

Forehead swelling in a
10-year-old male: A case report

Tick-borne relapsing fever in
British Columbia: A 10-year review

Pediatric presentations and risks
from consuming cannabis edibles

Diagnosis and treatment of
thoracic disc herniation

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Current therapy for primary varicose veins



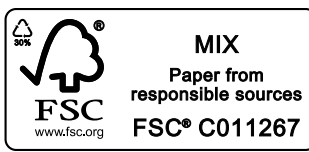
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Hashtag . . . social media

When I enter my office examination rooms, patients are often interacting with their smart phones. My demographic (let's call them the old-timers) are usually playing solitaire or some other game. I often ask the younger generations what they are so focused on as a way of building rapport. When they answer that they are on Snapchat or Tumblr, my blank look has the opposite effect. I figure many of you are in the same relic-from-a-bygone-age boat, so I've decided it's time we educate ourselves about social media.

I think pretty much all of you are familiar with Facebook, the popular social networking service where you can pay to put your likeness on a hardcover book. However, I think for many of you this is where you drop off the social curve.

Instagram is a photo-sharing application—if you use it you instantly become a little heavier. Fortunately, you can send this “gram” to your friends or other users of the application by touching them with marijuana. This *hashtag* carries the pound symbol (#), which ties back to the weight theme.

The image-messaging and multi-media application Snapchat is all the rage with young people, and apparently its use is more prevalent than Facebook or Instagram among this group. Once registered, the user is able to turn their phone on and talk to their friends with a snap of their fingers, similar to the Clapper that we old-timers are familiar with (“clap on, clap off”). However, you have to be careful because once you finish listening to your friend, they disappear.

The application Pinterest is for individuals fascinated by the letter *P*, a condition that's not yet classified as an illness by the International Classification of Diseases. This site allows users to save images that begin with or contain the letter *P* and organize those images on different boards. Once a board is complete, users can share or follow other users' boards if they have similar tastes, which always happens because they all love pirates, pelicans, pomegranates, etc.

Tumblr is a microblogging website that allows users to post multimedia and other content as long as they type in small letters. If the font is ever

increased or capitals are used, the blogger is “tumbled” and his or her accounts are drained. One blogger used large bold print and was never heard from again.

Last but not least, Twitter is another much better known blogging platform. Users post “tweets” that are restricted to 140 characters. This restriction is a good thing, as it has been made famous by a certain individual who is unable to complete even close to 140 characters. Apparently he is often heard saying, “Believe me, nobody tweets better than me and anyone who says different is fake news.”

This list is by no means exhaustive. There are many more social media platforms out there, and by the time this is published there will likely be many more. I have just tried to give you some basic knowledge so you can better deal with all those millennials in your practice. Imagine the look on their faces when you enter the room and state, “Oh snap, when you tumble those tweets, make sure to pin some tags.”

—DRR



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I have a rather dirty secret

I love gardening. Hands in dirt, sometimes even stinky dirt. There is something so incredibly right about being a respectful human in a yard surrounded by life from a completely different kingdom. It's quiet, somehow soft, fresh, pungent, and dirty. There is no hiding your interaction with earth and plant—even with latex gloves inside my garden gloves the soil makes its way into the skinniest fingerprint grooves and eponychial hidey-holes. I have scrub brushes everywhere.

I took to greens and to medicine at around the same time. I think I had one of those hanging spider plants and an African violet in my first med school apartment, and it went on from there. I definitely have killed or euthanized or neglected more plants in my life than I have nurtured to survival, and there was more than a little bit of Darwin informing my practice of which plants were going to make it with my once-a-week ministrations.

Having finally acquired the standard Vancouver 33-foot lot, and worked it for a decade and a half, I have gradually been able to sculpt out a little perennial-lined recharging zone. Hands in the dirt, hair in the breeze, bugs on the ankles: it is a place of quiet and refuge and sense. There is a direct relationship between my caring for it and what it becomes.

Most of what I have learned is from the gardening school of hard knocks. Because I am not a professional, I have the freedom to multitask and observe and think—even, perhaps, become a garden philosopher. Here are a few of my garden musings.

1. To me, *garden* is mostly a verb. It's not *what* is in your garden, it's the *act* of making it. It has never made sense to me to plant a maintenance-free garden; the maintenance is the most meaningful and wonderful part. Very little in life is valued if you don't see committing to its well-being and happiness as a pri-

ority. I don't have a lot of land or even plants, but I hand water them when they are dry and I see them regularly on an individual basis. I am restored when feeling the responsibility of getting out and caring for them when they need me.

2. I live on a sunny 33-foot lot in Vancouver. That means that my plants are generally putting their roots into dirt valued at more than \$900 per square foot. I don't have a single plant that deserves that kind of home. So when I lose a relatively precious one, or it stops growing well, I'm okay with that. So a plant dies, the ground is where the gold is. As long as you have the ground, and you keep it healthy, you can plant something new. Or not.
3. Fighting nature is mostly futile. To cite an example, I no longer fight moss. Moss is green and soft and easy, and sometimes it even flowers (who knew?). If moss insists on growing, I have taken to actively making it feel more at home. We eventually got rid of most of our grass and planted naturalizing ground cover and defined moss collections over stones in some places. If something is lovely and wants to grow so badly, why not let it?
4. I don't cage or restrain plants. I fully plant under all the benches and tables and have no hard borders, except for keeping some invasive plants in pots. I try to trim things only to fill in the spaces most naturally. I like to think that you should feel the greenness envelop you when you are in the garden. You are the visitor in this green space, and the garden surrounds even your toes as you sit in it.
5. I always consider the fourth dimension and its global effect. Plants grow and fill out. They may completely change their footprints and habits over time. And that in turn can change the whole garden. When

its bedmates are still small and thin and far apart, an individual plant may thrive in the full sun it needs, but as time allows others to grow, it may one day be deeply ensconced in shade. It may start to behave in a way that suggests it is asking to be moved, or it may adapt in an unexpected direction or shape. You can't always predict the permutations of time. Plants will suddenly grow where you haven't planted them, and sometimes those unexpected seedlings end up being the most well-suited plants in that site.

There. I have now planted in you some of my herbaceous philosophy. Maybe some will take root. We are members of a caring profession. Though we officially care for people, maybe if we let our hands get dirty, a garden may teach us something else.

—CV

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Re: Discharge summaries

The editorial titled “Discharge Summaries” (*BCM J* 2017;59:293) suggests that frustrations of dictation have changed little in the past 40 years, since I graduated from medical school. Thank you, to the practitioners who perform the onerous task. Anesthesiologists are primary consumers and appreciate finding a typed, concise oasis of information in the illegible chaos of a hospital chart. Ironically, the technology has long existed for simple and inexpensive one-time systematic adaptation, but for some reason administrative will has been lacking.

At the pre-admission clinic at Vancouver General Hospital in the 1990s, dictation frustrations were dealt with by creating a template and dictating only critical information: demographic (which invariably the admission, discharge, and transfer hospital software put in automatically), diagnostic (presentation, symptom, physical, lab), progress, outcome, recommendations, etc., which were then slotted into blank spaces in the preformatted document, producing consistent, concise, grammatically correct, and legible documents quickly and with minimal effort. This system would be equally efficient with keyboard entry instead of dictation.

Modern e-records can do the same thing. Historical information, which never changes, could be archived on an ongoing basis, and slotted into the appropriate preformatted documents, be they admission notes, progress

notes, consultations, or discharge summaries, with minimal effort and without the need to repeat data entry. The history of past health would be repeated automatically on the admitting record and the discharge summary, and a precis of present admission data would be added the next time in the history of past health section. A discharge summary could be primarily generated automatically using the keywords of progress notes, with only the disposition and the dates added, a huge saving in time and energy.

A medical record should be conceived as a block of patient information that is historically fixed but temporally in evolution, rather than the storybook narrative of current hospital charts. This concept could be extended to storing patient information on their MSP card and updating both the consumer and the provider at every health care encounter, completely eliminating the need to send for old records every time. But I am getting ahead of myself. Vancouver Coastal Health transcription bought into such a conceptual change a quarter of a century ago, but further evolution has not occurred. The inertial monster that is the health records establishment in Canada does not seem interested, and it is difficult to identify who to try to influence. A decade ago, when they eliminated paper records older than 40 years, it occurred to me that pediatric operative reports from the 1950s and '60s would no longer exist because the surgeons and GPs

would also have long retired. Meanwhile, that cohort of individuals was entering the age at which they were going to require more health care. I could not identify any route to voice my concerns.

I count the biggest failure in my career as being unable to bring user-friendly medical documentation into the 20th (let alone 21st) century before I retired. I pass on my thoughts to clinicians who have greater administrative skills than I. Good luck moving forward; take heart knowing that technologically and conceptually, at least, there are better ways.

—**Laurence W. Lee, MD, FRCPC**
Clinical Assistant Professor,
Anesthesiology, Pharmacology,
and Therapeutics
UBC Faculty of Medicine

Re: Who is checking the quality of referrals? College replies

I applaud the College's efforts to improve asynchronous communication between physicians for consultations [*BCM J* 2017;59:256]. I find inordinate delays in health authority transcription to be the major factor in critical delays for emergency patients. I sent a letter regarding a man with suspected aortic dissection to our tertiary hospital on 9 August with a full consult letter the same day after full workup. The receiving physician dictated a comprehensive, appropriate reply, which I received by fax on 16 August (likewise added to the EHR).

The letter indicates a 7-day delay between dictation and transcription. I have no doubt that the Interior Health Authority (IHA) is working hard to improve this turnaround time, which I consider to be a dangerous practice for patient safety. The patients present back to my practice during the week, and I have no idea what the findings or treatment plans were because transcription takes a week. These timelines are typical in my experience.

I wondered if any standards were set for transcription times, and whether emergency physicians or IHA in-house consultants are obliged to use third-party dictation services when transcription times are dangerously long. Perhaps there is a role for physicians to develop communication channels outside of the health authority. Physicians are considered independent contractors and must meet professional and College standards. I would welcome any suggestions on how to do so within the current framework.

—Mike Figurski, MD,
CPHIMS-CA
Big White, BC

The Interior Health Authority declined to provide a response, but has indicated that they will contact Dr

Figurski directly regarding the incident he describes in his letter.—Ed

Canada's largest clinical trial: Marijuana legalization 2018

In the past year, many news stories, peer-reviewed articles, and opinion pieces¹ have debated how eased restrictions on marijuana possession and use stand to affect the lives of Canadians. This topic is of keen interest to the public and it would seem that everyone has an opinion on how accessible marijuana will reshape the economy and health outcomes, particularly among underserved and vulnerable populations. Members on either side of the debate have substantiated their arguments with those of politicians, doctors, and other leaders who regularly weigh in on marijuana legalization. At first, it may seem prudent to base our own arguments on those of leaders in the field; however, we do not recognize that many of the opinions of such experts are precisely that—views and opinions—which themselves have yet to be systematically validated at a national level.

Historically, federal restrictions on studies evaluating the economics and health effects of controlled substances, such as marijuana, have

hampered our understanding of such substances.² Extrapolating risks and benefits of marijuana legalization within discrete populations where marijuana is already legal (e.g., Colorado) is fraught with bias, and much of the data for measuring long-term consequences of marijuana legalization remain immature.³ As such, we are all blind when it comes to accurately predicting how the new laws will shape our country (if at all).

Regardless of whether marijuana legalization will increase the incidence of psychosis among teenagers while simultaneously undermining the marijuana black market, with certainty, we must be prepared to study

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these consequences. This means that before royal assent of Bill C-45 we have comprehensively outlined ways to evaluate how marijuana will affect Canada and its people. This means ensuring we have detailed baseline characteristics on marijuana usage associated with mental health, fatalities, and organized crime, among other measures. This means mobilizing funds and researchers who will be unhindered in studying the immediate and long-term effects of marijuana legalization. Given the widespread use of nonmedicinal marijuana in Canada, in effect, we must be ready to capitalize on studying the largest clinical trial of the century in this country.⁴

Recently, the timeline of marijuana legalization has come into question.⁵ I have faith that we will be prepared if the Canadian Centre on Substance Abuse⁶ maintains its commitment to objectively and transparently monitoring, the effects of marijuana legalization and further, if legislators are willing to act on findings from this and other research groups.

—David D.W. Twa, BSc
MD/PhD Candidate, UBC,
Class of 2021

This letter first appeared as a post on the BCMJ blog.

References

- 1. Kelsall D. Cannabis legislation fails to protect Canada's youth. CMAJ 2017;189: E737-738.
2. Allen K. As legal weed looms, barriers to research still standing. The Toronto Star. 9 April 2017. www.thestar.com/news/gta/2017/04/09/as-legal-weed-looks-barriers-to-research-still-standing.html.
3. Aydelotte JD, Brown LH, Luftman KM, et al. Crash fatality rates after recreational marijuana legalization in Washington and Colorado. Am J Public Health 2017;107: 1329-1331.
4. Canadian Centre on Substance Abuse. Clearing the smoke on cannabis. Updated September 2016. www.cclt.ca/Resource%20Library/CCSA-Clearing-the-Smoke-on-Cannabis-Highlights-2016-en.pdf.
5. Harris K. Federal-provincial showdown looms over legal pot deadline. CBC News. 19 July 2017. www.cbc.ca/news/politics/premiers-courts-cannabis-1.4210895.
6. Canadian Centre on Substance Use and Addiction. National research agenda on the health impacts of non-medical cannabis use. Accessed 8 September 2017. www.cclt.ca/Eng/topics/Marijuana/Marijuana-Research/Pages/default.aspx.

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Where have all the clinics gone?

Access to primary care is a problem. Despite many programs and possible solutions, patients across Canada continue to struggle to find a family doctor. In fact, according to the Canadian Institute of Health Information, we have the distinction of having the longest wait times in the developed world. André Picard suggested in his 16 February *Globe and Mail* column, “More than anything else though, what Canada needs to fix [in terms of] its systemic health-care woes is to create a semblance of a system. What distinguishes the countries that have markedly better results than Canada . . . is the cohesiveness of the system, and the emphasis on primary care.” And it makes sense—if you can’t get into the system in the first place, you lose the opportunity to use it effectively.

Canada has a unique model for delivering primary care in that the majority is publicly funded but privately delivered. Physicians’ offices generally are privately owned, and these offices provide most of the primary care in this country. In BC there are alternative funding models in some smaller communities, and there are some primary care clinics that are owned and administered by the government and health authorities—but these are few.

In BC and across Canada, doctors and governments are supporting multidisciplinary team-based care and working toward developing a patient medical home. Success will require infrastructure, creative thinking, and a willingness to work together. We are moving forward, and we are designing community-based plans to expand primary care access. Much of the planning includes leveraging existing clinics and resources, and adding network linkages and supple-

mentary support from allied health professionals.

But then came 18 July 2017, when Finance Minister Bill Morneau announced plans to change the way private corporations are taxed. “What does this have to do with primary care?” you ask. Well, remember the bit about most clinics being privately owned? And how we need a willingness to work together to ensure success? The government wants to change the rules mid-stride.

Incorporation has been a legitimate and widely used legal option for structuring a small business since 1970 in British Columbia; 67% of BC physicians are incorporated. Taxing money in a corporation at a lower rate allows business owners to accumulate money in the corporation to run the business. Owners can also use this money to fund maternity leaves and sick leaves and plan for retirement. Money in the business is taxed when it is drawn out, which does defer but not eliminate tax. Many businesses use this structure, including farmers, tradespeople, pharmacists, lawyers, and accountants.

The proposed changes generate a huge amount of uncertainty. Physicians considering retirement may be encouraged to do so immediately, or lose a significant portion of the money they have put aside for this. New graduates could be discouraged from establishing or buying into full-service family practices because of uncertainty around business viability. Becoming a locum or working in certain focused practice areas will be more stable. For new graduates with huge debt loads, stability matters.

Doctors of BC launched a communications strategy and asked for your input. We developed a toolkit to share information and help individual

physicians respond to the government. We prepared a submission for the Department of Finance consultation. We worked with



the CMA and other provincial and territorial medical associations to advocate for our members. The CMA worked at the national level with other affected small business people. In August, I participated in a delegation that met with the Minister of Finance in Ottawa, and in September I participated in a women’s roundtable that developed a presentation for the Liberal Caucus in Kelowna.

The vast majority of physicians we heard from oppose the tax changes as proposed. I am respectful of the fact that there are different opinions around these difficult matters. However, we are sharing stories from physicians who operate small businesses highlighting the specific ways in which this legislation affects them.

Negative impact on the infrastructure around primary care will affect access for patients to both GPs and specialists. In addition to the negative impact on the health care system and the physicians who work in it, this legislation could cripple small farms and family businesses. Our hope is that advocacy will turn the tide and modify these proposals in a way that is fair for small business people across Canada, including physicians, and for our patients. The consultation period has ended. Now we wait.

