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Self-poisoning among British Columbian children and youth

Demographic and geographic characteristics

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Beyond the direct effects of improving the health of older adults, intergenerational housing can lead to beneficial outcomes for society as a whole. Article begins on page 171.

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ON THE COVER
Self-poisoning is a significant and growing problem, particularly for BC children and youth. The exceptionally high self-poisoning rates among females age 10 to 19 are striking, which is consistent with research that has found higher self-poisoning rates among female youth compared with males. Article begins on page 164.

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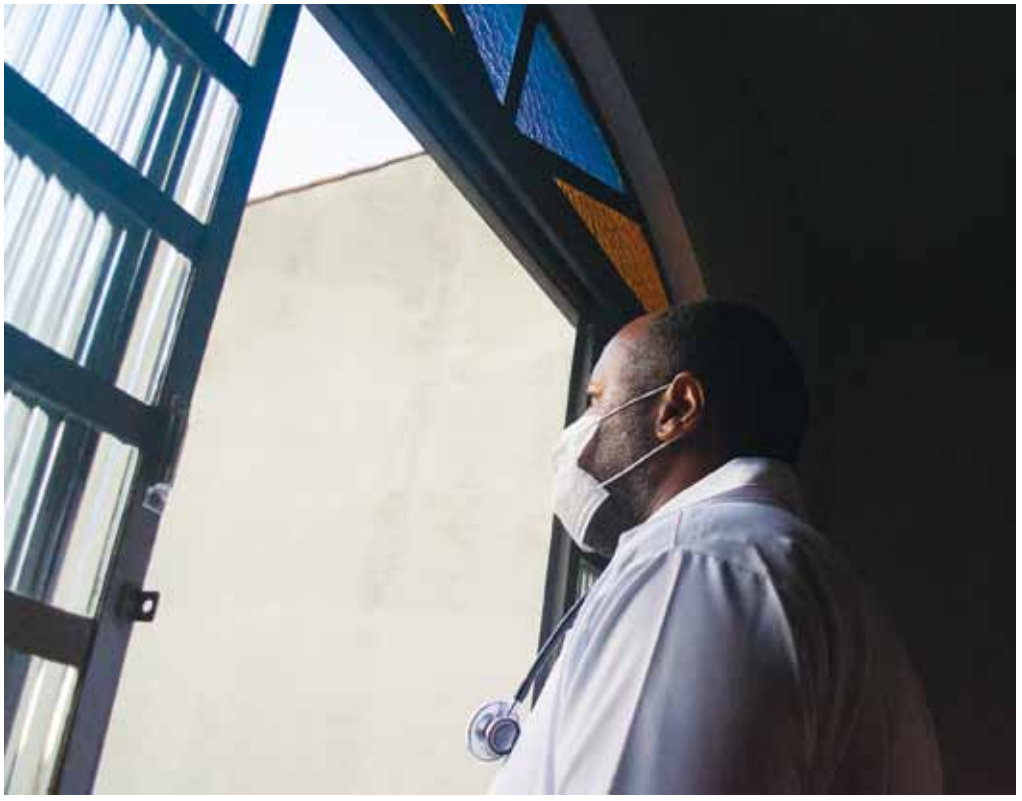

Racism and discrimination are deeply ingrained in our society and represent significant social determinants of health—a truth that is backed by a growing body of evidence that highlights disparate health outcomes in racial minorities. *Article begins on page 152.*

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Pandemic musings

6 April 2021

As this pandemic continues into its second year, it is hard to be cheerful and optimistic. In terms of silver linings, 2020 was likely a far better year for the environment. Climate change shifted into a lower gear and nature was able to take a deep breath. Many large industrial centres noted less smog with improved views, and many waterways were blessed with the reappearance of fish and whales.

The recent run of mass shootings in the United States reminded me that these previously common events were seldom spoken of in 2020. I took comfort, thinking that perhaps the pandemic has also led to reduced gun violence for our southern neighbors. Imagine my surprise when I researched the topic and learned that gunshot deaths climbed during 2020.

According to the Gun Violence Archive, about 45 000 Americans died of gun violence in 2020 compared to roughly 40 000 in 2019. In fact, shooting deaths in 2020 outpaced the next highest recent year (2017) by more than 3600. Last year, the United States noted the highest 1-year increase in homicides since they started keeping records.

About 45 000 Americans died of gun violence in 2020.

Some claim that this is not a gun problem but a mental health issue. However, recently a man went on a rampage with a knife in North Vancouver, stabbing multiple victims and ending one woman's life. I would argue that if this obviously disturbed individual had access to an assault rifle the toll would have been much higher.

COVID-19 mobilized the world, and the United States has been a leader in developing a vaccine to combat the pandemic. Imagine what could be accomplished if a fraction of the resources devoted to combating a virus were directed toward ending gun violence.

One fact that is often overlooked is that gun violence is a male problem. When was the last time you heard about a woman going on a shooting rampage with a semiautomatic weapon? Mass shooters are predominantly men who turn to violence as a means of solving some internal strife. Men must do better and learn to control their emotions without resorting to acts of aggression.

Lastly, before we feel too smug here in Canada, and specifically in our home province, we should look at another local epidemic. In 2020 there were approximately 1000 deaths in BC due to COVID-19. In comparison, more than 1700 individuals died of illicit drug toxicity (the majority from fentanyl).

The coronavirus pandemic has drawn significant attention and effort to fight it. Measures include regular briefings from the provincial health officer and health minister along with a mobilization of public health and health region resources. The population has tolerated previously unheard of restrictions with minimal complaint. I wonder what could be accomplished if similar efforts were directed toward the often-marginalized population of people who use drugs and the overdose crisis.

Forgive me for my pandemic musings, but this challenging time lends itself to reflection, and with that a desire for seeking hope amid the ruin. Sadly, we won't find any uplifting change when it comes to gun violence and illicit drug deaths. ■

—David R. Richardson, MD

Research ethics board approval: What, why, when, how?

At the *BC Medical Journal*, we often receive submissions from clinicians who want to share their findings, but they aren't sure how to approach the subject of research ethics. Here is a brief summary for our readers and prospective authors.

What is a research ethics board?

Research ethics boards (REBs) are "autonomous entities whose primary responsibility is to protect the rights and welfare of human participants taking part in research."[1] They can also help to ensure that research is of high quality and is clinically important.[2] The University of British Columbia has several such boards, including Children's and Women's, BC Cancer, Providence Health Care, and the UBC Clinical Research Ethics Board. These committees are composed of individuals from varied backgrounds such as physicians, scientists, researchers, ethicists, and community members. There are also private for-profit ethics boards, which adhere to the same principles and are selected by some researchers for expediency or if the researchers are not affiliated with a university.

Why is research ethics approval necessary?

Involuntary studies on human subjects in the past have had horrendous consequences. The Nuremberg trials exposed the "scientific" evils of the Nazi regime and resulted in the creation of the Nuremberg Code in 1947.[3] Unfortunately, around the world, including in North America, there were many subsequent occurrences of atrocities committed in the name of research. The World Medical Association Declaration of Helsinki (1964, last updated 2013) was created to further address the ethics and safety of human research and its application to special populations.[4]

Today, the standards for research involving humans adhere to the Tri-Council Policy Statement (TCPS2 2018), which is a product of Canada's three federal research agencies.[5] Applications to UBC's REBs require all team members to have completed a tutorial on the Tri-Council Policy Statement.[6] The key principle is informed consent, where research participants are fully informed about the potential risks and benefits of the study.

When does a study need research ethics board approval?

In Canada, any research study involving human participants, human tissue, or human data requires research ethics board approval before commencement. If you are undertaking a quality improvement project, it does not require REB oversight. However, it is important to note that REBs cannot review research that has already been done; if there is any doubt about your project constituting research, it is best to consider the intention of the project *before* beginning. A sorting tool, available on the PHSA website, can be a helpful first step (https://rc.bcchr.ca/redcap/surveys/?s=HNWAAKFF97). If research ethics appear to be required or you are uncertain, contact your local REB.

At the *BCMJ*, we also receive submissions of quality improvement projects that have been written up for publication. For example, a medical student was supervised by an attending physician to perform a review of treatment times for different diagnoses in the emergency department. This study represents a retrospective chart review, which involved collecting patient data, de-identifying the information, and analyzing the results. Depending on the nature and specifics of the project, the *BCMJ* may ask the principal investigator to seek confirmation from a local REB that the project was, in fact, quality improvement and, therefore, did not require REB oversight. If the research would have required REB approval, it cannot be granted retrospectively; therefore, the submission would not be accepted for publication.

How can researchers obtain ethics approval?

Research ethics boards have a standardized application process. UBC uses an online platform called Research Information Systems (RISe) to track applications, amendments, and annual renewals. Ethics boards generally allow for two levels of review depending on the type of study: delegated review (subcommittee review of studies deemed minimal risk) and full review (anything beyond minimal risk). The timeline for review and approval can vary due to committee schedules and the number of revisions required, but it may take anywhere from days to months. Researchers affiliated with UBC can get started at www.rise.ubc.ca/guidance-notes-and-tutorials. ■

—Caitlin Dunne, MD, FRCSC

Acknowledgments

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Re: Benefits and limitations of ultrasound in diagnosis of rib fractures

Thanks for an excellent article, Dr Watson [*BCMJ* 2021;63:75-78,82]. In Big White, BC, we have about two suspected rib fractures per day. We ultrasound everyone at point of care, and get X-rays if positive (to rule out pneumo/hemo), high clinical suspicion, or prolonged symptoms (indirect compression tenderness or unable to accomplish three pushups by day three). Everyone with a confirmed fracture is advised to avoid skiing or snowboarding for 6 weeks, and I estimate the median compliance is 4 to 5 weeks. Late complications have been very low (none observed in about 2000 cases).

—Mike Figurski, MD
Kelowna

Obituaries

We welcome original tributes of less than 500 words; we may edit them for clarity and length. Obituaries may be emailed to journal@doctorsofbc.ca. Include birth and death dates, full name and name deceased was best known by, key hospital and professional affiliations, relevant biographical data, and a high-resolution head-and-shoulders photo.

Dr Muhammad "Max" Zahir

1936–2021

On 20 March 2021, Dr Max Zahir continued his journey into new realms. Symbolically, our beloved Max left us as we ushered in the first day of spring. The finality of his passing was met with the dawning of rebirth.

Max graduated from King Edward Medical College in Lahore, Pakistan, and as top graduate in his year, he was awarded a prestigious Rhodes Scholarship to study hematology at Oxford University. In 1965 he obtained a PhD with a thesis titled "The Nature of Wound Healing with Special Reference to Scab Formation."

In 1967, soon after completing his PhD, Max joined the faculty at the University of Maryland as an assistant professor of medicine. However, the pressure associated with the academic publish-or-perish lifestyle prompted a move to New Brunswick, where he joined the medical staff at the Moncton Hospital. The biting cold winters were not always easy to navigate, and a move to British Columbia followed in 1974. A 28-year career with the Pathology Department at Royal Inland Hospital was the highlight of his decorated career.

During the latter part of his tenure at Royal Inland Hospital, Max held the position of chief of pathology. This experience led him to partake in a number of outside affiliations, including 5 years of service as president of the Society of Specialist Physicians and Surgeons of BC (1993–1998), as well as chair of the Laboratory and Nuclear Medicine Subcommittee for the BC Ministry of Health just prior to his retirement in 2002. With any professional endeavor, Max was lauded for his diplomacy, attentiveness, and unfailing leadership.

A momentous retirement project was the publication of his memoirs in the book titled *1947: A Memoir of Indian Independence.*

—Kate Zahir

Recently deceased physicians

If a BC physician you knew well is recently deceased, please consider submitting an obituary. Include the deceased's dates of birth and death, full name and the name the deceased was best known by, key hospital and professional affiliations, relevant biographical data, and a high-resolution photo. Please limit your submission to a maximum of 500 words. Send the content and photo by e-mail to journal@doctorsofbc.ca.

Mass disruption: A time of great pain and great hope

You've probably heard the term *collective trauma* (a traumatic event shared by a group of people) being used to describe the COVID-19 pandemic. I often use this term myself. As a specialist in mental health, and as a child of parents who experienced homelessness and abuse, trauma is a familiar phenomenon for me, professionally and personally. But trauma carries different meanings for different people. For some, trauma means broken bones and ruptured organs. For others, it is a multigenerational experience of racism and oppression. And for others still, it stems from everyday experiences such as being called by the wrong pronoun or being told that you have dressed too provocatively. *Collective trauma* suggests that we have all been injured in some way, which isn't necessarily true of the pandemic.

That's not to say people haven't suffered; we have seen far too many deaths; too much illness, isolation, and loneliness; and too many racist attacks and lost jobs. There are some who have fared well, at least economically, during the pandemic. Health care workers have been differentially affected—having to make heartbreaking phone calls to family members of COVID-19 victims, hunt desperately for PPE in the initial weeks of the pandemic, and many seeing their practices and operating rooms closed due to pandemic restrictions. Again, there are some who were able to make a swift move to virtual care, and some have not seen a single case of COVID-19.

Sometimes we need to use different terminology to avoid preconceived ideas and experiences associated with certain words. That's why I use a different term to describe what has led us to experience so much fatigue, frustration, and fear, while at the same time triggering self-reflection, innovation, and change. It is a term that encompasses the good and the bad, the injurious and the healing, the fatiguing and the motivating. I suggest using the term *mass disruption* to describe this unique time in our history.

The word *disruption* describes the rupture of our social connections, restrictions put on our usual ways of coping with stress, and the negative impacts on our economic security. It can also describe the collective awakening that has triggered global movements to combat systemic racism, gender-based violence, and inequality—movements that have gained considerable momentum in spite of pandemic restrictions. It should come as no surprise that a prohibition on social gatherings, while necessary to save lives, has not impeded these calls for change. The need for human dignity is universal.

In health care, this mass disruption has meant that some colleagues have and will experience problems such as anxiety, depression, and posttraumatic stress disorder. Doctors of BC's Physician Health Program has seen record-setting demand from colleagues in distress. And from what we know from previous global and regional disasters, we can anticipate this demand to continue increasing, peaking as much as a year or more after the pandemic before subsiding. We know that some of our patients, especially those who have been personally affected by COVID-19 or who have had protracted courses of illness, will continue experiencing challenges long after the last person is vaccinated. We saw this with SARS in 2003, MERS since 2012, and myriad other outbreaks of disease around the globe.

Mass disruption in health care has also interrupted the old ways of doing things. In the span of weeks, we went from less than 10% to more than 90% of medical visits taking place virtually. That number has dropped since we adapted to pandemic conditions and found a better balance between virtual and face-to-face care, but it will never fall to prepandemic levels. Health care is one of the last industries to see disruptive innovation brought on by the Internet age. The pandemic is exacting a heavy toll, but it is also triggering changes that will resonate for decades.

On occasion, you'll still catch me calling the experience of the past year a collective trauma; many people and some groups have certainly had a traumatizing experience. But more than that, we have experienced a mass disruption to our way of life, our way of coping, our way of doing business, and even our way of thinking.

A mass disruption need not be a negative experience. History is full of examples of how disruption can be the impetus for positive change. The change could be personal: a look at one's life goals, reconsidering one's career, reconnecting with friends and family. The change could be organizational: taking stock of how we responded to the pandemic, addressing gaps and shortcomings, doing better next time. Or the change could be global: awakening to the realities faced by disadvantaged and marginalized groups, highlighting the interconnectedness of nations, and motivating one another to build a better world.

COVID-19 has created a mass disruption for us all, but we choose how to respond. ■

—Matthew C. Chow, MD
Doctors of BC President

Systemic racism and medicine: A commentary

A reflection on historical mistakes that we must recognize and learn from to catalyze positive change.

Christopher O.Y. Li, BSc, Daljeet Chahal, MSc, MD, FRCPC, Trana Hussaini, PharmD, Eric M. Yoshida, OBC, MD, MHSc, FRCPC

The year 2020 was fraught with tragic events that brought social injustices into the spotlight worldwide. Following the deaths of George Floyd and Breonna Taylor, directly due to the actions of local police, and what can only be described as the racially targeted killing of Ahmaud Arbery, the Black Lives Matter movement gained significant momentum in the United States, and with it, calls to address the enduring inequities rampant in modern society. But social injustice and racism are not restricted to the United States. This year alone saw the brutal recorded assault of Indigenous Chief Allan Adam at the hands of police in Alberta; the fatal and independent shootings of two young Indigenous people, Rodney Levi and Chantel Moore, by police in New Brunswick; and the recent recorded evidence that Indigenous patient, Joyce Echaquan, endured appalling racist and insulting comments from health care professionals as she was dying in a Quebec hospital. These Canadian incidents were covered by the media but probably represent the tip of the iceberg; many incidents most likely go unreported to authorities or the media.

