BCMJ
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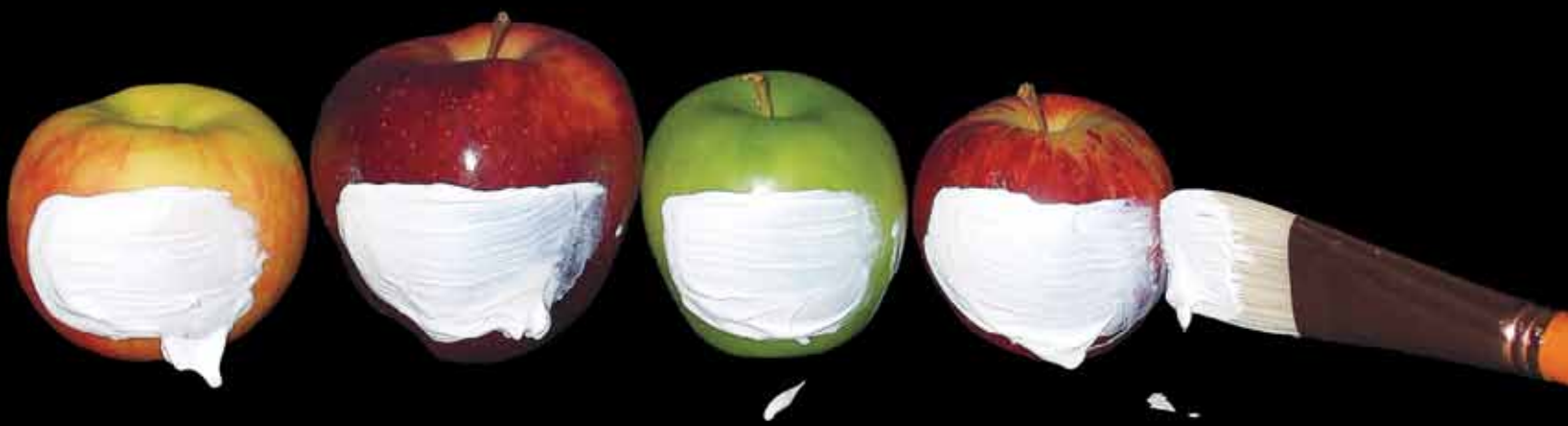
Pages 357–400

Opioid prescribing



An essential skill we must not lose

Management of cancer pain with opioids

Opioids for pain and shortness of breath in frail older adults

ALSO IN THIS ISSUE

The value of ancillary testing in amniotic fluid infection/ inflammation-related early pregnancy loss and perinatal death in BC

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During last summer's heat wave, between 25 June and 2 July there were about 740 more deaths than would be expected in a normal summer. See the BCCDC article on page 366.

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Environmental impact
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ON THE COVER

The increase in opioid-related harms has been situated as a problem with a class of drugs rather than the problematic health outcomes from historical roots of socioeconomic inequality in our society and its lack of institutional support for prevention and treatment of substance use. This narrative has such a wide brush that it has painted over those who use opioids safely and benefit from them. Our theme issue on appropriate opioid prescribing begins on page 370.

The *BCMJ* is published by Doctors of BC. The journal provides peer-reviewed clinical and review articles written primarily by BC physicians, for BC physicians, along with debate on medicine and medical politics in editorials, letters, and essays; BC medical news; career and CME listings; physician profiles; and regular columns.

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A review of cancer pain management methods suggests that the use of opioid-based analgesia is the most appropriate primary approach to treating moderate to severe cancer pain. Article begins on page 372.

Contents continued from page 359

CLINICAL

Theme issue: Opioid prescribing

Abbreviations: Please stop

I wrote an editorial in 2012 [*BCMJ*;54:61] discussing the use of abbreviations in medical writing, essentially pleading with scientific writers to cease and desist. In the 9 long years since my editorial's publication, the use of abbreviations has not improved and actually seems to be worsening, which is why I am revisiting this topic. My last editorial was quite cheeky, as I used more and more abbreviations as I went along, which perhaps diminished the message. I will attempt to be much clearer this time.

An abbreviation is a short form of a word or phrase used to represent the whole for convenience or to improve comprehension. The key takeaway is the part about improving comprehension. Our brains readily accept commonly used abbreviations and move seamlessly along without hesitation while reading. When faced with the abbreviation *MI*, for example, most health care providers automatically register that the individual has suffered a myocardial infarction and are able to carry on reading without having to wonder what it stands for and rescan the article above for a definition. Medicine is full of commonly used and accepted abbreviations such as *BMI*, *bp*, *DM*, *TSH*, and *PE*. These are not the problem, as readers' eyes pass over them easily, with good comprehension.

Taking a risk by submitting your written word for others to comment on in a peer review process is a brave venture.

Not to pick on any particular author, but on perusal of some recently submitted manuscripts, here are some abbreviations I found: *NROP*, *TUG*, *CHR*, *RTPCR*, *LUS*, *OUD*, and *PWUD*. Perhaps these abbreviations are commonly used by individuals within their respective fields of medicine, but they don't translate well to a general readership. I'm pretty sure that most of you don't know what they stand for.

So, what about the whole convenience reason for using abbreviations? This is what pronouns and other nouns are for. Using a pronoun is just as easy as using an abbreviation and is equally succinct. If you are abbreviating *picky narrow-minded editor* by using *PNME*, it is much more effective to use the pronoun *he*.

Please limit the use of abbreviations in your writing. Frequent use of abbreviations turns a

good article into a manuscript that reads like fingernails across a chalkboard. Now don't get me wrong: I appreciate you taking the time to create and submit papers, studies, letters, and so on. I know this process is difficult and requires time, effort, and fortitude. Taking a risk by submitting your written word for others to comment on in a peer review process is a brave venture, and I admire everyone who does it.

I am just asking for the process to proceed more smoothly by not forcing us to continually scan the manuscript looking for the definition of yet another obscure abbreviation. This will improve your article's chance of being accepted for publication and of reaching its real audience: your colleagues. ■

—David R. Richardson, MD (PNME)

It's all about who controls the narrative

We inhabit a world where immediately accessible mass communication is almost an expected part of life. The medium is certainly confirmed to be the message, and it's clear that whoever controls the medium also controls the message.

This might be okay if all sources of information were obliged to release only content that is as true, complete, and unbiased as information can be. If *all* news articles, history books, and campaign speeches could be published *only* after rigorous, diverse, nonpolitical peer review and were presented to everyone equally, imagine how people would act, and how compassion and community and fearlessness could inform and direct those in power.

As I write this, we are in a month where a national statutory "day" has been created to honor the promises of truth and reconciliation for the colonial indignities and abuses of past and present Indigenous Canadians. Of all the statutory holidays in Canada, it is the first to openly recognize Canada's shameful past, and with the very arguable exception of Canada Day, the first to not celebrate what are primarily European and Christian traditions. It could be a step toward starting to shed light on the truthful narratives of Indigenous citizens, where almost all the content our media has served to this point has been steeped in at least passively dishonest portrayal, bias, omission, and judgment.

I am guessing that most physicians, as educated and generally upright citizens, feel that we are open-minded, intelligent, kind, and definitely not racist. But we are measuring with our own scales, from our own media, in ways that our own cultures and religions measure us—so that we and our beliefs will be safe. We see and prioritize only the stories that best fit our own narratives. We believe what we have been taught to believe. Many times we don't even know what our biases are, nor do we know why we should even care. We don't recognize when we "otherize," even within our own collectives or when it should be our duty to take a stand and not just stand by. And the public media is now not shy about showing how members of our profession have been and are acting in racist ways.

A few years ago, one of my sons presented to our family a very deliberate and clear talk about residential schools in Canada. An Elder from a local First Nation had come to talk to his high school as part of the truth and reconciliation curriculum. He told the students stories of the horrors that current history books had brushed under the carpet. The talk's content had us all in tears by the end, but the most impactful takeaway for me was how my son concluded. He told us that the Elder had formally tasked all the students with retelling the story truthfully to their parents and older generations, because *we had not yet been exposed to these facts*. I recognize now that creating a medium of oral storytelling by our own children was an incredibly apt and impactful choice. I have never forgotten how I felt.

I am a privileged, educated, middle-aged white woman with all the distortions, misunderstandings, and propaganda chemtrails that come attached to me. I am now committed to learning about my own biases, filling gaps in my knowledge and experiences with diversity, and taking responsibility to apologize and make right the hurts that I have caused in ignorance. We have committed to these concepts at work as well, including through scheduled office-wide diversity rounds, inclusive and objective hiring processes, and clearly outlined diverse interpersonal conduct guidelines. And today, I am using this medium to encourage us each to take a step in moving toward a world where all the stories are truthful, and all are given voice. ■

—Cynthia Verchere, MD

Kindness matters

There's an important task I've been doing every day during this pandemic, one that is so important to me I will often stay up long after my family is asleep to make sure it's done right. So what has been occupying so much of my time as president? I have been sharing my gratitude.

Most of the time I do this by writing an email, and sometimes, even in those late hours, I'm lucky enough to catch someone during a private online moment or "in person." One time I used the "old-fashioned" way of mailing a short message on a sticky note and was pleasantly surprised when it reached its recipient. Speaking of recipients, you may be wondering whom I'm sharing my gratitude with. It is an eclectic bunch: colleagues on the front lines, people working in public health, politicians, government employees, health care researchers, and teachers … the list goes on.

I want people to know they are not alone.

But why am I doing this? The reasons are multiple. I see people doing good work and I want to encourage them to keep doing it. I see people making tough calls and I want to acknowledge their courage. I see people struggling and I want them to keep going. Most of all, though, I want people to know they are not alone. That someone cares about them. That they are doing some good in the world even if it doesn't always feel that way.

For the past year, my goal as president of Doctors of BC has been to keep us all safe, to keep our well-being intact, and to extract something good from all of the awfulness around us. This has become increasingly difficult as the pandemic has worn on. Frustration and anger seem to be building on many fronts. I get it. There are so many things to be upset about, so many things that could—or should—be different. We live in a time when people are protesting in front of hospitals, storming into schools, making claims that insult real victims of genocide, and hurling more than just insults at our leaders. Fear, mistrust, and even hatred abound. There are deep divisions.

We are also coming to grips with the toll that misinformation has taken, significantly hampering pandemic response efforts, frustrating the vaccination campaign, and leading many people to preventable deaths.

But right now we have to ask ourselves what kind of society we want to be—to live in—when we get to the other side of this pandemic. Because while this crisis may not end with the emphatic punctuation that many of us would have hoped, it *will* subside in time. Do we want a society based on mutual respect, civil debate, and inclusiveness? Or one where the loudest and most pugnacious voices prevail? Do we want a society that allows for healthy debate and balanced viewpoints? Or the fomenting of extreme views on every topic?

I know what kind of society I want, and I know how I'm going to contribute to it. I'm going to keep sending thank-you notes to people. I'm going to keep encouraging people who bring balanced perspectives to difficult problems. I'm going to celebrate people's courage. I'm going to lift people up when they are falling down. I'm going to keep sharing my gratitude.

Because judging from the responses I've received to my notes, a little gratitude, a little encouragement, and a little show of kindness do more than you think. ■

—Matthew C. Chow, MD
Doctors of BC President

Our path toward a more

equitable, diverse, and inclusive

Doctors of BC

BC doctors are a diverse group comprised of different genders, racial backgrounds, religious affiliations, sexual orientations, ages, specialties, practice locations, and more. As physicians, our members also serve a patient population that is equally as diverse in their backgrounds and in their health care needs.

Meaningful work continues to take place on our path to ensuring Doctors of BC is **representative and inclusive of the diversity of our members**, and to supporting our members in contributing to efforts to **ensure BC's health care system is culturally safe, equitable, and inclusive** for providers and patients alike.

For more information visit our updated Equity, Diversity & Inclusion webpage which includes a newly developed vision statement, information on the recently created Diversity and Inclusion Advisory Working Group, details on our ongoing work advancing Indigenous cultural safety and humility, and much more.

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Letters to the editor

We welcome original letters of less than 300 words; we may edit them for clarity and length. Letters may be emailed to journal@doctorsofbc.ca, submitted online at bcmj.org/submit-letter, or sent through the post and must include your mailing address, telephone number, and email address. Please disclose any competing interests.

Unnecessary musculoskeletal MRIs

During these unprecedented times, we really need to be mindful of our limited resources. As an orthopaedic surgeon, I am seeing more and more unnecessary musculoskeletal MRI scans ordered for arthritic problems. This is increasing the wait list for the investigation and adding a great deal of cost to our system. The government keeps spending more to keep up with the demand for the scans. However, we really need to focus on establishing better criteria for when to order the scans to decrease unnecessary tests. In my practice, at least 75% of the scans I see in referrals did not need to be done in the first place. They did not help with the diagnosis or aid in treatment decisions.

—Kostas Panagiotopoulos, MD
West Vancouver

Re: Phantom limb pain

Dr Willms provided an excellent brief review of treatment considerations for patients with phantom limb pain [*BCMJ* 2021;63:291]. Dr Willms correctly indicated that phantom limb pain is not solely a result of centralized pain but a number of patients with phantom limb pain have centralized neuropathic pain. Dr Willms did not review standard pharmacological treatment for patients with centralized neuropathic pain. Standard pharmacological treatment includes either antidepressant medication, particularly tricyclic antidepressant medications and serotonin-norepinephrine reuptake inhibitors (SNRIs), or antiepileptic medications (such as gabapentin or pregabalin). Gabapentinoids, such as gabapentin and pregabalin have been shown to be efficacious in various neuropathic pain conditions, including phantom limb pain. Pregabalin may provide analgesia more quickly than gabapentin, is better absorbed and has higher bioavailability. Tricyclic antidepressive medications, such as nortriptyline (which has fewer side effects than amitriptyline), have analgesic effects for a variety of chronic pain states with or without coexisting depression. The SNRI antidepressant duloxetine has a large evidence base to support analgesic efficacy. Some patients with phantom limb pain can also benefit from topical agents, although they are usually prescribed as an adjunct to systematic medication. Cannabinoid-type drugs, such as cannabidiol, have not been extensively studied but may also have some benefit for this patient population.

Non-pharmacological intervention, as reviewed by Dr Willms, needs to be considered in all phantom limb pain patients, particularly if pharmacological strategies are ineffective, cause drug interactions, or cause significant side effects. Patients also need to be evaluated and treated for secondary emotional difficulties, including anxiety and depression, because both anxiety and depression increase pain perception and negatively affect one's ability to cope with phantom limb pain.

—Stephen D. Anderson, MD, FRCPC
Vancouver

Re: Phantom limb pain. Author replies

Thank you for your interest in phantom limb pain management. It is true that the original article did not detail the specific pharmacologic options, but as you noted, gabapentinoids, tricyclic antidepressants, and selective norepinephrine reuptake inhibitors are indeed commonly used agents for the management of neuropathic pain. Clinically, topical agents may be more effective for allodynia or hyperaesthesia. Injection options include corticosteroids, botulinum neurotoxin, and phenol (chemical nerve ablation) or thermal (radiofrequency or cryo) disruption of nerves.

A specific goal in writing this brief review was to encourage clinicians to look for and identify root causes of pain, as this may lead to focal, specific, and sometimes more definitive treatment of phantom limb pain. A symptomatic neuroma is only one of several causes of phantom limb pain that may be amenable to focal treatment. Recently, a patient's phantom upper limb pain dissipated with a trigger point injection into the ipsilateral levator scapula!

I agree that it is relevant and important to screen for depression, anxiety, and posttraumatic stress, as this is always a part of the holistic approach to managing pain. For amputees, a thorough evaluation of phantom limb pain includes a review of prosthetic, biomechanical, anatomic (neuromusculoskeletal and vascular), metabolic, and psychologic function. Having a team approach allows for the breadth of skills required to address the initiating and perpetuating factors leading to phantom limb pain.

—Rhonda Willms, MD

Extreme heat events are public health emergencies

The average number of deaths per day in British Columbia is 110, ranging from 90 to 130 most days. On 29 June 2021, 380 people died across the province **[Figure]**. There were 1630 deaths in the 8 days from 25 June to 2 July, about 740 more than would be expected in a normal summer.

People died because it was too hot *inside*, not because it was too hot outside.

There is often a misperception that extreme heat is most dangerous for the very frail who are already near death, a group particularly impacted by the historic European heat wave in 2003.[1] However, we found that mortality during the 2021 heat dome doubled in every age group over 50, and we observed no decrease in mortality following the end of the hot weather **[Figure]**. This suggests that high temperatures simply killed hundreds of people who would probably still be alive had the weather conditions been more typical.

Many of these deaths will be further investigated by the BC Coroners Service (BCCS) in the months ahead.[2] We already know from preliminary analyses of data from BC Vital Statistics that most of the excess deaths occurred in residential settings, although there were increases in deaths in hospitals and long-term care facilities as well. Many of the deaths in individual residences occurred in neighborhoods with lower socioeconomic status, where more people live alone and where there is less protection provided by surrounding greenery.