—Trina Larsen Soles, MD
Doctors of BC President

Pediatric presentations and risks from consuming cannabis edibles

In Canada, the federal government's proposed Cannabis Act aims to create a "strict legal framework for controlling the production, distribution, sale, and possession of cannabis across Canada."¹ One area of concern is the possibility that regulations on the production, sale, and use of cannabis edibles will not be part of the initial laws. The ongoing unregulated availability of cannabis edibles poses a particular risk to children who are more likely to unintentionally ingest such products. In Colorado, the rate of hospitalization from unintentional pediatric exposures to cannabis was almost double 2 years after legalization when compared with 2 years before legalization, with almost half of those exposures being from cannabis edibles.²

When assessing and advising patients, physicians need to be aware of the health risks associated with cannabis edibles. Edible products containing tetrahydrocannabinol (THC) are typically indistinguishable from noncannabis products in their look and taste. Efforts to limit accidental exposure to edibles in Colorado, similar to other states, include regulations requiring child-resistant packaging, laws against mass-marketing campaigns, regulations to limit the THC serving size to 10 mg per product serving and 100 mg per package, and requirements for a universal warning symbol to be on all edibles packaging.³ Even with such regula-

tions, risks of overconsumption and intoxication remain for all ages.⁴ For instance, older children can overcome child-resistant packaging. Younger children can gain access to previously opened or partially consumed products. Moreover, warnings and limitations on THC-containing products and packages target only older users. Children, and some adults, would not distinguish a THC serving size, for example a single piece of candy, from a typically larger food serving size.

A review of the National Poison Data System in the United States between January 2013 and December 2015 identified 430 calls associated with cannabis edibles for children and adults. Children 5 years and younger had the highest rate at 0.15 calls per 100 000 population per year. In this study, this age group was more likely to have drowsiness/lethargy, ataxia, and red eye/conjunctivitis.⁵

Unlike the range of presentations in older children and adults, infants and toddlers with cannabis intoxication primarily present with altered levels of consciousness ranging from mild encephalopathy to coma. Ingestion of cannabis cookies is the most common route of exposure for this age group. Serious events primarily occur in children under the age of 3. The acute encephalopathy often has few systemic clinical signs to indicate intoxication, but commonly associated features include dilated pupils, hyporeflexia, and hypotonia. In many cases, nonspecific neurological presentations can result in delays in diagnosis.

Treatment consists of supportive measures including intravenous fluid hydration. Deep comas may require airway support for obstruction and ventilation. At least 6 hours of ob-

servation has been recommended; however, some cases have symptoms persisting beyond 24 hours. Lack of an initial ingestion history is common, and specific history of therapeutic and recreational drugs for all recent caregivers should be sought. Early consideration of a urine toxicology screening may prevent other unnecessary investigations. Histories must include assessment of child protection issues in such cases of poisonings.⁶⁻⁸ To date, there have not been any reported cases of pediatric deaths from cannabis edibles.

To mitigate the risks of cannabis edibles on children, governing authorities should consider implementing improved education for parents (and all consumers); requirements on packaging, labeling, and marketing; and limitations on THC content. To effectively treat cases of cannabis poisoning in children, physicians need to be aware of the potential risks and presentations associated with the ingestion of cannabis edibles.

—Michelle Murti, MD, FRCPC

References

1. Government of Canada. Legalizing and strictly regulating cannabis: The facts. Accessed 17 July 2017. www.canada.ca/en/services/health/campaigns/legalizing-strictly-regulating-cannabis-facts.html.
2. Wang GS, Le Lait MC, Deakynne SJ, et al. Unintentional pediatric exposures to marijuana in Colorado, 2009-2015. *JAMA Pediatrics* 2016;170:e160971.
3. Department of Revenue. Laws: Constitution, statutes and rules—marijuana enforcement. Accessed 17 July 2017. www.colorado.gov/pacific/enforcement/laws-constitution-statutes-and-rules-marijuana-enforcement.
4. MacCoun RJ, Mello MM. Half-baked—

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

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Library.) Both the College of Family Physicians of Canada and Royal College of Physicians and Surgeons of Canada provide CME credits for reading blog entries. Select your specialty on the right-hand side, or just scroll through the blog to see what's new. <http://thischangedmypractice.com>

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—Niki Baumann
Librarian


cohp

Continued from page 398

- the retail promotion of marijuana edibles. *N Engl J Med* 2015;372:989-991.
- Cao D, Srisuma S, Bronstein AC, Hoyte CO. Characterization of edible marijuana product exposures reported to United States poison centers. *Clin Toxicol (Phila)* 2016;54:840-846.
 - Appelboam A, Oades PJ. Coma due to cannabis toxicity in an infant. *Eur J Emerg Med* 2006;13:177-179.
 - Lavi E, Rekhtman D, Berkun Y, Wexler I. Sudden onset unexplained encephalopathy in infants: Think of cannabis intoxication. *Eur J Pediatr* 2016;175:417-420.
 - Onders B, Casavant MJ, Spiller HA, et al. Marijuana exposure among children younger than six years in the United States. *Clin Pediatr (Phila)* 2016;55:428-436.

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Diagnosis and treatment of thoracic disc herniation

Workers injured as a result of significant trauma or lifting activities may present with symptoms of a thoracic disc herniation (TDH).

Diagnosis

Diagnosis can be challenging, since the estimated incidence of symptomatic TDH is approximately one in a million per year,¹ and 0.25% to 0.75% of total incidents of symptomatic spinal disc herniations.² Incidence is highest in males between ages 40 and 60. An accurate diagnosis of TDH requires strong clinical diagnosis with imaging confirmation.

Imaging detects a high frequency of incidental disc lesions in the thoracic spine. The MRI results of 90 asymptomatic individuals in one study revealed thoracic disc lesions in 74%, of which 29% demonstrated spinal cord deformation.³

TDH presents with three clinical finding patterns:

1. Axial (back dominant) pain in the mid- to lower-thoracic spine.
2. Radicular pain that may accompany axial pain, occur in a dermatomal distribution, or be accompanied by sensory changes.
3. Thoracic myelopathy with weakness and impaired balance—physical examination potentially reveals wide-based gait, increased lower-extremity muscle tone and clonus, hyperreflexia of lower extremities compared to upper extremities, and negative Hoffman's sign.

Clinical findings for TDH are not specific and may overlap with non-spinal and spinal conditions. Non-spinal causes include intrathoracic

or intra-abdominal conditions, or musculoskeletal conditions, such as soft tissue disorders or rib fractures. Red-flag spinal conditions need to be considered.

An accurate diagnosis of TDH requires strong clinical diagnosis with imaging confirmation.

Where TDH is clinically suspected, investigations should include upright radiographs of the spine to rule out obvious causes of thoracic back pain such as neoplasm or bone/joint injury. MRI is sensitive to detecting TDH.

Treatment

The natural history for most TDH is benign, and nonsurgical treatment is appropriate for the majority of cases. Accepted treatment includes activity modification, over-the-counter analgesics, nonsteroidal anti-inflammatory medication, and physiotherapy. In the acute phase, passive modalities may be used, but after that, the focus should switch to active rehabilitation including low-impact aerobic activity, range of motion, and strengthening, with emphasis on extension exercise. Individuals with radicular symptoms may benefit from intercostal nerve block.

Surgery is generally reserved for individuals presenting with objective neurological compromise. An absolute indication for surgical intervention is progressive myelopathy. Relative indications for surgery

include stable myelopathy without significant functional deficit and radicular pain that is not improving. Surgical referral should be expedited where neurologic compromise results in myelopathy with functional impairment or in progressive myelopathy.

Surgical approaches to TDH have evolved. Laminectomy was abandoned because of poor outcomes and supplanted by anterior discectomy by thoracotomy. Recent advances include a variety of minimally invasive techniques, the selection of which is based on the disc herniation morphology.

Treatment outcomes depend on the patient and pathophysiological factors. Younger patients with acute soft-disc herniation usually respond well to both nonoperative and operative treatment. Older individuals with longer duration of symptoms and disc osteophyte formation respond less favorably.

Published guidelines for post-TDH activity resumption are not available. Compared to the cervical and lumbar spine, the thoracic spine warrants a more conservative approach to resuming activity where impact and heavier forces are involved. Space for the spinal cord in the thoracic spine and blood supply to the spinal cord are less than in the cervical and lumbar regions. Return to activity can be on a graduated basis with restrictions on impact and heavier activity until core strength and flexibility have normalized, neurologic impairment recovers, and imaging demonstrates no functional stenosis. Where these criteria are not met, activity involving heavy loading on the spine may need to be permanently restricted.

For further information or assistance with a worker patient with pos-

Continued on page 402

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

A message to leave behind

A medical student's project exemplifies the importance of legacy work in palliative care, and at any stage of life.

Katarina Wind, BSc (Hons), UBC MD Candidate, Class of 2020

When I arrived at the hospice around 10 a.m., “Please pass me a beer” was the first thing Lucio said. That wasn't how I was expecting to begin the conversation about the Making a Legacy project, but then again, it wasn't about me. The elderly Italian gentleman, reclined in his hospice bed with half of his breakfast still sitting on the tray in front of him, was still living life on his own terms. I passed him a Peroni (after checking with the nurses like a typical nervous medical student), and sat down to explain the project.

I began the Making a Legacy palliative care project in March, as part of my Flexible Learning project at UBC medical school. After the sudden death of my father a year prior, topics surrounding death and bereavement caught my attention easily. I met Dr Pippa Hawley, the leader of the project, who explained the importance of legacy work in palliative care. Legacy work is simply the act of creating something to leave behind after your death—whether it's a video, letter,

or art piece. Dr Hawley introduced me to a computer application called RecordMeNow (www.recordmenow.org), created by Vancouverite Gaby Eirew, that allows people to create their own legacy in the form of a video. RecordMeNow is easy to use, free for anyone, and can be used at any stage of life, whether or not the person already knows what they want to say. There are approximately 40 preset questions on topics such as childhood, career, and advice and wishes for the future. It's also easy to create your own questions. Once you select a question, the app records your answer as a video clip using your phone or computer's camera. It then compiles the video clips and formats them to be transferred onto a CD or USB to be given to loved ones.

Lucio seemed interested in creating a legacy project, so we replaced his breakfast tray with the laptop and got started. RecordMeNow starts with the easier questions: What is your full name? Who are your parents and where were they from? What was your home life like as you grew up? To create the questions, Ms Eirew asked 100 adults who had lost one or both parents when they were young what they wished they knew about their parents. Going through the questions in order feels like taking a short trip through the person's life, starting from their childhood through to their career and the birth of their children, and onto wishes they have for their

loved ones. Lucio didn't have too much to say at the beginning, but as we chatted and went through various questions that he found interesting or funny, his answers began to blossom. To the question, “What words or phrases do you use often?” he answered, “Jesus! I shouldn't say it often, but I just do!”

We worked on the project over a couple weeks because he found the sessions fairly tiring. On the third visit we came to the question, “Is there a place you go where you like to think and reflect?” Lucio started tearing up as he spoke about how much he loved Queen Elizabeth Park, and how he would like his family to bring a photo of him to the park after he dies. We segued from there to more of the difficult questions, where he spoke directly to his wife and children about how proud of them he was, and how he wished for them to still enjoy life after his death. It is amazing how during the most difficult circumstances people can often feel the most grateful. Lucio talked about how lucky he has been in his life, and how much he appreciated and loved his family. His eyes were not the only teary ones in the room.

While I used RecordMeNow in a hospice setting for my project, it is intended to be used by anyone, as a sort of emotional life insurance. It could also be suggested to patients who are discussing advanced care planning

Continued on page 402

Ms Wind completed her BSc (Hons) degree in biochemistry at the University of British Columbia, with a focus on diabetes research. She is currently a second-year medical student at UBC. Her professional and research interests include women's health, developmental pediatrics, and palliative care.

This article has been peer reviewed.

Continued from page 401

with their family physicians. I did my own recording recently; even though I'm not planning on dying anytime soon, neither are most people who write wills and purchase life insurance. Unfortunately, I know all too well that our lives can end suddenly even when we think we're perfectly healthy; arrhythmias and accidents do happen. Creating a legacy project forces you to confront your own mortality, which can create clarity for the future, especially if unexpected illness or death occurs.

I am grateful to Dr Pippa Hawley and Ms Gaby Eirew for developing this project, and to the patients I worked with for teaching me how much strength and love can be present at the end of life.

Disclaimer

The patient's name and identifying details have been changed for confidentiality. Ms Wind's project and the application RecordMeNow are not for profit.

worksafebc

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sible TDH, please contact a medical advisor in your nearest WorkSafeBC office.

—**John Paul Thompson, MD**
WorkSafeBC Orthopaedic
Consultant

References

1. Carson J, Gumpert J, Jefferson A. Diagnosis and treatment of thoracic intervertebral disc protrusions. *J Neurol Neurosurg Psychiatry* 1971;34:68-77.
2. Brown CW, Deffer PA Jr, Akmakjian J, et al. The natural history of thoracic disc herniation. *Spine (Phila Pa 1976)* 1992; 17(6 suppl):S97-S102.
3. Wood KB, Garvey TA, Gundry C, Heithoff KB. Magnetic resonance imaging of the thoracic spine: Evaluation of asymptomatic individuals. *J Bone Joint Surg Am* 1995;77:1631-1638.

billing tips

Am I overservicing my patients?

One of the objectives of on-site audits is to determine whether physicians' patterns of practice for individual patients are justified. In other words, is the number of services provided to a patient reasonable given their particular condition? If not, this could be perceived as overservicing your patients.

Audits have shown that in some cases of overservicing, chart reviews indicated that visits were occurring very frequently—weekly or every 2 weeks—over a long period of time with very little being done at each visit. Also, the visits may have been requested by the physician and not the patient. A normal follow-up frequency for patients with chronic diseases would be every 3 to 6 months, or every 2 to 3 months to review the status of their condition and to conduct a medication review and renewal, especially if supported by clinical guidelines. For acute conditions, a shorter duration between appointments may be reasonable, if medically necessary.

In addition to looking at patients' charts, the Billing Integrity Program also looks at the physician's practitioner profile (similar to the mini profile). Relating to overservicing, the program specifically reviews the number of services per patient receiving the service (S/PRS), the number of services per 100 total patients (S/100TP), and the diagnostic complexity score. A low or average

comorbidity score associated with a high volume of services may be a concern.

Audits have shown ... visits were occurring very frequently—weekly or every 2 weeks—over a long period of time with very little being done.

A variety of factors affect the capacity of a practice, including the hours of work, the complexity of the patients, and the frequency of recalls. The efforts of practice support programs to attach more patients to GPs and foster advanced access models depend on a reasonable and justifiable frequency of visits. Physicians should be aware of the Preamble of the MSC Payment Schedule, specifically section C.5. Inclusive Services and Fees:

If it is not medically necessary for a patient to be personally reassessed prior to prescription renewal, specialty referral, release of diagnostic or laboratory results, etc., claims for these services must not be made to MSP regardless of whether or not a medical practitioner chooses to see his/her patients personally or speak with them via the telephone.

Seeing patients only as frequently as necessary, as long as that meets the standard of care, also helps to achieve the General Practice Services Committee and Practice Support Program goals of advanced access and more capacity to accept new patients.

—**Lorne Verhulst, MD**
Chair, Patterns of Practice
Committee

This article is the opinion of the Patterns of Practice Committee and has not been peer reviewed by the BCMJ Editorial Board. For further information contact Juanita Grant, manager, audit and billing, Physician and External Affairs, at 604 638-2829 or jgrant@doctorsofbc.ca.



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Bugs & Drugs Guide to Antimicrobial Therapy now free online for BC and Alberta prescribers

BC physicians are familiar with Bugs & Drugs, a comprehensive guide to antimicrobial therapy and an aid to wiser antibiotic use in front-line practice. The guide was initially available as a book, subsequently as an app, and is now available free and online to prescribers in BC and Alberta at www.bugsanddrugs.org. Both the app (which remains available at www.bugsanddrugs.ca) and online guide are continually updated and all updates are peer reviewed.

The guide offers information on antibiotics (e.g., spectrum of activity and dosing recommendations), empirical management advice (for adults and pediatrics) for 77 clinical syndromes, and a culture-directed

section for endocarditis, pneumonia, meningitis, prosthetic joint infections, and peritonitis. The guide also contains recommendations for ophthalmic, fungal, and parasitic infections, surgical prophylaxis, communicable

The guide is now available free and online to prescribers in BC and Alberta at www.bugsanddrugs.org.

diseases, dental infections, safety of antibiotics in pregnancy, and lactation, as well as the clinical significance and empirical management of 212 potential pathogens.

Navigation from the guide's online home page is straightforward (**Figure**), with the Treatment Recommendations section being the most visited.

Treatment guidance in Bugs & Drugs is informed by regional antibiograms from BC and Alberta. You can explore examples of patterns of interest through an interactive Antibiotic Resistance Dashboard (produced in collaboration by LifeLabs BC and BCCDC). You can also see patterns of antibiotic use on our Antibiotic Utilization Dashboard. Both tools are available on the Document-2BCCDC website (www.bccdc.ca/health-professionals/data-reports/antimicrobial-surveillance-tools).

Users of the Pathways website (<https://pathwaysbc.ca>) can also access quick links to treatment recommendations for common infections. Just type any of these terms into the Pathways search for quick point-of-care recommendations: pneumonia, sinusitis, bronchitis, conjunctivitis, otitis, urinary tract infection, or cellulitis. Pathways also contains Bugs

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



Figure. The Bugs & Drugs guide is available free and online to prescribers in BC and Alberta at www.bugsanddrugs.org.

