



# Medical Use of Marijuana in People Living with Cancer: American Cancer Society Position

## Introduction

Cancer and its treatments can involve side effects, including nausea, vomiting, pain, loss of appetite, and wasting. The severity of these symptoms depends on several factors, including the stage of disease, the chemotherapeutic agents used, and the patient's reaction to therapies. The management of the side effects caused by chemotherapy is an important part of care for many cancer patients.

There has been much interest in the use of marijuana to treat cancer-related symptoms, including chemotherapy-induced nausea, vomiting, and pain. The pursuit of therapeutic uses for marijuana has focused mainly on two types of products: marijuana plant material that can be smoked, eaten, or vaporized, and drug products made either through chemical synthesis or purification of cannabinoid compounds in the marijuana plant. Some states have legalized marijuana and other cannabinoids in at least some circumstances, and additional states are considering similar proposals. At the same time, the marijuana plant is still classified a Schedule I drug by the Drug Enforcement Agency and therefore is subject to criminal prosecution under federal law.

This document will review the current available research on the use of marijuana and its compounds for symptom relief for cancer patients and the Society's policy position regarding marijuana for medical use in people living with cancer.

## Effects of marijuana

Marijuana produces a variety of biological effects. While the most common effect is euphoria, marijuana also can lower the user's control over movement, cause occasional disorientation, and sometimes cause unpleasant thoughts or paranoid feelings. Compounds within marijuana have been shown to have some effect on lessening the nausea, pain, and muscle spasms patients in treatment for cancer can experience, and on improving the user's appetite. These potential benefits have increased interest in the medical use of marijuana, especially by cancer patients, but must be weighed with the potential psychoactive and harmful effects of use.

The effects of marijuana are largely due to a class of compounds called cannabinoids that are contained within marijuana. The two primary cannabinoids are delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). Two synthetic THC-based drugs, dronabinol and nabilone, have



been approved by the US Food and Drug Administration (FDA) for treatment of nausea, and several other similar drugs are being tested in clinical trials.

## **Symptom Relief**

Although the anti-cancer effects of cannabinoids are being explored, at this time marijuana's application for medicinal use is limited to symptom relief, and is not intended as a primary treatment to combat cancerous cells. The current body of research indicates the symptom relief offered by cannabinoids is often modest. For many symptoms seen in cancer patients, drugs already on the market work well. However, physicians frequently encounter patients who do not respond well to standard medications, or for whom complementary therapies are needed. For these patients, cannabinoids appear to hold potential for treating chemotherapy-induced nausea, vomiting, and pain, and the poor appetite and wasting that can result from advanced cancer and its treatment.

Managing chemotherapy-induced nausea and vomiting is important for many cancer patients. Patients usually receive anti-emetics (drugs that help control nausea and vomiting) and guidelines exist for the administration of these drugs as prophylaxis and treatment. In utilizing these guidelines, doctors then tailor anti-emetic therapy to meet each individual's needs, taking into account the patient's response to the anti-emetic therapy and the patient's general condition, age, and related factors; as well as the type of anti-cancer drug(s) being administered.

Control of pain is also essential for many patients, including those with cancer. Currently available regimens to treat pain may include opiates, acetaminophen, and/or non-steroidal anti-inflammatory agents for acute and severe pain, with drugs such as anti-depressants and anti-convulsants for neuropathic pain. These drugs far too often fail to lead to complete pain relief, leaving many cancer patients living with chronic pain.

Poor appetite and weight loss are symptoms patients with advanced cancer and their families often find troubling. The few medications available to treat these symptoms, corticosteroids and megestrol, can have significant side effects.

## **Hazards**

Smoking marijuana poses significant harms to users. Although smoked marijuana delivers THC and other cannabinoids to the body, it also delivers harmful substances to users and those in close proximity, including many of the cancer-causing substances found in tobacco smoke. Marijuana plants come in a variety of strains with variable mixtures of biologically-active compounds, including specific cannabinoids. This can lead to differing therapeutic responses across strains, making individual user's experience difficult if not impossible to predict. Additionally, precise dosing is difficult because the effects of smoking marijuana can differ based on how deeply and for how long the user inhales. Likewise, the effects of ingesting marijuana orally can depend on the user's individual digestive pathways. Also, some chronic users can develop an unhealthy dependence on marijuana.



