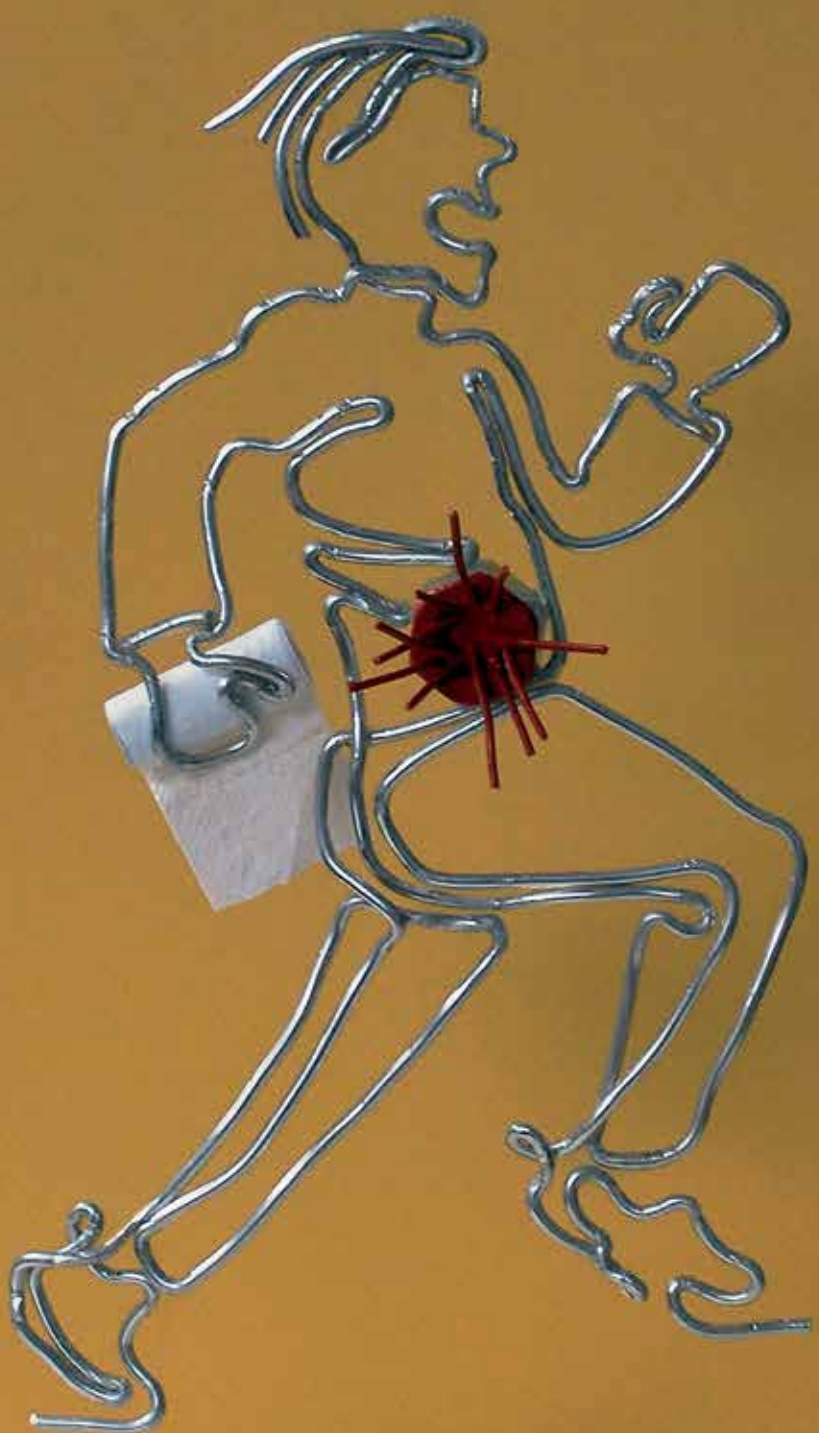
BCMJ
BC Medical Journal

October 2024: 66:8
Pages 273–320

Diagnosis and management of irritable bowel syndrome in the primary care setting

IN THIS ISSUE



bcmj.org

Teladoc HEALTH

WE ARE HIRING

- Family Physicians
- Emergency Physicians
- Hospitalists
- Nurse Practitioners

Flexible Practice + Impactful Healthcare +
Provincially Funded + Collaborative Colleagues
at the World Leader in Whole Person Virtual Care

Explore opportunities on our primary care and acute care teams at:
TeladocHealth.ca/providers

BCMJ
BC Medical Journal
October 2024
Volume 66 | No. 8
Pages 273–320

Health at Every Size is an evidence-informed approach to care that seeks to de-emphasize the focus on weight as a metric for health and promote safe and equitable access to health care for all people, irrespective of their weight. Article begins on page 306.

Contents continued on page 276

Environmental impact
The *BCMJ* seeks to minimize its negative impact on the environment by:

- Supporting members who wish to read online with an e-subscription to bcmj.org
- Avoiding bag and envelope use, and using recyclable paper envelopes when needed
- Working with Mitchell Press, ranked second in North America for sustainability by canopyplanet.org
- Printing with vegetable-based inks
- Using FSC-certified paper
- Printing locally in British Columbia

doctors of bc

PRINTED IN BC

Postage paid at Vancouver, BC. Canadian Publications Mail, Product Sales Agreement #40841036. Return undeliverable copies to *BC Medical Journal,* 115–1665 West Broadway, Vancouver, BC V6J 5A4; tel: 604 638-2815; email: journal@doctorsofbc.ca.

Advertisements and enclosures carry no endorsement of Doctors of BC or the *BCMJ*. The *BCMJ* reserves the right to refuse advertising.

We humbly acknowledge the traditional territories of First Nations within British Columbia and that our offices are situated on the unceded territories of the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh (Squamish), and səlilwətaɬ (Tsleil-Waututh) Nations. For Doctors of BC, acknowledging the traditional territories is an expression of cultural humility that involves recognizing our commitment to support the provision of culturally safe care to Indigenous Peoples in BC.

ON THE COVER
Diagnosing and promptly initiating treatment of irritable bowel syndrome in the primary care setting should be the standard of care to minimize patients' pain and suffering.
Article begins on page 292.

Mission: The *BCMJ* is a general medical journal that shares knowledge while building connections among BC physicians.

Vision: The *BCMJ* is an independent and inclusive forum to communicate ideas, inspiring excellent health care in British Columbia.

Values
Quality: Publishing content that is useful, current, and reliable.
Connections: Sharing diversity of thought and experiences from across the province and promoting communication between BC doctors.
Impact: Striving for healthier patients and communities by amplifying physicians' voices, opinions, research, and news.

Print: The *BCMJ* is distributed monthly, other than in January and August.

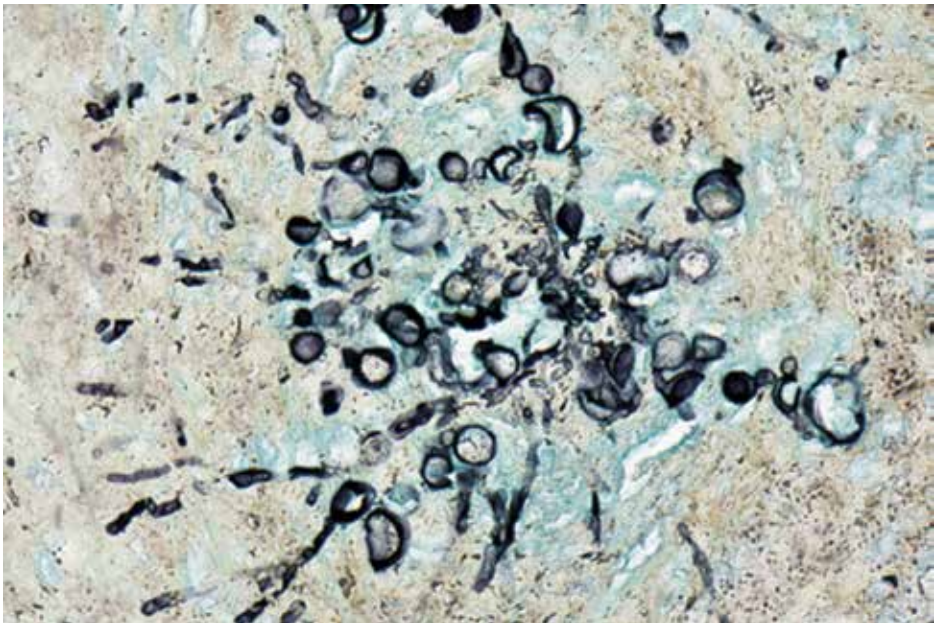
Web: Each issue is available at www.bcmj.org.

Subscribe to print: Email journal@doctorsofbc.ca. Single issue: $8.00; Canada per year: $60.00; Foreign (surface mail): $75.00.

Subscribe to notifications: To receive the table of contents by email, visit www.bcmj.org and click on "Free e-subscription."

Prospective authors: Consult the "Guidelines for authors" at www.bcmj.org for submission requirements.

ISSN 0007-0556 (Print)
ISSN 2293-6106 (Online)
Established 1959



Core biopsy with subsequent Grocott methenamine silver stain revealing numerous collections of septate fungal hyphae, from the Clinical Images article "A case of eumycetoma in British Columbia," beginning on page 304.

Contents continued from page 275

CLINICAL

CLINICAL: REVIEW ARTICLE

CLINICAL: CASE REPORT

CLINICAL IMAGES

Readership versus distribution

For the *BCMJ*, the distinction between readership and distribution is more than a matter of semantics—it's a reflection of our success in engaging the medical community of British Columbia.

This publication is somewhat unique in the realm of medical journalism in that every member of Doctors of BC, across every discipline, receives a copy of the journal unless they opt out. A total of 16 669 subscribers received the July/August 2024 issue, an impressive number given that the College of Physicians and Surgeons of BC listed 15 288 active registrants in its most recent annual report.[1] This means that the *BCMJ* is also reaching medical students, retired physicians, libraries, paid subscribers, and physicians living outside the province.

While distribution numbers might provide an initial gauge of reach, it is the depth of readership and the conversations fostered that truly determine the impact of the content we disseminate. "Impressions" is a term typically used to describe the number of times online content is displayed, and it can far exceed the number of subscribers, because one person may see a single piece of content multiples times. For the *BCMJ*, I like to imagine medical impressions as the number of times our readers recall some information from a *BCMJ* article when talking with a colleague or treating a patient. In this way, I give our authors credit for inspiring, changing, challenging, and informing the practice of medicine, with many thousands of "med-pressions" per month.

Counting the number of copies—whether digital or print—distributed across the province is only a superficial measure of the *BCMJ*'s reach. As we all know from mass emails, high distribution does not necessarily equate to effective communication. Even if our pages are distributed from Fort Nelson to Invermere to Ucluelet, without an active readership, the valuable information we publish would remain inert.

Readership encompasses the act of engaging with our content—reading, reflecting, and responding. In our field, where rapidly changing science directly impacts patient care, engaging with our colleagues around the province is critical. Physicians who actively consume and apply new information can shape a living body of knowledge that advances the entire field.

It is the depth of readership and the conversations fostered that truly determine the impact of the content we disseminate.

Over the past year, we have seen an increasing number of submissions, with a notable spike in Letters to the Editor. We are always excited to hear from so many of you from around British Columbia, so keep those letters coming! An engaged readership creates a dynamic feedback loop, where the journal not only informs its readers but is also informed by them.

Our mission is to share knowledge while building connections among BC physicians. To do that, we need to continue to publish content that resonates with the practical realities of health care here. Authors of quality assurance studies, local trials, or reviews of regional practices have an unprecedented opportunity to share your knowledge by publishing your work in the *BCMJ*, where your friends and colleagues will read it!

The *BCMJ* is the only provincial medical journal in Canada. It belongs to all of us—the doctors of BC—and we all have a role to play in ensuring it remains a relevant and valuable resource. The *BCMJ*'s vision is to be an independent and inclusive forum to communicate ideas and inspire excellence in health care. We look forward to reading your submissions! ■

—Caitlin Dunne, MD, FRCSC

Reference

1. College of Physicians and Surgeons of British Columbia. Annual report 2023/24. Accessed 19 August 2024. www.cpsbc.ca/files/pdf/2023-24-Annual-Report.pdf.

I wonder which committee thought that one up

Our hospital's physician wellness committee is constantly looking for ways to promote and improve the wellness of our physician group. One of our recent projects was to resurrect the tradition of recognizing physicians for their contributions to health care in our community and their lengths of service (a good number of our physicians have given 30 to 37 years; I've been there for 31).

Many years ago, our hospital used to honor hospital staff (including nurses and physicians) for their length of service. Somehow, over the years, the practice continued for all hospital staff except physicians.

Our project culminated in an awards dinner—a big thank you to our colleagues who organized this—which was open to all physicians associated with the hospital and their partners, and it promised to be a fun evening. In a previous editorial, I referenced the practice of gratitude as a way to avoid burnout.[1] This was an opportunity for us to experience the gratitude bestowed upon us by others. Unfortunately, as is often the case, the turnout of physicians was lower than expected, but the people who usually attend hospital functions were there.

The OGs who were present had a fun time reminiscing about days gone by. We recalled a time when we could admit patients directly from our clinics, without having to send them to the emergency department. Those were the days when our hospital had beds and staff available.

All the reminiscing got me thinking back to my medical school days when we used equipment that is now relegated to the history books. Auscultating the fetal heart was done with a Pinard horn **[Figure 1]**, which worked like an ear trumpet to amplify the sound of the fetal heartbeat. We checked hemoglobin at the bedside with a hemoglobinometer **[Figure 2]**. We had to takes erythrocyte sedimentation rates and cell counts manually. In those days, the latest drug to treat stomach ulcers was cimetidine, and it was so expensive that only the top consultants could order it.

But I digress. The awards dinner was supported by the medical staff association and the Fraser Health Authority, which provided plaques and lapel pins for physicians being recognized. Physicians were called up in ascending order of their years of service, in 5-year blocks. When the presenter got to those who had served the hospital for 25 years, she included all who had served our community for 25 years *and beyond*. Apparently they made plaques recognizing up to 25 years of service and pins recognizing up to 20 years of service. How difficult could it have been to do it more precisely?

I am still struggling to understand this, considering a good number of our physicians have given substantially more years of service. Perhaps it was because the health authority was formed in 2001, or perhaps they've lost track of how many years each of us has served. All they had to do was ask. Instead, it felt as if they were saying "Thank you, Dr Chapman, for 25 years of service. Your additional 6 years of service don't really matter." I wonder which committee thought that one up. ■

—David B. Chapman, MBChB

Reference

1. Chapman DB. Grateful. BCMJ 2024;66:37.

FIGURE 1. Pinard horn.
Source: This image is made available under the Creative Commons CC BY-SA 3.0 Deed licence, via Wikimedia Commons. https://en.wikipedia.org/wiki/Pinard_horn#/media/File:Pinardhorn.jpg.

FIGURE 2. American Optical Company hemoglobinometer.
Source: This image is made available under the Creative Commons CC0 1.0 Universal Deed public domain dedication, via Wikimedia Commons. https://commons.wikimedia.org/wiki/File:American_Optical_Company_hemoglobinometer.jpg.

Letters to the editor

We welcome original letters of less than 500 words; we may edit them for clarity and length. Letters may be emailed to journal@doctorsofbc.ca or submitted online at bcmj.org/submit-letter and must include your city or town of residence, telephone number, and email address. Please disclose any competing interests.

Closure of the College Library

I strongly urge Doctors of BC to fill the horrific gap created by the College of Physicians and Surgeons of BC's financial risk management strategy of closing the College Library. Closing the library demonstrates a failure to support *quality* medical care and physician job satisfaction. The College Library provided physicians with reliable information for use in our medical practices—that is, beyond the assumptions made in practice guidelines, which can be siloed and often do not fit the more complex realities experienced by physicians on the ground.

I strongly support the letters on this subject published in the *BCMJ*.

—Andre Piver, MD
Nelson

Re: Radiologists as clinicians: Radiological interventions for knee osteoarthritis

I would like to thank the authors for covering platelet-rich plasma (PRP) as a treatment option for osteoarthritis in such detail [*BCMJ* 2024;66:159-164]. I have over 7 years of experience with PRP injections under ultrasound guidance for knees, shoulders, elbows, and other joints. The clinical importance of PRP was highlighted in a recent editorial commentary in *Arthroscopy: The Journal of Arthroscopic and Related Surgery*, "High-platelet-dose platelet-rich plasma may be the nonoperative treatment of choice for knee osteoarthritis."[1]

Of course, there are still limitations and controversies, and one of the most important is the wide range in concentrations that are being used. As mentioned by the *BCMJ* authors, multiple studies have shown variation in platelet concentrations by over 18 times between different PRP preparations. This is analogous to varying the dose of a medication by a similar factor. No one would accept a study looking at the effect of a medication where the dose is not even mentioned, yet this happens routinely in studies involving PRP. I wrote about this in a letter to the *Aesthetic Surgery Journal* in response to one study involving PRP, which was actually platelet-*poor* plasma (the opposite of platelet-*rich* plasma), as shown by the independent analysis that the investigators had done on their PRP.[2]

Recent systematic reviews have demonstrated the importance of concentration and dose in PRP treatments, showing that high doses work better than lower ones. This was highlighted in a recent meta-analysis of 29 studies of PRP for knee osteoarthritis, which concluded that an average platelet dose of 5.5 billion showed a positive effect at 6 months, whereas a dose of 2.3 billion showed no effect.[3]

Unfortunately, most clinics are not aware of the concentration or dose they are providing to patients, or they may rely on the PRP kit manufacturer's data to inform them. After testing many different PRP systems, we have found many manufacturers' claims about concentrations to be greatly exaggerated. At our clinic, we use a hematology analyzer to check the concentration and composition of PRP on a daily basis for each treatment, documenting the concentration, dose, and composition of the PRP used for every patient. Unfortunately, such a practice seems to be very rare, and most clinics rely on manufacturer claims to estimate dose, which is often inaccurate. This often leads to patients trying what they think is PRP but seeing little if any clinical benefit. Even worse, platelet-poor plasma may have inhibitory effects on tissue regeneration, leading to undesired clinical outcomes.

I hope that awareness of PRP increases, along with attention to crucial factors such as measured concentration, dose, and composition, improving efficacy and clinical outcomes for our patients.

—Patrick Yam, MD, CCFP
Clinical Instructor, University of British Columbia
Owner and Physician, PRP Medical Aesthetics

Competing interests

Dr Yam owns the PRP Medical Aesthetics clinic, which provides private-pay PRP treatment.

References

1. Hohmann E. Editorial commentary: High-platelet-dose platelet-rich plasma may be the nonoperative treatment of choice for knee osteoarthritis. Arthroscopy 2024. doi: 10.1016/j.arthro.2024.03.046.
2. Yam PK. The emperor has no platelets: Minimal effects in an alopecia split-scalp study unsurprising as platelet-rich plasma was actually platelet-poor. Aesthet Surg J 2022;42:NP365-NP367.
3. Berrigan WA, Bailowitz Z, Park A, et al. A greater platelet dose may yield better clinical outcomes for platelet-rich plasma in the treatment of knee osteoarthritis: A systematic review. Arthroscopy 2024. doi: 10.1016/j.arthro.2024.03.018.

Re: Driving toward injury-free roadways

In a recent editorial, Dr Schwandt described the importance of speed limits in reducing injuries and deaths (and health care

costs) from motor vehicle crashes [*BCMJ* 2024;66:146]. Physicians can and should be advocating for safer transportation. A suitable first step is broadcasting how unsafe our roads currently are.

Look at ICBC's map of pedestrians (not cyclists) who made an injury claim after being hit by drivers in the last 5 years.[1] Crashes involving cyclists are also widespread. A study in Vancouver concluded that cyclists had the right-of-way in about 90% of crashes.[2] We know motor vehicle crashes remain a leading cause of unintentional injuries and fatalities in BC.

Who is responsible to push for more proven preventive measures to be implemented? No level of government has a strong incentive to discuss the number of people injured on our roads. The public sees crashes as sporadic "accidents" and keeping traffic moving as the priority.

Doctors who treat crash survivors are uniquely positioned to speak to the prevalence of severe crashes and the huge unnecessary cost and burden they place on the health care system. Physician advocacy for seatbelt laws was effective in the past.

Pedestrians and cyclists are significantly more likely to survive a collision with a vehicle traveling at 30 km/hour than a vehicle traveling 50 km/hour. Transportation safety experts have called for speed reduction in BC for decades. Reducing residential area speed limits was recommended by Vancouver City Council in 1997, but it still hasn't happened.

Astonishingly, in response to a repeat of a 1999 request by the City of Vancouver and the Union of BC Municipalities asking the provincial government to allow municipalities to implement blanket speed zones in residential areas (without onerous and costly signage requirements),[3] the BC Ministry of Transportation eventually responded in 2003, saying it had "previously investigated a [Union of BC Municipalities] request for blanket speed zones and determined they were not feasible for legal, technical and safety reasons."[4] In 2006, the ministry affirmed its position that reducing injuries and deaths by lowering speed limits wasn't important enough to justify the work of changing the Motor Vehicle Act.[5]

Finally, after years of negotiation with the ministry, a few BC municipalities have been able to designate neighborhood slow zones. Vancouver's first slow zone appeared in 2021. Although a few bikeways have recently had 30 km/hour signs put up, the speed limit on most city roads remains 50 km/hour. Safer streets require stronger advocacy at both the municipal and provincial levels.

Let's join Dr Schwandt and spread the word at work, at home, and politically at all levels. Safer roads are both necessary and achievable.

—Jan MacPhail, MD, MSc (Epidemiology)
Vancouver

References

1. Insurance Corporation of British Columbia. Crashes involving pedestrians—2019 to 2023. Accessed 22 July 2024. https://public.tableau.com/app/profile/icbc/viz/BC-CrashesinvolvingPedestrians-/PedestriansDashboard.
2. City of Vancouver. Cycling safety study. 15 January 2015. Accessed 22 July 2024. https://Vancouver.ca/files/cov/cycling-safety-study-final-report.pdf.
3. City of Vancouver City Clerk's Office. Memorandum: UBCM resolutions. 8 June 1999. Accessed 22 July 2024. https://council.vancouver.ca/previous_years/990622/comm1.htm.
4. Government of British Columbia. Provincial response to the resolutions of the 2003 Union of British Columbia Municipalities Convention. 2004. Accessed 22 July 2024. www.ubcm.ca/sites/default/files/2021-07/Provincial%20Resolution%20responses%202003.pdf.
5. Union of BC Municipalities. Enabling municipalities to create blanket speed zones. 2016. Accessed 22 July 2024. www.ubcm.ca/convention-resolutions/resolutions/resolutions-database/enabling-municipalities-create-blanket.

Re: In-office management of knee osteoarthritis

Drs Sidhu, Sheridan, Badii, and Masri's article "In-office management of knee osteoarthritis" [*BCMJ* 2024;65:118-121] provides an excellent detailed overview of the in-office diagnosis and management of knee osteoarthritis that is relevant to so many physicians. The article was very informative, and we wish to affirm the points of discussion, as several important treatment options for knee osteoarthritis were outlined and reviewed. The article was brought to our attention because an important injection therapy was overlooked: prolotherapy.

Prolotherapy is a common in-office procedure that has been around (in its current form) for at least 70 years. Prolotherapy is most often a compounded solution consisting of dextrose, saline, and local anesthetic (procaine/lidocaine). The concentration of dextrose in the solution generally ranges from 10% to 25%. Although the mechanism of action is not entirely understood, it is thought that a neuromodulatory effect precedes a proliferative response.