Patient Pledge

I pledge to use antibiotics wisely:

1. I pledge to work with my doctor to determine if my illness may be viral or bacterial and if it is bacterial, whether antibiotics are needed.
2. I pledge not to ask for antibiotics for colds or the flu, as antibiotics don't work against cold or flu viruses.
3. I pledge to ask my doctor or pharmacist for advice on symptom relief for infections that do not need antibiotics.
4. When they are prescribed, I pledge to take antibiotics as directed by my doctor and not to share them with other people, as this would risk side effects and promote resistance.

You can, too, at www.antibioticwise.ca!

& Drugs information for patients that can be e-mailed to them from the Pathways website during an office visit.

Pledge to fight antibiotic resistance!

This year, Antibiotic Awareness Week is 13 to 19 November. The Do Bugs Need Drugs? program and partners will be asking the public to help by pledging to use antibiotics wisely and by challenging their friends to join the effort through social media. We're also asking physicians to make a similar pledge, designed for prescribers of antibiotics. Stay tuned, and please consider taking the pledge yourself and sharing it with your patients at www.antibioticwise.ca.

—David M. Patrick, MD, FRCPC, MHSc

—Edith Blondel-Hill, MD, FRCPC

—Kim Dreher, RN, BScN

—Tracy Monk, MD



General Practice Services Committee

Reminder: GPSC incentive changes in effect 1 October 2017

Effective 1 October 2017 some of the GPSC's incentives have changed in response to physician feedback collected during the visioning consultations, and to support the strategic objectives of the patient medical home model. Fees are being simplified and aligned, modified to enable team-based care, and transitioned, as some were initially connected to the time-limited A GP for Me initiative.

Of note, the Unattached Complex/High-needs Patient Attachment Fee (G14074) will be unavailable, and the new GP-Patient Email/Text, Telephone Medical Advice Relay Fee will be available. The new fee will enable doctors to communicate effectively with patients and delegate these communications to their MOAs and allied health professionals. This incentive will be applicable for all patients.

Details about the changes are available on the GPSC website (www.gpsbc.ca), including a downloadable summary chart, FAQs, and a webinar presentation and corresponding recording. The site and chart will be updated as changes are made, and revised billing guides will be available this fall.



MNP

Federal Government's Proposed Tax Changes
Understanding the Impact on Your Practice

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The federal government has proposed tax changes that could have a significant impact on medical professionals and their practices. Changes to sprinkling income using private corporations, holding a passive investment portfolio inside a private corporation and converting a private corporation's regular income into capital gains are three of the proposed legislative changes that could affect physicians.

For the latest information on how these proposed tax changes could impact your business, as well as your options to minimize the effect if the legislation moves forward, go to www.MNP.ca/en/professionals

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Forehead swelling in a 10-year-old male: A case report

The case of a patient with acute bacterial rhinosinusitis that progressed to Pott's puffy tumor illustrates the need for surgical drainage, antibiotics, and adjunct treatment consisting of a nasal decongestant, nasal steroid spray, and saline irrigation.

ABSTRACT: A 10-year-old male presented to a regional hospital with forehead swelling after a prodrome of upper respiratory illness followed by acute bacterial rhinosinusitis. Despite antibiotic treatment, the rhinosinusitis had progressed to frontal bone osteomyelitis with associated subperiosteal abscess known as Pott's puffy tumor. When this was confirmed by CT scan, the patient was transferred to BC Children's Hospital for definitive surgical treatment. After drainage of the forehead abscess and additional antibiotic treatment, the patient improved swiftly. At follow-up 8 months later the patient had experienced no recurrence of symptoms. It is possible that the failure of the antibiotics used initially to treat the

acute bacterial rhinosinusitis may have been associated with the patient's lack of compliance with the nasal sprays prescribed at that time. Adjunct therapies for rhinosinusitis such as nasal decongestants, nasal steroids, and nasal saline washes are thought to assist with recovery by relieving the obstruction of narrowed sinus ostia and contributing to the mechanical clearance of the infected fluid trapped in the sinuses. Although the use of adjunct measures is controversial because of the lack of appropriately designed studies investigating their effectiveness, the authors would recommend the use of such low-risk and potentially helpful interventions in patients presenting with sinusitis.

Case data

A 10-year-old boy presented to a regional hospital emergency department with forehead swelling 2 weeks after he had experienced 4 days of upper respiratory tract infection with symptoms of high fever, periorbital swelling, and frontal headaches. A CT scan of his sinuses revealed partial opacification of bilateral ethmoid, maxillary, and sphenoid sinuses (Figure 1A). A diagnosis of acute bacterial rhinosinusitis was made, and he was treated with intravenous cefuroxime for 2 days followed by oral cefuroxime for 9 days. In addition to antibiotics, he was prescribed the nasal decongestant xylometazoline. However, the patient could not tolerate the decongestant and did not use it.

At the time this case presented, Dr Butskiy was a PGY-3 resident and Dr Remillard was a PGY-5 resident in the Division of Otolaryngology – Head and Neck Surgery at the University of British Columbia. Dr Kozak is head of the Division of Pediatric Otolaryngology – Head and Neck Surgery at BC Children's Hospital and a clinical professor in the Department of Surgery at the University of British Columbia.

This article has been peer reviewed.

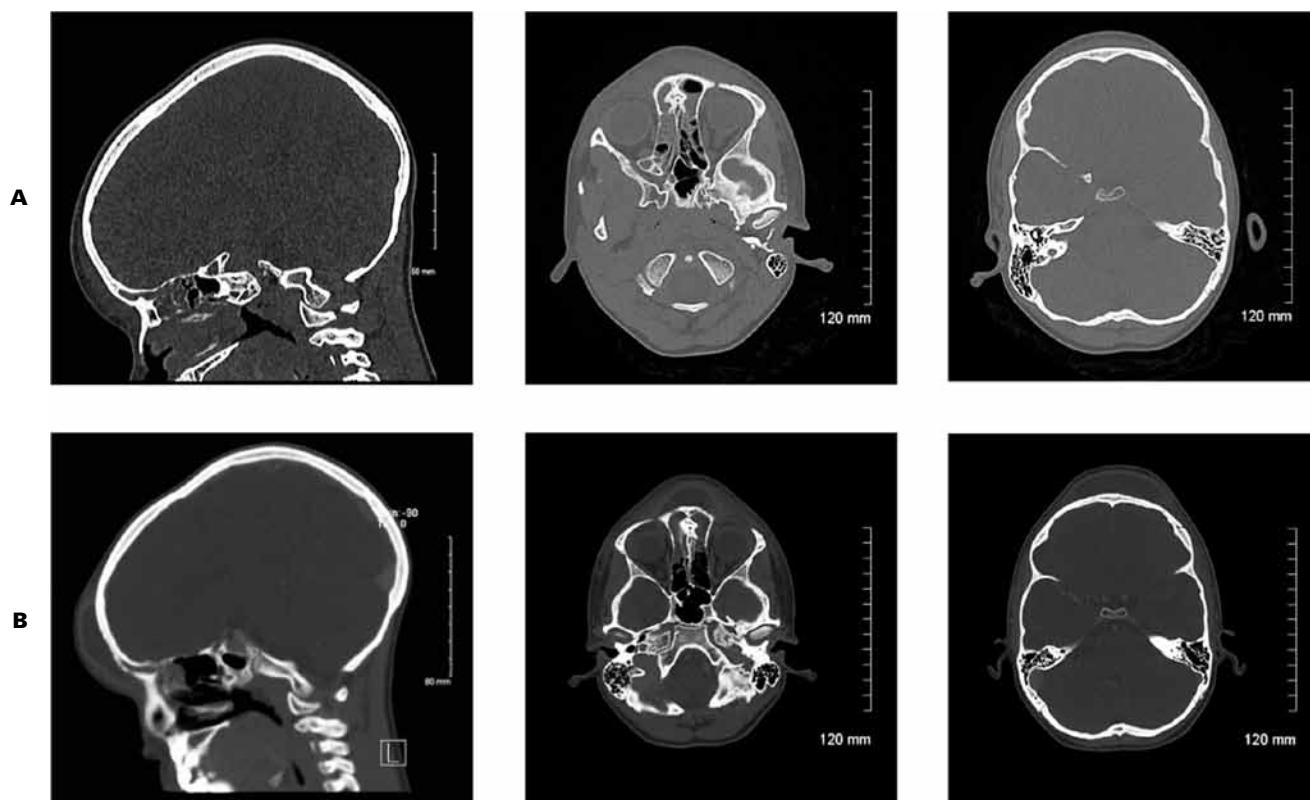


Figure 1. A: CT images obtained after patient presented with a prodrome of upper respiratory infection and onset of forehead swelling. Images reveal partial opacification of frontal and ethmoid sinuses. **B:** CT images obtained after antibiotic therapy and progression of forehead swelling. Images reveal complete bilateral opacification of frontal sinuses associated with moth-eaten appearance of the anterior table of the frontal bone and a subperiosteal abscess.

With completion of the antibiotic therapy, the patient's pain resolved and the forehead swelling decreased slightly. However, 2 days after stopping the antibiotics, the forehead swelling increased to the point where the patient was unable to put on a ski helmet, prompting a return to the emergency department. On physical examination he was found to have periorbital edema and fluctuant erythematous forehead swelling. A CT scan of his sinuses was repeated and showed progression to complete opacification of both frontal sinuses, but decreased opacification within the rest of the paranasal cavities. Importantly, the opacification within the frontal sinuses now appeared to erode

through the anterior table of the frontal bone, continuing anteriorly as a 1.8 cm by 5.0 cm by 8.0 cm collection of fluid (**Figure 1B**). A diagnosis of Pott's puffy tumor was made: acute bacterial rhinosinusitis complicated by osteomyelitis of the frontal bone.

The patient was started on intravenous ceftriaxone and clindamycin and transferred to BC Children's Hospital for definitive surgical treatment. Shortly after admission (**Figure 2**), he was taken to the operating room, where the nasal cavity was decongested with xylometazoline. Endoscopic examination revealed purulent fluid in the right middle meatus, which was suggestive of a draining frontal sinus. A 1-cm horizontal incision

just inferior to the medial aspect of the right eyebrow was made and a fine hemostat was used to enter the abscess cavity bluntly (**Figure 3A**). A copious amount of purulent fluid was expressed and gentle lavage with normal saline was performed (**Figure 3B**). A Penrose drain was inserted through the wound and sutured in place. Specimens were taken for culturing to identify aerobic and anaerobic bacteria.

The patient improved swiftly in the postoperative period and saw a rapid decrease in facial swelling over 2 days (**Figure 4**). He was treated with nasal xylometazoline for only 72 hours (longer treatment might have resulted in rhinitis medicamentosa)



Figure 2. Patient with forehead swelling seen on admission to BC Children's Hospital.

(Patient and guardian consent for the use of these and other photos has been granted.)

and with normal saline nasal washes and nasal steroid spray for several weeks. He continued on intravenous ceftriaxone and clindamycin antibiotics for 6 weeks, appropriate given the growth of penicillin-susceptible *Streptococcus intermedius* in the cultured specimens of abscess fluid. He experienced a complete resolu-

tion of symptoms, and no recurrence of sinusitis was found at follow-up 8 months later.

Discussion

Acute bacterial rhinosinusitis is common in both adults and children. Estimates suggest it is diagnosed annually in 12% of adults¹ and is present in 6%

to 7% of children seeking care for respiratory symptoms.² The 2011 Canadian clinical practice guidelines for acute and chronic rhinosinusitis define acute bacterial rhinosinusitis as the presence of nasal obstruction or nasal purulence/discolored postnasal discharge and either facial pain/pressure/fullness or hyposmia/anosmia

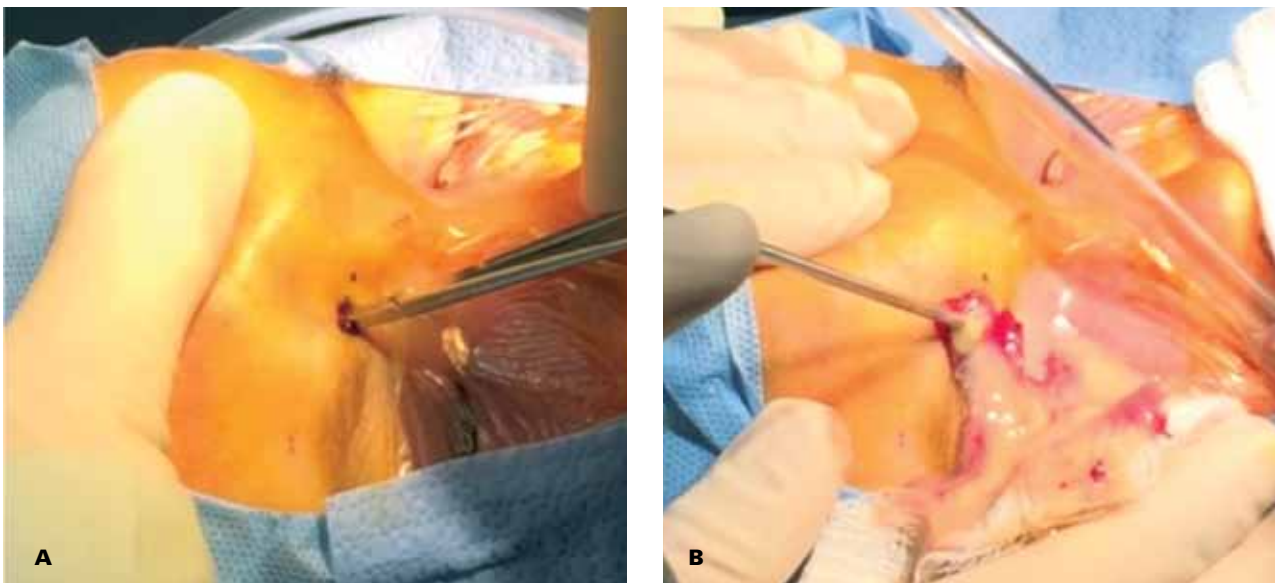


Figure 3. A: Use of a fine hemostat to enter the abscess cavity. B: Purulent discharge being expressed during drainage of the abscess through an external approach.

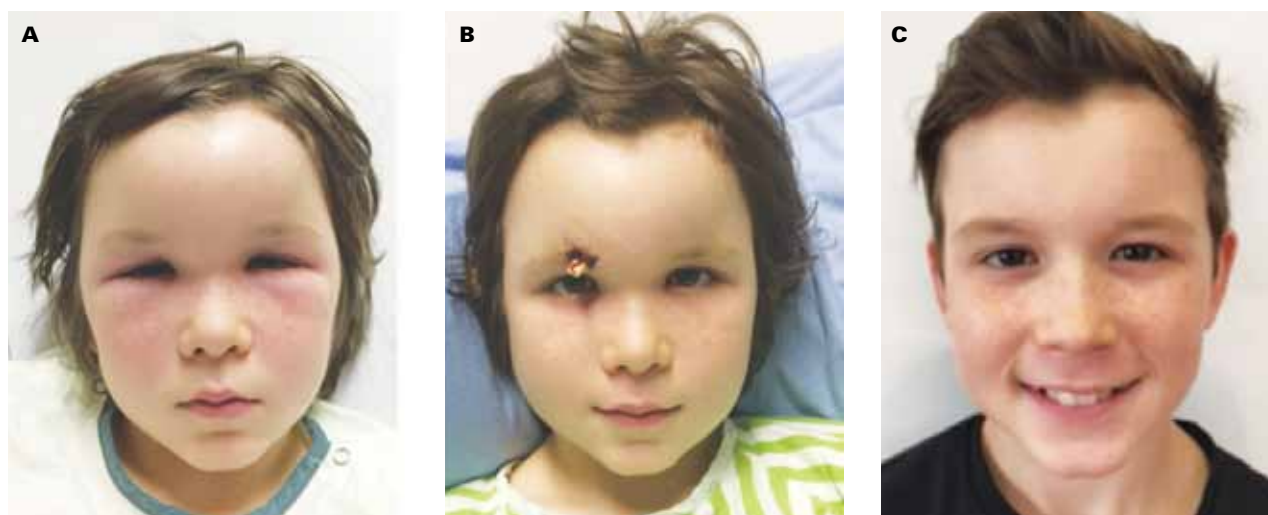


Figure 4. A: Patient immediately before surgical treatment. B: Patient 2 days after surgical treatment. C: Patient 20 months after surgical treatment.

for more than 7 days.³ It is important to note that in a pediatric population the symptoms of acute bacterial rhinosinusitis are indistinguishable from adenoiditis.⁴ Adenoiditis is the sole diagnosis in up to 10% of children who show symptoms and signs consistent with acute bacterial rhinosinusitis. The use of nasal endoscopy can help distinguish between acute bacterial rhinosinusitis and adenoiditis.⁵

Complications of acute bacterial rhinosinusitis can be classified as intracranial or extracranial. Intracranial complications include meningitis, intracranial abscess, and cavernous sinus thrombosis. Extracranial complications include periorbital cellulitis, orbital abscess, and Pott's puffy tumor. With the advent of antibiotics these complications have become relatively rare.