These incidents are rooted in institutionalized and societally accepted racism that goes back centuries. The legacy of slavery and the long-standing Jim Crow laws in the United States, and the government sanctioned, enforced residential school system imposed on Canadian Indigenous communities, have created social-economic inequities and multigenerational trauma. Social injustice affects individuals beyond those of African or Indigenous background, and is not limited to racial inequity; other groups including women and the LGBTQ community similarly continue to face discrimination and bias.

Treating patients the same or equally does not imply equity; doing so ignores the disparities that have existed for generations and continue to exist today.

The World Health Organization defines social determinants of health as "the conditions in which people are born, grow, live, work, and age." Although these circumstances exert their effects on the individual, they are shaped by structural phenomena. Slavery and colonialism in the US and Canada has produced a legacy of racism, injustice, and brutality that pervades medicine as it does all social institutions. Racism and discrimination are deeply ingrained in our society and represent significant social determinants of health—a truth that is backed by a growing body of evidence that highlights disparate health outcomes in racial minorities. While physicians and other health care workers are committed to providing the best care and treating all patients equally, systemic racism exerts its effects subconsciously and insidiously.

The 1932 Tuskegee Study serves as a historic example of the ideological effects of systemic racism in academic medicine, which allowed for this shameful experiment to take place in the name of medical science and the "greater good." In this study, 600 African American men from Alabama, 399 of whom had syphilis, were enlisted to partake in an experiment intended to observe the natural history of untreated syphilis in Black populations. The study was conducted without the benefit of patients' informed consent, and participants were simply told that they were receiving treatment for "bad blood"—a colloquial term used to describe syphilis, anemia, fatigue, and other ailments. Individuals who enlisted in this study over its course of 40 years were given ineffective medicines and denied proper treatment. The study is blamed for significantly impacting the willingness of Black individuals to participate in medical research today. It is estimated that the life expectancy of Black men also fell by up to 1.4 years following the release of the study's details, in part due to a seeded mistrust in the health care system that remains today.[1]

One contemporary study[2] showed that Black patients are more likely to trust and heed the advice of Black physicians compared to

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This article has been peer reviewed.

physicians of a different race. The researchers estimated that Black physicians could reduce the cardiovascular mortality gap between Black and White patients by 19%, but Black patients have a much lower chance of finding a racially concordant physician compared to White and Asian American patients. At the same time, ethnicity cannot be ignored in medicine. Treating patients the same or equally does not imply equity; doing so ignores the disparities that have existed for generations and continue to exist today. Recent calls for ethnically inclusive medical education have been made after attention was brought to the fact that darker skin tones are underrepresented in images showing dermatological manifestations of disease. In the wake of COVID-19, which is disproportionately affecting communities of color, physical findings such as the "COVID toes" rash have been presented in medical literature only in individuals with a lighter skin color.

As in America, Canadian academic medicine contains examples of unethical research and poor treatment of minority groups. Ian Mosby[3] recently brought to light the series of nutrition research experiments on approximately 1000 Canadian Indigenous children that took place between 1942 and 1952 across six residential schools. These experiments were initiated to investigate the effectiveness of various nutritionally fortified foods in the diets of Indigenous people after widespread hunger and malnutrition in Canadian residential schools was noted in the early postwar period. Groups of malnourished children were denied adequate nutrition while others were fed food formulas deemed illegal for sale to the general public due to violation of food adulteration laws. Some groups were even subjected to supplement regimens of vitamins alone in order to observe the physical manifestations of malnourishment.

The lasting effects of systemic racism resulting in inequity are reflected in current health data. Indigenous people are among the highest risk groups for developing diabetes and its complications, and are overrepresented in HIV, tuberculosis, and sexually transmitted infection cases. The stroke rate is nearly twice in the Indigenous population compared to non-Indigenous Canadians, and the suicide rate among Indigenous youth is 5 to 7 times higher than in their non-Indigenous peers.

Today, safeguards exist to protect the well-being and rights of those who volunteer for medical research, and they are enforced by institutional research ethics boards. This does not, however, alleviate the mistrust felt in affected communities that was created by deplorable research efforts of the relatively recent past. Today, it is generally accepted that research involving the Indigenous community must be done in consultation with representatives of

the community, the outcomes of the research must be available for dissemination to the community, and the research must be of potential benefit to the community.

What can we do?

As health care professionals, we interact with individuals from all ethnicities, genders, religions, and social backgrounds. We play a direct role in the type of care they receive, and, in doing so, directly influence their health outcomes. Therefore, we first have an individual and collective responsibility to understand the roots of contemporary health disparities so that we can fight the systemic racism that exists. Next, we must define and understand what racism is. Racism can present in many ways, and it is not limited to the blatant events seen in the media. Perhaps its most dangerous form is subconscious bias, which can subtly influence how we interact with others and how we, in turn, are treated, all without us realizing its effects. To overcome this, we must be conscious of our interactions and carry an open and willing attitude to identify and control our implicit biases. We must also learn to manage overt bigotry safely and educate our peers on how to do the same. All instances of discrimination, bias, prejudice, and ignorance that arise should be firmly rejected. Finally, we must continue to plant the seeds of change so that our efforts are not short-lived. Educators must continuously evaluate their learning materials and develop curricula that ensure equal representation of all people for all levels of medical education. Our medical schools should continue to promote cultural sensitivity and encourage future physicians to practise and model tolerance, respect, kindness, and open-mindedness. ■

Subconscious bias can subtly influence how we interact with others and how we, in turn, are treated, all without us realizing its effects.

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The brewing issue in kombucha

What is kombucha?
Kombucha is a popular fermented black or green tea that attracts customers with its unique mix of fruity and sweet-and-sour flavors, promises of low sugar content, and a variety of alleged health benefits. Kombucha appeared as early as 2000 years ago in China and Tibet, but only made its way to the West via repatriated Russian prisoners after World War I.[1]

Kombucha is gaining popularity
Sales approached US$1 billion in the United States in 2018, and the market is projected to reach US$6.2 billion by 2026.[2]

Is it healthy?
Part of kombucha's popularity is that is has less sugar than soft drinks. Another selling point is the presence of the yeast and bacteria central to the fermentation process. These probiotic microbes are alleged to convey health benefits ranging from antioxidant effects and anticancer properties to reversing hair loss. To date, clinical trials have not confirmed these claims.[1,3]

Kombucha has a secret
While kombucha is marketed as a healthful beverage,[1] an inconvenient truth exists; it contains alcohol. In Canada, the ethanol content of a beverage must be below 1.1% in order for it to not be regulated as an alcoholic beverage. (In the US, beverages must be below 0.5% ethanol content.) Yet kombucha is a fermented product, and although ethanol production is much diminished once the drink leaves the factory and is refrigerated, the production of alcohol continues—more so at higher storage temperatures and sugar content. One US investigation found alcohol levels of 7%, higher than that of beer.[2] This ability of kombucha to have increased alcohol content after production has raised concern among Canadian and US health agencies, the BC Centre for Disease Control among them.[3] Indeed, class action suits have been launched over false advertising of alcohol content.[4]

This ability of kombucha to have increased alcohol content after production has raised concern among Canadian and US health agencies.

The situation is particularly concerning for at-risk populations (including children and pregnant women), as consumers may often be unaware that there is alcohol in kombucha.[5]

What do we do now?
The BC Centre for Disease Control's recent study into this issue[5] recommends that:

- Labeling must clearly indicate alcohol content.
- Alcohol content must be at or below 1% for the shelf life of the product.
- Consumers be clearly informed to keep the beverage refrigerated.

Hopefully, regulators will act to ensure that kombucha stays in the market in a way that minimizes risk and allows informed adults to enjoy its unique flavors. ■

—Lloyd Oppel, MD

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.*

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Better. Together.

Giselle Hunt, BSc, Catherine Allaire, MD, Paul J. Yong, MD, Caitlin Dunne, MD

Endometriosis: An update on diagnosis and medical management

A shift toward early clinical diagnosis of endometriosis, one of the most prevalent gynecological disorders, and initiation of empiric medical treatment without the need for laparoscopy is critical to improving the care and quality of life of patients who suffer from the disease.

ABSTRACT: Endometriosis is a common condition of reproductive-aged women that negatively impacts their quality of life. The gold standard for diagnosing endometriosis is direct visualization at laparoscopy; however, current guidelines support the initiation of empiric treatment prior to laparoscopy in patients with suspected endometriosis. Clinically diagnosing endometriosis can be challenging because the signs and symptoms are nonspecific. A thorough history and a comprehensive assessment of a patient's pain experience is recommended. A stepwise pelvic exam may reveal anatomic features of endometriotic implants, and imaging, predominantly transvaginal ultrasound, can be a useful adjunct. First-line medical management of endometriosis-related pain includes combined hormonal contraceptives or progestin-only hormone treatment. If there is no improvement in symptoms after a 3-month trial, a referral to a gynecologist is appropriate in order to consider gonadotropin-releasing hormone (GnRH) agonist, GnRH antagonist, or laparoscopic treatments. In patients with more complex disease, a referral to the Centre for Pelvic Pain and Endometriosis at BC Women's Hospital and Health Centre should be made.

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Endometriosis is a chronic gynecological condition characterized by the presence of endometrial-like tissue outside the uterus, and estrogen-dependent inflammation.[1] It is estimated that 1 in 10 reproductive-aged women suffer from endometriosis, making it one of the most prevalent gynecological disorders.[2] The extent of disease varies considerably from isolated peritoneal lesions to widespread pelvic adhesions, infiltrating lesions, and ovarian cysts. Most endometriotic disease is located on the pelvic peritoneum; a smaller percentage involves the bowel, bladder, and upper abdomen. The disease rarely occurs beyond the peritoneal cavity (e.g., cutaneous, thoracic).[3]

Women with endometriosis may experience severe pelvic pain, including dysmenorrhea, dyspareunia, and nonmenstrual chronic pelvic pain. However, some women with endometriosis are asymptomatic.[4] In addition, infertility may occur in up to 30% of women with endometriosis.[5] Affected women may also report fatigue, lower back pain, and urological and/or gastrointestinal symptoms.[5,6] These symptoms are often chronic and are a major cause of disability and impaired quality of life because they can negatively affect women's work productivity, social lives, and intimate relationships, in part by reducing the quality of their sex lives.[7] Studies also suggest that there are higher rates of depression, anxiety, and emotional distress in women with the condition.[7] The direct and indirect annual costs, including health care resources and lost productivity, in Canada are estimated to be $1.8 billion.[8]

Diagnosing endometriosis is particularly challenging in the community setting because it presents with a variety of nonspecific symptoms that overlap with other gynecological and nongynecological disorders. Historically, a definitive diagnosis has necessitated surgical removal and histological examination of tissue. As a result, the diagnosis of endometriosis is often delayed up to 10 years after the initial onset of symptoms, and thereby postpones appropriate treatment and causes psychological distress.[9,10] Qualitative studies that have explored other reasons for the significant delay

in diagnosis attribute it in part to normalization of pain by both the patients and physicians and to the lack of access to specialized examinations.[10,11] There is a need for further education about endometriosis for both health care providers and patients, with the goal of reducing diagnostic delay by making a clinical diagnosis and enhancing women's experiences of care.[11-14]

With the move away from a surgical diagnosis toward a clinical diagnosis of endometriosis, family physicians and other primary care medical professionals play an important role in identifying patients earlier after development of clinical symptoms, validating their concerns, and directing them to appropriate investigations or treatment. There is emerging evidence that the early recognition and treatment of symptoms may prevent long-term morbidity such as chronic pain.[15] This article reviews the contemporary diagnosis and management of endometriosis, and provides information on when and how to access the BC Women's Centre for Pelvic Pain and Endometriosis to obtain specialized diagnosis and treatment.

Pathogenesis

The main hypotheses for the cause of endometriosis are retrograde menstruation, coelomic metaplasia, and hematological/lymphatic dissemination.[1] In addition, affected women likely have alterations in multiple biological pathways that establish and support the proliferation of this disease. These include the downregulation of apoptotic pathways and an impaired immune response that prevents clearance of refluxed menstrual debris, which promotes implantation and growth of endometrial cells.[16] Endometriosis is also characterized by a positive feedback loop between local estradiol production and inflammation.[17]

There is a 5% to 8% increase in the risk of developing endometriosis in those with an affected first-degree relative. Other risk factors include in utero exposure to diethylstilbestrol and longer lifetime exposure to estrogen, such as in early menarche or late menopause.[1,17] Historically, there has been a perception that endometriosis is a disease of primarily Caucasian women. However, it can be present in all ethnicities, although there are some interesting differences between ethnic groups, including the possibility of more severe anatomic disease in East and Southeast Asians.[18]

History

The first step in diagnosing a woman with suspected endometriosis is to take a thorough history, and both acknowledge and evaluate her symptoms. Dysmenorrhea, chronic pelvic pain, deep dyspareunia, and infertility are the most common symptoms of endometriosis **[Box 1]**.[5] A national case-control study of more than 5500 women with endometriosis reported that the likelihood of endometriosis increased with the number of symptoms present, from an odds ratio of 5.0 with one symptom to 84.7 when seven or more symptoms were present.[6]

The differential diagnosis for these symptoms is lengthy and includes gynecological conditions such as primary dysmenorrhea, adenomyosis, ovarian cysts, and pelvic inflammatory disease, as well as chronic pain syndromes, including irritable bowel syndrome, interstitial cystitis, myofascial pelvic pain, and fibromyalgia. These conditions may also co-occur with endometriosis. In the context of persistent pain, endometriosis has recently been recognized as one of the chronic overlapping pain conditions that affect mostly women and reflect a sensitization process of the central nervous system (central sensitization).[19]

Asking about the temporal relationship between pain and the menstrual cycle may prove helpful because primary dysmenorrhea typically occurs with the onset of menstrual flow, is nonprogressive, and lasts approximately 8 to 72 hours, while menstrual pain associated with endometriosis has been described as progressive, cyclic, or acyclic, and it may extend beyond 72 hours.[20] The Society of Obstetricians and Gynaecologists of Canada guidelines recommend using tools such as the patient questionnaire provided by the International Pelvic Pain Society (www.pelvicpain.org) for evaluating pelvic pain. History of infertility, benign ovarian cysts, and previous pelvic surgery are associated with endometriosis, and a family history of the disease should further increase suspicion of the diagnosis.[14]

BOX 1. Symptoms associated with endometriosis.[14,21]

- Dysmenorrhea
- Deep dyspareunia
- Chronic pelvic pain
- Cyclic dyschezia
- Cyclic dysuria
- Lower back or abdominal pain
- Abnormal bleeding
- Fatigue
- Infertility
- Cyclic catamenial symptoms, including cyclic leg pain, rectal bleeding, hematuria, and dyspnea

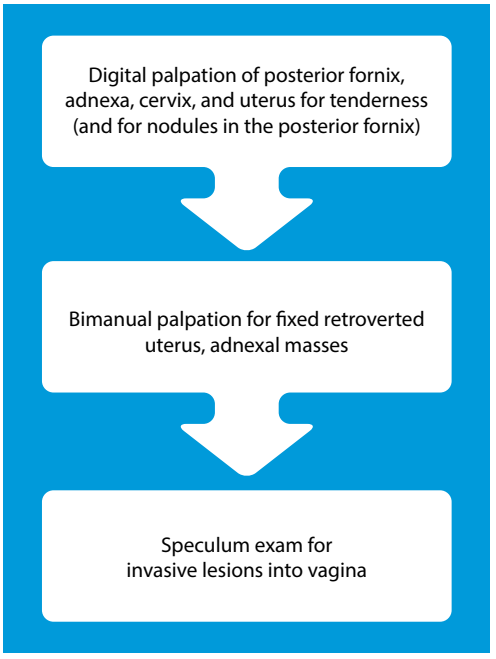

FIGURE 1. Stepwise pelvic exam for endometriosis.

Physical examination

The physical examination, which includes abdominal, pelvic, and in some cases rectovaginal examination, helps further refine the differential diagnosis and determine the appropriate imaging. Digital pelvic examination should be performed as a single-digit palpation for tenderness **[Figure 1]**. Deep infiltrating endometriosis nodules (palpable thickening) may be felt in the posterior vaginal fornix. On bimanual exam (digital pelvic exam plus abdominal palpation together), findings suggestive of endometriosis include a fixed, retroverted uterus, and

ovarian endometriomas manifesting as fixed adnexal masses.[2,21] The pelvic examination is limited in identifying early-stage superficial disease, and normal examination findings are not sufficient to exclude endometriosis.[14] Patients with chronic overlapping pain conditions and central sensitization may have other findings on examination, including bladder/pelvic floor tenderness on digital palpation, pelvic floor spasm, abdominal or vulvar allodynia, abdominal wall myofascial trigger points, and positive findings on examination of the back/hips.

