

# Issue Brief

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## Medical Marijuana in Wisconsin: A Cancer Perspective

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### Introduction

Wisconsin lawmakers are considering whether to legalize the medical use of marijuana for persons with serious medical conditions such as cancer. If legislation were signed into law, Wisconsin would join thirty-three states, the District of Columbia, and three US territories that offer legal access to marijuana for medicinal use, commonly known as medical marijuana.<sup>1</sup>

Despite the growing momentum to legalize medical marijuana at the state level, scientific evidence of marijuana's therapeutic benefit remains limited.<sup>2</sup> Current federal law highly restricts research that would demonstrate marijuana's therapeutic characteristics and/or adverse effects.<sup>3</sup>

With a particular focus on people coping with cancer, this issue brief explores what we do and do not know about the health effects of marijuana, and suggests public health and policy considerations for any state effort to legalize medical use of the drug.

### KEY POINTS

- **Marijuana is illegal in Wisconsin.** Some lawmakers want to make it legal for certain patients in our state.
- **Medical marijuana is legal in most US states,** but marijuana is still against federal law.
- **Federal law limits the research of marijuana.** We need more research to understand the effects of marijuana on people with cancer and other illnesses.
- **Legalizing medical marijuana may affect other state laws** designed to protect people and communities.
- **Cancer patients deserve access** to the safest and most effective treatments possible.



## What is Medical Marijuana?

The term “medical marijuana”—sometimes called “medical Cannabis”—describes the use of the whole, unprocessed Cannabis plant or its basic extracts, for therapeutic purposes.<sup>4</sup>

Cannabis plants contain more than 100 chemical compounds called cannabinoids.<sup>5</sup> The two most commonly known cannabinoids are delta-9-tetrahydrocannabinol (known as THC) and cannabidiol (known as CBD; *see Box 1, “What is CBD?”*).<sup>5</sup> THC is responsible for producing the “high” associated with recreational and medical marijuana.<sup>6</sup>

In a 2019 analysis of patient-reported data, cancer was the third most commonly cited medical reason for using medical marijuana, after chronic pain and multiple sclerosis.<sup>7</sup> Cancer patients reported using marijuana to ease nausea, vomiting, pain, and other cancer symptoms and side effects from treatment.<sup>8</sup>

In states with legal access to medical marijuana, the programs and procedures governing the drug’s access and distribution share some common features but can diverge in significant ways.<sup>9</sup> For example, every state specifies which health conditions qualify for medical marijuana use.<sup>10</sup>

Typically these conditions include cancer, chronic pain, glaucoma, HIV/AIDS, Crohn’s disease, and post-traumatic stress disorder (PTSD).<sup>10</sup>

Most states require patients to obtain proof of their qualifying medical condition from a licensed medical practitioner.<sup>11</sup> The practitioner issues a referral or recommendation certifying that the potential benefits of marijuana use outweigh the potential risks to the patient.<sup>11</sup> Most states then require patients to apply to a statewide medical marijuana registry in order to obtain a card that allows them to purchase the drug from state-approved medical marijuana dispensaries.<sup>3</sup>

How medical marijuana is consumed can vary widely. In general, marijuana can be consumed by smoking, vaporizing, eating products infused with cannabis extract (known as “edibles”), or in other forms such as pills and oils.<sup>10</sup> State laws legalizing medical marijuana often differ in which forms are allowed. Presently, three states and Puerto Rico prohibit patients from smoking the drug, and instead require that it be vaporized or consumed as an edible product.<sup>12</sup> Conversely, seven states limit the sale of edibles because of concern they may resemble food or candy appealing to children.<sup>12</sup>

### BOX 1

## What is CBD?

Cannabidiol, or CBD, is a hemp- or cannabis-derived compound that contains no or very low amounts of THC.<sup>13</sup> As a result, CBD does not produce the “high” of marijuana. CBD products are commonly marketed to reduce pain, improve sleep, and relieve symptoms associated with anxiety and depression.<sup>14</sup>

Laws governing access to CBD vary from state to state.<sup>1</sup> In Wisconsin, CBD can be purchased without a prescription in forms such as oils, gummies, and lotions, and in foods and beverages such as chocolate, coffee, and smoothies.<sup>15</sup> Notably, these products have not been approved or evaluated for safety by the Food and Drug Administration.<sup>16</sup>