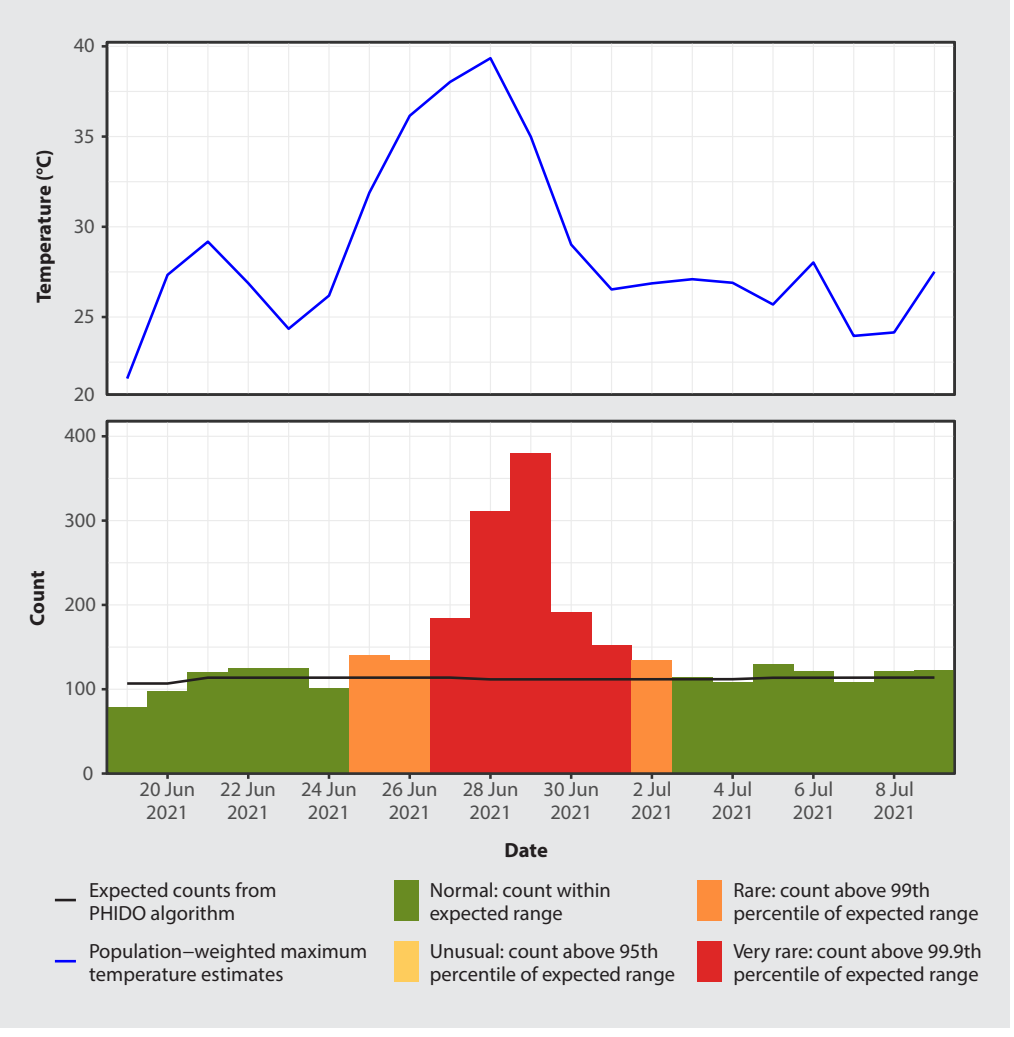

FIGURE. **Time series of population-weighted maximum daily temperatures in British Columbia before, during, and after the heat dome (top) shown with daily counts of all-cause mortality across the province (bottom). The bars on the bottom are colored according to their deviation from expected values using the Public Health Intelligence for Disease Outbreak (PHIDO) algorithm used by the BCCDC for anomaly detection.**

Internet-connected thermostats in some homes without air conditioning recorded indoor temperatures of nearly 40 °C.[3] People died because it was too hot *inside*, not because it was too hot outside. Based on prior evidence, investigations by the BCCS are likely to find that many of these people were socially isolated, which has been exacerbated during the pandemic, with physical and mental health conditions that affected their ability to take protective measures.

In total, the 2021 heat dome was associated with 740 excess deaths in British Columbia, and more in Alberta.[4] This makes it comparable with

This article is the opinion of the BC Centre for Disease Control and has not been peer reviewed by the BCMJ *Editorial Board.*

the 1936 heat wave in Ontario and Manitoba, during which at least 780 people died.[5] In more recent years, the 2010 heat wave in Quebec was associated with 280 excess deaths.[6] Together, these are three of the most deadly weather events in Canadian history. We have ample evidence that heat waves cause mass casualties in Canada and that they will become more frequent and more intense as the climate changes.[7] We must develop and resource the systems necessary to recognize and respond to extreme heat events as public health emergencies. ■

—Sarah B. Henderson, PhD, Scientific Director

—Kathleen E. McLean, MPH, Environmental Health Scientist

—Michael Lee, MSc, Epidemiologist

—Tom Kosatsky, MD, Medical Director

Environmental Health Services, BC Centre for Disease Control

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News

We welcome news items of less than 300 words; we may edit them for clarity and length. News items should be emailed to journal@doctorsofbc.ca and must include your mailing address, telephone number, and email address. All writers should disclose any competing interests.

Life insurance: How much do I really need?

When speaking with our members about life insurance, I am often asked, "How much do I *really* need?" That depends on a few key areas of consideration, and there is no one-size-fits-all approach. An experienced advisor can walk you through your specific situation and will generally look at the following areas:

Primary capital needs

These are outstanding debts such as a mortgage and/or line of credit. Many of our members are the primary income earner for their family. If they pass away, they want all debt paid in full to ensure their surviving family can remain in the family home and not be forced to sell or deplete retirement savings to maintain mortgage payments.

Secondary capital needs

These include money to cover the cost of dependants' postsecondary education, charitable bequests, and final expenses, including burial, final tax filings, and legal fees to settle your estate.

Income replacement

This discussion is highly individualized, based a person's situation and comfort level with risk. If your spouse works outside the family home, is their income enough to cover living expenses for the surviving family after all debts are paid off? The amount needed will vary based on their lifestyle and the age of any children. If there are no dependants, then the income replacement need may be minimal.

Once the appropriate coverage has been determined, Doctors of BC offers our physician members up to $5 million of group term life insurance at highly competitive rates. We are also able to offer individual policies through several major Canadian insurers.

How often should you review your life insurance? If it has been several years since you last reviewed or made changes to your insurance, please review your beneficiary details to ensure they accurately reflect your intentions. It's an unhappy surprise for your heirs to find out after your death that your list of beneficiaries is out of date.

If you have questions and want to discuss your personal life insurance requirements, please speak with a noncommissioned, licensed

Doctors of BC insurance advisor to get a full assessment. Email insurance@doctorsofbc.ca or call 604 638-7914 for a complimentary appointment.

—Hali Stus
Insurance Advisor, Members' Products and Services

Recently published BC guidelines

Suspected Lung Cancer in Primary Care

Suspected Lung Cancer in Primary Care (2021), available at www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/lung-cancer, provides recommendations for primary care providers for the investigation and management of adult patients (19 years of age and older) who present with signs or symptoms suggestive of lung cancer. Recommendations include the clinical assessment and appropriate referral of patients to a specialist. This guideline was developed in collaboration with the BC Cancer Primary Care Program (Family Practice Oncology Network) and was based on a guideline adaptation approach, including a recent systematic search of the evidence.

Highlights and key recommendations include:

- Tobacco remains the most significant cause of lung cancer.
- Smoking after a cancer diagnosis increases the risk of all-cause and cancer-specific mortality, adverse effects on treatment outcomes, and recurrence or secondary cancers. Efforts should be focused on supporting patients to quit smoking and to reduce exposure to secondhand smoke.
- Although smoking represents the largest risk factor, there is increasing recognition of the rise in cases of lung cancer in people who have never smoked.
- When communicating with patients with lung cancer, health care providers should avoid bias based on assumptions about smoking history.
- Regardless of smoking history, patients with persistent, atypical, or otherwise unexplained cough or chest infection should be sent for a chest X-ray. If the chest X-ray is negative but symptoms persist, additional investigations, including contrast-enhanced CT scan of chest to include adrenals, should be ordered.
- Long-term exposure to high concentrations of radon is a risk factor for lung cancer, particularly in smokers. Radon is found in outdoor air in low concentrations. In indoor environments, radon levels can be much higher. Radon levels in BC are variable but may be higher in some communities east of the Coast Mountains.
- The following require an urgent referral to the emergency department: stridor, massive hemoptysis, new neurological signs suggestive of brain metastases or cord compression, superior vena cava syndrome or obstruction, or a large unilateral pleural effusion.

Cataract—Treatment of Adults

The scope of the guideline *Cataract—Treatment of Adults* (2021), available at www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/cataract, is to provide recommendations for primary care providers in the prevention, diagnosis, management, and postoperative care of cataracts in adults (19 years of age and older).

Highlights and key recommendations include:

- The following are recommended to delay the onset and progression of cataracts: smoking cessation, reduced UVB exposure (hats, sunglasses with UVB protection), and safety eyeglasses during high-risk activities to avoid eye trauma.
- Patients who are long-term users of corticosteroids (by any route) should be informed of the increased risk of cataract formation.
- Indications for cataract surgery are not limited to Snellen visual acuity alone, and referral for cataract surgery consultation is indicated in the setting of glare, monocular diplopia, and other nonvisual functional impairment.
- Cataract surgery may be indicated in other ocular diseases for reasons independent of vision rehabilitation.
- When a cataract lens is surgically removed, it is replaced with a synthetic intraocular lens (IOL). There are many types of IOLs available. IOL technologies and choices continually evolve, as does MSP coverage of IOLs. Patients can be reassured that MSP-covered monofocal lenses provide fully satisfactory visual correction in the vast majority of patients. Glasses are usually required after surgery for near and sometimes also distance vision. Non-MSP-covered lenses may lessen dependency on glasses postsurgery but may not be appropriate for all patients due to individual suitability or side effects. IOL selection evolves out of a comprehensive discussion with the surgeon.
- Primary care practitioners should be aware of postoperative red flags. Postoperative patients should be urgently assessed (within 24 hours) by their surgeon or an on-call ophthalmologist in the case of increasing eye redness, pain, or a decrease in vision (see Table 4 at www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/cataract for more details).

Fall Prevention: Risk Assessment and Management for Community-Dwelling Older Adults

The scope of the guideline *Fall Prevention: Risk Assessment and Management for Community-Dwelling Older Adults* (2021), available at www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/fall-prevention, is to address the identification and management of adults aged 65 years and older living in the community with risk factors for falls. It is intended for primary care practitioners. The guideline facilitates individualized assessment and provides a framework and tools to manage risk factors for falls and fall-related injuries. Hospital, facility-based care settings, and acute fall management are outside the scope of this guideline, although some of the principles may be useful in those settings.

Highlights and key recommendations include:

- Annually, or with a significant change in clinical status, ask patients 65 years of age and older about their fall risk using simple

1-minute screening tools:
  – Three-question approach.
  – Staying independent checklist.
- Recommend exercise to improve strength, balance, and safe mobility. This is the most effective fall-prevention intervention. See the "Exercise Prescription and Programs" section for more information.
- For those evaluated as "at risk" or who have had a fall, a multifactorial risk assessment is recommended over multiple visits (see the "Multifactorial Risk Assessment, Fall History and Intervention" section) to review:
  – Medications.
  – Medical conditions (including common geriatric conditions).
  – Mobility (endurance, strength, balance, and flexibility).
  – The home environment.
  – Osteoporosis risk and risk management (increases the risk of a fracture from a fall).
- After a fall, interdisciplinary assessment and care planning can reduce the risk of future falls. A team-based approach, when available, is recommended (see the "Referral Options" section).

Other updates

To stay up to date with BC guidelines, visit the "What's New" section of the home page at www.bcguidelines.ca and subscribe to the e-bulletin.

Chemotherapy drug puts young children with cancer at high risk of hearing loss

A chemotherapy drug known to cause hearing loss in children is more likely to do so the earlier in life children receive it. New UBC research has found that 75% of patients 5 years old and younger had experienced cisplatin-related hearing loss 3 years after starting therapy.

Cisplatin is a lifesaving treatment for many children with cancer, but a study published in *Cancer* shows that the hearing of very young children is impacted early during treatment and is affected to a greater extent than that of older children.

"This is significant as even a moderate loss of hearing can impact social development in children, particularly when it occurs during a peak time of language acquisition," said the study's senior author, Dr. Bruce Carleton, professor at UBC's Faculty of Medicine's Department of Pediatrics and an investigator and director of the Pharmaceutical Outcomes Programme at BC Children's Hospital.

Previous studies have shown up to 60% of children treated with cisplatin suffer from hearing loss, and 40% of those children will need hearing aids.

To understand the course of cisplatin-related hearing loss, Dr. Carleton and his colleagues examined data from 368 Canadian childhood cancer patients who received cisplatin and underwent a total of 2052 audiological assessments. All of the patients had completed cisplatin therapy.

Three years after starting therapy, 75% of patients 5 years old and younger and 48% of patients older than 5 had experienced cisplatin-related hearing loss.

One year after initiating therapy, 61% of patients age 5 and younger had experienced cisplatin-related hearing loss. At 3 months, 27% of the same age group had experienced hearing loss.

A higher total dose of cisplatin at 3 months, co-prescriptions of the chemotherapy drug vincristine, and a longer duration of antibiotics administered at the same time exacerbated cisplatin-related hearing loss over time.

The underlying mechanism explaining the higher occurrence of cisplatin-related hearing loss in young children remains unclear, but maturing structures within the inner ear might be more vulnerable to the toxic effects of cisplatin.

"These results emphasize the need for audiological monitoring with each cycle of cisplatin treatment," said Dr. Carleton. "Further investigation is needed to illuminate why younger children are more vulnerable to hearing loss and how best to protect hearing while administering this lifesaving therapy."

Spoken interpretation services available to community specialists

When working in their community offices, specialists can access free spoken language interpreting services as part of a 1-year pilot project, funded by the Specialist Services Committee (SSC)—a partnership of Doctors of BC and the BC government.

SSC is providing $50 000 for this pilot project in response to physicians' feedback about supporting the delivery of safe and equitable patient care to diverse populations. Previously, this service was available to specialists who chose to pay privately or who work within the boundaries of health authority sites.

Accessible through the Provincial Language Service, professional interpreters offer services that are available:

- Via telephone.
- 24 hours a day, 7 days a week.
- On demand.
- In roughly 240 languages.

How specialists can connect with an interpreter:

1. Call 1 833 718-2154 (toll free).
2. Select a language.
3. Enter your access code, which was emailed to you by your section head, or contact SSC at sscbc@doctorsofbc.ca.
4. Indicate you are a member of Doctors of BC.
5. Wait 30 to 60 seconds to connect with an interpreter.

For more information, visit www.phsa.ca/health-professionals/professional-resources/interpreting-services.

Opioid prescribing: An essential skill for physicians and a collective knowledge we must not lose

Dr Philippa Hawley

Dr Romayne Gallagher

Throughout the last 15 years, the increase in opioid-related harms has been situated as a problem with a class of drugs rather than the problematic health outcomes from historical roots of socioeconomic inequality in our society and its lack of institutional support for prevention and treatment of substance use.[1] Sadly, this narrative has such a wide brush that it has painted over those who use opioids safely and benefit from them. When this brush is used with little attention to distinguishing populations who may benefit from opioids, we have seen the negative impact on physicians' education and further restriction of their prescribing.

We all come from a place of trying to minimize the harms we see occurring in our clinical world, and there are many different worlds out there. Depending on their experience and perspective, readers will have different views about opioids. Trying to balance them all is difficult. The tragedy of poisonings from illicit opioids should not be allowed to cause a second tragedy: that of failure to provide relief from suffering for people living with severe pain or shortness of breath.

Access to appropriate pain management has been proposed as a basic human right,[2] and physicians need to have the skills to prescribe safely when to do so is not only appropriate but required. The right to pain management is not the right to demand opioid therapy for all pain syndromes, but the right to have access to a variety of potentially effective pharmacological and nonpharmacological therapies. This is complex medicine and involves a village of different providers, as well as governments willing to fund access to a greater variety of therapies.

Regulators, including the College of Physicians and Surgeons of British Columbia, have a perspective and policies shaped by societal pressure to reduce the harms caused by illicit and prescribed opioids. This is reinforced by reviewing the worst prescribing profiles, combined with the relative invisibility of underprescribing. The recommendations to limit the dose and taper opioids that came from multiple associations and regulators has led to a failure of protection for those in the general population with medically appropriate opioid use for pain or dyspnea who have suffered significant collateral harms during the opioid crisis.[3,4] We have been made painfully aware in our daily work that many BC physicians misinterpreted the College standard from 2016 with respect to those who the standard did *not* apply to, and we are not alone in having made this observation.[5] Unfortunately, the College audit system causes stress to many physicians rather than providing the intended strategic assistance to those dealing with complex cases. In recent years, there has been greater clarification about the standard and greater personal input to clinicians. Despite this, the current system still appears to have a double standard of sending frequent letters to those who prescribe a lot, and few or none to those who rarely prescribe opioids, irrespective of their practice patient profile. This motivates physicians to modify their opioid prescribing to avoid further inquiries from the College and/or to refuse to accept new patients who are already on opioids or have chronic diseases that may require opioids.

The United States Harrison Act in 1914 prohibited the sale of opioids outside of a registered physician's signed prescription, which began the criminalization of the use of opioids.[6]

This editorial has been peer reviewed.

In the years following the promulgation of the Act and its resulting court challenges, many physicians who prescribed opioids were censored, fined, jailed, and stripped of their licence to practice.[7] Such stigma developed against the use of opioids that an article on cancer pain management from 1941 stated the following:

> The use of narcotics in terminal cancer is to be condemned if it can possibly be avoided. . . . Every two or three weeks sterile hypodermic injections of saline solution are substituted for the narcotic medication for eight to twenty hours in order to prove the continued need for the drug.[8]

Seeing other physicians punished for prescribing, and reading articles like the above, dampened opioid use, which resulted in patients into the 1950s and 1960s having access to opioids only in the last few weeks of life, if at all.[9] Physicians trained during those times learned to fear and avoid opioids rather than learn to treat pain effectively and safely. The knowledge base of appropriate prescribing was lost. The pendulum must not swing that far again.

For this reason, we present two articles on how to prescribe opioids for those patients who are likely to benefit. Prescribing opioids effectively and safely for dyspnea and pain relief should be an essential skill for all family physicians and specialists who manage patients with advanced illness. Our articles focus on cancer pain and persistent pain in frail older adults, but the information we have tried to present, in a practical and succinct way, is relevant for all types of pain where opioids are indicated.