Pott's puffy tumor presents as localized swelling over the forehead and is defined as osteomyelitis of the frontal bone with associated subperiosteal abscess.⁶ Osteomyelitis is thought to be caused by infection of the frontal, ethmoid, and, more rarely, the maxil-

lary sinuses secondary to obstruction of their common drainage pathway. Other reported causes of Pott's puffy tumor include trauma, cocaine abuse, dental infections, carcinomas, insect bites, and acupuncture treatments.⁷

Pott's puffy tumor is known to be most common in adolescent males. During adolescence the frontal sinuses reach adult size and there is peak vascularity in the valve-less diploic veins of the skull. These two factors may contribute to the relatively high occurrence of Pott's puffy tumor in adolescence,⁷ although they do not explain the greater prevalence of the disease in males.

The natural history of Pott's puffy tumor in children is well documented. Records from John Hopkins Hospital show a mortality rate of 60% between 1930 and 1937, before the advent of antibiotics, largely due to uncontrolled intracranial spread of the infection. With the use of sulfa drugs starting in 1938, the mortality rate dropped to 33% by 1944. With the use of penicillin starting in 1952, the mortality rate dropped to 3.7% by 1964.⁸

Prompt surgical drainage of the

abscess and 6 weeks of intravenous antibiotic therapy are key to the successful treatment of Pott's puffy tumor,⁶ although the evidence supporting this treatment is limited to a small case series. The extent of surgical treatment remains controversial and must be decided on a case-by-case basis.⁶ There are several encouraging case series that support transnasal endoscopic drainage of frontal abscess.^{9,10} In the case described here, a decision was made not to perform endoscopic sinus surgery because the examination of the nasal cavity showed purulence draining into the nasal cavity, suggesting that the frontal sinus recess was at least partially open.

It is unclear why the patient in this case failed to respond to initial appropriate antibiotic treatment and progressed to develop osteomyelitis of the frontal bone. Possibly the patient's inability to tolerate the nasal decongestant prescribed when acute bacterial rhinosinusitis was diagnosed played a part, since adjunct therapies, including nasal decongestants (e.g., xylometazoline spray), nasal steroids

(e.g., mometasone spray), and nasal saline washes, are thought to relieve the obstruction of narrowed sinus ostia and contribute to the mechanical clearance of the infected fluid trapped in the sinuses.

The use of adjunct therapies for acute bacterial rhinosinusitis is controversial because of a lack of appropriately designed studies investigating their effectiveness.¹¹ The 2013 American Academy of Pediatrics guideline for acute bacterial rhinosinusitis makes no recommendation on the use of adjunct therapies,² while the 2015 American Academy of Otolaryngology guideline recommends discussing adjunct measures with patients as an option for symptomatic relief of acute bacterial rhinosinusitis.¹² By contrast, the 2011 Canadian guideline for acute and chronic rhinosinusitis recommends the use of intranasal corticosteroid for acute bacterial rhinosinusitis.³

While adjunct measures for complicated acute bacterial rhinosinusitis have not been studied adequately, a case note and literature review indicates the majority of clinicians recommend them¹³ and consider such low-risk interventions an acceptable way to provide symptom relief³ and assist with mechanical clearance of the sinus blockage. Thus, until further evidence is available, the authors would recommend the use of adjunct measures.

Summary

A classic example of Pott's puffy tumor is seen in the case of a 10-year-old male who presented with forehead swelling after an upper respiratory tract infection and acute bacterial rhinosinusitis. Despite treatment with appropriate antibiotic therapy he progressed to develop osteomyelitis of the frontal bone associated with a subperiosteal abscess. The patient improved rapidly after surgical drain-

age, intravenous administration of broad-spectrum antibiotics, and adjunct treatment consisting of a nasal decongestant, nasal steroid spray, and saline irrigation. The lack of adjunct treatment for acute bacterial rhinosinusitis may explain why the patient failed to respond to the initial course of antibiotic therapy. While the use of adjunct measures is controversial, we would encourage clinicians to consider such treatment for patients with acute bacterial rhinosinusitis, especially when patients show early signs of complications.

Competing interests

None declared.

References

1. Blackwell DL, Lucas JW, Clarke TC. Summary health statistics for US adults: National health interview survey, 2012. *Vital Health Stat* 10;2014:1-161.
2. Wald ER, Applegate KE, Bordley C, et al. Clinical practice guideline for the diagnosis and management of acute bacterial sinusitis in children aged 1 to 18 years. *Pediatrics* 2013;132:e262-280.
3. Desrosiers M, Evans GA, Keith PK, et al. Canadian clinical practice guidelines for acute and chronic rhinosinusitis. *Allergy Asthma Clin Immunol* 2011;7:2.
4. Tosca MA, Riccio AM, Marseglia GL, et al. Nasal endoscopy in asthmatic children: Assessment of rhinosinusitis and adenoiditis incidence, correlations with cytology and microbiology. *Clin Exp Allergy* 2001;31:609-615.
5. Marseglia GL, Pagella F, Klersy C, et al. The 10-day mark is a good way to diagnose not only acute rhinosinusitis but also adenoiditis, as confirmed by endoscopy. *Int J Pediatr Otorhinolaryngol* 2007;71:581-583.
6. Kombogiorgas D, Solanki GA. The Pott puffy tumor revisited: Neurosurgical implications of this unforgotten entity. Case report and review of the literature. *J Neurosurg Pediatr* 2006;105:143-149.

7. Tsai BY, Lin KL, Lin TY, et al. Pott's puffy tumor in children. *Childs Nerv Syst* 2009; 26:53-60.
8. Bordley JE, Bischofberger W. Osteomyelitis of the frontal bone. *Laryngoscope* 1967;77:1234-1244.
9. Jung J, Lee HC, Park IH, Lee HM. Endoscopic endonasal treatment of a Pott's puffy tumor. *Clin Exp Otorhinolaryngol* 2012;5:112-115.
10. van der Poel NA, Hansen FS, Georgalas C, Fokkens WJ. Minimally invasive treatment of patients with Pott's puffy tumour with or without endocranial extension – a case series of six patients: Our experience. *Clin Otolaryngol* 2016;41:596-601.
11. Shaikh N, Wald ER, Pi M. Decongestants, antihistamines and nasal irrigation for acute sinusitis in children. *Cochrane Database Syst Rev* 2010;(12)CD007909.
12. Rosenfeld RM, Piccirillo JF, Chandrasekhar SS, et al. Clinical practice guideline (update): Adult sinusitis. *Otolaryngol Head Neck Surg* 2015;152:S1-39.
13. Atfeh MS, Khalil HS. Orbital infections: Five-year case series, literature review and guideline development. *J Laryngol Otol* 2015;129:670-676. **BCMJ**

Tick-borne relapsing fever in British Columbia: A 10-year review (2006–2015)

A case review of *Borrelia hermsii* infections in BC indicates physicians outside disease-endemic areas may not be fully aware of the presence of this spirochete in the province.

ABSTRACT

Background: Tick-borne relapsing fever is one of the oldest tick-borne diseases identified in British Columbia. The causative agent is the spirochete *Borrelia hermsii*, which is transmitted to humans by the night-feeding soft-shelled tick *Ornithodoros hermsi* found in southeastern British Columbia and the northwestern United States. The identification of this illness is made difficult by the fact that tick-borne relapsing fever is not a reportable illness in BC and laboratory diagnosis can be challenging. The innocuous feeding pattern of the vector tick means bites can go unnoticed, while the typical 7-day delay in symptoms means patients often do not become ill until after they have left a disease-endemic area where physicians are more likely to recognize the illness. Identification and treatment of this illness is important because it can cause long-term sequelae, including cardiac and renal disturbances, peripheral nerve disturbances, ophthalmitis, and complications during pregnancy. A report on a 10-year review of cases in BC was proposed to alert physicians to the presence of

this infectious disease and explain how to submit blood samples for testing to the BC Centre for Disease Control Public Health Laboratory.

Methods: From 2006 to 2015, the BC Centre for Disease Control Public Health Laboratory received 112 samples from 100 patients suspected to have tick-borne relapsing fever. These samples were analyzed using dark field microscopy, immunofluorescence assay, western blot testing, and polymerase chain reaction assay. A review of the laboratory findings was conducted and the diagnostic challenges and sample requirements were considered.

Results: The 100 patients (57 male, 43 female) whose 112 samples were analyzed during the review period ranged in age from 6 to 83 years, and most (67%) were either young or middle-aged adults (20 to 60 years). Of these patients, 19 tested positive for *B. hermsii* (12 female, 7 male). Except for 2009 and 2014, at least one case of tick-borne relapsing fever was identified each year, with the top year being 2007 (seven cases). Most of the positive cases were associated with the Thompson-Okanagan

region. Polymerase chain reaction assay and Giemsa stain testing yielded the highest proportion of positive results (4 of 11 samples) followed by immunofluorescence assay for IgG antibodies (19 of 109).

Conclusions: The high proportion of positive results (19%) may be due to the submission of mainly very characteristic samples received from an endemic area. Many physicians may not be aware of the presence of *B. hermsii* tick-borne relapsing fever in BC and therefore do not request testing. Physicians should note that patients are unlikely to report a painless tick bite received during sleep and that the key symptom is a sudden, high fever (39.2 °C or higher) that follows an incubation period of approximately 7 days and lasts 3 to 7 days. An asymptomatic period of 7 days is then followed by an average of two relapses. General infections considered in the differential diagnosis should include salmonellosis, bartonellosis, tularemia, and leptospirosis. Patients should also be asked about foreign travel to rule out a range of other infections such as malaria, kala azar, yellow fever, and sand fly fever. Blood samples for identifying the causative

This article has been peer reviewed.

agent for a recurrent fever should be collected while the patient is febrile and prior to initiation of antibiotic therapy. The appropriate samples are 7 mL of blood in a red-top serum separator tube for serology and 7 mL of blood in an EDTA tube for Giemsa staining and polymerase chain reaction assay. Patients diagnosed with tick-borne relapsing fever have been shown to respond effectively to doxycycline/tetracycline, macrolides such as erythromycin, and penicillin. Approximately one-half of patients will experience some sort of Jarisch-Herxheimer reaction and should be monitored for this. In future, molecular testing, an organized approach to diagnosis, and a greater physician awareness of this illness should allow for more rapid and confident diagnoses and effective treatment of patients with this tick-borne illness.

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Background

The Thompson-Okanagan region of British Columbia (population approximately 540 000 in 2015) is an arid part of the province contiguous with north-central Washington state. A warm dry climate and bountiful natural resources make this region a major tourist destination for outdoor activity. Approximately 40% of visitors come from BC and a similar proportion from other parts of Canada.¹ Since the mid-1930s, there have been several documented cases of tick-borne relapsing fever (TBRF) in the Thompson-Okanagan, eastern Washington, eastern Oregon, and Montana.² The causative agent is the spirochete *Borrelia hermsii*, which is transmitted to humans by the painless bite of the night-feeding soft-shelled tick *Ornithodoros hermsi* (Figure 1).³ The identification of TBRF is made difficult by the fact that it is not a reportable illness in BC and laboratory diagnosis can be challenging.³ As well, the innocuous feeding pattern of the vector tick means that bites can go unnoticed and the typical 7-day delay in symptoms during the incubation period means patients often do not become ill until after they have left a disease-endemic area where phys-

icians are more likely to recognize TBRF.^{4,5}

Infection with *B. hermsii* leads to a relapsing fever that may have as many as 13 cycles before resolving over 6 to 7 months. Identification and treatment of this illness is important because it can cause long-term sequelae, including cardiac and renal disturbances, peripheral nerve disturbances, and ophthalmitis.⁶⁻⁸ Intrauterine transmission is possible and may lead to complications during pregnancy.⁹ Generally, death occurs more frequently in untreated louse-borne relapsing fever than in TBRF. Mortality from TBRF in North America is rare, but has been associated with complications during pregnancy, including spontaneous abortion, premature birth, and neonatal death.⁸

The British Columbia Centre for Disease Control (BCCDC) Public Health Laboratory (PHL) currently provides testing services for the diagnosis of *B. hermsii* TBRF. A report on a 10-year review of cases and PHL testing capabilities was proposed to alert physicians to the presence of this infectious disease, provide education on TBRF, and explain how to submit blood samples for testing.



Figure 1. Two views of an *Ornithodoros hermsi* specimen collected in the Thompson-Okanagan region and measuring 5.5-mm long and 3.4-mm wide.

Methods

From 2006 to 2015, the BCCDC Public Health Laboratory received 112 samples for TBRF testing from 100 patients (57 male and 43 female) ranging in age from 6 to 83. The following tests were used to determine if any of the samples contained *B. hermsii*.

Dark field microscopy and Giemsa stain. These procedures were used to visualize spirochetes (**Figure 2**) in the whole blood of patients collected during a febrile period when the density of spirochetes is at least 10^5 cells per mL of blood.²

Immunofluorescence assay (IFA).

A two-step sandwich procedure using indirect immunofluorescence was used to detect antibodies to *B. hermsii* HS1 (serotype 33).⁵ Samples were considered positive if dilutions of 1:256 or more conferred fluorescence and samples demonstrating reactivity of more than 1+ at dilutions of 1:512 were scored as 1:512 or more.

Western blot test. This procedure was carried out using strips containing 39 kDa protein (GlpQ) from *B. hermsii*

kindly supplied by Dr Tom Schwan (Rocky Mountain Laboratories, Hamilton, MT, US). Western blotting protocols were followed as described by Schwan and colleagues.¹⁰

Polymerase chain reaction (PCR) assay.

Borrelia DNA was extracted from specimens using DNeasy Blood and Tissue Kits (Qiagen, Germany). DNA was amplified on Taqman real-time PCR using ABI Taqman 7500 (Applied Biosystems, US).^{11,12}

The laboratory findings from all of these tests were reviewed and the diagnostic challenges and sample requirements were considered.

Results

During the study period, 19 of 100 patients tested for TBRF (19%) were shown to have evidence of infection with *B. hermsii* by a variety of methods, including dark field microscopy, Giemsa stain, serology (with or without western blotting), and PCR. Except for 2009 and 2014, at least one case of TBRF was identified in each year, with the top year being 2007 (seven cases). Most of the patients suspected to have TBRF (67%) were

either young or middle-aged adults (20 to 60 years). Of the 19 patients with positive test results, 12 were female and 7 were male. Most of the positive cases were found in the Thompson-Okanagan region of British Columbia.

PCR assay and Giemsa stain testing using blood collected in an EDTA tube yielded the highest proportion of positive results (4 of 11 samples) followed by IgG IFA (19 of 109), IgM IFA (9 of 107), and dark field microscopy (2 of 14). The IgM and IgG western blot tests using GlpQ from *B. hermsii* supplied by Rocky Mountain Laboratories had the highest proportion of positive results, but the test strips have been unavailable since 2008. Later laboratory tests were limited to microscopy, IFA, and PCR only.

Conclusions

The geographic distribution of blood samples found to be positive for *B. hermsii* during the review period is shown in **Figure 3**. The majority of cases of TBRF were actually identified in patients from the Kootenay-Boundary region, a known endemic region. The next largest group was from Greater Vancouver, a nonendemic region. Although we were unable to obtain travel histories for the majority of these patients, it is possible they visited an endemic region in the Pacific Northwest or Western US and then presented to a physician in a nonendemic region.⁵ The percentage of TBRF cases in BC also seems high compared with other studies.²

Diagnostic challenges

Even though TBRF is one of the oldest tick-borne diseases reported in BC, the BCCDC Public Health Laboratory receives only 5 to 25 samples for testing each year and these are classic in nature. This indicates health care professionals may not be fully

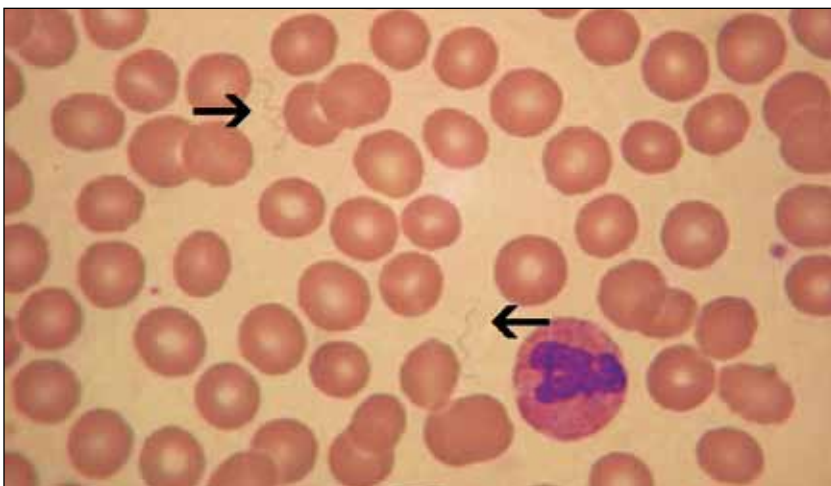


Figure 2. Tick-borne relapsing fever spirochetes (arrows) visible in a Giemsa-stained smear of peripheral blood.

aware of the presence of *B. hermsii* in BC.

