



Ontario Health

Cancer Care Ontario

Cannabis and cannabinoids:

Cancer risk and use to manage cancer symptoms

Evidence summary, current as of January 2, 2020

Purpose

This document provides a brief evidence summary for healthcare providers working in cancer and primary care on the cancer risk of cannabis and cannabinoids (medical and non-medical), and using cannabis and cannabinoids to manage cancer symptoms.

Key messages

- The available evidence does not clearly show that using cannabis increases the risk of cancer; more research is required to address the limitations of current evidence.
- There is no evidence that cannabis or cannabinoids can be used to treat cancer or reduce the risk of developing cancer.
- There is no evidence to recommend cannabis or cannabinoids as initial therapies for any health condition, including cancer-related symptoms.
- Consideration may be given to adding nabilone or nabiximols (pharmaceutical cannabinoids) when managing the following cancer-related symptoms when they do not respond to standard therapies: palliative cancer pain, neuropathic pain and chemotherapy-induced nausea and vomiting (nabilone only).
- Healthcare providers should discuss risks and benefits with their patients before authorizing medical access to cannabis or cannabinoids.
- Cannabis and cannabinoids may be associated with short- and long-term health-related harms (e.g., respiratory symptoms [when smoked or vaped], mental health effects); the most effective way to reduce the risk of these harms is to not use cannabis.
- [Canada's Lower-Risk Cannabis Use Guidelines](#) and [Cannabasics](#) can help healthcare providers advise their patients and the general population on how to lower their risk of harms from cannabis use.

Approach

This summary is based on a limited number of sources that are widely cited, and deemed to be comprehensive and relevant. Ontario Health's (Cancer Care Ontario) Program in Evidence-Based Care (PEBC) is doing a more comprehensive review of studies published after those included in this summary. Ontario Health (Cancer Care Ontario) will update this document following the publication of the PEBC's more comprehensive review.

Background

Cannabis refers to the plant, *Cannabis sativa*, and related plants, such as *Cannabis indica*.¹ Cannabis is used in a variety of ways such as by smoking its dried flowers, leaves, stems and seeds; inhaling it from a vaporizer; or eating or drinking the plant or its oils with other ingredients in prepared foods or teas.²

On October 17, 2018, the *Cannabis Act* was passed, making it legal – with certain restrictions – for adults to purchase and use cannabis in Canada.³ As of October 17, 2019, federal regulations allow edible cannabis, cannabis extracts and cannabis topicals to be produced and sold.³ The minimum age to buy and use cannabis is 19 in Ontario.⁴ Medical access regulations were first implemented in Canada in 2001 in response to a court decision that ruled that people with a medical need should have access to cannabis.⁵ Access to cannabis for medical purposes must be authorized by a medical or nurse practitioner.⁵ However, cannabis is not approved by Health Canada to treat diseases and health conditions.

Cannabinoids are a group of psychoactive chemical compounds found in the cannabis plant.¹ They include delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD).¹ CBD by itself does not cause a “high” or intoxication.²

Two pharmaceutical cannabinoids have been approved by Health Canada for management of cancer symptoms:

- Nabilone is a synthetic form of THC in capsule form. It is authorized to be marketed and used for managing severe nausea and vomiting associated with cancer chemotherapy.⁶
- Nabiximols (Sativex®) is an oromucosal spray that contains equal amounts of standardized CBD and THC. It has received a Notice of Compliance with Conditions (NOC/c)¹ and can be used in addition to standard analgesics in adults with advanced cancer and moderate to severe pain.⁸

¹ An NOC/c allows earlier market access to promising drug therapies for serious diseases or conditions, with the understanding that additional clinical trials need to be conducted.⁷

Synthetic cannabinoids are also used in products, such as those that simulate dried cannabis, that are not authorized to be imported and sold in Canada.⁹ Product names include “K2,” “Spice” and “Brainfreeze Potpurri.”⁹ Using these products can lead to severe health risks, including increased heart rate, vomiting, chest pain and kidney damage.⁹

Cannabis use in Ontario

Cannabis use is common in Ontario. In the second quarter of 2019, 17 percent of people in Ontario age 15 and older reported using cannabis (medical or non-medical) in the previous three months.¹⁰ This percentage has been consistent since the first quarter of 2018.¹⁰ Legalization of cannabis in the general population could increase cannabis use, including for medical purposes.¹¹