With respect to pharmacologic interventions for knee osteoarthritis, several meta-analyses have demonstrated that prolotherapy has a very favorable safety profile and appears to be a promising treatment option. A 2021 meta-analysis suggests that prolotherapy for knee osteoarthritis is associated with improved Western Ontario and McMaster Universities Arthritis Index (WOMAC) composite score, pain relief, and knee function performance when compared with conventional methods such as corticosteroids, viscosupplementation, and physical therapy.[1] Similarly, a 2024 systematic review and meta-analysis of interventional studies showed that prolotherapy injections provided statistically significant improvements in pain, stiffness, and function in knee osteoarthritis.[2] When compared with physiotherapy, a systematic review and meta-analysis found that prolotherapy alone provided greater improvement in visual analog scale scores, WOMAC total values, and range of motion at 1 and 3 months posttreatment.[3,4] Further, a 2013 methodologically rigorous randomized controlled trial showed that prolotherapy resulted in safe, significant, progressive improvement of knee pain, function, and stiffness scores among most participants through a mean follow-up of 2.5 years.[5] The authors also wish to acknowledge the superiority of a combination of both pharmacological and exercise interventions rather than a single therapeutic approach.

Complications related to prolotherapy injection are rare, typically self-limited, and

similar to those of other injections, such as mild pain or stiffness and localized swelling and bruising in the treated areas. Prolotherapy also has a better safety profile than corticosteroids (i.e., it is not associated with osteonecrosis, rapidly progressive osteoarthritis, systemic side effects, or tendon rupture). Prolotherapy contraindications include acute infections such as local abscess or cellulitis, septic arthritis, and acute gouty arthritis. Prolotherapy is not currently covered by MSP but is available through private pay in some settings.

Evidence suggests that prolotherapy provides effective pain reduction and increased functional improvement and is recommended based on high-quality evidence for knee osteoarthritis. Due to easily accessible ingredients, relatively low cost, tolerability, and efficacy, prolotherapy should be considered as a potential treatment option and early intervention in mild to moderate knee osteoarthritis.

—W. Francois Louw, CCFP(EM), FCFP, MBChB(Pret), DA(SA), PgCPain, Adv Dipl Pain Mgt
Clinical Associate Professor, UBC Department of Family Practice

—Adrian Gretton, MD, LMCC, CCFP
Clinical Assistant Professor, University of Calgary Department of Family Medicine

—MJ Atkins, ND
Victoria

References

1. Wang J, Liang J, Yao J, et al. Meta-analysis of clinical trials focusing on hypertonic dextrose prolotherapy (HDP) for knee osteoarthritis. Aging Clin Exp Res 2022;34:715-724.
2. Khateri S, Nejad FB, Kazemi F, et al. The effect of dextrose prolotherapy on patients diagnosed with knee osteoarthritis: A comprehensive systematic review and meta-analysis of interventional studies. Health Sci Rep 2024;7:e2145.
3. Yildiz KM, Guler H, Ogut H, et al. A comparison between hypertonic dextrose prolotherapy and conventional physiotherapy in patients with knee osteoarthritis. Med Int 2023;3:45.
4. Sit RWS, Chung VCH, Reeves KD, et al. Hypertonic dextrose injections (prolotherapy) in the treatment of symptomatic knee osteoarthritis: A systematic review and meta-analysis. Sci Rep 2016;6:25247.
5. Rabago D, Patterson JJ, Mundt M, et al. Dextrose prolotherapy for knee osteoarthritis: A randomized controlled trial. Ann Fam Med 2013;11:229-237.

Re: Province-wide implementation of the Vancouver Chest Pain Rule

In their April 2024 *BCMJ* article [66:80-85], the authors present the Vancouver Chest Pain Rule as a tool to "preserve scarce resources for higher-risk patients while alleviating unnecessary hospitalization . . . for lower-risk patients," thereby "increasing system-wide capacity." They present evidence that an intervention promoting physician use of this tool reduced hospitalizations (and other measures of health system costs) without increasing mortality.

I'm curious why no mention was made of possible redistributive effects despite an apparent net gain in health system efficiency. This is not precluded by the finding that there was no overall statistically significant increase in mortality between the intervention and nonintervention populations. Mortality may have been redistributed between social groups in the overall population. Harms other than mortality may have been inadvertently created, and the distribution of these harms may be unfair. Did the authors consider health equity impact?

In addition to the issue of equity in general is the issue of the impact on Indigenous people. As has been widely documented, Indigenous people in BC (and elsewhere) have suffered harm from the health system, have significantly higher rates of chronic disease than non-Indigenous people, and have generally poorer access to care. Given the BC government's declared commitment to redress these problems, and this journal's fairly frequent editorial exhortations to the same, I'm concerned that the authors (and by implication Emergency Care BC) may not be attending to this issue. To give an obvious example, using age 50 as a cutoff for "safely discharging" patients with normal ECG and troponins implies that age is a valid proxy for cardiac risk. How was the age cutoff determined to be appropriate for populations with high prevalence of cardiac disease? What was the patient experience? Did patients perceive that in being discharged after an ECG and blood tests, they had a safe, positive, and respectful engagement with the ER? There is literature on these and related issues, and Indigenous patient advocates who could be consulted. I wonder if they were.

—Nicolas Lenskyj, MBBS(UQ), CFPC, FRACGP, MA
Vancouver

Authors reply

We thank Dr Lenskyj for his thoughtful comments. The evaluation of emergency department patients with chest pain, while improving over the past 2 decades,[1] still has few tools to risk stratify patients who do not have an acute coronary syndrome but may require further assessment. The Vancouver Chest Pain Rule (VCPR) is an adjunctive tool that permits clinicians to safely discharge a greater number of low-risk patients, while preserving scarce hospital beds for those at higher risk. Our study of 180 000 British Columbia chest pain patients demonstrated an association between the provincial introduction of the VCPR to physicians[2] and a decrease in hospital admissions, but there are noteworthy caveats. We could not measure physician uptake of the VCPR and did not have data on important clinical information such as ECG characteristics or maximum troponin values. Nor did we have data on critical demographic information such as rurality, income quintile, or ethnocultural background, all of which are associated with outcomes.[3] Therefore, our design and findings cannot provide insight into potentially differential impacts on any subgroup of patients or the potential redistributive effects or health equity questions that Dr Lenskyj raises.

The VCPR was developed and validated in a single Vancouver site, which limits external applicability. It advises that patients younger than 50 years of age with normal ECG and initial and repeat troponin, as well as nonradiating chest pain, can be discharged home without further testing. Age is a powerful predictor of acute coronary syndrome: the only other similarly validated stratification tool—the no objective testing rule[4]—also uses age 50 as a cutoff.

Emergency Care BC is committed to improving the patient experience, as was the BC Emergency Medicine Network that preceded it. Of note, these organizations have worked closely with BC Patient-Centred Measurement, which conducts in-depth surveys of over 10 000 BC emergency department patients annually. The goal of these surveys is to evaluate the patient experience Dr Lenskyj correctly highlights the importance of and to identify opportunities to enhance care for Indigenous patients. Emergency Care BC and the UBC Faculty of Medicine see such actions as priorities. To illustrate, both support the Kwiis hen niip partnership with four remote Nuu-chah-nulth nations (Ahousaht, Hesquiaht, Ka:'yu:'k't'h'/Che:k'tles7et'h', and Tla-o-qui-aht) and the Nuu-Chah-Nulth Tribal Council. This multiyear implementation project is locally and federally funded to improve emergency care in these communities, in true partnership and with cultural sensitivity. Community leadership and guidance identified four priority themes: strengthen first responder programs; enhance community readiness, including resuscitation education; improve digital communications; and develop more efficient transportation.[5] The inequities are stark, and we agree there is much more to be done.

—Frank X. Scheuermeyer, MD, MHSc

—Ross Duncan, MSc

—Riyad Abu-Laban, MD, MSc

—Floyd Besserer, MD

—Sharla Drebit

—Jim Christenson, MD

References

1. Scheuermeyer FX, Mattman A, Humphries K, et al. Safety and efficiency of implementation of high-sensitivity troponin T in the assessment of emergency department patients with cardiac chest pain. CJEM 2024. In press.
2. Scheuermeyer FX, Duncan R, Abu-Laban RF, et al. Province-wide implementation of the Vancouver Chest Pain Rule. BCMJ 2024;66:80-85.
3. Wilson CR, Rourke J, Oandasan IF, Bosco C. Progress made on access to rural health care in Canada. Can Fam Physician 2020;66:31-36.
4. Greenslade JH, Parsonage W, Than M, et al. A clinical decision rule to identify emergency department patients at low risk for acute coronary syndrome who do not need objective coronary artery disease testing: The no objective testing rule. Ann Emerg Med 2016;67:478-489.
5. Renwick M. Partnership aims to improve emergency care in four remote First Nations. Ha-Shilth-Sa. 22 July 2021. Accessed 4 September 2024. https://hashilthsa.com/news/2021-07-22/partnership-aims-improve-emergency-care-four-remote-first-nations.

Physicians need to read and understand the Health Professions and Occupations Act

The most important piece of legislation in the last 30 years to affect all health professionals was quietly passed by the government in November 2022. Bill 36, now known as the Health Professions and Occupations Act (www.bclaws.gov.bc.ca/civix/document/id/bills/billsprevious/3rd42nd:gov36-3), was an enormous piece of legislation (276 pages with 645 sections). It was inadequately debated in the legislature (233 of 645 sections debated) and passed by the majority government.

Ostensibly to protect patients from harmful health professionals, to update the previous Health Professions Act (1990), and to address racism in BC health care, the Health Professions and Occupations Act completely changes the structure of health professional colleges and the relationship between patients and their health professionals. Several key features are:

- More bureaucracy. Two new offices, a discipline tribunal and a superintendent's office, will be established to control the colleges and their members. The members of both new offices are appointed by the government and responsible only to the minister (s. 486).
- Lack of self-regulation. The number of health colleges will contract from 16 to 6 (the College of Physicians and Surgeons of BC is unchanged), but board members for each college will be appointed only by the government (s. 346).
- Health professionals are considered potential felons. In s. 6(a)(iii), health professionals are defined as those who "provide health services that may present a risk of harm to the public."
- The minister makes the regulations. In s. 213: "The minister may … make regulations respecting the … practice standards for the purposes of protecting the public from harm."
- Professional misconduct. In s. 514(2)(b): "A person … commits an offence" who "knowingly provides false or misleading information to a person," with no definition of what is misleading or false information.
- Powers to search, inspect, seize, and record. In s. 131(2): "An investigator may … without a court order … enter premises used by a respondent to … inspect and copy any records … containing personal information or … confidential information."
- Penalties. In s. 518(1): "An individual who commits an offence … is liable on conviction to a fine not exceeding $25 000 or to imprisonment for a term of not more than 6 months, or to both"; a "corporation is liable on conviction to a fine of not more than $500 000" (s. 518(2)).
- No review or appeal. In s. 212(1): "a health occupation director is not required to give to an applicant notice or an opportunity to be heard." In s. 212 (2): "An applicant is not entitled to a review by the Health Professions Review Board."
- Statutory immunity for regulatory colleges. In s. 400(2): "[N]o legal proceeding for damages … may be commenced … against a regulatory college."
- Mandatory vaccination. In s. 49(1)(b)(v), vaccination for transmissible disease is mandated as a condition of licensing and employment. There is no definition of vaccine or transmissible disease.

Unfortunately, Doctors of BC was only minimally involved in this legislation. Only 56 members (out of 14 000 doctors) commented on the steering committee's proposals (President's Letter, June 2019). Considering the acute shortages in physicians and access to care, this act does not benefit health care.

—York N. Hsiang, MB ChB, MHSc, FRCSC
Vancouver

Doctors of BC president replies

Doctors of BC shares Dr Hsiang's concerns about the government's lack of appropriate consultation when developing the Health Professions and Occupations Act. Doctors of BC has been, and continues to be, active in amplifying the physician voice and advocating for the concerns physicians are expressing in respect of this important and impactful new legislation. This will be particularly critical over the coming months as many of the regulations, bylaws, policies, and procedures that give the act true effect are being developed by the goverment, the new Office of the Superintendent of Health Profession and Occupation Oversight, and the College of Physicians and Surgeons of BC.

Doctors of BC continues to support members by curating accurate and current information on its website, which is accessible at www.doctorsofbc.ca/advocacy-policy/advocacy/bill-36. More information about many of the points Dr Hsiang raises can be found in a ministry Q&A referenced on that page, which is accessible here: https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/professional-regulation/qa_on_health_professions_and_occupations_act.pdf.

—Ahmer A. Karimuddin, MD, FRCSC
Doctors of BC President

Doctors need electronic health records to work for us, not the other way around

The BC Ministry of Health has committed to digitizing the health care system. In 2016, the Island Health Authority pioneered Cerner at Nanaimo Regional General Hospital (NRGH), transitioning from paper-based to digital systems, where clinicians could enter electronic orders and notes accessible across different settings.[1] Starting in 2018, Cerner was rolled out in phases in the Vancouver Coastal Health Authority and Provincial Health Service Authority, and Meditech Expanse adoption continued in the Fraser Health Authority and Interior Health Authority. While the public believes that electronic health records (EHR) can improve the quality of care, physicians have expressed their concerns, and evidence suggests serious drawbacks.

Shifting administrative tasks to physicians

Eighteen months after the implementation of Cerner at NRGH, 72% of physicians reported decreased productivity, and 61% acknowledged improving EHR proficiency.[1] The answer to this apparent paradox: task shifting from administrative staff to physicians.

Since hospitals eliminated transcription services, physicians now dictate or type reports. Dictation software does not accurately recognize physicians' accents or patient names that are not Euro-centric. Administrative workloads increase for physicians, who spend time correcting dictation errors or resort to typing.

Increasing cognitive workload to enter orders and access data

EHR workflows are inflexible and user-unfriendly when EHRs standardize data entry. Being unfamiliar with user manuals or EHR updates can result in inefficiencies (e.g., it can take more than 1 hour to order a rare diet).

The phased implementation since 2016 has resulted in various versions of the EHRs coexisting within one hospital. Physicians must compile information from all versions to optimize patient care when seeing patients followed by clinics at different implementation stages. This demands significant time and memory capacity.

Increasing complexity to navigate incomplete and fragmented patient data

CareConnect is the platform that pools provincial EHR data. However, the data linkage remains incomplete. Document types that can be linked vary among health authorities, and sensitive data is inaccessible due to privacy rules. The lack of a robust search tool and meaningful data merge complicate clinicians' navigation process. When data are missing or unidentifiable to physicians, patients are at a higher risk of misdiagnosis and delayed care.[2]

Increasing workload to adopt and use EHR

Physicians and trainees working in more than one health authority must train in various EHR platforms, which poses challenges for those who are not tech proficient. Additionally, a physician clicks an average of 4000 times during a 10-hour emergency room shift, which equates to 66 minutes dedicated solely to clicking.[3]

EHR's impacts on patients and physicians

EHRs impact patient care. Patients cannot access timely care when administrative tasks consume physicians' time or force them into early retirement.[4] The quality of patient care is threatened when EHR data are missing or unmeaningfully merged[2,4] and physicians are exhausted with administrative tasks.[5]

EHRs are here to stay, so the crucial question is: How can we enhance EHR systems to better support physicians? It is imperative to conduct research and quality improvement projects to identify sustainable solutions.

—Olivia L. Tseng, MD, PhD, CCFP, FCFP
Vancouver

—Esther Lee, MD, MCS, FRCPC
Vancouver

References

1. BC Ministry of Health, Ernst and Young, Island Health. Review of Island Health's IHealth electronic health record system. 2017. Accessed 16 August 2024.
2. Getzen E, Ungar L, Mowery D, et al. Mining for equitable health: Assessing the impact of missing data in electronic health records. J Biomed Inform 2023;139:104269.
3. Hill RG Jr., Sears LM, Melanson SW. 4000 clicks: A productivity analysis of electronic medical records in a community hospital ED. Am J Emerg Med 2013;31:1591-1594.
4. Loria K. Physicians leaving profession over EHRs. Medical Economics. 24 January 2018. Accessed 4 June 2024. www.medicaleconomics.com/view/physicians-leaving-profession-over-ehrs.
5. Alobayli F, O'Connor S, Holloway A, Cresswell K. Electronic health record stress and burnout among clinicians in hospital settings: A systematic review. Digit Health 2023;9:20552076231220241.

Increasing the influence of the physician voice

Our health care system is facing significant challenges. Emergency room closures, a physician shortage, longer-than-ever wait times for specialist care, and significant delays in cancer care are just a few of the issues patients and physicians experience daily. We need to reimagine the future of our health care system to ensure patients receive the highest quality of care possible, physicians work in the most optimal environments, and the overall health of our population—the primary goal of the Institute for Healthcare Improvement's triple aim—is on an upward trajectory. To do this, we need to increase the influence of the physician voice.

There is ample evidence showing that the influence of the physician voice is critical to achieve the triple aim and its goal of providing care of the highest value. This is one of many reasons why, when Doctors of BC was developing the 2024–2029 strategic plan, we held extensive consultations with physicians across the province, from all specialties and backgrounds, practising in both small towns and large cities, to ensure the physician voice was captured and amplified. It is also why increasing the influence of the physician voice was identified as the most important strategic priority for the association. Through this priority, Doctors of BC will work to ensure doctors throughout the province can bring their perspectives forward with important health care partners and ensure meaningful physician participation and influence whenever health care decisions are being made.

The impact of this influence is already being seen in areas such as the work of medical staff associations and divisions of family practice, and through programs such as the Family Practice Services Committee's Leadership and Management Development Program at Simon Fraser University and the Specialist Services Committee's Physician Leadership Program at the University of British Columbia's Sauder School of Business. Both focus on increasing physician capacity for leadership and understanding the levers necessary for change. In the upcoming Physician Master Agreement negotiations, a key priority will be ensuring physicians are part of key decisions happening across the health care system.

Physician influence matters most where the rubber meets the road—for the individual patient and the individual ward or clinical practice.

While this work is important at the system level, physician influence matters most where the rubber meets the road—for the individual patient and the individual ward or clinical practice. How can you increase your influence here and bring about meaningful change? What can you do daily to help change how you are perceived in the health care system? Inspired by Adam Grant's wonderful book *Think Again*, here are a few suggestions.

Accept that things can always be better. There is no perfect system or idea. Things have to change, and in that evolution, we have to be willing to change our minds.

Accept that no individual, not even you, has all the answers. Conversely, no one, not even those in medical leadership, is completely wrong. Be willing to recognize the limits of your perspective and knowledge, and actively seek others' perspectives.

Ask questions to understand why people make the decisions they do rather than focusing on convincing them of your perspective. This is best done one on one, over coffee or on a walk together. This can build trust and help find common ground.

If you want to propose a change, consider offering it as an experiment, and be willing to adjust based on real-world results. This will help you find traction for your ideas, because an experiment is less risky than a permanent change.

Ensure that everyone around you, including those you disagree with, feels psychologically safe in their interactions with you. When people don't feel psychologically safe, they shut down and are unable to see things from different perspectives.

And perhaps the most important suggestion is to remember that no single person has all the answers. Working with others and seeking their perspectives will make any idea better and help find solutions that one individual could not have considered.

Doctors of BC will continue our work to increase the influence of every physician's voice to transform the health care system, but that work isn't possible without your individual leadership. Together, if 17 000 of us commit to making a positive change for our patients and colleagues, how can we not succeed? ■

—Ahmer A. Karimuddin, MD, FRCSC
Doctors of BC President

How to navigate health promotion in the digital age—Social media and harm reduction among young adults

A systematic how-to guide to assist health care providers in leveraging social media to engage young adults.

Khushi Dabla, BSc, Madison Newby, BA, Munsa Gill Kang, Jessica Moe, MD, FRCPC, DABEM, MA, MSc

ABSTRACT

Social media has become the primary way that young adults communicate and share information. However, few strategies for engaging young adults aged 18–29 years have been described, especially in Canada, where mental health and addiction challenges are prevalent among this demographic. To address this need, we developed a systematic how-to guide to assist health care providers in leveraging platforms like Instagram and X to engage young adults. Key components of our guide include establishing credibility, fostering audience connection, and using diverse formats for information delivery. Implemented as a case study within the Evaluating Microdosing in the Emergency Department study, our strategy aims to disseminate information on opioid use, promote harm reduction, and involve young adults in research. By providing a blueprint for social media presence and engagement, we seek to inform future initiatives and assist health care professionals in effectively communicating health information in various settings, contributing to broader public health efforts.

Ms Dabla has a bachelor of science degree and 2 years' experience in the field of addictions and substance use, along with 2 years of clinical and research experience in respiratory health. Ms Newby has a bachelor of arts degree in kinesiology and 5 years' experience as clinical support staff, along with 2 years of research experience in the field of substance use. Ms Kang is a medical student who has worked in addictions and mental health research for 4 years, focusing on youth mental health, harm reduction, and social determinants of health. Dr Jessica Moe is an assistant professor in the Department of Emergency Medicine at the University of British Columbia, a clinician scientist at the BC Centre for Disease Control, and scientific director of the Emergency Opioid Innovation Program within Emergency Care BC, and practises as an emergency physician at Vancouver General Hospital and BC Children's Hospital.

Corresponding author: Dr Jessica Moe, jessica.moe@ubc.ca.

This article has been peer reviewed.

Social media has emerged as a pivotal tool for disseminating health promotion interventions aimed at supporting young adults. Despite social media's widespread use for health communication, many campaigns have demonstrated limited effectiveness in gaining acceptance and uptake of their health promotion strategies among their intended audience.[1] While young adults aged 18–29 are the most active users of social media and 81% of them primarily source scientific information on the Internet, there is a significant gap in the literature regarding effective strategies for engaging young adults on these platforms.[2,3] We present a detailed methodological framework in the form of a how-to guide that provides strategies for health care providers and researchers to master health promotion and social media engagement among young adults.

In the midst of Canada's ongoing opioid epidemic, a growing number of affected young adults face significant barriers to accessing opioid agonist therapies compared with adults, outlining a pressing need to promote awareness and engagement in life-saving interventions.[4,5] To address this public health emergency, we implemented our social media strategy as a case study within the context of the Evaluating Microdosing in the Emergency Department (EMED) study.[6] The EMED study assesses the effectiveness of buprenorphine/naloxone (Suboxone) microdosing versus standard dosing take-home induction packages in emergency departments.[6] The implementation of our social media strategy within substance use research serves as an important example of how Instagram and X (formerly Twitter) were effectively used to distribute information on opioid use, provide harm reduction resources, and engage young adults in research.

A comprehensive how-to guide for reaching young adults in your practice

Building your social media profile

To effectively engage young adults aged 18–29 on social media, begin by establishing a strong presence across multiple platforms, such as Instagram, Facebook, TikTok, and X, which are used most commonly by this demographic.[1] Choose uniform account names and user names across all platforms that represent your research study or medical practice to maintain consistency and signify your organizational identity. Establish a cohesive color scheme, logo, and profile aesthetic that you will use to reinforce the objectives of your platform, whether it is participant recruitment for a study, accepting patients, raising awareness, or promoting a treatment. Set up your profiles as business/professional accounts to access valuable user analytics and engagement metrics, including demographic information about your audience. Professional accounts also allow you to categorize your account to accurately represent the type of organization you belong to and reach your target audiences (e.g., family medicine practice). To establish credibility and foster trust among young adult populations, showcase the qualifications and credentials of your principal investigator or lead health care provider(s) on the biography and initial posts on your accounts. Factors including the type of language used (professionalism, objectivity, and factual accuracy), perceived expertise, and the number of likes, followers, and reposts all contribute to the credibility of health information on social media.[7] Keep your accounts' biography or description short and simple, and include the name, location, and contact information for your practice or research site. To add legitimacy to your accounts, consider using a platform like Linktree, a link management tool that enables you to share your organization's official links, previous publications, community resources, and support services.