Until laboratory results are available, tick-borne relapsing fever should be considered in patients with a history of recurrent fever and possible exposure to soft-bodied ticks. *O. hermsi*, the known vector for *B. hermsii*, feeds on a host for a short period ranging from 15 to 20 minutes. It often feeds at night and its bites are not painful or noticeable. This means hosts are usually bitten while asleep and remain unaware they have been bitten until symptoms of TBRF appear.¹³ The innocuous feeding pattern of *O. hermsi* makes it important not to exclude TBRF from the differential diagnosis simply because there is no known history of tick bites.¹⁴

Physicians should be aware that the key symptom of TBRF is a sudden, high fever (39.2 °C or higher) that follows an incubation period of 7 days and lasts for 3 to 7 days.⁵ Fever crises of less than 30 minutes are followed by diaphoresis, hypotension, and a decrease in temperature. Nonspecific symptoms may include chills, sweats, headaches, body aches, rash, nausea, vomiting, dry cough, neck pain, eye pain, confusion, and dizziness.^{5,15,16} After an asymptomatic period that averages 7 days, an average of two relapsing episodes follow the first febrile episode.¹⁷ General laboratory tests can provide evidence that supports a diagnosis of tick-borne relapsing fever. Patients with TBRF may present with mild leukocytosis, an elevated erythrocyte sedimentation rate and anemia, thrombocytopenia, elevated serum unconjugated bilirubin, elevated aminotransferase levels, prolonged prothrombin and partial thromboplastin times, proteinuria, and microhematuria. Patients with TBRF-associated myocarditis may present with a prolonged QT interval on electrocardiography. A pa-

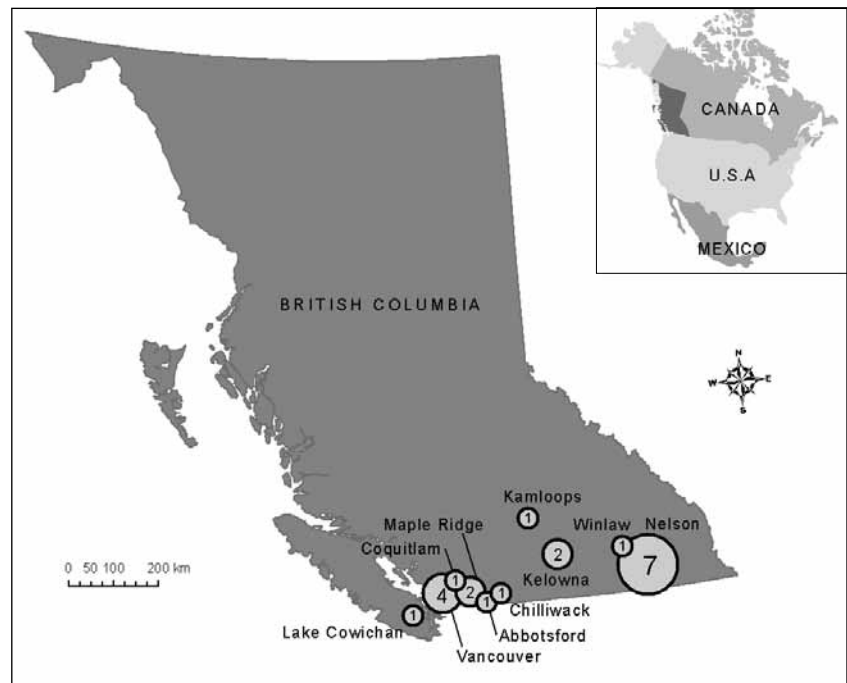


Figure 3. Geographic distribution of blood samples that tested positive for *B. hermsii* in British Columbia, 2006–2015.

While a significant number of samples were obtained from patients in the BC Lower Mainland, the patients were likely infected with tick-borne relapsing fever outside of this nonendemic region. (Note that three additional positive samples from the review period are not included on this map because of missing geographic information.)

tient with CNS *Borrelia* infection may exhibit moderate pleocytosis, mild-to-moderate elevated protein levels, and normal glucose levels.¹⁵

Physicians should be aware that serological testing for *B. hermsii* can be affected by cross-reactivity with a related organism, *Borrelia burgdorferi*, which is well documented in the literature.^{18,19} In this review, several of the 24 samples from 19 patients found to be positive for *B. hermsii* also tested positive in assays for *B. burgdorferi*. Positive *B. burgdorferi* results were found in 8 of 22 samples tested by enzyme immunoassay and 2 of 22 samples tested by IgM western blot. *B. burgdorferi* testing was not conducted for two patients because of sample quantity.

As well as being aware of cross-

reactivity issues, physicians assessing patients for recurrent fever should consider general infections in the differential diagnosis, including salmonellosis, bartonellosis, tularemia, and *Leptospira*.^{15,17} If there is a history of foreign travel, the differential diagnosis should also include amebic liver abscess, babesiosis, louse-borne relapsing fever, malaria, typhoid fever, and viral hepatitis. Depending on the patient history, a differential diagnosis may also include Colorado tick fever, ehrlichiosis, anaplasmosis, and rickettsiosis.

Blood sample requirements

When physicians suspect a patient experiencing recurrent fever is infected with *B. hermsii*, blood samples should be collected while the patient is

febrile and prior to antibiotic therapy. This is because culturing is often difficult and spirochete loads are highest during febrile periods. Documented cases of tick-borne relapsing fever have been missed in the past because blood was not drawn while the patient was febrile.² The appropriate samples are 7 mL of blood in a red-top serum separator tube for serology and 7 mL of blood in an EDTA tube for Giemsa staining and PCR. Blood samples can be submitted to the BCCDC Public Health Laboratory for Giemsa stain testing, *B. hermsii* serology/western blot testing, and PCR assay along with relevant clinical information. A convalescent specimen is required 2 to 4 weeks after collection of the first specimen.

Prior to 1998, isolates were established in pure culture after first inoculating laboratory mice (*Mus musculus*) with spirochetemic blood from the human patients. Starting in 1999, the BCCDC stopped using mouse amplification of *B. hermsii*.³ Instead, infected human blood is now inoculated into BSK-H media and incubated at 34 °C with spirochetes being harvested and examined after two to four passages.³ To note: *B. hermsii* strains were isolated using the mouse inoculation method (0.2 mL blood inoculated intraperitoneally) in laboratory mice followed by subsequent transfer to BSK II media; however, none of the culture results were positive for the period when animals were not used (data not shown).

Clinical management

Untreated *B. hermsii* infection can lead to sequelae. The infection has been shown to respond effectively to doxycycline/tetracycline, macrolides such as erythromycin, and penicillin, with effective treatment keeping mortality to less than 1%.^{5,15,20} Although data suggest other agents are

effective, including cephalosporins and chloramphenicol,^{2,5,15} the ideal duration of therapy has not been established. Physicians should be aware that unlike an infection with the causative agent for louse-borne relapsing fever, *Borrelia recurrentis*, an infection with *B. hermsii* cannot be treated with a single dose of antibiotics. Current recommendations for treatment of *B. hermsii* TBRF require 7 days of oral or parenteral antibiotic therapy. Young children and pregnant women should be treated with erythromycin or penicillin.¹⁵ Methods to protect against acquisition of TBRF include rodent-proofing buildings in endemic areas, avoiding rodent-infested buildings, and using DEET to protect against tick bites.^{20,21}

Although this review did not identify patients with a posttreatment Jarisch-Herxheimer reaction, the reaction is common following the antibiotic treatment of spirochete infections, including syphilis,^{22,23} leptospirosis,²⁴ TBRF, and non-TBRF *Borrelia* infections. Common signs and symptoms include fever, chills, rigors, diaphoresis, myalgia, increased heart rate, increased respiratory rate, and hypotension.²² In rare cases, there may be cardiovascular collapse and death.^{25,26} Approximately one-half of patients with TBRF will experience some sort of Jarisch-Herxheimer reaction and while this reaction can occur after antibiotic therapy^{2,27,28} there is some question as to which antibiotics and doses of antibiotics are most associated with the Jarisch-Herxheimer reaction.²⁹⁻³¹ Mechanistically, this reaction occurs when a cytokine storm involving TNF, IL-6, and IL-8 follows the release of endotoxins from damaged and dying spirochetes.²⁵ Because this is an endotoxin-mediated process, symptoms occur within the first 4 hours after antibiotic therapy and will seem similar

to a febrile crisis with rigors and a noticeable drop in blood pressure.²⁷ Patients should be watched closely for a Jarisch-Herxheimer reaction for 12 to 24 hours after antibiotic therapy in an environment where supportive care can be given.⁹

Summary

The identification and management of tick-borne relapsing fever caused by *B. hermsii* that have been transmitted by *O. hermsi* is important because the untreated illness can result in long-term sequelae. Tests conducted at the BCCDC Public Health Laboratory for this infection include dark field microscopy, immunofluorescence assay, western blot testing, and polymerase chain reaction assay. These tests require blood samples to be collected in a red-top serum separator tube and an EDTA tube, preferably while the patient is febrile and before antibiotic therapy is initiated. None of these tests is perfect and we believe that the gold standard for identifying *B. hermsii* TBRF cases includes an analysis of risk factors. Physicians should question patients about time spent in tents and cabins, whether patients have noticed insect bite marks after nights spent in forested areas, and whether they have traveled to an endemic region.^{5,32}

By communicating about cases with the BCCDC and submitting appropriate samples for testing to the Public Health Laboratory, health care professionals can assist with determining the geographic range of *B. hermsii* and help monitor for expansion into regions of the province previously not known to harbor natural hosts and vectors of this spirochete. In future, molecular testing, an organized approach to diagnosis, and increased physician awareness of this illness should allow for more rapid and confident diagnoses and the

effective treatment of patients with *B. hermsii* TBRF.

Competing interests

None declared.

References

1. Yu B. Thompson-Okanagan regional economic outlook. Economic analysis of British Columbia. 2015. Central 1 website. Accessed 25 July 2017. www.central1.com/sites/default/files/THOMPSON-OKANAGAN.pdf.
2. Fritz CL, Bronson LR, Smith CR, et al. Isolation and characterization of *Borrelia hermsii* associated with two foci of tick-borne relapsing fever in California. *J Clin Microbiol* 2004;42:1123-1128.
3. Banerjee SN, Banerjee M, Fernando K, et al. Tick-borne relapsing fever in British Columbia, Canada: First isolation of *Borrelia hermsii*. *J Clin Microbiol* 1998;36:3505-3508.
4. Boyer KM, Munford RS, Maupin GO, et al. Tick-borne relapsing fever: An interstate outbreak originating at Grand Canyon National Park. *Am J Epidemiol* 1977;105:469-479.
5. Trevejo RT, Schriefer ME, Gage KL, et al. An interstate outbreak of tick-borne relapsing fever among vacationers at a Rocky Mountain cabin. *Am J Trop Med Hyg* 1998;58:743-747.
6. Kurtz SK. Relapsing fever/Lyme disease. Multiple sclerosis. *Med Hypotheses* 1986;21:335-343.
7. Olchovsky D, Pines A, Sadeh M, et al. Multifocal neuropathy and vocal cord paralysis in relapsing fever. *Eur Neurol* 1982;21:340-342.
8. Dworkin MS, Schwan TG, Anderson DE Jr, Borchardt SM. Tick-borne relapsing fever. *Infect Dis Clin North Am* 2008;22:449-468.
9. Guggenheim JN, Haverkamp AD. Tick-borne relapsing fever during pregnancy: A case report. *J Reprod Med* 2005;50:727-729.
10. Schwan TG, Schrumphf ME, Hinnebusch BJ, et al. GlpQ: an antigen for serological discrimination between relapsing fever and Lyme borreliosis. *J Clin Microbiol* 1996;34:2483-2492.
11. Postic D, Assous MV, Grimont PA, Baron-ton G. Diversity of *Borrelia burgdorferi sensu lato* evidenced by restriction fragment length polymorphism of rrf (5S)-rrl (23S) intergenic spacer amplicons. *Int J Syst Bacteriol* 1994;44:743-752.
12. Persing DH, Telford SR 3rd, Spielman A, Barthold SW. Detection of *Borrelia burgdorferi* infection in *Ixodes dammini* ticks with the polymerase chain reaction. *J Clin Microbiol* 1990;28:566-572.
13. Bay DE, Harris RL. Introduction to veterinary entomology: A guide to livestock insects. Bryan, TX: Stonefly Publishing; 1988. p. 72.
14. Schwan TG, Piesman J. Vector interactions and molecular adaptations of Lyme disease and relapsing fever spirochetes associated with transmission by ticks. *Emerg Infect Dis* 2002;8:115-121.
15. Roscoe C, Epperly T. Tick-borne relapsing fever. *Am Fam Physician* 2005;72:2039-2044.
16. Coffey EM, Eveland WC. Experimental relapsing fever initiated by *Borrelia hermsii*. II. Sequential appearance of major serotypes in the rat. *J Infect Dis* 1967;117:29-34.
17. Barbour AG, Carter CJ, Sohaskey CD. Surface protein variation by expression site switching in the relapsing fever agent *Borrelia hermsii*. *Infect Immun* 2000;68:7114-7121.
18. Rath PM, Rogler G, Schonberg A, et al. Relapsing fever and its serological discrimination from Lyme borreliosis. *Infection* 1992;20:283-286.
19. Banerjee S, Banerjee M, Cimolai N, et al. Seroprevalence survey of borreliosis in children with chronic arthritis in British Columbia, Canada. *J Rheumatol* 1992;19:1620-1624.
20. Bratton RL, Corey R. Tick-borne disease. *Am Fam Physician* 2005;71:2323-2330.
21. Paul WS, Maupin G, Scott-Wright AO, et al. Outbreak of tick-borne relapsing fever at the north rim of the Grand Canyon: Evidence for effectiveness of preventive measures. *Am J Trop Med Hyg* 2002;66:71-75.
22. See S, Scott EK, Levin MW. Penicillin-induced Jarisch-Herxheimer reaction. *Ann Pharmacother* 2005;39:2128-2130.
23. Flores JL. Syphilis. A tale of twisted treponemes. *West J Med* 1995;163:552-559.
24. Tattevin P, Jaureguiberry S, Michelet C. Meningitis as a possible feature of the Jarisch-Herxheimer reaction in leptospirosis. *Eur J Clin Microbiol Infect Dis* 2003;22:449.
25. Griffin GE. Cytokines involved in human septic shock—the model of the Jarisch-Herxheimer reaction. *J Antimicrob Chemother* 1998;41(suppl A):25-29.
26. Silberstein P, Lawrence R, Pryor D, Schnierer R. A case of neurosyphilis with a florid Jarisch-Herxheimer reaction. *J Clin Neurosci* 2002;9:689-690.
27. Webster G, Schiffman JD, Dosanjh AS, et al. Jarisch-Herxheimer reaction associated with ciprofloxacin administration for tick-borne relapsing fever. *Pediatr Infect Dis J* 2002;21:571-573.
28. Borgnolo G, Hailu B, Ciancarelli A, et al. Louse-borne relapsing fever. A clinical and an epidemiological study of 389 patients in Asella Hospital, Ethiopia. *Trop Geogr Med* 1993;45:66-69.
29. Dworkin MS, Anderson DE, Jr, Schwan TG, et al. Tick-borne relapsing fever in the northwestern United States and southwestern Canada. *Clin Infect Dis* 1998;26:122-131.
30. Perine PL, Teklu B. Antibiotic treatment of louse-borne relapsing fever in Ethiopia: A report of 377 cases. *Am J Trop Med Hyg* 1983;32:1096-1100.
31. Warrell DA, Perine PL, Krause DW, et al. Pathophysiology and immunology of the Jarisch-Herxheimer-like reaction in louse-borne relapsing fever: Comparison of tetracycline and slow-release penicillin. *J Infect Dis* 1983;147:898-909.
32. Schwan TG, Policastro PF, Miller Z, et al. Tick-borne relapsing fever caused by *Borrelia hermsii*, Montana. *Emerg Infect Dis* 2003;9:1151-1154. **BCMJ**

Current therapy for primary varicose veins

Assessment and treatment options for patients with varicose veins have improved with the availability of office-based ultrasound and recent technical advances.

ABSTRACT: Chronic venous disease encompasses a broad range of conditions from minor telangiectasia to varicose veins to severe venous insufficiency with venous ulcers. The common underlying mechanism for chronic venous disease is congestion and stasis caused by reversal of venous flow and valve failure. Patients with primary varicose veins have venous congestion limited to the superficial venous system, which means that removal of the affected superficial vessels is curative. Patients with secondary varicose veins have dysfunction of the deep venous system, and the more complex treatment they require is not addressed in this article. In patients with primary varicose veins, valve failure is thought to result from hereditary weakness in the valve leaflets, prolonged standing, hormonal effects, minor direct trauma, or superficial

phlebitis. Although the natural history of varicose veins is usually benign, many patients do experience symptoms of achy legs and edema. Treatment options include conservative measures such as compression therapy and leg elevation as well as more invasive vein procedures including sclerotherapy, vein surgery, stab avulsion, and endovenous ablation. While surgery with high ligation and stripping remains the gold standard for treating varicose veins, endovenous procedures have some advantages, including the use of local rather than general anesthetic, earlier return to normal activities, a reduction in periprocedural discomfort, and improved cosmetic appearance. Ultimately, the best treatment is the one tailored to the individual patient based on vein anatomy, symptoms, comorbidities, and preference.