We recognize that receiving a letter from the College can be stressful, but when the letter is about opioid prescribing, remember that the College does not have any clinical information about patients. The only way for them to know if an automated trigger from PharmaNet records represents a cause for concern for public safety or not is to ask you. Do not consider an inquiry letter as an indication that you are in trouble with the College. Providing you have a documented clinical assessment of the patient and demonstrate that you have used clinical judgment and evidence-based decision making in prescribing the medication, it will be unlikely to result in further inquiry. The Canadian Medical Protective Association (CMPA) is always willing to guide you if you receive an inquiry letter from the College or a College letter about a patient complaint. The CMPA website has advice for physicians who may become anxious about a College inquiry (www.cmpa-acpm.ca/en/advice-publications/browse-articles/2013/coping-with-a-college-complaint), as well as guidance on how to write a response letter (www.cmpa-acpm.ca/static-assets/pdf/cis/considerations_for_members_in_preparing_responses_to_college_complaints-e.pdf).

The knowledge base of appropriate prescribing was lost. The pendulum must not swing that far again.

If you suspect your patient may have both pain and a substance use disorder, then it is wise to seek the resources of the British Columbia Centre on Substance Use. There are specific care guide resources. There is a Rapid Access Addiction Clinic at St. Paul's Hospital, where patients can receive initial treatment for both disorders and can access the 24/7 Addiction Medicine Clinician Support Line (www.bccsu.ca/24-7). Family physicians should be prepared to continue the ongoing medications that are advised/started by those physicians. If your patient is not willing to address their opioid use disorder, then you should advise them that you need to taper and stop the opioid. Never stop opioids abruptly or taper rapidly enough to induce acute withdrawal because this is harmful to the patient and may drive them to seek illicit opioids. Please consult *A Guideline for the Clinical Management of Opioid Use Disorder* (www.bccsu.ca/wp-content/uploads/2017/06/BC-OUD-Guidelines_June2017.pdf) for clinical advice.

We hope these articles renew your commitment to care for all patients with chronic pain, whatever the cause. Careful assessment, safe prescribing, and use of well-established principles need to be maintained to uphold the unique worth of individuals and their right to relief from pain and suffering in a safe, but sufficient, health care environment. ■

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Philippa Hawley, MD, FRCPC

Management of cancer pain with opioids

A review of cancer pain management methods suggests that the use of opioid-based analgesia is the most appropriate primary approach to treating moderate to severe cancer pain.

ABSTRACT: Opioid-based analgesia is the most appropriate primary approach for treatment of moderate to severe cancer pain. "Weak" opioids (i.e., those that have a ceiling effect), such as codeine, tramadol, and buprenorphine, are more potent and more predictably effective than non-opioids but have significant limitations. "Strong" opioids include morphine, hydromorphone, oxycodone, fentanyl, and methadone. Morphine is the recommended first-line opioid for cancer pain but not when there is renal impairment or in frail older patients. When compared to morphine, hydromorphone has less potential for toxicity from metabolites, but comes in fewer strengths and forms. Oxycodone is useful when morphine or hydromorphone are not well tolerated; however, it can cause agitation. Transdermal fentanyl is a second- or third-line opioid that can have an important role when the oral route is compromised or when constipation is particularly troublesome. Methadone is more complex to use than other opioids, but it may be better tolerated and more effective. It plays a particularly important part in renal failure because it is not dialysed out and has no active metabolites. Methadone can also provide excellent analgesia without neurotoxicity, and has shown good effects in treating neuropathic pain. It is also the only relatively long-lasting opioid that can be easily swallowed in liquid form or put through a gastrostomy tube. Buprenorphine can be used where respiratory depression is a significant concern, such as in sleep apnea or chronic obstructive pulmonary disease with carbon dioxide retention. The risk of developing an opioid use disorder from opioid therapy is not a concern for most cancer patients, but safe prescribing practices should be followed.

Non-opioid analgesics are frequently ineffective or only mildly effective for cancer pain and can cause potentially serious side effects. Lidocaine and ketamine infusions can provide good pain relief for those with severe cancer pain that is not adequately managed with opioid treatments. A variety of interventional procedures, such as anesthetic interventions, neurosurgical procedures, and interventional radiological procedures, can be dramatically beneficial when medications are not effective or not tolerated. Minimally invasive palliative procedures can provide excellent relief, even in very frail patients.

Dr Hawley is a general internist and palliative medicine subspecialist who founded the BC Cancer Pain and Symptom Management/Palliative Care (PSMPC) service in 1997. She is the provincial medical director of the program and leader of the Vancouver Centre's PSMPC team. She is also the head of the UBC Division of Palliative Care.

This article has been peer reviewed.

Approach to managing cancer pain

Over the past 2 decades, cancer has been the leading cause of death in Canada, at just over 80 000 deaths per year in 2019.[1] Heart disease trailed by a large margin, at 52 541. The eight other leading causes of death were (in decreasing order) accidents, cerebrovascular disease, chronic lower respiratory diseases, diabetes, influenza/pneumonia, Alzheimer disease, suicide, and kidney disease. In addition to cancer, stroke, diabetes, and renal failure are also associated with significant painful sequelae. This article focuses on cancer pain and the appropriate use of opioids, but the principles of cancer pain management apply to people living with many other serious chronic illnesses.[2]

Cancer is overwhelmingly the most common reason for requesting medical assistance in dying, primarily because of fear of loss of function (usually due to pain) that leads to loss of autonomy and the ability do the things that people used to enjoy, and because of fear of a painful death.[3] Poor pain management or stigmatization about the need for opioid analgesia contributes to those fears. Dignity-conserving care is integrally linked to provision of good pain management.[4]

Cancer pain is not a single entity. The choices of treatments that are most appropriate for any individual will depend on multiple factors, both disease related and host related. Pain can be caused by cancer itself, or by cancer treatments such as surgery, radiotherapy, and systemic therapies (chemotherapy, hormone therapy, targeted therapy, and immune therapy). The complications of immunosuppression can also be painful, particularly from shingles and postherpetic neuralgia. Pain in the survivorship context is becoming more and more common as new oncology treatments prolong survival, and some successful palliative oncology treatments make cancer pain management closer to the chronic disease model.

Most cancer pain can be controlled, but in reality many patients live with inadequate pain management because of lack of knowledge, reluctance to use easily available therapies, or

difficulty accessing therapies due to financial, geographic, or system-related barriers. Fear of regulatory oversight has become particularly widespread in recent years, despite the College of Physicians and Surgeons of BC publishing clear guidance that opioid prescribing is appropriate for cancer pain and in palliative care, and that to not prescribe opioids when medically appropriate is just as unacceptable as prescribing opioids when not indicated.[5,6]

The conceptual model shown in the **Figure**, derived from the World Health Organization analgesic ladder, describes the relative importance of analgesic approaches to cancer pain management. Note that this is not intended to be a stepwise approach to care; starting with low doses of a Step 3 ("strong") opioid analgesic may be the best approach when pain is already moderate or severe **[Figure]**.

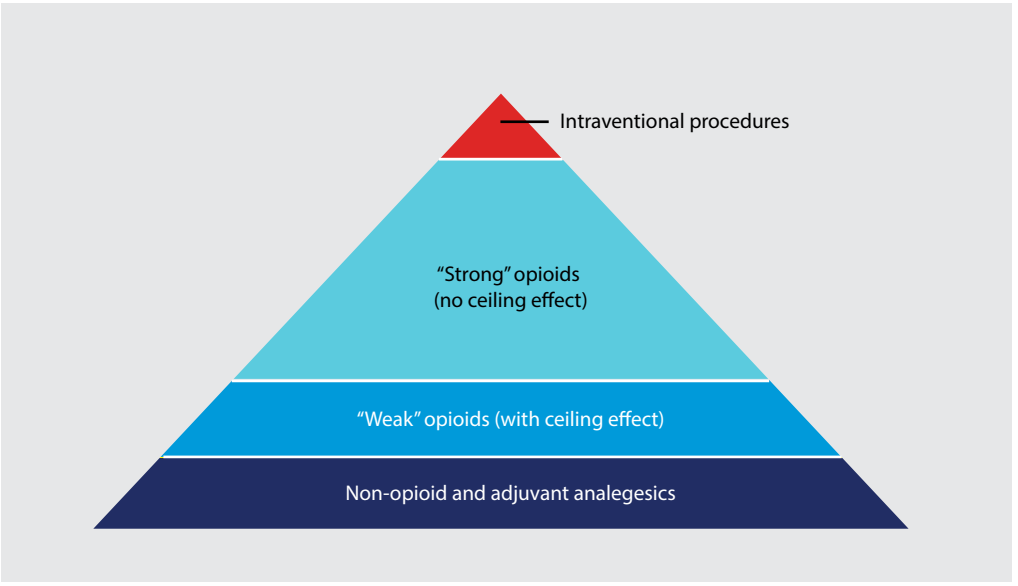

FIGURE. Conceptual model of the relative importance of analgesic approaches to cancer pain management.

Non-opioids and adjuvant analgesics

Simple analgesics alone, such as acetaminophen and nonsteroidal anti-inflammatory drugs, may be helpful in early-stage cancer in which pain may be mild or intermittent, and adjuvant analgesics, such as tricyclics or gabapentin/pregabalin, may offer some relief when there is a neuropathic component to the pain. Tricyclics can be tried in low doses (usually 10 mg/day with titration at weekly intervals to a maximum of 50 mg), preferably with nortriptyline if some night sedation is also desired, or desipramine/imipramine if sedation is to be avoided. Amitriptyline has more side effects than other tricyclics and is no better an analgesic for neuropathic pain. Medical cannabis would be included in this part of the model, but discussion of this is beyond the scope of this article. Non-opioid analgesics, however, are frequently ineffective or only mildly effective and can cause potentially serious side effects. They should be approached as n-of-1 trials, in which only one thing is changed at a time, the effects are carefully assessed, and the analgesic discontinued if it is not helpful.

"Weak" opioid options

"Weak" or World Health Organization (WHO) analgesic ladder Step 2 opioids are more potent and more predictably effective than non-opioids but have significant limitations. Drugs in this step, by definition, have a ceiling effect. Codeine and tramadol require activation by hepatic enzyme pathways that have genetically determined and variable rate-limiting capacity. Some combination preparations contain an opioid that does not require activation but may be deemed Step 2 because of the toxicity of the attached non-opioid, usually acetaminophen; for example, acetaminophen/codeine or acetaminophen/oxycodone combinations (Tylenol #3 or Percocet). Buprenorphine is slightly different because its ceiling effect comes from mixed agonist/antagonist activity at the opioid receptor level; this is discussed in more detail below.

It should be noted that the WHO analgesic ladder is a classification system for analgesics; it is not a clinical practice guideline. Step 2 analgesics have a very small role to play in the management of chronic cancer pain but may be appropriate when pain is present only intermittently or is expected to improve rapidly; for example, in postsurgical/procedural pain or short-lived pain during certain activities. Most Step 2 opioids have a short half-life and require 4- or 6-hourly dosing. Converting from a Step 2 opioid preparation to a Step 3 opioid carries a risk of overdosing or underdosing in the transition because of the unpredictability of equianalgesic dose ratios inherent in the genetic variability of the enzymatic activation function between individuals. Most cancer pain has at least some element of continuous pain, with intermittent exacerbations. Step 3 opioids are indicated and can be started in low doses without having used a Step 2 opioid beforehand. Step 4 includes palliative procedures such as nerve blocks, cementoplasty, neuraxial infusions, and neurolytic procedures, but a small minority of cancer pain patients who could benefit from them currently receive these treatments.[7]

It is important to identify whether there is a neuropathic component to cancer pain because this can influence the choice of treatments. It is also important to identify the presence of an incident component to the pain—i.e., pain that starts abruptly and lasts only a short while—because this will require the use of short-acting rather than (or in addition to) sustained-release opioids.

"Strong" opioid options

Morphine. The recommended first-line opioid for cancer pain is morphine, which is available in multiple formulations: immediate-release oral tablets or solution, sustained-release tablets or capsules (12 or 24 h), and parenteral solutions. Morphine is not recommended when there is renal impairment or in frail older patients because of the potential for accumulation of metabolites. An appropriate starting dose for continuous cancer pain in a patient who has not had any prior opioid treatment

(i.e., opioid-naive) would be morphine 5.0 mg every 4 hours regularly plus 2.5 mg every hour as needed, with transition to appropriate sustained-release dosing replacing the every-4-hour regular dosing as soon as requirements are known. Initiation with 10 mg sustained release every 12 hours is equally reasonable and may be a better choice for those at home, and may have a better chance of compliance.

Hydromorphone. Hydromorphone is a widely used alternative to morphine and has less potential for toxicity from metabolites, but it comes in fewer strengths and forms, and the sustained-release capsules (12 or 24 h) require special authority or a specific plan for PharmaCare coverage (e.g., BC Palliative Care Benefits [Plan P]). It has approximately 5 times the potency of morphine (1 mg hydromorphone is equivalent to 5 mg morphine), though this can vary between individuals. The injectable form is more soluble than morphine when high concentrations are required. Hydromorphone is a good first choice opioid if morphine is contraindicated, and it is appropriate to switch to it if a patient is experiencing side effects from morphine. Awareness of the PharmaCare coverage issues for the sustained release capsules is, however, an important consideration if morphine is bypassed.

Oxycodone. Oxycodone is also a useful oral opioid, particularly when morphine or hydromorphone are not well tolerated. It is slightly more potent than morphine: 5.0 mg oxycodone is approximately equivalent to 7.5 mg morphine. Sustained-release oxycodone is available in a matrix tablet form (generic OxyContin) and in an abuse-deterrent gel tablet form (OxyNEO), which becomes sticky when wet and requires good swallowing function. Oxycodone can sometimes cause agitation, despite effective analgesia. It is also not available in injectable form in Canada. Cost and PharmaCare coverage can be a concern if a patient is not eligible for BC Palliative Care Benefits.

Fentanyl. Transdermal fentanyl is a second- or third-line opioid, which can have an important role when the oral route is compromised or when constipation is particularly troublesome. If switching to fentanyl, it is important to use a current conversion chart[8] to select an appropriate dose, and to consider a stepped transition because of marked interindividual variability in pain responsiveness to different opioids and in absorption and metabolism. Equivalent doses may differ substantially in any one individual from those expected from consulting a chart. It is also important to have an overlap of at least 12 h between the oral and transdermal preparations because of the delay in reaching stable blood levels of fentanyl once a patch is applied. Cost and PharmaCare coverage may be a concern if a patient is not eligible for BC Palliative Care Benefits.

Fear of regulatory oversight has become particularly widespread in recent years, despite the College of Physicians and Surgeons of BC publishing clear guidance that opioid prescribing is appropriate for cancer pain and in palliative care.

Methadone. Methadone has a special role in cancer pain management. It is more complex to use than other opioids, so it is rarely considered a first-line opioid; however, in many patients it may be better tolerated and more effective than other opioids.[9,10] A short (1 h), free CME-accredited online module, Methadone4Pain.ca, is presented by Canadian Virtual Hospice and provides clear instructions on how to use methadone safely in the palliative care context.[11] The College of Physicians and Surgeons of BC website also has a handbook on prescribing methadone for analgesia.[12]

In BC, methadone for pain is prescribed on a regular controlled prescription pad. No special authorization is required. Methadone is available as a 10 mg/mL solution and in tablets, which are covered by the BC Palliative Care Benefits Program. Lower strengths require compounding and could cause confusion with dosing. Small volumes for analgesic doses need to be carefully measured with a 1 mL syringe, so tablets are preferable. Methadone has a long half-life and is stored in body fat, so a "start low, go slow" approach of making dose increases no more frequently than every 3 days should always be taken, if possible, and ideally every 5 to 7 days if the clinical situation allows. Methadone can be added to another opioid in this fashion in an adjuvant role, with weekly review and adjustment. Fast starts are more complex because of unpredictable potency; thus, stepped conversions from other opioids, as described in the Methadone4Pain module, should be practised in all but specialist palliative care settings where the close supervision necessary for a "stop and go" or rapid stepped switch is available. In high doses (> 120 mg/day), methadone can cause prolongation of the QT interval. Providing that the goals of care are appropriate, an ECG should be checked if the dose reaches that threshold or if the patient is at risk of QT prolongation due to a concurrent condition, inherited predisposition, or concurrent treatment with other potentially QT-prolonging drugs. Methadone also has more interactions with non-opioid drugs; the commonly encountered ones to be aware of are ciprofloxacin and fluconazole. Methadone can also interact with grapefruit.

Methadone plays a particularly important role in renal failure because it is not dialysed out and has no active metabolites. Similarly, where delirium has occurred with other opioids, a switch to methadone can allow for excellent analgesia without neurotoxicity. Though yet to be proven in randomized controlled trials, many experienced prescribers see particularly good effects from methadone in treating neuropathic pain. Methadone also has the advantage of being the only relatively long-lasting opioid that can be easily swallowed in liquid form or put through a gastronomy tube. This can allow families relief from 4-hourly medication administration when transdermal fentanyl may not be effective or appropriate; for example, in children who need finer tuning of dosing

than can be achieved with the limited choice of patch strengths, or in adults with cognitive or behavioral issues who might peel the patches off. Methadone also has a niche in the treatment of patients who require long-term opioid therapy because it has less of a propensity to cause tolerance and dose escalation than other opioids. If methadone is started by a specialist palliative care program or oncologist, it is important for family doctors and nurse practitioners to take over prescribing when patients are stable. This allows the specialist services to maintain capacity to see new patients, ensures closer supervision than can be provided by a specialist clinic, helps avoid drug interactions, and most importantly, allows patients who are approaching end of life to be well cared for in the community. Methadone oral solution is well absorbed rectally and sublingually/buccally for those who are unable to swallow. Methadone liquid is inexpensive and is covered by PharmaCare; methadone tablets are covered by BC Palliative Care Benefits. Special authority for 1 mg/mL compounding can be applied for, and is usually more appropriate for analgesia patients than the 10 mg/mL solution.