For the EMED study accounts **[Figure 1]**, we feature the study principal investigator, Dr Jessica Moe, as the face of our study to disseminate research findings and clinical information through her personal and professional lens. An X study on public perceptions of opioids found that health care professionals received the highest number of reposts and engagements, suggesting a preference for their credibility as sources for opioid-related information.[8] Our primary objective for these accounts is to promote harm reduction interventions and increase awareness of opioid-related issues, with a long-term vision for these profiles to serve as a platform beyond the EMED study.

Posting strategies

Using a variety of content formats, such as posts (images or videos), stories, live videos, reels, TikToks, polls, quiz/question stickers, and highlighted stories, can effectively engage diverse users and cater to user preferences. Posts and status updates (X and Facebook, respectively) typically consist of images, videos, infographics, or written messages and serve as the main form of content for sharing information and visuals. They remain on

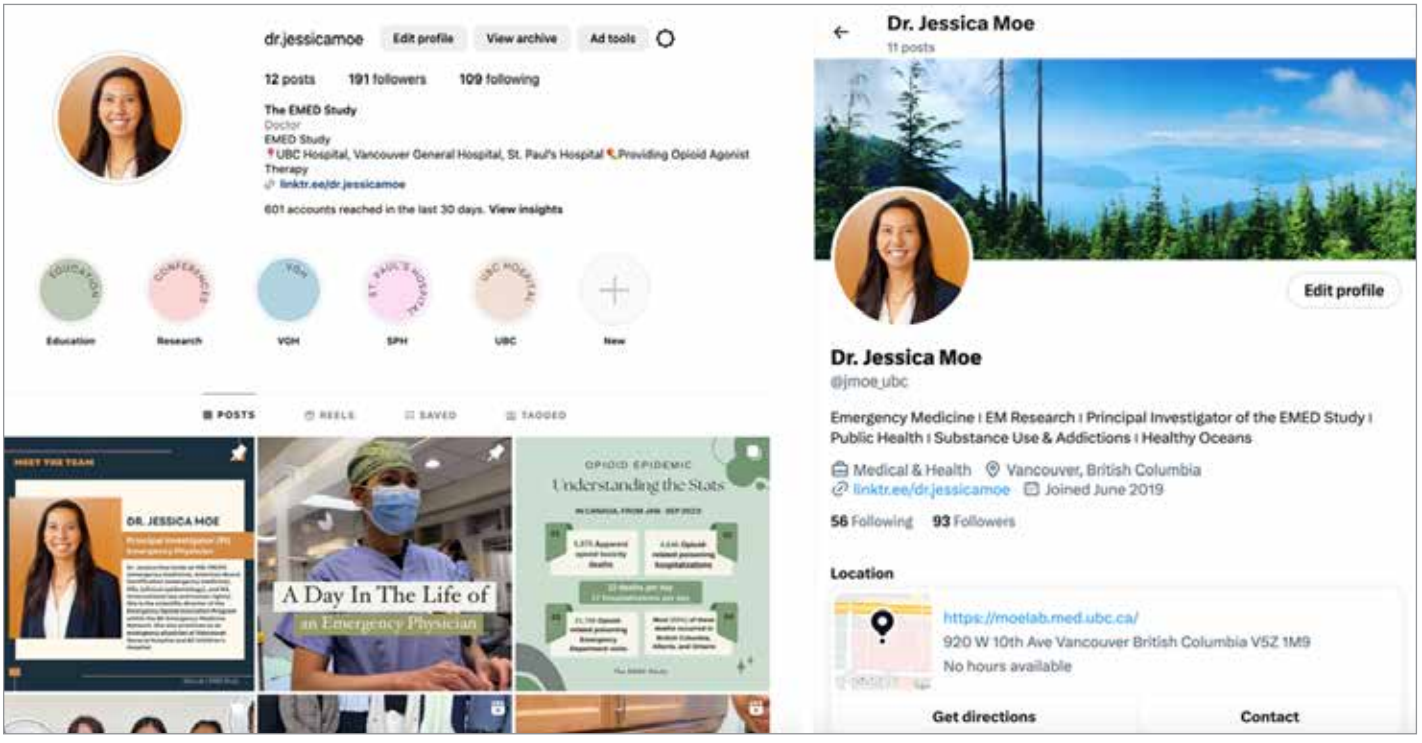


FIGURE 1. Instagram and X profile snapshots for the Evaluating Microdosing in the Emergency Department study, featuring Dr Jessica Moe, as of 15 April 2024.

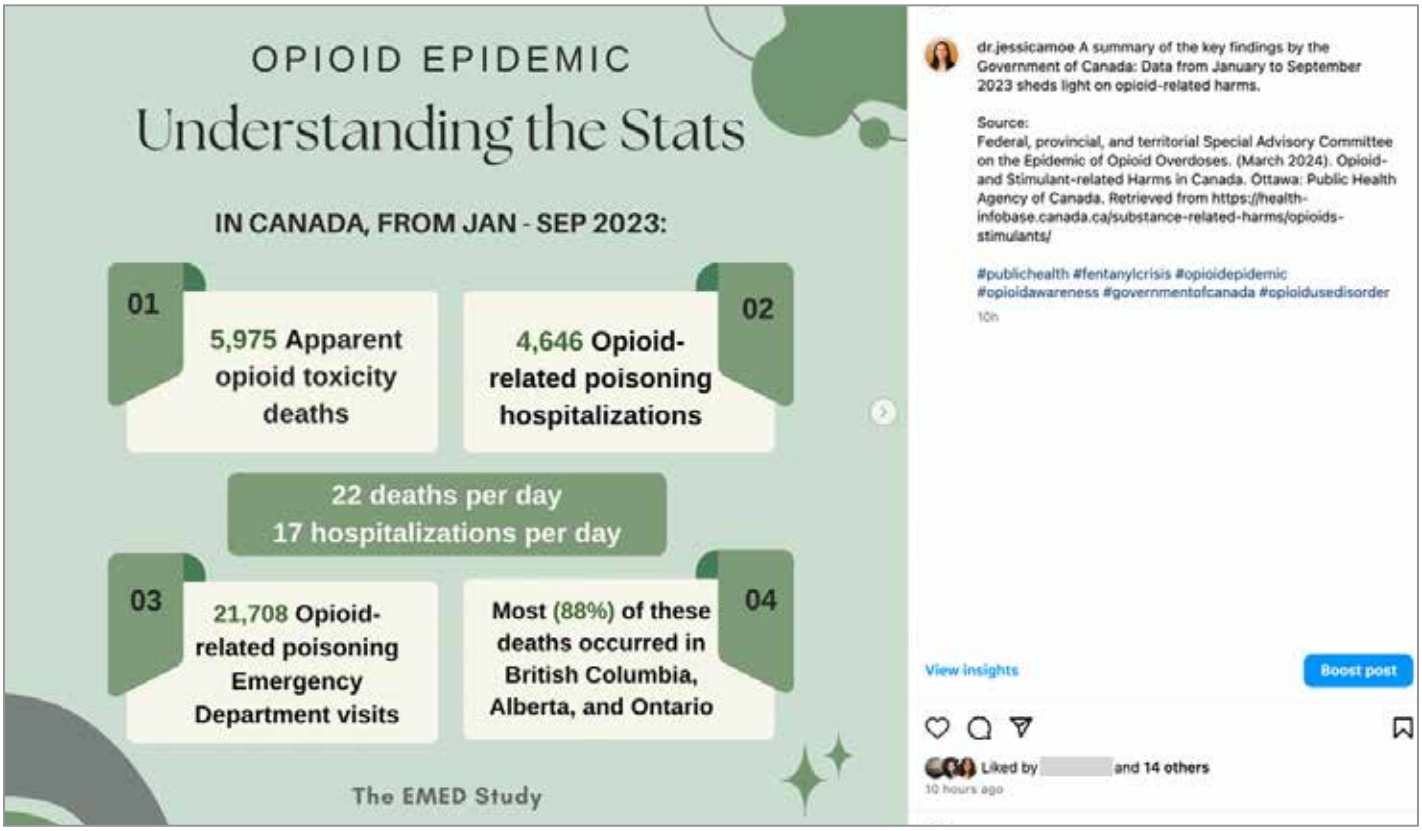


FIGURE 2. An example of an Evaluating Microdosing in the Emergency Department study awareness infographic highlighting key statistics of the opioid epidemic.[11]

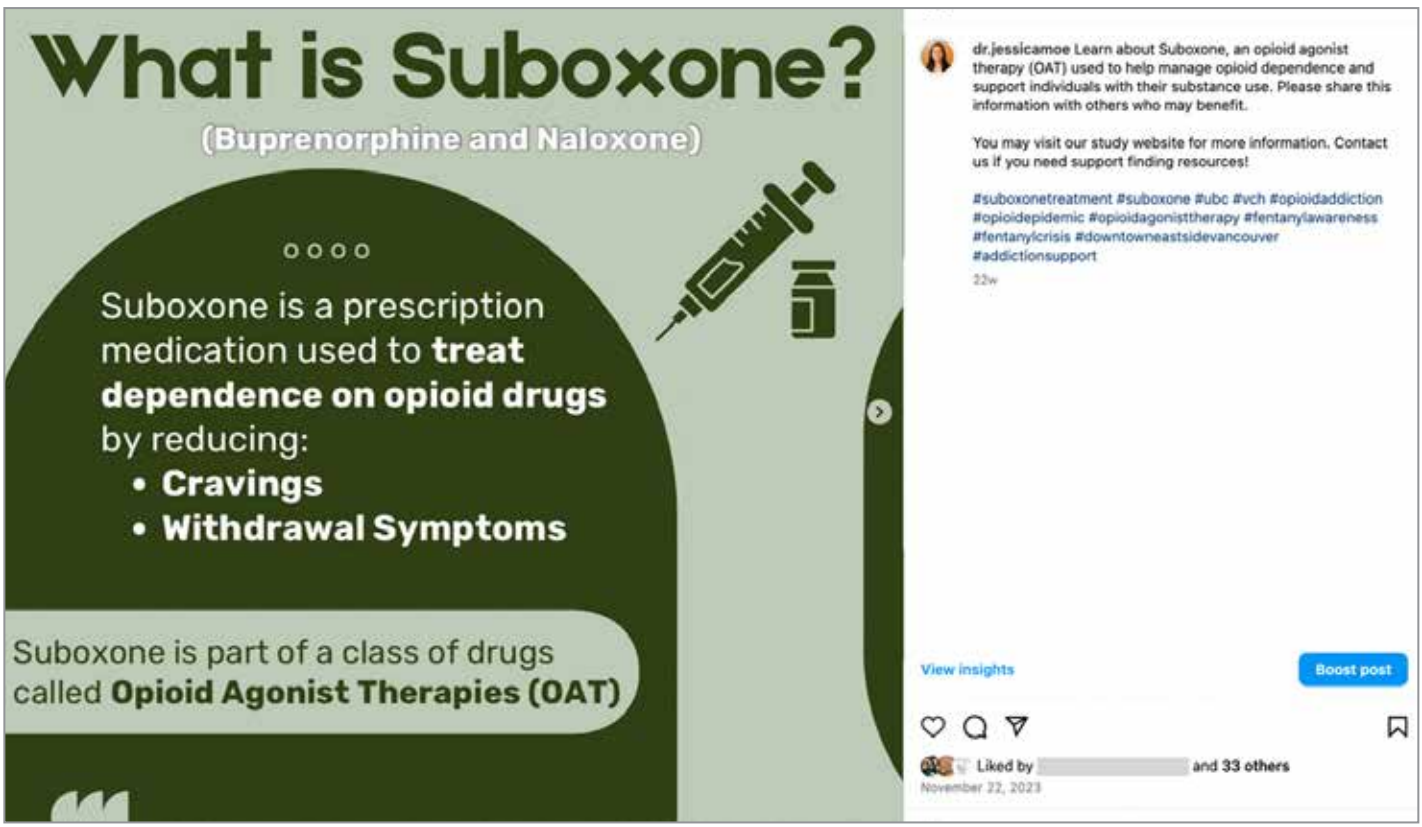


FIGURE 3. An educational post example from the Evaluating Microdosing in the Emergency Department study introducing Suboxone.

your profile and are suitable for all social media platforms. Stories usually feature images, text, short videos, polls, or quiz/question stickers that expire after 24 hours and are beneficial for sharing real-time updates or quick snippets of information. These stories can be featured on your profile as story highlights after they expire, can be organized into custom categories, and act as an archive of content that users can explore on your page. There has also been a recent shift in young adults' preferences toward short-video content (up to 90 seconds) on platforms like TikTok, as well as on Instagram and Facebook, where this content is called reels, often accompanied by audio, music, and text.[1,9] By incorporating this multimodal approach with various content formats, we can accommodate diverse preferences and increase engagement. Maintaining a consistent posting frequency is essential to sustain an online presence and engage with your audience effectively; however, avoid posting excessively, as this can lead to decreased engagement overall.[10]

FIGURE 4. An engagement post example from the Evaluating Microdosing in the Emergency Department study.

Awareness posts

To convey the significance of your health-related cause, use concise yet informative infographics or TikToks/reels featuring current statistics, symptoms, signs, and available resources. These posts should be visually appealing, minimize text, avoid technical jargon, and use accessible language. For the EMED study, we created infographics that illustrated the severity of the opioid crisis, including statistics on opioid-related overdoses, deaths, and hospitalizations. Additionally, we shared resources for community support, such as nearby addiction clinics offering opioid-agonist therapies, other addiction services, and supervised consumption and overdose prevention sites **[Figure 2]**.

Educational posts

Create infographics or TikToks/reels to outline key information pertaining to your research or practice, such as the etiology of diseases, preventive measures, treatment options, recent publication findings, and study criteria. For instance, for the EMED study, we posted infographics on Suboxone **[Figure 3]**, dosing regimens of Suboxone, available opioid-agonist therapy options, and the scientific mechanisms for opioid dependence.

Engagement posts

To encourage young adults to meaningfully engage with your content, tailor it to their interests and preferences. Simply raising awareness and providing educational content may not be effective. Young adults prefer to engage with and trust health information they perceive as real, often relying on personal experiences or stories as evidence of its authenticity.[1] To incorporate this form of authenticity, establish genuine connections and rapport with young adult audiences by having researchers or practitioners present information or showcase their work through TikToks, reels, or videos as stories.[1] Video-based platforms like TikTok allow a human touch through their versatile features, facilitating creative ways to incorporate visuals, text, and humor to share information.[9]

Similarly, Rath and colleagues discovered in a mass media intervention on opioid-use education that featuring people with lived experience sharing their personal stories through brief videos or written testimonials can also increase engagement among young adults.[12] We can increase user interactions using story features such as polls, quiz stickers, and question stickers. Polls can be used to gauge the audience's interests and preferences for our content. A quiz sticker enables you to pose multiple-choice questions to assess the audience's knowledge and offer information afterward. The question sticker provides users with a space to respond to prompts and ask questions anonymously.

For the EMED study, we shared patient testimonials, created reels interviewing research assistants and hospital staff about their involvement in opioid use care, and created day-in-the-life videos spotlighting Dr Moe as she navigated her roles as an emergency physician and researcher **[Figure 4]**.

Increasing visibility and retaining engagement

Take advantage of hashtags in your captions, using one- to two-word phrases that categorize your content into topic areas relevant to your practice. For example, for the EMED study, we used variations of opioid epidemic terminology like #OpioidOverdose and #FentanylCrisis, as they help reach a broader audience and allow content to be discoverable by people specifically searching for opioid use–related topics. Additionally, build relationships with organizations and clinics that are raising awareness or providing services for similar causes on social media, especially those primarily serving adolescent and young adult populations. Collaborate with community organizations by reposting each other's content to reach their audiences and target your desired demographic. Sharing their posts can also diversify your account and increase its depth and usefulness to patients.

We can increase user interactions using story features such as polls, quiz stickers, and question stickers.

Strategize your captions by providing a brief description up front and using the space below for extended information, context, or additional hashtags. This dual approach ensures users are not overwhelmed by text while also providing opportunities for deeper engagement and exploration.

Limitations

We acknowledge the key limitations inherent in our approach, notably socioeconomic disparities that hinder access to social media and technology, particularly among marginalized groups. Furthermore, there is a lack of control over platform algorithms that determine which demographic groups are exposed to our content.

Conclusions

We hope this comprehensive guide provides a framework for health care professionals and researchers to navigate social media effectively in promoting public health initiatives among young adults. Our strategy has the potential to create a meaningful impact by improving health literacy, reducing stigma, and enhancing access to support services. Future research should evaluate the effectiveness of our approach and alternative methods, exploring qualitative or quantitative approaches to gauge user engagement and perceptions, assess the impact of this guide, and identify areas for improvement. ■

Competing interests
None declared.

References

1. Lim MSC, Molenaar A, Brennan L, et.al. Young adults' use of different social media platforms for health information: Insights from web-based conversations. J Med Internet Res 2022;24:e23656.
2. Hausmann JS, Touloumtzis C, White MT, et al. Adolescent and young adult use of social media for health and its implications. J Adolesc Health 2017;60:714-719.
3. Hargittai E, Füchslin T, Schäfer MS. How do young adults engage with science and research on social media? Some preliminary findings and an agenda for future research. Soc Media Soc 2018;4:1-10.
4. Pilarinos A, Fast D, Nosova E, et al. Initiation of opioid agonist treatment and subsequent substance use and other patterns among adolescents and young adults in Vancouver, Canada. Drug Alcohol Depend 2022;235:109441.
5. Belzak L, Halverson J. Evidence synthesis—The opioid crisis in Canada: A national perspective. Health Promot Chronic Dis Prev Can 2018;38:224-233.
6. Moe J. Evaluating buprenorphine/naloxone microdosing vs. standard dosing in emergency departments. Last updated 29 February 2024. Accessed 3 March 2024. https://clinicaltrials.gov/study/NCT04893525.
7. Jenkins EL, Ilicic J, Barklamb AM, McCaffrey TA. Assessing the credibility and authenticity of social media content for applications in health communication: Scoping review. J Med Internet Res 2020;22:e17296.
8. Carabot F, Fraile-Martínez O, Donat-Vargas C, et al. Understanding public perceptions and discussions on opioids through Twitter: Cross-sectional infodemiology study. J Med Internet Res 2023;25:e50013.
9. McCashin D, Murphy CM. Using TikTok for public and youth mental health—A systematic review and content analysis. Clin Child Psychol Psychiatry 2023;28:279-306.
10. Peruta A, Shields AB. Marketing your university on social media: A content analysis of Facebook post types and formats. J Mark High Educ 2018;28:175-191.
11. Special Advisory Committee on the Epidemic of Opioid Overdoses. Opioid- and stimulant-related harms in Canada; March 2024. Accessed 15 April 2024.
12. Rath JM, Perks SN, Vallone DM, et al. Educating young adults about opioid misuse: Evidence from a mass media intervention. Int J Environ Res Public Health 2022;19:22.

NEW CONTENT TYPE:

Clinical Images

Have you seen an interesting clinical image lately? Share it with colleagues by submitting it to the *BCMJ* for publication. We have introduced a new type of *BCMJ* content: Clinical Images. Submit an image with case description or image description (200–300 words) and a maximum of five references. Images must be high resolution and include a patient consent form.

bcmj.org/submit-article

Questions? Email journal@doctorsofbc.ca

BCMJ
BC Medical Journal

Alexander R. Hemy, MD, Kai Zhu, MD, Sarvee Moosavi, MD, FRCPC

Diagnosis and management of irritable bowel syndrome in the primary care setting

Diagnosing and promptly initiating treatment of irritable bowel syndrome in the primary care setting should be the standard of care to minimize patients' pain and suffering.

ABSTRACT: Irritable bowel syndrome is a common, chronic disorder of gut–brain interaction with complex pathophysiology. It is characterized by abdominal pain and alterations in bowel movements, currently diagnosed based on the Rome IV criteria. If alarm symptoms are present, objective workup may be required to exclude organic etiologies. Irritable bowel syndrome remains a frequent reason to visit primary care physicians and gastroenterologists. It puts a significant burden on patients' quality of life and has high economic costs. Given limited access to gastroenterology consultation, initiating treatment promptly in the primary care setting should be the standard of care to minimize patients' pain and suffering. Treatment requires a patient-centred approach and often multiple treatment options, including dietary management, pharmacotherapy, and psychological approaches, such as cognitive-behavioral therapy and gut-directed hypnotherapy.

Drs Hemy and Zhu are internal medicine residents in the Department of Medicine, University of British Columbia. Dr Moosavi is a gastroenterologist and clinical assistant professor in the Division of Gastroenterology, Department of Medicine, UBC.

Corresponding author: Dr Sarvee Moosavi, sarvee.moosavi@gmail.com.

This article has been peer reviewed.

Irritable bowel syndrome (IBS) is a chronic disorder of gut–brain interaction, characterized by abdominal pain and altered bowel habits.[1] Approximately 4.1% of adults globally are affected by the disorder, based on the Rome IV criteria.[2] IBS has negative impacts on patients' health-related quality of life[3] and results in a significant direct and indirect socioeconomic and health care burden.[4,5]

Clinical cases

Case 1

Patient 1 is a 35-year-old woman who has had ongoing abdominal pain and diarrhea for several years. Her medical history includes hypothyroidism, which was treated with levothyroxine, and generalized anxiety disorder. She has been experiencing daily lower abdominal pain for the past 5 years. She has one bowel movement shortly after waking, followed by two or three bowel movements (Bristol stool type 6 **[Figure 1]**[6]) associated with increasing abdominal cramps after passing stools, which last 1–2 hours. There is no sign of gastrointestinal bleeding or constitutional symptoms. Physical examination is unremarkable. Does she have IBS?

Case 2

Patient 2 is a 42-year-old man with chronic constipation and abdominal discomfort, which has gradually worsened over the past 3 years. He has gastroesophageal reflux disease, which is managed with occasional antacids. Over the past year, he has had infrequent Bristol stool type 1 bowel movements **[Figure 1]**, typically once per week, despite having a high-fibre diet and adequate hydration. He has a sensation of incomplete evacuation despite prolonged straining, with difficult-to-pass stool, bloating, and lower abdominal pain. He does not have rectal bleeding, unintentional weight loss, or family history of gastrointestinal disorders. On physical examination, he has a soft abdomen with mild tenderness in the left lower quadrant. Does he have IBS?