Patients with varicose veins (VV) have serpiginous or worm-like raised superficial veins in a lower extremity (**Figure 1**). Indications for treatment include leg pain, persistent edema, skin damage, and healed or active venous ulcer. The availability of office-based ultrasound and recent technical advances have vastly improved the assessment and treatment options for VV patients. Both conservative and more invasive interventions may be considered, depending on the individual patient.

Epidemiology and pathophysiology

Chronic venous disease encompasses a broad range of conditions from minor telangiectasia (so-called spider veins) to varicose veins to severe venous insufficiency with venous ulcers. An estimated 10% to 30% of adults are affected by VV. The prevalence of VV is higher in industrialized countries, but can affect patients of any ethnicity. Most studies have found VV to affect women more often than men, with a twofold to threefold predominance. This difference is presumed to

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be due to the effect of pregnancy and possibly to vein-dilating hormonal influences. Other risk factors for developing VV include older age, positive family history, obesity, and a standing occupation.

The common underlying mechanism for chronic venous disease is congestion and stasis caused by reversal of venous flow and valve failure. There are several theories regarding pathogenesis. The current predominant theory posits that weakness in the vein wall causes vessel dilatation, which leads to valve failure and reflux flow.¹ Normally, venous return in the leg consists of blood traveling through one-way valves from the feet to the heart, and from superficial veins to the deep veins. Anatomically, the pathways are through the saphenous and perforator veins. Valve failure in the great saphenous vein (GSV) or small saphenous vein (SSV) causes pooling and congestion of blood in the superficial leg veins when the patient is in a standing or sitting position. Over time, this congestion forces the veins to dilate, elongate, and develop varicosities. GSV and SSV reflux are the most common anatomical reason for VV.

Primary versus secondary varicose veins

In most patients, there is no specific disease process to account for vein wall weakness. Patients in this large group are categorized as having primary VV, and any valve failure is thought to be attributable to hereditary weakness in the valve leaflets, prolonged standing, hormonal effects, minor direct trauma, or superficial phlebitis. By contrast, the small group of patients with secondary VV have a history of deep vein thrombosis (DVT) in the affected leg. Venous reflux in secondary VV is more severe and is due to the damaging inflammatory effect of the blood clots on the valves of the deep veins. Venous obstruction may also result from residual clots. Patients with secondary VV tend to have severe symptoms of leg edema and skin changes from venous insufficiency with or without prominent varicose vein formation. The management strategy for secondary VV is quite different from the strategy for primary VV. This is because patients with primary VV have venous congestion limited to the superficial venous system, which means that removal of the offending superficial vessels is

curative. Patients with secondary VV have dysfunction of the deep venous system, which means that treatment cannot simply aim to eliminate the superficial varicose veins but must also control the underlying deep venous problem, a topic beyond the scope of this article.

Reasons to treat varicose veins

The natural history of primary VV is usually benign; many patients do, however, experience symptoms from their veins. Even patients who claim to have no symptoms will often feel better using compression stockings or after having their veins removed. Classic symptoms associated with VV include achy legs and lower leg swelling toward the latter part of the day. The symptoms worsen with prolonged standing and are relieved with leg elevation. Some patients develop superficial thrombophlebitis, or inflamed blood clot, which can be quite painful. More severe presentations for VV include stasis dermatitis, skin pigmentation (Figure 2), skin hardening (detmatosclerosis), atrophie blanche, varicose bleeding, and skin ulceration (Figure 3). These severe manifestations are commonly referred to



Figure 1. Leg with primary varicose veins.



Figure 2. Chronic venous stasis pigmentation.



Figure 3. Healed venous ulcer.

as findings of chronic venous insufficiency. The severity of varicose veins is scored according to the revised clinical, etiologic, anatomic, and pathophysiologic (CEAP) classification system developed by the American Venous Forum (Table 1).² Indications for treatment include leg pain, persistent edema (C3), skin damage (C4), and healed (C5) or active venous ulcer (C6). Some patients may also seek treatment to improve the cosmetic appearance of their legs.

Conservative treatment

A number of conservative options can be used to treat VV. These include compression therapy, leg elevation, weight loss, and pharmacotherapy.

Compression therapy

In the past, graduated compression stockings were generally considered first-line treatment for patients with varicose veins. This has changed recently with guidelines from the So-

ciety for Vascular Surgery and the American Venous Forum now recommending against stockings as primary therapy in patients who are candidates for definitive vein surgery or ablation.³

The rationale for stocking use is to offer external support in combating the venous stasis within veins. Laboratory studies have shown improvement in venous flow velocities and cutaneous microcirculation.³ Clinical studies on compression stockings have shown symptom improvement, ulcer healing, and ulcer prevention, even in patients with class C5 to C6 disease.⁴ Different levels of compression are available: 10 to 15 mm Hg, 20 to 30 mm Hg, 30 to 40 mm Hg, and 40 to 50 mm Hg (Table 2). With the exception of the lowest strength stockings (10 to 15 mm Hg), all require a prescription. The highest strength stocking (40 to 50 mm Hg) are rarely used for treating venous disease and are usually reserved for patients with the most severe recurrent disease or lymphedema.

The major challenge with compression therapy is patient compliance. Since stockings do not cure varicose veins, the patient must wear them daily and indefinitely, and must buy new stockings every 6 to 12 months. Wearing stockings can be difficult, particularly for older patients and those affected by obesity or arthritis. Many patients find the stockings intolerable during warm weather. Compression stockings, therefore, should remain the conservative treatment of choice for patients who are not candidates for direct venous interventions, or should be considered as secondary therapy for patients who are candidates for saphenous vein interventions such as surgery with high ligation and stripping or endovenous ablation.

Leg elevation

The simple maneuver of leg elevation can relieve symptoms of varicose veins by promoting venous return in the leg with the assistance of gravity.³ For leg elevation to be effective, the affected leg should be raised higher than the heart several times a day for a minimum of 30 minutes. Leg elevation may be particularly useful for elderly patients who have trouble with compression stockings and are sufficiently mobile to elevate legs regularly on their own. However, this strategy is impractical for many active working patients who do not have the time to assume the elevation position frequently for prolonged periods.

Weight loss

Many epidemiological studies have reported on an association between obesity and VV.³ The pathophysiology linking obesity to VV is thought to involve the increased outflow venous pressure in leg veins caused by the increased intra-abdominal pressure experienced by obese patients. Studies looking at treatment of morbidly

Table 1. Clinical classification of varicose vein severity from revised CEAP* system developed by the American Venous Forum.²

Clinical score	Clinical signs
C0	No visible or palpable veins
C1	Telangiectases (diameter < 1 mm) or reticular veins (diameter 1–3 mm)
C2	Varicose veins (diameter > 3 mm)
C3	Edema
C4	Pigmentation or venous eczema, lipodermatosclerosis or atrophie blanche
C5	Healed venous ulcer
C6	Active venous ulcer

*CEAP = clinical, etiologic, anatomic, pathophysiologic

Table 2. Compression stocking guide.

Stocking strength	Indication
10–15 mm Hg	C1–C2 disease; mild edema; achy legs; DVT prevention
20–30 mm Hg	C1–C3 disease; mild to moderate VV; superficial phlebitis; post-sclerotherapy
30–40 mm Hg	C3–C6 disease; moderate to severe VV; edema; skin pigmentation; venous ulcers; DVT; post-thrombotic syndrome; mild to moderate lymphedema
40–50 mm Hg	C5–C6 disease; severe lymphedema

obese patients with bariatric surgery have also shown improved signs and symptoms of chronic venous disease after weight loss. Although high-level evidence is lacking, study findings suggest that weight loss in obese patients can be helpful in improving symptoms of varicose veins.

Pharmacological therapy

Multiple clinical trials and a Cochrane review indicate that a heterogeneous group of plant-based venoactive drugs may benefit patients with symptomatic varicose veins (Table 3).^{5,6} Clinical trials have found improvements in pain, heaviness, cramps, restless legs, sensation of swelling, and paresthesia. Most of the drugs studied have been shown to increase venous tone by mechanisms related to enhancing the noradrenaline pathway, increasing capillary resistance, and reducing capillary filtration. Micronized purified flavonoid fraction (MPFF) has been shown to improve lymphatic flow, decrease blood viscosity, and reduce release of inflammatory mediators. Rutosides, escin, proanthocyanidins, and MPFF have been shown to treat leg edema effectively. MPFF has also been shown to improve venous ulcer healing. In Canada, some of these plant-based drugs are sold as vein health supplements in the natural health section of pharmacies or health supplement specialty stores. Although generally positive results have been reported, the clinical trials involving these plant-based medications have been small. These medications should be considered as supplementary to other therapies such as compression therapy, sclerotherapy, and surgery. Most of these medications have been found to be safe and are sold over the counter.

Pentoxifylline is a prescription drug more commonly used for patients with arterial claudication, but is also shown to accelerate healing

Table 3. Venoactive substances commonly available as health supplements.

Substance	Source
Diosmin	Citrus spp.; <i>Sophora japonica</i>
Rutin	<i>Sophora japonica</i>
Micronized purified flavonoid fraction (MPFF)	<i>Rutaceae aurantiae</i>
Escin	<i>Aesculus hippocastanum</i> (horse chestnut)
Hesperidin	Citrus spp.
Proanthocyanidins	Grapes, apples
Pycnogenol	<i>Pinus pinaster</i> (pine tree bark)
Troxerutin	Eucalyptus spp.; <i>Fagopyrum esculentum</i> (buckwheat)
Ruscus	<i>Ruscus aculeatus</i> (Butcher's broom)

of venous ulcers⁷ by inhibiting neutrophil activation and reducing the release of superoxide free radicals. While generally well tolerated, pentoxifylline may cause GI upset and should be prescribed in reduced doses for patients with severe renal impairment (creatinine clearance less than 20 mL/min).

Currently, the American Venous Forum practice guidelines³ assign a weak recommendation for using venoactive drugs with other therapies for symptomatic varicose veins patients, and a strong recommendation for using pentoxifylline as adjuvant therapy when prescribing compression for patients with venous ulcers.

Vein procedures

An assortment of more invasive procedures that aim to destroy or remove the varicose veins and their underlying source of superficial venous reflux may be used to treat VV. These procedures include sclerotherapy, vein surgery, stab avulsion, and endovenous ablation. In well-selected patients, these procedures can be used in combination or alone to render the patient varicose vein free. To ensure excellent outcome, the use of office-based duplex ultrasound is crucial when selecting appropriate patients for these procedures.

Sclerotherapy

Sclerotherapy involves the injection of a locally irritating medication into the vein to induce endothelial damage, inflammation, fibrosis, occlusion, and eventually absorption of the offending smaller vessels from a non-saphenous source or the residual veins after treatment of saphenous vein reflux. The most commonly used sclerosants can be divided into two groups: osmotic agents and detergents.⁸ Osmotic agents such as hypertonic saline and sodium chloride with dextrose (Sclerodex) cause cell death by dehydrating the endothelial cells through osmosis, and are used primarily for occluding smaller veins. Detergents such as sodium tetradecyl sulfate and polidocanol are stronger sclerosants used for treating larger veins, and work by denaturing cell surface proteins to cause endothelial damage and vein thrombosis. A major recent advance in sclerotherapy is the use of foam created by mixing a detergent sclerosant with air or carbon dioxide, which extends the contact time between the drug and endothelial surface. Foaming of the detergent significantly enhances its potency and allows for treatment of large veins. However, the potency of foam sclerotherapy is also associated with increased risk of phlebitis. As well, large volumes of

foam sclerosant may cause embolization to the lungs, eyes, and brain. More rarely, foam sclerotherapy can cause chest pain, visual disturbance, and even stroke.⁹ In general, foam sclerotherapy should be performed with ultrasound guidance and using minimal volumes to avoid complications. Although studies have reported successful treatment of saphenous vein reflux with foam sclerotherapy, large randomized clinical trials have shown it to be vastly inferior to surgery and endovenous ablation because of a high VV recurrence rate.¹⁰ Commonly cited complications of sclerotherapy include hyperpigmentation, vein matting, thrombophlebitis, allergic reaction, skin irritation, and ulceration. In general, the risk of complications increases with increases in the potency and volume of the sclerosant given.

Vein surgery

For many years the gold standard for treating VV has been vein surgery with high ligation and stripping of the great saphenous vein or small saphenous vein combined with excision of larger varicose veins. The success of this procedure requires clear visualization of the offending refluxing vein with duplex ultrasound. In patients with GSV reflux, the GSV is removed from the saphenous femoral junction at the groin to the level just below the knee. For patients with SSV reflux, the SSV is removed from

the popliteal fossa to the mid or lower calf level where it gives rise to the varicosities. Large varicose veins or refluxing perforator veins may be excised at the same time, but it is not necessary to remove all of the offending veins as remaining veins usually shrink in size after the underlying source of reflux is removed.

High ligation and stripping surgery is highly effective treatment for patients with VV. Although performed under general anesthesia or a regional block, the surgery is usually done as a day procedure and is well tolerated by most patients. On average, patients require 1 to 2 weeks off work for convalescence. Complications associated with open venous surgery include infection (1% to 2%), DVT (1%), and sensory nerve injury causing paresthesia (10% to 20%). The recurrence rate for VV is 10% to 20%. Recurrent VV can usually be treated with ultrasound-guided sclerotherapy.

Stab avulsion

Stab avulsion is a surgical procedure for removing varicose veins through multiple small incisions (less than 1 cm) under local anesthetic. This procedure is used when the refluxing saphenous vein is normal or has already been removed or ablated, and is particularly useful for patients with large veins or perforator veins that are not suitable for sclerotherapy. Sometimes stab avulsion is performed instead of saphenous vein stripping in

frail patients to minimize the extent of surgical intervention. In this setting, stab avulsion is less effective than vein stripping and more prone to VV recurrence.

Endovenous ablation

Endovenous ablation is a minimally invasive ultrasound-guided procedure designed to close the saphenous and perforator veins without removing them. Endovenous procedures are usually performed in the office setting under local anesthetic, and each begins with insertion of a small catheter that traverses the entire refluxing saphenous vein. A variety of vein closure methods are then delivered through the catheter to close the vein under ultrasound guidance.

Currently, the methods used to close veins include endovenous laser ablation (EVLA), radiofrequency ablation (RFA), mechanical-chemical ablation (MOCA), and n-butyl-2 cyanoacrylate closure (n-BCA) (Table 4). EVLA and RFA are heat-based methods that cauterize the inside of the vein wall. MOCA achieves vein closure with simultaneous use of mechanical and chemical methods: a fine wire spins to damage the inner wall of the vein while a sclerosant is injected to make the vein thrombose and close down. n-BCA achieves closure using medical grade cyanoacrylate (superglue). These methods can be further categorized according to whether they require tumescent anesthetic (TA), a method to anesthetize the entire target vein by injecting a large volume of very dilute local anesthetic. TA is required for EVLA and RFA since applying heat to the vein is painful. TA is not required for MOCA and n-BCA since both procedures cause minimal discomfort and anesthetic at the catheter entry site is all that is needed.

Table 4. Endovenous methods for ablation of saphenous vein.

Method	Mechanism	Requires tumescent anesthetic
EVLA (endovenous laser ablation)	Laser heat burns inside of vein	Yes
RFA (radiofrequency ablation)	Radiofrequency heat burns inside of vein	Yes
MOCA (mechanical-chemical ablation)	Simultaneous use of spinning wire and sclerosant damages vein	No
n-BCA (cyanoacrylate closure)	Medical superglue occludes vein	No

Therapies compared

Several randomized trials have compared vein surgery with various endovenous ablation procedures. Van der Velden and colleagues looked at 5-year results comparing surgery, EVLA, and foam sclerotherapy in VV patients with GSV reflux and found conventional surgery and EVLA to be more effective than foam for closing the saphenous veins.¹¹ They also found improved quality of life scores.¹¹ O'Donnell and colleagues completed a meta-analysis of randomized trials that compared surgery and endovenous ablation (either EVLA or RFA) of the GSV and found no difference in varicose vein recurrence.¹² Koramaz and colleagues completed a retrospective comparison of follow-up data for patients treated with n-BCA and EVLA and found no difference in efficacy between the two modalities. There were, however, fewer adverse reactions such as pigmentation and phlebitis after n-BCA compared with EVLA.¹³ In a randomized clinical trial comparing MOCA and RFA, Bootun and colleagues found no difference in closure rate or quality of life, but early results indicated MOCA is the less painful of the two procedures.¹⁴ In general, these studies suggest that endovenous procedures are equally effective for treating VV patients with GSV or SSV reflux when compared with surgery.

Surgery with high ligation and stripping remains the gold standard for treating VV, with excellent anatomical long-term results that are unsurpassed by any of the new modalities. However, there are several advantages to endovenous procedures, including the use of local rather than general anesthetic, earlier return to normal activities, a reduction in peri-procedural discomfort, and improved cosmetic appearance. Among endovenous closure procedures, those not requiring tumescent anesthetic may

also be associated with a further reduction in short-term discomfort.

Conclusion

Varicose veins can be successfully managed using a wide array of treatment options. Office-based ultrasound has greatly improved clinical assessment and therapeutic options. No single treatment has been found to be appropriate for all patients. Sometimes multiple modalities are needed to address the different veins in the same patient. The best treatment modality is the one tailored to the individual based on vein anatomy, symptoms, comorbidities, and patient preference.