Other opioids. Other opioids that have a limited but important role in the management of cancer pain include buprenorphine and sufentanil. Oral buprenorphine combined with naloxone (Suboxone) is well known for its usefulness in the management of opioid use disorders, but buprenorphine also has a role in chronic pain management where respiratory depression is a significant concern; for example, in sleep apnea or chronic obstructive pulmonary disease with carbon dioxide retention. It can also be an excellent choice as an alternative to methadone for pain, but care has to be taken with transition from a full agonist opioid to buprenorphine because of the agonist–antagonist effect it has on the opioid receptors, which could theoretically trigger a partial withdrawal reaction. In practice, this does not seem to be a problem.[13] Buprenorphine is available as a transdermal patch that lasts for 1 week, and the lowest strength is 5 mcg/h, which is equivalent to less than 30 mg oral morphine per day (or approximately six Tylenol #3/day in a normal metabolizer).

Non-opioid analgesics

Lidocaine and ketamine infusions can provide good pain relief for those with severe cancer pain that is not adequately managed with the WHO analgesic ladder approach, and while they are generally initiated in specialist settings, they may be required over extended periods in settings where there is no access to pain specialists. For this small but important group of patients, it is important that other services are comfortable taking over the delivery of these analgesics once the patient is stabilized and the appropriate treatment protocol has been determined. Unfounded fears about arrhythmias have been a significant barrier to access to lidocaine, which is inexpensive, effective in approximately 50% of patients, and very well tolerated providing simple safety measures are followed.[14] There is less evidence to support the use of ketamine as an analgesic, but there is sufficient clinical experience with it to suggest that in low doses it may be a valuable addition to the treatment options for those unfortunate cancer patients with the most difficult pain syndromes.[15]

Opioid side effects

Morphine, hydromorphone, and oxycodone all have a similar propensity to cause constipation; thus, a preventive stepped laxative schedule (bowel protocol) should always be initiated at the same time as commencing an oral opioid. A good example is available on the BC Cancer website at www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects/constipation-caused-by-your-medications. Fentanyl and methadone have fewer effects on bowel motility, but a bowel protocol is usually still required. Sennosides and osmotic laxatives are equally effective, but patients often prefer sennosides because of the ease of swallowing, low cost, and ease of dose adjustment.[16] Lactulose tends to generate gas, leading to bloating, and polyethylene glycol requires significant volumes of fluid, which may be difficult for some cancer patients, especially when approaching end of life. Polyethylene glycol is also not covered by BC Palliative Care Benefits.

All opioids can cause respiratory depression in the acute context, but patients rapidly develop tolerance to the respiratory depressant effect of opioids with continuous exposure, and low dose opioids can be used safely in patients with breathlessness from severe lung disease[17] or heart failure.[18] All opioids are relatively contraindicated in patients with severe sleep apnea, but buprenorphine is less likely than full opioid receptor agonists to suppress respiration when an opioid is absolutely required.[19]

Palliative procedures

Treatment of the underlying cause of pain is always the preferred approach to cancer pain management, alongside pharmacological management. Procedures have been included as a fourth step in a modified WHO analgesic ladder, and include anesthetic interventions, neurosurgical procedures, and interventional radiological procedures. Minimally invasive palliative procedures can provide excellent relief, even in very frail patients **[Table]**.

If a one-time (repeatable) procedure is not effective or does not last long enough, implanted

TABLE. Treatment options for cancer pain management.

Pain generator	Treatment option examples
Bone metastases without fracture	Radiotherapy
Long bone metastases with risk of fracture	Prophylactic surgical reinforcement
Vertebral, pelvic, or sternal metastases with or without fracture	Cementoplasty with or without cryoablation
Localized disease in somatic soft tissues	Peripheral nerve blocks
Multidermatomal disease in somatic soft tissues	Epidural local anesthetic and steroid injection, intrathecal infusion, neuromodulation, cordotomy (if unilateral, life expectancy < 1 year)
Visceral disease	Regional nerve plexus blocks, sympathectomy

devices can be used; they are more invasive but still well tolerated. Intrathecal infusions can be maintained percutaneously in hospitalized patients for short periods, but fully implanted pump systems are preferred if the patient is well enough to tolerate the insertion procedure because they can be maintained at home, and patients can bathe and move independently of an external pump and tubing. For those with severe pain in the survivorship context, an implanted spinal cord stimulator can be used; it requires much less maintenance than an implanted intrathecal pump.

These Step 4 treatments are required in only a minority of cancer patients, but all patients should have access to them if appropriate pharmacological therapy does not provide satisfactory relief.[20] Awareness of the existence of these treatments is key to being able to reassure patients that their pain is treatable. If an effective procedure or treatment is available, pain still needs to be managed while waiting to set up the treatment, or for it to take effect, by using the same techniques as for long-term analgesic management.

Opioid-unresponsive pain

The analgesics and palliative procedures described above can provide good pain relief for most cancer patients, but it must not be forgotten that pain is more than just a physical experience. Existential suffering without peripheral nociceptive input can be experienced as pain, and the experience of physical pain can be magnified by existential suffering. This kind of "total pain" will not be relieved by traditional analgesics. Meticulous assessment and management of social, psychological, or spiritual factors is essential in providing effective patient-centred care for pain from serious illnesses such as cancer, and a multidisciplinary team is required to ensure that all facets of patient suffering are recognized and addressed.

Summary

Opioid-based analgesia is the most appropriate primary approach for treatment of moderate to severe cancer pain. Non-opioid medications for cancer pain all have significant limitations, which restrict their effectiveness and safety. Nonpharmacological therapies for cancer pain can be difficult to access and should be used concurrently with opioid pharmacotherapy.

The risk of developing an opioid use disorder from opioid therapy for cancer pain is low, and for most cancer patients is not a concern. However, safe prescribing practices should be followed. ■

Competing interests

None declared.

Meticulous assessment and management of social, psychological, or spiritual factors is essential in providing effective patient-centred care for pain.

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Opioids for pain and shortness of breath in frail older adults: How to choose and use

Early opioid intervention in older adults with persistent disabling pain that does not respond to acetaminophen or other interventions may prevent increasing frailty and loss of independence.

ABSTRACT: Opioids are indicated for persistent moderate to severe pain that impairs function and quality of life. Two case examples are used to present a review of the pharmacokinetics and pharmacogenomics and provide practical and evidence-based information required to safely treat pain in older adults. In those with significant cognitive impairment, pain is not verbalized but may be tracked through neuropsychiatric symptoms and behavior. The approach to diagnosis and treatment is based on resident, family, and staff subjective and objective criteria tracked over time as analgesics, including opioids, are titrated.

Opioids are indicated for the management of persistent moderate to severe pain that is severe enough to impact function and quality of life[1] and is not alleviated by non-opioid therapies. Chronic pain is common in older adults and is associated with frailty and loss of function.[2] Early identification and successful management of chronic pain is essential and may prevent loss of independence. Opioids are also indicated for disabling dyspnea that is unresponsive to usual therapies in advanced disease of any cause.

This article focuses on how to prescribe safely and effectively in frail older adults. Safety involves the individual patient, the prescribing physician, and the community. This article assumes that each patient who was started on opioids had a pain diagnosis, a mental and psychological assessment, and a determination of their opioid use disorder risk using the Screener and Opioid Assessment for Patients with Pain - Revised or opioid risk tool. The Brief Pain Inventory (www.npcrc.org/files/news/briefpain_short.pdf) is best for measuring pain-related effect on function, mood, and sleep, and repeated testing can establish if progress is occurring. In those patients who are capable, goals should be developed with them regarding using opioids to help them increase function, exercise tolerance, and socialization. The College of Physicians and Surgeons of BC practice standard (www.cpsbc.ca/files/pdf/PSG-Safe-Prescribing.pdf) should be consulted and universal precautions should be used for opioid prescribing. A list of common opioids and relevant pharmacokinetics is provided in the **Table**.[3-6]

Case data

Patient A, mild frailty but losing function quickly

Patient A, who is 82 years old, has lumbar spinal stenosis and right-sided L5 nerve root compression. Other comorbidities include hypertension, osteoarthritis, macular degeneration, asthma, and a history of cancer. Epidural steroid injections were effective for pain management for 6 years, but now they do little to relieve her pain. Gabapentin and pregabalin were both trialed; they did little for pain and caused fluid retention and drowsiness. She rates her pain as 5–8/10, and it is maximal when she is standing or walking. Her poor vision had reduced her function, but now her world is contracting significantly due to reduced mobility, and she requires help with all instrumental activities of daily living.

A trial of opioids is appropriate since she has not responded to non-opioids and other therapies and is losing function, but to select an opioid, three things must be reviewed: age, renal function, and previous opioid experience.

Age. Older adults display a greater sensitivity to CNS-active medications[7] and generally require a lower dose than younger adults to control their pain. Older adults are more sensitive to serum-level changes with short-acting opioids and experience fewer side effects with long-acting formulations. Some long-acting opioids come in a dose that is low enough

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to be initiated in those already taking several short-acting doses as needed per day, and a buprenorphine patch is safe for use in opioid-naive patients.

Renal function. Renal function is important because almost all opioids are excreted through the kidneys. Only methadone and buprenorphine have significant excretion through the bowel, but this makes them well tolerated in people on dialysis or with significant renal failure.[8,9] Patient A's renal function is near normal at an estimated glomerular filtration rate of 57. While it is normal for her age, it has diminished.

Previous opioid experience. Having details of previous opioid use, its efficacy, and adverse effects helps eliminate opioids that are not well suited to Patient A's pharmacogenomics. Up to 25% of people have polymorphisms in the genes that control opioid pharmacokinetics and pharmacodynamics.[10] Patient A notes that she has been given Tylenol #3 before with no effect, and it makes her nauseated. Likely, she is a poor metabolizer and the codeine is not being metabolized by the CYP2D6 enzyme to its active molecule—morphine—resulting in poor analgesia and side effects. Ultrarapid metabolizers are also at risk because they metabolize much more of the codeine into morphine,

TABLE. Common opioids and relevant pharmacokinetics.[3-6]

Name	Chemical structure	Activity*	Opioid receptor binding affinity	Half-life (hours)	Metabolism	Active metabolites	Excretion	Drug distribution	Miscellaneous
Codeine	4,5-epoxy-morphinan ring	Prodrug CYP2D6	μ+	3–5	Glucuronidation of morphine	+++	Renal	Hydrophilic	Weak opioid; morphine is the active analgesic
Morphine	4,5-epoxy-morphinan ring	+	μ+++ κ+	3–5	Glucuronidation	+++	Renal	Hydrophilic	Higher risk of neurotoxicity
Hydromorphone	4,5-epoxy-morphinan ring	+	μ+++	2–4	Glucuronidation	++	Renal	Hydrophilic	Better tolerated in older adults than morphine
Oxycodone	4,5-epoxy-morphinan ring	+	μ+ κ++	3–5	CYP3A4	0	Renal	Hydrophilic	Available in very small long-acting doses
Fentanyl	phenyl-piperidines	+	μ+++	21–30	CYP3A4	0	Renal	Lipophilic	Large fat storage; onset of effect delayed
Methadone	diphenyl-heptylamines	+	μ+++ NMDA	24 or longer	CYP3A4 CYP2B6	0	Gut	Lipophilic	The Methadone4Pain course should be completed before prescribing: www.methadone4pain.ca
Buprenorphine transdermal	4,5-epoxy-morphinan ring	+	μ+++ κ+ δ+	13–35	CYP3A4	0	Gut	Lipophilic	Large first-pass liver effects; poor oral availability; patch well tolerated in elders
Tramadol	Atypical	Prodrug CYP2D6	μ+ Noradrenalin/serotonin	9	CYP3A4	+	Renal	Hydrophilic	Weak opioid; side effects/drug interactions from serotonin reuptake inhibition
Tapentadol	Atypical	+	μ+++ Noradrenalin	4.5	Glucuronidation	0	Renal	Hydrophilic	May be useful if other strong opioids are not effective

Note: The opioids in the table are arranged in categories according to their structure, metabolism, and receptor target. When switching an opioid due to inadequate analgesia or intolerable side effects, switch to a different opioid category to achieve a better result.

* Prodrug/weak opioids require an enzyme to become analgesic. They have an analgesic ceiling dose.

δ = delta opioid receptor

κ = kappa opioid receptor

μ = mu opioid receptor

CYP2B6 = cytochrome P450 2B6

CYP2D6 = cytochrome P450 2D6

CYP3A4 = cytochrome P450 3A4

NMDA = n-methyl-d-aspartate

which results in toxicity, particularly when pregnant or breastfeeding. Oceania and Middle Eastern ethnicities have the highest rate of ultrarapid metabolism at 21%, and Europeans and people of Jewish lineage have the highest rate of poor metabolism, near 6%.[11] Because of polymorphisms and their potential danger, Health Canada does not recommend codeine use in those under 18 years of age or in pregnant or breastfeeding women. All prescriptions for codeine alone now require a duplicate prescription. Because of codeine's issues (poor analgesia, dose ceiling, side effect profile, addiction-related harm), there have been calls to delist it.[12]

Codeine and tramadol need CYP2D6 to metabolize them into analgesics, and therefore, have a ceiling dose limited by enzyme conversion. For this reason, they are called *weak opioids*. The National Opioid Use Guideline Group recommends them as first-line only because of their lower abuse potential, but they are not good choices in older adults. Tramadol, with its serotonin-reuptake inhibition action, has significant drug interactions in addition to the genomics effect on activation.[13]

Patient A says "morphine made her crazy" after her surgery for her breast cancer, and she found it very frightening. It is probably best to avoid morphine and codeine and be cautious with hydromorphone—morphine's sister. If the patient is fearful of trying it again, even if it is something that could be managed (nausea in the first week), listen to the patient and choose something else.

Cognitive effects

Opioid-induced neurotoxicity is a continuum of adverse effects ranging from impaired concentration to impaired executive function and psychomotor effects, and hallucinations, delirium, and seizures.[14] Sedation is another effect that can range from being mild and transient when starting or increasing the dose, through to a decreasing level of consciousness preceding ventilatory difficulties and apnea. Severe cognitive effects such as delirium are more common in older adults or those with fragile central nervous systems due to comorbidities.[15] However, opioid metabolites from codeine, morphine, and hydromorphone are known to be neurotoxic and accumulate in older adults and those with renal failure, resulting in opioid-induced neurotoxicity.[16] While any opioid can cause some degree of neurotoxicity, it is wise to avoid these opioids in patients with renal failure, fragile central nervous systems, or previous cognitive effects. Many mild symptoms of opioid-induced neurotoxicity, such as impaired attention, misperceptions, and bad dreams, are often not reported by patients unless asked. Rotating to a different opioid can resolve this.

Opioids are indicated for the management of persistent moderate to severe pain that is severe enough to impact function and quality of life.

Opioids are not all the same

In a 2016 study,[17] 520 people with cancer pain that was being treated with opioids were randomly selected to receive either morphine, oxycodone, buprenorphine, or fentanyl for 1 month. The average age of the participants was 67 years, 80% had other morbidities, and their Karnofsky performance scale indicated mild frailty.[18] They were observed for analgesic efficacy and adverse reactions. Approximately 25% of patients were poor to non-responders and had to be switched to another opioid or have adjuvant medications added. The number of discontinuations/switches from morphine were significantly higher than for the other opioids, and the number of dosage adjustments for fentanyl were also significantly greater. Adverse events were not significantly different among the four opioids except for the significant neurotoxicity of morphine. This study supports the observed interindividual variations in opioids (approximately 25% of participants needed rotation or addition of adjuvants, no matter which opioid they were on) and required ongoing adjustment to maintain analgesia. It confirms that morphine is not the drug of first choice in older adults, and even more so in frail older adults.

Opioids of first choice in frail older adults

The opioids of first choice in older adults and those with renal failure are fentanyl, methadone, and the buprenorphine patch.[19] Oxycodone has clinically insignificant metabolites[20] and is often well tolerated in older adults. Hydromorphone is better tolerated than morphine because it has a shorter half-life,[21] but in severe renal failure, it should be avoided. The opioids of last choice are morphine and codeine. Tramadol requires activation like codeine, and its adverse safety events (falls/fractures and emergency visits) are equal to those associated with strong opioids.[22] As always, the choice will be a compromise between what is best, what is available, and what is affordable.

Before starting Patient A on a low-dose regular opioid, she should be advised of the side effects and how they will be managed. Constipation is ubiquitous in older adults, so it should be prevented by starting polyethylene glycol 3550 with the opioid. If constipation is severe, consideration should be given to using fentanyl or buprenorphine because they are transdermal, or to using the oxycodone/naloxone combination product. Because Patient A had nausea with previous opioids, she should be prescribed regular metoclopramide for the first week when nausea is most prominent and then be allowed to wean herself off as tolerated.

Finally, Patient A should be told that she may experience some sedation in the first few days and should be warned about doing anything that requires strict attention (e.g., driving, looking after grandchildren). This sedation should completely clear by 1 week, but if not, an opioid switch may be warranted.

Respiratory depression

The rare side effect that makes physicians reluctant to use opioids is respiratory depression. Respiratory arrest is the cause of death from illicitly made fentanyl that poisons the illicit supply of heroin and other psychoactive drugs. Almost all the people who have suffered this tragic outcome have multiple CNS depressants in their system, such as alcohol, benzodiazepines, antidepressants, neuroleptics, and other illicit opioids, as well as an unknown massive quantity of fentanyl or a derivative.

