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Ontario Respiratory Care Society | Winter 2021 Issue 12



Update

on Respiratory Health, Research and Education

Update on Respiratory Health, Research and Education is the official publication of the Ontario Respiratory Care Society (ORCS), a section of the Lung Health Foundation. *Update* is published three times per year and includes peer-reviewed original articles, clinical practice tools, health news, and communications between the ORCS and its membership. The beginning section is a snapshot. Click “Read more” directly linked to the full articles below.

Chair’s Message



Welcome to 2021! New and exciting changes are on the horizon, but before we get to that, let’s reflect for a moment on some of ways we were able to adapt last year in the face of a worldwide pandemic.

New challenges brought new opportunities. The Lung Health Foundation and the ORCS hosted two regional educational evenings in the autumn with more planned for this spring. Not only were the topics timely and engaging, the online format helped extend our reach and tripled the average number of attendees! Special thanks to everyone who attended as well as the speakers and, of course, the regional chairs who were instrumental in co-ordinating and hosting these evenings. I am very proud of the educational opportunities that we provide and urge everyone to attend any upcoming seminars. [Read more](#)

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Featured Articles

COVID-19 and the virtual care revolution

Submitted by Andrew Kouri, MD, PhD

Among the many ways the COVID-19 pandemic upended how we practice respiratory medicine in Ontario, perhaps the most significant change has been the profound shift from in-person to virtual care. Looking back now at 2020 and towards a more hopeful 2021, it's an appropriate time to consider the impact of this shift, and to question what role virtual care will have in the future landscape of respiratory care. [Read more](#)

Medical Cannabis Part 1: An introduction to cannabis pharmacology

Submitted by Andrea White Markham, RRT, CRE, CTE

ABSTRACT

With almost 15% of Canadians and up to 30% of secondary school students using cannabis, respiratory health educators need to be aware of the pharmacology, including adverse effects and drug interactions, of this product.¹ The endocannabinoid system is linked to the brain's regulation systems through activation of G protein-coupled receptors (CB1 and CB2), by endocannabinoids, mainly anandamide and NADA.² Cannabinoids from plants, specifically delta-9 tetrahydrocannabinol (THC), cannabidiol (CBD), and cannabiniol (CBN), can also activate these receptors causing various psychoactive (THC) and non-psychoactive (CBD, CBN) effects. Adverse effects have also been identified, including respiratory symptoms, increased risk for cardiovascular events, psychiatric and developmental problems. A limited number of drug interactions have been identified, however there is little research in this area to date. [Read more](#)

Medical Cannabis Part 2: An introduction to medical cannabis

Submitted by Andrea White Markham, RRT, CRE, CTE

ABSTRACT

While cannabis is not approved by Health Canada for therapeutic use in Canada, its use is a growing industry in Canada worth millions of dollars¹, with 14% of Canadians 16 years and older using medical cannabis according to the Canadian Cannabis Survey (CCS).² There are two cannabinoids on the market approved by Health Canada for therapeutic use; nabiximols, an extract, and nabilone, a synthetic cannabinoid. Canadians use medical cannabis do so for a large variety of reasons, with problems sleeping, stress, depression, pain and anxiety heading the list.³ Current guidelines recommend use for chronic pain, nausea and vomiting related to cancer chemotherapy and spasticity related to muscular sclerosis when other therapies have been unsuccessful.^{4,5} Since the majority of our patients who use medical cannabis inhale it², respiratory health educators' role continues to be to inform patients of the harms of smoking while collaborating to identify ways that will meet their medical needs and reduce their health risks. [Read more](#)

Eye On: Ronald McDonald House Toronto



Ronald McDonald House Toronto is Keeping Families Close

An excerpt from their Fall Newsletter submitted by Geetika Bhargava, RRT, CRE

Deemed an essential service by the Province of Ontario, Ronald McDonald House Charities (RMHC) Toronto continues to serve families as they navigate COVID-19 by adapting their services and investing in new infrastructure to keep families safe. [Read more](#)

In the Spotlight

ORCS Poster Presentations at Better Breathing 2021

Submitted by Natalie Bennett, ORCS/OTS Coordinator, Lung Health Foundation

At Better Breathing 2021 Conference, the Ontario Respiratory Care Society showcased e-poster submissions pertaining to aspects of respiratory health. Submissions were displayed for viewing over the duration of the conference and then judged in 3-minute rapid-fire presentations by the authors on the final evening. [Read more](#)

Lung Health Foundation Telephone Support Group

Submitted by Diane Feldman, RRT, CRE, CTE; Jody Hamilton, BSW, MSW; Sara Han, RRT, CRE

The Lung Health Foundation (LHF) telephone support group is open to anyone who has been diagnosed with a lung disease such as chronic obstructive pulmonary disease (COPD) (chronic bronchitis and emphysema), asthma, lung cancer, pulmonary fibrosis, bronchiectasis, or pulmonary hypertension. The group also welcomes family members, caregivers or anyone with an interest in lung health. [Read more](#)

Toolbox

Asthma Quality Standards

Submitted by Chris Haromy, RRT, CRE

Lung Health Foundation Reference Guides

To assist healthcare providers, the Lung Health Foundation has developed the [Asthma Quality Standards – Quick Reference Guide](#). Patient reference guides are also available for adults [Understanding Your Asthma Care](#) and for parents/caregivers of children [Understanding Your Child’s Asthma Care](#). [Read more](#)

Tuberculosis Booklet

Submitted by Gloria Alfred, Training Coordinator, Provider Education Program

The latest edition of the TB Booklet is now available. [Read more](#)

Respiratory Article of Interest #1

From Gold 0 to Pre-COPD

Summary by Julie Datars (RKin)

Han MK, Agusti A, Celli BR, Criner GJ, Halpin DM, Roche N, Papi A, Stockley RA, Wedzicha J, Vogelmeier CF. *From Gold 0 to Pre-COPD*. Am J Respir Crit Care Med [Internet]. 2021 Feb; 203 (4): 414-423. Available from DOI: [10.1164/rccm.202008-3328PP](https://doi.org/10.1164/rccm.202008-3328PP). [Read more](#)

Respiratory Article of Interest #2

A Cross-Sectional Study on Balance Deficits and Gait Deviations in COPD Patients

Submitted by Jane Lindsay (PT, retired)

Jirange P, Vaishali K, Sinha MK, Bairapareddy KC, Gopala Krishna Alaparathi. *A Cross-Sectional Study on Balance Deficits and Gait Deviations in COPD Patients*. Can Respir J [Internet]. 2021 Jan; 2021. Available from DOI: [10.1155/2021/6675088](https://doi.org/10.1155/2021/6675088). [Read more](#)

Education & Events

The Lung Health Foundation hosts various continuing medical education programs including 3 annual conferences (Better Breathing, Respiratory Health Forum, and TB) and periodic webinars on a wide range of topics related to respiratory lung health, many of which are Mainpro+ certified. [Read more](#)

Ways to Get Involved

A great way to get involved is to join one of our committees! [Read more](#)

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New challenges brought new opportunities. The Lung Health Foundation and the ORCS hosted two regional educational evenings in the autumn with more planned for this spring. Not only were the topics timely and engaging, the online format helped extend our reach and tripled the average number of attendees! A Special thanks to everyone who attended as well as the speakers, and the regional chairs who were instrumental in co-ordinating and hosting these evenings. I am very proud of the educational opportunities that we provide and urge everyone to attend any upcoming seminars.

The 11th annual Respiratory Health Forum also took place in the autumn, uncoupled from the Better Breathing conference for the first time. It was a great event to learn more about lung health across a spectrum of multidisciplinary settings and very well attended. Congratulations to the team who helped organize it.

Speaking of the Better Breathing 2021 conference, this year's very ambitious schedule spanned a whole week with each day dedicated to one of the Lung Health Foundation's five focus areas – Asthma, COPD, Lung Cancer, Immunization/Infectious Disease, and Smoking/Vaping Cessation. There were a lot of firsts – from the online format, to the free registration, to incorporating the TB Conference, and to adding a patient and caregiver stream. The response was incredible with 1400 registrants. I was delighted by the range and prestige of the speakers secured, as well as the level of professionalism exhibited by the team and the smooth use of technology. If you didn't get a chance to attend this marvellous event, I strongly encourage you to register to watch the archived sessions by going to betterbreathing.ca.