Competing interests

None declared.

References

1. Lim CS, Davies AH. Pathogenesis of primary varicose veins. *Br J Surg* 2009;96:1231-1242.
2. Eklof B, Rutherford RB, Bergan JJ, et al. Revision of the CEAP classification for chronic venous disorders: Consensus statement. *J Vasc Surg* 2004;40:1248-1252.
3. Gloviczki P, Comerota AJ, Dalsing MC, et al. The care of patients with varicose veins and associated chronic venous diseases: Clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. *J Vasc Surg* 2011;53(suppl):2S-48S.
4. Barwell J, Davies C, Deacon J, et al. Comparison of surgery and compression with compression alone in chronic venous ulceration (ESCHAR study): Randomised controlled trial. *Lancet* 2004;363(9424):1854-1859.
5. Martinez MJ, Bonfill X, Moreno RM, et al. Phlebtonics for venous insufficiency. *Cochrane Database Syst Rev* 2005;(3):CD003229.
6. Pittler MH, Ernst E. Horse chestnut seed extract for chronic venous insufficiency.

Cochrane Database Syst Rev 2012;(11):CD003230.

7. Jull A, Arroll B, Parag V, Waters J. Pentoxifylline for treating venous leg ulcers. *Cochrane Database Syst Rev* 2012;(12):CD001733.
8. Weiss RA, Feied C, Weiss MA (eds). *Vein diagnosis and treatment: A comprehensive approach*. New York: McGraw-Hill; 2001.
9. Bush RG, Derrick M, Manjoney D. Major neurological events following foam sclerotherapy. *Phlebology* 2008;23:189-192.
10. Rasmussen LH, Lawaetz M, Bjoern L, et al. Randomized clinical trial comparing endovenous laser ablation, radiofrequency ablation, foam sclerotherapy and surgical stripping for great saphenous varicose veins. *Br J Surg* 2011;98:1079-1087.
11. van der Velden SK, Biemans AA, De Maeseneer MG, et al. Five-year results of a randomized clinical trial of conventional surgery, endovenous ablation and ultrasound-guided foam sclerotherapy in patients with great saphenous varicose veins. *Br J Surg* 2015;102:1184-1194.
12. O'Donnell TF, Balk EM, Dermody M, et al. Recurrence of varicose veins after endovenous ablation of the great saphenous vein in randomized trials. *J Vasc Surg Venous Lymphat Disord* 2016;4:97-105.
13. Koramaz I, Kilic H, Gokalp F, et al. Ablation of the greater saphenous vein with nontumescent n-butyl cyanoacrylate versus endovenous laser therapy. *J Vasc Surg Venous Lymphat Disord* 2017;5:210-215.
14. Bootun R, Lane TR, Dharmarajah B, et al. Intra-procedural pain score in a randomized controlled trial comparing mechanical ablation to radiofrequency ablation: The Multicentre Venefit versus ClariVein for varicose veins trial. *Phlebology* 2016;31:61-65. **BCMJ**

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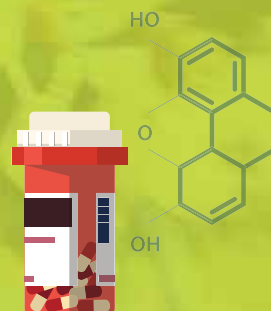
REPRESENTATIVE ASSEMBLY DELEGATE POSITIONS (Staggered terms for first cohort)				
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District 10 (Acclaimed)	Dr Jacqueline Pettersen	Specialist	2 year term	June 2019
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	Dr Brenda Huff	GP	3 year term	June 2020
Rural (Acclaimed)	Dr Michael Robinson	Specialist	2 year term	June 2019
	Dr Ricardo Velazquez	Specialist	3 year term	June 2020
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First Nations (Acclaimed)	Dr Shannon McDonald	Specialist	3 year term	June 2020

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Gastroenterology	Dr Marty Fishman	Specialist	1 year term	June 2018
Geriatric Medicine	Dr Scott Comeau	Specialist	3 year term	June 2020
Hematology & Oncology	Dr Paul Yenson	Specialist	1 year term	June 2018
Infectious Disease	Dr Dwight Ferris	Specialist	3 year term	June 2020
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Lab Medicine (BCALP)	Dr Ken Berean	Specialist	3 year term	June 2020
Nephrology	Dr Gregory Ganz	Specialist	2 year term	June 2019
Neurology	Dr Olinka Hrebicek	Specialist	1 year term	June 2018
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SECTIONAL APPOINTMENTS (Staggered terms for first cohort)				(Continued)
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Emergency Medicine	Dr Steven Fedder	Specialist	2 year term	June 2019
General Surgery	Dr Tracy Scott	Specialist	2 year term	June 2019
Neurosurgery	Dr Chris Honey	Specialist	3 year term	June 2020
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District 4 (First 10 years of practice)	Dr Emma Galloway	GP	1 year term	June 2018
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District 5	TBD	GP	1 year term	June 2018
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District 7 (First 10 years of practice)	Dr Harpreet Kelly	GP	1 year term	June 2018
District 8	Dr Anneline Du Preez	GP	1 year term	June 2018
District 8	Dr Brian Moulson	GP	1 year term	June 2018
District 8 (First 10 years of practice)	Dr Meghan Guy	GP	1 year term	June 2018
District 9	Dr Guillaume Coetsee	GP	1 year term	June 2018
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District 9 (First 10 years of practice)	Dr Onuora Odoh	GP	1 year term	June 2018
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Society of Specialist	Dr John Falconer	Specialist	1 year term	June 2018
Medical Undergraduate Society	Mr Kingsley Shih		1 year term	June 2018
Resident Doctors of BC	Dr David Kim		1 year term	June 2018
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Dr Ivan Janos Szasz 1936–2017



Ivan died peacefully at home surrounded by loved ones—his wife, Patricia; his daughters, Jenny Spring (Jim) and Linda Szasz (Craig); and his grandsons, Marcel and Garnet—and with a feeling of gratefulness for the full life he enjoyed.

Ivan was born in Budapest, Hungary. He started medical training in Budapest, and with the outbreak of the 1956 revolution, he escaped to London, England, where he worked at Middlesex Hospital stoking a coal furnace and learning enough English to resume his studies. Upon graduating from medical school, Ivan immigrated to Canada, where he worked at Ottawa Civic Hospital. He eventually moved to BC to become a surgeon in Trail (where he also coached the Trail-Rossland Stingrays Summer Swim Club).

In the 1980s he turned his interest to nuclear medicine, completing a fellowship in Vancouver in 1985. He published extensively in this evolving field; taught brain imaging, traveling to the University of Mendoza in Argentina as an International Atomic Energy Agency (IAEA) visiting professor in brain imaging in 1998; was named a technical expert by the IAEA; and served on the Laboratory Accreditation Committee for Nuclear

Medicine. He was a proud member of Doctors of BC and acted as guest editor for the December 1987 issue of *BC Medical Journal*. In 2012, he was awarded the CMA Senior Member Award.

Ivan loved working as a physician but, in his heart, he was a Renaissance man with many other passions and an immense interest in the world around him. He loved to read, go to the movies, travel, and eat. A handyman extraordinaire, he would have been just as happy to be a carpenter. And he loved swimming. Ivan played water polo in Hungary and was part of the UBC Masters Swim Club (where I met him). Ivan was the king of the butterfly; he was the FINA national champion in the 100 m fly in 2011 and 2016 and the 200 m fly in 2011. Ivan loved to compete and to help others compete—my family members would advise me to not race Ivan as he was always up for the competition. He made close friends in the swim world.

Ivan will be dearly missed by all those whose lives he touched.

—Bill Mackie, MD
Vancouver

Recently deceased physicians

If a BC physician you knew well is recently deceased, consider submitting a piece for our “In Memoriam” section in the *BCMJ*. Include the deceased’s dates of birth and death, full name and the name the deceased was best known by, key hospital and professional affiliations, relevant biographical data, and a high-resolution photo. Please limit your submission to a maximum of 500 words. Send the content and photo by e-mail to journal@doctorsofbc.ca.

Dr Eileen Cambon 1926–2017



With the passing of Dr Eileen Cambon, BC has lost one of its pioneer female physicians.

In 1958, Dr Cambon arrived in Vancouver to become the first female ophthalmologist to practise in BC, and she did so for 44 years. She was a great role model for women in medicine and was adored by her patients.

Dr Cambon’s roots were in New Brunswick. She obtained her BSc at the University of New Brunswick (UNB) as preparation for studying medicine at McGill University. Competing with many war vets, as well as the quota on female students, resulted in her not being successful on her first application. The year of waiting did not go to waste: she completed an MSc in biology at Vassar College in Poughkeepsie, New York. Being accepted to McGill’s class of ’51 must have been serendipity as her future husband, Dr Ken Cambon, was in the same class. They married at the end of their second year, making them the first married couple to graduate together from medicine at McGill.

Upon graduation, Eileen and Ken needed to find a residency in the same hospital. The Royal Jubilee Hospital in Victoria would take Ken but not Eileen as they had taken a female

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in memoriam

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the year before and she had left after getting pregnant. Dr Harold Griffith of curare fame took pity on the couple and offered them both an internship at Queen Elizabeth Hospital in Montreal.

The plan was to then do general practice in a small town in Quebec, but Alcan was looking for two doctors to provide medical care for 2 years to their subsidiary in British Guiana. The company wanted to pay Ken \$200 more per month than Eileen for the same job, but Eileen dug in her heels and they agreed to equal pay for equal work! That was 2 years of fabulous experience. Word got out to the East Indian mothers that there was a female doctor who would circumcise their sons, and Eileen became known as the local rabbi.

In further preparation for general practice, the couple then went to London to do a year of specialty training. Eileen chose ophthalmology and fell in love with it. The next challenge was finding the training and, as there were no change rooms for female surgeons, Eileen was turned down by many hospitals. The head of ophthalmology in Galveston, Texas, was a woman and agreed to take Eileen as well as Ken. By her second year in Texas, Eileen was chief resident.

Following residency, the Cambons set up practice in Vancouver, but the Alcan connection remained, and Eileen and Ken also did outreach clinics at the aluminum smelter in Kitimat and surrounding towns.

Eileen was a long-time member of the Federation of Medical Women of Canada (FMWC) and was the BC branch president in 1964 and national president from 1973 to 1974, the year the federation celebrated its 50th anniversary. From 1977 to 1987, she was the national coordinator for Canada to the Medical Women's International Association.

Eileen received many awards, including an honorary doctor of science

degree from her alma mater, UNB, in celebration of the 100th anniversary of the first woman admitted to that university. She was made a senior member of the FMWC and the CMA, and received an Honorary Medical Alumni Award from the UBC Medical Alumni Association. She also received the Queen Elizabeth II Silver Jubilee Medal in 1977.

Dr Cambon led a full and varied life. She was a trailblazer for women in medicine, a well-respected ophthalmologist, and a compassionate human being. She felt that general practice was the backbone of medicine and that all graduates would benefit from a year or two in this area. Her message to future women in medicine was that you can have it all and still have work-life balance, but you need to map your course early and, most importantly, choose a supportive partner. She shared many stories of women trailblazers in medicine in her book *Uppity Women We Are!*, an entertaining chronicle of female physicians in British Columbia from 1893 to 1993.

She was predeceased by her husband, Ken, and leaves behind two daughters, two grandchildren, and one great-grandchild.

We shall miss you, Eileen. Thank you for providing the shoulders that other women in medicine have been able to stand on, and for all you did in leading the way for women in medicine!

—Beverley Tamboline, MD
—Shelley Ross, MD



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Pharmacare Plan W program: Changes for some First Nations Health Authority clients and their physicians

The recent transition of responsibility for First Nations health care in BC from Ottawa to BC First Nations is encouraging, empowering, and a reason to be optimistic. The next step in that transition occurred on 1 October 2017 when in partnership with the BC Ministry of Health, Pharmacare Plan W officially took over providing coverage for eligible prescription drugs, certain medical supplies, and pharmacy services for eligible First Nations Health Authority (FNHA) clients. For First Nations in BC, this transition means the beginning of the end to the federal government's coverage through Health Canada's Non-Insured Health Benefits (NIHB) program, which has been provided for generations.

Health outcomes are better when people are fully engaged in their own health journey and health care, and it's time the ability to make health care decisions came closer to home. By accessing health care benefits from the same provincial systems as other British Columbians, relationships involving Pharmacare, pharmacists, physicians, and nurse practitioners will strengthen, all for the benefit of FNHA clients.

FNHA clients will continue to receive the medications they need. Just a small percentage of clients will have to adjust their drug therapies as they switch to the Pharmacare formulary. Physicians will need to provide information and support to those few who need to change medications as appropriate.

Plan W: What's the same and what's different?

FNHA clients will receive 100% coverage of eligible prescription and dispensing fee costs (up to Pharmacare maximums) and certain medical

supplies and devices for eligible individuals. Items on the Plan W formulary will be noted as such in the Pharmacare formulary search tool.

There are a few important changes that physicians should discuss with patients. FNHA clients currently taking a medication covered under the Reference Drug program will be given indefinite, full Pharmacare coverage of their current medication. New prescriptions issued after 1 October will be covered under Pharmacare's reference drug program. If a client is unable to take certain fully covered reference drugs, physicians will be required to apply for special authority (SA) approval for any nonreference drugs to be used.



First Nations Health Authority
Health through wellness

Clients with existing prescriptions for limited coverage drugs under Pharmacare will also receive automatic SAs for their current medication. Many of these SAs will have an indefinite expiry date as per usual Pharmacare approval periods for coverage.

Some clients with current NIHB coverage for medications that are nonbenefits under Pharmacare may receive automatic, exceptional Pharmacare coverage. Others may require follow-up and review with their treating prescriber.

Clients and health care providers should discuss treatment options as soon as possible to prevent any interruption in coverage.

Out-of-province claims while traveling

Pharmacare is a BC program and cannot directly pay for eligible prescriptions filled in other provinces. Please encourage your patients to plan ahead and fill their prescriptions in BC before traveling out of the province.

If clients choose to fill prescriptions while away, they will have to pay the out-of-pocket cost and apply for reimbursement. Whether or not they will receive full reimbursement depends on whether they pay more than the reimbursement limits set by BC Pharmacare. Drugs covered for all Pharmacare beneficiaries, but not under Plan W, such as smoking cessation therapies, will not be reimbursed for out-of-province purchases.

Registering patients for agency formulary drugs

Patients with conditions such as cancer, HIV, kidney disease, or those who have received a transplant fall within the purview of the excellent specialty health care agencies we have in BC. It is critical that care providers ensure that FNHA clients are enrolled with these agencies so that patients receive their medications directly from the agency without any disruption to their therapies. These agencies include the BC Cancer Agency, BC Centre for Excellence in HIV/AIDS, BC Renal Agency, and BC Transplant Society.

Maintaining client safety

Prescribers should also be aware that as of 1 October the NIHB's prescription monitoring program is no longer in effect for FNHA clients. This will affect as many as 1200 FNHA clients.

The prescription monitoring program has required clients to have only

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one prescriber per drug class for specific medications of concern like benzodiazepines, stimulants, gabapentin, and opioids. Without the program, after 1 October patients will not be restricted to a sole prescriber for these medications of concern. Clients may feel empowered without the system restriction, or they may struggle with losing a support system for healthy medication use. There is a potential for risk should patients be allowed to obtain these kinds of medications from multiple physicians or multiple pharmacies.

A prescriber may want to consider putting their patients in Pharmacare's restricted claimant program if they have concerns about multidocoring or multipharmacies.

Blood glucose test strips

FNHA clients who currently receive NIHB coverage for blood glucose test strips will be transitioned to Pharmacare coverage for these test strips automatically. Pharmacare limits on blood glucose test strips are actually more generous than NIHB; however, Pharmacare requires new diabetes patients to be instructed on their use at a recognized diabetes education centre. Attending a diabetes education centre will be optional for newly diagnosed FNHA clients until the centre is adequately prepared to ensure consistency of culturally safe practices.

To sum up, everyone will continue to receive the medications they need under BC Pharmacare and the changes outlined above affect a small percentage of clients. The few who do see changes may call our FNHA toll-free number for assistance and should always be encouraged to get advice from their pharmacist, physician, or nurse practitioner.

Updates on the transition will be posted on the FNHA website at www.fnha.ca/pharmacare. Questions from health care providers and patients may be directed to FNHA at 1 855 550-

5454 or via e-mail to HealthBenefits@fnha.ca.

—**Shannon McDonald, MD**
Deputy Chief Medical Officer,
CMO Office, First Nations
Health Authority

BC at the CMA General Council: Vive le débat libre

As Canada recently celebrated its 150th birthday, so too did the Canadian Medical Association, which held its sesquicentennial General Council (CMA GC) meeting in August. The event, often referred to as Canada's medical parliament, is where physician delegates from across the country gather to debate pressing issues. Fittingly, this year's meeting took place in Quebec City, the site of the first CMA GC in 1867.

This year's Doctors of BC caucus reflected our membership and included specialists, family doctors, students, residents, several doctors in their first years of practice, and an almost equal gender representation.