Physicians should ensure that they rationalize the use of CNS depressants when prescribing opioids. Benzodiazepines are not recommended in adults over 65 years of age.[23]

Opioids suppress both the rhythm of breathing and the hypoxic and hypercapnic ventilatory response—brainstem control centres that monitor and respond to changes in oxygen and carbon dioxide.[24] Naturally, suppression is worse with a rapid IV infusion of high-dose opioids with other CNS depressants already in the patient's system.

Pain stimulates the respiratory drive.[25] In fact, both nociception and respiration are moderated by Substance P and NK-1, and in several brainstem sites, nociceptive and chemoreceptive functions converge.[24] Pain is hypothesized to provide tonic increase to the respiratory drive but does not affect chemoreceptor sensitivity. Those with an opioid use disorder and without significant pain are at a greater risk of respiratory depression.

What happens when opioids are used for dyspnea in a controlled medical environment? The use of opioids for symptomatic relief does not significantly change the saturation of oxygen in the blood. In addition, functional studies do not indicate that the use of opioids for dyspnea relief causes high carbon dioxide levels in blood.[26] Opioids, in the doses used for treating dyspnea, do not significantly compromise respiratory function.[27] So far, opioids have the best evidence for providing relief for shortness of breath in advanced disease,[28] but nonpharmacological therapies are also helpful.

One issue to be mindful of is obstructive sleep apnea because opioids relax upper airway muscles and can worsen sleep-disordered breathing, as can other CNS depressants. The STOP-Bang screening questionnaire (http://www.stopbang.ca/osa/screening.php) can be used to identify those at risk so this can be addressed prior to starting opioids.[29]

An office handout that outlines side effects, warns against sharing opioids, and advises using safe and secure storage is an aide memoire and a record of what has been discussed. The National Opioid Use Guideline Group has a reasonable list of issues that patients should know about when taking opioids; office handouts can be made based on the "Are you taking opioids (painkillers) for your pain?" resource available from the Michael G. DeGroote National Pain Centre at McMaster University.[30]

Opioid titration

Opioids should be titrated to the best analgesia with the fewest side effects. In older adults, it is rare that dosages above 90 mg morphine milligram equivalents (MME) per day are used, but in younger patients with faster metabolism, this may be exceeded. The 90 MME per day is not a set limit, but justification is required for exceeding what is considered a threshold of increased risk for adverse events. Continuing improvement in pain and function in the patient, with no evidence of aberrant drug-taking behaviors and with normal urine drug screens, should be documented. If the opioid is being titrated up with increasing intolerable side effects or waning analgesia, clinical judgment should be used to reduce it to a lower dose and be satisfied with that balance, or to rotate to another opioid in search of a better fit for the individual. Switching opioids can be challenging, so a pharmacist or colleague with added training should be asked to assist.

The opioids of first choice in older adults and those with renal failure are fentanyl, methadone, and the buprenorphine patch.

Pain and mental illness

Persistent pain is rarely eliminated, but if quality of life can be improved and the patient feels they are in control of the pain (versus being controlled by it), then there will be a good outcome. Opioids alone may not improve function, especially if other issues such as mental illness, psychological fears, or cognitive impairment are present. Addressing these issues is essential for controlling pain and improving function. Many patients need physical, psychological, and psychiatric assistance; therefore, a team approach to pain management is the best. The patient needs to commit to addressing the interrelated issues. With patients in long-term care, improved function is often not measurable or possible, so improved quality of life, socialization, and cognition should be considered.

Case data

Patient B, living with severe frailty

Patient B, an 89-year-old man living in long-term care, has chronic obstructive pulmonary disease and non-insulin-dependent diabetes, resulting in moderate vascular dementia, renal failure, and peripheral neuropathy. Patient B has family and caregivers who are aware that he used to speak of his painful neuropathy, but now his cognition impairs any reliable information about his pain. Staff have noticed he is agitated with care and resistant to getting dressed and walking. He is not socializing—something he used to enjoy. His care aides have tracked this behavior on the Non-Communicative Patient's Pain Assessment Instrument (NOPPAIN) scale indicated for use in cognitive impairment.[31] The NOPPAIN is a care aide–administered tool for assessing pain behaviors in patients with dementia. The tool focuses on observation of specific pain behaviors while doing common care tasks (https://bcpsqc.ca/wp-content/uploads/2018/11/NOPPAIN.pdf). Over the weekend, an on-call physician ordered loxapine 2.5 to 5.0 mg twice daily to manage his agitation. This is in addition to his metformin, ipratropium, tiotropium, budesonide, nortriptyline, acetaminophen, rabeprazole, and hydromorphone 0.5 mg orally as needed. Recent bloodwork shows his estimated glomerular filtration rate is 32, and his A1c is stable at 7. His family reports that he is not his usual self and is talking about dying.

Trial of opioids for neuropsychiatric symptoms

As cognition declines, so does verbalization of pain, which results in undertreatment of pain in patients with dementia.[32] Observation and attention to behavior helps in recognizing unmet needs and addressing them. Following the behaviors of the patient that are believed to be a sign of pain through a trial of analgesics helps in systematically identifying whether the trial is working.

A trial of opioids is warranted if pain is suspected and there is no improvement with acetaminophen. Why not use nonsteroidal anti-inflammatory drugs (NSAIDs) next? The American Geriatrics Society recommends that the chronic use of all NSAIDs, including high-dose aspirin, should be avoided because of the risk of gastrointestinal bleeding, renal failure, and cardiovascular events.[33] NSAIDs are not safe for persistent pain, and their associated morbidity and mortality in older adults has been extensively reviewed.[34] A study of patients with moderate agitation who were randomly assigned to a stepwise protocol that included strong opioids versus regular care showed that agitation was significantly reduced ($P < 0.001$) in the intervention group compared to the control group.[35] There was no effect on cognition or activities of daily living in the study, meaning that opioids did not control the agitation through sedation.

A trial of opioids includes choosing an opioid that is best suited to older adults, starting at low doses and titrating up while observing behavior. It is challenging for nurses in long-term care to administer short-acting opioids every 4 hours due to high patient-to-nurse ratios. Starting with a low-dose, long-acting opioid can result in better compliance and fewer side effects. There are fewer serum fluctuations with long-acting opioids, which results in less sedation. Low-dose, long-acting oxycodone 5 mg every 12 hours and fentanyl 6 mcg patch (half a 12 mcg patch) are low starting doses that a patient who has significant pain and is receiving several as-needed hydromorphone doses (or Tylenol #3) may be able to transition to. A buprenorphine patch can be started on an opioid-naive patient. If other CNS depressants have been started for pain or agitation (neuroleptics, gabapentinoids, nabilone), the dose should be reduced or they should be discontinued when starting the opioid. A detailed article on pain management in long-term care is available.[36]

A frail patient on opioids who has an infection or is dehydrated may appear opioid toxic because the opioid is not being excreted quickly enough. The patient, who was doing well on low-dose oxycodone for dyspnea from chronic obstructive pulmonary disease and heart failure, may now appear opioid toxic. It is a reflex to stop the opioid, but the patient will have withdrawal in addition to all their other symptoms, which will add to their suffering. The dose should be reduced to half, the patient should be rehydrated until they recover, and then the dose should be adjusted back again if appropriate.

Opioids, in the doses used for treating dyspnea, do not significantly compromise respiratory function.

Reducing polypharmacy

One medication should be trialed at a time. If a drug is not effective, it should be stopped. The "kill two birds with one stone" approach should always be used. If the patient has anxiety/depression and neuropathic pain "birds," an antidepressant could be used as the treatment "stone" for pain and depression. Serotonin-noradrenaline reuptake inhibitors, as well as mirtazapine, are effective adjuvants in neuropathic pain and are better tolerated than tricyclics.[37]

Patients A and B

Patient A trialed oxycodone up to a dose of 20 mg every 12 hours, which worked for the pain but caused severe constipation, even with multiple laxatives. She did much better on the oxycodone/naloxone combination product, but over time her pain grew worse. The 30 mg of oxycodone/naloxone did not improve her pain, likely because the naloxone dose was high enough to interfere with the oxycodone. She was switched to methadone and titrated to a dose of 7 mg every 12 hours with good pain control and manageable side effects. Patient B was started on a buprenorphine patch and was titrated to a 20 mgm/h patch with some reduction in agitation. A higher dose was not recommended, so he was switched to a fentanyl patch at 12 mcg and was titrated up to 18 mcg/h with less agitation and a greater willingness to socialize and exercise.

Summary

Early intervention in older adults with persistent disabling pain may prevent increasing frailty and loss of independence. Opioids are a reasonable choice in older adults with moderate to severe disabling pain that does not respond to acetaminophen or other interventions. When cognition declines, so does the ability to report pain. Titrating analgesics—including opioids—while observing needs-driven distress behavior is the best approach to achieving symptom control and better quality of life.

Refer to the pharmacy detailing booklet (https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/provincial-academic-detailing-service/opioids-drug-booklet.pdf) for a complete list of opioids that are available in BC. ■

Competing interests

None declared.

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When cognition declines, so does the ability to report pain.

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Jefferson Terry, MD PhD, FRCPC

The value of ancillary testing in amniotic fluid infection/ inflammation-related early pregnancy loss and perinatal death in British Columbia

Bacterial culture appears to be a more useful ancillary test than fungal culture or viral or genetic testing in defining etiology in the setting of amniotic fluid infection/inflammation.

ABSTRACT

Background: Amniotic fluid infection/inflammation (AFII) is a common cause of premature delivery and death. Ancillary testing at autopsy may provide additional diagnostic information but increases workloads and costs, and may generate false results. Review of ancillary testing in AFII autopsies in BC may identify areas for practice improvement.

Methods: This retrospective quality improvement study included 304 autopsies in which AFII was the cause or favored cause of death. Ancillary testing included bacterial culture, fungal culture, viral testing, and genetic testing.

Results: Bacterial cultures were performed in 45% of the autopsies and yielded at least one positive result in 36% of autopsies cultured. Fungal culture was performed in 8% of cases: one case was positive. Polymerase chain reaction for cytomegalovirus was performed in 14% of autopsies: all were negative. Genetic testing was performed in 52% of autopsies, of which 94% showed no abnormalities, 4% failed, and 2% yielded an abnormal result.

Conclusions: Bacterial culture adds information on infectious etiology in the setting of AFII, but fungal, viral, and genetic testing could be deferred or omitted.

Ancillary testing refers to nonstandard or specialized laboratory testing that is typically done outside the division, department, or institution. In the context of an autopsy, examples of ancillary testing could include genetic, radiological, ultrastructural (electron microscopy), biochemical, and microbiological studies.

Background

Intrauterine demise or stillbirth is a despairing situation that raises questions of why pregnancy loss occurred, if it will occur again, and if there is any way to reduce the risk of recurrence. Perinatal autopsy can be helpful in answering these questions and providing guidance for the patients and the family physicians, obstetricians, and other health professionals involved in their care.[1,2] As part of the perinatal autopsy examination, the pathologist may perform ancillary testing, which refers to special testing done in addition to the basic physical and microscopic examinations. Examples of ancillary testing that may be performed as part of a perinatal autopsy include genetic, radiological, ultrastructural (electron microscopy), biochemical, and microbiological studies. Clinicians caring for patients with intrauterine demise or stillbirth may expect or request that certain ancillary tests be done as part of a perinatal autopsy to help them understand the cause of demise and facilitate explaining it to their patients.

Ancillary testing may be ordered by a pathologist at the beginning of the perinatal autopsy ("up-front" testing), regardless of the initially suspected cause of death, or it can be deferred to later in the autopsy process when the potential cause(s) of death may be more clear and allow for more focused testing. The benefits of up-front ancillary testing include reducing the time to report completion and the possibility of identifying abnormalities not

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detected by physical and microscopic examination. Conducting multiple ancillary tests may also contribute to the sense that everything possible has been done to identify a cause of death, which can be reassuring for the pathologist performing the autopsy, the patient, and the clinicians caring for them. Potential drawbacks of performing up-font ancillary testing include increased laboratory workload, increased cost to the health care system, and the possibility of obtaining false or variant results that could complicate the overall interpretation of the autopsy findings. Presently, there are no robust, evidence-based guidelines on the best use of ancillary testing in the setting of perinatal autopsies.

Amniotic fluid infection/inflammation (AFII) is the placental pathological correlate of clinical chorioamnionitis. AFII is defined by both an acute maternal inflammatory response (i.e., acute chorioamnionitis) and an acute fetal inflammatory response.[3] AFII is a common cause of premature delivery and death, and is a rare cause of intrauterine fetal demise (IUFD);[4] as such, it is frequently encountered in perinatal autopsy practice. The pathogenesis of most cases of AFII is thought to involve invasion of the amniotic cavity by microbes, especially bacteria.[4] Microbes in the amniotic fluid can be inhaled and ingested by the fetus, and demonstration of this at autopsy is an important diagnostic feature of AFII. Ancillary testing in autopsies where AFII is suspected usually focuses on identifying these potential infectious causes and may include microbiological culture, fungal culture, and/or molecular testing for viruses. Culture-based microbiological studies require viable microbes and thus must be performed up front. Additional studies, particularly genetic testing, may also be performed up front to address other potential causes of demise. The value of microbiological and genetic ancillary testing in perinatal autopsies where AFII is the cause of death is unclear.

Review of AFII autopsy-related ancillary testing may identify areas for improving practice by deferring or omitting tests that are unlikely to be of clinical value, which could save workloads and costs, and reduce the risk of obtaining false or variant results without impairing determination of the cause of demise. The use and value of ancillary testing in perinatal AFII autopsies has not been assessed in BC. The purpose of this quality improvement study is to determine the patterns of ancillary testing use in this setting and their value in the autopsy final diagnosis.

Clinicians caring for patients with intrauterine demise or stillbirth may expect or request that certain ancillary tests be done as part of a perinatal autopsy to help them understand the cause of demise and facilitate explaining it to their patients.

Methods

This is a retrospective quality improvement study, and the requirement for research ethics board review was waived by the University of British Columbia Research Ethics Board. Autopsy reports for all noncoronial autopsy cases between 1 August 2014 and 31 December 2019 with "amniotic fluid infection" or "chorioamnionitis" in the body of the report were retrieved from the Anatomical Pathology laboratory information system of BC Children's Hospital and BC Women's Hospital and Health Centre (C&W). C&W is the provincial referral centre for perinatal and pediatric autopsies, and the cohort in this study represents the majority of perinatal autopsies performed in the province.

Autopsies were included in the study if the pathologist identified AFII as the cause of death, the favored or most likely cause of death, or the inciting factor leading to death. Autopsies were excluded from the study if AFII was not the cause or favored cause of death, there was termination of pregnancy for developmental and/or genetic anomalies, there was a history of noniatrogenic traumatic rupture of membranes (e.g., motor vehicle accident), there was no internal fetal examination (which precludes microbiological testing of fetal tissue), intrauterine demise occurred more than 1 day prior to delivery based on clinical history and/or macerative change, or the fetus and/or placenta were received in formalin, which precludes microbiological and genetic testing. There was no restriction on gestational age at delivery.

Reports that passed these exclusionary criteria were then assessed for associated clinical information (gestational age at delivery, maternal age, gravidity, prior losses, clinical history), diagnostic pathological features of AFII, ancillary studies performed, and their results. Ancillary testing is defined as a study that is performed outside the Division of Anatomical Pathology and which requires a requisition for testing. Radiology was not included as an ancillary test in this study.

Results

In total, 382 autopsies were identified where "amniotic fluid infection" and/or "chorioamnionitis" was included in the autopsy report. Seventy-eight autopsies were excluded, primarily because AFII was not identified as the cause or favored cause of death. Lack of fetal internal examination resulting from autopsy restrictions was the second most common exclusionary criterion, and the remainder were excluded because IUFD occurred more than 1 day prior to delivery, tissues were submitted in formalin, or pregnancy was terminated due to fetal anomalies. In total, 304 autopsy reports were included in the study, which represents approximately 15% of all pediatric and perinatal noncoronial autopsies performed during the study period. This proportion of AFII cases to the overall autopsy workload was similar to that reported elsewhere.[5]

The mean gestational age at delivery was 20.1 weeks (range 6 to 42). The mean maternal age at the time of delivery was 32 years (range 15 to 47), mean gravida was 2.6 (range 1 to 10), and mean number of prior pregnancy losses was 0.7 (range 0 to 9). The most common clinical presentation was spontaneous labor/spontaneous vaginal delivery (51%), followed by premature preterm rupture of membranes ([PPROM] 29%), IUFD (9%), and incompetent cervix

(8%). All IUFD cases were delivered spontaneously or induced because of clinical concern about chorioamnionitis.

Slightly more than 90% of the autopsy reports had complete information on the stage and grade of both the maternal and fetal inflammatory responses. Staging and grading of AFII is an attempt to provide a semiquantitative measure of the severity of inflammation.[3] Stage reflects the duration of the inflammatory response and is divided into stage 1 (early), stage 2 (intermediate), and stage 3 (advanced), while grade reflects intensity and is divided into grade 1 (not severe) and grade 2 (severe). Generally, AFII associated with preterm delivery is intermediate or advanced stage. This pattern was apparent in the study cohort, which had a mean maternal inflammatory stage of 2.4/3.0 and grade of 1.2/2.0. The mean fetal inflammatory response stage was 1.6/3.0, and grade was 0.8/2.0. This pattern of lower stage and/or grade for the fetal response is typical of early preterm AFII and reflects the relatively immature fetal immune system in premature deliveries.

In total, 310 bacterial cultures were performed in the study cohort. The proportion of autopsy cases with at least one tissue site cultured and the proportion of autopsies with at least one positive or negative culture result are presented in **Figure 1A**. The site most frequently cultured was gastric contents (59% of cultured autopsies), lung (31%), subamniotic space of the placental disc fetal surface (6%), and spleen (4%).

The bacterial culture results are presented in **Figure 2,** and highlight bacteria that are typically isolated in AFII.[4] Bacteria were seen on microscopic examination in 19% of the total autopsy cases. For autopsies where culture was performed, culture and histology (the presence of visible bacteria) were concordant in 14%, culture was positive and histology negative in 73%, and culture was negative and histology positive in 13%.