In my final words as chair, I'd like to thank you for your service to the ORCS and hope you'll welcome your new chair, Christina McMillan Boyles, with the same warmth you have shown me. I am confident she will lead you well as the society embarks on its journey of change in step with the Lung Health Foundation. Let's embrace this opportunity to reposition ourselves, set new goals and define new strategies for the brilliant future ahead.

Submitted Respectfully,

Miriam Freymond-Turnbull
Chair, Ontario Respiratory Care Society

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Editor's Message



Our province is facing a very unusual winter season. While normally around this time we work on maintaining New Year's resolutions such as visiting the gym, talking to friends or whatever it may be, more often this year started with the silence of lockdowns and the weight of the raging COVID-19 pandemic on our healthcare workers' shoulders. However, even as pandemic fatigue is taking its toll on everyone, science has given us hope once again with the development, approval and distribution of COVID-19 vaccines. There is an infinite feeling of gratitude towards our healthcare professionals who continued to provide skill and expertise where needed in the past twelve months while overcoming the emotional and physical challenges raised by this pandemic.

With renewed hope, we bring scientific information focused on respiratory care to all health professionals who may need a break from COVID-19 information. The world may have stood still for many industries, but healthcare work continued in all areas of expertise providing care within the new framework of the COVID-19 pandemic. The fight against the SARS-CoV-2 virus provided extraordinary opportunities for research and education, and we are looking forward to publishing information as completed and provided in the future. By respecting public health guidelines based on scientific evidence, we will find the way out of this pandemic and will appreciate the strength and knowledge it brought.

In the meantime, I invite you to take some time away from COVID-19 and explore the content of the winter 2021 edition of Update on Respiratory Health, Research and Education.

In our feature article, Andrea White Markham shares her knowledge and provides information on Cannabis pharmacology. The Eye On section explores the importance of community support programs. More specifically, Diane Feldman highlights lung health support groups and their work in our In the Spotlight section. Out of our Toolbox section, Chris Haromy provides resources for both healthcare professional and their patients related to the Asthma Quality Standards. As usual, we suggest a few articles of interest in respiratory care that are informative as well as great conversation starters in your professional circles.

Wishing everyone renewed energy this winter, happy reading!

Sincerely,

Yvonne Drasovean, BSc, RRT, MEd, FCSRT
Co-chair, ORCS Editorial Board

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COVID-19 and the virtual care revolution

Submitted by Andrew Kouri, MD, PhD

Among the many ways the COVID-19 pandemic upended how we practice respiratory medicine in Ontario, perhaps the most significant change has been the profound shift from in-person to virtual care. Looking back now at 2020 and towards a more hopeful 2021, it's an appropriate time to consider the impact of this shift, and to question what role virtual care will have in the future landscape of respiratory care.

Though the concept of virtual care using video or telephone services is by no means a new development, prior to the COVID-19 pandemic, less than 10% of Canadians surveyed by the Canadian Medical Association had ever used virtual care to engage with their healthcare teams.¹ Barriers such as clinician inexperience, limited remuneration and licensing infrastructure, and technical challenges were partly to blame, despite many patients expressing interest in virtual care.¹ As the number of people infected with SARS-CoV-2 (the virus responsible for COVID-19) rose in Ontario in early 2020, the rising risks of in-person care transformed virtual care into an increasingly appealing alternative. By the summer, virtual care accounted for more than 70% of ambulatory visits across the country, bolstered in Ontario by new compensation mechanisms, technical flexibility, and support from professional bodies.^{2,3}

Virtual care options were particularly critical in the ambulatory management of patients with chronic respiratory diseases throughout 2020, as strained personal protective equipment resources early in the pandemic made seeing patients in-person with active respiratory symptoms logistically challenging, and conflicting evidence regarding the risks of COVID-19 in patients with chronic conditions like COPD further complicated risk assessment.^{4,5} There were also unique challenges to shifting care virtually for patients with respiratory disease beyond the lack of physical examination, such as the inability to perform pulmonary function testing as most labs closed or significantly limited their testing capacity for several months, and the suspension of services like in-person pulmonary rehabilitation.⁶⁻⁸

It's still too early to tell at this time what impact the rapid shift to virtual respiratory care in Ontario has had in terms of meaningful patient outcomes. We can make some inferences from the existing evidence for telemedicine and telemonitoring programs in conditions like asthma and COPD, which have been associated with improved disease control and quality of life, reduced exacerbations and hospitalizations, and reduced healthcare utilization and costs.⁹⁻¹² However, there are important methodological limitations to this evidence base, our recent use of virtual care does not incorporate many of the telemonitoring elements included in these studies, and no previous study can accurately approximate the extent to which virtual care has become the standard of outpatient respiratory care in the last year.¹⁰ It is clear that future research is needed to ensure that virtual care meets the Institute for Healthcare Improvement's "Quadruple Aim" of improving population health, enhancing the experience of care for individuals and providers, reducing the cost of care, and pursuing health equity.^{3,13} The availability of high quality system-wide healthcare administrative data in Ontario is one promising avenue to explore this.³

From the patient perspective, the nationwide shift to virtual healthcare seems to have been predominantly a positive one. A national survey in June 2020 commissioned by Canada Health Infoway found that among the 70% of respondents who used virtual care to seek medical assistance during the pandemic, 91% were satisfied with their experience and nearly 90% agreed it was an important alternative to in-person care.¹⁴ Interestingly, though a large majority of people surveyed wanted to use technology to manage their health and believed healthcare technology should be a top priority for government investment, nearly 60% still felt that they lacked knowledge about digital health technology and services.¹⁴

Given overwhelming patient interest in virtual care, and the fact that even with an effective vaccine it may be well into 2021 that the risk of physical contact is low enough to justify a significant return to in-person ambulatory care, it seems as though virtual care will continue to be a large part of respiratory medicine for the time being.¹³ With this in mind, we must now consider how we can use this opportunity to redesign our healthcare system to optimize the potential benefits of virtual respiratory care, and also ensure that we address the new issues that arise from this paradigm shift in care.^{2,13}

First, we must rigorously determine the appropriate amount and type of virtual care that best suits patients with respiratory conditions. For example, virtual visits may be perfectly appropriate for follow-up visits in patients with relatively stable respiratory disease, but may not meet the standard of care for new patient assessments where there is a high degree of diagnostic uncertainty and no existing patient-provider relationship.³ Synchronous video or telephone virtual care is also not the only option, as a recent evaluation of existing virtual care in Ontario pre-pandemic found that both patients and providers preferred *asynchronous* secure messaging in primary care settings.¹⁵ In addition to further quantitative and qualitative research investigating these questions, official recommendations from professional medical groups and

associations will be needed to help guide clinicians.² Provinces like Alberta have already published online resources to this effect.¹⁶

Second, we must ensure that health equity is considered in our applications of virtual care, as technology use is not evenly distributed across different patient populations with respiratory disease.⁴ As the social determinants of health will now take on a “digital dimension”, long-term virtual care solutions will need to be co-designed with patient stakeholders to ensure that their needs are met, with particular attention paid to language and access barriers, disability, and cultural differences.² However, we also need to interrogate our assumptions about who will have difficulty accepting virtual care, as older individuals are increasingly adopting health technology for example, and virtual care may provide new opportunities to empower currently underserved populations.^{3,17}

Third, the infrastructure to support effective virtual care will need to be carefully developed, including national privacy and security standards, remuneration structures that incentivize appropriate use, guidance around integrating virtual care technologies while avoiding fragmentation of care, and medical education reform to ensure the next generation of healthcare practitioners are equipped to effectively care for patients virtually.^{2,3,18,19}

If we can accomplish this, we may find that virtual care creates new opportunities to improve the management of patients with respiratory diseases. For example, integrating digital tools with virtual visits, such as validated smartphone applications, portable electronic spirometers, or digital inhaler devices has the potential to compensate for the lack of laboratory pulmonary function testing data we have had to contend with during the COVID-19 pandemic.⁶ Virtual and digital health technologies might also provide us with new streams of health data that may be analyzed with artificial intelligence and machine learning techniques to further improve patient care.^{20–23} If we can seize the momentum the COVID-19 pandemic has created for virtual health, we may be able to transform some of the hardship we have all faced adjusting to this new reality in 2020 into a more effective and equitable way to care for patients with respiratory disease far into the future.