The recent surge in CBD’s popularity has been driven in part by the 2018 federal farm bill, which relaxed federal research restrictions on hemp and hemp derivatives.<sup>17</sup> (Hemp is defined as cannabis and cannabis derivatives that contain no more than .3 percent THC.<sup>18</sup>)

The only FDA-approved drug that contains CBD is a prescription medication used to treat certain seizure disorders.<sup>18</sup> The FDA is currently evaluating the regulatory framework for CBD and other cannabis-derived products intended for non-drug uses.<sup>19</sup>



## Restrictions on Research

The process to research marijuana and its health effects is complicated and cumbersome. Marijuana is illegal under federal law and is classified by the federal Drug Enforcement Agency (DEA) as a Schedule I drug—the highest possible restriction level.<sup>6</sup> Schedule I drugs are considered to have a high potential for abuse, have no currently accepted medical use, and lack safety for use under medical supervision.<sup>6</sup> The DEA limits research on Schedule I drugs, including research for potential therapeutic purposes.<sup>2</sup>

The National Institute of Health (NIH) distributes federal funds for marijuana research, and most of these funds are directed to the National Institute on Drug Abuse (NIDA).<sup>2</sup> NIDA, in turn, is congressionally mandated to study the negative effects of marijuana and other controlled substances, and only a small fraction of NIDA's annual cannabis-related research budget is dedicated to investigating therapeutic effects of marijuana.<sup>2</sup>

Researchers must undergo a lengthy approval process from local, state, and federal organizations before they are able to obtain cannabis or cannabinoids from NIDA.<sup>3</sup> The effort required to obtain the drug for scientific purposes may discourage research into the potential therapeutic and adverse effects of cannabis and cannabinoids.<sup>3</sup>

NIDA requires researchers to use a powder form of marijuana that presents clinical limitations.<sup>2</sup> The powder must be smoked, which can create challenges in drug

administration and standardized dosing, and limits research of non-combustible forms.<sup>2</sup> In addition, the powder's average THC level is significantly lower than what is available to patients at medical marijuana dispensaries.<sup>20</sup> As a result, the powder form researchers are required to use can be difficult to compare to commercially available forms of the drug.<sup>20</sup>

## What are the Negative Health Effects of Marijuana Use?

Researchers have determined that average marijuana smokers—or those who smoke an average of one joint per day—inhale more deeply into their lungs and hold their breath longer than tobacco cigarette smokers.<sup>21</sup> As a result, average marijuana smokers typically inhale four times more tar, and therefore more carcinogens, than tobacco cigarette smokers.<sup>21</sup>

Regular marijuana smoking has been found to cause visible microscopic changes to the lungs consistent with the changes seen in tobacco smokers diagnosed with chronic bronchitis.<sup>21</sup> These changes are consistent with the increased incidence among marijuana smokers for developing symptoms of chronic bronchitis.<sup>21</sup> When the incidence of these symptoms were compared to regular tobacco users, marijuana smokers had similar rates of coughing and wheezing.<sup>21</sup>