Investigation

Transvaginal (TV) ultrasound is regarded as the first-line investigational tool for suspected endometriosis.[21] While TV ultrasound cannot detect superficial peritoneal disease, it has a high sensitivity and specificity for the diagnosis of ovarian endometriomas **[Figure 2]**.[22] The ability to detect deep infiltrating endometriotic lesions is shown to improve significantly when the TV ultrasound is performed by an endometriosis specialist.[23] Magnetic resonance imaging (MRI) has high diagnostic accuracy in detecting endometriomas and deep infiltrating endometriosis, and is less operator dependent.[22,24] However, MRI is considered a second-line imaging technique after TV ultrasound because of higher costs and reduced availability.[24] Finally, while many biomarkers are being researched, there is currently no biomarker recommended as part of routine investigation of endometriosis.[21]

Diagnosis

Current guidelines created by professional societies, including the Society of Obstetricians and Gynaecologists of Canada, state that direct visualization at laparoscopy, preferably with histologic verification, is the diagnostic gold standard.[20,21] However, the guidelines also advocate for medical treatment of clinically suspected endometriosis without a surgical diagnosis. There has been a push by experts in the field to move away from a surgical diagnosis and toward a clinical diagnosis, where patients' symptoms and signs are emphasized.[14,20] This does not diminish the value of laparoscopy as a diagnostic tool, particularly when diagnosis is uncertain. Laparoscopy is also a valuable treatment option for endometriosis in women who do not attain symptomatic relief through medical management.

During laparoscopy, endometriosis is surgically staged, most commonly by using the revised American Society for Reproductive Medicine staging system, which classifies the disease as minimal, mild, moderate, or severe (Stage I to IV).[21] Of note, surgical staging only marginally correlates with severity of pain or risk of infertility, and an accurate diagnosis of endometriosis highly depends on surgical skill.[4,5] Despite being a minimally invasive procedure, a laparoscopy still carries a 7.5% risk of minor complications and a 1.4% risk of major complications.[21] Most societies advocate a see-and-treat approach to surgery for endometriosis, and state that a purely diagnostic surgery (without treatment at the same time) is not in the best interest of the patient. In patients with signs of advanced disease (ovarian endometrioma or deep infiltrating disease), a referral to a gynecologist with expertise in surgical management of endometriosis is indicated.

Current treatment

Treatment of patients with endometriosis pain may include medical therapy, surgical therapy, or both. Medical treatment is intended to reduce pain through hormonal suppression and reduction or elimination of menses.[1] Fertility-sparing surgical treatment aims to relieve symptoms through ablative techniques or excision of lesions, while still conserving reproductive function, and therefore, may be indicated as first-line therapy for temporary pain relief in women seeking spontaneous conception.[25]

The first-line treatment for women who do not wish to conceive in the near future is combined hormonal contraceptives or progestin-only hormone treatment, with analgesics as needed. Other hormonally suppressive treatment options include injectable gonadotropin-releasing hormone (GnRH) agonists plus add-back therapy, but this is generally viewed as a second-line treatment due to cost and side effects. An oral GnRH antagonist (elagolix) for endometriosis was approved in Canada after promising results of the randomized controlled trial were published in the *New England Journal of Medicine* in 2017.[26] Danazol was an early treatment for endometriosis; however, its

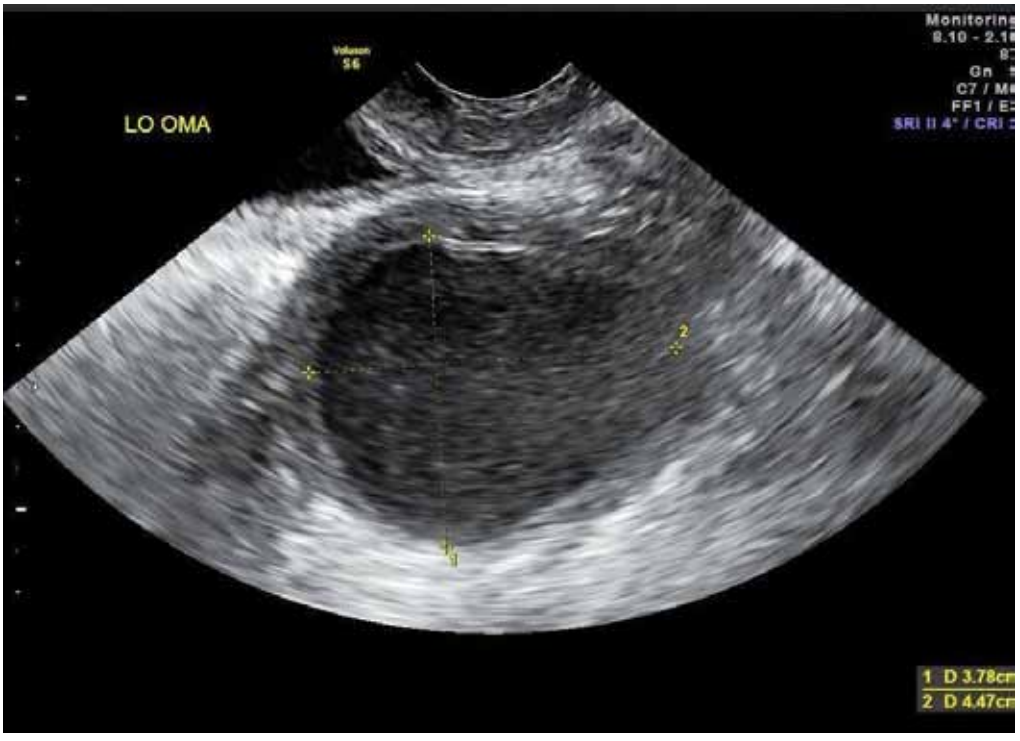

FIGURE 2. **Transvaginal ultrasound. Endometriomas contain old brown blood, which is why they have been referred to as "chocolate cysts." On transvaginal ultrasound, endometriomas often display a characteristic ground glass appearance.**

androgenic side effects limit its clinical usefulness, and it has now fallen out of favor. Because these hormonal therapies have similar clinical effectiveness in treating endometriosis-related pain, patient preference, cost, and side effect profiles are important in treatment selection.[27] Recurrence of pain upon discontinuation limits the usefulness of hormonal therapy.[28] Common treatment options are summarized in **Table 1**.

TABLE 1. Common hormonal medications used for the management of endometriosis.

Type	Dose
Cyclic combined hormonal contraceptives	
Monophasic, biphasic, or triphasic pill	1 tablet/day
Continuous combined hormonal contraceptives	
Monophasic pill	1 tablet/day
Progestins	
Norethrindrone	0.35 mg, 1–3 tablets/day
Norethrindone acetate	5 mg, 0.5–2.0 tablets/day
Dienogest	2 mg, 1 tablet/day
Depot medroxyprogesterone acetate	150 mg IM every 6–8 weeks
Levonorgestrel intrauterine system	52 mg released over 5 years

BOX 2. Tips for breakthrough bleeding.[33]

- Counsel about consistent pill use and smoking abstinence to reduce risk of breakthrough bleeding.
- Switch to a different combined hormonal contraceptive (higher dose of estrogen or different type of progestin).
- Add a 7-day course of oral estrogen.
- If on a continuous regime for ≥ 21 days, discontinue the combined hormonal contraceptive for 3 to 4 days.

Nonsteroidal anti-inflammatory drugs

Nonsteroidal anti-inflammatory drugs (NSAIDs) are a common first-line treatment that work by reducing the production of prostaglandins, which are believed to be responsible for causing dysmenorrhea and cramps.[29] While NSAIDs effectively treat primary dysmenorrhea, a Cochrane review did not find any high-quality evidence to support NSAID efficacy in treating endometriosis-related nonmenstrual pain.[29] Despite this, NSAIDs are still widely used in the management of endometrioses due to their low cost, few side effects, and ready availability; however, women should be counseled on the increased risk of gastrointestinal ulceration and cardiovascular disease.[28]

Combined hormonal contraceptives

Combined estrogen and progestin contraceptives (combined hormonal contraceptives), including combined oral contraceptive pills, transdermal patches, and vaginal rings, are considered first-line treatment for endometriosis in women without contraindications.[21] Combined hormonal contraceptives inhibit ovulation, reduce menstrual flow, and cause decidualization and atrophy of endometriosis implants, which leads to a reduction in pain.[28] The efficacy of combined oral contraceptive pills in providing relief from endometriosis-related pain has been confirmed in several randomized control trials.[30] Either cyclic or continuous administration of combined oral contraceptive pills is acceptable. However, continuous regimens may be more beneficial in reducing pain symptoms.[31] Advantages of prescribing a combined hormonal contraceptive include relative affordability, ease of use, contraceptive benefits, and noncontraceptive benefits such as a reduced risk of endometrial and ovarian cancer.[32] Combined hormonal contraceptives can be taken safely for prolonged periods of time and are well tolerated. Adverse events are generally mild and include nausea, headaches, weight changes, and mood changes, and importantly, a small increased risk of venous thromboembolism.[32] The most frequent reason for discontinuing combined hormonal contraceptives is breakthrough bleeding or spotting, which is treatable **[Box 2]**.[32,33]

Progestins

Progestin-only therapies are another first-line option that inhibit ovulation and induce decidualization and atrophy of endometriotic lesions.[28] Several progestins are available in Canada, in a variety of formulations, including oral, parenteral, and intrauterine systems; most are used off-label for treatment of endometriosis symptoms **[Table 1]**.

Dienogest is the only progestin currently approved in Canada for the indication of endometriosis treatment. Norethindrone acetate is another available effective progestin, with early studies showing its efficacy in relieving chronic pelvic pain and dysmenorrhea in women with endometriosis.[34] The most common side effect with progestin-only therapies is menstrual cycle disturbance, which can be managed with a 10- to 14-day course of low-dose estrogen to counteract endometrial atrophy.[28] Mood changes and weight gain are also clinical concerns.[35] However, progestins do not have the same thrombotic risk that combined contraceptives have. If a patient has responded well to these endometriosis-specific progestin therapies and wishes to have long-term therapy (e.g., 5 years or longer), potential long-term impacts on bone and lipid metabolism should be discussed. Another clinically useful but less studied progestin is the norethindrone-only contraceptive pill (mini-pill), which can be titrated up to obtain amenorrhea. Medroxyprogesterone acetate can be prescribed as an oral agent or an intramuscular injection (e.g., Depo-Provera). The Depo-Provera form has been associated with a reversible decrease in bone mineral density.[35]

The levonorgestrel intrauterine system (levonorgestrel-IUD) releases levonorgestrel locally in the pelvis, thereby reducing the risk of systemic side effects.[21] Because the levonorgestrel-IUD does not provoke hypoestrogenism and is applied once every 5 years, it has been suggested as a favorable treatment for women not planning to conceive.[36] However, because the levonorgestrel-IUD does not typically suppress ovulation, it is not helpful in treating ovulation pain.[36] Furthermore, the levonorgestrel-IUD carries a risk of expulsion, pelvic infection, and perforation.[21]

The following second-line therapies are usually initiated by a gynecologist, but ongoing administration may be provided by the family physician.

GnRH agonists with add-back therapy

Several GnRH agonists are available in Canada and can be administered via intramuscular, subcutaneous, or intranasal routes. GnRH agonists suppress gonadotropin secretion (follicle-stimulating hormone and luteinizing hormone), which stops estrogen production by the ovaries. Subsequent hypoestrogenism leads to amenorrhea and hypo-atrophic regression of the endometrium.[37] GnRH agonists cannot be safely administered for longer than 6 months due to symptoms of estrogen deficiency, including a possible irreversible loss of bone mineral density. The concurrent use of add-back hormone therapy, such as low-dose continuous estrogen with progestin, has enabled extended therapy with maintenance of bone mineral density.[38] While GnRH agonists with add-back therapy are an effective treatment for endometriosis, they should be considered second-line because they are an expensive and complex form of therapy.[37]

GnRH antagonists

In contrast to the other medical therapies, GnRH antagonists have only recently become available, with the oral GnRH antagonist elagolix approved by Health Canada in 2018. Oral GnRH antagonists produce a dose-dependent hypoestrogenic environment via pituitary gonadotropin suppression, which inhibits endometriotic cell proliferation.[28] The efficacy and safety of elagolix for the treatment of pain associated with endometriosis were established in two 6-month, phase 3 clinical studies.[26] Two different doses, 150 mg once daily or 200 mg twice daily, were compared against placebo. Both doses of elagolix significantly improved dysmenorrhea and nonmenstrual pelvic pain during a 6-month period. Both doses resulted in hypoestrogenic effects, including hot flushes and reduced bone mineral density, and the differences were significant when compared with placebo. However, the difference between the lower dose of elagolix and placebo was smaller than that for the higher dose. The potential for balancing effectiveness and tolerability by individually titrating the dosage of elagolix, as well as its oral route of administration, are potential advantages of this medication. Add-back therapy may also be used to counter the hypoestrogenic effects.

When to refer

Pelvic pain management should not be delayed in order to obtain surgical confirmation of endometriosis. Based on the available evidence and in keeping with national guidelines, combined hormonal contraceptives, preferably used continuously, and/or progestin-only therapies should be considered as first-line options and may be started as empirical therapy by the family physician. They may also be combined with NSAIDs. If there is no improvement in symptoms and no signs of advanced endometriosis after a 3-month trial, a referral to a community gynecologist is appropriate. In women with suspected endometriosis who are actively pursuing a pregnancy or have impaired fertility, referring to a fertility clinic is recommended.[27]

The BC Women's Centre for Pelvic Pain and Endometriosis is an interdisciplinary tertiary care centre founded in 2011 to treat those patients with the most challenging cases of pelvic pain and endometriosis **[Table 2]**. The centre has gynecologists with expertise in endometriosis surgery and pelvic pain who collaborate with in-house physiotherapy, counseling, and nursing to provide interdisciplinary care.[39] The centre's website provides additional information for patients and providers (www.bcwomens.ca/our-services/gynecology/pelvic-pain-endometriosis).

Summary

There is consistent evidence that endometriosis, particularly endometriosis-related pain, can have a significant detrimental impact on a woman's quality of life. Because women with endometriosis may suffer physically, socially, and emotionally, there is a considerable need for earlier diagnosis and treatment. We are shifting toward a clinical diagnosis of endometriosis and initiation of empiric medical treatment without the need for laparoscopy. A patient who presents with dysmenorrhea, chronic pelvic pain, or dyspareunia should raise suspicion for a diagnosis of endometriosis, particularly if they have other associated symptoms, such as cyclical intestinal or urinary complaints, fatigue, or infertility. It is essential that these symptoms are not normalized or dismissed. Dysmenorrhea that interferes with a woman's ability to function in her daily life and is not responsive to over-the-counter medication needs to be taken seriously. A recent systematic review of the effects of endometriosis on women's lives

TABLE 2. Criteria for referring to the Centre for Pelvic Pain and Endometriosis.

Inclusion criteria	Exclusion criteria
• Advanced endometriosis (ovarian endometrioma, deep endometriosis, extra-pelvic endometriosis) diagnosed either with imaging or surgically AND/OR • Persistent pelvic pain that is unresponsive to first-line management (treated by a gynecologist within the last 3 years)	• Age < 16 or > 55 years • Postmenopausal • Currently pregnant or postpartum < 6 months • Vestibulitis/vulvodynia/introital dyspareunia only • Myofascial/back pain only • Neuropathic pain only • Unstable or untreated psychiatric issues • Untreated or ongoing substance abuse

reported that even if primary care physicians lacked in-depth knowledge of endometriosis, women were satisfied if they felt heard, were treated with sympathy, and were referred appropriately.[11] It is important to inquire about areas of life known to be adversely affected by endometriosis to better provide patient-centred treatment, including adaptive coping strategies, stress reduction, emotional and social support, and career counseling. Ultimately, primary care physicians should feel empowered to clinically diagnose endometriosis. Recognizing endometriosis and initiating empiric treatment earlier is a critical step to improving not only the care but also the quality of life of the patients who suffer from this disease. ■

Competing interests

Dr Allaire has participated in a clinical trial within the last 2 years, is a member of an advisory board with the commercial organization Abbvie, and has received an honorarium from the commercial organization Hologic. Dr Dunne is a member of the *BCMJ* Editorial Board but did not participate in the decision making regarding the review and acceptance of this article for publication.

We are shifting toward a clinical diagnosis of endometriosis and initiation of empiric medical treatment without the need for laparoscopy.

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Self-poisoning among British Columbian children and youth: Demographic and geographic characteristics

A study on the alarmingly high rates and increasing trends of self-poisoning among children and youth in BC found that 10- to 19-year-olds living in rural neighborhoods with poor access to local mental health services are at highest risk.

ABSTRACT

Background: Poisoning is a common self-harm method, but the magnitude of the problem in British Columbia is unclear. This study aimed to review self-poisoning hospitalization trends in BC, with a focus on 10- to 19-year-olds.

Methods: Self-poisoning hospitalization rates were calculated by age group, sex, and year for the fiscal periods 2009–10 to 2016–17. Among 10- to 19-year-olds, rates by census division for the fiscal periods 2012–13 to 2016–17 were calculated and compared to the availability of local mental health services.