Word count: 1166

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ABSTRACT

With almost 15% of Canadians and up to 30% of secondary school students using cannabis, respiratory health educators need to be aware of the pharmacology, including adverse effects and drug interactions, of this product.¹ The endocannabinoid system is linked to the brain's regulation systems through activation of G protein-coupled receptors (CB1 and CB2), by endocannabinoids, mainly anandamide and NADA.² Cannabinoids from plants, specifically delta-9 tetrahydrocannabinol (THC), cannabidiol (CBD), and cannabitol (CBN), can also activate these receptors causing various psychoactive (THC) and non-psychoactive (CBD, CBN) effects. Adverse effects have also been identified, including respiratory symptoms, increased risk for cardiovascular events, psychiatric and developmental problems. A limited number of drug interactions have been identified, however there is little research in this area to date.

INTRODUCTION

The percentage of Canadians over the age of 15 years who self-identify use of cannabis over the previous 12 months is approximately 15%.¹ **Table 1** provides a breakdown of those who use cannabis daily according to two National Surveys. The age groups with the highest percentage use in the previous 12 months is young adults (aged 15-24 years) at 27% or students in grades 10-12 at 29% (with almost 38% of those in grade 12).¹ In the 2019 National College Health Assessment Survey of 58 post-secondary schools, only 55.6% of students indicated they had never used cannabis.¹ The Canadian Cannabis Survey found between 28%-31% of those who use cannabis reported daily use and 91% of users smoke it.¹

Based on current prevalence data, and the potential for harm, it is important that respiratory health educators have the information required to provide the best counsel to their patients who use or contemplate using cannabis. This paper will provide a brief introduction to how cannabis interacts with the body creating both potential benefits and adverse effects.

TABLE 1: Breakdown of daily use of cannabis by age in Canada¹

	Youth	Young adults	Adult (25+)
Canadian Tobacco, Alcohol and Drug Survey (2017)	28%	30%	31%
Canadian Cannabis Survey (2019)	9%	15%	19%

ENDOCANNABINOID SYSTEM

While the effects of cannabis have been well known for more than a century, most respiratory health educators did not receive any training on the endocannabinoid system as it was not identified until late in the twentieth century with the identification of G protein-coupled receptors: CB1 and CB2.³ CB1 receptors are found in the central and peripheral nervous systems, respiratory and cardiovascular systems, spleen, endocrine glands, and GI, urinary and reproductive tracts.^{4,5} CB2 receptors are found in the cells and tissues of the immune system, e.g. leukocytes, spleen, tonsils⁴, and in the microglia, a CNS macrophage.⁶ To date, five endogenous cannabinoids have been identified: N-arachidonylethanolamide (anandamide), 2-arachidonylglycerol (2-AG), 2-arachidonylglycerol ether (noladin ether), 0-arachidonyl-ethanolamine (virodhamine), and N-arachidonyl-dopamine (NADA). Endocannabinoids are linked to the brain's regulatory mechanisms, affecting mood, pain perception, learning and memory.²

CANNABINOIDS

There are over 100 cannabinoids found in the cannabis plant, with delta-9 tetrahydrocannabinol (THC), cannabidiol (CBD), and cannabitol (CBN) the most studied.⁶

- THC is a partial agonist that binds mainly with CB1, resulting in psychoactive effects, e.g. euphoria, hallucinations, anxiety and increased taste and appetite. THC may also have antiemetic and analgesic responses however paradoxical responses, e.g. dysphoria, hallucinations, paranoia, hyperemesis have also been recorded.^{7,8}
- CBD has little effect on either receptor, and has potential analgesic, neuroprotective, anti-inflammatory and anti-proliferative effects.^{8,9}

- CBN, a metabolite of THC created through the oxidative process, e.g. burning, binds with CB2 and has potential anti-inflammatory and immunosuppressive properties without any psychoactive effects.^{7,10}

PHARMACOKINETICS

Absorption – Absorption is affected by the method of administration. **Table 2** highlights the high proportion of Canadians who smoke cannabis, compared to other methods of administration.¹ (Since many use more than one method, the percentage adds up to more than 100.) For respiratory health educators who counsel on risk reduction with their patients who use or wish to use cannabis, basic information on the absorption rates can be helpful.

- *Inhaled cannabis* (vaped or smoked) results in 2-56% of individuals having detectable plasma levels immediately after the first puff. Peak plasma levels of THC and CBD are reached within 3-10 minutes and bioavailability ranges from 10-35%.^{10,11} Variation in peak plasma and bioavailability for inhaled/smoked cannabis is related to differences in a number of factors, e.g., inhalation technique (breath size, breath hold, frequency of inhalation), device, size of particles, deposition in the lung.^{10,11}
- *Oral cannabis* results in lower peak plasma levels (achieved at 4-6 hours) and bioavailability (at 10-20%) in part due to the hepatic first-pass metabolism. Variations in absorption are also due to the variety of products, e.g. baked goods, drinks, tinctures, candy and the highly lipophilic nature of both THC and CBD.^{10,11}
- Absorption of preparations through the *buccal mucosa* demonstrate rapid absorption with higher peak plasma levels than oral cannabis but lower than inhaled products.¹²
- *Transdermal* administration is limited due to the hydrophobic nature of cannabinoids and can only be useful with permeation enhancement. Lab testing identified that CBD is 10 times more able to cross human skin than THC, with steady state being achieved in hairless guinea pigs within 1.4 h and maintained for 48hr.^{10,12}

TABLE 2: Methods of cannabis use in Canada¹

Method of administration as reported by various national surveys	Canadian Tobacco, Alcohol and Drug Survey (2017)	Canadian Cannabis Survey (2019)	National Cannabis Survey (2019)
Smoked	91%	84%	65% smoked
Smoked with tobacco	22%		
Vaped	29%	42% (27% pen etc. 15% non-portable vapourizer)	14%
Edibles	38%	41% ate 6.4% drank	12%
Dabbed		10%	
Other		6%	9%

Distribution – Cannabinoids are distributed quickly to well vascularized organs, although this may be affected by body size and diseases that affect the permeability of blood-tissue barriers. As cannabinoids are stored in body fat, with chronic use subsequent release can result in persistent blood levels for several weeks after last administration.¹²

Metabolism – THC is metabolized by cytochrome P450 (CYP 450) and a number of its of isozymes. CBD is metabolized by hepatic isozymes. While some metabolites of THC are psychoactive, little is known of the activity of CBD metabolites.¹²

Elimination – Population based models describe initial half-life of about 6 min for THC, with terminal half-life of approximately 22 hours. This long terminal half-life is due to the equilibration of the cannabinoids between lipid storage compartments and blood. Longer terminal half-life has been noted in those with heavy use and blood concentrations of 10 nanograms/litre may be measured 24hr post consumption.¹² (Of note: blood levels equal to or greater than 2 nanograms/litre when driving will result in conviction in Ontario, the level is considerably lower when alcohol is also in the blood.¹⁴) CBD also has a reported long terminal elimination half-life of 31 ± 4hr for inhaled cannabis. Elimination half-life has been found to range between 2-5 days with daily oral consumption.¹²

ADVERSE EFFECTS

The adverse effects of cannabis identified from recreational use research, include:

- respiratory symptoms, e.g. cough, wheeze, aggravation of asthma, sore throat, chest tightness, dyspnea, and hoarseness when smoked^{13,14,15}; risk of infection due to compromised pulmonary immunologic competence or contaminated product or sharing product and devices^{13,14,15, 16}
- cardiovascular effects, e.g. myocardial infarction (MI), stroke, transient ischemia, tachycardia, hypertension, angina associated with smoking for cannabis naïve patients. An increase in risk of MI of 4.8 times within 1 hour of smoking has been noted, and there is indication of increase in vascular resistance and reduced coronary microcirculation due to action on CB1 receptors in arterial blood vessels. ^{13,14, 15,18}
- increased risk of psychiatric disorders, including paranoia, schizophrenia, psychosis with high doses, addiction (9% overall and 17-50% adolescents who use daily)^{13,16,17}
- developmental changes, including altered brain development, impaired educational attainment, behavioural disorders in children where cannabis was used during pregnancy^{13,15,16, 17.}