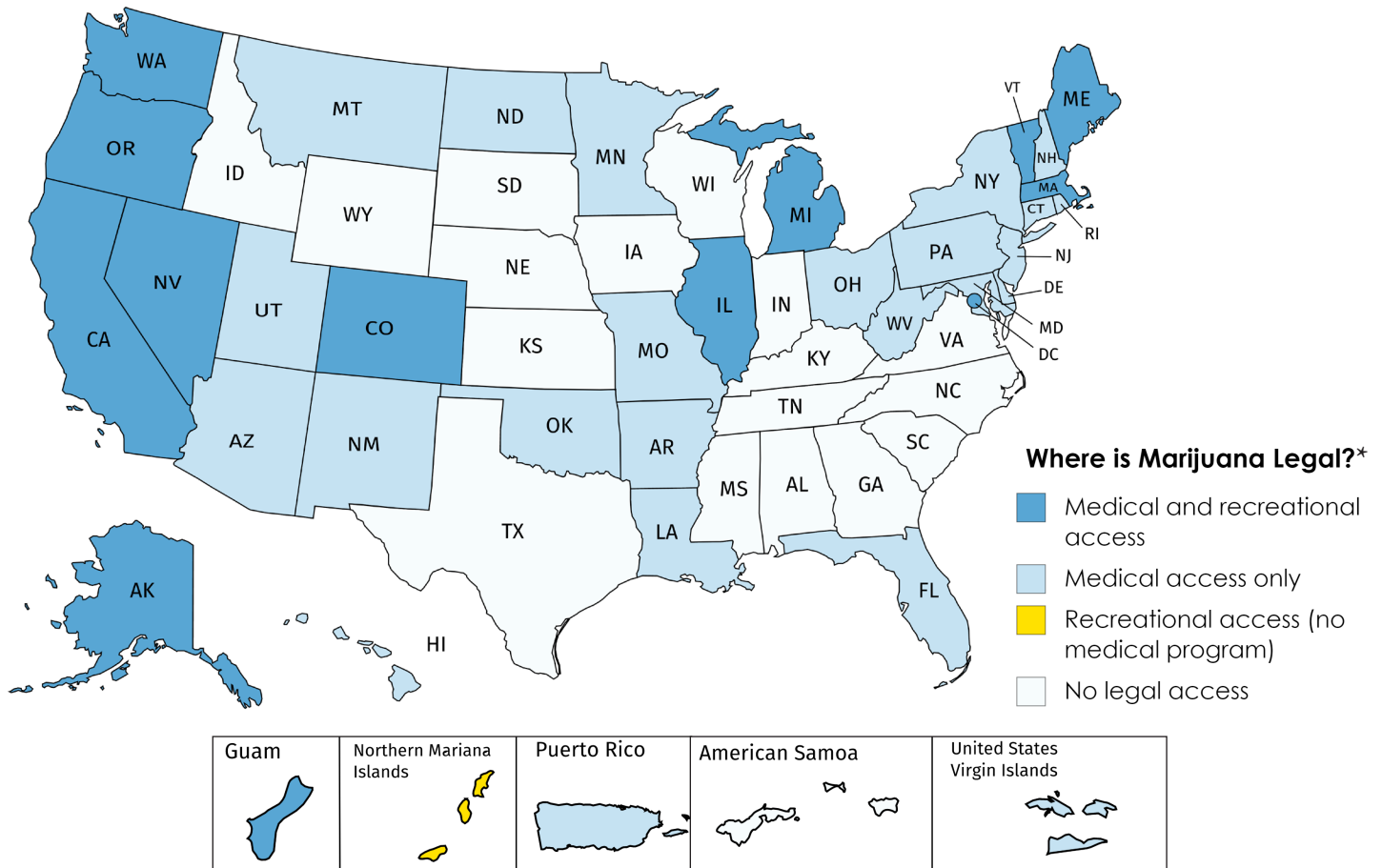
Evidence from studies of light and moderate marijuana smoking does not suggest an increased risk of upper airway and lung cancer, but the evidence is mixed for heavy, long-term marijuana smoking.<sup>21</sup> In addition, a recent study suggests that people who smoke marijuana may be more likely to later smoke cigarettes containing nicotine.<sup>22</sup> This association is significant, as cigarette use is linked to 80 to 90 percent of all lung cancer deaths.<sup>23</sup>

Presently, no widespread scientific evidence exists regarding the health effects of marijuana consumed in non-combustible forms, such as edibles.<sup>24</sup> Given the limited evidence available, further research is needed to determine whether it is the combustible nature of smoking marijuana, or the drug itself, that produces the health issues mentioned above.



FIGURE 1

## Marijuana Access in US States and Territories



Data Source: National Conference of State Legislatures.

\*Map does not reflect states or jurisdictions with decriminalization policies that reduce penalties for certain cannabis-related offenses.