Results: There were 20 413 self-poisoning hospitalizations (55.8 per 100 000 population) in BC, including 3842 among 10- to 19-year-olds (92.9 per 100 000 population). Rates significantly increased 2.7-fold for 10- to 14-year-olds (24.0 to 64.7 per 100 000 population) and 1.7-fold for 15- to 19-year-olds (103.9 to 180.1 per 100 000 population) over the study period. Rates were highest in rural areas with poorly distributed mental health services, relative to urban regions.

Conclusions: These findings highlight the need to tailor prevention strategies for youth and increase access to mental health services throughout BC.

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This article has been peer reviewed.

Background

Self-poisoning is a major public health concern in Canada, particularly among children and youth. Among 10- to 17-year-old Canadians, 2140 young people were hospitalized due to self-poisoning during the 2013–14 fiscal year, which accounted for 87% of hospitalizations due to self-inflicted injuries.[1] Parachute and Alberta's Injury Prevention Centre found that between the 2008–09 and 2018–19 fiscal periods, 10- to 14-year-old and 15- to 19-year-old Canadians had the largest percent increases in self-poisoning hospitalizations, with an average yearly increase of 12.6% and 6.9%, respectively.[2] Between 2008 and 2013 in Newfoundland and Labrador, self-poisoning hospitalizations among 12- to 17-year-olds increased 2.7-fold.[3] Meanwhile, previous research by our group indicated that in British Columbia, 15- to 19-year-old females had the highest self-poisoning hospitalization rate (191.6 per 100 000 population) compared to all other age groups.[4] These findings are highly concerning because self-poisoning is associated with greater risks of suicide and accidental death.[5]

With increasing trends in self-poisoning and the significant cost of treating such injuries, the Canadian health care system is facing a growing burden. Per patient, self-poisoning hospitalizations are more expensive than other self-inflicted injuries such as cutting, hanging, and jumping.[6] Annually, suicide and self-harm costs in Canada exceed $76 million for 10- to 14-year-olds and $426 million for 15- to 19-year-olds.[7,8] The per capita cost of suicide and self-harm in BC is higher for youth than for adults,[6,9] at $216 among 15- to 24-year-olds and $137 among 25- to 64-year-olds.[8,9]

Child and youth self-poisoning is highly taxing economically and socially, which makes it of utmost importance that action be taken to reduce occurrences of these preventable injuries.

Reasons for the increase in self-poisoning among children and youth are unknown, although a mental health diagnosis is a factor.[3] In 2003, the BC Ministry of Children and Family Development introduced the Child and Youth Mental Health Plan[10] to provide free mental health services for children and young people up to 18 years old in BC, although a 2019 BC Coroners Service report recommended that youth mental health services be expanded in nonurban areas.[11] While these services are imperative to support the positive well-being of young British Columbians, it is unknown whether proximity to them reduces local rates of child and youth self-harm.

To explore gaps in existing literature and to inform youth self-harm prevention strategies, our study had two goals. The first was to explore detailed epidemiological self-poisoning hospitalization trends in BC; the second was to describe rates among 10- to 19-year-olds by geographic region in relation to accessibility of local mental health resources.

Methods

Self-poisoning hospitalization data in BC from the 2009–10 to 2016–17 fiscal years were retrospectively described in terms of epidemiological trends and patterns. This study was approved by the University of British Columbia/Children's and Women's Health Centre of British Columbia Research Ethics Board (#H13-01321).

From 1 April 2009 to 31 March 2017, hospitalization data for all ages were obtained from the Discharge Abstract Database, BC Ministry of Health. From 1 April 2012 to 31 March 2017, hospitalizations were extracted from the database by dissemination area (DA: a geographic area with approximately 400 to 700 residents[12]) for 10- to 19-year-olds, and were converted to census divisions (CD: a group of neighboring municipalities comprised of numerous DAs[12]). Data were extracted using the most responsible diagnosis codes for intent (X60 to X69), as well as poisoning (T36 to T65), as per the International Statistical Classification of Diseases and Related Health Problems, Canadian version 10 (ICD-10-CA).[13] The geocode location of all public youth mental health services in BC, including interventional, preventive, diagnostic, and multidisciplinary programs, as well as a map of the province divided by CD, were acquired from the BC Data Catalogue.[14] BC population data by DA were collected from Statistics Canada's 2011 and 2016 Census Profiles.[15]

Among all British Columbians, 15- to 19-year-olds had the highest rate of self-poisoning, with significantly greater rates for females compared to males.

Descriptive statistics and Wald's 95% confidence intervals were calculated. Hospitalization rates per 100 000 population were calculated by age group, using the total number of poisoning events over the study period divided by the respective age group population and then multiplied by 100 000. Poisoning rates among 10- to 14-year-olds and 15- to 19-year-olds were compared with other age groups by year of occurrence and sex. Results were considered significant if the 95% confidence intervals did not overlap.

Rates of self-poisoning hospitalizations per 100 000 population of children and youth were calculated for each CD. These rates were displayed as a heat map of BC using the Quantum Geographic Information System software (QGIS; version 3.6.2-Noosa). The density of youth mental health services was calculated for each CD by adding the number of services per CD, divided by the 10- to 19-year-old population of that CD, and multiplying by 100. These values were overlaid on the heat map. Using QGIS, the distribution of clusters of youth mental health services was also included on the map.

Results

Between 1 April 2009 and 31 March 2017, there were 20 413 (55.8 per 100 000 population) self-poisoning hospitalizations in BC, 3842 of which were among 10- to 19-year-olds (92.9 per 100 000 population). Six self-poisonings (0.03% of cases) were excluded due to a missing sex identifier.

Among all British Columbians, 15- to 19-year-olds had the highest self-poisoning rate; the rate among 10- to 14-year-olds was relatively moderate. For both children and youth, rates were significantly greater for females compared to male age-mates **[Figure 1]**.

During the 2009–10 to 2016–17 fiscal periods, 10- to 14-year-olds and 15- to 19-year-olds demonstrated the greatest increases in

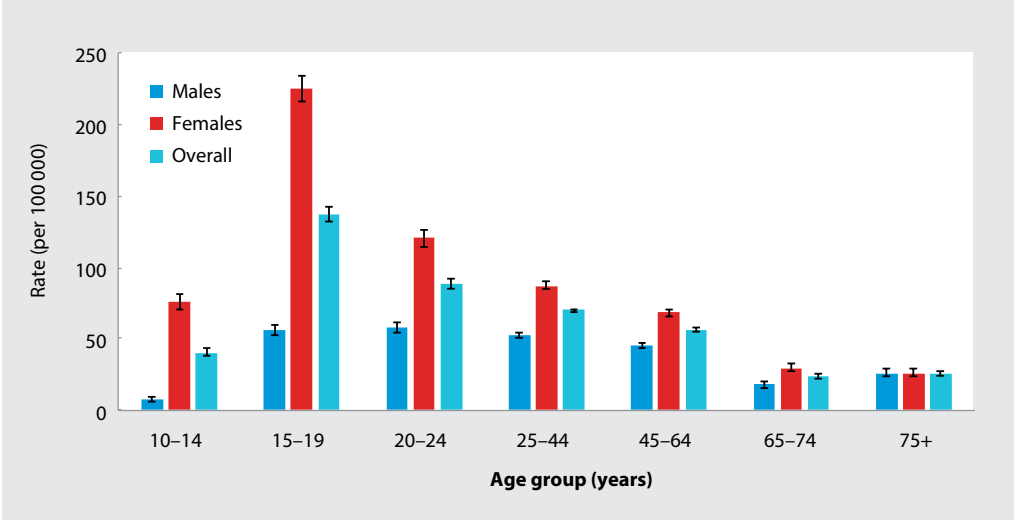


FIGURE 1. Self-poisoning hospitalization rates per 100 000 population in BC, 2009–10 to 2016–17 fiscal years, by age group and sex, with 95% confidence intervals. Note: 0- to 9-year-olds were excluded because there were fewer than 5 cases.

self-poisoning hospitalization rates compared with all other age groups **[Figure 2A]**. Rates increased 2.7-fold from 24.0 (17.9–30.0) to 64.7 (54.3–75.0) per 100 000 population among 10- to 14-year-olds, and 1.7-fold from 103.9 (91.9–115.8) to 180.1 (164.2–196.0) per 100 000 population among 15- to 19-year-olds. Among children and youth, increases were largely among females **[Figure 2B]**. Self-poisoning hospitalization rates increased 1.3-fold from 8.5 (3.5–13.5) to 10.9 (5.0–16.8) per 100 000 population for 10- to 14-year-old males, and 3.0-fold from 40.6 (29.3–52.0) to 121.9 (101.5–142.3) per 100 000 population for 10- to 14-year-old females. Among 15- to 19-year-olds, rates increased 1.5-fold from 46.2 (35.1–57.3) to 69.8 (56.0–83.6) per 100 000 population for males, and 1.8-fold from 166.2 (144.4–188.0) to 297.2 (267.9–326.6) per 100 000 population for females.

Between 1 April 2012 and 31 March 2017, of the 29 CDs in BC, those with the highest child and youth self-poisoning rates were Skeena-Queen Charlotte (422.9 per 100 000 population), Central Coast (337.4 per 100 000 population), and Northern Rockies (328.4 per 100 000 population) **[Figure 3]**. Those with the lowest rates were Stikine (0 cases), Mount Waddington (< 5 cases), and Kootenay Boundary (39.7 per 100 000 population).

In terms of mental health service density for children and youth, Stikine, Mount Waddington, and Kitimat-Stikine had the most services, with 20.0, 2.9, and 2.5 per 100 population of 10- to 19-year-olds, respectively, while Capitol, Fraser Valley, and Central Okanagan had the fewest services, with 0.6 per 100 population of 10- to 19-year-olds. Census divisions with the high rates of self-poisoning, such as Skeena-Queen Charlotte, Central Coast, and Northern Rockies, had small clusters of mental health services, with poor coverage in many rural areas **[Figure 3]**.

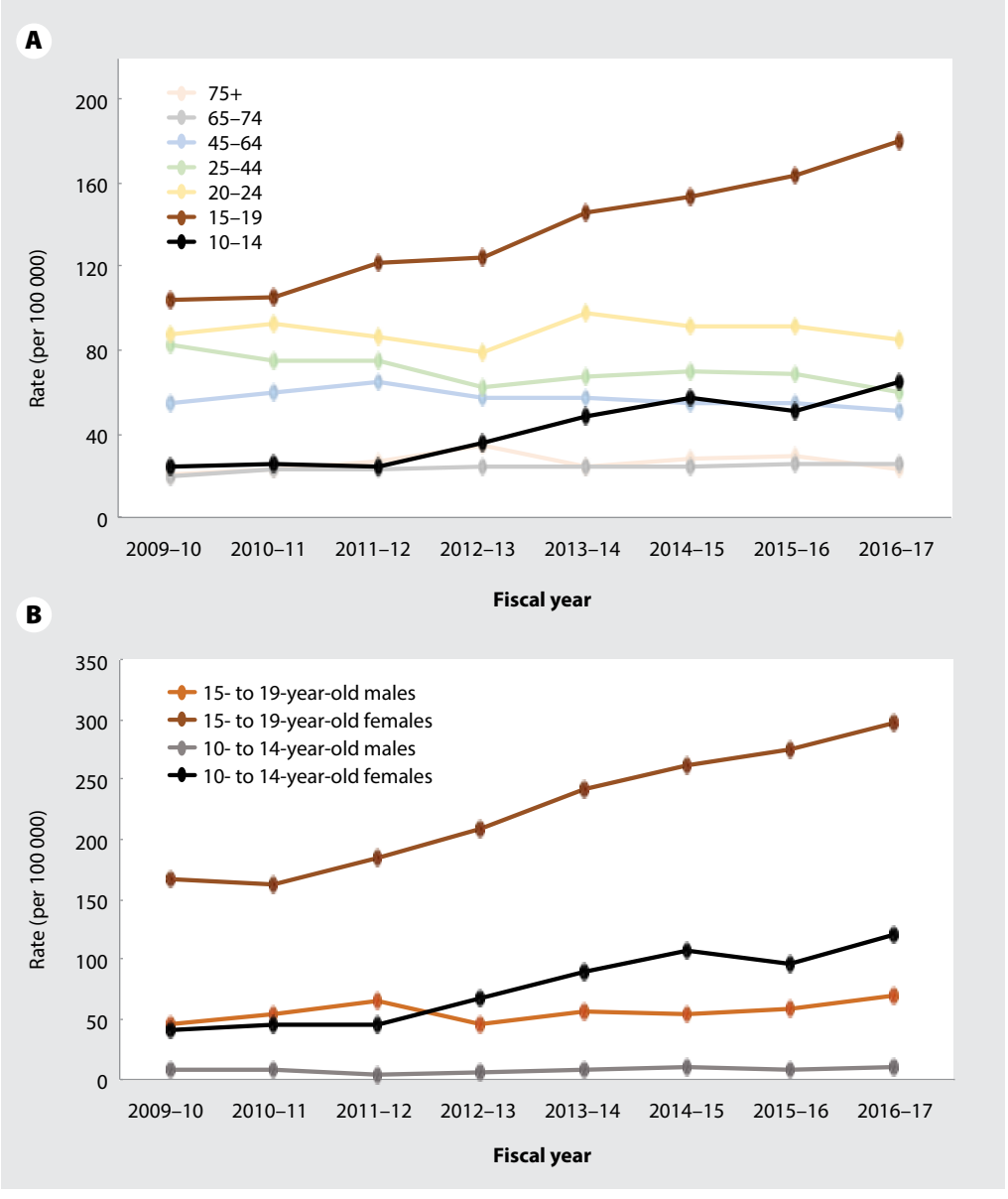
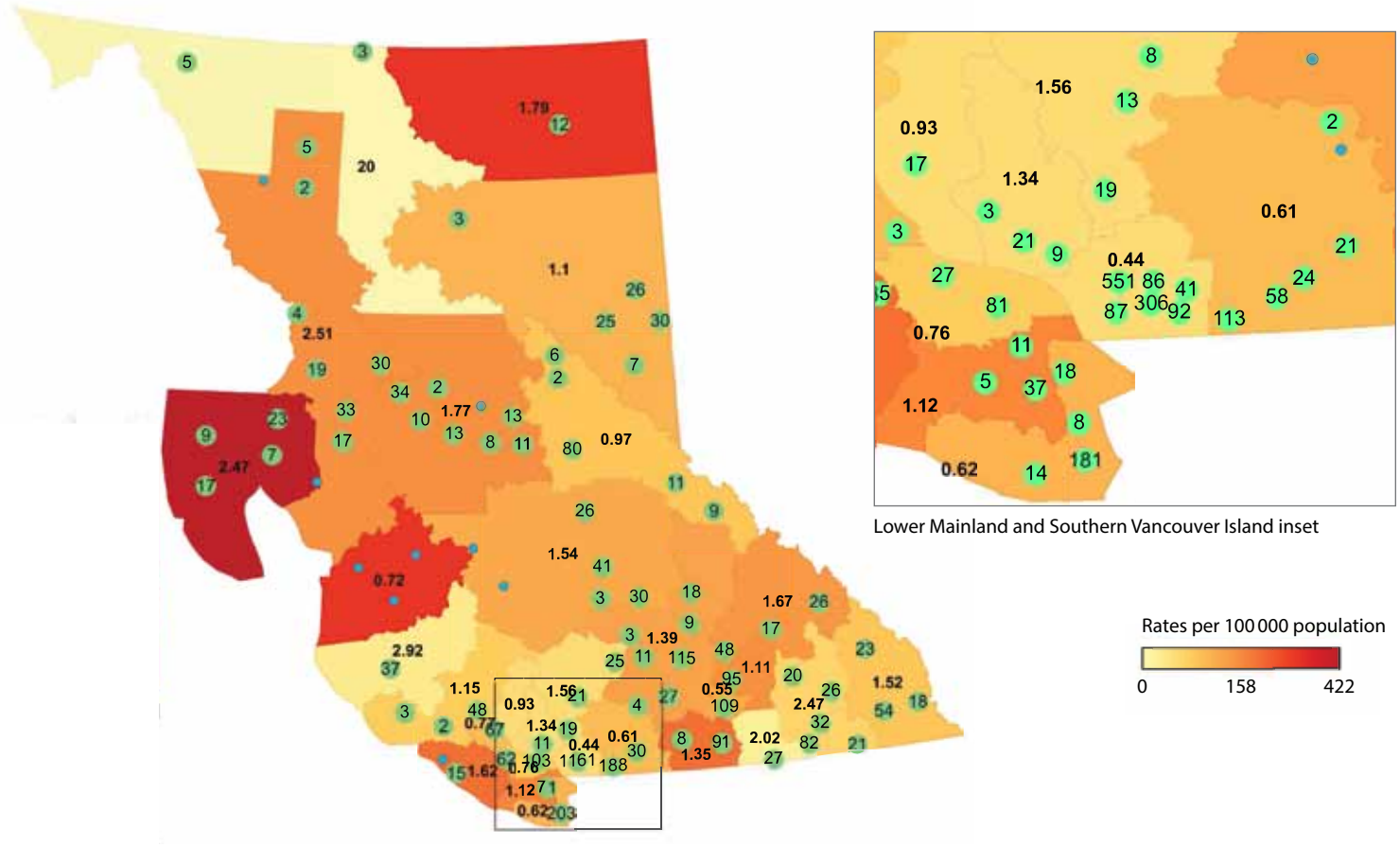


FIGURE 2. Self-poisoning hospitalization rates per 100 000 population in BC, 2009–10 to 2016–17 fiscal years, for (A) all age groups, and (B) children and youth by sex.