Overdose is possible if individuals are using multiple forms of cannabis, e.g. oral cannabinoids and smoking/vapourizing cannabis, or when consuming teas, baked goods or other products where the effects are delayed and amount of THC in the product unknown.¹⁷ National Academies of Sciences, Engineering, and Medicine found moderate evidence of an association between cannabis use and overdose injuries in US paediatric populations where cannabis is legal.¹³

A Word on Inhaled Cannabis Smoke

Due to the combustion temperature of cannabis being higher than tobacco, cannabis smoke has been shown to have significantly more tar, nitrogen oxides, hydrogen cyanide, aromatic amines and ammonia, with somewhat less carbon monoxide than tobacco smoke, and up to four times more particulate burden.¹⁹ There are also differences in the ways individuals smoke cannabis versus tobacco, e.g. longer and deeper ‘puffs’ with a breath hold and smoke down to a smaller butt, however likely fewer joints than cigarettes per day. While symptoms similar to bronchitis result from smoked cannabis (see above), evidence of lung cancer is equivocal. However, changes in tracheal and bronchial mucosa similar to precancerous changes with exposure to tobacco smoke have been documented.¹⁹

DRUG INTERACTIONS

Health Canada comments that drug interactions may be difficult to determine due to the variability in products, potency, THC/CBD ratios, routes of administration and patient characteristics. They caution that clinically significant interactions are likely to occur with CNS depressant drugs, e.g. sedative-hypnotics and alcohol.¹⁷

Some of the interactions that have been identified include:

- threefold increase in levels of active metabolite of clobazam with cannabidiol causing increased risk of toxicity²⁰
- increased international normalized ratio of warfarin causing increased risk of bleeding²⁰
- additive effects of opioids and alcohol ^{17,20}
- changed serum levels for topiramate (antiepileptic; migraine prophylaxis¹⁸), rufinamide (antiepileptic²¹), eslicarbazepine¹⁹, zonisamide (not available in Canada) when taken with CBD¹⁷, tacrolimus (anti-rejection)²⁰
- plasma levels of THC nearly doubled when taken with ketoconazole (antifungal)^{17,22}
- decreased plasma levels of THC when taken with rifampin (antituberculosis)^{14,17}

The products of combustion from cigarettes are known to affect the plasma level of those drugs metabolized by cytochrome P450 and its isoenzymes.²³ It is reasonable to hypothesize that similar interactions will occur when cannabis is administered by smoking. Smoking cannabis has been shown to increase clearance of theophylline by 40% causing reduced efficacy.²⁰ Unfortunately, little information is available on other medications, and the call for research on this area is wide.^{13,14,18,20,21}

CONTRAINDICATIONS AND PRECAUTIONS

Health Canada¹⁷ lists the following contraindications regarding the use of cannabis, stating cannabis should not be used by:

- Those under 25, especially if smoked or vaped or with high THC and little CBD. Consultation with physician re: benefit/risk is recommended, as the risk of development of mental illness is greater with frequent use and high THC potency during 10-24 age range.
- Any individual with history of hypersensitivity to cannabinoid or smoke.
- Patients with severe cardiovascular, cerebrovascular, liver or kidney disease.
- Patients with personal history of psychiatric disorders or family history of schizophrenia. Again, this is especially aimed at high THC with little to no CBD products.

Health Canada also cautions against use by those with chronic respiratory disease, history of substance abuse, those taking concomitant psychoactive drugs and women of childbearing age who are planning pregnancy, who are pregnant or breastfeeding.¹⁷

CONCLUSION

Cannabis use in 2017 was 15% in the general population over the age of 14 (a 12% increase from 2015) and 18-29% in secondary student population in 2018-2019. The percentage of Canadians over 12 who smoke cigarettes is similar at 16% in 2018, however this is a decrease from 20% since 2015.¹ It may be expected that use of cannabis will increase as marketing and ‘normalization’ increases. The harms of tobacco and especially tobacco smoke are well known to respiratory health educators, and much effort has been expended to facilitate smoking cessation, protection and prevention. This brief introduction identifies some of the reasons respiratory health educators must be aware of the harms of cannabis use, especially combustible product lines, and provide counseling on protection, prevention, and cessation or harm reduction for those using the product for therapeutic reasons. One helpful tool is the Low Risk Cannabis Use Guideline²³ available for download at <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/resources/lower-risk-cannabis-use-guidelines.html>

Another is the open access educational modules on fundamentals of cannabis and cannabis psychopharmacology. Both are available from the Michael G. DeGroote Centre for Medicinal Cannabis Research²⁴ and can be found at: <https://cannabisresearch.mcmaster.ca/engagement/education-modules>

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Medical Cannabis Part 2: An introduction to medical cannabis

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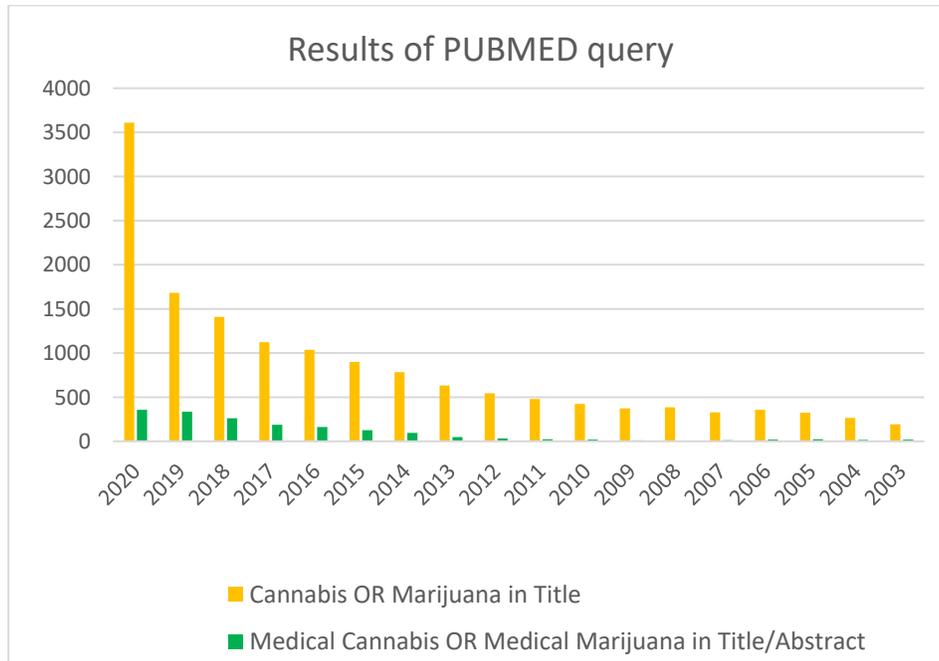
ABSTRACT

While cannabis is not approved by Health Canada for therapeutic use in Canada, its use is a growing industry in Canada worth millions of dollars¹, with 14% of Canadians 16 years and older using medical cannabis according to the Canadian Cannabis Survey (CCS).² There are two cannabinoids on the market approved by Health Canada for therapeutic use; nabiximols, an extract, and nabilone, a synthetic cannabinoid. Canadians use medical cannabis do so for a large variety of reasons, with problems sleeping, stress, depression, pain and anxiety heading the list.³ Current guidelines recommend use for chronic pain, nausea and vomiting related to cancer chemotherapy and spasticity related to muscular sclerosis when other therapies have been unsuccessful.^{4,5} Since the majority of our patients who use medical cannabis inhale it², respiratory health educators’ role continues to be to inform patients of the harms of smoking while collaborating to identify ways that will meet their medical needs and reduce their health risks.