Fungal culture was performed in 8% of autopsies: one culture was positive for *Candida albicans* (4% of fungal cultures submitted). Fungal elements were seen microscopically in 2% of the autopsy cases. There was only one autopsy where both fungal culture was performed and fungal elements were identified microscopically.

FIGURE 1. Proportion of microbiological cultures (A) and genetic testing (B) performed, and results obtained for autopsies in which amniotic fluid infection/inflammation was the cause of death or the most likely cause.

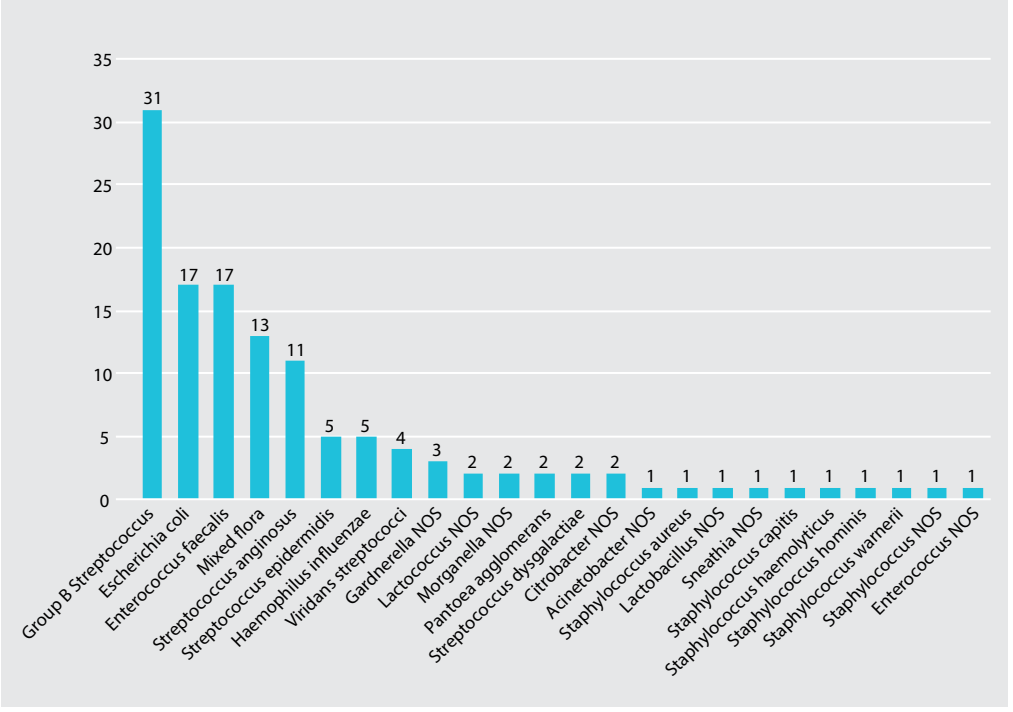

FIGURE 2. Incidence of bacteria identified in positive cultures from autopsies in which amniotic fluid infection/inflammation was the cause of death or the most likely cause.

There were no autopsies where fungal culture was positive and histology was negative.

The genetic testing protocol employed for perinatal autopsies over the time frame of this study involved rapid aneuploidy testing, followed by either karyotype (2014 to mid-2015) or chromosomal microarray (mid-2015 to 2019) testing if initial rapid aneuploidy testing was negative. In total, 159 autopsies were submitted for genetic testing. The proportion of autopsies tested and the results are shown in **Figure 1B.** The abnormal genetic results included a

previously known inherited translocation associated with fetal anomalies and three incidental findings. One of the incidental findings was associated with increased risk of neurodevelopmental abnormalities; two were of unclear clinical significance. No fetal developmental anomalies were associated with the three incidental findings.

Polymerase chain reaction for cytomegalovirus was performed in 14% of cases, and all were negative. Other studies, such as electron microscopy, were not performed.

Conclusions

As might be expected from the pathogenic mechanism of AFII, microbiological testing and particularly bacterial culture is the most common ancillary test. Bacterial culture appears to be a valuable ancillary test in defining an underlying infectious etiology in the setting of AFII. A significant proportion of cases had cultures that were positive, while bacteria were not detected by microscopic examination, which indicates that culture is a more sensitive test for bacterial involvement in AFII. In a smaller set of autopsies, histology was positive and culture was negative, which could indicate bacterial inactivation by storage conditions prior to autopsy (i.e., refrigeration) or fastidious bacteria that are difficult to culture. These results indicate that culture and histology should be used concurrently to maximize the possibility of detecting bacteria in AFII. The main drawback of bacterial culture is that presently it has to be ordered up front; however, the imminent introduction of molecular and mass spectrometry-based bacterial testing will improve bacterial identification in AFII-related autopsies and allow for a more selective approach.

Why bacterial culture was not employed in all cases of suspected AFII is unclear, although this finding is similar to prior data that indicate that bacterial culture is performed in only up to 70% of cases.[5] Our study was not designed to assess the practice decisions made by autopsy pathologists at the initiation of the autopsy and what might have influenced their decision to order cultures up front; however, not recognizing AFII as a possibility at the initiation of the autopsy, when cultures need to be performed, is a likely explanation. In this study, most of the clinical presentations were preterm spontaneous delivery, PPROM, or incompetent cervix, which should prompt consideration of AFII and bacterial culture. Concerns that contaminants (i.e., false positives) might confuse the autopsy results and evidence that not all cases of AFII are associated with a detectable infectious etiology may also play a role in not ordering bacterial cultures.

As might be expected from the pathogenic mechanism of AFII, microbiological testing and particularly bacterial culture is the most common ancillary test.

Fungal culture was performed much more sporadically and appears to be much less valuable as an up-front ancillary test. Concordance between fungal culture and histology could not be reasonably assessed because there was only one autopsy where both fungal culture was performed and fungal elements were seen microscopically. Nevertheless, because fungal AFII is relatively rare and fungal elements are typically histologically evident, it seems reasonable that fungal culture should be done only if there is a strong suspicion of fungal involvement at the outset of the autopsy. Retrospective molecular testing can be done in cases where fungal AFII was not initially expected but subsequently discovered on microscopic examination if further characterization is necessary.

Ancillary viral testing was also used sporadically, and in this cohort was confined to cytomegalovirus testing. Viruses are not typically associated with AFII and are a rare cause of infection-related preterm birth and IUFD.[5] Accordingly, no cases of cytomegalovirus or other virus-related AFII were identified. Since viral infection can be identified by microscopy and immunohistochemistry, and retrospective molecular testing may be used to identify many of the typical perinatal viruses, viral testing should be deferred unless there is strong clinical concern.

Genetic testing was performed frequently in this cohort despite the lack of a history suggesting developmental abnormalities or clinical concern about a genetic abnormality in all but one case. Most genetic testing was noninformative, and this includes a small subset of testing failures, which are typically related to the degenerative changes and/or maternal cell contamination associated with the maternal inflammatory response. Incidental findings, although rare, have the potential to confuse the autopsy interpretation and could lead to additional unwarranted genetic testing, surveillance, and patient concern in future pregnancies. These data argue strongly against genetic testing in the setting of AFII unless there is pre-existing clinical concern about a specific genetic abnormality. This is perhaps the most important finding for clinicians who care for patients with intrauterine demise or stillbirth, as requests for genetic testing in the setting of AFII are very common, regardless of whether there is specific clinical concern about a genetic developmental abnormality. These data demonstrate that genetic testing in this setting is a waste of resources and is more likely to produce a spurious result than diagnostically useful information.

Although not the primary intent of this quality improvement study, the clinical data and autopsy findings also provide information about the characteristics of AFII-related death in BC. Almost all cases of AFII-related death involved some form of spontaneous premature delivery. IUFD is rare in AFII, and the mechanism of most deaths appears to involve the deleterious effects of preterm birth rather than the direct inflammatory effects of AFII on the fetus. The bacteria identified by culture are consistent with those previously associated with AFII,[4,5] although Group B *Streptococcus* was the predominant identifiable cause in our cohort. This may be of clinical relevance because Group B *Streptococcus* has been identified as a potential cause of recurrent AFII-related pregnancy loss.[6]

This review of ancillary testing in AFII autopsies in BC identified a potential algorithm **[Figure 3]** for reducing associated workloads and costs for the health care system and

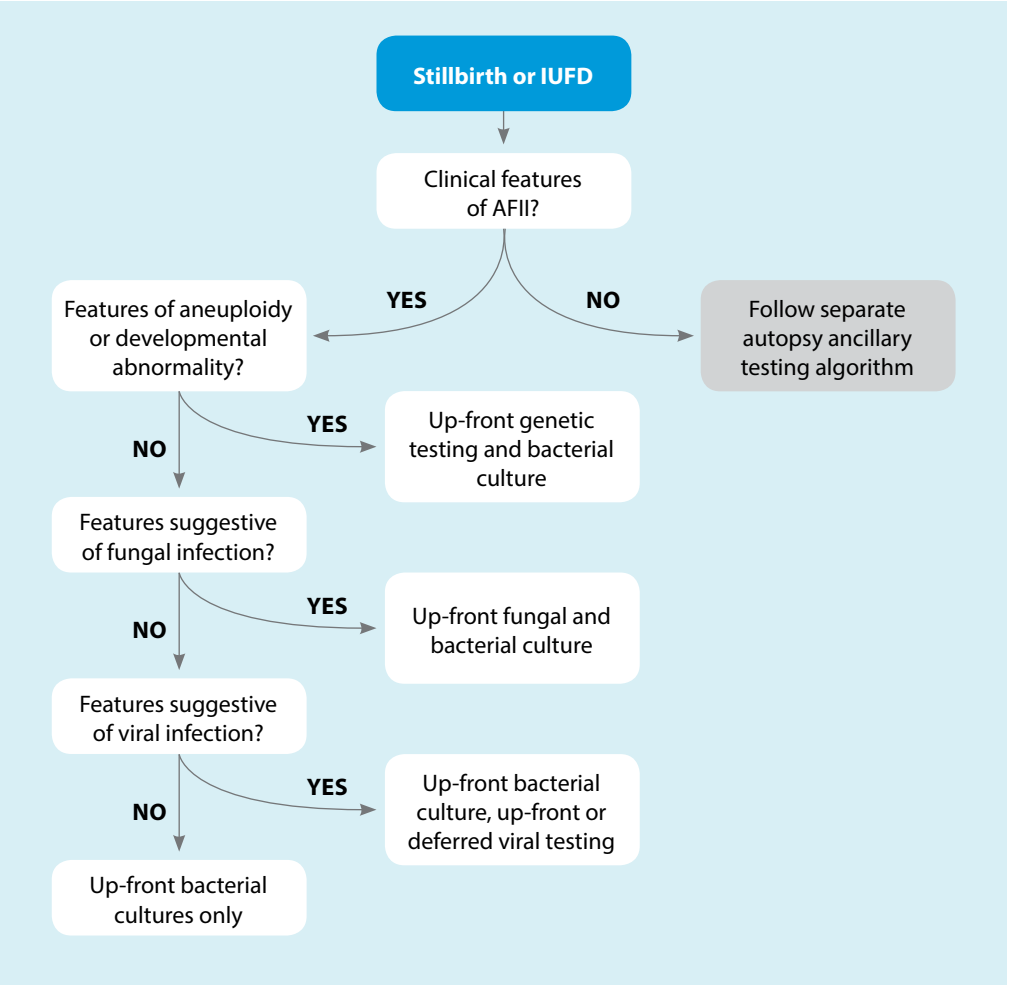

FIGURE 3. Algorithm for ancillary testing in amniotic fluid infection/inflammation (AFII)-related stillbirth and intrauterine fetal demise (IUFD).

avoiding rare but potentially confusing test results without impairing diagnostic accuracy. To illustrate this algorithm, consider a hypothetical example of a 34-year-old primigravida woman who presents to hospital at 21 weeks gestational age reporting a gush of clear vaginal fluid the previous day followed by the onset of lower abdominal cramping. On examination, there are findings consistent with PPROM, and she goes on to spontaneously deliver a stillborn infant the same day. She reports that her prenatal genetic screening was low risk and that she had a normal detailed ultrasound the week prior. An autopsy is requested. Given this history and presentation, AFII would be a likely explanation for premature delivery and death, and bacterial cultures at autopsy would be warranted; however, up-front studies for viral and fungal etiologies and genetic studies would not. When reimagining the same scenario with an abnormal detailed ultrasound suggestive of trisomy 21, it would be reasonable to do up-front genetic testing in addition to bacterial cultures.

The findings of this study can also inform patients and their family physicians, obstetricians, and other health care professionals about the rationale behind why certain ancillary tests are done or not done in perinatal autopsies where AFII is the cause or likely cause of death. For example, a family physician is discussing the autopsy findings with a patient after she had a spontaneous delivery and stillbirth at 19 weeks gestational age. The autopsy report identifies AFII as the cause of premature delivery and death, and indicates that the fetus was normally developed. The autopsy does not mention genetic testing, and the patient is concerned that a genetic abnormality might have been missed because genetic testing was not performed. Based on the data in this study, the family physician can reassure their patient that genetic testing in the setting of AFII and normal fetal development does not provide useful diagnostic information and is unnecessary.

Summary

This quality improvement study focused on AFII-related autopsies, which represent approximately 15% of perinatal autopsies performed in BC each year; however, some of the remaining 85%, such as acute abruption, may also be amenable to algorithms to improve the use of ancillary testing. Additional study in these areas is warranted. ■

Competing interests

None declared.

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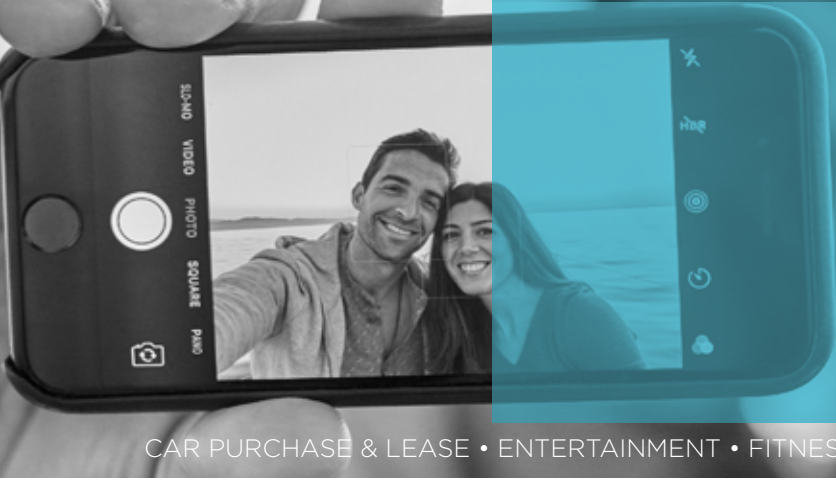

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doctors of bc

Sometimes the best medicine is having a healthy place to live

For over 3 decades, Doctors of BC has understood the importance of being able to communicate with the public, doctors, government, and others on matters of disease prevention and issues of public health in ways that transcend any economic benefit for physicians.

Medicine is an odd profession. There are very few groups that work tirelessly to eliminate the need for their services. But doctors do this every day by adopting and advocating for various discoveries, preventive practices, and policies that put them in a position where their services are no longer required. The Environmental Health Committee is proud to have been part of that legacy for doctors in BC.

Over the years, the committee has been able to advise the Doctors of BC Board of Directors on matters relating to the effects of the surroundings on our health. Our activities make up part of a long record that includes the work of many committees operating under the Council on Health Promotion.

Many members of our association do not know all of the topics the committee has addressed, nor will they be aware of the many ways in which the committee has made a difference in public health in British Columbia. Offered here is a brief sampling of those accomplishments and some thoughts on future initiatives.

The committee has, over the years, dealt with topics ranging from pollutants in air, water, and soil, to policies affecting regulation of sewage systems, to the laws concerning secondhand smoke, to calls that government should include health impact assessments in all matters relating to industrial projects, to the impact of climate change on human health.

The committee has also helped project environmental stewardship policies at the national level. Two examples are Canadian Medical Association resolutions on the prudent use of antibiotics (the CMA supports regulations to severely limit the use of medically important antibiotics on animals being raised for human consumption) and a call for Canada-wide environmental health impact assessments (the CMA supports a comprehensive federal environmental review process, including health impact studies, for all industrial projects).

There are very few groups that work tirelessly to eliminate the need for their services.

The built environment has also received attention from our committee. We have:

- Worked provincially and with the CMA to call attention to the monitoring and remediation of radon levels in private homes.
- Called attention to the precarious nature of steep staircases.
- Investigated issues with indoor wood-burning stoves.

In recent years, the committee has assisted in the implementation of mandatory dangerous heavy metal blood levels in an effort to identify cases of lead and mercury poisoning. A call to study the health effects of noise pollution is also one of our past activities.

In the last few months, the committee was proud to produce a climate change and human health position statement that outlines commitments and recommendations from Doctors of BC on this pressing issue.

As COHP transitions to a new project-based structure, we see opportunities ahead in the arena of environmental health, including:

- Evaluating mitigation and adaptation strategies for doctors and the health care system in light of climate change.
- Improving water quality data and its surveillance.
- Addressing vaping and other types of nicotine use in young people.
- Applying an equity lens of environmental health and justice, particularly related to the care of First Nations populations.
- Developing an understanding of the environmental burden of disease on human health.