Conclusions

Self-poisoning is a considerable issue in BC, where high rates and increasing trends among children and youth are alarming. In surveys administered to a large representative sample of young people age 14 to 21 in Victoria, BC, in 2003 and 2005, 17% of participants admitted to performing at least one act of nonsuicidal self-harm.[16] More recently, our study has highlighted that self-poisoning is a significant and growing problem, particularly for BC children and youth. The exceptionally high self-poisoning rates among females age 10 to 14 and 15 to 19 are striking, which is consistent with research that has found higher self-poisoning rates among female youth compared with males.[3] Although self-poisoning is more severe among young females, in the 2016–17 fiscal year, self-poisoning hospitalization rates among males age 15 to 19 in BC surpassed those of all other male age groups.

The growing number of 10- to 19-year-old self-poisonings in BC is of great concern. The factors driving these increases are mostly speculative, although depression—a demonstrated risk factor for adolescent self-poisoning in Newfoundland and Labrador[3]—could also be central to the issue in BC. There is an absence of literature regarding the impact of geography of residence and availability of local mental health services on self-poisoning rates among



Census division	Service density	No. of services	Poisoning rate	Poisoning 95% CI
Fraser Valley	0.61	218	131.16	93.69-168.63
Kitimat-Stikine	2.51	115	209.38	77.07-341.69
Squamish-Lillooet	1.56	65	72.12	0-153.7
Cariboo	1.54	102	166.04	68.00-264.08
Powell River	0.93	17	76.50	0-200.18
Greater Vancouver	0.44	1164	71.54	61.36-81.72
Sunshine Coast	1.34	33	72.87	0-179.29
Central Coast	0.72	3	337.35	0-895.23
Stikine	20.00	8	0	0
Skeena-Queen Charlotte	2.47	56	422.91	155.95-689.87
Northern Rockies	1.79	12	328.36	0-761.55
Bulkley-Nechako	1.77	88	201.41	76.70-326.12
Peace River	1.10	88	142.5	103.43-181.57
Fraser-Fort George	0.97	108	123.55	58.41-188.69
Mount Waddington	2.92	37	*	*

Census division	Service density	No. of services	Poisoning rate	Poisoning 95% CI
Alberni-Clayoquot	1.62	51	248.01	74.17-421.85
Strathcona	1.15	53	104.46	11.06-197.86
Cowichan Valley	1.12	98	217.77	119.96-315.58
Comox Valley	0.77	50	128.54	41.67-215.41
Nanaimo	0.76	108	111.27	56.44-166.1
Capital	0.62	221	142.18	103.11-181.25
Central Kootenay	2.47	147	87.54	12.33-162.75
Kootenay Boundary	2.02	61	39.74	0-110.82
Columbia-Shuswap	1.67	80	183.91	62.51-305.31
East Kootenay	1.52	95	121.31	35.12-207.50
Thompson-Nicola	1.39	194	178.29	108.18-248.40
Okanagan-Similkameen	1.35	99	250.17	136.00-364.34
North Okanagan	1.11	96	210.16	113.71-306.61
Central Okanagan	0.55	109	163	107.09-218.91

FIGURE 3. BC heat map of child and youth self-poisoning rates per 100 000 population by census division for 10- to 19-year-olds, 2012–13 to 2016–17 fiscal years, overlaid by youth mental health services per 100 population of 10- to 19-year-olds (service density) and service clusters. Numbers in green circles represent the number of local services. Asterisks represent more than 0 but fewer than 5 cases.

BC children and youth. Our findings have addressed these gaps by demonstrating that young people age 10 to 19 living in rural neighborhoods with poor access to local mental health services are at higher risk for self-poisoning than those living elsewhere.

Given the recent increases in depression diagnoses and antidepressant prescriptions for females age 12 to 19,[17] mental health and antidepressant accessibility may have contributed to increased self-poisoning rates among female youths. Mental health and the use of antidepressants, however, are complicated subjects in relation to self-harm and suicide. Although Health Canada has not approved the use of any antidepressants by minors, and antidepressants increase young people's risk of suicide ideation, the benefits of antidepressant treatment greatly outweigh the potential dangers.[18] For physicians who prescribe off-label antidepressants to children and youth, close monitoring is essential. The most common reason for adolescent self-harm is the desire to relieve psychological pain.[19] With patients at high risk for self-harm, physicians can discuss healthier methods of expressing emotions, such as exercising, listening to music, or calling a friend.[20]

Existing self-harm prevention methods include gatekeeper training, screening for high-risk individuals, encouraging help-seeking behavior, and providing access to crisis lines and online resources.[21] Evidence supports the importance of self-harm screening and risk assessment.[22] For this to be effective, the BC Ministry of Children and Family Development recommends that family physicians regularly repeat training for the recognition and treatment of depression.[23]

To help address this issue in BC, not only should physicians familiarize themselves with the signs associated with high risk of self-harm, but they can also discuss depression and anxiety with their child and youth patients, and refer those patients to pediatricians, psychiatrists, or local mental health services if necessary. Although improved mental health screening and treatment in BC may reduce self-poisoning incidents among children and youth, not all 10- to 19-year-olds who poison themselves are mentally ill, and many will not take the initiative to address their concerns with a health care practitioner.

An additional screening opportunity exists within emergency departments. With development led at BC Children's Hospital, the HEARTSMAP mental health assessment tool is used throughout much of BC by emergency department clinicians to screen children and youth who present with mental health emergencies.[24] An adapted version called myHEARTSMAP, a self-assessment tool that was validated among young people age 10 to 17 in Western Canada, was used to pronounce psychosocial challenges among emergency department patients with nonmental health presentations and provide treatment recommendations when needed.[24] Upon comparing myHEARTSMAP results to those from HEARTSMAP assessments conducted by research nurses, 92.7% of youth were able to identify their own psychiatric issues. Of all participating patients, 36.4% were determined to have psychosocial concerns, which is higher than what has been observed across Canada.[24] Accordingly, employing myHEARTSMAP in BC emergency departments is expected to improve detection of mental health concerns among high-risk children and youth, and provide customized care plans to potentially reduce rates of self-harm among young people age 10 to 19 throughout the province.

Existing self-harm prevention methods include gatekeeper training, screening for high-risk individuals, encouraging help-seeking behavior, and providing access to crisis lines and online resources.

In focus groups held in 2010 and 2015 for 12- to 22-year-olds in rural and urban BC, a key suggestion for improving youth health was to increase accessibility to mental health counselors.[25] In 2013, focus groups were held with youth age 15 to 25 in rural and urban BC, who discussed the experiences they had as 16- to 18-year-olds involved with mental health services (15-year-olds shared their expectations).[26] Main talking points also included the lack of services in rural BC, as well as fears that relocating in order to access services leads to isolation from support systems, and thus causes more harm than benefit. Those who moved back to their rural communities after receiving mental health care in urban centres often mentioned that services and follow-up care were not available locally. Our study found that many census divisions with the greatest density of youth mental health services had the lowest self-poisoning rates, which suggests that greater availability of mental health services may be associated with improved mental health and, therefore, fewer acts of self-harm.

To improve health care in high-risk regions, the Ontario Hospital Association launched Local Health Hubs for Rural and Northern Communities,[27] which provide comprehensive health care in one rural location. Mental health services are incorporated into this model, with the aim to improve screening and treatment.[28] Local Health Hubs liaise with larger health care centres to facilitate referrals and telemedicine for patients, and provide mental health education and support for rural physicians.[28] Having Local Health Hubs in northern and rural BC may improve mental health services for children and youth residing in those locations, although the efficacy of this system has not yet been proven due to its novelty in Canada.[28]

The BC Child and Youth Mental Health Plan states that all children, from birth to 18 years old, should have access to basic mental health services,[10] but there are inconsistencies in the services provided to children and youth in different regions of the province. Furthermore, by mapping the distribution of youth mental health services, we found that services are scarce in several areas. For example, in the Northern Rockies, all 12 youth mental health services are located in Fort Nelson,[14] which has an area of 13 km^2 and a 10- to 19-year-old population of 400 individuals.[15] The rest of the census division has an area of 85 098 km^2 and a 10- to 19-year-old population of 270 individuals,[15] meaning that many children and

youth living in northeastern BC (where there is no public transit) have to drive for hours to access mental health services. Often, this is simply not feasible. Of all 29 census divisions, the Northern Rockies had the third highest rate of self-poisoning hospitalizations among children and youth age 10 to 19.

The situation was similar for the Central Coast census division, which had the second highest rate of self-poisoning among 10- to 19-year-olds, yet just three youth mental health services. Due to the rugged landscape of the Central Coast, modes of travel are costly and time-consuming, which makes it nearly impossible for many children and youth to obtain in-person mental health treatment. This emphasizes the need for implementation of, and improved access to, additional services in rural and isolated areas of BC. While underused across Canada during the study period,[29] telehealth provides a potential solution. More recently, the COVID-19 pandemic has resulted in a shift to telehealth use, which removes many barriers to accessing health care; for example, by eliminating the need to travel to urban centres. However, limitations still exist, including insufficient bandwidth and inadequate access to technology. Key locations of focus identified in this study include rural areas in the Northern Rockies, Central Coast, Skeena-Queen Charlotte, Kitimat-Stikine, and Bulkley-Nechako, which were census divisions with high rates of self-poisoning among children and youth age 10 to 19.

Child and youth self-poisoning needs to be urgently addressed. Our study identified critical rural areas in BC that would benefit from more accessible youth mental health services, and highlighted the need for self-harm prevention strategies in those areas. Ultimately, it is ideal to prevent self-harm among children and youth by employing a layered strategy with multiple approaches that reduce risk and promote positive well-being. A valuable opportunity exists for public health officials, policymakers, clinicians, and mental health workers to develop and amend self-harm reduction strategies for children and youth, thereby reducing the burden that these preventable injuries have on British Columbians, our economy, and our health care system.

Data limitations

Since there were no personal identifiers in the available data, hospital readmissions and transfers could not be excluded. We estimate that approximately 4% of self-poisoning hospitalizations were either readmissions or transfers, meaning that the number of double-counted individuals represents a small proportion of the total number of cases. On the other hand, the data are not all encompassing, in that they include only cases for which poisoning was the primary cause, not those for which poisoning was a contributing factor. Therefore, this study likely underrepresented the total number of self-poisoning hospitalizations in BC.

The study highlights the need for implementation of, and improved access to, additional youth services in rural and isolated areas of BC.

Factors that vary across geographic regions, such as economic conditions, the nature of jobs, types and availability of social supports, ethnic composition, and culture, could not be accounted for in this study. It is challenging to compare youth mental health services availability among census divisions because the characteristics of each varies greatly with another. For example, Stikine had a small population of only 40 children and youth age 10 to 19, which could account for the high density of youth mental health services—nearly tenfold higher than any other census division. If Stikine and Greater Vancouver were each 10 000 km,^{2} they would have 6 and 920 636 residents aged 10 to 19 years, respectively.[15] With these different population densities, a greater density of youth mental health services does not equate to easier access, use, or equitable or culturally safe access within that region, particularly in remote census divisions that have small populations dispersed over large geographic areas.

Finally, due to coding limitations of the hospitalization data, this study could not differentiate between suicide attempts and nonsuicidal self-injury, but rather grouped these behaviors as self-poisonings.

Summary

Self-poisoning is an ongoing issue for children age 10 to 14 and youth age 15 to 19. From 1 April 2009 to 31 March 2017, the children and youth in this age range in BC demonstrated high rates of self-poisoning hospitalizations, which unlike any other age group, increased throughout the study period. It is important to assess potential risk factors that are contributing to the increased self-poisoning rates among children and youth, and to explore reasons for higher rates among females age 10 to 19 compared with males, including the role of mental health. Children and youth age 10 to 19 living in rural neighborhoods that have low accessibility to mental health services are the most vulnerable to self-poisoning. This reveals an urgent public health issue in BC—one that medical practitioners can act on by advocating for more and/or greater access to youth mental health services in high-risk regions. In the meantime, physicians should monitor young patients for signs of mental health concerns, and closely follow up with those who have been prescribed antidepressants. With patients who might be at high risk of self-harm, physicians can also discuss alternative coping strategies to help reduce the number of self-harm cases among young British Columbians. Still, future research should be conducted to explore the efficacy of existing self-harm prevention strategies and youth mental health services in high-risk areas. ■

Competing interests

None declared.

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Physicians should monitor young patients for signs of mental health concerns, follow up closely with those prescribed antidepressants, and discuss alternative coping strategies with those at high risk of self-harm.

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Intergenerational housing as a model for improving older-adult health

Housing options that promote connections between generations should be implemented as a means of providing benefits at both an individual and societal level.

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ABSTRACT: As the older-adult population in Canada increases, it is imperative that there be adequate and appropriate older-adult housing available. Housing is a social determinant of health and is implicated in various health outcomes. Additionally, a person's living situation is interlinked with loneliness and social isolation, for which older adults are at higher risk. Loneliness in older adults is correlated with a decline in function, lower self-reported health scores, and overall mortality. One way to address these challenges in BC is with an intergenerational housing model, where older adults live in communities that promote ties with younger generations. Several intergenerational programs exist worldwide, and they have significant benefits for all involved. Intergenerational housing projects are gaining traction in Canada and can serve as a method of improving the health and well-being of older adults while providing benefits to society at large.

Background

The older-adult population in Canada is projected to continue expanding over coming decades. As of 2018, individuals age 65 and older made up 17.4% of the Canadian population. Projections estimate that by 2068, this percentage will grow to between 21.4% and 29.5%.[1] Additionally, it is expected that there will be over 5.5 million Canadians over the age of 80 in 2068, compared to 1.6 million in 2018.[1] This situation requires considerable thought and action from the Canadian health care and political systems.

A growing challenge among the older-adult community is housing, and it is exacerbated by age-related issues such as social isolation, accessibility concerns, and socioeconomic factors. Of particular relevance is social isolation, which is defined as "a quantifiable method of reduced social network" and is directly related to loneliness, which is the perceived lack of a social network.[2,3] Social isolation is a prevalent issue among older adults, who are at higher risk due to the loss of family members and geographical distancing.[4] A longitudinal cohort study by Perisonnoto and colleagues determined that approximately 18% of individuals over the age of 60 live alone, with 43% of subjects reporting that they feel lonely.[5] Similarly, the Canadian National Seniors Council estimate that approximately 50% of people over the age of 80 report feelings of loneliness.[6] While the BC government recognizes the importance of social and intergenerational connections and their ties to mental and physical health, limited initiatives exist that target social isolation.[7] Additionally, the 2019 BC Centre for Disease Control report on social isolation discussed the impact on seniors. It also stated that housing was a "key component of fighting social exclusion," but highlighted that housing for seniors was not a priority for most municipalities in BC.[8] The literature on loneliness among older adults living in care facilities is also scarce; however, one study explored loneliness in senior housing communities and found that 42.7% of older adults living in these communities were moderately lonely and 26.6% were severely lonely, using the Hughes scale.[9] Across studies, loneliness among older adults is shown to have negative health consequences. For example, loneliness is correlated with a decline in function with activities of daily living, negatively impacting subjective health and increasing the risk of conditions such as depression, incontinence, hypertension, and vision impairment, as well as overall mortality.[5,9-12] It is clear that social isolation, and consequently, senior housing, are public health issues. Intergenerational housing models serve as a potential solution to address these concerns and help mitigate the consequences associated with social isolation.

Across studies, loneliness among older adults is shown to have negative health consequences.

