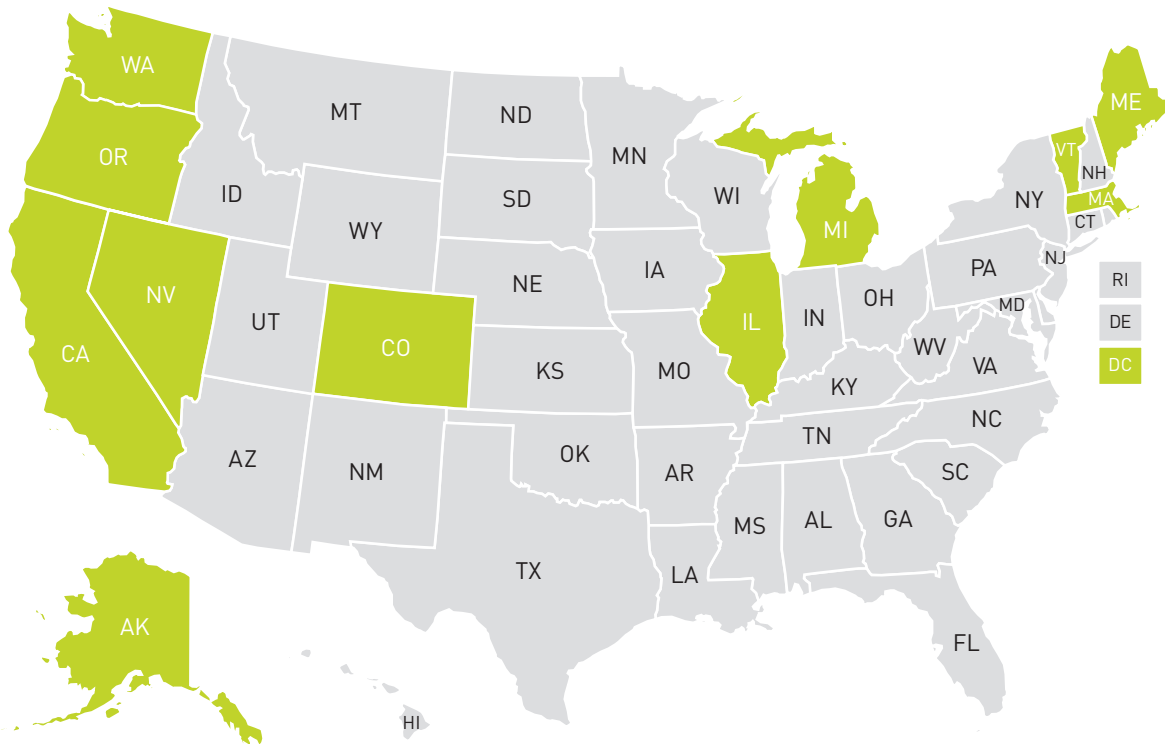
At the national level, marijuana remains a “Schedule I” substance, which is a drug or chemical the **federal government considers at high risk for abuse and possesses little or no medical benefit.**⁸ However, more than half (26 states and D.C.) of states have opted to eliminate jail time for possession or use of small amounts of marijuana.⁷



What is marijuana?*

- › Marijuana is derived from the cannabis plant, which produces active chemicals that can affect the entire body when consumed.
- › Marijuana is primarily used for the active mind-altering component known as THC.
- › It can be ingested orally, smoked, inhaled as a vapor, sprayed under the tongue, used on skin, and mixed into food products (i.e., edibles).
- › **Side effects can include impairment in attention, judgment and short-term memory, slow coordination worsened balance, and increased heart rate.** Users may experience anxiety and paranoia. It can also irritate the throat and lungs and disrupt sleeping patterns. **Long-term use has been associated with impairments in learning and memory with a potential loss of IQ.**¹
- › **Increased potency:** Today's marijuana is substantially more potent than it was two decades ago, providing a more intense and longer high, and more pronounced physical and mental side effects.² **THC concentrations used in vaping devices can exceed that of dried cannabis by four to 30 times.**³
- › Cannabidiol (CBD) is a non-psychoactive component of the marijuana plant.⁴
- › Hemp is another name for the cannabis plant usually grown with low amounts of THC specifically to make products like rope, paper, cloth and soap.⁵