This list will form part of a series of recommendations for action by the Environmental Health Committee to the COHP and will inform our association's ongoing efforts in this area. ■

—Lloyd Oppel, MD
Chair, Environmental Health Committee

This article is the opinion of the Environmental Health Committee, a subcommittee of Doctors of BC's Council on Health Promotion, and is not necessarily the opinion of Doctors of BC. This article has not been peer reviewed by the BCMJ *Editorial Board.*

CBT Skills Spread Initiative: Building a program to support doctor and patient mental health

Prior to the pandemic, mental health conditions were the leading cause of disability in Canada, with one in two people affected by 40 years of age.[1] Now, COVID-19 has turned this crisis into a catastrophe, with half of all Canadians reporting worsening mental health,[2] and those experiencing the most societal inequities facing the greatest mental health decline during the pandemic.[3]

Before the pandemic, 85% of Canadians felt that mental health was among the most underfunded services in health care.[4] Canadians reported counseling to be their highest mental health care need,[5] yet it was also the least likely to be met, largely because most counseling services remain outside the public health care system.

Consequently, most people end up managing their mental health in primary care,[4] with publicly funded physicians often the only affordable option for patients. With so few services available in this model, patients often can't access care until they are severely symptomatic. By then it's too late: symptoms are entrenched, with poor prognoses and spiraling psychosocial costs.

Instead, supporting patients when their symptoms require only minimal intervention not only reduces downstream costs, but also empowers patients to self-manage their symptoms.

Starting small with local solutions

In 2015, a small group of physicians in Victoria came together to develop a cognitive-behavioral therapy (CBT) group program to offer equitable, accessible, and timely evidence-based mental health treatments for early intervention on a large scale.

The Shared Care Committee and the Victoria Division of Family Practice supported this team to collaboratively build a curriculum targeting primary care patients that could be delivered through 90-minute group medical visits over 8 consecutive weeks. The curriculum drew from the most evidence-based self-management skills, such as CBT, dialectical behavioral therapy, and mindfulness.

Patients often can't access care until they are severely symptomatic.

How it worked

The group created a sustainable delivery model that capitalized on physician facilitators, using existing MSP fee codes, and accommodated training of new family physicians through co-facilitation in ongoing patient groups. Administration was streamlined through a centralized referral centre, offering both patients and physicians maximum flexibility. The outcomes of this initiative have previously been reported in the *BCMJ*,[6] indicating effective results with economic benefits.

Building on success for provincial spread

As communities around BC became interested in launching similar initiatives, the Shared Care Committee selected the program for provincial spread. The program had already been expanded to nearby locations—Vancouver, Nanaimo, and Salt Spring Island—but geographic barriers became a major obstacle to it spreading more widely.

Virtual care provides greater access

When COVID-19 hit, the team pivoted to telehealth, with virtual groups offered within a week. A comparable-sized group program resumed within 3 months of the start of the pandemic.

Evaluations of patient satisfaction, helpfulness, and safety, and symptom-rating improvements showed virtual groups were comparable to the in-person experience, with more people preferring the virtual groups.

The virtual format also solved the problem of geographic barriers for training for more remote physicians—physicians anywhere could join an experienced facilitator in a group, complete the training, and become equipped to offer their own groups.

Supporting the mental health of physicians

The pandemic also stressed the ongoing need for mental health supports for physicians, so the founding physicians collaborated with the Physician Health Program (PHP) and several Divisions of Family Practice to offer physician-based groups. These groups provided doctors with the opportunity to begin learning and practising skills for mental health within a collegial environment. The groups had lengthy wait lists almost immediately.

Opportunities and next steps

The Shared Care Committee has brought together the CBT Skills Groups Society of Victoria, UBC CPD, and the PHP to expand the virtual groups to both patients and physicians across BC, well beyond the considerable

This article is the opinion of the Shared Care Committee and has not been peer reviewed by the BCMJ *Editorial Board.*

number of patients who have participated so far—14 000 patients have been referred by 1500 family physicians across the province.

Starting this winter, physician wellness will be the focus of a UBC CPD series of CBT groups and workshops, where specialists and family physicians can meet virtually to support their personal well-being and gain grounding in group facilitation (including trauma-informed care and inclusivity training). Practical aspects of CBT will also be taught for physicians to share with patients.

Selected physicians can choose to continue training with the CBT Skills Groups Society to offer their own CBT skills groups to patients across the province.

Visit https://ubccpd.ca/collaborate/portfolios/cbt-skills for details on how physicians can participate in this program. ■

—Joanna Cheek, MD
Psychiatrist Lead, UBC CPD Physician Wellness

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Library reading lists

Staying current to provide the highest level of patient care is an ongoing challenge. The College Library has many options to help, including curated reading lists. Reading lists are designed to support physicians' ongoing learning, with emphasis given to cultural sensitivity, humility, and other socially significant themes, and topics of rapid change where resources outside the scope of a conventional literature search may be helpful. The Library currently maintains seven lists: Pain Management, Pandemic Management, Point of Care Ultrasound, Race and Health Equity, Sexual and Gender Diversity, Trauma-Informed Care, and Virtual Care.

The Library currently maintains seven lists: Pain Management, Pandemic Management, Point of Care Ultrasound, Race and Health Equity, Sexual and Gender Diversity, Trauma-Informed Care, and Virtual Care.

Reading lists are continually updated to adapt to changing situations. For example, in 2020 the Library's Pandemic Management list highlighted epidemiology, infectious disease, and physician wellness in general, and now includes COVID-19-specific resources for busy clinicians.

The lists also incorporate different resource types: point-of-care modules from BMJ Best Practice and DynaMed, journals, online and print books, current guidelines, and videos. The Library's online resources can be accessed from anywhere by College registrants, and print items can be mailed anywhere in British Columbia. Reading lists may also spark an idea for a literature search, and the Library is happy to send a customized list of the latest articles on topics of your choosing. Either a one-time list or monthly updates may be requested. Similarly, if any journal titles stand out, the Library can send tables of contents monthly for selected titles and forward the full text of articles of particular interest. As always, please contact the Library for more information: https://www.cpsbc.ca/registrants/library/make-request. ■

—Paula Osachoff
Librarian

This article is the opinion of the Library of the College of Physicians and Surgeons of BC and has not been peer reviewed by the BCMJ *Editorial Board.*

Just-in-time assistance and outreach for managing WorkSafeBC patients

Did you know? WorkSafeBC and UBC CPD have a joint committee that develops and oversees all accredited programs. The committee includes WorkSafeBC physicians, UBC CPD staff and consultants, and community physicians and nurse practitioners.

Here are some suggestions from our committee.

Just-in-time assistance: RACE Line

Although there is a checkbox on Form 8/11 to request a call from a WorkSafeBC physician or nurse, it is quicker to reach us on the RACE Line at 604 696-2131 or toll free at 1 877 696-2131. Physicians are available to speak to you Monday to Friday, 8 a.m. to 5 p.m. Pacific Time.

Please leave a message if we don't pick up, and we will return your call within 2 hours. Feel free to also leave a message in the evening or on the weekend. We will call you back within the first 2 hours of the next business day.

If your call is about your patient's claim, you should bill the fee code 19930 rather than the MSP code. You can also call with general questions about patient care and management for occupational injuries and diseases.

This line is available for primary care physicians, nurse practitioners, and specialists who manage patients with work-related injuries and occupational diseases.

Workshops: Accredited outreach tailored for you, your colleagues, and your office staff

Patient care, physicians, and WorkSafeBC

Are you or your office staff interested in knowing more about WorkSafeBC for your practice? Forms? Billing? Would you like resources for your patients with work-related injuries to assist in navigating their medical recovery and safe return to work? Do you know if you are considered an employer required to register with WorkSafeBC? Do you wonder if you could submit a claim if you have sustained a work-related injury or been diagnosed with an occupational disease?

We have accredited outreach for family physicians and specialists (being delivered virtually at the time of this writing). This outreach is offered to you, your colleagues, MOAs, and others you identify, at the time that suits you best. To arrange this, please contact Medical Services at 1 855 476-3049, contact any of our medical advisors, or let us know during your RACE Line call.

Not just a prescription pad: A multimodal approach to chronic noncancer pain

Interested in learning more about best practices in the treatment of chronic noncancer pain?

You can request that this accredited workshop be delivered to your community. Presented by Drs Launette Rieb and Peter Rothfels, this interdisciplinary workshop helps you:

- Develop confidence in having difficult conversations related to broadening pain education and treatment options beyond the prescription pad.
- Apply key pharmacological principles, including opioid tapering, initiation of substitution therapy, and medication exit strategies.
- Identify community and regional resources and supports, including WorkSafeBC.

Our next confirmed workshop is 3 December 2021, as a preconference workshop for our annual WorkSafeBC conference.

If you would like this workshop for your community, please contact Medical Services at 1 855 476-3049, contact any of our medical advisors, or let us know during your RACE Line call.

Conference: Occupational medicine and disability prevention and management

In partnership with the Northwest Association of Occupational and Environmental Medicine, WorkSafeBC's annual conference features speakers from both north and south of the 49th parallel. This year, join us virtually on Saturday, 4 December 2021, to participate in a program that includes topics such as post-acute COVID-19 management, chronic pain, disability management best practices, resident research, physical examination workshops, virtual worksite visits, persistent symptoms post-concussion, PTSD, occupational dermatitis, cannabis in the workplace, and physician wellness in challenging times. Check out the agenda and register at https://ubccpd.ca/learn/learning-activities/course?eventtemplate=182-2nd-annual-worksafebc-naoem-joint-conference-for-community-physicians. ■

—Kevin Berman, MD, JoAnna Cassie, Celina Dunn, MD, Brenda Hardie, MD, Tanya Fairweather, MD, Harry Karlinsky, MD, Nancy Parmar, NP, Olivia Sampson, MD, Holly Workman, MD
WorkSafeBC's Physician Education Initiatives Committee

This article is the opinion of WorkSafeBC and has not been peer reviewed by the BCMJ *Editorial Board.*

CME calendar

Rates: $75 for up to 1000 characters (maximum) plus GST per month; there is no partial rate. If the course or event is over before an issue of the *BCMJ* comes out, there is no discount. **Deadlines:** ONLINE: Every Thursday (listings are posted every Friday). PRINT: The first of the month 1 month prior to the issue in which you want your notice to appear; e.g., 1 February for the March issue. The *BCMJ* is distributed by second-class mail in the second week of each month except January and August. **Planning your CME listing:** Advertising your CME event several months in advance can help improve attendance; we suggest that your ad be posted 2 to 4 months prior to the event. **Ordering:** Place your ad at www.bcmj.org/cme-advertising. You will be invoiced upon publication. Payment is accepted by Visa or MasterCard on our secure online payment site.

PSYCHOLOGICAL PPE PEER SUPPORT BEYOND COVID-19

Online (Wednesdays)

In response to physician feedback, the Physician Health Program's drop-in peer support sessions, established 7 April 2020, are now permanently scheduled for Wednesdays at 12 noon. The weekly sessions are co-facilitated by psychiatrist Dr Jennifer Russel and manager of clinical services Roxanne Joyce, and are drop-in with no commitment required. The focus is peer support, not psychiatric care. All participants have the option to join anonymously. To learn more about the sessions and the program, visit www.bcmj.org/news-covid-19/psychological-ppe-peer-support-beyond-covid-19. Email peersupport@physicianhealth.com for the link to join by phone or video.

CME ON THE RUN—MSK, SPORTS MED, AND RHEUMATOLOGY SESSION

Online (Friday afternoons)

CME on the Run sessions are offered online. Registrants will receive an email on how to get to the online virtual portal before each session. Sessions run on Friday afternoons from 1 to 5 p.m. and include great speakers and learning materials. Session dates and topics: 26 November 2021 (MSK, sport med, and rheumatology). Topics include Osteoporosis: What's New in 2021/2022?; Rheumatologic Lab Investigations Explained (for Non-Rheumatologists!); Gout: Investigations, Management, and Does This Uric Acid Level Even Matter?; Lower Limb Lymphedema: What We've Been Missing; A Pain in the Cuff: Rotator Cuff Injuries and Diagnostics; Triaging Acute Knee Injuries: Determine the Urgency of Investigations and Management; Accurate Clinical Assessment of Hip Pain; and Solutions for Spinal Stenosis. The next sessions are: 21 Jan 2022 (dermatology/allergy), 8 Apr 2022 (prenatal/peds/adolescent), and 3 June 2022 (internal medicine). Learn more and register at https://bit.ly/cotr2021-2022 or email cpd.info@ubc.ca.

OPTIMIZING CARE FOR GAY, BISEXUAL, AND OTHER MEN WHO HAVE SEX WITH MEN

Online (ongoing)

This is a short online continuing medical education course designed for family physicians and primary care providers in Canada. This course will introduce you to gbMSM health issues and implications with the intent to provide you with the knowledge and skills to improve the care of your gbMSM patients. Designed in partnership by UBC CPD and Community-Based

Research Centre, Health Initiative for Men, Interior Health, Island Health, Fraser Health, Northern Health, Men's Health Initiative, Providence Health Care, and Vancouver Coastal Health. This course can be taken anytime and is divided into four lessons: 1) Social and Political Context of gbMSM Health; 2) Epidemiology & Life Course; 3) Safer Spaces, Language, and Communication; and 4) Case Studies. For more information visit https://ubccpd.ca/course/gbmsm-online.

SPECIALISTS SYMPOSIUM 2022
21 Jan 2022

Specialists are invited to collaborate on how to improve specialty care in a postpandemic world at a full-day event, A New Day: Emerging Priorities in Specialty Care, on Friday, 21 January 2022, at the Westin Bayshore hotel in Vancouver, BC. With a keynote speaker from the Canadian Medical Association, the day will have workshops about cultures, communities, relationships, processes of care, climate action, and virtual care. Participating specialist physicians can earn up to 5.5 MOC Section 1 Group Learning credits and up to 7 hours of sessional time. The Specialists Symposium 2022 is presented by the Specialists of BC and the Specialist Services Committee—a Joint Collaborative Committee that represents a partnership of Doctors of BC and the BC government. Learn more, including how to register, at www.sscbc.ca/symposium2022.

ANATOMY-BASED BOTULINUM TOXIN TRAINING
3 June 2021–30 Sept 2022

Expand your practice with injectables. Learn both the therapeutic (migraines/headaches) and aesthetic (fine facial lines and wrinkles) applications. PTIFA offers anatomy-based training (20+ hours) and training recognized by the highest standard of practice in Canada. Receive the most clinically based training, including the opportunity to inject 8+ patients. Courses held monthly on UBC Campus in Vancouver. Start today with the online Level 1 Advanced Anatomy course (20 CME). Save $500. Use code "BCMJonline" before 30 November 2021.

Classifieds

Advertisements are limited to 700 characters. Rates: Doctors of BC members: $50 + GST per month for each insertion of up to 350 characters. $75 + GST for insertions of 351 to 700 characters. Nonmembers: $60 + GST per month for each insertion of up to 350 characters. $90 + GST for insertions of 351 to 700 characters. **Deadlines:** Ads must be submitted or canceled by the first of the month preceding the month of publication, e.g., by 1 November for December publication. Visit www.bcmj.org/classified-advertising for more information. **Ordering:** Place your classified ad online at www.bcmj.org/classified-advertising. Payment is required at the time that you place the ad.

EMPLOYMENT

ACROSS CANADA—PHYSICIANS FOR YOU—MATCHING DOCTORS WITH CLINICS

Are you a physician looking for work across Canada? Or a medical facility requiring physicians? Our specialized recruitment team can help. We work with independently licensed physicians in Canada and CFPC/RCPSC-eligible international medical graduates. Our strong reputation is built on exceptional service and results. Check out our website for reviews and current job postings, and call Canada's trusted recruitment company today. Website www.physiciansforyou.com, email info@physiciansforyou.com, or call 778 475-7995.

BC—PART-TIME VIRTUAL PHYSICIANS, BERNSTEIN DIET AND HEALTH CLINIC

For over 40 years, Dr Bernstein has been helping people lose weight safely and quickly using his 100% medically supervised program. In working through the pandemic, we have evolved the model of our patient care program into a virtual environment. We are looking for physicians to join our team for a rewarding change of pace. With our dedicated and streamlined approach to patient care, the convenience of regular working hours that meet your schedule, and attractive compensation, we present a lifestyle opportunity for today's doctors. Contact Michael McGuire at michael@drbdiet.com, or 416 447-3438 ext. 2232.

BURNABY/METROTOWN—SPECIALISTS TO JOIN OUR RAPIDLY GROWING TEAM

Join our eight GPs and two internists at Imperial Medical Clinic. Flexible F/T or P/T schedules to suit your needs with in-person and/or virtual consults. Patient base of over 15 000 and growing. Young, progressive, collegial team. Brand-new clinic. Great place to start a practice without the cost of opening your own office. All specialties considered. Call Dr Pav Kaliray at 778 822-1981.

CALGARY, AB—FAMILY PHYSICIAN NEEDED

We have an exciting, immediate opening for a family physician and specialist physician to join our brand-new modern clinic. We have a dedicated and well-trained staff to help our physicians. We also take serious precautions during COVID-19 within the clinic. Our focus is to provide dedicated and exceptional health care to all of our patients. We will provide support for those who are new graduates so they feel comfortable and safe while they build their practice. We guarantee our involvement and support to build the patient population or roster the physician needs in order for them to succeed. We are located in a very busy location. Income around $650K. Contact us at info@santimedclinic.com.

DENMAN ISLAND—PRACTISE FAMILY MEDICINE ON A WEST COAST GULF ISLAND

Denman Island Clinic, just south of Courtenay on Vancouver Island, is a primary care network clinic providing care for a broad demographic of 1200 residents, which swells to 1600 in summer. Currently, three part-time FPs share one FTE; the available slot is 2 to 4 days as desired. Fee-for-service. Allied health including social worker, pharmacist, physiotherapist, medical lab nurse, home care, and counseling. Eligible for additional remuneration under the Rural Subsidiary Agreement. Start: 1 January 2022. Contact Lyndsey Jennings at ljennings@divisionsbc.ca or visit the website for more info: https://divisionsbc.ca/comox-valley/live-work-play/physician-postings/permanent/denman-medical-clinic-denman-island.