Senior housing models

Several models of housing for older adults exist nationwide, together creating tiers for delivery of care that can be used based on an individual's specific needs. In general, these tiers include independent living, assisted living, long-term

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care, and hospice care, with respite care serving as a temporary option at almost all levels to provide caregiver relief. Independent care options involve minimal professional assistance, while assisted living is suited for older adults who are able to make decisions but require support due to physical and functional health challenges.[13] Long-term care is designated for medically complex patients who require 24-hour nursing care[1,3] Hospice care is for patients who are at end of life and require symptom management, and it is one of many palliative care options.[14]

Intergenerational housing facilities could employ a uni- or multi-tiered approach to older-adult housing, depending on community needs and available resources. The premise of intergenerational housing is that seniors' needs are met in a similar way to the housing options mentioned above, with the added opportunity to reside with or among younger individuals who do not require these services. The BC-based company Happipad is a housing solution that frequently facilitates intergenerational housing.[15] Through its website, Happipad often connects seniors looking for social connections and additional income to younger tenants looking for affordable housing.[15] Purpose-built intergenerational-housing spaces also exist in Canada, such as the newly established Generations facility in Calgary, which integrates assisted, long-term, and palliative care in a multigenerational environment.[16] Similarly, Harbour Landing Village in Regina is a care centre for older adults that promotes personalized care and intergenerational activities.[17] Similar housing schemes are seen worldwide. For example, the Netherlands has housing plans in which students are offered free accommodation provided they spend 30 hours each month with their older-adult housemates.[18] In Fujisawa, Japan, Aoi Care houses elderly people with dementia, and is unique in that its residents decide on their daily activities, frequently choosing to interact with children by playing ball or selling tea made at the centre.[19] Generally, studies show that living and spending time with family, and specifically caring for grandchildren, serve as protective factors against older-adult loneliness, further supporting the concept of intergenerational housing.[20,21]

Intergenerational programs

Existing intergenerational programs demonstrate an improvement in seniors' health and well-being, suggesting a similar benefit would be realized through intergenerational housing. One study conducted in Japan noted that older adults who actively participated in an intergenerational program that involved regularly reading to school-age children over an 18-month period reported improved subjective health and social networks compared to controls.[22] A follow-up study based on this program was conducted 7 years later and demonstrated that the control group had higher odds of having decreased intellectual capacity as well as lower levels of interactions with children.[23] Additionally, at follow-up, the intervention group demonstrated higher levels of physical function related to fine motor skills, as measured through functional reach and grip strength.[23] Functional limitations are also a risk factor for loneliness; therefore, intergenerational programs may help address this underlying issue.[24]

Another study in Japan consisted of exploring the impacts of participating in a weekly intergenerational day program that paired seniors with school-age children for 6 months.[25] The study noted that a subgroup of seniors who reported higher scores on a depression scale at enrolment showed a significant decrease in depressive symptoms after participating in the program.[25] A randomized trial with a similar program was conducted in the United States, which involved older adults volunteering in a local elementary school for 15 hours per week.[26] This program yielded positive outcomes for participants in the intervention group when compared to the control group.[26] Specifically, 4 to 8 months after completing the program, older adults in the intervention group showed significant improvement in physical activity, strength, and cognitive ability.[26] They also reported an increased ability to be able to turn to someone for help, perhaps indicating a decreased sense of social isolation.[26] Furthermore, 80% of the seniors returned to the program the following year, suggesting the program yielded a positive experience for the participants.[26]

While systematic reviews and meta-analyses on the topic of intergenerational housing and programming are limited, one systematic review compared seven studies on intergenerational programs, five of which showed mixed or positive outcomes for older adults.[27] Importantly, Hawkley and colleagues described that loneliness can be alleviated, with one method being through increased socialization.[24]

Benefits to society

Beyond the direct effects of improving the health of older adults, intergenerational programming can lead to beneficial outcomes for society as a whole. For example, programs that paired older adults with youth led to an increased sense of trust and social capital.[28] Additionally, such programming promotes intergenerational ties and leads to an increased sense of community. This may have a cyclical effect that ultimately decreases social isolation. The direct relationship between loneliness and depression is of note as depression costs the Canadian health care system $32.3 billion in GDP annually.[29] Although the financial ramifications of loneliness are not the primary driver for promoting intergenerational programs, the cost is substantial. Vasiliadis and colleagues state that the excess annual adjusted cost of depression in seniors in Canada in 2006 was $27.4 million.[30] As well, the cost of managing chronic depression is estimated to be twice that of hypertension and diabetes combined.[31] With these statistics, we can start to appreciate the worldwide economic impact of tackling geriatric mental health with reduced social isolation and loneliness through intergenerational housing.

The benefits of intergenerational housing also extend to the rest of the population. These include reduced housing costs for students through housing incentives and reduced caregiver burnout as a result of the added support network in intergenerational programming and housing initiatives. The latter is particularly important as the Canadian General Social Survey for Caregiving and Care Receiving found that 34% of caregivers for their grandparents felt worried or distressed about their role and responsibilities as primary caregivers.[32]

There are also beneficial effects for younger generations who participate in such programs. For example, children may benefit from improved academic performance, positive

perceptions of the elderly, and enhanced skills related to communication and empathy.[33,34] Additionally, as concluded in a literature review conducted by Park in 2015, intergenerational programming has a positive effect on youth, and demonstrates a reduction in feelings of anxiety and an improved sense of self-worth.[35]

Conclusions

Intergenerational housing models should be further explored as a way of addressing older adults' concerns about housing and social isolation in BC and Canada. Existing intergenerational programs benefit seniors through improved self-rated health scores, physical function, and cognition. Additionally, such programs have positive impacts on society at large, fostering a sense of community, improving intergenerational ties, cultivating economic gain, and increasing social capital. ■

Competing interests

None declared.

Approximately 18% of individuals over the age of 60 live alone, with 43% of subjects reporting that they feel lonely.

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Looking to purchase an investment property?

Before speaking to your realtor, here are some things to consider

For physicians, buying a second home is a common way to invest. If you're thinking about this, here are some things to consider when making this decision.

How will you use this property?

You may be looking into a vacation home, or perhaps a rental property that you'll use occasionally. Start by considering all the things that will go into this decision. Is this property easy to rent or share? More importantly, is this property in a community that permits short-term rentals? You may want to ask around and see how the local homeowners feel about rental guests.

Perhaps, the bigger question is around what you want out of your retirement and if this property will give you that. If you have children, they may play a big role in your decision. If your children are older and starting to grow their own families, you may want to ensure that there's enough room for them to visit, or even use the space independently.

How does this investment measure up financially?

Besides the price of the property itself, consider things like renovations and upgrades. Have you investigated all the other expenses to run this property? How much are the land taxes, property fees, insurance, cleaning, outdoor maintenance? Moreover, are you eligible for any tax deductions with a second property? It's important to budget for these things and ensure that they won't have a negative impact and affect your overall financial goals.

There may be other financial aspects that you may not have considered, such as landlord-tenant laws, taxable rental income, property management costs, fluctuating markets, resale, and the legal duties and expectations of a landlord.

You will need to consider your options for financing. To help you access equity to buy a second property, consider the Scotia Total Equity Plan (STEP).

What is the Scotia Total Equity Plan (STEP) and how can it help me?

If you need money to fund a down payment on a second property and you don't want to cash out investments, with STEP you may borrow up to 80% of your home equity.

A STEP allows you to finance a purchase using the equity of your primary residence. If you earn rental income from this property, you can deduct expenses such as the interest paid on the borrowed funds.

For physicians who pay the highest marginal tax rate, the higher loan to value ratio can help offset the rental income you earn and reduce your taxes payable.

With the flexibility of a STEP, you're in control to mix and match mortgages, lines of credit, loans and credit cards to create a plan that works for you. You can use your home equity whenever and however you need it.

We understand that as a physician you have unique financial needs. Scotiabank Home Financing Advisors can provide expert advice and help you choose the right mortgage solution customized to meet your needs. Together with MD Financial Management, we can develop a holistic financial plan to build your wealth.

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A first-of-its-kind Canadian partnership for a stronger health care system

In BC, doctors have a unique opportunity to get involved with system transformation through the Joint Collaborative Committees (JCCs)—a first-of-its-kind partnership in Canada between Doctors of BC and the BC government. The JCCs bring together doctors, government, health authorities, patients and families, health professions, and other stakeholders to improve access to care by centring it on patients and families, building physician capacity, and coordinating system services. Through their Physician Master Agreement, Doctors of BC and the BC government allocate funding to four committees that each have a distinct focus and mandate:

- Joint Standing Committee on Rural Issues: Enhances physician services in rural and remote areas.
- General Practice Services Committee: Strengthens primary and community care.
- Shared Care Committee: Improves collaboration between family doctors and specialist doctors.
- Specialist Services Committee: Engages specialist doctors to collaborate, lead quality improvement, and deliver quality services.

Work of the JCCs is grounded in the Institute for Healthcare Improvement's (IHI) principles of quality improvement and framed by the IHI's Triple Aim.[1] JCC funding and support enables divisions of family practice, medical staff associations, and the Rural Coordination Centre of BC (RCCbc) to take a grassroots approach to enhance patient care and improve professional satisfaction for doctors. Through the JCCs, doctors engage and lead in taking a quality improvement approach to co-create solutions and strengthen relationships.

This article is the opinion of the Joint Collaborative Committees (JCCs) and has not been peer reviewed by the BCMJ *Editorial Board.*

Enhancing surgical and obstetrical care

In rural BC communities where surgical care is provided by family physicians with enhanced surgical skills or solo general surgeons, the Rural Surgical and Obstetrical Networks (RSONs) Initiative stabilizes, supports, and enhances the delivery of surgical and obstetrical care to local populations. The initiative is based on a five-pillar framework: scope and volume, remote presence technology, clinical coaching, continuous quality improvement, and evaluation. RSONs build on local, regional, and provincial relationships to enhance the care provided by and between teams. Teams include members of interdisciplinary OR and maternity teams supported by a local community coordinator and with support from RCCbc. These networks are supported in Creston, Fernie, Golden, Hazelton, Port Alberni, Revelstoke, Smithers, and Vanderhoof, and are in development in Powell River and Sechelt. Read more at https://enews.rccbc.ca/tag/rson.

Establishing team-based care networks

Physicians in divisions of family practice are working with health authority and community partners to establish primary care networks (PCNs) through 39 regional collaborative partnerships. A PCN is a team of health care providers made up of doctors and other health care professionals who work together to provide primary care to patients in a geographical area. The foundation of the PCN is the patient medical home, a community practice where patients get the majority of their care with an emphasis on longitudinal relational continuity and a team-based approach to care. While the focus is on primary care, specialists have an important role within PCNs. They are involved in PCN planning and in conversations at the provincial, regional, and community levels. Forty-three PCNs have started implementation as of spring 2021. Read more at https://gpscbc.ca/what-we-do/system-change/primary-care-networks.

Coordinating surgical optimization

Doctors are working with health authorities and facilities to improve assessment and management of patients in need of surgery. The Surgical Patient Optimization Collaborative (SPOC) addresses the need for a coordinated approach to optimize or prehabilitate patients for surgery. Prehabilitation can reduce adverse events during a surgery, improve outcomes and recovery for patients, and increase patient and caregiver satisfaction.

Since May 2019, SPOC has worked on developing a sustainable process that enables patients to optimize different components of their health (e.g., diet, smoking, anemia, physical activity) in preparation for an elective procedure. To date, the collaborative has formed multidisciplinary surgical prehabilitation teams in 15 hospitals, created a resource guide for caregivers to help implement prehabilitation practices, and improved communication between family doctors, surgeons, and patients. SPOC is scheduled to complete in May 2021. It is anticipated that the prehabilitation processes initiated by the collaborative will be integrated into routine surgical practices in BC. Read more at https://sscbc.ca/programs-and-initiatives/transform-care-delivery/surgical-patient-optimization-collaborative-spoc-0.

Spreading and accelerating health care improvements

Spread Networks engage family and specialist physicians, communities/divisions, and partners

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Potent sedatives in opioids in BC: Implications for resuscitation, and benzodiazepine and etizolam withdrawal

Mortality due to drug overdose has risen to unprecedented levels in British Columbia. In 2020, 1724 people died of drug overdose compared to 984 people in 2019.[1]

There has been a significant increase in the proportion of opioid samples containing strong sedatives. These sedatives include benzodiazepines, etizolam, and xylazine. In January 2021, benzodiazepines were found in 20% of opioid samples checked by the BC Centre on Substance Use and 50% of samples from the Vancouver Island Drug Checking Project. Particularly concerning is that benzodiazepines were detected in 50% of illicit drug toxicity deaths in BC in December 2020 and January 2021.[2]

Benzodiazepines and etizolam enhance the action of the inhibitory neurotransmitter, gamma aminobutyric acid. Patients with benzodiazepine overdoses may have profound CNS depression. Symptom onset occurs in 0.5 to 2 hours. Symptom duration can vary depending on the agent and dose; generally, patients with etizolam overdoses will be sedated for many hours. Also of note is that urine toxicology will not detect all benzodiazepines. Point-of-care screens in BC will detect etizolam but their reported sensitivity is 50% to 70%. It is, therefore, important to treat patients clinically if benzodiazepine toxicity is suspected.

Dependence to and withdrawal from benzodiazepines or etizolam may occur after exposures of only a few weeks.[3] Increasing exposure to benzodiazepines puts many people who use drugs at risk for withdrawal symptoms (e.g., agitation, sleeplessness, autonomic instability), which may be difficult to clinically differentiate from opioid withdrawal or stimulant toxicity. Withdrawal from benzodiazepines and etizolam has been increasingly reported across BC over the past 6 months.

The effects of both benzodiazepines and etizolam can be reversed with flumazenil. However, flumazenil should not be used in the treatment of suspected benzodiazepine or etizolam overdose because it is associated with ventricular dysrhythmias and seizures. Flumazenil can also precipitate benzodiazepine or etizolam withdrawal. If seizures occur after the use of flumazenil, they can be very difficult to treat.[4] Xylazine is a partial alpha-2-adreneric agonist pharmacologically related to clonidine. Toxic effects include hypotension, bradycardia, and respiratory depression.

Benzodiazepine adulteration makes the resuscitation of patients with illicit drug overdose complex. The mainstay of overdose treatment is monitoring and supportive care. As respiratory depression is the major cause of opioid overdose mortality and morbidity, patients' respiratory status should be monitored. Simply measuring a patient's respiratory rate may be an unreliable estimate of respiratory function; therefore, monitoring oxygen saturation and end tidal carbon dioxide should be instituted if available. Hypoventilation should be treated with respiratory support. Hypoglycemia may occur in opioid overdose, so clinicians should check serum glucose.[5]

As respiratory depression is the major cause of opioid overdose mortality and morbidity, patients' respiratory status should be monitored.

Naloxone is a competitive opioid antagonist that is effective in reversing opioid overdose. In cases where opioid overdose is suspected, lay and health care responders should give naloxone to patients with hypoventilation or who are unable to protect their airway. Where

Additional resources from the BCCDC

- Summary sheet for health professionals. Benzodiazepines found in opioids in BC. https://towardtheheart.com/resource/benzos-in-opioids-in-bc/open.
- Fact sheet: Etizolam in BC's illicit drug market. https://towardtheheart.com/resource/etizolam-in-bc-illicit-market/open
- Position statement: Observed consumption services. www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/Overdose/Final_OCSStatement_June2019.pdf

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benzodiazepines are adulterants in an illicit opioid overdose, patient sedation may be enhanced and patients' response to naloxone may be incomplete. However, responders should still administer naloxone, as it will reverse opioid-related toxicity. Naloxone should be titrated to effect, and opioid withdrawal precipitated by naloxone should be avoided. At the BC Drug and Poison Centre, we recommend the following naloxone regimen if there is clinical suspicion of opioid overdose: 0.04 to 0.1 mg initially, followed by subsequent doses (q2–3 min): 0.4 mg, 0.4 mg, 2.0 mg, 4.0 mg, then 10 mg.[6] If ongoing sedation persists due to prolonged effects of concurrent benzodiazepines, patients should be monitored until they are safely ventilating and their level of consciousness returns.

Please contact the BC Drug and Poison Information Centre in all suspected cases. We are pleased to work with you in the management of these complex cases. ■

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to collectively improve coordination of care for priority populations locally and provincially. A maternity network was the first to be created in 2017 to improve interprofessional collaboration and delivery of maternity care in BC. The network has since grown to involve 25 communities/divisions, and is transitioning to a community of practice. Other Spread Networks cover adult mental health and substance use, chronic pain, coordination of care for older adults, and palliative care. Read more at https://sharedcarebc.ca/our-work/spread-networks.

Learn more at www.CollaborateOnHealthBC.ca. ■

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Reference

1. Institute for Healthcare Improvement. The IHI Triple Aim. Accessed 15 March 2021. www.ihi.org/Engage/Initiatives/TripleAim/Pages/default.aspx.

Medical advisors reaching out to community physicians: A new WorkSafeBC initiative

Medical advisors are physicians who work at WorkSafeBC to provide medical reviews of injured worker claims. They are your colleagues and are licensed with the College of Physicians and Surgeons of BC. Many are accredited in sports or occupational medicine, have training in mental health, and maintain clinical practices. They regularly enlist the expertise of physician specialists in orthopaedics, internal medicine, ophthalmology, and psychiatry to support our case management teams for the benefit of injured workers.

In 2021, WorkSafeBC medical advisors will reach out to community physicians earlier in the claim process to assist with their patients' recovery and return to work. There is consensus about the value of work for injured workers—it's healthy, it contributes to recovery, and it leads to better health outcomes.[1]

Yet not all injured workers reap the health benefits of work. Some recover at home for extended periods—away from work and isolated from co-workers and regular routines—placing them at higher risk of suicide, obesity, heart attack, depression, and substance abuse.[2]

The Early Medical Advisor Involvement process involves reviewing all claims without a return-to-work plan 8 weeks after the date of injury. The medical advisor will contact the attending physician to discuss opportunities for additional treatment/rehabilitation, obstacles to the patient's recovery, and potential work opportunities if the patient is not yet ready to return to regular duties.