The prevalence of cannabis use among people with cancer in Ontario is currently unknown. A survey of people receiving treatment at British Columbia’s cancer centres was completed in September 2018, just before cannabis was legalized in Canada.¹² It found that 23 percent of respondents reported using cannabis, and of these respondents use was almost exclusively for medical purposes and 31 percent had medical authorization.¹² In the second quarter of 2019, 18 percent of people age 15 and older in British Columbia’s general population reported currently using cannabis; current cannabis use in Ontario is similar, at 17 percent.¹⁰

Cancer risk associated with cannabis use

In 2017, the U.S. National Academies of Sciences, Engineering and Medicine published a comprehensive evidence review that assessed the risk of cancer with cannabis use.¹ The authors found the following:

- There was no conclusive or substantial evidence to support or exclude an association between cannabis use and the risk of developing cancer (i.e., either increasing or reducing the risk of developing cancer).
- Several good- to fair-quality studies rated as moderate evidence suggest that:
 - Lung cancer risk is not associated with smoking cannabis; and
 - Head and neck cancers are not associated with cannabis use. Nine case-control studies were included in the review on head and neck cancers and among these studies, smoking was the most common method of using cannabis.
- A small number of fair-quality studies suggest that there is a statistical association between developing non-seminoma-type testicular germ cell tumors and current, frequent or chronic cannabis smoking.
- There is insufficient evidence to support or exclude a statistical association between cannabis use and several other cancers (e.g., esophageal, prostate, bladder).¹

As described in the National Academies of Sciences, Engineering and Medicine’s review, more research is needed to address the limitations in the studies that were reviewed. For example, better control of simultaneous tobacco use, longer follow-up periods and biological validation of self-reported use would strengthen current evidence.¹ Investigating additional variables, including mode, frequency and years of use, would also provide important information.

Guidelines for primary care providers on using cannabis and cannabinoids to manage cancer symptoms

In February 2018, guidelines on prescribing pharmaceutical cannabinoids in primary care were published in *Canadian Family Physician* and endorsed by the College of Family Physicians of Canada.¹³ In brief, the following guidelines are relevant to managing cancer symptoms:

Cannabis and cannabinoids are not recommended for treating most medical conditions, including cancer-related conditions, with potential exceptions for some types of pain and chemotherapy-induced nausea and vomiting.

When standard therapies delivered in an optimal therapeutic fashion fail to produce adequate symptom relief, consideration could be given to adding nabilone or nabiximols to treat:

- Pain in people with cancer who are receiving palliative care;
- Neuropathic pain; and
- Chemotherapy-induced nausea and vomiting (nabilone only).

Pharmaceutical cannabinoids should be considered before cannabis for treating neuropathic pain and pain in people with cancer who are receiving palliative care.

Cannabis in any form (smoked, oils or edibles) is not recommended for chemotherapy-induced nausea and vomiting.

Healthcare providers should discuss the risks and benefits of cannabis and pharmaceutical cannabinoids with their patients.¹³

The authors of the guidelines note that the evidence for using pharmaceutical cannabinoids is limited.¹³

Additional potential acute and long-term health-related harms of cannabis use

In general and for people with cancer, the most effective way to reduce the risk of the harms associated with using cannabis is to not use cannabis.^{13,14}

Using cannabis may lead to acute health-related harms, including psychosis, anxiety, increased heart rate, cognitive and psychomotor impairment, and injuries or fatalities due to psychomotor impairment (e.g., motor vehicle collisions).^{1,15}

Using cannabis may also lead to long-term health-related harms, including respiratory symptoms and more frequent episodes of chronic bronchitis (if cannabis is smoked or vaped), schizophrenia and psychoses, dependency or cannabis use disorder, and cannabinoid hyperemesis syndrome (cyclic vomiting).^{1,15} Long-term mental health effects are likely greater when use begins before approximately age 25.^{1,15}

Additional resources

[Canada's Lower-Risk Cannabis Use Guidelines](#),¹⁴ which were developed by scientists at the Centre for Addiction and Mental Health, and [Cannabasics](#), which is an information package from the Canadian Public Health Association,¹⁶ can help healthcare providers advise their patients and the general population how to lower their risk of harms from cannabis use. The lower-risk use guidelines have been endorsed by several organizations, including the Canadian Medical Association, the Canadian Nurses Association and the Council of Chief Medical Officers of Health.¹⁴ The [College of Physicians and Surgeons of Ontario](#) has issued a detailed policy on authorizing access to cannabis for medical purposes.¹⁷

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