## Institute of Medicine (IOM) Recommendations

In 1999, the Institute of Medicine published a review of the available scientific evidence to assess the potential health benefits and risks of marijuana and its constituent cannabinoids. The report, which was requested by the Office of National Drug Control Policy, called for research on synthetic and plant-derived cannabinoids for their health effects and potential for symptom management. The report also recommended conducting studies on the specific health risks of smoking marijuana.

The IOM report offers a useful overview of research studies that were then available, but an updated review that includes studies conducted and evidence offered since is needed to gain a current understanding of the science of marijuana's potential benefits.

## American Cancer Society Position

Cancer patients often suffer from side effects during treatment that are inadequately addressed, lowering their quality of life and complicating their ability to fight their cancer. Several medical options exist and can work to relieve pain, nausea, vomiting, and other side effects. However, they do not work for everyone and more must be done to improve patients' quality of life as they battle cancer. Cannabinoids have some potential to benefit cancer patients through the alleviation of pain, nausea, vomiting, and muscle spasms caused by chemotherapy, and wasting.

The American Cancer Society supports the need for more scientific research on cannabinoids for cancer patients, and on better and more effective therapies that can overcome the often debilitating side effects of cancer and its treatment. The Society also believes the classification of marijuana as a Schedule I controlled substance by the US Drug Enforcement Administration imposes numerous conditions on researchers and deters scientific study of cannabinoids. Federal officials should examine options consistent with federal law for enabling more scientific study on marijuana.

Many states have legalized marijuana and other cannabinoids in at least some circumstances, and additional states are considering similar proposals. The American Cancer Society Cancer Action Network (ACS CAN), the Society's advocacy affiliate, has not taken a position on legalization of marijuana for medical purposes because of the need for more scientific research on marijuana's potential benefits and harms. However, ACS CAN opposes the smoking or vaping of marijuana and other cannabinoids in public places because the carcinogens in marijuana smoke pose numerous health hazards to the patient and others in the patient's presence.

Ultimately, medical decisions about pain and symptom management should be made between the patient and his or her doctor, balancing clinical evidence of benefit and harm to the patient, the patient's preferences and values, and applicable laws and regulations.



## References

Kassirer, JP. Federal foolishness and marijuana. *New Eng J Med.* 1997; 336:366-367.

Joy, Watson, Benson. "Marijuana & Medicine: Assessing the Science Base." Institute of Medicine National Academy Press, Washington, DC, 1999. [nap.edu](http://nap.edu).

### *Additional references:*

Brenneisen R. Chemistry and Analysis of Phytocannabinoids and other Cannabis Constituents. In Elsohly M, ed. *Marijuana and the Cannabinoids.* Totowa, NJ: Human Press; 2007: 17-51.

Busch FW, Seid DA, Wei ET. Mutagenic activity of marijuana smoke condensates. *Cancer Lett.* 1979 May;6(6):319-24.

Clarke RC, Watson DP. Cannabis and Natural Cannabis Medicines. In Elsohly M, ed. *Marijuana and the Cannabinoids.* Totowa, NJ: Human Press; 2007: 1-16.

Mechoulam R, Parker LA, Gallily R. Cannabidiol: an overview of some pharmacological aspects. *J Clin Pharmacol.* 2002 Nov;42(11 Suppl):11S-19S.

Moir D, Rickert WS, Levasseur G, Larose Y, Maertens R, White P, Desjardins S. A Comparison of Mainstream and Sidestream Marijuana and Tobacco Cigarette Smoke Produced under Two Machine Smoking Conditions. *Chem Res Toxicol.* 2008; 21: 494-502.