11 states plus the District of Columbia have **legalized adult use of marijuana**



YOUTH MARIJUANA USE REMAINS STEADY AS TEENS WAIT LONGER TO TRY SUBSTANCES

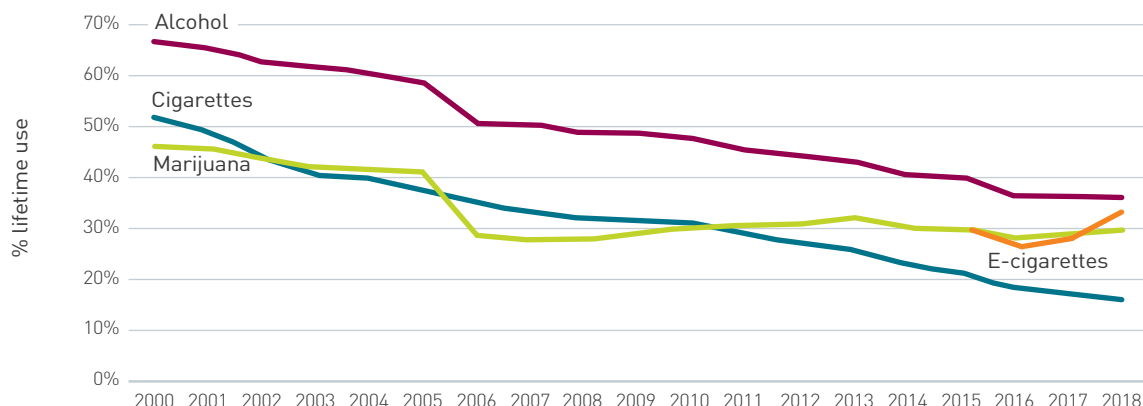
Although several states have legalized marijuana, youth use has not increased in those states.⁹ Nationwide, youth marijuana use has remained steady over the past 10 years, despite significant drops in smoking rates and alcohol use.¹⁰ In fact, **today's young people are waiting longer to try alcohol, cigarettes or marijuana.**¹⁰

As alcohol and cigarette use decline among youth, marijuana is increasingly the first substance young people use. Research also shows that those who use alcohol or cigarettes before they reach 12th grade are more likely to subsequently try marijuana.⁹ Other recent surveys have found that:

- **1 in 3 teens** has tried marijuana by the 12th grade.¹⁰

- **Nearly 25% of teens used marijuana in the past year**
In 2018, nearly one-quarter of teens (24%) in grades 8 through 12 used marijuana in the past year and 15% used it in the past 30 days.⁹
- **More than one-third of older high schoolers used marijuana in the past year**
In 2018, 10.5% of 8th graders, 31% of 10th graders and 40.2% of 12th graders used marijuana in the past year.⁹
- **More than 20% of high school seniors and 5% of 8th graders used marijuana in the past month**
In 2018, 5.6% of 8th graders, 16.7% of 10th graders and 22.2% of 12th graders used marijuana in the past month.⁹
- **Almost 6% of high school seniors are daily users**
1 in 17 12th graders (5.8%) reported smoking marijuana daily in 2018.⁹

Prevalence of lifetime use of alcohol, cigarettes, e-cigarettes and marijuana among youth: 2000-2018



Source: Monitoring the Future⁹

- **Marijuana is “fairly easy to obtain”**
Eighty percent of 12th graders reported marijuana being easier or fairly easy for them to obtain, including in states where it remained illegal, in 2018.⁹
- **Youth use largely unaffected by medical legalization**
With the exception of New Mexico, there has not been a significant increase or decrease in youth use rates in states with medical marijuana laws.^{11,12}
- **Evidence of adult recreational marijuana laws affecting youth use is mixed**
In Colorado, recreational laws have had no effect on youth use.¹³ Two studies in Washington, where recreational marijuana use is permitted, have found both an increase and a decrease in youth use.^{13,14} **A more recent national study found that legalized adult marijuana use for non-medical purposes has resulted in an increase in youth use of around 11%.**¹⁵