INTRODUCTION

All medications require Health Canada approval for sale in Canada. After concluding the benefits outweigh the risks for specific products, Health Canada issues a Notice of Compliance (NOC) and Drug Identification Number (DIN). A similar process is used for natural health products. While cannabis has not obtained a NOC or DIN, has been regulated for medical use in Canada since 2003.^{6,7} Since then, the topic of medical cannabis has been of increasing interest to health professionals. This is evidenced by the increase in publications listed on PubMed with ‘cannabis’ OR ‘marijuana’ in the title from 193 and 20 with ‘medical cannabis’ OR ‘medical marijuana’ in title/abstract in 2003 to 3610 and 357 respectively in 2020. (FIG 1)

FIGURE 1 - Published Article Count by year; 2003 – August 31, 2020



Of the 3,968 2019 Canadian Cannabis Survey (2019_CCS) respondents who identified they used cannabis in the previous 12 months, 46% (1842) indicated using cannabis for medical reasons.² The most common product used for medicinal purposes is dried flower or leaf (60%), followed by oral use of oils (46%), edibles (28%), vape pens or topicals (both 17%).² (See Table 1) For those who used dried cannabis, most used it daily (43%) followed by weekly (25%), monthly (19%) and less than once a month (14%).² Usage of oral cannabis oil had similar statistics (daily/almost daily-39%; weekly -22%; monthly-22%; and less than monthly-17%).²

TABLE 1: Methods of administration of medical cannabis in Canada²

Method of administration	Percentage of respondents using medical cannabis
Dried flower/leaf	60%
Cannabis oil for oral use	46%
Edibles	28%
Cartridges/Vape pens	17%
Topical	17%
Concentrates and extracts	13%
Hashish/kief	9%
Beverage	5%

There are various ways to purchase cannabis in Canada, both legal and illegal. Legal sources include stores and online sites who have obtained a provincial license to sell cannabis for recreational use and dispensaries who have obtained provincial and municipal license to sell cannabis for medical use. Health Canada has sole jurisdiction to license cannabis producers. Licensed producers may cultivate and sell cannabis including fresh or dried product, seeds or plants for personal use or to stores, dispensaries etc.⁸ The 2019_CCS asked respondents where they purchased their medical cannabis. While a majority of respondents purchased from a legal source, only 23% purchased from a Health Canada licensed producer and only 27% had a medical document (similar to a prescription) from a health professional for use.² This should be worrisome to respiratory health educators, as it indicates few of their patients who are using medical cannabis are receiving information related to the efficacy and safety of the product for a specific health concern. While a producer may be able to help select a product that is suitable for use, they do not provide education on the management of disorders and may not have information related to the specific ratios of delta-9 tetrahydrocannabinol (THC) and cannabidiol (CBD) that best meet particular health needs. Since most respiratory health educators work with individuals living with chronic disease, it is important that we have a grasp of the medical indications for cannabis and the guidelines for its use. To that end, this paper will provide a brief introduction on the indications and efficacy of medical cannabis and cannabinoids and the current recommendations from the Royal College of Physicians and Surgeons of Canada (RCPSC) and the National Institute for Health and Excellence (NICE).

INDICATIONS FOR MEDICAL CANNABIS

Health Canada’s consumer information on cannabis provides the following statement on symptoms for which cannabis may be ‘authorized’ for medical use:

“...severe refractory nausea and vomiting associated with cancer chemotherapy; loss of appetite and body weight in cancer patients and patients with HIV/AIDS; pain and muscle spasms associated with multiple sclerosis; chronic non-cancer pain (mainly neuropathic); severe refractory cancer-associated pain; insomnia and depressed mood associated with chronic diseases (HIV/AIDS, chronic non-cancer pain); and symptoms encountered in the palliative/end-of-life care setting. This is not an exhaustive list of symptoms or conditions for which cannabis may be authorized for use by your health care practitioner.”⁹

The list of potential indications in Health Canada’s information for health professionals is more detailed and is intended to complement other reliable sources. They state:

“...Despite the similarity of format, it is not a Drug Product Monograph, which is a document which would be required if the product were to receive a Notice of Compliance authorizing its sale in Canada. This document should not be construed as expressing conclusions or opinions from Health Canada about the appropriate use of cannabis (marihuana) or cannabinoids for medical purposes.”¹⁰

CANNABINOID PRODUCTS APPROVED FOR USE BY HEALTH CANADA

There are currently two products approved for use in Canada, nabiximols (brand name, Satavix®), an extract of cannabis containing both THC and CBD, and nabilone (brand name, Cesamet®), a synthetic analogue of THC. Table 2 provides information on the indications, method of administration and level of evidence for these two products. More detailed information, including adverse effects, warnings and long-term side effects follow.

Nabiximols is a buccal spray product that is indicated for spasticity in multiple sclerosis. The product monograph¹¹ identifies the principle effects of THC to include analgesic, muscle relaxant, antiemetic, appetite stimulant and psychoactive effects and CBD to include analgesic, anticonvulsant, muscle relaxant, anxiolytic, neuroprotective, anti-oxidant and anti-psychotic activities. Drug interaction warnings include caution when using with medications that cause sedating or psychotropic or hypnotic effects and that if used with alcohol interactions can cause increased difficulty with coordination, concentration and response time.¹¹ Serious warnings and precautions include¹¹:

- tolerance and withdrawal, as cannabis use disorder has been identified in individuals using recreational cannabis
- driving or operating machinery with potential impaired function
- increased cardiovascular risk (tachycardia, transient hypotension) and recommendation not to use with individuals who have pre-existing cardiovascular disease
- caution when using with patients who have a history of epilepsy or recurrent seizures
- women who are of child-bearing years and fertile men are advised to use contraceptives during therapy and for three months after discontinuing therapy. While at present there is insufficient evidence regarding the effect of this product on human reproduction, independent studies of various animal species have found that cannabis is associated with negative outcomes during pregnancy and spermatogenesis.
- contraindicated under 18 years of age

Mild-moderate long term side effects for those who were treated with nabiximols for spasticity for up to three years were noted in 95% of patients (with 16% withdrawing due to adverse effects) and included dizziness, fatigue and headache.¹² After six months of therapy, 31% of patients who were treated for varied medical conditions including cancer reported an adverse event, including dizziness, dry mouth, increased appetite, sleepiness and psychoactive effects.¹²

Nabilone is an oral capsule with indication as an antiemetic for nausea and vomiting associated with cancer chemotherapy. Potential drug interactions with this product are over 60 drugs or classifications and include diazepam, sodium secobarbital, alcohol, and codeine due to additive depressant effects or psychomotor function impairment, especially noted with diazepam.¹³ Warnings and precautions include¹³:

- extreme caution with patients with severe liver dysfunction or history of non-psychotic emotional distress
- impaired mental or physical ability impairing ability to drive or operate machinery etc.
- do not drink alcohol, take sedatives, hypnotics or other psychotomimetic
- adverse psychotropic reactions may persist up to 72 hours post treatment
- use with caution in elderly patients or those with hypertension or heart disease due to elevation of HR and postural hypotension.
- do not use during pregnancy, breast feeding or in paediatrics. Studies on rats showed poor outcomes during perinatal and postnatal periods included weight loss in both adult (male and female) and decrease in survival rates of progeny especially marked in those exposed to higher doses of the product.

A retrospective study of 1200+ patients using nabilone for non-cancer pain management found few¹⁴ had side effects, and those identified were generally mild, e.g. dry mouth, headache, fatigue, apathy, decreased clarity, concentration, focus, dizziness, drowsiness, red cheeks. There were some transient adverse effects in the first week including nausea and vomiting and deformity of left side of the face. Three patients stopped therapy due to palpitations, dry mouth and increased urinary retention and one person reported increase in pain for reason for stopping.¹⁴

TABLE 2: Cannabinoid products approved for use in Canada

Product	Active ingredient ¹⁶	Indications – from product monograph ^{11,13}	Level of evidence ^{21,22,23}	Administration ¹⁶
Nabiximols, (Sativex®)	Standardized extract with equal amounts of THC and CBD	Muscle spasm due to multiple sclerosis	Moderate	Metered dose buccal spray
Nabilone (Cesamet®)	synthetic derivative of THC	Severe nausea and vomiting due to cancer chemotherapy	Low/weak to substantial	Oral pill

THERAPEUTIC USE OF CANNABIS

Indications

Health Canada discusses 44 different potential indications in their information for health professionals, however, cautions that their commentary is not a systematic review.¹⁰ One of the medical cannabis suppliers in US, *Hello MD*, completed an online survey of their 17,000 patients between the ages of 18-80 in 2016. The top 5 reasons the 1,400 respondents gave for using medical cannabis were anxiety, pain, stress, back pain and insomnia.³ Medical Marijuana.com lists 32 medical conditions that may benefit from cannabis.¹⁵

In contrast, the Canadian Centre on Substance Use and Addiction’s (CCSUA) 2016 update on medical use of cannabis,¹⁶ RCPSC guideline for prescribing medical cannabinoids in primary care⁴ and NICE guidelines for cannabis-based medicinal products⁵ identify two or three indications for the use of medical cannabis (see section on current guidelines below for more information). As respiratory health educators follow current evidence and guidelines, the information that follows is based on published reviews and guidelines.