Pathophysiology

Irritable bowel syndrome is a multifactorial chronic disorder with complex pathophysiology. It tends to be more common in adults between 20 and 40 years of age.[7] Imbalances in the gut–brain communication can lead to motility disturbances, visceral hypersensitivity, and altered central nervous system processing,[8] resulting in amplified pain or discomfort in response to innoxious stimuli.[9] Psychological factors may further negatively impact gut function through intricate communication pathways.[9] Low-grade inflammation at the microscopic level along the intestines has been implicated in IBS pathogenesis and is potentially triggered by immune activation

and changes in mucosal barrier function, particularly following an acute enteric infection, a well-known entity of postinfectious IBS.[10] COVID-19 infection can also increase the risk of developing IBS.[11] Furthermore, imbalances in gut microbiota have been observed in IBS patients, which affect gastrointestinal symptoms through alterations in fermentation patterns and immune responses. *Brachyspira* colonization may play a role in the development of IBS with diarrhea (IBS-D); there is increased detection in affected patients, although the mechanism of colonization is not known, and testing and treatment remain unavailable outside of clinical trials.[12] Genetic predisposition and environmental factors, such as diet, infections, and early life events, also contribute to IBS susceptibility, which underscores the complex interplay of genetic and environmental influences in its development.[10]

Clinical features and diagnosis

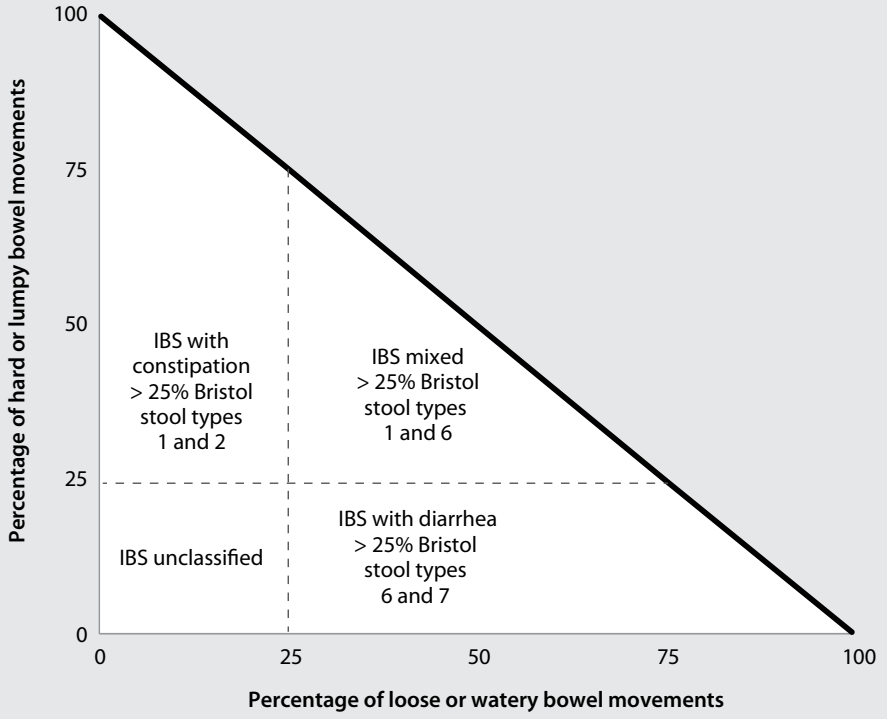
Irritable bowel syndrome presents with abdominal pain and changes in bowel habits, outlined in Rome IV criteria **[Box]**. It is further classified based on predominant stool pattern **[Figure 1]**. Diagnosis of IBS requires a detailed history, with attention to the pattern of abdominal pain and its association with bowel habits, review of alarm symptoms and signs, limited diagnostic tests, and careful follow-up. Positive diagnosis can be made in primary care

BOX. Rome IV criteria for the diagnosis of irritable bowel syndrome. Adapted from Lacy and colleagues.[1]

Recurrent abdominal pain on average at least 1 day per week in the last 3 months, associated with two or all of the following criteria:

1. Related to defecation.
2. Associated with a change in stool frequency.
3. Associated with a change in form (appearance) of stool.

Criteria fulfilled for the last 3 months with symptom onset at least 6 months before diagnosis.



Bristol stool chart

1		Separate hard lumps, like nuts (hard to pass).
2		Sausage-shaped but lumpy.
3		Like a sausage but with cracks on the surface.
4		Like a sausage or snake; smooth and soft.
5		Soft blobs with clear-cut edges.
6		Fluffy pieces with ragged edges; a mushy stool.
7		Watery; no solid pieces. Entirely liquid.

FIGURE 1. Classification of irritable bowel syndrome based on percentage of bowel movements in Bristol stool chart[6] categories. Adapted from Lacy and colleagues.[1]

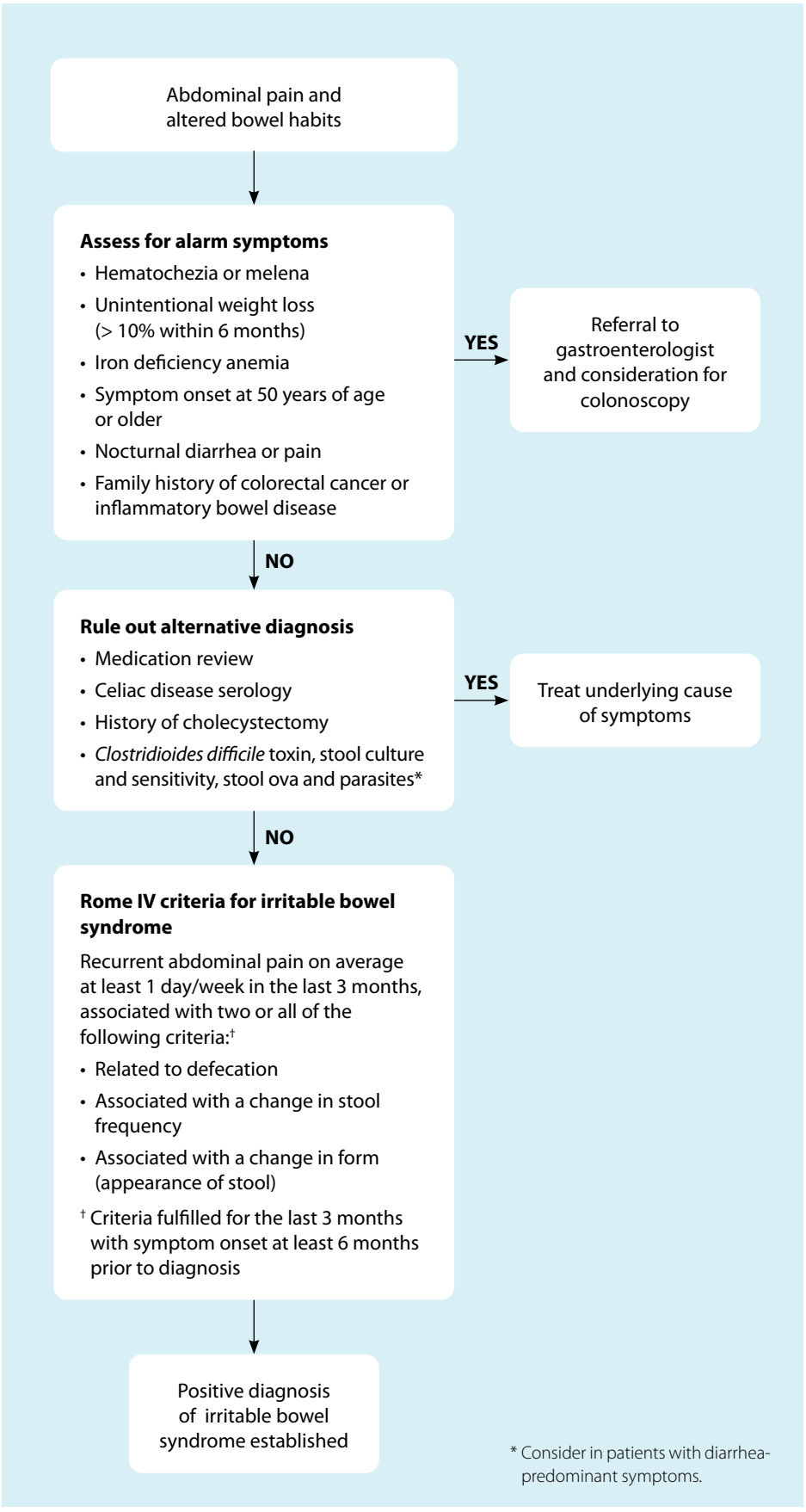


FIGURE 2. Diagnostic approach to irritable bowel syndrome, based on Rome IV criteria.[1,13]

settings based on Rome IV criteria **[Figure 2]**, which avoids unnecessary tests and delays in providing appropriate patient care.

If clinically indicated, limited diagnostic tests may be required, such as complete blood count and iron studies. Celiac serological testing is recommended in IBS workup.[13] In IBS-D, stool infectious workup, including *Clostridioides difficile* toxin, may be required. C-reactive protein, fecal calprotectin, food allergy testing, and lactose/glucose/lactulose hydrogen breath tests are not recommended in initial evaluation of IBS.[13]

Colonoscopy is not routinely required to make a positive diagnosis of IBS **[Figure 2]**. If alarm symptoms are present or there is a new onset of IBS symptoms in a patient 50 years of age or older, colonoscopy is recommended to rule out organic etiologies.[13]

Treatment

Treatment of irritable bowel syndrome requires a patient-centred approach. Given the multifaceted nature of the disorder, often multiple treatment options are required to improve global symptoms of the disorder.

Dietary management

Fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAPs) may worsen IBS symptoms by increasing colonic gas production through fermentation and increasing small intestinal water content, leading to diarrhea.[14] A low-FODMAP diet can improve abdominal pain, bloating, and diarrhea.[15] However, implementing the diet can be challenging and is most successful under the direction of a dietitian. A low-FODMAP diet should be continued for 4 to 6 weeks, after which FODMAPs can be carefully reintroduced.[16] The National Institute for Health and Care Excellence (NICE) diet is a less restrictive alternative that involves regulating meal times and portions; maintaining adequate fluid intake; and avoiding dietary triggers such as tea, coffee, alcohol, carbonated drinks, insoluble fibre, resistant starch, and sorbitol.[17] Patients should be counseled to avoid a prolonged restrictive phase because it may lead to

development of nutritional deficiency and aversive behaviors toward food.

In patients with constipation-predominant symptoms, the addition of two green kiwifruit daily improves bowel movement frequency, form, straining, and bloating without adverse effects and results in greater patient satisfaction when compared with prunes and psyllium.[18]

Psychological approaches

Cognitive-behavioral therapy is a nonpharmacologic approach that has been shown to be beneficial in the management of IBS symptoms, quality of life, and psychological states,[19] with sustained improvement at 24 months.[20] Cognitive-behavioral therapy can be delivered virtually through platforms such as Mahana IBS to reduce global symptoms, particularly when in-person access to cognitive-behavioral therapy providers is limited.[21] Gut-directed hypnotherapy is another approach to improve global IBS symptoms.[13,22]

Pharmacotherapy

The following outlines the clinical use of, and evidence for, various pharmacologic treatment options for irritable bowel syndrome. Dosages and estimated costs of these treatments are provided in the **Table**.

Enteric-coated peppermint oil

Peppermint oil (e.g., small intestinal release formulation IBgard[23]) has been shown to improve abdominal bloating, pain, and global symptoms of IBS through calcium channel blockade and relaxation of intestinal smooth muscle cells, modulation of visceral pain sensation, anti-inflammatory effects, and alterations in the gut microbiome.[24] Minimal side effects include gastroesophageal reflux, dyspepsia, and flatulence.[25]

Soluble fibre

Soluble fibre aids in water absorption, adds to stool bulk and softens it, stimulates secondary peristalsis, and promotes regular bowel movements. It is superior to placebo in improving global symptoms of IBS. Conversely, insoluble fibre, such as bran, may cause worsening bloating and gas and is therefore not recommended for IBS management.[26]

TABLE. Dosages of common medications used in the treatment of irritable bowel syndrome and estimated cost per 30 days.

Medication	Dosage	Estimated cost per 30 days*
Soluble fibre/psyllium (Metamucil)	4–35 g per day Start low dose; gradually increase	$10.07–$88.12
Enteric-coated peppermint oil (IBgard)	Two capsules three times daily, 30–90 minutes before meals[23]	Not available
Loperamide (Imodium)	4–16 mg per day[30]	$31.62–$126.48
Cholestyramine (Olestyr)	2–24 g per day[35]	$24.77–$148.62
Amitriptyline (Elavil)	10–30 mg per day[36]	$4.92–$14.76
Rifaximin (Zaxine)	550 mg three times daily for 14 days[39]	$398.33†
Eluxadoline (Viberzi)	75–100 mg twice daily[42]	Not available
Polyethylene glycol 3350	17–34 g daily	$28.41–$56.83
Linaclotide (Constella)	72–145 mcg once daily, 30–60 minutes before meal (CIC‡) 290 mcg once daily, 30–60 minutes before meal (IBS-C§)[52]	$67.93–$213.51
Plecanatide (Trulance)	3 mg once daily[50]	$205.31
Tenapanor (Ibsrela)	50 mg twice daily, immediately before meal[51]	$213.44
Fluoxetine (Prozac)	10–30 mg once daily[22]	$15.99–$31.62
Citalopram (Celexa)	10–30 mg once daily[22]	$6.27–$14.53

* Prices retrieved from www.drugsearch.ca on 24 February 2024 and calculated for minimum and maximum daily doses over 30 days for generic medications when a generic medication is available. Costs represent estimates and may vary between pharmacies. Dispensing fees and taxes not included.

† Based on a 14-day treatment course.

‡ CIC = chronic idiopathic constipation.

§ IBS-C = irritable bowel syndrome with constipation

Probiotics, prebiotics, and synbiotics

Probiotics are orally administered bacteria, often used in the management of various gastrointestinal disorders. Probiotics may improve global symptoms, abdominal pain, and bloating in patients with IBS-D, but not those with IBS with constipation (IBS-C).[27] Due to the lack of adequate response in meta-analyses for IBS or constipation, no definitive recommendation can be provided for the clinical use of probiotics. Patients with IBS may consider a short course of probiotics.[13] If there is no clinical response, probiotics should be stopped. Prebiotics are nutritional products that stimulate bacterial growth; limited studies support their use in IBS. Synbiotics are a combination of prebiotics and probiotics, which can improve global IBS symptoms.[28]

IBS-D pharmacotherapy

Loperamide

Loperamide is a peripherally acting opioid agonist that inhibits gastrointestinal

motility and reduces diarrhea. It improves stool frequency and consistency in IBS-D; however, it does not improve global IBS symptoms.[29] Treatment with loperamide is safe; side effects include constipation, nausea, and abdominal pain.[30] Cases of cardiac arrhythmias have been reported with excess dosing.[31] Contraindications include acute dysentery, ulcerative colitis, invasive bacterial enterocolitis, and pseudomembranous colitis.[30]

Bile acid sequestrants

Bile acid malabsorption can cause chronic diarrhea; it occurs in 28.1% of IBS-D patients.[32] Risk factors for bile acid malabsorption include elevated body mass index, ileocecal valve/terminal ileal resection, and previous cholecystectomy.[33,34] Given the limited availability of SeHCAT testing in Canada, empiric use of bile acid sequestrants in patients with functional diarrhea can reduce stool frequency.[33] Colestipol, cholestyramine,[35] and colesevelam are available for use.

Tricyclic antidepressants

Tricyclic antidepressants can improve global IBS symptoms. Amitriptyline at a starting dose of 10 mg, uptitrated to 30 mg, daily can improve IBS symptoms.[36] The most common side effects of tricyclic antidepressants include dry mouth, constipation, and drowsiness.[22]

Patient education remains pivotal in explaining the rationale for the use of tricyclic antidepressants in the management of IBS symptoms to avoid negative stigma, often perceived with the use of antidepressants to manage disorders of the gut–brain interaction.

Rifaximin

Rifaximin, a minimally absorbed antibiotic, can offer benefit in small intestinal bacterial overgrowth and IBS-D by modulating dysbiosis in gut microbiota.[37] Risk factors for small intestinal bacterial overgrowth in IBS include female sex, older age, and IBS-D subtype.[38] Small intestinal bacterial overgrowth breath testing is often not readily available and has limitations; empiric therapy with rifaximin is considered reasonable, though it may be cost-prohibitive. Rifaximin improves global IBS symptoms and bloating and does not increase adverse effects.[39,40] In patients who initially respond to rifaximin and have a relapse of symptoms, or in those with no initial response, repeated 2-week courses of treatment up to three times can improve global symptoms and abdominal pain without additional adverse effects.[41]

Treatment of irritable bowel syndrome requires a patient-centred approach.

Eluxadoline

Eluxadoline, a mixed mu-opioid receptor agonist and delta-opioid receptor antagonist, was approved for IBS-D. It significantly improves abdominal pain and stool consistency.[42] Adverse effects include nausea; constipation; abdominal pain; and, rarely, pancreatitis in patients with underlying risk factors.[42] Contraindications include pancreaticobiliary disease, previous cholecystectomy, alcohol use of more than two drinks per day, hepatic impairment, and treatment with OATP1B1 inhibitors (e.g., cyclosporin).[43]

IBS-C pharmacotherapy

Osmotic laxatives

Osmotic laxatives draw water into the intestines, thereby augmenting stool volume and softening its consistency to facilitate bowel movements. While robust evidence supports their utility in chronic idiopathic constipation, their benefit in global IBS-C symptoms is limited.[44,45] However, they could be used as adjunctive therapy to improve constipation.[13] Polyethylene glycol (PEG) or magnesium formulations are commonly used osmotic laxatives.

Guanylate cyclase-C agonists

Guanylate cyclase-C agonists, including linaclotide and plecanatide, stimulate the secretion of chloride and bicarbonate ions into the intestines and increase fluid secretion and hence stool bulk, which promotes secondary peristalsis and increases bowel movements. Linaclotide reduces abdominal pain and increases complete spontaneous bowel movement.[46,47] While an improvement in stool frequency occurs within 1 week of treatment initiation, maximal improvement, particularly in abdominal pain, may take up to 8 to 12 weeks.[48] Plecanatide also significantly improves abdominal pain and constipation in as little as 1 to 2 weeks after the initial dose. It has minimal side effects and a well-tolerated safety profile.[49] The most common adverse effect of these agonists is diarrhea, reported in up to 20% of patients taking the higher dose of linaclotide and 4% of those taking plecanatide.[49,50] This can be mitigated by administering the agent 30 to 60 minutes before breakfast and counseling the patient regarding side effects, which anecdotally settle after a few weeks.

Sodium–hydrogen exchange inhibitor

Tenapanor, a sodium–hydrogen exchange inhibitor, works by inhibiting the sodium–hydrogen exchanger protein in the intestines, thereby reducing sodium absorption. Consequently, the increased luminal osmotic load reduces fluid absorption and enhances intestinal transit. Tenapanor significantly improves abdominal pain and increases complete spontaneous bowel movements.[51] Side effects may include diarrhea, flatulence, borborygmi, and abdominal cramps.

Selective serotonin reuptake inhibitors

The use of selective serotonin reuptake inhibitors (SSRIs) in IBS may alleviate global symptoms by increasing serotonin levels to promote centrally mediated effects on gut mobility and visceral sensation. Compared with placebo, SSRIs improve global IBS symptoms; however, uncertainty remains due to inconsistency, heterogeneity

of date, and imprecision in the evidence.[22] The American Gastroenterological Association recommends against the use of SSRIs in IBS-C management; however, the Canadian Association of Gastroenterology suggests offering SSRIs to IBS patients to improve symptoms.[13,52]

Clinical cases follow-up

Patient 1 showed no family history of colon cancer. Her initial investigation with celiac serology and stool infectious workup were negative. She received a diagnosis of IBS-D and was referred to a dietitian to implement a low-FODMAP diet and used over-the-counter loperamide to improve her stool form. After 1 month of treatment, she still suffered from daily abdominal pain. Her loperamide was discontinued, and she was started on amitriptyline, 10 mg per day for 3 weeks, then increased to 20 mg per day, which improved her global IBS symptoms.

Patient 2 had unremarkable workup, and his complete blood count, ferritin, and negative celiac serology showed no abnormalities. He had ongoing abdominal pain and constipation so was given a diagnosis of IBS-C. He incorporated soluble fibre, ate two or three green kiwifruits daily, and took PEG laxatives daily. While he had some relief, his constipation and abdominal discomfort persisted. He was started on plecanatide 3 mg daily and showed significant improvement in his global IBS symptoms within 2 weeks.

Conclusions

Irritable bowel syndrome is a complex, multifactorial, chronic condition that has a significant impact on the patient's quality of life, causes loss of productivity, and results in considerable health care costs. In the absence of alarm symptoms, positive diagnosis of IBS should be made in the primary care setting, with no delay in implementing the aforementioned evidence-based interventions. Patients with severe symptoms and those with inadequate response to initial therapies may be referred to gastroenterology for further evaluation and management. ■

Competing interests

None declared.

References

1. Lacy BE, Mearin F, Chang L, et al. Bowel disorders. Gastroenterology 2016;150:1393-1407.e5.
2. Sperber AD, Bangdiwala SI, Drossman DA, et al. Worldwide prevalence and burden of functional gastrointestinal disorders, results of Rome Foundation Global Study. Gastroenterology 2021;160:99-114.e3.
3. Gralnek IM, Hays RD, Kilbourne A, et al. The impact of irritable bowel syndrome on health-related quality of life. Gastroenterology 2000;119:654-660.

Irritable bowel syndrome is a complex, multifactorial, chronic condition that has a significant impact on the patient's quality of life, causes loss of productivity, and results in considerable health care costs.