The CMA GC passed motions on issues such as immigrant and refugee health, physical activity, cultural awareness, antimicrobial stewardship, socially responsible investing, medical liability, and information sharing among Canadian medical organizations. Our caucus raised one of the most debated issues: opt-out insurance for medical students. The motion did not pass; however, Doctors of BC was recognized for its decision to introduce disability insurance at no cost to students for all 4 years of medical school. In addition to the debate on motions, we attended sessions on physician health and medical assistance in dying that advanced debate on these issues.

Health Minister Dr Jane Philpott spoke to the GC and took questions from delegates about the controversial tax changes proposed by the federal government. At one point the minister told the delegates that they should ensure they have read the doc-

uments explaining the tax changes before criticizing them. Led by our president, Dr Trina Larsen Soles, BC was part of a vocal response in person and online. (For those interested in engaging further on this issue, please visit www.doctorsofbc.ca/working-change/advocating-physicians/federal-tax-change-proposal.)

BC also took centre stage with a session on opioid use with Dr Christy Sutherland, who shared her experiences working in the Downtown Eastside. Dr Granger Avery of Port McNeill, BC, gave his valedictory address, finishing his term as CMA president by supporting team-based care and collaboration "based on respect" and encouraging professionalism in challenging times.

Once again you can be proud that your colleagues represented you well on the national stage. As always, the work could not have been done without the tremendous support of Doctors of BC staff.

Next year's CMA GC is in Winnipeg. Please watch for calls in early 2018 to submit motions and apply to join next year's caucus.

—**Eric Cadesky, MD, CM**
Chair of General Assembly/
President-Elect, Doctors of BC

Take-home naloxone program marks fifth year; stigma reduction next hurdle

Since its launch in 2012, the Take-Home Naloxone program has reversed over 10 000 opioid overdoses, but the opioid crisis is far from over. Even with the programs in place, 780

Number of overdoses reversed using a take-home naloxone kit:

- 36 in 2013
- Over 4000 in 2016 (22 494 kits distributed in 2016)
- Over 6000 so far in 2017 (25 388 kits distributed so far in 2017)

people have died of illegal drug overdoses since the beginning of 2017. Currently, most overdoses are reversed by paramedics and other health care workers, as well as loved ones of people who use drugs. But the take-home kits rarely help people who use drugs on their own—a demographic that, according to the BC Centre for Disease Control, may account for as much as 50% of illegal drug overdoses. Among people who don't survive overdoses, as many as two-thirds were using alone.

Experts at the BCCDC suggest that people hide their drug use because of the stigma associated with it, which makes them less likely to seek medical attention for their addiction and less likely to be attended by paramedics if they overdose because there is no one with them to call 911. To address one of the primary causes of stigma, addiction must be approached in a nonjudgmental way as a chronic disease characterized by a loss of control, craving, and compulsion to use a substance with negative consequences.

For more information about reducing stigma, review the BC Overdose Action Exchange Report, issued on 15 August 2017 and available online at www.bccdc.ca/resource-gallery/Documents/bccdc-overdose-action-screen.pdf.

For more information about harm reduction programs, including Take-Home Naloxone and overdose prevention sites, visit www.towardtheheart.com. Visit www.bcmhsus.ca to find out about mental health and substance use services available in BC.

The online home of BC physicians

bcmj.org

With fresh articles and information updated all the time, you'll want to drop by regularly.

Pain clinic renamed to honor Kelowna doctor

The Okanagan Interventional Pain Clinic in Kelowna has been renamed the Bill Nelems Pain and Research Centre to honor the popular and much-loved surgeon who died earlier this year.

Dr Bill Nelems, a thoracic surgeon in BC, worked at the Okanagan Interventional Pain Clinic in the Pandosy area since 2013. Over that time, coworkers and staff came to see him as someone who genuinely cared for others and put in the work to improve countless lives.

The Bill Nelems Pain and Research Centre will continue to operate out of its current location on Raymer Avenue until the spring of 2019 when it will move into a new building nearby.

Dr Nelems died in 2017 at his farm in Coldstream near Vernon. To learn more about Dr Nelems's many contributions to Canadian health care, read the In Memoriam piece published in the June 2017 issue of the *BCMJ* (2017;59:276-277).

Common mistakes in insurance planning on your own

As a physician, do you recommend patients self-diagnose or self-treat? Is this effective or the best use of a patient's time and effort? Do self-diagnosis and self-treatment often have negative outcomes? The answers to these questions may seem obvious, yet too often physicians do not follow their own advice. There is a saying from a prolific business consultant, Peter Drucker, which applies to this topic, "Do what you do best and outsource the rest."

Your financial health and, more specifically, your insurance planning, is a great example of an area where you should be consulting with experts. The implications of not doing so can range from minor losses to devastating effects. Examples include:

- Paying too much for your insurance coverage due to having more coverage than you need.
- A surviving spouse losing the family home as a result of there not being enough life insurance in place on the deceased spouse.
- Having to postpone retirement due to not having critical illness insurance.
- Having to dip into investment accounts to cover unanticipated costs.

Many factors are considered when working with physicians on their insurance planning. During a review meeting we discuss your personal, family, and professional situation. Once we have a full picture of you, recommendations are made that best suit your particular situation. Working with a professional who understands the physician market is very important as there are some products, benefits, and discounts available that are unique to physicians.

Please schedule a meeting to review your insurance with a professional once every 2 to 5 years or whenever you have a major life event (e.g., marriage, birth of a child, home purchase, etc.).

Let insurance professionals work to ensure that you are protected, while you focus on what you know best—medicine.

—Chanelle Sawyer, BA
Insurance Advisor, Doctors of BC

BCMJ's CME listings

Rates: \$75 for up to 150 words (maximum), plus GST per month; there is no partial rate. If the course or event is over before an issue of the *BCMJ* comes out, there is no discount. Visa and MasterCard accepted.

Deadlines:

Online: Every Thursday (listings are posted every Friday).

Print: The first of the month 1 month prior to the issue in which you want your notice to appear, e.g., 1 February for the March issue. The *BCMJ* is distributed by second-class mail in the second week of each month except January and August.

Send material by e-mail to journal@doctorsofbc.ca. Tel: 604 638-2815. Please provide the billing address and your complete contact information.

Planning your CME listing:

Planning to advertise your CME event several months in advance can help improve attendance. Members need several weeks to plan to attend; we suggest that your ad be posted 2 to 4 months prior to the event itself.

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**CME ON THE RUN
VGH and various videoconference
locations, 3 Nov–8 Jun (Fri)**

CME on the Run sessions are held at the Paetzold Lecture Hall, Vancouver General Hospital, and there are opportunities to participate via videoconference from various hospital sites. Each program runs on Friday afternoons from 1–5 p.m. and includes great speakers and learning materials. Topics and dates: 3 Nov (dermatology and allergy). Topics include: Melanoma: A review with pictures; Onychomycosis and dystrophic nails; Rosacea: Current treatments; Drug allergies: Common culprits; Food allergies: How to investigate; Compounding creams; Treating difficult urticaria; Alopecia. The next sessions are: 26 Jan 2018 (psychiatry); 16 Mar (internal medicine); 13 Apr (prenatal, pediatrics, and adolescents); 11 May (infectious disease and travel); 8 Jun (MSK, sport medicine, and rheumatology). To register and for more information visit ubccpd.ca, call 604 875-5101, or e-mail cpd.info@ubc.ca.

**MEDICAL LEGAL TOOLKIT
Vancouver, 4 Nov and 25 Nov (Sat)**

Medical Legal Reports—The Essentials, will be held 9 a.m. to 4 p.m. on 4 Nov at UBC Robson Square. This course is tailored to FPs and specialists and will outline the essential components of a medical legal report. Medical Legal Reports Advanced and Testifying in Court: Becoming a Great Expert, will be held 9 a.m. to 4 p.m. on 25 Nov at Simon Fraser University Harbour Centre. This course is tailored to provide FPs and specialists advanced training on writing complex medical legal reports as well as how to reduce the stress of testifying in court. Topics cover successful medical legal report writing skills, how to address issues of patient compliance/

adherence and possible secondary gain in a medical legal report, how to answer complex questions related to cost of future care and future treatment, the role of the medical/health professional expert witness in court, how to prepare for court testimony, and many relevant topics including common pitfalls and traps in court and how to avoid them. Further information, course details, and registration at www.medlegaltoolkit.com/store/c1/Featured_Products.html.

**LIVE WELL WITH DIABETES
Richmond, 17–19 Nov (Fri–Sun)**

We had great feedback from attendees about the new Radisson Richmond location, so we will be returning this year! The 2017 agenda features presentations designed for family physicians, allied health workers, diabetes educators, podiatrists, and other health care professionals who have an interest in recent advances in diabetes. Featured topics: identifying depression and diabetes; diabetes comorbidity with: CHF, neuropathy, foot disease, kidney disease, sleep apnea, and gut microbiome; the state of diabetes and strategies to manage the epidemic in BC; diabetes flow sheets and drug coverage; prescribing exercise in diabetes; diabetes and dietary selections; and SGLT2 and GLP1 updates. There will also be a public health fair on Sunday, 19 Nov, at the same venue. Program details and registration: <http://ubccpd.ca/course/livewellldiabetes2017>. Tel 604 875-5101; fax 604 875-5078; e-mail cpd.info@ubc.ca; #LWDiabetes.

**FP ONCOLOGY CME DAY
Vancouver, 18 Nov (Sat)**

The BC Cancer Agency's Family Practice Oncology Network invites family physicians and primary care professionals to attend its annual

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See our history in focus at cma.ca/150

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Family Practice Oncology CME Day certified by the University of British Columbia Division of Continuing Professional Development for up to 6.5 Mainpro+ credits. Attendees will gain up-to-date oncology knowledge and build useful cancer care connections. The session will take place at the BC Children’s Hospital Research Institute at BC Children’s Hospital in Vancouver and provides an effective way to learn about new oncology resources and support in BC. Register now at www.fpon.ca. For more information contact Jennifer Wolfe, jennifer.wolfe@bccancer.bc.ca or 604 219-9579.

**GP IN ONCOLOGY TRAINING
Vancouver, 19 Feb–2 Mar 2018
(Mon–Fri) and 10–21 Sep 2018
(Mon–Fri)**

The BC Cancer Agency’s Family Practice Oncology Network offers an 8-week General Practitioner in Onco-

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

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

RICHMOND—FP & LOCUMS

Opportunities for physicians looking to do walk-in shifts, build a practice, or relocate in our busy modern clinic. EMR OSCAR. Great location next to a 24-hr Shoppers Drug Mart. No hospital work, no call, 70/30 split—walk-in shifts at \$100 per hour minimum—and bonus available. Contact us at healthvuemedical@gmail.com, 604 270-9833/604 285-9888.

S SURREY/WHITE ROCK—FP

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

SURREY/DELTA/ABBOTSFORD—GPS/SPECIALISTS

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

SURREY—HIGHLY COMPETITIVE SPLIT FOR FT/PT PHYSICIANS

We require additional physicians and specialists to fulfill demand. We use OSCAR EMR; we have nine fully equipped exam rooms with a doctors' lounge set up with five private fully equipped work stations. Our highly trained and qualified health care team consists of three general practitioners, one pediatrician, and four MOAs. Open Mon to Fri 7 a.m. to 6 p.m.; Sat 9 a.m. to 3 p.m. We offer highly competitive splits or a set fixed low monthly fee. Contact Tarn for further details at 604 910-0118 or corporate@sullivanmedicalclinic.com. We invite you to take a tour of our clinic and meet our staff. I guarantee you will not be dis-

appointed. Our daily average patient volume is at least 150.

VANCOUVER/RICHMOND—FP/SPECIALIST

We welcome all physicians, from new graduates to semiretired, either part-time or full-time. Walk-in or full-service family medicine and all specialties. Excellent split at the busy South Vancouver and Richmond Superstore medical clinics. Efficient and customizable OSCAR EMR. Well-organized clinics. Please contact Winnie at medicalclinicbc@gmail.com.

VANCOUVER—FP

Mainland Medical Clinic is seeking a family doctor for our modern, multidisciplinary street-level clinic in Yaletown, downtown Vancouver. We have been operating for over 13 years in a comfortable setting shared with a chiropractor, massage therapists, and a nutritionist to complement our three family doctors. Ideally seeking someone with an existing practice—perhaps relocating or cutting back. We serve a broad spectrum of patients, both walk-ins and appointments. Excellent revenue split. The clinic offers a pleasant work environment in an upbeat, fun neighborhood. Contact Dr Brian Montgomery at brian@mainlandclinic.com or 604 240-1462, or just drop by.

VANCOUVER—LOCUM

Busy walk-in shifts in Kitsilano at Khat-sahlano Medical Clinic, three-time winner of Georgia Straight reader's poll for Best Independent Medical Clinic in Vancouver. Split is 65%/35%. Contact Dr Chris Watt at drchriswatt@gmail.com.

VICTORIA—GP/WALK-IN

Shifts available at three beautiful, busy clinics: Burnside (www.burnsideclinic.ca), Tillicum (www.tillicummedicalclinic.ca), and Uptown (www.uptownmedicalclinic.ca). Regular and occasional walk-in shifts available. FT/PT GP post also available. Contact drianbridger@gmail.com.

VICTORIA—PERMANENT/P-T FP

Experienced family physician wishing to expand medical team at Mattick's Farm in beautiful Cordova Bay. Fully equipped office, OSCAR EMR, congenial staff, close to schools. Contact poughton@shawcable.com, phone 250 658-5228.

VICTORIA—WALK-IN

Walk-in clinic shifts available in the heart of lovely Cook St. Village in Victoria, steps from the ocean, Beacon Hill Park, and Starbucks. For more information contact Dr Chris Watt at watt1@telus.net.

medical office space**ABBOTSFORD—FAMILY PRACTITIONERS**

Remuneration: 70/30. Complex care: 80/20. Consider moving your practice and we can help with your chart integration. Clinic uses OSCAR, offers LPN assistance, online appointment booking, and telemedicine. We are located on Sumas Way at Marshall Road. Please contact manager@healthvue.ca or call 604 670-8762.

BURNABY—FT/PT PHYSICIAN

Well-established, busy group practice seeks general practitioner. Large office with Wolf EMR in a three-storey health care building. No on-call. Splendid opportunity for successful career and associateship in this friendly work environment. Contact Dr Marcel Genet at 604 434-8781.

SURREY—MED OFFICE FOR LEASE

Medical office for lease in the Fraser Heights Village Centre in North Surrey. Excellent location in a busy mall. Contact Robert McCullough: tel: 604 279-0022, cell: 604 817-1698, e-mail: rwm@swordfermanagement.com.

VANCOUVER (W BROADWAY)—FURNISHED SPACE

Fully furnished space for one or multiple doctors. Space can be used part-time or full-time with short- or long-term arrangement possible. Use some or all of the large space. MOA

Continued on page 438

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Two fully renovated office spaces available close to VGH with city views. Close to the Broadway–City Hall Canada Line station on Cambie for your patients’ convenience. The offices are suitable for psychiatrists, psychologists, or counselors. New furniture, including in the waiting area. Customize your office and bring in your phone, fax machine, etc. Offices are available immediately on a 1-year lease basis; however, will consider other options. Negotiable and reasonable rent. Call or text 604 970-6600 or e-mail wahan.wanis@ubc.ca.

vacation properties

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Spectacular views! Luxury three-bedroom, two-bathroom apartment in wine country, parking (in secure complex), right on the water with all amenities, 30 minutes to Cape Town central. Pool and barbecue area. Price varies (from Can\$150/night) depending on season and length of stay. Contact dewaalsmith@shaw.ca.

miscellaneous

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VANCOUVER—TAX & ACCOUNTING SERVICES

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



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For FAMILY PHYSICIANS and SPECIALISTS

Medical Legal Reports: *The Essentials*

Saturday, Nov. 4, 2017 (9 am–4 pm)
UBC Robson

Does writing medical legal reports cause you stress? Not sure what to write when asked about prognosis? Need help figuring out how much you should be billing for your reports? *For Family Physicians and Specialists.*

This course will outline:

- The essential components of a medical legal report
- How to clearly narrate the patient's history, physical examination findings, diagnosis and prognosis
- The steps to complete a medical legal report efficiently and streamline the payment/invoicing process
- How lawyers, juries and judges identify the good, bad and ugly medical legal report

Teaching Faculty:

These courses will be taught by medical and legal professionals who have extensive medical legal experience and have taught numerous courses for health care professionals and lawyers. The legal teaching faculty have busy personal injury practices and know exactly what they want from medical legal reports and expert testimony in court.

Medical Legal Reports Advanced and Testifying in Court: *Becoming a Great Expert*

Saturday, Nov. 25, 2017 (9 am–4 pm)
SFU Harbour Centre

Physicians and all health care professionals generally prefer not to testify in court. This course will provide advanced training on writing more complex medical legal reports as well as how to reduce the stress of testifying in court. *For Family Physicians and Specialists.*

This course will outline:

- Advanced skills for successful medical legal report writing
- How to address issues of patient compliance/adherence and possible secondary gain in a medical legal report
- How to answer complex questions related to Cost of Future Care and Future Treatment
- The role of the medical/health professional expert witness in court
- How to prepare for court testimony
- How to succeed in the various parts of expert testimony: Qualifying the expert, direct testimony, cross examination, re-direct
- Common pitfalls and traps in court—and how to avoid them



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