Results of literature reviews

The findings of 5 reviews of medical cannabis published in the past 5 years are discussed below with a synopsis of the findings in Table 3.

The conditions reviewed include anorexia, anxiety, chronic pain, epilepsy, nausea and vomiting related to cancer chemotherapy, post-traumatic stress syndrome (PTSS), sleep disorders, spasticity in multiple sclerosis (MS) and Tourette syndrome. Of these, only chronic pain, nausea and vomiting, spasticity in MS have evidence supporting the use of cannabis, while epilepsy in children and short-term sleep improvement have conflicting reviews. Due to the variations in findings by the various authors based on their weighing of the evidence, respiratory health educators may find it difficult to provide clear recommendations for specific disorders, e.g. nausea and vomiting related to cancer chemotherapy where the evidence is rated as conclusive by NASEM, and weak by EMCDDA.

TABLE 3: Evidence for therapeutic use of cannabis

Symptom or condition	Product	Level of evidence from systematic reviews	Evidence from EMCDDA and NASEM
Anorexia or weight loss with HIV/AIDS	Oral cannabinoid	Low quality evidence for weight gain ²¹	Weak evidence – few cases to study; little evidence of effect in other conditions ¹²
Anxiety	Cannabidiol	Insufficient evidence to estimate effectiveness ²³	Limited evidence of effectiveness ¹⁷
Chronic pain	Oral cannabinoids Cannabis	Moderate evidence but high risk of bias ²¹	Substantial evidence in adults with neuropathic pain ¹⁷
		Moderate evidence of non-cancer related chronic pain using cannabis and cannabinoids due to small but statistically significant effect. ²³	Moderate evidence due to small but statistically significant effect compared to placebo. ¹²
		Very low evidence due to risk of bias, inconsistency. May provide small benefit with neuropathic pain. ²²	
Epilepsy in children	Oral CBD solution	Low evidence with 50% reduction in seizure frequency. ²³	No or insufficient evidence to support or refute as effective. ¹⁷
			Moderate evidence for use of CBD as adjunctive therapy in people with Dravet or Lennox-Gastaut syndrome. ¹²

Nausea and vomiting related to cancer chemotherapy	Oral cannabinoids	Low evidence for THC as a treatment for reduction in nausea and vomiting related to chemotherapy. ²³	<i>Conclusive</i> evidence for effective therapy. ¹⁷
		<i>Moderate</i> evidence even with large effect due to serious risk of bias and imprecision. ²²	<i>Weak</i> evidence for cannabinoids due to few studies against newer anti-emetics and newer chemotherapy regimes cause less nausea. ¹²
Post traumatic distress syndrome	Synthetic cannabinoid		<i>Limited</i> evidence of improved symptoms due to one study reviewed. ¹⁷
Sleep	Oral cannabinoids		<i>Moderate</i> evidence of improved short-term sleep outcomes associated with OSA, fibromyalgia, chronic pain, MS. ¹⁷
			<i>Insufficient</i> evidence for short term improvement. ¹²
Spasticity in multiple sclerosis (MS)	Oral cannabinoids	<i>Moderate</i> quality evidence with some risk of bias. ²¹	<i>Substantial</i> evidence for oral cannabinoids as treatment for improving patient-reported multiple sclerosis (MS) spasticity symptoms, but limited evidence for clinician-measured spasticity. ¹⁷
		<i>Moderate</i> evidence of improved spasticity in MS with cannabis extract. ²³	<i>Moderate</i> evidence of subjective improvement for use of cannabis extract in MS but little change in clinician rating of spasticity. ¹²
		<i>Low or very low</i> level of evidence due to serious risk of bias or inconsistency. ²²	
Tourette syndrome	THC capsules Cannabis	<i>Low</i> quality evidence of effectiveness. ²¹	

ADVERSE EFFECTS OF MEDICAL CANNABIS

Many of the adverse effects of cannabis have been identified from recreational use research, including respiratory symptoms,^{21,22,23}; risk of infection,^{21,22}; cardiovascular events²¹; psychiatric and psychological disorders.^{21,23}

More recently research has provided insight into the negative effects of medical cannabis. Whiting¹⁸ identified common short-term side effects included dizziness, dry mouth, disorientation, nausea, euphoria, confusion and somnolence. These did not vary by the type of cannabis product used and serious adverse effects, including confusion, hallucinations, paranoia, and symptoms of psychosis were noted to be rare.^{12,18}

CURRENT GUIDELINES FOR THE USE OF MEDICAL CANNABIS AND CANNABINOIDS

While CCSUA is not specifically a guideline, nor does it rate the evidence, a synopsis of the research reviewed for use of cannabis in multiple sclerosis (MS), epilepsy, cancer, anti-inflammatory actions, psychiatry, neuroprotection, obesity, and glaucoma is helpful in making clinical decisions. Their conclusions indicate ‘*approved therapeutic use*’ is limited to treatment of nausea, vomiting and some types of pain. The CCSUA also “*approve*” use of cannabis to stimulate appetite only in AIDS patients as the current evidence does not yet support recommendation for other uses.¹⁶

The Royal College of Physicians and Surgeons of Canada published a guideline for prescribing medical cannabinoids in primary care.⁴ Their recommendations include:

Chronic pain – neuropathic and palliative cancer

- **Strong recommendation against** medical cannabinoids for headache, rheumatologic conditions and as 1st or 2nd line therapy for neuropathic or palliative cancer pain.
 - For those patients with refractory neuropathic pain or refractory pain in palliative care a **weak recommendation for** the use of medical cannabis (specifically pharmaceutically developed products – nabilone is off label, nabiximols better evidence) as an adjunct after reasonable trial or three or more analgesics and a discussion with the patient on the risk/benefits of cannabinoids. **Strong recommendation against** medical cannabis, especially smoked, due to high risk of bias in evidence and THC/CBD concentrations that differ from research.

Nausea and vomiting

- **Strong recommendation against** medical cannabinoids for general nausea/vomiting.
- **Strong recommendation against** use during pregnancy for nausea/vomiting or hyperemesis gravidarum
- **Strong recommendation against** 1st or 2nd line therapy using medical cannabinoids for cancer related nausea/vomiting.
 - For those patients with refractory nausea/vomiting related to cancer a **weak recommendation for** the use of medical cannabinoids as adjunct trial after reasonable trial of standard therapies and a discussion with patient on the risk/benefits of cannabinoids.
- **Strong recommendation for** the use of nabilone and **against** the use of nabiximols or medical cannabis (smoked, oils, edibles) when considering medical cannabinoids for nausea and vomiting.

Spasticity

- **Strong recommendation against** medical cannabinoids for general spasticity
- **Strong recommendation against** medical cannabinoids as 1st or 2nd line therapy for MS or spinal cord injury (SCI) related spasticity
 - For those patients with spasticity related to MS or SCI a **weak recommendation for** the use of medical cannabinoids as therapy after reasonable trial of standard therapies and a discussion with patient on the risk/benefits of cannabinoids. **Strong recommendation for** the use of nabiximols and **against** medical cannabis (smoked, oils, edibles). **Weak recommendation for** use of nabilone (off label) due to lower cost.

NICE GUIDELINES FOR CANNABIS-BASED MEDICINAL PRODUCTS⁵

Chronic pain

- Do not offer nabilone, dronabinol (not available in Canada) THC or combination CBD/THC to manage chronic pain
- Do not offer CBD for chronic pain unless part of a clinical trial
- Adults may continue to use cannabis-based medications to manage their chronic pain if therapy began prior to this guideline publication

Intractable nausea and vomiting

- Consider nabilone as add on therapy for adults with chemotherapy induced nausea and vomiting refractory to optimized conventional therapy
- Consider potential adverse effects due to drug interactions, e.g. CNS depressants

Spasticity

- Offer four week trial of THC:CBD spray for moderate-severe spasticity related to MS if:
 - Other therapies ineffective
 - Therapy provided based on funding model in Britain

- Continue therapy if at least 20% reduction in patient rated symptoms using a 0-10 point scale
- Treatment should be initiated and supervised by physician with expertise in treating MS

CONCLUSION

While there are few indications at present for the use of medical cannabis and cannabinoids, statistics from Health Canada suggest that 2 million Canadians have used products for medical reasons in the past year (7% of those 15 and older). This means that it is likely that all respiratory health professionals will work with patients who are using medical cannabis. As current knowledge of the efficacy of medical cannabis grows, it is likely that more symptoms and conditions will be added to the current small list and it will become more important for respiratory health educators to have knowledge of the indications, drug interactions and side effects as products become more prevalent. Since the greatest majority of individuals use smoked cannabis for therapeutic purposes, respiratory health educators have the responsibility of collaborating with them, other health providers and cannabis suppliers to develop treatment plans that meet our patients' medical needs while reducing their risk for poor lung health outcomes.