4. Longstreth GF, Wilson A, Knight K, et al. Irritable bowel syndrome, health care use, and costs: A U.S. managed care perspective. Am J Gastroenterol 2003;98:600-607.
5. Goodoory VC, Ng CE, Black CJ, Ford AC. Impact of Rome IV irritable bowel syndrome on work and activities of daily living. Aliment Pharmacol Ther 2022;56:844-856.
6. Lewis SJ, Heaton KW. Stool form scale as a useful guide to intestinal transit time. Scand J Gastroenterol 1997;32:920-924.
7. Oka P, Parr H, Barberio B, et al. Global prevalence of irritable bowel syndrome according to Rome III or IV criteria: A systematic review and meta-analysis. Lancet Gastroenterol Hepatol 2020;5:908-917.
8. Ford AC, Sperber AD, Corsetti M, Camilleri M. Irritable bowel syndrome. Lancet 2020;396(10263):1675-1688.
9. Saha L. Irritable bowel syndrome: Pathogenesis, diagnosis, treatment, and evidence-based medicine. World J Gastroenterol 2014;20:6759-6773.
10. Holtmann GJ, Ford AC, Talley NJ. Pathophysiology of irritable bowel syndrome. Lancet Gastroenterol Hepatol 2016;1:133-146.
11. Marasco G, Cremon C, Barbaro MR, et al. Post COVID-19 irritable bowel syndrome. Gut 2023;72:484-492.
12. Jabbar KS, Dolan B, Eklund L, et al. Association between Brachyspira and irritable bowel syndrome with diarrhoea. Gut 2021;70:1117-1129.
13. Moayyedi P, Andrews CN, MacQueen G, et al. Canadian Association of Gastroenterology clinical practice guideline for the management of irritable bowel syndrome (IBS). J Can Assoc Gastroenterol 2019;2:6-29.
14. Staudacher HM, Whelan K. The low FODMAP diet: Recent advances in understanding its mechanisms and efficacy in IBS. Gut 2017;66:1517-1527.
15. Black CJ, Staudacher HM, Ford AC. Efficacy of a low FODMAP diet in irritable bowel syndrome: Systematic review and network meta-analysis. Gut 2022;71:1117-1126.
16. Barrett JS. How to institute the low-FODMAP diet. J Gastroenterol Hepatol 2017;32(Suppl 1):8-10.
17. Werlang ME, Palmer WC, Lacy BE. Irritable bowel syndrome and dietary interventions. Gastroenterol Hepatol 2019;15:16-26.
18. Chey SW, Chey WD, Jackson K, Eswaran S. Exploratory comparative effectiveness trial of green kiwifruit, psyllium, or prunes in US patients with chronic constipation. Am J Gastroenterol 2021;116:1304-1312.
19. Li L, Xiong L, Zhang S, et al. Cognitive-behavioral therapy for irritable bowel syndrome: A meta-analysis. J Psychosom Res 2014;77:1-12.
20. Everitt HA, Landau S, O'Reilly G, et al. Cognitive behavioural therapy for irritable bowel syndrome: 24-month follow-up of participants in the ACTIB randomised trial. Lancet Gastroenterol Hepatol 2019;4:863-872.
21. Everitt HA, Landau S, O'Reilly G, et al. Assessing telephone-delivered cognitive-behavioural therapy (CBT) and web-delivered CBT versus treatment as usual in irritable bowel syndrome (ACTIB): A multicentre randomised trial. Gut 2019;68:1613-1623.
22. Ford AC, Lacy BE, Harris LA, et al. Effect of antidepressants and psychological therapies in irritable bowel syndrome: An updated systematic review and meta-analysis. Am J Gastroenterol 2019;114:21-39.
23. Cash BD, Epstein MS, Shah SM. A novel delivery system of peppermint oil is an effective therapy for irritable bowel syndrome symptoms. Dig Dis Sci 2016;61:560-571.
24. Chumpitazi BP, Kearns GL, Shulman RJ. Review article: The physiological effects and safety of peppermint oil and its efficacy in irritable bowel syndrome and other functional disorders. Aliment Pharmacol Ther 2018;47:738-752.
25. Ingrosso MR, Ianiro G, Nee J, et al. Systematic review and meta-analysis: Efficacy of peppermint oil in irritable bowel syndrome. Aliment Pharmacol Ther 2022;56:932-941.
26. Moayyedi P, Quigley EMM, Lacy BE, et al. The effect of fiber supplementation on irritable bowel syndrome: A systematic review and meta-analysis. Am J Gastroenterol 2014;109:1367-1374.
27. Goodoory VC, Khasawneh M, Black CJ, et al. Efficacy of probiotics in irritable bowel syndrome: Systematic review and meta-analysis. Gastroenterology 2023;165:1206-1218.
28. Ford AC, Quigley EMM, Lacy BE, et al. Efficacy of prebiotics, probiotics, and synbiotics in irritable

bowel syndrome and chronic idiopathic constipation: Systematic review and meta-analysis. Am J Gastroenterol 2014;109:1547-1561.
29. Jailwala J, Imperiale TF, Kroenke K. Pharmacologic treatment of the irritable bowel syndrome: A systematic review of randomized, controlled trials. Ann Intern Med 2000;133:136-147.
30. Janssen Pharmaceutica Inc. Imodium® (loperamide hydrochloride). 1998. www.accessdata.fda.gov/drugsatfda_docs/label/2005/017694s050lbl.pdf.
31. Swank KA, Wu E, Kortepeter C, et al. Adverse event detection using the FDA post-marketing drug safety surveillance system: Cardiotoxicity associated with loperamide abuse and misuse. J Am Pharm Assoc 2017;57:S63-S67.
32. Slattery SA, Niaz O, Aziz Q, et al. Systematic review with meta-analysis: The prevalence of bile acid malabsorption in the irritable bowel syndrome with diarrhoea. Aliment Pharmacol Ther 2015;42:3-11.
33. Williams AJ, Merrick MV, Eastwood MA. Idiopathic bile acid malabsorption—A review of clinical presentation, diagnosis, and response to treatment. Gut 1991;32:1004-1006.
34. Gracie DJ, Kane JS, Mumtaz S, et al. Prevalence of, and predictors of, bile acid malabsorption in outpatients with chronic diarrhea. Neurogastroenterol Motil 2012;24:983- e538.
35. Odan Laboratories Ltd. Cholestyramine-Odan [product monograph]. 2016. Accessed 9 July 2024. https://pdf.hres.ca/dpd_pm/00035221.PDF.
36. Ford AC, Wright-Hughes A, Alderson SL, et al. Amitriptyline at low-dose and titrated for irritable bowel syndrome as second-line treatment in primary care (ATLANTIS): A randomised, double-blind, placebo-controlled, phase 3 trial. Lancet 2023;402(10414):1773-1785.
37. Pimentel M. Review article: Potential mechanisms of action of rifaximin in the management of irritable bowel syndrome with diarrhoea. Aliment Pharmacol Ther 2016;43(Suppl 1):37-49.
38. Chen B, Kim JJ-W, Zhang Y, et al. Prevalence and predictors of small intestinal bacterial overgrowth in irritable bowel syndrome: A systematic review and meta-analysis. J Gastroenterol 2018;53:807-818.
39. Pimentel M, Lembo A, Chey WD, et al. Rifaximin therapy for patients with irritable bowel syndrome without constipation. N Engl J Med 2011;364:22-32.
40. Menees SB, Maneerattannaporn M, Kim HM, Chey WD. The efficacy and safety of rifaximin for the irritable bowel syndrome: A systematic review and meta-analysis. Am J Gastroenterol 2012;107:28-35.
41. Lembo A, Pimentel M, Rao SS, et al. Repeat treatment with rifaximin is safe and effective in patients with diarrhea-predominant irritable bowel syndrome. Gastroenterology 2016;151:1113-1121.
42. Lembo AJ, Lacy BE, Zuckerman MJ, et al. Eluxadoline for irritable bowel syndrome with diarrhea. N Engl J Med 2016;374:242-253.
43. Allergan Pharma Co. Eluxadoline (Viberzi®). Product monograph including patient medication information. 2015.
44. Khoshoo V, Armstead C, Landry L. Effect of a laxative with and without tegaserod in adolescents with constipation predominant irritable bowel syndrome. Aliment Pharmacol Ther 2006;23:191-196.
45. Chapman RW, Stanghellini V, Geraint M, Halphen M. Randomized clinical trial: Macrogol/PEG 3350 plus electrolytes for treatment of patients with constipation associated with irritable bowel syndrome. Am J Gastroenterol 2013;108:1508-1515.
46. Chey WD, Lembo AJ, Lavins BJ, et al. Linaclotide for irritable bowel syndrome with constipation: A 26-week, randomized, double-blind, placebo-controlled trial to evaluate efficacy and safety. Am J Gastroenterol 2012;107:1702-1712.
47. Rao S, Lembo AJ, Shiff SJ, et al. A 12-week, randomized, controlled trial with a 4-week randomized withdrawal period to evaluate the efficacy and safety of linaclotide in irritable bowel syndrome with constipation. Am J Gastroenterol 2012;107:1714-1724.
48. Chey WD, Kurlander J, Eswaran S. Irritable bowel syndrome: A clinical review. JAMA 2015;313:949-958.
49. Brenner DM, Fogel R, Dorn SD, et al. Efficacy, safety, and tolerability of plecanatide in patients with irritable bowel syndrome with constipation: Results of two phase 3 randomized clinical trials. Am J Gastroenterol 2018;113:735-745.
50. Miner PB Jr, Koltun WD, Wiener GJ, et al. A randomized phase III clinical trial of plecanatide, a uroguanylin analog, in patients with chronic idiopathic constipation. Am J Gastroenterol 2017;112:613-621.
51. Chey WD, Lembo AJ, Yang Y, Rosenbaum DP. Efficacy of tenapanor in treating patients with irritable bowel syndrome with constipation: A 26-week, placebo-controlled phase 3 trial (T3MPO-2). Am J Gastroenterol 2021;116:1294-1303.
52. Chang L, Sultan S, Lembo A, et al. AGA clinical practice guideline on the pharmacological management of irritable bowel syndrome with constipation. Gastroenterology 2022;163:118-136.

Rebecca Zhuang, MD, Tracy Morton, MD, CCFP, FPCP

Point-of-care ultrasound in the diagnosis of venous thromboembolism in a rural setting

Point-of-care ultrasound can be used where consultative diagnostic imaging is not readily available. When performed by trained personnel, it has high sensitivity and specificity comparable to that of duplex ultrasonography.

ABSTRACT: Deep vein thrombosis and pulmonary embolism can result in serious complications when diagnosis is delayed or missed. Definitive diagnosis often relies on consultative imaging, which may not be readily accessible in rural settings. Point-of-care ultrasound has been emerging as an accurate and reliable method of rapidly diagnosing deep vein thrombosis. We present a case report in which a patient presented to a rural emergency department with a chief complaint of dyspnea and was found on point-of-care ultrasound to have a right deep vein thrombosis, which resulted in the prompt recognition of a possible diagnosis of pulmonary embolism versus an asthma exacerbation. Anticoagulation was appropriately initiated prior to obtaining consultative imaging, which confirmed a right deep vein thrombosis and bilateral pulmonary emboli. This case report highlights the utility and reliability of using point-of-care ultrasound for diagnosing deep vein thrombosis in settings with limited access to immediate consultative imaging. The major barriers in improving the use of point-of-care ultrasound in rural British Columbia are a lack of integrated training and concerns about funding and availability of training courses, which highlights the need to implement formal training in medical school and family medicine residency.

Dr Zhuang was a fourth-year medical student at the University of British Columbia when this article was submitted. She is currently a first-year resident in internal medicine at the University of Alberta. Dr Morton is a clinical assistant professor in the Department of Family Practice at UBC and a staff physician at Haida Gwaii Hospital.

Corresponding author: Dr Rebecca Zhuang, rzhuang0@student.ubc.ca.

This article has been peer reviewed.

Venous thromboembolism encompasses both deep vein thrombosis and pulmonary embolism. The development of a deep vein thrombosis is a significant health condition that affects an estimated 49 000 Canadians annually,[1] and it can be associated with significant morbidity as well as potentially fatal complications if the diagnosis is delayed or missed. Deep vein thrombosis is characterized by the formation of thrombi in the deep venous systems, most commonly in the lower extremities. If not promptly treated, there is a 50% risk for patients with deep vein thrombosis to develop a pulmonary embolism within 3 months[2] as a consequence of dislodged thrombi that travel to the pulmonary arteries. Most pulmonary embolisms originate from a thrombus in the venous system of the lower extremities; approximately 70% of patients with symptomatic pulmonary embolism also have deep vein thrombosis.[2] Acute pulmonary embolism carries a high mortality rate of 15%; the greatest risk occurs in cases of submassive or massive pulmonary embolism, which can result in obstructive shock.[3,4] Deep vein thrombosis is also associated with a high burden of morbidity: one-third of patients develop recurrent thrombosis within 10 years,[5] and one-third develop post-thrombotic syndrome, manifesting as chronic venous insufficiency with persistent extremity pain and swelling.[6]

While the most commonly used test in diagnosing deep vein thrombosis is duplex ultrasonography,[7] point-of-care ultrasound (POCUS) is emerging as a reliable technique for the rapid diagnosis of deep vein thrombosis, especially in communities where consultative imaging services are not readily available.[8-13]

We present a case report in which the use of POCUS led to the prompt detection of a deep vein thrombosis and aided

in the diagnosis of a pulmonary embolism in a rural setting. This case report illustrates the utility of using POCUS for diagnosis of deep vein thrombosis to help make informed diagnostic and management decisions, and it highlights the reliability of POCUS findings when performed by trained providers, particularly in settings with limited access to immediate consultative imaging.

Case data

A 61-year-old male tourist from British Columbia's Interior region presented to the emergency department on Haida Gwaii with a 3-day history of dry cough and dyspnea on exertion. Haida Gwaii is a remote island archipelago 120 km off BC's north coast and is accessed by a full-day ferry ride from Prince Rupert, the nearest referral hospital. Though no wheezing was present, he attributed his symptoms to an asthma exacerbation and requested a prescription for inhalers, because his travels to Haida Gwaii had taken him through heavy wildfire smoke. His wife noted cyanotic lips at times. Besides asthma, he reported a history of two right-leg deep vein thromboses following right-knee surgery in 2013 and prolonged travel in 2015, both of which were treated with appropriate anticoagulation without apparent sequelae. He had not received any hypercoagulability workup for his prior deep vein thromboses.

Examination showed a heart rate of 102 beats/minute, blood pressure of 134/89, and oxygen saturation of 97%, with no dyspnea at rest or increased work of breathing. Respiratory exam showed no wheeze. However, bedside spirometry demonstrated a reduced forced vital capacity, 3.32 L or 69.9% predicted, a reduced forced expiratory volume in 1 second, 2.36 L or 65.8% predicted. Post-bronchodilator forced expiratory volume in 1 second improved modestly to 2.72 L or 15.0%. Examination of the lower extremities showed no swelling, edema, or tenderness to palpation in any location.

Lab results demonstrated an elevated D-dimer of 3.42 mcg/mL (normal < 0.31 mcg/mL) but no abnormalities in complete blood count, electrolytes, or creatinine/glomerular filtration rate. Troponin was negative; erythrocyte sedimentation rate was 10 mm/hour (normal is < 15 mm/hour), which was not indicative of the presence of inflammation; and venous blood gases showed pH 7.42, pCO_2 45 mm Hg, and HCO_3^- 29 mmol/L. Electrocardiogram and chest X-ray showed no abnormalities. POCUS examination performed by the treating clinician revealed a right noncompressible common femoral vein with proximal extension from a partially occluding clot in the popliteal vein **[Figure 1; Supplementary videos 1–4 (available at bcmj.org)]**. The POCUS cardiac exam was unremarkable and showed no signs of right heart strain.

A prompt diagnosis is required to initiate treatment for patients with venous thromboembolism, but there are several diagnostic challenges that may make this difficult.

The top differential diagnoses for this patient's dyspnea based on their history and clinical findings included pulmonary embolism and asthma exacerbation; the findings of deep vein thrombosis on POCUS examination further supported the likelihood of pulmonary embolism. CT and consultative ultrasound are not accessible in Haida Gwaii. Patients are required to take a ferry to Prince Rupert, which can result in delays ranging from 24 to 96 hours. Therefore, the patient was started on therapeutic anticoagulation with rivaroxaban 15 mg twice daily for a likely deep vein thrombosis and pulmonary embolism, as well as treatment for possible asthma exacerbation, which included regular inhaled salbutamol, fluticasone, and a 6-day course of prednisone 50 mg daily. He was referred for an urgent CT pulmonary angiogram and duplex lower-extremity ultrasonography, which was scheduled for approximately 1 week following his initial presentation.

The patient reported improvement in his symptoms within days following initiation of anticoagulation and asthma exacerbation treatment. He had bilateral pulmonary emboli with proximal extension on CT pulmonary angiogram **[Figure 2]** and multiple thrombi in the right lower extremity on duplex ultrasonography, including from the popliteal vein to the common femoral vein, in the deep femoral vein, and in one branch of the duplicated superficial femoral vein. On follow-up 4 months after the initiation of treatment, the patient reported that all symptoms had resolved. He has continued anticoagulation following this initial encounter without experiencing any adverse events and will remain anticoagulated indefinitely. The patient has since undergone a hypercoagulability workup with his primary care provider, the results of which were inconclusive. Overall, the patient was satisfied with the diagnostic process and the prompt testing and management initiated.

Discussion

The accurate and rapid diagnosis of venous thromboembolism can be challenging in rural settings and smaller communities due to the limited accessibility of consultative diagnostic imaging. A prompt diagnosis is required to initiate treatment for patients with venous thromboembolism, but there are several diagnostic challenges that may make prompt and accurate diagnosis difficult. Clinical findings alone have poor predictive accuracy because the development of symptoms of deep vein thrombosis depends on multiple factors, including the location of the thrombus, patency of collateral vessels, and degree of associated vascular inflammation.[2] The clinical presentation of pulmonary embolism also encompasses a wide spectrum, which can range from mildly symptomatic to sudden death.[14] To aid in the diagnosis of venous thromboembolism, using a validated pretest

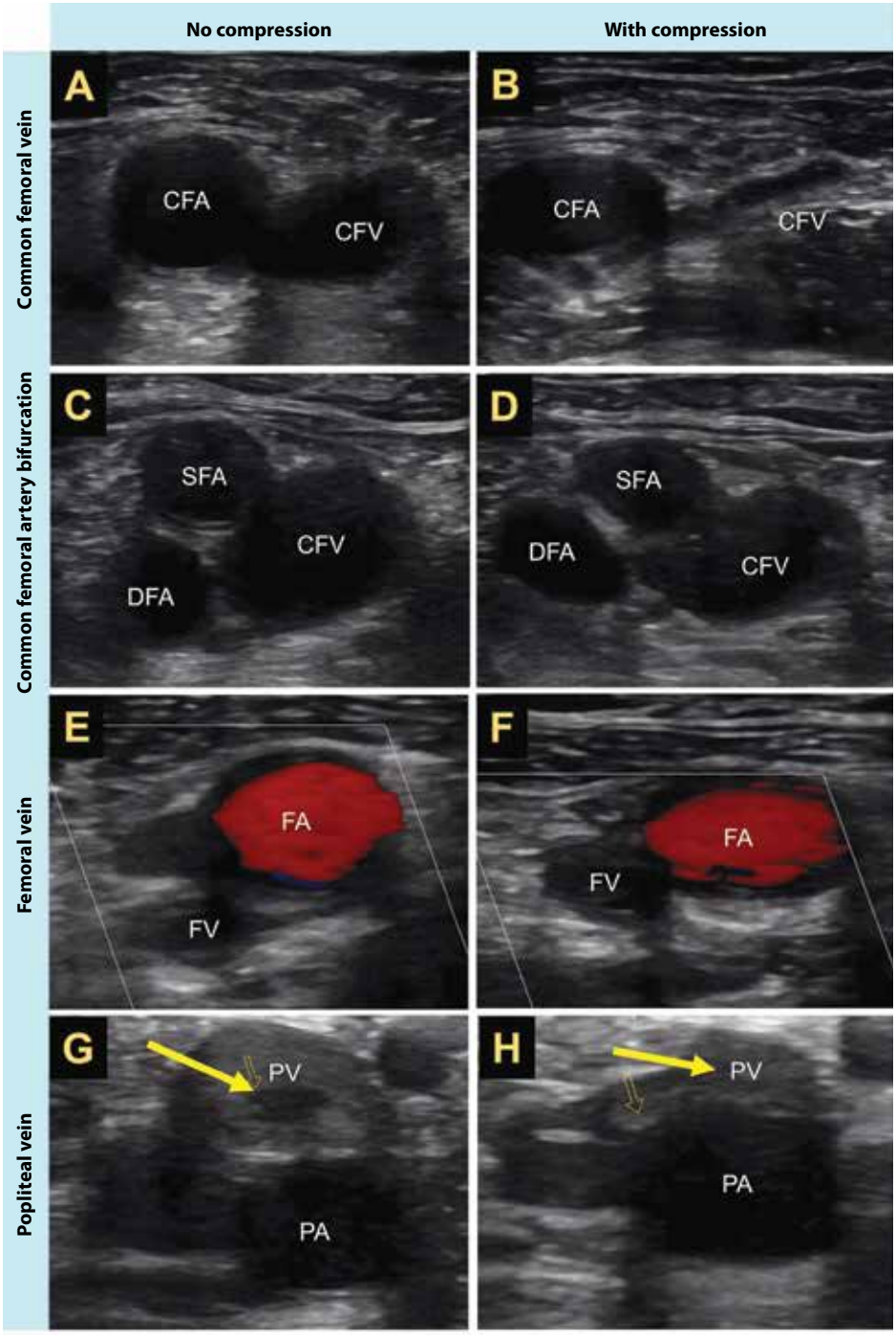


FIGURE 1. Point-of-care ultrasound images of right-leg deep veins and arteries viewed in transverse, without and with compression. Large yellow arrows denote possible thrombi that can be visualized. **A, B:** Proximal common femoral vein (CFV) and proximal common femoral artery (CFA). **C, D:** Distal CFV, and bifurcation of the CFA into superficial femoral artery (SFA) and deep femoral artery (DFA). **E, F:** Femoral vein (FV) and femoral artery (FA). **G, H:** Popliteal vein (PV) and popliteal artery (PA). Note the noncompressible distal CFV extending down to the PV, with the appearance of a possible thrombi in the PV.

TABLE. Wells criteria for pulmonary embolism.

Criterion	Points
Clinical signs and symptoms of deep vein thrombosis	3
Pulmonary embolism is the most likely diagnosis or is equally likely	3
Heart rate higher than 100 beats/minute	1.5
Immobilization for 3 days or more or surgery in the previous 4 weeks	1.5
Previously diagnosed pulmonary embolism or deep vein thrombosis	1.5
Hemoptysis	1
Active malignancy with treatment within 6 months or palliative	1

Low risk: score < 2 (1.3% prevalence); moderate risk: score 2–6 (16.2%); high risk: score > 6 (37.5%).[15]

probability assessment model such as the Wells score may be helpful. The Wells score helps guide the decision about obtaining further investigations by estimating the likelihood of venous thromboembolism based on a set of defined criteria, which may reduce the burden of unnecessary investigations in patients with a low pretest probability.[15]

This case report showcases the utility of POCUS for diagnosing venous thromboembolism in a rural setting when consultative imaging is not readily accessible. It should be noted that based on the patient's clinical presentation alone, there was a reasonable suspicion of pulmonary embolism, and anticoagulation would likely have been initiated without the POCUS findings. The patient's Wells score was 6.0, which placed him in the moderate-risk category **[Table]**, with points for a heart rate higher than 100 beats/minute, previously diagnosed deep vein thrombosis, and pulmonary embolism being as likely as the alternative diagnosis. However, the POCUS findings strongly improved the confidence of the diagnosis, which is crucial when deciding to initiate anticoagulation, given the potentially significant bleeding risks. A considerable benefit in the integration of POCUS in the clinical diagnosis of deep vein thrombosis is that positive findings improve diagnostic accuracy with a positive likelihood ratio of 30, making the diagnosis nearly certain.[9] The likelihood ratio of an adequately performed POCUS scan with negative findings is 0.04,

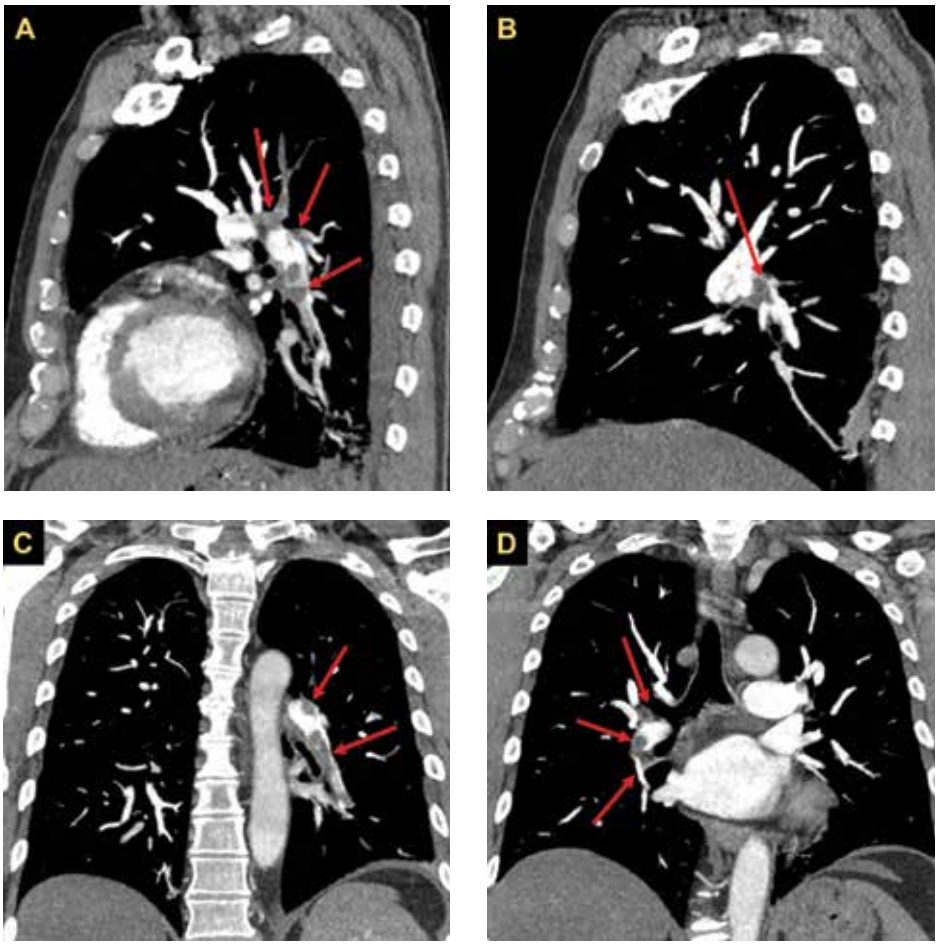


FIGURE 2. Computed tomography pulmonary angiogram images of bilateral pulmonary emboli, with areas of thrombi indicated by red arrows. **A:** Pulmonary artery (PA) thrombi in the left lung, seen in sagittal plane. **B:** PA thrombi in the right lung, seen in sagittal plane. **C:** PA thrombi in the left lung, seen in coronal plane. **D:** PA thrombi in the right lung, seen in coronal plane.

which markedly lowers the probability of a deep vein thrombosis.[9] This suggests that POCUS findings have the potential to significantly influence posttest probabilities, and they carry considerable weight when used in clinical assessment for establishing or excluding the diagnosis of deep vein thrombosis.