## What the Evidence Tells Us

In 2017 the National Academies of Sciences, Engineering, and Medicine conducted a comprehensive review of the literature on the health effects of marijuana and concluded:

- There is **insufficient evidence**—which means a conclusion cannot be reached—to suggest whether smoking marijuana increases the risk of prostate cancer, cervical cancer, malignant gliomas, non-Hodgkin lymphoma, penile cancer, anal cancer, Kaposi's sarcoma, bladder cancer, or esophageal cancer.<sup>2</sup>
- There is **limited evidence** to suggest smoking marijuana increases the risk of one subtype of testicular tumor.<sup>2</sup> This means a conclusion can be made, but there is significant uncertainty in the findings of the studies.
- There is **moderate evidence** from several good-to-fair-quality studies that smoking marijuana does not increase the risk for lung or head and neck cancers.<sup>2</sup> Researchers have been unable to link light and moderate marijuana smoking to an increased risk for lung or upper airway cancer.<sup>2</sup>
- There is **conclusive evidence**—meaning a firm conclusion can be made—that oral cannabinoids are effective in the treatment of chemotherapy-induced nausea and vomiting.<sup>2</sup>

The National Academies review did not address the cancer risks or benefits of marijuana use in edible or other non-combustible forms.

## Does Marijuana Alleviate the Side Effects of Cancer Treatment?

Without preventive therapy, 70 to 80 percent of cancer patients receiving chemotherapy experience nausea and vomiting.<sup>6</sup> In 1985, the FDA approved two cannabis-related drugs that can prevent or manage chemotherapy-induced nausea and vomiting when conventional symptom management is ineffective.<sup>25</sup> Dronabinol is a synthetic form of THC (and is also FDA-approved to treat weight loss in patients with acquired immunodeficiency syndrome).<sup>25</sup> Nabilone is a synthetic cannabinoid similar to THC.<sup>25</sup>

The ability of these oral synthetic cannabinoids to effectively treat chemotherapy-induced nausea and vomiting has been documented for more than 30 years.<sup>2</sup> Because of federal research restrictions, far less evidence has been documented regarding the effects of marijuana on other side effects resulting from cancer treatment.<sup>2</sup>

In 2015, Minnesota began offering legal access to medical marijuana in pill, oil, topical, and liquid form.<sup>12</sup> Minnesota's program, unlike many others, routinely collects detailed patient-reported data on symptom management.<sup>8</sup>

From 2015 to 2017, a study of cancer patients enrolled in Minnesota's medical marijuana program analyzed patient scores on eight symptoms: anxiety, lack of appetite, depression, disturbed sleep, fatigue, nausea, pain, and vomiting.<sup>8</sup> Within the first four months, cancer patients using medical marijuana reported significant improvements in all symptoms compared to baseline scores, with a decrease in symptoms ranging from 27 percent (fatigue) to 50 percent (vomiting).<sup>8</sup> Adverse effects from using medical marijuana were reported in 10 percent of patients.<sup>8</sup>

The study concluded that cancer patients enrolled in the state's medical marijuana program showed a significant reduction of symptoms, that marijuana was generally well-tolerated, and that some patients achieved lasting and clinically meaningful levels of improvement.<sup>8</sup>

However, there is a lack of scientific evidence to guide dosing recommendations for medical marijuana use.<sup>3</sup> This gap in available research has significant implications for patients and providers.

For example, in 2016, the Dana-Farber Cancer Institute surveyed 237 oncologists nationwide and found a "concerning discrepancy": 80 percent of respondents reported talking with patients about medical marijuana; 67 percent believed medical marijuana was a helpful adjunct to standard treatment; and 46 percent had recommended the use of medical marijuana in the past year—yet only 30 percent of respondents said they felt sufficiently informed to make specific recommendations for use and dosing.<sup>4</sup>

## Public Health Considerations

The majority of US states have moved forward with medical marijuana legalization (see Figure 1, "Marijuana Access in US States and Territories"), despite the lack of conclusive scientific evidence of therapeutic benefit.

Before the medical use of marijuana becomes legal in Wisconsin, public health leaders and policy makers should examine key considerations to mitigate any negative or unintended impacts such a law might have.