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Eye On: Ronald McDonald House Toronto



Ronald McDonald House Toronto is Keeping Families Close

An excerpt from their Fall Newsletter Submitted Geetika Bhargava, RRT, CRE

Read the full article at rmhctoronto.ca

Deemed an essential service by the Province of Ontario, Ronald McDonald House Charities (RMHC) Toronto continues to serve families as they navigate COVID-19 by adapting their services and investing in new infrastructure to keep families safe.

In March 2020, following guidelines set by RMHC Global, they paused admissions to the House as they enhanced their safety protocols and procedures. In the months that followed, they worked closely with the local public health authorities and hospital partners to continue their essential mission delivery while mitigating risks.

They began admitting additional families to the House in June 2020. They continue to provide services such as prepared meals, and on site schooling in the House in accordance with the Province's guidance.

Did you know it costs \$183 a night to house one family? These costs are covered by generous donors – with no expenses to the family. To donate, please visit rmhctoronto.ca/donate.

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In the Spotlight

ORCS Poster Presentations at Better Breathing 2020

Submitted by Natalie Bennett, ORCS/OTS Coordinator, Lung Health Foundation

At Better Breathing 2021 Conference, the Ontario Respiratory Care Society showcased e-poster submissions pertaining to aspects of respiratory health. Submissions were displayed for viewing over the duration of the conference and then judged in 3-minute rapid-fire presentations by the authors on the final evening.

This segment of the conference has been very popular with students, researchers and practitioners alike. The quick and ready nature of the presentations keeps the audience engaged and allows the authors to present as much information from the poster as possible within the short time allotted. During the presentation judges score based on the content, organization and verbal delivery of the presentation.

Congratulations to our 2021 Winners!

Margaret Fitch Award for Best Poster: Stacey Butler for *Randomized control trial of community-based, post-rehabilitation exercise in COPD*

Lisa Cicutto Award for Best Poster by a Student: Kenneth Wu for *What evidence is available on Glucocorticoid-Induced Myopathy in Asthma? A Systematic Review*

Sheila Gordon-Dillane Award for Best Poster for Program Evaluation: Judy King for *Participants' experiences in an innovative combined cardiac rehabilitation and pulmonary rehabilitation program offered in a rural setting using telerehabilitation*

Many thanks to everyone who submitted and presented. Special acknowledgement goes to Sharolyn Mossey, Chair of the ORCS Research and Fellowship Committee and her panel of judges, for organizing and executing this event each year.

2021 was a great success and we look forward to presenting next year's poster submissions. The call for posters will go out in September 2021, so please watch out for it!

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Lung Health Foundation Telephone Support Group

Submitted by Diane Feldman, RRT, CRE, CTE; Jody Hamilton, BSW, MSW; Sara Han, RRT, CRE

The Lung Health Foundation (LHF) telephone support group is open to anyone who has been diagnosed with a lung disease such as chronic obstructive pulmonary disease (COPD) (chronic bronchitis and emphysema), asthma, lung cancer, pulmonary fibrosis, bronchiectasis, or pulmonary hypertension. The group also welcomes family members, caregivers or anyone with an interest in lung health.

Launched in early 2020, the support group was created to address a need for people without access to local support groups or similar programs in their communities. In March of this year, COVID-19 hit and many face-to-face programs across the province shut down. Staying at home and social distancing became one of the main public health directives creating isolation, loneliness and mental health challenges for many people. In situations like this, there is no wrong or right way to feel. We are unique individuals with our own set of experiences and circumstances that impact our feelings and reactions. But for people living with a lung disease, the stakes are higher now than ever. Lung disease already brings with it loss that can affect every part of a person's life.

The support group has become a key opportunity for people with an interest in lung health to stay connected with one another. Organized by the manager of patient engagement & community programs, Jody Hamilton, and supported by the Lung Health Foundation's Certified Respiratory Educators (CREs), the program currently services between 35 and 60 attendees each month.

Ahead of the meetings, participants are invited to submit their questions to be discussed and answered during the session. Recently, many of these questions have been COVID-19 related, for example:

- How do I protect myself from developing COVID-19?
- How do I know if I have COVID-19?
- I have difficulty breathing with a mask on. What can I do?
- How can I continue to exercise while practising social distancing during COVID-19?
- What do I need to do to stay safe while still seeing my family and friends during COVID-19?
- When will a vaccine be ready?
- When will those with chronic conditions such as lung disease be prioritized to get the vaccine?
- Is the vaccine safe?

Other questions have included inquiries about medication shortages, managing virtual health care, indoor and outdoor air quality, trigger avoidance, and flu season 2020/2021.

For all of these questions (and others) there are many support services offered by the Lung Health Foundation such as online information about COVID-19 on the website, online exercise videos such as Fitness for Breath as well as discussion and consultation via phone, chat or email with a Certified Respiratory Educator. Additionally, the Lung Health Foundation is offering a "new" service to your clients in the form of case management – guidance via a series of educational sessions for asthma, COPD and smoking cessation.

We've had so much positive feedback from attendees who tell us they find the meetings informative and beneficial. Not only do they receive evidence based responses from the CREs, but they are also able to compare experiences and share findings with one another.

Looking ahead, we will be calling for guest speakers to provide a 15-20 minute talk on a given topic of interest to the group. If you or someone you know would be willing to speak on a topic related to lung health, please let us know. You can reach out directly to Jody at: jhamilton@lunghealth.ca or call our lung health line at: 1-888-344-LUNG (5864). We would love for you to be involved in helping provide access to information, comfort and togetherness for those living with lung disease.

Also on the horizon, are plans for additional support groups that will address the specific needs of those living with lung cancer. More information will follow on these as their development progresses.

If you know of someone who would benefit from the telephone support group, please let them know they can contact the LHF at the following web link: lunghealth.ca/support-resources/phonesupportgroup/

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Toolbox

Asthma Quality Standards

Submitted by Chris Haromy, RRT, CRE

Lung Health Foundation Reference Guides

To assist healthcare providers, the Lung Health Foundation has developed the **Asthma Quality Standards – Quick Reference Guide**. Patient reference guides are also available for adults **Understanding Your Asthma Care** and for parents/caregivers of children **Understanding Your Child’s Asthma Care**.

Ontario Health recently collaborated with healthcare professionals, patients and caregivers to develop the quality standards *Asthma Care in the Community for People Under 16 Years of Age (2020)* and *Asthma Care in the Community for People 16 Years of Age and Older (2020)*, using the latest evidence and expert consensus.

With a focus on primary care and community-based settings, these standards can help your office/organization recognize areas where asthma care improvements may be needed. These standards will guide you in developing and implementing a plan, as well as on how to measure improvements.

The Standards highlight the following key areas where asthma care improvements may be required:

- Diagnosis
- Control
- Medication
- Self-Management Education & Asthma Action Plan
- Referral to Specialized Asthma Care
- Follow-Up After Discharge

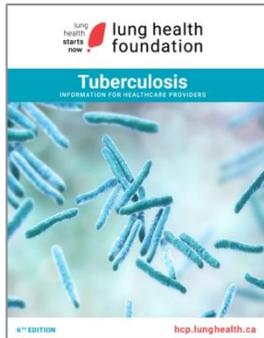
HOW QUALITY STANDARDS CAN BE USED

Quality standards are useful for several audiences:

- **Patients, caregivers and the public** can use quality standards to understand what excellent care looks like, what they should expect from their health care providers, and how to discuss the quality of their care.
- **Health System Planners** can use quality standards to measure health outcomes, hold health service providers accountable for delivering high-quality care, and inform regional improvement strategies.
- **Health Service Providers** can use quality standards to measure and audit their quality of care, identify gaps, guide organizational improvement strategies, and inform clinical program investments.
- **Health Care Professionals** can use quality standards to evaluate their practice and identify areas for personal and organizational quality improvement, and can incorporate the evidence-based statements into professional education.
- **Government** can use quality standards to identify provincial priority areas, inform new data collection and reporting initiatives, and design performance indicators and funding incentives.