An additional benefit of POCUS highlighted in this case is its reliability in detecting deep vein thrombosis, with the preliminary bedside findings subsequently confirmed by duplex ultrasonography. POCUS has been used to diagnose deep vein thrombosis at the bedside with high sensitivity and specificity comparable to that of duplex ultrasonography, which has been demonstrated across various settings and disciplines. While duplex ultrasonography has sensitivity of 96% and specificity of 94% to 98% in diagnosing deep vein thrombosis,[8] multiple studies have shown that POCUS has similar sensitivity of 86% to 96% and specificity of 90% to 97%.[9-13] Another advantage of POCUS is that it can be performed rapidly at the bedside using portable ultrasonography devices, which are more readily available in rural settings than other forms of diagnostic imaging. A recent survey of rural BC practitioners showed that POCUS devices are easily accessed locally, with most respondents (87.5%) having access to an ultrasonography device.[16]

Common techniques for assessing deep vein thrombosis with POCUS are the two-region and three-region methods. The two-region method assesses the common femoral vein and popliteal vein; the three-region method includes an additional assessment of the femoral vein.[17,18] While the two-region method can be performed more rapidly than the three-region method, there is a risk of missing isolated deep vein thromboses within the femoral vein, which comprise 4% to 6% of all deep vein thromboses.[19-21] Therefore, the current recommendation is to use the three-region method over the two-region method to improve sensitivity when assessing deep vein thrombosis.

An important consideration in using POCUS is the potential for false-positive and false-negative results when assessing deep vein thrombosis. False-positive results may arise from signs of chronic deep vein thrombosis, such as scarring and fibrous tissue, which can be misinterpreted as acute deep vein thrombosis. False positives may also occur due to user error, including inadequate or off-axis compression.[22] The consequences of false-positive findings are substantial, because inappropriate anticoagulation can result in a burden of financial costs, inconvenience, medication interactions, and increased bleeding risk, including potentially life-threatening major bleeding. False-negative results are also consequential and can result from excessive probe pressure or failure to adequately assess the extent of the deep venous system.[22] A missed deep vein thrombosis increases the risk of developing a pulmonary embolism, which could be fatal if left untreated. To mitigate these limitations, POCUS should always be used in conjunction with other pretest probability assessments, including the Wells score and D-dimer. Obtaining further investigations only in patients with a high Wells score and elevated D-dimer can help reduce the risk of false-positive results.

Other limitations of POCUS include its lower sensitivity in diagnosing pulmonary embolism. In this case report, there were no findings of pulmonary embolism on lung or cardiac POCUS examinations; the diagnosis was suspected based on patient history, presenting symptoms, and venous imaging.

The sensitivities of different ultrasounds in detecting deep vein thrombosis are 44% for venous ultrasound using the two-region compression method, 63% for cardiac ultrasound, and 81% for lung ultrasound.[23] Multi-organ POCUS, which combines venous, cardiac, and lung ultrasounds, yields a higher sensitivity of 92% in diagnosing pulmonary embolism;[23,24] therefore, it can be used in rural settings with other pretest probability assessments to more accurately diagnose pulmonary embolism.

The main challenge with implementing the use of POCUS is that it requires dedicated training as well as regular use and exposure for providers to maintain their skills. This is a relevant issue among rural practitioners in BC, who report that the most significant barriers to using POCUS include a lack of training and concerns about both funding and availability of training courses. In a recent survey, more than 40% of rural practitioners in BC reported receiving no diagnostic POCUS training in either undergraduate medical education or residency. There is a strong consensus among rural practitioners that increased funding and integration of formal training for medical students and residents would support POCUS use in rural settings.[16] In recent years, POCUS training has been slowly implemented in BC undergraduate medical and residency curricula, with the most apparent developments evident in emergency medicine training. We advocate that formal POCUS training be integrated into family medicine training as well, to support the diagnostic capabilities of future physicians working in rural communities and prevent misdiagnosis of venous thromboembolism.

Summary

POCUS is a practical and reliable method for diagnosing venous thromboembolism, particularly deep vein thrombosis. It can be used in settings where consultative diagnostic imaging is not readily available; when performed by trained personnel, it has high sensitivity and specificity comparable to that of duplex ultrasonography. In the rural setting in this case report, the use of POCUS aided in the diagnosis of deep vein thrombosis and pulmonary embolism, which resulted in the prompt and appropriate initiation of anticoagulation. However, there are notable funding and educational barriers to improving the use of POCUS in rural BC, which highlights the need for an integrated POCUS curriculum within medical undergraduate and residency training for family physicians. ■

Competing interests

None declared.

References

1. Payne JG, Tagalakis V, Wu C, Lazo-Langner A. Current estimates of the incidence of acute venous thromboembolic disease in Canada: A meta-analysis. Thromb Res 2021;197:8-12.
2. Kearon C. Natural history of venous thromboembolism. Circulation 2003;107(23 Suppl 1):I22-I30.
3. Goldhaber SZ, Visani L, De Rosa M. Acute pulmonary embolism: Clinical outcomes in the International Cooperative Pulmonary Embolism Registry (ICOPER). Lancet 1999;353(9162):1386-1389.
4. Bělohlávek J, Dytrych V, Linhart A. Pulmonary embolism, part I: Epidemiology, risk factors and risk stratification, pathophysiology, clinical presentation, diagnosis and nonthrombotic pulmonary embolism. Exp Clin Cardiol 2013;18:129-138.
5. Heit JA, Mohr DN, Silverstein MD, et al. Predictors of recurrence after deep vein thrombosis and pulmonary embolism: A population-based cohort study. Arch Intern Med 2000;160:761-768.
6. Schulman S, Lindmarker P, Holmström M, et al. Post-thrombotic syndrome, recurrence, and death 10 years after the first episode of venous thromboembolism treated with warfarin for 6 weeks or 6 months. J Thromb Haemost 2006;4:734-742.
7. Goodacre S, Sampson F, Thomas S, et al. Systematic review and meta-analysis of the diagnostic accuracy of ultrasonography for deep vein thrombosis. BMC Med Imaging 2005;5:6.
8. Bhatt M, Braun C, Patel P, et al. Diagnosis of deep vein thrombosis of the lower extremity: A systematic review and meta-analysis of test accuracy. Blood Adv 2020;4:1250-1264.
9. Pomero F, Dentali F, Borretta V, et al. Accuracy of emergency physician–performed ultrasonography in the diagnosis of deep-vein thrombosis: A systematic review and meta-analysis. Thromb Haemost 2013;109:137-145.
10. Mumoli N, Vitale J, Giorgi-Pierfranceschi M, et al. General practitioner-performed compression ultrasonography for diagnosis of deep vein thrombosis of the leg: A multicenter, prospective cohort study. Ann Fam Med 2017;15:535-539.
11. Canakci ME, Acar N, Bilgin M, Kuas C. Diagnostic value of point-of-care ultrasound in deep vein thrombosis in the emergency department. J Clin Ultrasound 2020;48:527-531.
12. Pedraza García J, Valle Alonso J, Ceballos García P, et al. Comparison of the accuracy of emergency department-performed point-of-care-ultrasound (POCUS) in the diagnosis of lower-extremity deep vein thrombosis. J Emerg Med 2018;54:656-664.
13. Kory PD, Pellecchia CM, Shiloh AL, et al. Accuracy of ultrasonography performed by critical care physicians for the diagnosis of DVT. Chest 2011;139:538-542.
14. Lavorini F, Di Bello V, De Rimini ML, et al. Diagnosis and treatment of pulmonary embolism: A multidisciplinary approach. Multidiscip Respir Med 2013;8:75.
15. Wells PS, Anderson DR, Rodger M, et al. Excluding pulmonary embolism at the bedside without diagnostic imaging: Management of patients with suspected pulmonary embolism presenting to the emergency department by using a simple clinical model and D-dimer. Ann Intern Med 2001;135:98-107.
16. Morton T, Kim DJ, Deleeuw T, et al. Use of point-of-care ultrasound in rural British Columbia: Scale, training, and barriers. Can Fam Physician 2024;70:109-116.
17. Theophanous RG, Chow VW, Convissar DL, et al. Point-of-care ultrasound screening for proximal lower extremity deep venous thrombosis. J Vis Exp 2023;(192):e64601.
18. Needleman L, Cronan JJ, Lilly MP, et al. Ultrasound for lower extremity deep venous thrombosis: Multidisciplinary recommendations from the Society of Radiologists in Ultrasound consensus conference. Circulation 2018;137:1505-1515.
19. Tabbut M, Ebersole N, Icken L, et al. Two-point compression ultrasound technique risks missing isolated femoral vein DVTs. West J Emerg Med 2022;23:597-600.
20. Rudnin S, Kaminsky J, Ghosh R, et al. Distribution of lower extremity deep vein thrombosis and implications for limited compression ultrasound examinations. J Emerg Med 2022;63:348-354.
21. Adhikari S, Zeger W, Thom C, Fields JM. Isolated deep venous thrombosis: Implications for 2-point compression ultrasonography of the lower extremity. Ann Emerg Med 2015;66:262-266.
22. Varrias D, Palaiodimos L, Balasubramanian P, et al. The use of point-of-care ultrasound (POCUS) in the diagnosis of deep vein thrombosis. J Clin Med 2021;10:3903.
23. Falster C, Jacobsen N, Coman KE, et al. Diagnostic accuracy of focused deep venous, lung, cardiac and multiorgan ultrasound in suspected pulmonary embolism: A systematic review and meta-analysis. Thorax 2022;77:679-689.
24. Daley JI, Dwyer KH, Grunwald Z, et al. Increased sensitivity of focused cardiac ultrasound for pulmonary embolism in emergency department patients with abnormal vital signs. Acad Emerg Med 2019;26:1211-1220.

Lu Kun Chen, MD, Yazdan Mirzanejad, MD, DTMH, FRCPC, FACP, MRCP

A case of eumycetoma in British Columbia

Although eumycetoma is a rare infectious entity in Canada, its diagnosis should be considered in patients who have arrived from an endemic country.

Dr Chen was a medical student at the University of British Columbia at the time of article submission. He is currently a resident physician at McGill University. Dr Mirzanejad is a clinical professor in the Division of Infectious Diseases at UBC, an infectious diseases consultant at the Surrey Memorial Hospital Campus and Jim Pattison Outpatient Centre, chair of the Tropical Medicine Expert Group of BC, and clinical lead for undergraduate education, UBC, at the Surrey site.

This article has been peer reviewed.

Eumycetoma is a rare, chronic disease in which fungal entities implant into various body tissues, causing granulation and inflammation.[1] It is endemic in countries along the tropics and affects approximately 1.81 people per 100 000.[2] The fungal agent may initially cause local inflammation and swelling; over a chronic course, it invades subcutaneous tissues. If untreated, this may result in irreversible derangements to soft tissue structure and debilitating injury. Due to the paucity of guidelines, diagnosis and management of this rare entity remain uncertain.

We present the case of a 23-year-old female immigrant from Somalia who had an enlarging knee mass since childhood. Soft-tissue sarcoma was the initial preliminary diagnosis. MRI with sagittal T2 gradient-recalled echo and axial T1 fat-saturated acquisitions demonstrated a mildly lobulated 2.36 × 5.32 × 8.64 cm heterogeneous but predominantly T1/T2 hyperintense mass, along with mild peripheral susceptibility artifact and mild surrounding inflammatory change **[Figure 1]**. It contained multiple septations and foci of hypointense debris, suggestive of edema or

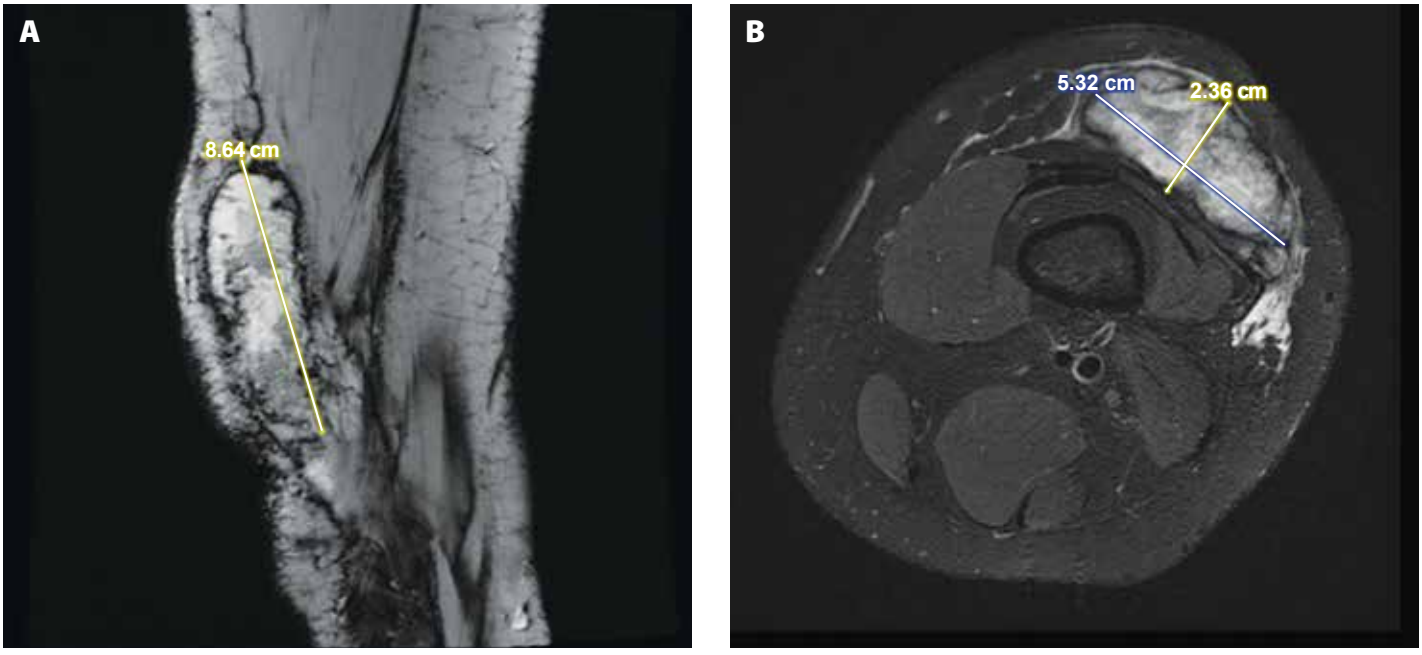


FIGURE 1. A: Sagittal T2 MRI view of the eumycetoma showing approximately 8.64 cm length in the anterolateral thigh. **B:** Axial T1 MRI displaying an approximately 5.32 × 2.36 cm cross-section of the lesion. The heterogeneous lobulated nature of the mass was demonstrated on these representative images.

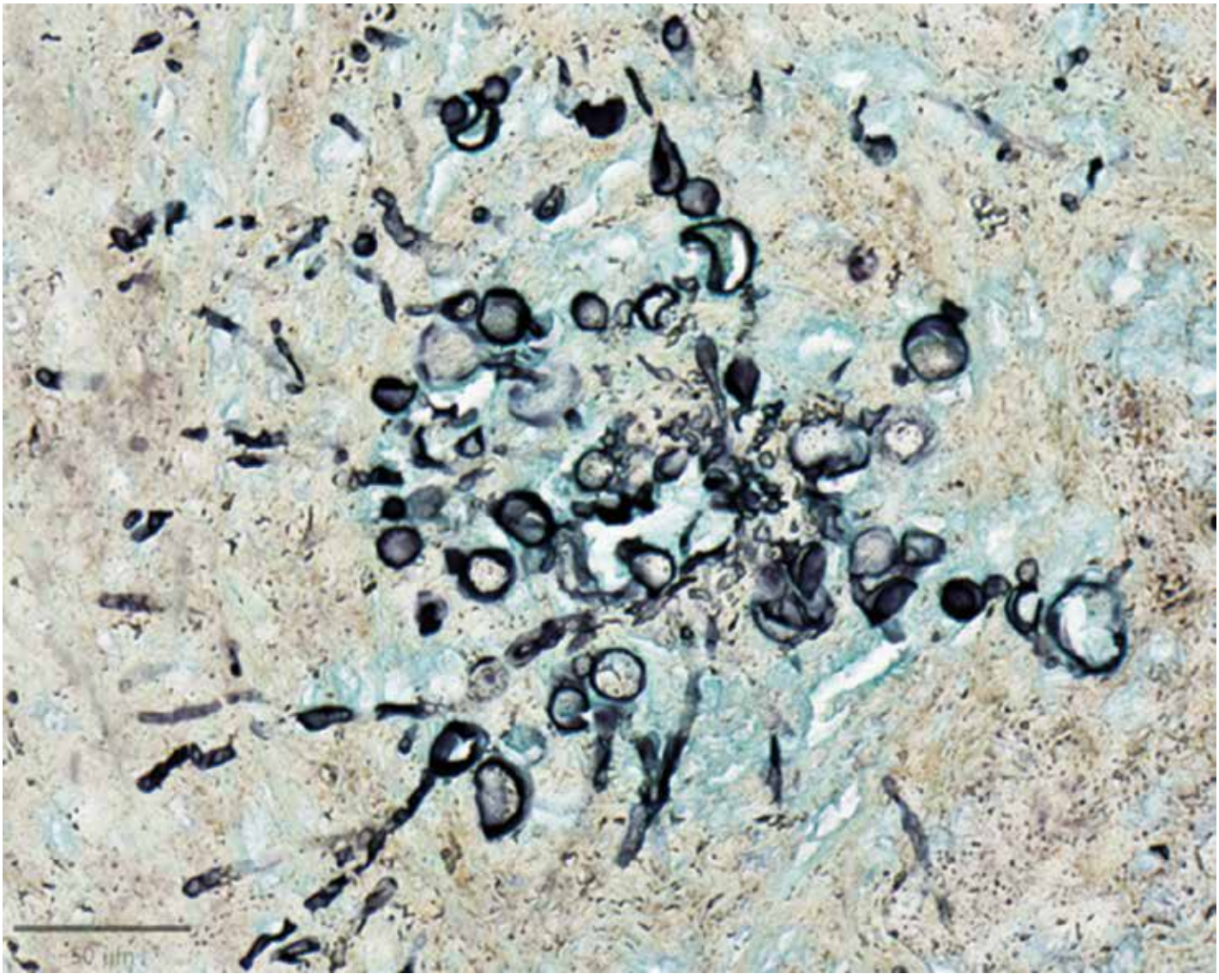


FIGURE 2. Core biopsy with subsequent Grocott methenamine silver stain revealing numerous collections of septate fungal hyphae.

necrosis. The patient underwent surgical removal of the mass and had symptomatic improvement. Subsequent core biopsy with Grocott staining revealed a dense collection of fungal elements with surrounding inflammation and edema **[Figure 2]**. There were various collections of septate fungal hyphae surrounded by the Splendore–Hoeppli phenomenon, consistent with a eumycetoma. No specific organisms could be recognized. After a few weeks of culture, no fungal or bacterial elements were isolated.

This unique case highlights a few points. Eumycetoma, a rare infectious entity in Canada, should be on the differential for patients who have arrived from an endemic country. Infection may include soft tissue entities, such as lipoma, sarcoma, or neuroma. Treatment is patient-dependent and, depending on the clinical scenario, involves observation, treatment with antifungal agents, or surgical resection.[3] With the number of immigrants increasing due to global mobilization, practitioners should include atypical infectious causes in the differential diagnosis, which will aid in accurate diagnosis and timely management. ■

Acknowledgments

The authors greatly appreciate Dr Sanjiv K. Bhalla's contributions to the MRI image interpretation.

Competing interests

None declared.

References

1. Chandler DJ, Bonifaz A, van de Sande WWJ. An update on the development of novel antifungal agents for eumycetoma. Front Pharmacol 2023;14:1165273.
2. Emery D, Denning DW. The global distribution of actinomycetoma and eumycetoma. PLoS Negl Trop Dis 2020;14:e0008397.
3. Hao X, Cognetti M, Burch-Smith R, et al. Mycetoma: Development of diagnosis and treatment. J Fungi 2022;8:743.

Incorporating a Health at Every Size approach in Canadian medicine

Recommendations for physician-led patient interventions and how physicians can incorporate Health at Every Size principles into clinical practice and health systems advocacy.

Chloe Gao, BHSc, Amanda Raffoul, PhD

ABSTRACT

There is growing concern among health researchers and clinicians that the widespread use of body mass index (BMI), by which health care decisions are made, may place a misguided focus on weight rather than health. BMI, based primarily on data collected from select populations, has also been criticized for its inability to account for diverse patient populations. Over the past few decades, there has been increased attention to Health at Every Size (HAES), an evidence-informed approach to care that seeks to de-emphasize the focus on weight as a metric for health and promote safe and equitable access to health care for all people. HAES can be used to inform recommendations for physician-led interventions at both the clinical and health care system levels, and we highlight ways that physicians can incorporate HAES principles into clinical practice and health systems advocacy.

Ms Gao is an MD/PhD student in the Faculty of Medicine at the University of British Columbia. Dr Raffoul is an assistant professor in the Department of Nutritional Sciences, Temerty Faculty of Medicine, at the University of Toronto.

Corresponding author: Ms Chloe Gao, gaoc1234@student.ubc.ca.

This article has been peer reviewed.

In June 2023, the American Medical Association (AMA) released a policy statement that acknowledged concerns with the widespread use of body mass index (BMI) "due to its historical harm, its use for racist exclusion, and because BMI is based primarily on data collected from previous generations of non-Hispanic white populations."[1] The Canadian Medical Association has, for the most part, remained silent on this issue. We argue that the widespread use of BMI in Canada may lead to missed diagnoses and poorer quality of health care among diverse patient populations. We also posit an alternative paradigm that could be implemented in health care settings to promote health and well-being.