Legalized adult marijuana use for non-medical purposes has resulted in an increase in youth use of around 11%

ADULT USE REMAINS STEADY, BUT IS MORE COMMON IN DECRIMINALIZED STATES

Adult marijuana use has increased in recent years, with **higher prevalence in most states where it is legal** to consume marijuana.⁶

- **Almost 10% of adults used marijuana in the past month**
In 2018, more than 10% (10.5%) of U.S. adults aged 18 and older — **26 million people** — used marijuana in the past month.¹⁶
- **Most adults consume marijuana by smoking**
Most adult users — **92%** — consume marijuana by smoking a joint, pipe, bowl or hookah.¹⁷
- **Men more likely to regularly use marijuana than women**
Regular (i.e., use in the past 30 days) marijuana use is more common in men (12.9%) than women (8.2%).¹⁶
- **Adult use is higher in states where marijuana is legal**
Adult use is around two to three percentage points higher in states with legalized medical marijuana and as much as **23% higher** among adults in states with legalized recreational marijuana.^{18,19}

MARIJUANA AND TOBACCO: COMMON USE PATTERNS

Youth who currently use one or more tobacco products, like e-cigarettes, hookahs or combustible cigarettes, are **more likely to report marijuana use** 24 months later.²⁰ Other notable patterns include:

- > **Although cigarette use rates have declined to record lows, marijuana use is highest among adolescents who smoke.**²¹ In 2016, among **high school seniors** who **used marijuana, 65% had ever smoked a cigarette.** Among 8th graders who used marijuana, almost half — 47% — had ever smoked.²¹
- > **Young e-cigarette users are 3.5x more likely to use marijuana** than their peers who do not use e-cigarettes.²²
- > **E-cigarette use predicts later marijuana use among youth**, especially among young adolescents.²³

VAPING MARIJUANA ON THE RISE

Tobacco and marijuana use patterns are evolving, with many of today's teens directly combining the **two products**. Vaping marijuana (i.e., heating the dried plant and using distillates or an "e-liquid" solution with a battery powered e-cigarette to inhale a vapor)^{24,25} increased considerably in the past year alongside an overall increase in youth e-cigarette use.

In 2018, 4.4%, 12.4% and 13.1% of 8th, 10th and 12th graders, respectively, reported vaping marijuana.⁹ While patterns across states are not fully known, individual states have reported varying levels of the use of vaping devices for marijuana. In **Connecticut, 1 in 5 high school students** reports **vaporizing cannabis**, in California 1 in 4 (27.1%) and in North Carolina 1 in 10.²⁶⁻²⁸ Among **college** students the numbers are even higher, with **29% reporting ever vaporizing cannabis** products.²⁹

Recent reports of **lung injury due to the use of e-cigarettes** (EVALI – E-cigarette and Vaping Associated Lung Injury) have **linked vaping marijuana with lung illnesses**.³⁰ As of Nov. 20, 2019, there have been **2,290 reported cases and 47 deaths** related to EVALI. Most of these cases



Is marijuana a gateway drug?

There is a lot of debate on whether marijuana is a gateway drug. It is certainly true that marijuana use is likely to precede use of other illicit substances. This link may be because users of all of these substances share common risk traits (e.g., sensation seeking). It is also theorized that any substance that decreases reactivity of brain receptors can lead to addiction vulnerability.

(More than 80%), but not all, were from users who reported use of **THC vaporizer products**. On Nov. 8, 2019, the Centers for Disease Control and Prevention identified **vitamin E acetate** as a significant concern in the outbreak, finding the chemical in all 29 samples it had analyzed from victims. The **CDC** states "it is possible that more than one compound or ingredient could be a cause of lung injury, and evidence is not yet sufficient to rule out contribution of other toxicants." It continues to advise non-smokers to **avoid vaping of any variety and especially products purchased "off the street."**³¹

MARIJUANA PROVIDES FEW PROVEN BENEFITS

Despite the increase in the number of states that have legalized marijuana for medicinal purposes, **few benefits have been scientifically proven**. While users report a number of medical benefits from marijuana, such as improved sleep and decreased anxiety, studies to date show mixed results for medical marijuana use:

- **Moderate evidence** for the treatment of **chronic pain, spasticity** (MS patients)³⁴
- **Mixed evidence** for the treatment of **glaucoma**³⁵
- **Limited evidence** shows improvements in **nausea and vomiting** due to chemotherapy, stopped weight loss and better appetite for HIV/AIDS patients, as well as less anxiety and sleep disorders^{34,36}
- **Limited control of symptoms** associated with **Parkinson's** disease, **Huntington's** disease, **Tourette's** syndrome, **cervical dystonia** and **epilepsy**³⁷

MARIJUANA NEGATIVELY IMPACTS BRAIN DEVELOPMENT — POSING HARM TO YOUTH

Research has consistently found **marijuana can have lasting impacts on the adolescent brain**, which is still developing until around **age 25**.

- **Disrupts brain's architecture**
Early use of marijuana by teens and young adults disrupts the brain's architecture, especially among chronic, heavy and early users, resulting in **cognitive impairment**.⁴⁰
- **Memory, learning and impulse control problems**
Regular use in adolescence may have long-term effects. Some studies suggest regular marijuana use in adolescence can negatively impact memory, learning and impulse control.⁴¹
- **Higher dropout rates**
Heavy and frequent use of marijuana during the teenage years is also associated with **higher high school dropout rates**, lower grades and poorer attendance.³⁹

Early use of marijuana by teens and young adults disrupts the brain's architecture, especially among chronic, heavy and early users, resulting in cognitive impairment.

- **Lower test scores**
Cumulative lifetime exposure to marijuana is associated with lower scores on a test of **verbal memory**, but it did not affect other cognitive abilities such as processing speed or executive function.⁴²

DEPENDENCE AND ADDICTION IN YOUTH

- **Youth use may lead to dependence**
A 2008 study found that **people who begin using marijuana before age 18** are four to seven times more likely than adults to develop a **marijuana use disorder**.⁴³
- **Dependence occurs in about 9%** of people who use marijuana in their lifetime. If a person begins using in their **teens** this risk rises to **17%**.^{44,45}
- **Current heavy use** (using marijuana at least 100 times in the past year) is a predictor of **future risky behavior**, including increased marijuana use.⁴⁶

People who begin using marijuana **before age 18** are **4 to 7 times** more likely to **develop marijuana use disorder**.



PREVENT YOUTH TARGETING

Given the serious consequences of marijuana use on the adolescent brain, it is critical to **highlight marketing practices that target young people**. Like the tobacco industry, which has created products designed to appeal to young users, types of marijuana are desirable to underage users. **Brownies, gummies, candy and cookies are frequently sold at legal dispensaries**. Illegal distributors have also created products that resemble **popular food brands among kids**, such as Pop-Tarts, Cinnamon Toast Crunch and Klondike ice cream bars. A New England-based creamery recently began producing **cannabis-infused ice cream** for Massachusetts-area dispensaries.

As businesses continue to acquire licensing and approval at the state level to create new marijuana-infused products, public health concerns must be considered. Since business interests push commercialization, **strong regulation to prohibit any product branding or marketing that would appeal to youth is paramount**. This problem is certain to increase exponentially as **tobacco company and alcoholic beverage company interests continue to acquire marijuana companies**, a phenomenon that is sure to massively accelerate if marijuana legalization increases in the U.S. Altria (the maker of Marlboro) and Constellation Brands (the distributor of Corona beer and Svedka vodka) have already made major acquisitions in marijuana business and **their competitors are sure to follow suit**.

FEDERAL MARIJUANA POLICY

The federal government has taken varying approaches to drug enforcement throughout our nation's history that have tended to alternate focus from criminal enforcement to prevention and rehabilitation. With the emergence of state laws allowing medical and recreational marijuana, the **federal government has had to determine how to respond since marijuana remains illegal at the federal level**. A few recent developments are important to note:



As businesses continue to acquire licensing and approval at the state level to create new marijuana-infused products, public health concerns must be considered.