DUNCAN—FP WITH SPECIAL INTEREST IN OBESITY

Opportunity for a family physician with an interest in obesity. Current FP and internal medicine specialist available to mentor. Patients currently seen on a referral basis only. Enough demand for full-time but flexible. No hospital or on call but possible if desired. EMR and all admin supports, including billing, in place to set up your practice in our multidisciplinary clinic. 70/30 split. Lovely courtyard setting with highest standards of ventilation and cleanliness. Can help with accommodation. Located in a beautiful valley on Vancouver Island with many quaint towns, vineyards, and opportunities for outdoor recreation. Contact 250 735-0770 or mclinic@telus.net.

NANAIMO—GP

The Caledonian Clinic has availability for a general practitioner (locum or permanent position). We are a well-established, very busy clinic with 23 general practitioners, one first-year resident, one second-year resident, a podiatrist, a geriatrician/internist, and an orthopaedic surgeon. Our EMR is Profile by Intrahealth. We are located in a modern new clinic in the Nanaimo North Town Centre. Lab and pharmacy services are on site within the centre. Contact Lisa Wall at 250 716-5360 or email lisa.wall@caledonianclinic.ca. Visit our website at www.caledonianclinic.ca.

NANAIMO—PSYCHIATRIST LOCUM, EHN CANADA FEBRUARY/MARCH 2022

With 100 years of collective experience in addiction medicine, EHN Canada's dedicated treatment team takes the time to understand each client

personally. We are seeking an addictions psychiatrist locum for 4 to 5 days per week for February and March 2022. Duties include evaluation and treatment in a residential addiction setting, particularly with clients presenting with mood and anxiety disorders, PTSD, personality disorders, and substance use disorders. Knowledge and experience with the psychological and physical symptoms associated with withdrawal and trauma required. Contact Human Resources at staffing@edgewood.ca. Competitive salary options available.

NORTH VAN—FP LOCUM
Flexible hours and vacation time with no call. In-office and/or telehealth options available with great MOA support staff and a new competitive split; 100% to doctors for optional hospital visits, nursing home visits, medical-legal letters, etc., or sessional work. For further information contact Kim at 604 987-0918 or kimgraffi@hotmail.com.

POWELL RIVER—LOCUM
The Medical Clinic Associates is looking for short- and long-term locums. The medical community offers excellent specialist backup and has a well-equipped 33-bed hospital. This beautiful community offers outstanding outdoor recreation. For more information contact Laurie Fuller: 604 485-3927, email: clinic@tmca-pr.ca, website: powellriver medicalclinic.ca.

RICHMOND—FAMILY PHYSICIAN REQUIRED
Family physician wanted to work part-time at the Ultima Airport Medical Clinic. This is an opportunity to work in our beautifully appointed medical clinic located at Vancouver International Airport. This is a busy, well-established family and occupational medical practice, providing comprehensive health care to the airport community, including visitors, employees in the aviation industry, and travelers. We are open 5 days a week, from 8 a.m. to 4:30 p.m. Excellent income opportunity with both MSP and private remuneration. Great support staff. Please contact Dr Videsh Kapoor at airportclinic@ultimamedical.com to discuss further or arrange a visit.

RICHMOND—OCCUPATIONAL MEDICINE
Physicians interested in occupational medicine wanted for part-time or possibly full-time position. Ultima Medical Services Occupational Medical Clinic is a well-established occupational health clinic close to the Vancouver airport providing an extensive range of occupational health services to multiple industries, including aviation, marine, law enforcement, and fire protection. We have a dedicated and experienced team of occupational health professionals providing employers and employees with the best workplace health program available. Competitive compensation, experienced support staff, and a very pleasant scenic office setting. Experience in aviation and marine medicine would be an asset. Please contact Pat Cuffe (Ultima director of operations) at pcuffe@ultimamedical.com to discuss further or arrange a visit.

SOUTH SURREY/WHITE ROCK—FP
Busy family/walk-in practice in South Surrey requires GP to build family practice. The community is growing rapidly and there is a great need for family physicians. Close to beaches and recreational areas of Metro Vancouver. Oscar EMR; nurses/MOAs on all shifts. CDM support available. Competitive split. Please contact Carol at peninsulamedical@live.com or 604 916-2050.

SURREY (BEAR CREEK AND NEWTON)—FAMILY PRACTICE
We are looking for part-time/full-time physicians for walk-ins/family practice to work on flexible shifts between 9 a.m. and 6 p.m., with the option to work 7 or 5 days per week. Clinic with eight exam rooms, two physio rooms, and pharmacy on site. Competitive split. For more information please contact Anand at wecaremedical clinic2021@gmail.com or 778 888-7588.

SURREY/NEWTON—FAMILY PHYSICIAN/GP, SUPERSTORE
GP needed to take over a full practice. Existing GP taking long-term medical leave; willing to guide and support incoming GP. Patients are wonderful, mostly young families. Potential for high billings and non-MSP income. Work with three full-time established GPs. Collegial environment. Oscar EMR. Excellent trained, long-term MOAs. Eight rooms. Split is 75/25, with low monthly cap on your overhead. Existing three doctors easily meet the cap and take home a much higher split than 75%. Flexible hours. Free parking. Hindi Punjabi speaking would be an asset but is not mandatory. Contact Dr Raman Manchanda at raman_manchanda@hotmail.com, or call the clinic's private line at 604 597-7148.

SURREY/DELTA/ABBOTSFORD—GPS/SPECIALISTS
Considering a change of practice style or location? Or selling your practice? Group of seven locations has opportunities for family, walk-in, or specialists. Full-time, part-time, or locum doctors guaranteed to be busy. We provide administrative support. Paul Foster, 604 572-4558 or pfoster@denninghealth.ca.

VANCOUVER—FP/GYNECOLOGIST/PEDIATRICIAN/SPECIALIST, AND RMT
Cross Roads Clinics: Opportunity to join our large multidisciplinary clinic with excellent support focusing on family health, preventive health, and the care of women and children. Virtual care, extended flexible hours/scheduling, and vacation friendly. Modern 9000 sq. ft. facility with 34 patient rooms and gymnasium. Physiotherapy, massage therapy, naturopathic medicine, acupuncture, dermatology, minor surgery, pediatrics, women's health, infertility, contraception, menopause, and incontinence clinic on site. No need to build your practice as we have patients immediately available to you. Potential service contract for family medicine. Great opportunity to focus on patient care, whether new to practice or semi-retiring; allow us to manage the rest. Please contact admin@crossroadsclinics.com.

VANCOUVER/RICHMOND—FP/SPECIALIST
We welcome all physicians, from new graduates to semi-retired, part-time or full-time. Virtual, walk-in, or full-service family medicine and all specialties. Excellent splits at the busy South Vancouver and Richmond Superstore medical clinics. Efficient and customizable Oscar EMR. Well-organized clinics. Contact Winnie at medical clinicbc@gmail.com.

VANCOUVER/UBC—UBC STUDENT HEALTH SERVICES SEEKING PSYCHIATRISTS
UBC Point Grey campus is seeking P/T psychiatrists to join its multidisciplinary team of GPs, NPs, mental health nurses, nurses, psychologists, counselors, and health promotion specialists to work in providing exceptional health services to UBC students. We are also an active teaching site for medical residents. Applicants must have FRCPC and be eligible for full licensure with CPSBC. Input health EMR and office space available. Open Mon–Sat. For further information please contact Eliza Magnaye at eliza.magnaye@ubc.ca.

MEDICAL OFFICE SPACE

SOUTH SURREY—MEDICAL OFFICE SPACE FOR LEASE
Custom-built, exceptionally clean 947 sq. ft. medical office with high-grade millwork, cork flooring, and decor in a modern professional building. Spacious reception desk with granite countertop. Waiting area has a decorative rock wall with furnished high-end seating. Waiting room and exam rooms have high-definition televisions for patients. Private bathroom and kitchen. Building has a large parking lot (free parking for patients). Ideal for the discerning specialist. Full-time MOA available. Located in Croydon Business Centre, a professional building, home to medical and dental offices. By Morgan Crossing shopping outlet, a European-style shopping outlet with many shopping and eating establishments. If interested, contact dmjones01@shaw.ca.

MISCELLANEOUS

CANADA-WIDE—MED TRANSCRIPTION
Medical transcription specialists since 2002, Canada-wide. Excellent quality and turnaround. All specialties, family practice, and IME reports. Telephone or digital recorder. Fully confidential, PIPEDA compliant. Dictation tips at www.2ascribe.com/tips. Contact us at www.2ascribe.com, info@2ascribe.com, or toll-free at 1 866 503-4003.

CANADA—QUALITY, AFFORDABLE TRANSCRIPTION
Keystrox serves physicians, clinics, and assessment companies. Quick turnaround; secure and confidential. Dictate as you prefer; available 24 hours a day, 7 days per week. Direct upload to EHR and auto-fax. Five-star rating on Google. Local references available. Free trial. Phone: 519 915-4897 or toll-free 888 494-2055. Email: contact@keystrox.com. Website: www.keystrox.com.

FREE MEDICAL RECORDS STORAGE
Retiring, moving, or closing your family practice? RSRS is Canada's #1 and only physician-managed paper and electronic medical records storage company. Since 1997. No hidden costs. Call for your free practice closure package: everything you need to plan your practice closure. Phone 1 866 348-8308 (ext. 2), email info@rsrs.com, or visit www.rsrs.com.

PATIENT RECORD STORAGE—FREE
Retiring, moving, or closing your family practice, general practice, or physician's estate? DOCUdavit Medical Solutions provides free storage for your active paper or electronic patient records with no hidden costs, including a patient mailing and doctor's web page. Contact Sid Soil at DOCUdavit Solutions today at 1 888 781-9083, ext. 105, or email ssoil@docudavit.com. We also provide great rates for closing specialists.

VANCOUVER—TAX & ACCOUNTING SERVICES
Rod McNeil, CPA, CGA: Tax, accounting, and business solutions for medical and health professionals (corporate and personal). Specializing in health professionals for the past 11 years, and the tax and financial issues facing them at various career and professional stages. The tax area is complex, and practitioners are often not aware of solutions available to them and which avenues to take. My goal is to help you navigate and keep more of what you earn by minimizing overall tax burdens where possible, while at the same time providing you with personalized service. Website: www.rwmcga.com, email: rodney@rwmcga.com, phone: 778 552-0229.

VANCOUVER—VIOLIN TEACHER RECOMMENDATION
I would like to recommend a violin teacher, Mansoon Bow, graduate of the Royal Academy of Music in London and winner of an international violin award at age 17. Attending my 18-year-old son's music lessons made me feel like I was back at the Academy of Music in Vienna, Austria. Located on W. 4th Ave in Vancouver; contact 778 881-8955.

Guidelines for authors

The *British Columbia Medical Journal* is a general medical journal that seeks to continue the education of physicians through review articles, scientific research, and updates on contemporary clinical practices while providing a forum for medical debate. Several times a year, the *BCMJ* presents a theme issue devoted to a particular discipline or disease entity.

We welcome letters, blog posts, articles, and scientific papers from physicians in British Columbia and elsewhere. Manuscripts should not have been submitted to any other publication. Articles are subject to copyediting and editorial revisions, but authors remain responsible for statements in the work, including editorial changes; for accuracy of references; and for obtaining permissions. The corresponding author of scientific articles will be asked to check page proofs for accuracy.

The *BCMJ* endorses the "Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals" by the International Committee of Medical Journal Editors (updated December 2016), and encourages authors to review the complete text of that document at www.icmje.org.

All materials must be submitted electronically, preferably in Word, to:

The Editor
BC Medical Journal
E-mail: journal@doctorsofbc.ca
Tel: 604 638-2815
Web: www.bcmj.org

Editorial process

Letters to the editor, articles, and scientific papers must be reviewed and accepted by the *BCMJ*'s eight-member Editorial Board prior to publication. The Board normally meets the last Friday of every month, at which time submissions are distributed for review the following month. We do not acknowledge receipt of submissions; the editor will contact authors of articles by email once the submission has been reviewed by the Board (usually within 8 to 10 weeks of submission). The general criteria for acceptance include accuracy, relevance to practising BC physicians, validity, originality, and clarity. The editor contacts authors to inform them whether the paper has been rejected, conditionally accepted (that is, accepted with revisions), or accepted as submitted. Authors of letters are contacted only if the letter is accepted and editorial staff need further information. Scientific papers and other articles typically take 5 to 10 months from the date of receipt to publication, depending on how quickly authors provide revisions and on the backlog of papers scheduled for publication. Manuscripts are returned only on request. The *BCMJ* is posted for free access on our website.

For all submissions

- ☐ Avoid unnecessary formatting, as we strip all formatting from manuscripts.
- ☐ Double-space all parts of all submissions.
- ☐ Include your name, relevant degrees, email address, and phone number.
- ☐ Number all pages consecutively.

Opinions

BCMD2B (medical student page). An article on any medicine-related topic by a BC physician-in-training. Less than 2000 words. The *BCMJ* also welcomes student submissions of letters and scientific/clinical articles. BCMD2B and student-written clinical articles are eligible for an annual $1000 medical student writing prize.

Blog. A short, timely piece for online publication on bcmj.org. Less than 500 words. Submissions on any health-related topic will be considered. Should be current, contain links to related and source content, and be written in a conversational tone.

The Good Doctor. A biographical feature of a living BC physician. Less than 2000 words.

Letters. All letters must be signed, and may be edited for brevity. Letters not addressed to the Editor of the *BCMJ* (that is, letters copied to us) will not be published. Letters commenting on an article or letter published in the *BCMJ* must reach us within 6 months of the article or letter's appearance. No more than three authors. Less than 300 words.

Point-Counterpoint. Essays presenting two opposing viewpoints; at least one is usually solicited by the *BCMJ*. Less than 2000 words each.

Premise. Essays on any medicine-related topic; may or may not be referenced. Less than 2000 words.

Proust for Physicians. A lighthearted questionnaire about you. Submit responses online at www.surveymonkey.com/s/proust-questionnaire, print a copy from the *BCMJ* website at www.bcmj.org/proust-questionnaire, or contact journal@doctorsofbc.ca or 604 638-2858.

Special Feature. Articles, stories, history, or any narrative that doesn't fit elsewhere in the *BCMJ*. Less than 2000 words.

Departments

Obituaries. Include birth and death dates, full name and name deceased was best known by, key hospital and professional affiliations, relevant biographical data, and photo. Less than 500 words.

News. A miscellany of short news items, announcements, requests for study participants, notices, and so on. Submit suggestions or text to journal@doctorsofbc.ca or call 604 638-2858 to discuss. Less than 300 words.

Clinical articles/case reports/survey studies

Manuscripts of scientific/clinical articles and case reports should be 2000 to 4000 words in length, including tables and references. The first page of the manuscript should carry the following:

- ☐ Title, and subtitle, if any.
- ☐ Preferred given name or initials and last name for each author, with relevant academic degrees.
- ☐ All authors' professional/institutional affiliations, sufficient to provide the basis for an author note such as: "Dr Smith is an associate professor in the Department of Obstetrics and Gynaecology at the University of British Columbia and a staff gynecologist at Vancouver Hospital."
- ☐ A structured or unstructured abstract of no more than 150 words. If structured, the preferred headings are "Background," "Methods," "Results," and "Conclusions."
- ☐ Three key words or short phrases to assist in indexing.
- ☐ Disclaimers, if any.
- ☐ Name, address, telephone number, and email address of corresponding author.

Survey studies must have a response rate of at least 50% in order for the paper to be reviewed for publication consideration. Papers with less than this response rate will not be reviewed by the *BCMJ* Editorial Board. We recognize that it is not always possible to achieve this rate, so you may ask the Editor in advance to waive this rule, and if the circumstances warrant it, the Editor may agree to have the paper reviewed.

Authorship, copyright, disclosure, and consent form

When submitting a clinical/scientific/review paper, all authors must complete the *BCMJ*'s four-part "Authorship, copyright, disclosure, and consent form."

1. **Authorship.** All authors must certify in writing that they qualify as an author of the paper. To be considered an author, an individual must meet all three conditions:
   - ☐ Made substantial contributions to the conception and design, acquisition of data, or analysis and interpretation of data, and

- ☐ Drafted the article or revised it critically for important intellectual content, and
- ☐ Given final approval of the version to be published.

Order of authorship is decided by the co-authors.

2. **Copyright.** All authors must sign and return an "Assignment of copyright" prior to publication. Published manuscripts become the property of Doctors of BC and may not be published elsewhere without permission.
3. **Disclosure.** All authors must sign a "Disclosure of financial interests" statement and provide it to the *BCMJ*. This may be used for a note to accompany the text.
4. **Consent.** If the article is a case report or if an individual patient is described, written consent from the patient (or his or her legal guardian or substitute decision maker) is required.

Papers will not be reviewed without this document, which is available at www.bcmj.org.

References to published material

Try to keep references to fewer than 30. Authors are responsible for reference accuracy. References must be numbered consecutively in the order in which they appear in the text. Avoid using auto-numbering as this can cause problems during production.

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1. Gilsanz V, Gibbons DT, Roe TF, et al. Vertebral bone density in children: Effect of puberty. Radiology 2007;166:847-850.

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2. Mollison PL. Blood Transfusion in Clinical Medicine. Oxford, UK: Blackwell Scientific Publications; 2004. p. 78-80.
3. O'Reilly RA. Vitamin K antagonists. In: Colman RW, Hirsh J, Marder VJ, et al. (eds). Hemostasis and Thrombosis. Philadelphia, PA: JB Lippincott Co; 2005. p. 1367-1372.
4. Health Canada. Canadian STD Guidelines, 2007. Accessed 15 July 2008. www.hc-sc.gc.ca/hpb/lcdc/publicat/std98/index.html.

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2. Kim-Sing C, Kutynec C, Harris S, et al. Breast cancer and risk reduction: Diet, physical activity, and chemoprevention. CMAJ. In press.

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