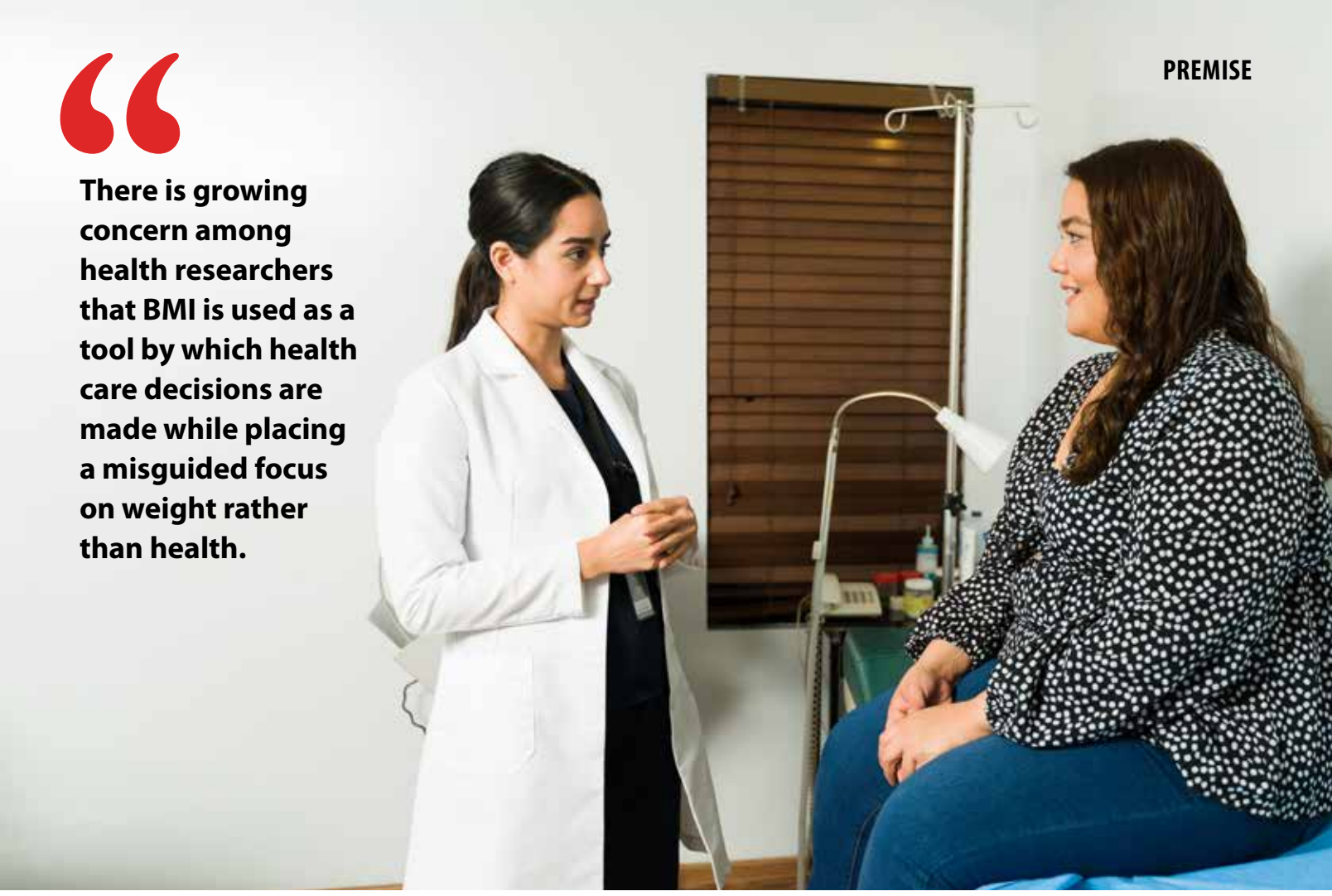
The problem with BMI

In the mid-1830s, Belgian mathematician Lambert Adolphe Jacques Quetelet developed the construct of BMI by collecting data on the heights and weights of White European cisgender men at varied ages.[2,3] His initial goal was to determine the proportions of the "average" man—a concept that is now recognized as a foundational element of eugenics.[4] Accordingly, the use of BMI in clinical settings can have limitations, given its inability to account for the diversity among our patient populations.[2,3]

Since the establishment of BMI as a common measure of health, it has been indiscriminately applied to populations, including different ethnic groups, in such a way that may have contributed to worse health outcomes for people of color.[4] Authors of one population-based cohort study in England found that individuals from South Asian, Black, Chinese, and Arab populations developed type 2 diabetes at significantly lower BMI cutoffs than White populations.[5] Not only does this highlight the limitations of BMI as a universal indicator of health outcomes, it also emphasizes the harm that its application can cause by leading to delayed screening and diagnosis of type 2 diabetes for ethnic minority adults.[5] As a result of this, race-specific BMI cutoffs have been created for type 2 diabetes by the World Health Organization and the National Institute for Health and Care Excellence.[5] However, considering racialized communities already experience intersecting barriers to accessing health care services, including linguistic, socioeconomic, and cultural barriers,[6] applying a Eurocentric measure of health to such communities further exacerbates existing health care disparities.[6-9]

There is growing concern among health researchers that BMI is used as a tool by which health care decisions are made while placing a misguided focus on weight rather than health.[10] Reliance on BMI can cause physicians to miss critical diagnoses, such as the very common occurrence of eating disorders occurring in people with normal or higher BMIs.[11] The widespread use of BMI also perpetuates weight bias in health

There is growing concern among health researchers that BMI is used as a tool by which health care decisions are made while placing a misguided focus on weight rather than health.



care settings through its focus on weight as the sole indicator of health, which can negatively impact patient–physician trust and hinder people from seeking medical care due to fear that they will be told to lose weight and have their health concerns dismissed.[11]

What can be done?

In the AMA's 2023 policy statement on the limitations of BMI, it was suggested that BMI should be used in conjunction with other measures of health risk, such as "measurements of visceral fat, body adiposity index, body composition, relative fat mass, waist circumference, and genetic/metabolic factors."[1] However, we propose that health can and should look beyond fat- and weight-focused measurements—an idea endorsed by the Health at Every Size (HAES) approach.[12] The implementation of a HAES approach may provide a means of addressing weight, nutrition, and body image in a more person-centred and equity-oriented fashion.[3]

What is HAES?

HAES is an evidence-informed approach to care that seeks to de-emphasize the focus on weight as a metric for health and promote safe and equitable access to health care for all people, irrespective of their weight.[12] It has roots in 1960s civil rights movements and developed into its current form in the 1990s.[12] HAES does not condone weight loss, but rather discourages disordered eating and weight control behaviors while recognizing the plurality of what it means to be healthy.[3]

In 2003, the Association for Size Diversity and Health, a not-for-profit organization committed to size diversity in health, created the first version of the HAES principles, most recently revised in 2024.[12]

Current HAES principles are:

- Health care as a right for everyone, irrespective of body size.
- Health, well-being, and healing are strengths that are both community-centred and personal, with people being the experts of their own needs, health, well-being, and healing.
- Person-centred care should be offered to people of all sizes and should actively address anti-fat bias.
- Health is a sociopolitical construct that reflects evolving societal norms and values and necessitates continuous and critical examination.[12]

To date, studies have found that the benefits of HAES interventions on eating behavior and mental health and well-being outweigh the potential risks of weight loss interventions.[3,13]

HAES in action

HAES can be used to inform recommendations for physician-led interventions at both the clinical and health care system levels.[3] At the clinical level, there are many ways that physicians can implement HAES principles into their clinical practice. First, HAES warrants that physicians acknowledge their own weight bias and how it may impact their clinical care, especially when interacting with higher-weight patients.[3] During appointments, it may be helpful to avoid focusing discussions on weight loss and use patient-identified, nonstigmatizing language when speaking with patients about their bodies (e.g., larger- or smaller-bodied instead of obese or skinny).[3,14] Physicians should avoid labeling certain weights or bodies as healthy or unhealthy and bad or good, to disentangle weight from health and morality.[10] Additionally, ensure the images in your clinic do not perpetuate stigma against people living in larger bodies in patient education materials, clinic decor, and reading materials (e.g., using images of larger bodies with their heads cropped off—the "headless fatty" portrayal) to create a safe space for people living in larger bodies through respectful representation.[15-17]

Instead of traditional weight-centric approaches to health, the HAES approach encourages engagement in multifaceted behavioral interventions.[3,18] Furthermore, when engaging in these conversations, it is important to explore patients' feelings in a compassionate and open-minded manner about any lifestyle counseling suggestions (e.g., dietary habits, physical activity behaviors, sleep hygiene) to uncover the basis of their behaviors and how to support behavioral change.[18] Recommendations should focus on adding healthy behaviors and activities to patients' current lifestyle, rather than emphasizing restrictions.[3] These can include finding exercises and activities that bring patients joy and contribute positively to their overall mental and physical well-being (e.g., active embodiment), or working toward adopting intuitive eating, the mindful consumption of food in response to internal bodily regulation processes such as hunger and satiety cues, in lieu of cognitive dietary restriction.[3,12] Moreover, physicians working in weight-focused settings should ensure that people presenting to these clinics receive comprehensive assessment and care in such a way that weight stigma and weight-centric approaches to health do not result in lower-quality care or missed diagnoses of critical illness (e.g., eating disorders occurring at higher weights).[11]

Instead of traditional weight-centric approaches to health, the HAES approach encourages engagement in multifaceted behavioral interventions.

Physicians can advocate for the broader incorporation of HAES principles into Canadian medical establishments through academic teaching and mentorship of trainees and their clinical practices.[19] For example, during bedside teaching of medical students, residents, and fellows, clinical instructors can discuss HAES principles and how they can be applied during patient interactions. Physicians teaching didactic lectures in primary care and public health topics such as nutrition and physical activity can incorporate HAES principles such as active embodiment and intuitive eating into their lectures.[12] As HAES has not yet been widely implemented, it is also important to share what you learn and know about this holistic approach to health with your health care colleagues.

In short, Canadian physicians should not only heed the AMA's position paper about the shortcomings of BMI in clinical contexts, but also go beyond the focus on weight- and size-centric measurements and support high-quality, patient-centred care for people of all sizes by implementing HAES principles into their clinical practices, education and training, and advocacy efforts [Box]. ■

BOX. Key recommendations for physicians.

- Acknowledge weight bias and how it may impact clinical care.
- Use patient-identified, nonstigmatizing language when speaking with patients about their bodies.
- Avoid labeling certain weights or bodies as healthy or unhealthy and bad or good.
- Ensure images in your clinic do not perpetuate stigma against people living in larger bodies.
- Encourage engagement in multifaceted behavioral interventions that are not weight focused.
- Focus on adding healthy behaviors and activities (e.g., active embodiment and intuitive eating) rather than introducing restrictions.
- Ensure patients presenting to weight-focused clinics receive comprehensive assessment and care that are not defined by their weight or BMI (e.g., do not offer specific services or ask specific questions only because of a patient's weight).
- Advocate for the broader incorporation of Health at Every Size principles into Canadian medical establishments through teaching and mentorship of trainees.

Competing interests

None declared.

References

1. American Medical Association. AMA adopts new policy clarifying role of BMI as a measure in medicine. 14 June 2023. Accessed 18 September 2024. www.ama-assn.org/press-center/press-releases/ama-adopts-new-policy-clarifying-role-bmi-measure-medicine.

2. Jacobs AE. How body mass index compromises care of patients with disabilities. AMA J Ethics 2023;25:E545-E549.
3. Raffoul A, Williams L. Integrating Health at Every Size principles into adolescent care. Curr Opin Pediatr 2021;33:361-367.
4. Strings S. How the use of BMI fetishizes White embodiment and racializes fat phobia. AMA J Ethics 2023;25:E535-E539.
5. Caleyachetty R, Barber TM, Mohammed NI, et al. Ethnicity-specific BMI cutoffs for obesity based on type 2 diabetes risk in England: A population-based cohort study. Lancet Diabetes Endocrinol 2021;9:419-426.
6. Shepherd SM, Willis-Esqueda C, Paradies Y, et al. Racial and cultural minority experiences and perceptions of health care provision in a Mid-western region. Int J Equity Health 2018;17:33.
7. Strings S. Fearing the Black body: The racial origins of fat phobia. New York, NY: New York University Press; 2019.
8. Hardy KA. Five ways health care can be better for fat people. AMA J Ethics 2023;25:E528-E534.
9. Gillispie-Bell V. The contrast of color: Why the Black community continues to suffer health disparities. Obstet Gynecol 2021;137:220-224.
10. Tylka TL, Annunziato RA, Burgard D, et al. The weight-inclusive versus weight-normative approach to health: Evaluating the evidence for prioritizing well-being over weight loss. J Obes 2014;2014:983495.
11. Ramaswamy N, Ramaswamy N. Overreliance on BMI and delayed care for patients with higher BMI and disordered eating. AMA J Ethics 2023;25:E540-E544.
12. Association for Size Diversity and Health. Health at Every Size principles. Accessed 18 September 2024. https://asdah.org/haes/.
13. Penney TL, Kirk SF. The Health at Every Size paradigm and obesity: Missing empirical evidence may help push the reframing obesity debate forward. Am J Public Health 2015;105:e38-e42.
14. Sonneville KR, Mulpuri L, Khreizat I, et al. Youth preferences for weight-related conversations. Health Commun 2020;35:1328-1333.
15. Puhl RM, Peterson JL, DePierre JA, Luedicke J. Headless, hungry, and unhealthy: A video content analysis of obese persons portrayed in online news. J Health Commun 2013;18:686-702.
16. McClure KJ, Puhl RM, Heuer CA. Obesity in the news: Do photographic images of obese persons influence antifat attitudes? J Health Commun 2011;16:359-371.
17. University of Connecticut Rudd Centre for Policy and Health. Guidelines for media portrayals of individuals affected by obesity. 2014. Accessed 18 September 2024. https://uconnruddcenter-org.media.uconn.edu/wp-content/uploads/sites/2909/2020/07/MediaGuidelines_PortrayalObese.pdf.
18. Miller WC. The weight-loss-at-any-cost environment: How to thrive with a health-centered focus. J Nutr Educ Behav 2005;37(Suppl 2):S89-S93.
19. Tse A, Xavier S, Trollope-Kumar K, et al. Challenges in eating disorder diagnosis and management among family physicians and trainees: A qualitative study. J Eat Disord 2022;10:45.

Falls prevention: The lifelong battle against gravity

Falls are a major cause of morbidity and mortality in older adults; they also cost the BC health care sector $1.1 billion in 2018.[1] The *BCMJ* has published many articles about falls prevention for older adults; what remains salient and what is new?

The BC Guideline *Fall Prevention: Risk Assessment and Management for Community-Dwelling Older Adults*,[2] published in June 2021 for use by primary care practitioners and summarized in the *BCMJ*,[3] addresses how to identify and manage adults 65 years of age and older in the community with risk factors for falls. Although hospital, facility-based care settings, and acute fall management are outside of the guideline's scope, some of the principles may be useful in those settings. Guideline recommendations for physicians include:

- Conducting an annual screening with a "three-questions approach" or "staying independent checklist" **[Box]**.
- If a screening is positive, doing a multifactorial risk assessment (reviewing medications; medical conditions like frailty, impaired safety awareness, impulsivity, impaired mobility, and osteoporosis; and the home environment).[2,3]
- If available, suggesting a Falls Prevention Clinic[4] or Osteofit program.[5]

The most effective falls prevention intervention is exercise to improve strength,[6,7] gait and balance training (e.g., walking backward),[8] core exercise training,[9] and safe mobility. Since sarcopenia[10-12] is closely related to falls risk, resistance training[11] is recommended as well.

This article is the opinion of the authors and not necessarily the Council on Health Promotion or Doctors of BC. This article has not been peer reviewed by the BCMJ *Editorial Board.*

Future prevention efforts may target those most at risk: women, adults age 80 and older, and those living alone or on a low income. Falls occur mainly in the household or while walking.[13]

The most effective falls prevention intervention is exercise to improve strength, gait and balance training (e.g., walking backward), core exercise training, and safe mobility.

National Seniors Day is 1 October, and November is Fall Prevention Month.[14] Let's remember that falls prevention is so much more than removal of rugs in this lifelong battle against gravity. ■

—Eileen M. Wong, MD, CCFP, FCFP
Council on Health Promotion Member

—Michael Slatnik, MD, MPH, CCFP
Council on Health Promotion Member

Acknowledgments

Special thanks to Drs Ken Madden, Amanda Hill, and Janet Kow from the Division of Geriatric Medicine at the University of British Columbia for their input into the content for this article.

References

1. BC Injury Research and Prevention Unit. Cost of injury in British Columbia. Accessed 24 July 2024. www.costofinjury.ca/bc/cost-of-injury-in-british-columbia.
2. Government of BC. Fall prevention: Risk assessment and management for community-dwelling older adults. BC Guidelines. Last updated 28 August 2023. Accessed 8 July 2024. www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/fall-prevention.
3. BC Medical Journal. Recently published BC Guidelines. BCMJ 2021;63:368-369. Accessed 8 July 2024. https://bcmj.org/news/recently-published-bc-guidelines-1.
4. Falls Prevention Clinic. Falls prevention. Accessed 8 July 2024. http://fallsclinic.ca.
5. BC Women's Hospital and Health Centre. Falls prevention program. Accessed 8 July 2024. www.bcwomens.ca/our-services/population-health-promotion/osteofit.
6. National Institute on Aging. Four types of exercise can improve your health and physical ability. Accessed 8 July 2024. www.nia.nih.gov/health/exercise-and-physical-activity/four-types-exercise-can-improve-your-health-and-physical.
7. HealthLink BC. Preventing falls: Exercises for strength and balance. Accessed 8 July 2024. www.healthlinkbc.ca/healthy-eating-physical-activity/age-and-stage/older-adults/preventing-falls-exercises-strength-and.
8. Wang J, Xu J, An R. Effectiveness of backward walking training on balance performance: A systematic review and meta-analysis. Gait Posture 2019;68:466-475.
9. Harvard Health Publishing. The best core exercises for older adults. Accessed 8 July 2024. www.health.harvard.edu/staying-healthy/the-best-core-exercises-for-older-adults.
10. Yeung SSY, Reijnierse EM, Pham VK, et al. Sarcopenia and its association with falls and fractures in older adults: A systematic review and meta-analysis. J Cachexia Sarcopenia Muscle 2019;10:485-500.
11. Rodrigues F, Domingos C, Monteiro D, Morouço P. A review on aging, sarcopenia, falls, and resistance training in community-dwelling older adults. Int J Environ Res Public Health 2022;19:874.
12. McKeen K, Wong EM. Sarcopenia in older adults: Use it or lose it. BCMJ 2022;64:359.
13. Government of Canada. Surveillance report on falls among older adults in Canada. Last modified 20 February 2024. Accessed 8 July 2024. www.canada.ca/en/public-health/services/publications/healthy-living/surveillance-report-falls-older-adults-canada.html.
14. Fall prevention month. Accessed 18 June 2024. www.fallpreventionmonth.ca.

BOX. Risk factors for falls, screening tools, exercises, and resources.

Who is at greatest risk:

- Women.
- Anyone age 80 and older.
- Those living alone or on a low income.
- People with medical conditions including frailty, sarcopenia, cognitive impairment, and osteoporosis.

Screening tools:

- Three-questions approach:
  1. Have you fallen in the past year?
     If so:
     - How many times?
     - Were you injured?
  2. Do you ever feel unsteady when you stand or walk?
  3. Do you worry about falling?
- Staying independent checklist: www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc-guidelines/fall_prevention_stayingindependentchecklist.pdf.

Exercises:

- Strength: resistance exercises, lifting weights, wall pushups.[6,7]
- Balance: tai chi, standing on one foot, heel-toe walk, balance walk, standing from seated position,[6,7] backward walking.[8]
- Core: bridges, planks, opposite arm and leg raises.[9]

Resources:

For patients:

- Fall resources for seniors (multilingual): https://findingbalancebc.ca/fall-resources-for-seniors.
- *Staying Independent* (handout): https://findingbalancebc.ca/wp-content/uploads/2016/04/staying_independent_checklist_interactive.pdf.
- *Seniors' Falls Can Be Prevented* (handout, multilingual): www.healthlinkbc.ca/healthlinkbc-files/seniors-falls-can-be-prevented.
- *Canadian 24-hour Movement Guidelines for Adults Aged 65 Years and Older*: https://csepguidelines.ca/guidelines/adults-65.

For practitioners:

- BC Guideline: *Fall Prevention: Risk Assessment and Management for Community-Dwelling Older Adults*: www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/fall-prevention.
- Government of Canada: *Surveillance Report on Falls among Older Adults in Canada*: www.canada.ca/en/public-health/services/publications/healthy-living/surveillance-report-falls-older-adults-canada.html.
- "World Guidelines for Falls Prevention and Management for Older Adults: A Global Initiative": https://doi.org/10.1093/ageing/afac205.

Tips for billing Expedited Comprehensive Consultations to WorkSafeBC

Physicians with a Royal College of Physicians and Surgeons of Canada specialty and family physicians with areas of expertise can bill WorkSafeBC for Expedited Comprehensive Consultations. Data from WorkSafeBC show that some of these physicians are still experiencing payment delays or rejections for these consultations. Below are tips to make the billing process smoother, restated and updated from when we covered this topic in the *BCMJ* in 2022 [64:249].

When to bill for an Initial Expedited Comprehensive Consultation

If you are an applicable physician, you may bill an Initial Expedited Comprehensive Consultation fee when:

- You receive a new referral for consultation from a referring physician or from WorkSafeBC (on behalf of the referring community physician), including when the consultation occurs because of an emergency.
- More than 6 months have elapsed since you last saw the injured worker *and* you have received a new referral.

The Initial Expedited Comprehensive Consultation report must be received by WorkSafeBC within 15 business days of you receiving the referral.

The fee code to use depends on whether you have an area of expertise or a Royal College specialty and what your specialty is **[Table]**.

When to bill for a Repeat Expedited Comprehensive Consultation

A Repeat Expedited Comprehensive Consultation fee may be billed when:

- You complete a repeat consultation within 12 weeks of the Initial Expedited Comprehensive Consultation.
- The Repeat Expedited Comprehensive Consultation fee code has not been billed already.

Only one Repeat Expedited Comprehensive Consultation fee is billable following the Initial Expedited Consultation fee. Any other repeat consultations should be billed using the appropriate MSP consult fee code.

The Repeat Expedited Comprehensive Consultation report must be received by WorkSafeBC within 5 business days of the consultation **[Table]**.

Submitting the consult report: Steps to avoid payment delays and rejections

When any Expedited Comprehensive Consultation fee code is invoiced to WorkSafeBC, the system automatically searches for proof of a consult report. If the system cannot find the report, the invoice is reviewed manually by WorkSafeBC staff, which may cause payment delays. If WorkSafeBC staff cannot find the appropriate consult report, payment may be rejected.

All Expedited Comprehensive Consultation fee codes include the physical examination *and* the report. No other fees should be billed for the report.

You have two options for cover sheets when you fax your consult report to WorkSafeBC at 1 888 922-8807:

- Use the Physician Consult Report Fax Cover Sheet (Form 83D556) found on www.worksafebc.com. This cover sheet tags and identifies your report for easier and more timely payment.
- Use your own cover sheet, clearly noting "Consult Report" and the worker's claim number. You can get the claim number from the referring physician or the worker.

If you choose not to use a fax cover sheet, mark your consult reports with the title "Consult Report."

Continued on page 314

TABLE. Fee codes for Initial and Repeat Expedited Comprehensive Consultations.