This allows medical advisors to collaborate with community physicians about how WorkSafeBC can assist, with the goal of functional recovery and some form of return to work. We piloted this initiative in 2020 and have seen a positive impact from the medical advisor connecting with the injured worker's physician. Medical advisors can offer support and guidance to community physicians on the claim process and disability management, can expedite referrals for imaging or specialist consultations, and can promote collaboration between community physicians and WorkSafeBC. Ultimately, the initiative aims to provide and support excellent worker care along with timely and safe return to work.

The initiative aims to provide and support excellent worker care along with timely and safe return to work.

For the worker, this early review can help address outstanding medical issues in a timely and efficient manner, provide for a medically supported return to work, and keep the worker connected with the workplace and colleagues. The community physician has an opportunity for enhanced collaboration with WorkSafeBC; this integrated sharing of information optimizes care and access to resources for their patient, supports patient recovery, and promotes a greater understanding of the benefits of return to work as part of the treatment plan.

For the employer, an appropriate earlier return to work helps their employees remain connected with the workplace. Many employers can accommodate medical restrictions, offering light or modified duties while an injured worker is recovering. To date, we have seen the following outcomes:

- Earlier clarification of diagnoses, medical restrictions, and treatment plans.
- Greater understanding of the role of medical advisors and benefits of peer-to-peer collaboration among community physicians.
- Enhanced communication leading to efficient engagements and a follow-up system with community physicians.
- Early discussion of expectations, return-to-work planning, and the identification of barriers to returning to work.
- Targeted and early support for community physicians with a focus on safe, durable, and timely return to work as part of treatment plans.
- Early identification of the absence of a primary care provider, allowing for the mitigation of this common challenge.

We thank you in advance for your engagement when one of our medical advisors contacts you. Typically, your commitment will be 5 to 10 minutes, and you may bill fee code 19930 for your time. To learn more, or to discuss a patient who was injured at work, feel free to contact a medical advisor by calling 1 855 476-3049. ■

—Janice Mason, MD, Dip. Sport Med. (CASEM)
Manager, Medical Services, WorkSafeBC

—Alfredo Tura, MD, CCFP, FCFP, ACBOM
Medical Advisor, WorkSafeBC,
Clinical Associate Professor, UBC

—Peter Rothfels, MD
Chief Medical Officer, WorkSafeBC

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

References

1. Waddell G, Burton AK. Is work good for your health and well-being? London, UK: The Stationery Office; 2006. Accessed 18 March 2021. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/214326/hwwb-is-work-good-for-you.pdf.
2. Felhaber T. The risks of worklessness. This changed my practice. 20 September 2017. Accessed 18 March 2021. https://thischangedmypractice.com/the-risks-of-worklessness.

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.

Jillian Lin

Paige Dean

2020 MacDermot writing prize winners

The 2020 J.H. MacDermot Prize for Excellence in Medical Journalism: Best article or essay was awarded to Jillian Lin for her article "Palliative care and legacy creation" [*BCMJ* 2020;62:292-293].

Jillian would like to thank both Betty and her late aunt, who inspired the article, as well as Dr Pippa Hawley for providing guidance on the Legacy Project. Jillian wrote this article as a second-year UBC medical student. She is now a third-year student going through clinical core rotations in the Vancouver-Fraser region. As she goes through her clinical rotations, she continues to learn from patient encounters and feels fortunate to be involved in caring for another person's well-being. Jillian aspires to be a resident physician in Canada when she graduates in 2022. She is excited for the years to come and curious about what kind of physician she will become. Her professional interests are broad but consistently include youth and children's health, mental health, social medicine, and palliative care.

The 2020 J.H. MacDermot Prize for Excellence in Blog Writing: Best blog post was awarded to Paige Dean for her post "Stay informed, stay safe: How to handle everyday activities during the COVID-19 pandemic" [*BCMJ*.org, 28 June 2020].

Paige is in her final year of medical school at UBC and feels fortunate to have spent the past 4 years training in beautiful British Columbia, a place she proudly calls home. Although the past year has brought many changes, she found great fulfillment by participating in this project (Practical solutions for COVID-19 challenges), which helped her navigate the uncertainty brought about by COVID-19. Paige hopes to spend her career providing holistic medicine as either a pediatrician or a family doctor. Outside of medicine, Paige is an avid runner, enjoys exploring the great outdoors by hiking and skiing, and looks forward to the return of live music and theatre performances so that she may continue to indulge her passion for the arts.

The winning article and blog post were selected by BC physician and regular contributor to the *BCMJ*, Dr George Szasz, in lieu of the Editorial Board. An Editorial Board member had competing interests with several of the eligible articles; therefore, the Board elected to defer to an external judge to ensure an impartial result.

Dr Szasz found the candidates' work to be excellent, clever, and sometimes even touching. Each article was informative, interesting, and wildly varied in content, while the blog posts were short, focused, and written in a conversational manner, making it a difficult task to choose a first among equals. In the end, Dr Szasz found Jillian Lin's essay to represent the most significant achievement in medical writing. He was grabbed by her touching presentation about a medical student's journey in understanding death, and the description of her halting and fearful approach to death and her evolving courage to be involved with dying people. In the blog writers' group, Paige Dean's post resonated for Dr Szasz. He felt her fear of inadequacy and insecurity when trying to offer factual health information to patients, and her description of how she gained confidence made for a realistic blog post.

Congratulations to all authors. BC medical students are encouraged to submit full-length scientific articles and essays for publication consideration. Each year the *BCMJ* awards a prize of $1000 for the best article or essay written by a medical student in BC, and may award a prize of $250 twice per year to the writer of the best blog post accepted for online publication in the preceding 6 months. For more information about the prizes, visit www.bcmj.org/submit-article-award.

Doctors of BC insurance team working remotely to support your needs

With the onset of COVID-19 pandemic a year ago, Doctors of BC implemented a work-from-home protocol to keep staff and members safe and healthy. Simultaneously, physicians recognized the need for insurance to protect their assets and provide peace of mind to their family, and demand for our services increased significantly.

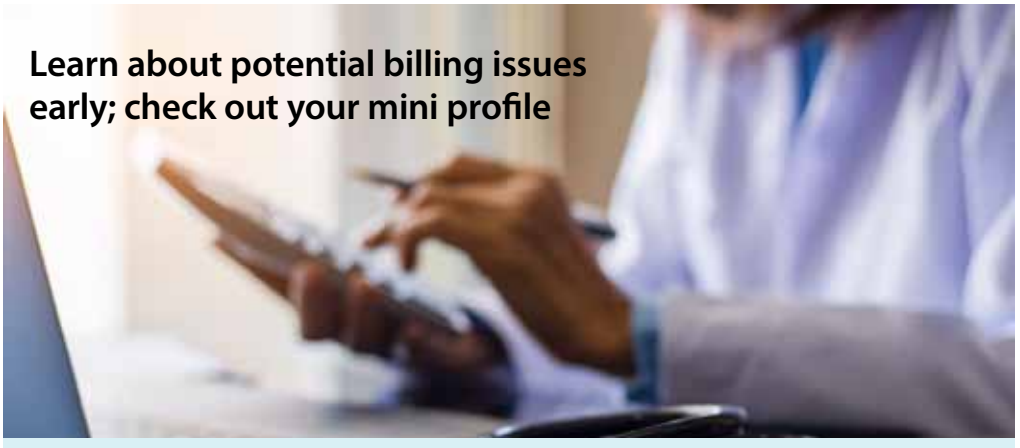
For the Doctors of BC Insurance Department, this meant shifting our 22-person team of advisors, administrators, and support staff from a paper-based office environment to a fully remote setting. Doctors of BC worked closely with the insurance carriers and our IT team to ensure continuous and seamless support during this time of uncertainty. As a result, digital processes were developed and enhanced to ensure all insurance applications and queries were handled confidentially and in a timely manner.

Here are some of the ways physicians can now interact virtually with Doctors of BC for their insurance needs:

- Schedule appointments with insurance advisors via a 24/7 online booking system.
- Use enhanced videoconferencing technology via your tablets, desktops, and mobile devices to stay connected on a personal level.
- Complete and sign most applications digitally (eliminating the need to print and manually sign).
- Access higher limits of insurance coverage without providing blood or urine tests, thanks to updated underwriting guidelines. (Please ask your insurance advisor for details.)
- Access individual insurance certificates outlining coverage and plan details online in the members area of the Doctors of BC website.
- Pay invoices online, or set up automatic direct debit payments (complete a banking change form to begin).
- Submit forms electronically to change or add beneficiaries on your life insurance or accidental death and dismemberment policies or to add new dependants or office staff to your health and dental plan.

We look forward to seeing you again in person, but until then, we are a phone call, email, or Zoom meeting away for all your insurance needs.

—Kerri Farrell
Project Coordinator, Members' Products and Services



Learn about potential billing issues early; check out your mini profile

Your 2019 mini profile is now available on the Doctors of BC website. The profile provides statistics based on the MSP payments made to you for the services you provided in the 2019 calendar year, including any settlements or retroactive payments issued as of 31 March 2020. This allows you to monitor your billings in comparison to your peer group and address any potential issues quickly and early. Understanding the flags on your profile, which could put you at higher risk for an audit, can help you determine if you need to make changes to your billings and alert you to a potential issue that could be avoided. Also in the data are claims paid by MSP, on behalf of ICBC and WorkSafeBC. The profiles are an accurate reflection of claims submissions and payments made in the claims record that identified you as the physician who provided the service, or in the case of referred services, identified you as the referring practitioner.

Visit www.doctorsofbc.ca/news/2019-mini-profiles-now-available for more information. If you have questions or need help understanding your profile, contact Juanita Grant at jgrant@doctorsofbc.ca or 604 638-2829 (toll-free 1 800 665-2262).

—Tara Hamilton
Advisor, Audit & Billing, Economics, Advocacy & Negotiations

Improvements to Rural Retention Program encouraging physicians to practise in rural communities

The Joint Standing Committee on Rural Issues (JSC), a partnership of Doctors of BC and the BC government, has announced significant changes to the Rural Retention Program (RRP) that will increase eligibility for incentives and benefits and stabilize funding to better recruit and retain physicians into practices in rural communities. The RRP offers incentives and benefits to encourage doctors to establish and maintain practices and connections in rural communities. The program is designed to enhance the supply and stability of physicians in rural communities as defined by the Rural Subsidiary Agreement (RSA). The changes reflect feedback from extensive consultations with rural physicians, communities, and health authorities as part of a review of the program. This completes the first phase of the review.

Consultations

Recognizing that the eligibility criteria had been largely unchanged since the program started nearly 20 years ago, the JSC undertook a comprehensive 3-year review of the RRP starting in August 2018. Facilitated by the Rural Coordination Centre of BC, nearly 600 rural physicians were consulted via facilitated dialogue, webinars, and a provincial survey. In addition, medical and administrative leaders in each rural health authority, community groups, subject matter experts, and other partners were consulted to develop recommendations.

Feedback included suggestions to address the annual fluctuation of rural points in some communities, to ensure the RRP remains a relevant incentive program including coverage for medical or parental leaves, and to create equity with the business cost premium.

The JSC agreed to hold the points constant while it conducted the review.

Changes to the Rural Retention Program

Effective 1 April 2021, the changes are:

- A temporary reduction of the RRP income eligibility threshold. The JSC recognizes that COVID-19 has impacted professional practice. To broadly support physicians whose income may have been impacted, the income requirement for eligibility of the RRP flat fee in 2021/22 has been reduced from $75 000 to $65 000.
- New and retroactive eligibility for physicians on parental leave or planning medical leave are available. Until now, physicians on parental or medical leave were not eligible to receive RRP payments. To support physicians to stay in the community, the changes mean that physicians will be eligible for the RRP flat fee payment and their earned RCME benefit for a period of 12 months, effective retroactively to 1 April 2020.
- The Rural Business Cost Modifier (RBCM) is being introduced to support physicians who reside and practise in rural communities. This change aligns payments to rural physicians with doctors in urban areas who are eligible for the business cost premium payments as per the recent Physician Master Agreement. An increase will be added to rural physicians' RRP flat fee payment disbursed through the health authority on behalf of the JSC.
- The minimum point threshold to be eligible for full rural benefits has been reduced from 6.0 to 1.5 points. The communities falling between 1.5 and 14.99 points will now be considered "C" designated communities and will be eligible for those benefits. This means that more communities will be eligible for RRP payments for their physicians, and they will be able to continue to receive other benefits under the RSA.
- To help mitigate year-to-year variations and uncertainties, and to appropriately stabilize the community points, the JSC will now implement point assessments using a five-year rolling average. This will ease the year-to-year fluctuations, stabilizing payments and benefit levels in communities.

For questions or inquiries, contact ruralprograms@doctorsofbc.ca.

Fast-tracked vaccinations for the vulnerable: Communicating with patients

Doctors of BC has prepared a series of scripts and articles for doctors to raise awareness among their patients on how to determine if they are eligible for early vaccines designated for people who are clinically extremely vulnerable, and, if they are, how to register for their vaccinations. The information is available on the Doctors of BC website at www.doctorsofbc.ca/news/bc-physicians-how-communicate-patients-about-fast-tracking-vaccinations-vulnerable (login required).

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 online drop-in peer support sessions, established 7 April, are now permanently scheduled for Wednesdays at noon. The weekly sessions are cofacilitated 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 a link to join by phone or video.

CME ON THE RUN

Online, 2 October 2020–4 June 2021 (Fridays)

The CME on the Run sessions are offered online. Registrants will receive links to go online before each session. Each program runs on Friday afternoons from 1 p.m. to 5 p.m. and includes great speakers and learning materials. Topics and dates: 4 June 2021 (Internal Medicine). Topics include Short and Long Term Systemic Effects of COVID-19, Current Role of Labs and Imaging in the Assessment of Chest Pain, Insulin 101: When and How to Start in Family Practice, A Rational Approach to Helicobacter pylori Diagnosis and Management, Atrial Fibrillation: Management in the Office, Seropositive/Seronegative Arthritis: How to Assess and Treat Those Really Achy Joints, The Place for Stem Cell Therapy and Plasma-Rich Protein in Current Medical Practice, Mast Cell Activation Disorder: The Bowel Microbiome and Other System Effects. To register and for more information visit https://ubccpd.ca/course/cme-on-the-run-2020-2021 or email cpd.info@ubc.ca.

18TH ANNUAL PEDIATRIC EMERGENCY MEDICINE UPDATE

Online, 14 May 2021 (Friday)

Join us for the 18th Annual Pediatric Emergency Medicine update on Friday, 14 May. Registration includes access to the live virtual event, all available materials, and access to the post-event recording. Topics include 2020 Pediatric Resuscitation Guidelines, Pitfalls in Mechanical Ventilation of Children in the ER, Latest in Management of Gastroenteritis, Analgesia and Sedation in the Agitated Child, Appendicitis and Testicular Torsion Pathways, MIS-C, Recognition and Stabilization of Children with Eating Disorder in the ER, Practice-Altering Articles, Latest on Pediatric Trauma, Commonly Misdiagnosed Rashes and Vascular Access in Children. To register and for more information visit https://ubccpd.ca/course/peder2021 or email cpd.info@ubc.ca.

MINDFULNESS IN MEDICINE WORKSHOP/RETREAT

Cortes Island, 21–26 May 2021 (Fri–Wed)

Please join us for a workshop/retreat focusing on the theory and practice of mindfulness-based stress management for physicians and other health professionals. This powerful and popular program offers practical skills to navigate the stresses and challenges of our work in order to prevent burnout and build resilience and wellness into our personal and professional lives. The program will take place in person with protocols respecting current public health recommendations. Mindfulness in Medicine, a meditation retreat for physicians, will be held at Hollyhock on Cortes Island from 21–26 May. To find out more, or to register, please contact Dr Mark Sherman at mark@livingthismoment.ca or go to www.livingthismoment.ca/events.

GP IN ONCOLOGY EDUCATION

Vancouver, 13–24 Sept 2021 (Mon–Fri)

BC Cancer's Family Practice Oncology Network offers an 8-week General Practitioner in Oncology education program beginning with a 2-week introductory session every spring and fall at BC Cancer–Vancouver. This program provides an opportunity for rural family physicians, with the support of their community, to strengthen their oncology skills so that they can provide enhanced care for local cancer patients and their families. Following the introductory session, participants complete a further 30 days of clinic experience at the Cancer Centre where their patients are referred. These are scheduled flexibly over 6 months. Participants who complete the program are eligible for credits from the College of Family Physicians of Canada. Those who are REAP-eligible receive a stipend and expense coverage through UBC's Enhanced Skills Program. For more information or to apply, visit www.fpon.ca, or contact Jennifer Wolfe at 604 219-9579.

doctors of bc

Doctors are at the centre of everything we do. We understand the challenges unique to your profession. Let us simplify insurance and give you financial peace of mind.