Source: *Quality Standards Process and Methods Guide (Oct 2017)*

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Tuberculosis Booklet

Submitted by Gloria Alfred, Training Coordinator, Provider Education Program

The latest edition of the TB Booklet is now available at

hcp.lunghealth.ca/wp-content/uploads/2021/02/lhf_tuberculosis_6ed_digital-2.pdf

For a complete list of all the clinical tools available, please visit hcp.lunghealth.ca/clinical-tools/

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Respiratory Article of Interest #1

From Gold 0 to Pre-COPD

Summary by Julie Datars (RKin)

Han MK, Agusti A, Celli BR, Criner GJ, Halpin DM, Roche N, Papi A, Stockley RA, Wedzicha J, Vogelmeier CF. *From Gold 0 to Pre-COPD*. Am J Respir Crit Care Med [Internet]. 2021 Feb; 203 (4): 414-423. Available from: DOI 10.1164/rccm.202008-3328PP

This article looks at the evidence in various studies to determine if there is a need to highlight individuals that are “at risk” of developing COPD for closer follow up and risk management.

Many studies of chronic diseases and/or conditions have moved towards identifying patients that are at risk for developing a disease or condition, such as prediabetes, prehypertension and even precancer.

At one time, the Global Initiative for Chronic Obstructive Lung Disease (GOLD) introduced an “at risk stage” called GOLD 0, including patients that did not show spirometric abnormalities, but presented with chronic cough and sputum production as well as a smoking history. GOLD 0 was later dismissed as not all patients progressed to COPD.

Disease burden among at risk individuals, symptoms and physiologic measurements as biomarkers of disease progression as well as imaging were all evaluated in comparison studies to find that despite normal spirometric results, many individuals reported symptoms and exacerbation-like events similar to those with confirmed COPD, a worse health-related quality of life and evidence of airway wall thickening. These are just a few of the outcomes that were found in patients that did not qualify for a diagnosis of COPD.

The researchers believe that by using the term pre-COPD, there should be a larger portion of patients identified who will eventually develop COPD. They also state that using this concept would increase awareness within the medical community and general public that significant airway damage can occur before obstruction is evident on spirometry. Based on the comparison studies, physicians can identify patients as pre-COPD if they have respiratory symptoms, physiologic abnormalities and radiographic abnormalities.

Despite determining an approach for early-identification of COPD, further data is needed to fully understand the disease progression from these “at risk” markers mentioned above as well as responses to treatment.

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Respiratory Article of Interest #2

A Cross-Sectional Study on Balance Deficits and Gait Deviations in COPD Patients

Submitted by Jane Lindsay (PT, retired)

Jirange P, Vaishali K, Sinha MK, Bairapareddy KC, Gopala Krishna Alaparathi. *A Cross-Sectional Study on Balance Deficits and Gait Deviations in COPD Patients*. Can Respir J [Internet]. 2021 Jan; 2021. Available from doi.org/10.1155/2021/6675088

Educators and researchers alike will find something useful in this concise and significant article.

The authors note the growing body of evidence about the extra-pulmonary effects of COPD. Their study adds to that work by investigating the changes in gait, balance and fear of falls, all of which contribute to an increased percentage of falls in people with COPD compared with matched controls.

The researchers used a mix of high-tech (e.g. Win-Track Gait Analyser) and low-tech (e.g. Timed Up and Go test) assessment tools, some of which can easily be incorporated in any rehabilitation program. Gait, static balance and dynamic balance were all measured objectively, and the Falls Efficacy Scale questionnaire was used to indicate the patient's concern about falling.

Clinicians can use the practical information in this study to address the heightened falls associated with COPD. The study suggests that, if it isn't already part of the Pulmonary Rehabilitation or Support Program, implementing balance testing and training, and working on quality of gait rather than just quantity, may have a positive impact on the risk of falls.

Researchers will find suggestions for further study in this important area of function and morbidity for people with COPD.

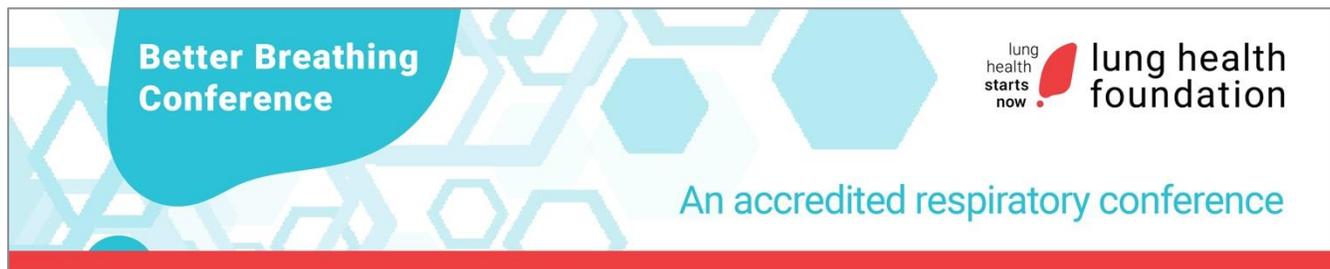
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Education & Events

The Lung Health Foundation hosts various continuing medical education programs including 3 annual conferences (Better Breathing, Respiratory Health Forum, and TB) and periodic webinars on a wide range of topics related to respiratory lung health, many of which are Mainpro+ certified. For more information or to set up a workshop for your healthcare team or organization please contact pep@lunghealth.ca.



ORCS members regularly receive news of upcoming workshops via the bi-weekly ORCS News. Recordings of past educational webinars can be found [in our archives](#).



Our 38th annual Better Breathing Conference took place from January 18 to 22, 2021. The TB Conference was also held as part of Better Breathing this year, with a dedicated stream of sessions taking place on the afternoon of Thursday January 21, 2021. It was the first time either conference was delivered virtually. Browse our conference program to learn about everything we explored in 2021:

[Click here to view the Healthcare Provider Program!](#)

If you missed all or part of the conference, you can still view select sessions until May 2021. To access the recordings, please first [register here](#) then sign-in to the Better Breathing Conference 2021 virtual venue where you can navigate by topic from the home page or by conference day using the Agenda.

- Desktop users login at: eventmobi.com/bbc2021
- Mobile users login at: Same as above if using the web browser, or download the EventMobi app from the App Store or Google Play. If you enter the virtual venue through the app, you'll need to use the event code **bbc2021**

Help us shape Better Breathing 2022!

The Better Breathing Conference continues to grow and evolve thanks to your feedback. [Click here](#) to take part in a brief survey about your experience at Better Breathing 2021.

RESPIRATORY TRAINING & EDUCATOR COURSE **RESPTREC**[®]

RESPTREC is pleased to offer ORCS members a 10% discount on any individual course purchases (ie. Asthma or COPD or Education for Chronic Disease). To receive the discount, please apply the code **ORCS10** at the time of registration. If you are a new RESPTREC learner, you can also register for all three courses as a value-bundled option.

To see what RESPTREC courses are currently available and to register, please visit www.resptrec.org.

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Ways to Get Involved

A great way to get involved is to join one of our committees!

PROVINCIAL COMMITTEE

provides leadership to the ORCS. It is comprised of the ORCS Chair, the Chair-Elect, Past Chair, the Chairs of the standing committees, the Chairs of the regional planning committees and the ORCS representative on the Lung Health Foundation Board of Directors.

EDITORIAL BOARD

produces the electronic publication, *Update on Respiratory Health, Research and Education* for ORCS members by providing academic and patient education content.

EDUCATION COMMITTEE

is responsible for planning those sessions at the annual Better Breathing conference that would be of interest to ORCS members.

RESEARCH AND FELLOWSHIP COMMITTEE

manages the ORCS research funding process by reviewing the grant and fellowship applications and recommending the funding allocation.

REGIONAL PLANNING COMMITTEES

(Northeastern, Northwestern, Eastern, Central, and Western) plan educational seminars of particular interest to the ORCS members in their communities.

For more information, please contact the ORCS office at societies@lunghealth.ca.

And don't forget to encourage your colleagues to become members of the Ontario Respiratory Care Society!

Have them visit hcp.lunghealth.ca/respiratory-care-society today!

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