Ohlsson A, Lindgren JE, Wahlen A, Agurell S, Hollister LE, Gillespie HK. Plasma delta-9 tetrahydrocannabinol concentrations and clinical effects after oral and intravenous administration and smoking. *Clin Pharmacol Ther.* 1980 Sep;28(3):409-16.

Wu TC, Tashkin DP, Djahed B, Rose JE. Pulmonary hazards of smoking marijuana as compared with tobacco. *N Engl J Med.* 1988 Feb 11; 318(6):347-51.

### *Symptom relief (selected references)*

Aggarwal SK, Carter GT, Sullivan MD, ZumBrunnen C, Morrill R, Mayer JD. Medicinal use of cannabis in the United States: historical perspectives, current trends, and future directions. *J Opioid Manag.* 2009 May-Jun;5(3):153-68.

Beal JE, Olson R, Lefkowitz L, Laubenstein L, Bellman P, Yangco B, Morales JO, Murphy R, Powderly W, Plasse TF, Mosdell KW, Shepard KV. Long-term efficacy and safety of dronabinol for acquired immunodeficiency syndrome-associated anorexia. *J Pain Symptom Manage.* 1997 Jul;14(1):7-14.

Cannabis-In-Cachexia-Study-Group, Strasser F, Luftner D, Possinger K, Ernst G, Ruhstaller T, Meissner W, Ko YD, Schnelle M, Reif M, Cerny T. Comparison of orally administered cannabis extract and delta-9-tetrahydrocannabinol in treating patients with cancer-related anorexia-



cachexia syndrome: a multicenter, phase III, randomized, double-blind, placebo-controlled clinical trial from the Cannabis-In-Cachexia-Study-Group. *J Clin Oncol*. 2006 Jul 20;24(21):3394-400.

Cooper ZD, Comer SD, Haney M. Comparison of the analgesic effects of dronabinol and smoked marijuana in daily marijuana smokers. *Neuropsychopharmacology*. 2013 Sep;38(10):1984-92. Epub 2013 Apr 22.

Foltin RW, Brady JV, Fischman MW. Behavioral analysis of marijuana effects on food intake in humans. *Pharmacol Biochem Behav*. 1986 Sep;25(3):577-82.

Haney M, Rabkin J, Gunderson E, Foltin RW. Dronabinol and marijuana in HIV(+) marijuana smokers: acute effects on caloric intake and mood. *Psychopharmacology (Berl)*. 2005 Aug;181(1):170-8. Epub 2005 Oct 15.

Meiri E, Jhangiani H, Vredenburg JJ, Barbato LM, Carter FJ, Yang HM, Baranowski V. Efficacy of dronabinol alone and in combination with ondansetron versus ondansetron alone for delayed chemotherapy-induced nausea and vomiting. *Curr Med Res Opin*. 2007 Mar;23(3):533-43.

Musty RE, Rossi R. Effects of Smoked Cannabis and Oral  $\Delta$ 9-Tetrahydrocannabinol on Nausea and Emesis After Cancer Chemotherapy: A Review of State Clinical Trials. *Journal of Cannabis Therapeutics*. 2001; 1(1): 29-56.

Orr LE, McKernan JF, Bloome B. Antiemetic effect of tetrahydrocannabinol. Compared with placebo and prochlorperazine in chemotherapy-associated nausea and emesis. *Arch Intern Med*. 1980 Nov;140(11):1431-3.

Ware MA, Wang T, Shapiro S, Robinson A, Ducruet T, Huynh T, Gamsa A, Bennett GJ, Collet JP. Smoked cannabis for chronic neuropathic pain: a randomized controlled trial. *CMAJ*. 2010 Oct 5;182(14):E694-701. Epub 2010 Aug 30.

Wilsey B, Marcotte T, Deutsch R, Gouaux B, Sakai S, Donaghe H. Low-dose vaporized cannabis significantly improves neuropathic pain. *J Pain*. 2013 Feb;14(2):136-48. Epub 2012 Dec 11.