Physician type	Initial Expedited Comprehensive Consultation fee code	Repeat Expedited Comprehensive Consultation fee code
Physicians with a Royal College specialty (except for anesthesiologists)	19911	19912
Anesthesiologists	19934	19935
Family physicians with areas of expertise (e.g., sport medicine, diving medicine, addictions medicine, family practice anesthesia)	19945	19946

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

Shared orthopaedic referral and triage in the East Kootenay

The ongoing impact of orthopaedic wait times

Orthopaedic surgical wait times consistently fail to meet Canadian benchmarks. In 2021, the Canadian Institute for Health Information reported that only 65% of hip replacements and 59% of knee replacements met wait-time standards.[1] Lengthy wait times are associated with decreased health-related quality of life, increased pain severity, and decreased patient satisfaction with primary and specialist care.[2] Increased wait times are also associated with longer hospital stays and greater service cost.[3]

Despite federal and provincial government funding and growing patient advocacy focused on the lived experience of waiting for surgery (e.g., the Wait Time Alliance), the percentage of British Columbians receiving knee replacement surgery within recommended time frames has improved by less than 5% since 2016.[4] Referral models exist to reduce wait times and include components such as standardized referral forms with single-entry, multidisciplinary triage and inclusion of conservative treatments.[2-4] These models report high professional satisfaction and orthopaedic surgical conversion rates. New initiatives to tackle orthopaedic wait times must be evidence informed and codesigned with local health professionals.

The Shared Orthopaedic Referral and Triage project

The Shared Orthopaedic Referral and Triage (SORT) project is a 2-year Shared Care Committee initiative facilitated by the East Kootenay Division of Family Practice. Guided by orthopaedic surgeons, family physicians, sport medicine physicians, and physiotherapists, SORT aims to:

- Describe local referral pathways.
- Design and implement a standardized referral form.
- Increase awareness and uptake of conservative treatments, including educational resources.

Referral models exist to reduce wait times and include components such as standardized referral forms with single-entry, multidisciplinary triage and inclusion of conservative treatments.

Describing the East Kootenay referral pathway

SORT conducted 25 semi-structured interviews with physicians, clinic managers, and physiotherapists, with a cross-sectional survey of orthopaedic surgeons and family physicians (n = 89, 70% response). Six weeks of referral data were retrospectively extracted from five clinics. Locally, approximately 330 nonemergency orthopaedic referrals are made monthly. Most family physicians (63%) reported not using a referral form, and orthopaedic surgeons reported a substantial proportion of referrals (55%) were missing clinical details or had incomplete or out-of-date imaging. Additionally, orthopaedic surgeons reported most patients (67%) would have benefited from sport medicine physician referrals; comparatively, family physicians reported a smaller proportion (26%) would have benefited. Approximately 54% of family physicians disagreed that patient flow was coordinated.

Codesigning a standardized, practice-ready referral form

SORT reviewed 15 orthopaedic referral forms; completed a literature review to identify potential triage tools; held group and individual meetings to iteratively review drafts; compared the drafts to a random sample of referral letters; and synthesized feedback from clinic managers, orthopaedic surgeons, and family physicians.

Most family physicians preferred standardized referral forms (71%) with the ability to indicate urgency (73%). Eight drafts were reviewed by 22 collaborators on at least two different occasions. The final SORT form includes:

- All orthopaedic surgeons and sport medicine physicians, with online links to service scope and wait times.
- Three items to explore urgency (e.g., impact and changes to daily living activities).
- Listings of conservative treatments with links to health authority–provided services (e.g., Primary Care Network physiotherapy).
- A link to consensus-driven imaging requirements for acute and chronic orthopaedic concerns.

Increasing awareness and uptake of conservative treatments, including patient education

Our physiotherapy advisory group independently scored Pathway resources across three dimensions: evidence-based, comprehensiveness, and patient acceptability. The validated Patient Education Materials Assessment Tool assessed actionability and understandability.[5] Materials including exercises were prioritized.

Continued on page 314

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

Continued from page 313

Before SORT, less than one-quarter of family physicians (23%) provided patient educational materials before making orthopaedic referrals. Of the 114 available resources, 27 met project thresholds for being evidence-based, patient acceptable, comprehensive, actionable, and understandable.

SORT preliminary outcomes

In April 2024, the SORT referral form, patient education, and imaging guidelines were distributed to family practices. In the first 2 months, there was a 26% increase in referrals to sport medicine physicians. The SORT care pathway is now the most viewed clinician tool locally. Pathways also highlighted 11 SORT-selected patient resources as provincial picks and added seven new resources. SORT collaborated with a specialty working group with the Provincial Health Services Authority to design standardized provincial content for orthopaedic e-referral via OceanMD, which features interoperability between medical records software, wait time reporting, and patient engagement.

SORT is ongoing, with final evaluation in January 2025. Current activities include best-practice casting procedures, educational videos with osteoarthritis decision aids, and refining emergency orthopedic referral pathways. ■

—Alex Chan, PhD, MD, FRCSC
Orthopaedic Surgeon, East Kootenay Regional Hospital

—Megan Ure, CCFP, CFPC, IOC Dip
Sports Medicine Family Physician, F.W. Green Clinic

—William Brown, MD, CCFP
Family Physician, East Kootenay Division of Family Practice

—Yvonne Keyzer, MD, FCFP, IOC Dip
Sports Medicine Family Physician, Creekside Physiotherapy

—Ryan Sleik, MSc
Physiotherapist, Kootenay Therapy Center

—Kari Loftsgard, BSc
Physiotherapist, Kootenay Therapy Center

—Jacqui van Zyl, MBChB
Program Manager, East Kootenay Division of Family Practice

—Kurtis Morrish, MD, CCFP, CAC SEM, CASEM Dip SEM, MSc, MPH
Sports Medicine Family Physician, University of British Columbia

—Elizabeth Fradgley, PhD
Project Lead, East Kootenay Division of Family Practice

References

1. Canadian Institute for Health Information. Wait times for priority procedures in Canada, 2022. Accessed 10 September 2024. www.cihi.ca/en/wait-times-for-priority-procedures-in-canada-2022.
2. Lizaur-Utrilla A, Martinez-Mendez D, Miralles-Muñoz FA, et al. Negative impact of waiting time for primary total knee arthroplasty on satisfaction and patient-reported outcome. Int Orthop 2016;40:2303-2307.
3. Pincus D, Wasserstein D, Ravi B, et al. Medical costs of delayed hip fracture surgery. J Bone Joint Surg Am 2018;100:1387-1396.
4. Marshall DA, Bischak DP, Zaerpour F, et al. Wait time management strategies at centralized intake system for hip and knee replacement surgery: A need for a blended evidence-based and patient-centered approach. Osteoarthr Cartil Open 2022;4:100314.
5. Shoemaker SJ, Wolf MS, Brach C. Development of the Patient Education Materials Assessment Tool (PEMAT): A new measure of understandability and actionability for print and audiovisual patient information. Patient Educ Couns 2014;96:395-403.

WORKSAFEBC

Continued from page 312

Additional reminders:

- Clearly document the worker's claim number on all pages of your report.
- Send the consult report as soon as possible. It must be received by WorkSafeBC before your billing.
- Ensure your documentation is legible. We recommend typing reports.
- Fax your consult report separately from your operative report. This ensures they each get matched to your billing.

Consult reports must be comprehensive and documented in keeping with professional standards (according to the College of Physicians and Surgeons of British Columbia's Medical Records Documentation Practice Standard).

Finally, ensure any consult report transcribed by a hospital has been faxed to WorkSafeBC.

Seeing workers before WorkSafeBC has accepted their claim

If a worker makes a WorkSafeBC claim and we have not yet accepted or denied it (WorkSafeBC calls this "pending" status), you do not need to wait for approval from WorkSafeBC to expedite the initial consult. You can check if a claim is accepted, denied, or pending by using the tool at https://pvc.online.worksafebc.com.

If a patient has a pending claim, please see them as soon as possible to ensure the consultation is completed and the report is received by WorkSafeBC within 15 business days to meet timelines for payment. For these pending claims, subsequent visits (including Repeat Expedited Comprehensive Consultations) may not be covered by WorkSafeBC.

More information

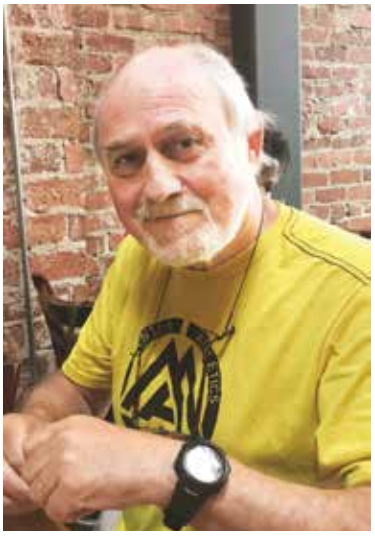
Details on billing Expedited Comprehensive Consultations can be found in the *Physicians and Surgeons' WorkSafeBC Services Reference Guide* at www.worksafebc.com/en/health-care-providers/provider-types/physicians. ■

—Patrick Wong
Quality Assurance Supervisor, WorkSafeBC

—Waqar Younas, PhD
Senior Analyst (Advocacy Operations), Doctors of BC

Obituaries

We welcome original tributes of less than 700 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 Joseph Walker

1946–2024

The wife, children, and grandchildren of Dr Joseph Walker (Nanoose Bay, BC) are heartbroken to announce his death at home on 22 August 2024, after a heroic struggle with metastatic melanoma.

We are deeply grateful for the care Joseph received during his illness and would like to thank his doctors, the superb nurses and personal care workers at the Island Health (Oceanside Hospice Society) home support service, the hospice volunteers who offered him reiki, and many kind friends and neighbors.

Joseph was a widely respected physician known for his humanity, integrity, and great sense of humor. His vivid memory and gift for storytelling were legendary. Joseph was valued by his colleagues and patients wherever he worked.

He was born in St Neots, London, in 1946, to Irish parents (Thomas Walker of Callan, County Kilkenny, and Mary Ellen Doherty of Donegal). When he was 9 years old, his family left London and returned to his father's farm in Callan. There, Joseph enjoyed a rich childhood, immersed in nature and imagination, and developed a gift for drawing. He earned a full scholarship to study fine art at Trinity College Dublin but instead chose to go to medical school at the University of London.

It was by no ordinary means that Joseph came to Canada in 1972, sailing with two friends across the North Atlantic in a 38-foot ketch, retracing Erik the Red's route through the Arctic. They landed in Labrador, where Joseph served as a doctor with the Grenfell Mission, traveling to remote communities by dogsled, helicopter, and ship, sometimes in fierce weather conditions. In 1976, Joseph took on a practice in Cape Breton, where he did everything from delivering babies and resetting bones to assisting with surgeries and covering the ER. He met his future wife one evening at a gathering of Irish music enthusiasts. Newcomers to Canada, Joseph and Ann spent formative years in Glace Bay and then Sydney, enjoying rich friendships and raising three children (plus many cats and collies and one chestnut quarter horse).

Joseph was a family physician in Cape Breton for 20 years before deciding to specialize in psychiatry at Dalhousie University in 1992. After completing his fellowship, he worked in Halifax for 5 years at the Willow Hall Unit at Nova Scotia Hospital and on the faculty at Dalhousie Medical School, where he took joy in helping to train psychiatry residents.

In 2002, he and Ann moved to Nanoose Bay, BC. A passionate advocate for the elderly, Joseph first worked in community geriatric psychiatry, visiting patients across Vancouver Island, then focused on consulting at Nanaimo Regional General Hospital, where he drew on his medical training to diagnose and manage complex geriatric cases.

Joseph had an adventurous spirit that found many outlets over the years, from cross-country and downhill skiing to ocean sailing, kayaking, and hiking. He completed the historic Chilkoot Trail in Alaska and the challenging Camino Primitivo in northern Spain, and he climbed many mountain peaks on the West Coast.

When he retired in 2015, Joseph focused his attention on long walks with Ann, playing his classical guitar, painting watercolors, cooking great meals, and spending time with his family and grandchildren.

He is survived by his wife, Ann Graham Walker; his daughters, Kate and Alison; his son, Rowan Tomás; and his four grandchildren, Wyatt, Zoe, Marlow, and Jules.

The family suggests that anyone who wishes to donate in his memory direct their gift to the Nanaimo Community Hospice or the Oceanside Hospice Society in Qualicum Bay.

A memorial service will be held at St. Mary's Anglican Church in Nanoose Bay (www.stmarynb.ca) at 1:00 p.m. on 19 October 2024. Come, bring your stories, and/or please share them in the online comments section for this obituary.

—Roger Walmsley, MD
Nanaimo

Classifieds

Pricing (two options): Run an online-only ad at our monthly online rates, or pay an additional $25 per month for an ad to appear in print as well. **Online rates:** Doctors of BC members: $50 + GST per month per ad of up to 350 characters. $75 + GST for 351 to 700 characters. Nonmembers: $60 + GST per month per ad of up to 350 characters. $90 + GST for 351 to 700 characters. **Deadlines:** Ads must be submitted or canceled by the first of the month preceding the month of publication, e.g., by 1 January for February publication.

Place a classified ad: bcmj.org/classified-advertising. Payment is required at the time that you place the ad.

New classified advertising categories: The new Events section can be used for CME or other events, and the Vacation Properties section has been renamed Accommodation. The same rates apply.

PRACTICES AVAILABLE

KELOWNA—SEEKING A THIRD PHYSICIAN TO SHARE TWO PRACTICES

Join our established family practice for a wonderful work-life balance. We are a collaborative team providing a supportive and flexible work environment. Our arrangement allows for extra family and holiday time. Kelowna has outstanding skiing, mountain biking, lake sports, and hiking opportunities at your doorstep. Our practices include long-term care but no obstetrics or hospital coverage. Please email alexis@doctorthomson.com for more information.

NORTH VANCOUVER—FAMILY PRACTICE AVAILABLE

Well-established, collegial longitudinal family practice; retiring MD. Very supportive and efficient group-of-four family practice ideal for new grad or experienced physician. Respectful and appreciative panel of 1500 patients. Newly renovated PCN practice with RN and psychologist. Low overheads and flex hours. Accuro EMR. Email westviewmedical4@gmail.com or call 604 813-1056.

EMPLOYMENT

ACROSS CANADA—PHYSICIANS FOR YOU: YOUR SOLUTION FOR RECRUITMENT

Are you a physician looking for work? Or a medical facility requiring physicians? Our team works with Canadian independently licensed physicians, CFPC/RCPSC-eligible physicians, and clinics and hospitals across Canada, with excellent reviews. Contact Canada's trusted recruitment firm today to experience our specialized service that is tailored for your success! Visit www.physiciansforyou.com, email info@physiciansforyou.com, or call 1 778 475-7995.

DUNCAN (COWICHAN DISTRICT HOSPITAL)—FP ONCOLOGIST

We have full-time and part-time opportunities to join the current team of two FP oncologists who are overseeing chemotherapy for cancer patients in the Cowichan District. The main role of these positions is managing patients on active cancer treatment. No oncology experience is necessary. Training is available through the Family Practice Oncology Network. Start date: as soon as possible. Benefits: may be eligible for additional remuneration in accordance with the Rural Practice Subsidiary Agreement (www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/physician-compensation/rural-practice-programs). Facility: Cowichan District Hospital in Duncan. Remuneration: service. Contact Savanah Munzar at Savanah.Munzar@islandhealth.ca.

SURREY (NEWTON AREA)—FAMILY DOCTOR NEEDED

FP needed for busy clinic located inside Superstore. Eight modern exam rooms, Oscar EMR. Ongoing support from physician owner. Great patients and front staff. Very high income potential. Join FT or PT. Three existing FPs. Income split 75/25 (with maximum overhead payable $7500/month). Email clinic75@hotmail.com or call/text Dr Manchanda at 604 600-7774.

VANCOUVER AND AREA—VIRTUAL, IN-PERSON WALK-IN OR FP

Join the health care evolution with Enhanced Care Clinic, where doctors thrive. We have been providing managed practice to over 100 physicians across the country and understand your needs. Talk to us and develop a plan together to lower your administrative burden so you can focus on your practice and patient care. Set your own schedule/number of visits per hour or per day and free up your valuable time. For more information on how we can support your practice call 647 254-5578, or email supportyourpractice@enhancedcare.ca.

WORK IN HISTORIC CHINATOWN—FAMILY PRACTICE

Long-established clinic in Chinatown seeking a passionate bilingual physician with Chinese/Cantonese language skills. Opportunity to practise cross-cultural medicine with acutherapy and energy medicine for chronic diseases and chronic pain syndrome. Close to the new St. Paul's Hospital. Competitive split: 80/20. Email vangeneralphysician@gmail.com.

Continued on page 318

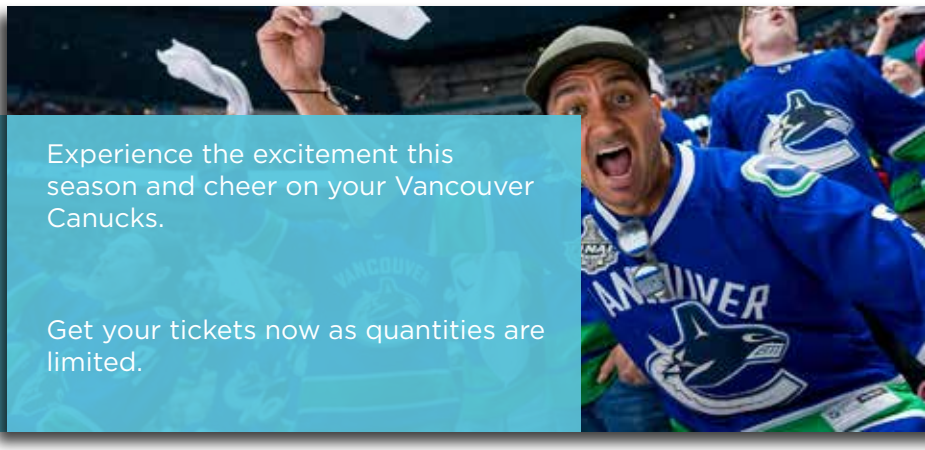
Club MD

Exclusive deals at your fingertips

VANCOUVER CANUCKS

SCORE BIG WITH OUR **EXCLUSIVE DISCOUNTS** ON SINGLE GAME TICKETS

doctorsofbc.ca/canucks



Experience the excitement this season and cheer on your Vancouver Canucks.

Get your tickets now as quantities are limited.

HERTZ CANADA

SAVE UP TO **30% OFF CAR RENTALS**

doctorsofbc.venngo.com/offer/56598

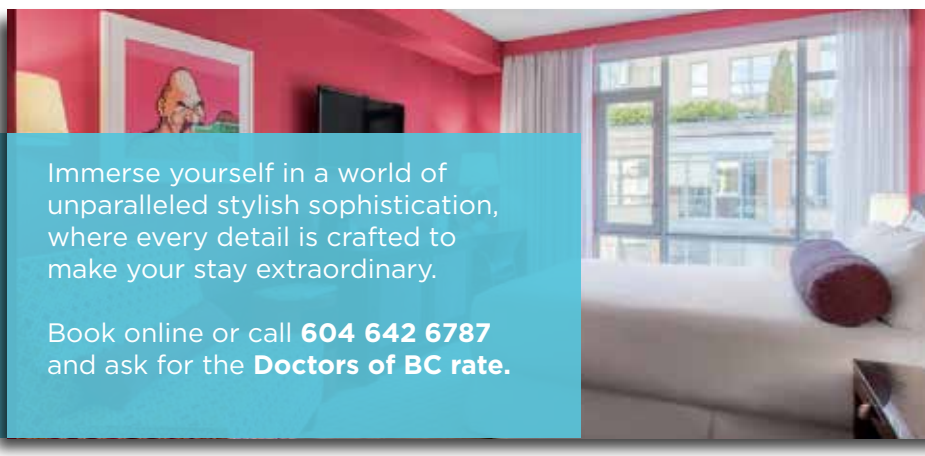
From daily to monthly rentals, we've got the perfect ride for every journey. Book now and start your next adventure in style.

Book online or call **1 800 263 0600** and quote code **1808795**.

OPUS VANCOUVER

UNBEATABLE COMFORT, WITH **ROOMS STARTING AT $226 A NIGHT**

doctorsofbc.venngo.com/offer/55093



Immerse yourself in a world of unparalleled stylish sophistication, where every detail is crafted to make your stay extraordinary.

Book online or call **604 642 6787** and ask for the **Doctors of BC rate.**

P 604 638 7921
TF 1 800 665 2262 ext 7921
E clubmd@**doctors**of**bc**.ca

doctorsofbc.ca/club-md

doctors of bc

Continued from page 316

MEDICAL OFFICE SPACE

RICHMOND—MEDICAL OFFICE FOR SALE

For sale. Across the river from Vancouver and across the street from Richmond Hospital, a beautiful turnkey 2197.25 sq. ft. office containing a bathroom, a kitchen, and multiple rooms. Please contact 604 273-6449.

EVENTS

KELOWNA—5TH ANNUAL WORKSAFEBC–NAOEM JOINT CONFERENCE FOR COMMUNITY PHYSICIANS

Join us for the 5th joint conference between WorkSafeBC and NAOEM. Topics discussed include occupational stress injuries, hand/wrist/shoulder/spine injuries, opioid use disorders, and more. Additional learning opportunities on 25 October, with Not Just a Prescription Pad, and a site tour of SunRype on 26 October (Sat), 8:15 a.m.–5:30 p.m., Coast Capri Kelowna or online. Audience: family physicians, community physicians, occupational physicians, psychiatrists, residents and medical students, and health professionals with an interest in occupational medicine/work disability. Up to 6.75 Mainpro+/MOC section 1 credits. Registration includes access to the event, materials, breakfast, lunch, breaks, and access to recordings. For more information, contact UBC Continuing Professional Development at cpd.info@ubc.ca or visit https://bit.ly/worksafebc-naoem-2024-conference.

TOFINO, SALTSPRING ISLAND, GUATEMALA—MINDFULNESS IN MEDICINE—CHANGE YOUR LIFE AND PRACTICE

From time immemorial, thinkers, mystics, and philosophers have reminded us of the importance of going within to cultivate a sense of peace and joy in our outer world. Mindfulness invites you to reconnect to yourself, your community, and the world in all its beauty and brokenness. Join Dr Mark Sherman and your community of physicians in an upcoming event. Tofino: Mindfulness in Medicine workshop for docs and partners, 27–30 September 2024. Saltspring Island: Heal Thyself meditation retreat for health professionals, 4–9 October 2024. Lake Atitlán, Guatemala: Heal Thyself meditation retreat for health professionals, 10–16 February 2025. For more information, visit livingthismoment.ca or email info@livingthismoment.ca.

Find more classified ads online:
bcmj.org/classifieds.

CME Calendar: Discontinued
To place a CME ad, use the Events section in the classified listings (same rates apply).

THE JOB YOU WANT IN THE SETTING YOU CHOOSE.

We're hiring Physicians to deliver team-based care in our well-equipped Urgent and Primary Care Centres and Family Health Clinics, in beautiful British Columbia. Experience the freedom to focus on patient care without the complexities of running your own practice.

Be part of a multi-disciplinary team, connected by continuous learning and collaboration, all in the care setting that's right for you.

Scan the QR code

or visit **vch.ca/jobyouwant**

Vancouver CoastalHealth

Archetype

MAIN + FIRST

SAVE UP TO $30,000 ON YOUR NEW OFFICE SPACE
& ENJOY PREFERRED RATES FOR MEDICAL USERS

QuadReal

BE A PART OF VANCOUVER'S FUTURE MEDICAL HUB

COMPLETING MID 2025

New Office Spaces in False Creek Flats
Own With a 10% Deposit

archetypevancouver.com
info@archetypevancouver.com

NOW SELLING

Scan the QR Code
for Registration