*Photo by kbrookes on foter.com*

Public health considerations include, but are not limited to:

- A **health impact assessment** that identifies how the legalization of medical marijuana might adversely affect the health and safety of Wisconsinites, as well as strategies to mitigate potential negative health outcomes. The states of Vermont and Kansas have conducted health impact assessments on marijuana regulation.<sup>26,27</sup> These assessments, which analyze a broad scope of factors associated with marijuana regulation, may serve as models for Wisconsin public health officials.<sup>26,27</sup>
- **Education for health care providers and health care systems**, so that providers understand the risks and benefits associated with medical marijuana use, and so that health systems are equipped to provide adequate guidance to staff in treating patients.
- The **dangers of impaired driving** for people who consume medical marijuana. Research shows that the odds of vehicular accidents, crash culpability, and fatality increased with blood THC levels.<sup>26</sup> A blood THC concentration of 5 ng/mL increased the odds of crash responsibility to levels similar to that of a blood alcohol content of 0.15 percent.<sup>26</sup>
- Potential revisions to **state indoor smoking laws**, which currently apply only to combustible tobacco products.<sup>28</sup>

## Policy Implications

Comprehensive, credible research is needed to determine whether medical marijuana has therapeutic benefits and/or the potential for adverse effects. However, such research is limited as long as marijuana remains a Schedule I drug.

Reclassifying marijuana away from Schedule I would loosen restrictions on research. However, drug reclassification occurs only by an act of Congress, or through an administrative review process approved by the US Attorney General or the secretary of the Department of Health and Human Services.<sup>29</sup> Multiple previous attempts to reclassify the drug have failed.<sup>30</sup>

In Wisconsin, state efforts to legalize medical marijuana would present challenges to existing state policies. THC is classified as a Schedule I drug under the Wisconsin Uniform Controlled Substances Act.<sup>31</sup> As a result, it is illegal to possess, sell, and manufacture marijuana under state law.<sup>32</sup>

Wisconsin residents who test positive for THC may lose their eligibility for certain state and federal assistance programs.<sup>33</sup> State legislation to legalize medical marijuana should address conflicts with existing laws.

Lawmakers also should consider the conflict between an employer's practice of employee drug testing and a patient's legal use of medical marijuana. Fewer than half of the states with legalized medical marijuana states have attempted to resolve this problem by enacting employment protections for patients.<sup>34</sup>

In addition, any legislative initiative to legalize medical marijuana in Wisconsin should:

- Include a list of all qualifying medical conditions necessary for patients to obtain and consume medical marijuana.
- Create a registry for qualified patients to obtain medical marijuana, including time length on such a registry, and establish a process to license caregivers who wish to obtain medical marijuana for qualified patients.
- Regulate the operation of medical marijuana dispensaries and producers.
- Develop consistent and accurate labeling of medical marijuana products.
- Establish routine testing of marijuana products for potency and ingredients.
- Set dosing guidelines and quantities of the drug allowable for possession by patients.
- Determine restrictions and penalties for those who violate the law.
- Designate state agencies with oversight authority of growers, processors, dispensaries, and patients.
- Consider public health implications, such as the impact on impaired driving laws.

At this time, no established policy guidelines exist to allow states to more uniformly follow best practices when enacting medical marijuana legislation, which leads to inconsistencies among various state laws and programs.

However, almost all states that have legalized medical marijuana do allow patients who have been diagnosed with cancer and patients undergoing cancer treatments to access the drug with their medical professional's recommendation.<sup>35</sup>

## Conclusion

Cancer and its treatment can be debilitating, and current therapies to address symptoms and side effects are not always effective. Patients undergoing cancer treatment deserve access to therapies that safely and effectively reduce the physical and psychological toll of their disease. In fact, increasing patient access to care, including effective symptom management, is a priority specifically identified by the Wisconsin Comprehensive Cancer Control Plan 2015-2020.

Arguments in favor of medical marijuana often highlight potential benefits to patients being treated for cancer. Observational studies suggest marijuana may be an

effective therapy for some patients.<sup>8</sup> Because of federal barriers limiting the research of marijuana, the medical community simply does not have the scientific evidence to support these claims. In this environment, patients, providers, and policymakers who wish to assess the drug's therapeutic efficacy are forced to rely on limited, often anecdotal evidence.

Any legislative proposal to legalize access to medical marijuana should take seriously this critical gap in available data. The use of medical marijuana may present benefits to some patients, while producing unintended health and safety consequences for patients and the public at large.

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Working together, we will reduce the burden of cancer for everyone in Wisconsin.

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