Our non-commissioned advisors put doctors first through personalized insurance solutions. And when you need us most, at time of claim, we'll be right by your side.

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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.

Include all relevant details regarding publication, including correct abbreviation of journal titles, as in *Index Medicus;* year, volume number, and inclusive page numbers; full names and locations of book publishers; inclusive page numbers of relevant source material; full web address of the document, not just to host page, and date the page was accessed. Examples:

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

(NB: List up to four authors or editors; for five and more, list first three and use et al.)

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.

(NB: The access date is the date the author consulted the source.)

A book cited in full, without page number citations, should be listed separately under Additional or Suggested reading. Such a list should contain no more than five items.

References to unpublished material

These may include articles that have been read at a meeting or symposium but have not been published, or material accepted for publication but not yet published (in press). Examples:

1. Maurice WL, Sheps SB, Schechter MT. Sexual activity with patients: A survey of BC physicians. Presented at the 52nd Annual Meeting of the Canadian Psychiatric Association, Winnipeg, MB, 5 October 2008.
2. Kim-Sing C, Kutynec C, Harris S, et al. Breast cancer and risk reduction: Diet, physical activity, and chemoprevention. CMAJ. In press.

Personal communications are not included in the reference list, but may be cited in the text, with type of communication (oral or written) communicant's full name, affiliation, and date (e.g., oral communication with H.E. Marmon, director, BC Centre for Disease Control, 12 November 2007).

Material submitted for publication but not accepted should not be included.

Permissions

It is the author's responsibility to obtain written permission from both author and publisher for material, including figures and tables, taken or adapted from other sources. Permissions should accompany the article when submitted.

Scientific misconduct

Should possible scientific misconduct or dishonesty in research submitted for review by the *BCMJ* be suspected or alleged, we reserve the right to forward any submitted manuscript to the sponsoring or funding institution or other appropriate authority for investigation. We recognize our responsibility to ensure that the question is appropriately pursued, but do not undertake the actual investigation or make determinations of misconduct.

Tables and figures

Tables and figures should supplement the text, not duplicate it. Keep length and number of tables and figures to a minimum. Include a descriptive title and units of measure for each table and figure. Obtain permission and acknowledge the source fully if you use data or figures from another published or unpublished source.

Tables. Please adhere to the following guidelines:

- ☐ Submit tables electronically as Word or Excel files so that they may be formatted for style.
- ☐ Number tables consecutively in the order of their first citation in the text and supply a brief title for each.
- ☐ Place explanatory matter in footnotes, not in the heading.
- ☐ Explain all nonstandard abbreviations in footnotes.
- ☐ Ensure each table is cited in the text.

Figures (illustrations). Please adhere to the following guidelines:

- ☐ Images must be high resolution; if unsure, send highest resolution possible and we will advise if necessary.
- ☐ Number figures consecutively in the order of their first citation in the text and supply a brief title for each.
- ☐ Place titles and explanations in legends, not in or on the illustrations themselves.
- ☐ Provide internal scale markers for photomicrographs.
- ☐ Ensure each figure is cited in the text.
- ☐ Color is not normally available, but if it is necessary, an exception may be considered.

Units

Report measurements of length, height, weight, and volume in metric units. Give temperatures in degrees Celsius and blood pressures in millimetres of mercury. Report hematologic and clinical chemistry measurements in the metric system according to the International System of Units (SI).

Abbreviations

Except for units of measure, we discourage abbreviations. However, if a small number are necessary, use standard abbreviations only, preceded by the full name at first mention, e.g., in vitro fertilization (IVF). Avoid abbreviations in the title and abstract.

Drug names

Use generic drug names. Use lowercase for generic names, uppercase for brand names, e.g., venlafaxine hydrochloride (Effexor). Drugs not yet available in Canada should be so noted.

Reprints

Reprint order forms will be sent to authors upon publication of the article. If you know that you would like additional copies prior to printing, please advise us and we can arrange a larger print run.

Manuscript submission checklist

Before you submit your paper, please ensure you have completed the following, or your paper could be returned:

- ☐ Authorship, copyright, disclosure, and consent form is completed and included (available at www.bcmj.org).
- ☐ Abstract is provided.
- ☐ Three key words are provided.
- ☐ Author information is provided for all authors.
- ☐ References in text are in correct numerical order.
- ☐ Reference list is in correct numerical order and is complete.
- ☐ References list contains up to three authors only.
- ☐ All figures and tables are supplied.
- ☐ Permissions letters are included.

Classifieds

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PRACTICES AVAILABLE

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FT/PT position at Integrated Wellness Medical. Experienced general practitioner or specialist looking to move their practice and expand their medical team. Be a part of our busy clinics in three central and growing locations across the Lower Mainland with fully equipped offices, EMR, qualified support staff and management. Contact us at s.aljaf@maunsellinvestment.ca.

PRINCE RUPERT—FAMILY PRACTICE

Well-established, full-scope family practice, congenial colleagues, med-access EMR, and very low overheads < 15%. Multiple incentives including relocating allowance, REEF, REAP, Mocap, and about a 24% northern allowance. Obstetrics and assisting if desired, call 1 in 7 with specialist backup. Outdoor recreation, including fishing, boating, hiking, golf, and skiing. Contact bc6854@gmail.com.

EMPLOYMENT

BURNABY/METROTOWN—SPECIALISTS TO JOIN 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 practice without cost of opening your own office. All specialties considered. Call Dr Pav Kaliray at 778 822-1981.

CANADA—ARE YOU A PHYSICIAN LOOKING FOR A NEW ROLE?

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DAWSON CREEK—LUCRATIVE JOB SHARING

Looking for a partner/locum to share my patient panel of 2400 in busy family practice of three physicians and one nurse practitioner. Open to a work schedule of 3 to 4 weeks in/out. Excellent remuneration. Accommodation is available to share. Contact Dr Anton Venter at dr.antonventer@gmail.com or cell 250 788-6973.

NANAIMO—GP

General practitioner required for locum or permanent positions. The Caledonian Clinic is located in Nanaimo on beautiful Vancouver Island. Well-established, very busy clinic with 26 general practitioners and two specialists. Two locations in Nanaimo; after-hours walk-in clinic in the evening and on weekends. Computerized medical records, lab, and pharmacy on site. Contact Lisa Wall at 250 390-5228 or email lisa.wall@caledonianclinic.ca. Visit our website at www.caledonianclinic.ca.

NISGA'A VALLEY—FAMILY MEDICINE IN BEAUTIFUL NISGA'A VALLEY

Family physicians needed to provide primary and urgent care for a population of 3500 in four communities across the traditional Nisga'a Territory. A team of three physicians provides full-scope services (excluding obstetrics) in concert with other services such as home care, public health, and mental wellness and addictions. The health and wellness centres are staffed with full-time RNs who take first call after hours. Soaring mountains, picturesque fjords, dramatic lava beds, natural hot springs, and thriving rivers offer outstanding recreation year-round. Excellent remuneration. Contact Jeremy Penner at md@nisgaahealth.bc.ca.

NORTH VAN—FP LOCUM

Busy, established physicians with stellar support staff seek part-time or full-time associates. Doctors currently needed to fill very busy telemedicine and in-office shifts. Oscar EMR with technical support. Part-time associates will be on a 70/30 split for weekend and evening shifts. Option of working from home. For further information contact Kim at 604 987-0918 or kimgraffi@hotmail.com.

NORTH VANCOUVER—FP LOCUM

Come practise on the North Shore in a busy, friendly clinic of three doctors. Excellent staff and remuneration without OB or hospital work. Looking for 3 months of locum cover per year, starting with September and October 2021. Please reply to clinic manager at clinicmanager335@gmail.com for more details.

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: powellrivermedicalclinic.ca.

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 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—GPS AND SPECIALIST OPPORTUNITIES

Considering a change of location or practice? Or considering merging? Whether you are in family practice or a specialist we have opportunities in a beautifully appointed clinic in the heart of Central City in Surrey close to all new development at City Hall. Free parking, close to buses, trains, and very easy location to drive to, this practice is fully computerized using Oscar EMR and is close to recreational areas in an affordable part of the Lower Mainland. Full- or part-time, room rental, or full admin support; the flexibility and choice can be discussed. Contact Priti at 604 788-3649 or email priti@bclaser.ca.

SURREY (BEAR CREEK AND NEWTON)—FAMILY PRACTICE

We are looking for part-time/full-time physicians for walk-ins/family practice to work on the flexible shifts between 9 a.m. to 6 p.m., 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 wecaremedicalclinic2021@gmail.com or 778 888-7588.

SURREY CITY CENTRE—SPECIALISTS, RMTS, PHYSIO, AND DIETITIANS

The Mercer Clinic at City Centre 2 is inviting specialists, registered massage therapists, physiotherapists, and dietitians to join our team in a part-time or full-time capacity. Our current medical team includes two endocrinologists and an internist. Our clinic is a brand new, well-equipped modern facility and has plenty of examination rooms and offices for physicians. We use Accuro electronic medical records and have highly trained staff, which allows for no administrative burdens. We are conveniently located steps away from Surrey Memorial Hospital, Life Labs, and West Coast Imaging. For more information please contact Jessie at jessie@mercerclinic.ca or 236 427-1088.

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—PSYCHIATRISTS WANTED

Are you a psychiatrist looking to join a team of perinatal specialists in Vancouver? We are seeking psychiatrists to work 1 to 3 days per week in a well-established Reproductive Mental Health Program based at BC Women's Hospital. Great team and excellent support staff. Please send your CV and cover letter outlining your interest to BShulman@cw.bc.ca.

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 medicalclinicbc@gmail.com.

VANCOUVER—LOCUM COVERAGE, BEAUTIFUL CLINIC STEPS FROM VGH

A beautiful clinic (steps from VGH) is looking for locum coverage for booked appointments with a variety of shifts available. The clinic is open 7 days per week, 9 a.m. to 8 p.m. on weekdays and 10 a.m. to 4 p.m. on weekends. The clinic functions as a walk-in clinic and family practice hybrid clinic serving the local neighborhood/community, with a very welcoming and warm atmosphere. The patient demographics of the area include a wide spectrum with a mix of families from newborn to geriatric. It is also a resident teaching site. In general, appointments are booked every 10 minutes (4/hours booked and 2 spots for walk-in). However, there is an opportunity for some flexibility. For more information, email una.drtodorovic@gmail.com.

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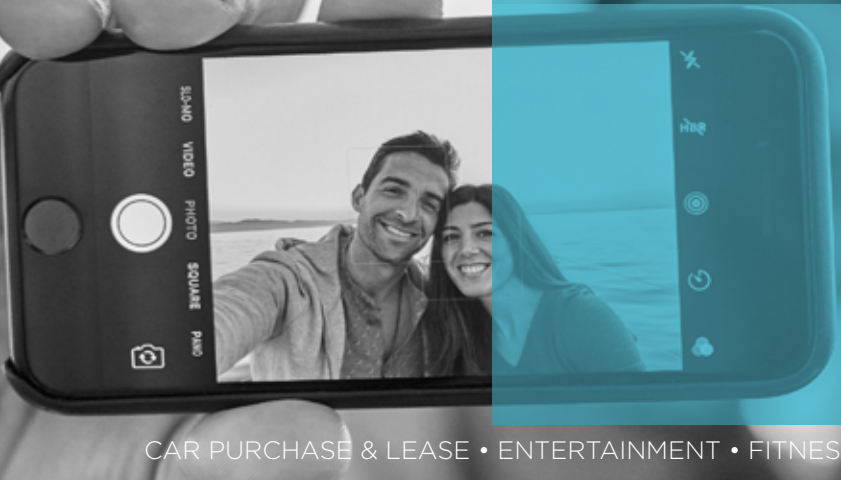

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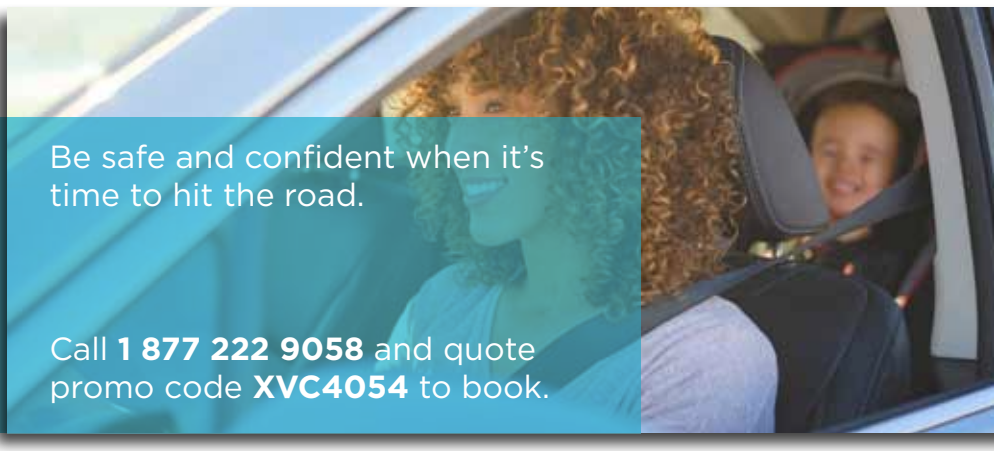

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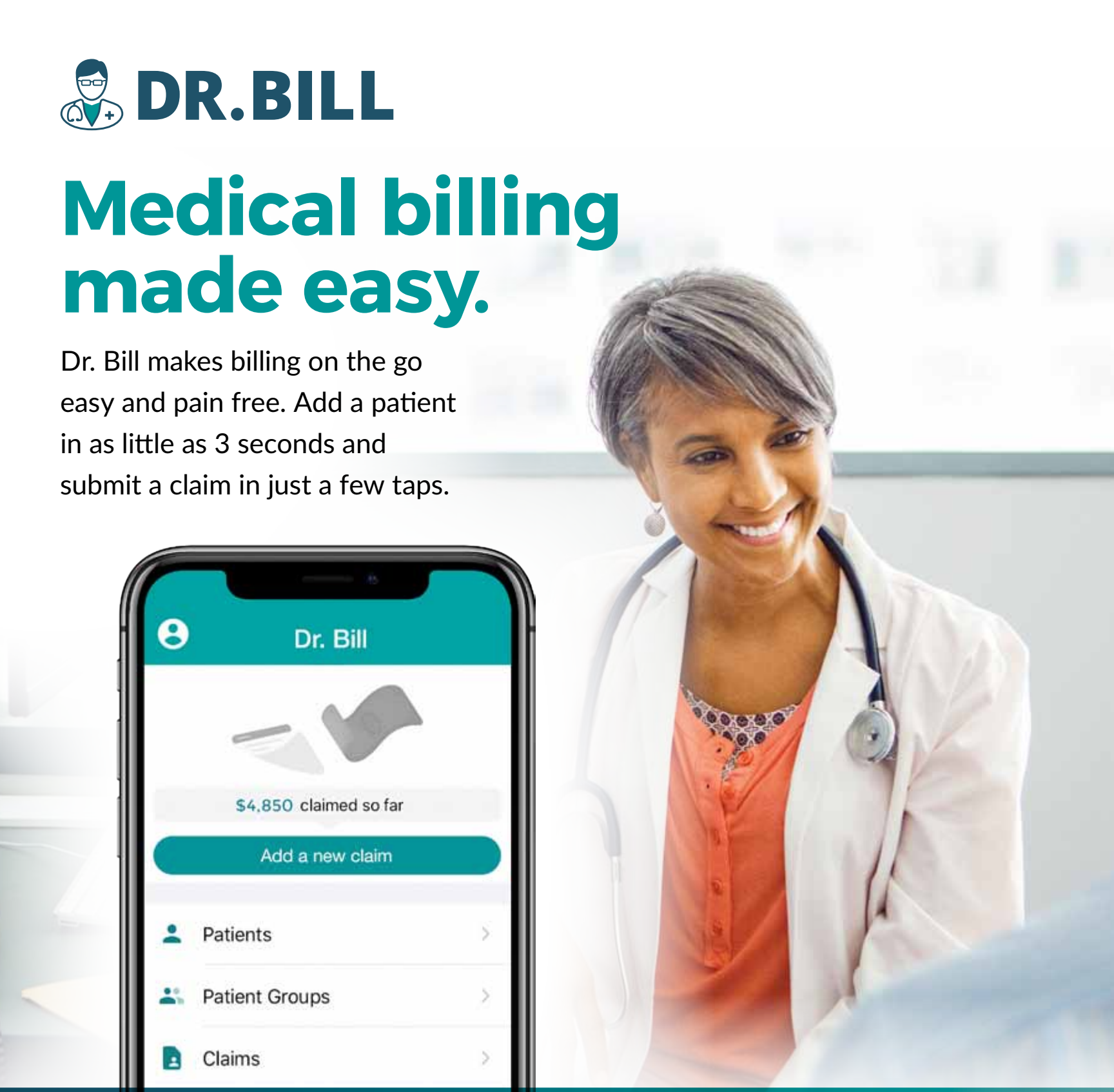

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