- > In 2014, Congress passed a provision that **prohibits the Department of Justice from interfering in the implementation of state medical cannabis laws**. While the provision does not change the federal legal status of marijuana, Congress must renew it every fiscal year to remain in effect and has so far done so.
- > In December 2018, President Trump signed into law the **Farm Bill of 2018** that **expanded pilot programs** begun in 2014 to **remove hemp from the controlled substances list**, and established hemp as an industrial product. The Farm Bill defined hemp as the **cannabis plant with less than 0.3% of THC** and **allows hemp-derived products to be sold across state lines**. Therefore, any cannabis plant with more than 0.3% THC is considered marijuana and thus a Schedule 1 drug subject to the Controlled Substance Act.
- > The 2018 Farm Bill has also created a small opening for the **sale of certain CBD products**, but only those that are developed from hemp-derived CBD with THC levels less than 0.3%. It is illegal for CBD products to be added to food products and, at this time, is not "generally recognized as safe" for ingestion by the Food and Drug Administration. It is also illegal for CBD to be labeled as a dietary supplement.⁴⁹

The FDA has stated that it **must approve any health claims in hemp-derived CBD products**, which is important because unverified and unregulated health claims related to these products have been reported. The FDA has recently taken enforcement actions against CBD manufacturers making health claims, adding CBD to food or marketing CBD products as a dietary supplement.⁵⁰

Most recently, due to the increase in availability of marijuana as well as its potency, the **U.S. surgeon general issued a formal advisory** on Aug. 29, 2019⁴⁷ — the first surgeon general’s advisory on marijuana since 1982 — stating that **marijuana use among youth and pregnant women is harmful to developing brains and developing fetuses**.⁴⁸ This advisory provided specific information for parents, youth, state and local governments, and health care providers.

STATE REGULATION OF RECREATIONAL MARIJUANA

States that have legalized recreational use of marijuana have taken **various approaches** to regulating it. Most states that allow marijuana sales have at least some sales and advertising restrictions; however, **several states are still determining recreational marijuana regulations and it will be important to monitor these policies**

No states restrict flavors in vaped marijuana.



Source: New York State Department of Health

as more are put into place. See “**Action Needed: Youth and Marijuana**” for a full list of the regulatory approaches needed to protect public health in states where recreational marijuana has been legalized.

Some **key elements** of current state policies include:

- **Licensing**
All states that allow marijuana sales currently **require** some sort of **license** to sell marijuana recreationally.
- **Amount**
All states that have legalized recreational marijuana have a **limit** on either the **amount** someone can **possess** at any one time, or limits on how much a person can **purchase** in a single transaction, or both.
- **Other substances**
All states that allow sales of recreational marijuana **prohibit sale of other substances, such as tobacco or alcohol, in marijuana dispensaries.**

However, not all states have adopted some key policies that will protect public health. Some **missing elements** include:

- **Clean indoor air laws**
Only **5** of 12 states with clean indoor air laws (Alaska, California, Colorado, Oregon and Nevada) specifically **include marijuana.**
- **Restricting youth advertising**
8 of 10 states (Alaska, California, Illinois, Maine, Massachusetts, Nevada, Oregon and Washington) that allow sales of recreational marijuana specifically **prohibit advertising that appeals or targets youth.**
- **Buffer zones**
7 of 10 states (Alaska, California, Colorado, Illinois, Maine, Nevada and Washington) that allow sales of recreational marijuana have **buffer zones near youth-oriented locations** restricting where recreational marijuana advertisements can be posted.
- **Flavors**
No states restrict flavors in vaped marijuana, which can be appealing to youth.

POLICIES TO PROTECT YOUNG PEOPLE

As the number of states who have legalized marijuana in some form continues to grow, it is essential to **put policies in place that prevent and restrict use among youth**. Commonsense regulations, such as **minimum age purchasing laws**, **universal product standards** and **restrictions on marketing to young people**, must be enacted to minimize youth use and harmful effects on developing brains. For more information, see [“Action Needed: Youth and Marijuana.”](#)

As the number of states who have legalized marijuana in some form continues to grow, it is essential to put policies in place that prevent and restrict use among youth.



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