

# BCM J

BC Medical Journal

## Navigating the nonarthritic hip:

### Labral tears and femoroacetabular impingement



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ASA for postoperative venous thromboembolism prevention in patients with extremity or hip fractures: A critical appraisal of the PREVENT CLOT trial

Third-degree heart block secondary to Lyme carditis

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

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*Erythema migrans on a patient's lower back, from the article "Third-degree heart block secondary to Lyme carditis," which begins on page 382.*

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Dr Michael Schwandt, who recently joined the BCMJ Editorial Board, is a medical health officer with Vancouver Coastal Health and a clinical associate professor in the UBC School of Population and Public Health. See page 365 for his editorial and page 371 for his interview.

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# Harnessing happiness in health care: A prescription from Dr Arthur Brooks

**D**r Arthur Brooks teaches people to be happy. He is a Harvard professor and author whose work includes books such as *From Strength to Strength* (a New York Times Best Seller) and *Build the Life You Want: The Art and Science of Getting Happier*, a book he co-authored with Oprah Winfrey. I recently had the privilege of attending a small group session with him, which I believe offered valuable guidance to physicians seeking to navigate the challenges of our profession while finding fulfillment and happiness.

As a behavioral scientist, Dr Brooks gleans inspiration from the everyday, observing humanity and eavesdropping on conversations. The motivation to write *From*

*Strength to Strength* came from overhearing someone, who by all external accounts would be considered a hero for the achievements of his youth, lament to his partner that his life had amounted to nothing. Dr Brooks wanted to avoid being in the same position, so he wrote a book about “finding success, happiness, and deep purpose in the second half of life.”

His work is grounded in the principles of behavioral science, particularly the concepts of fluid intelligence and crystallized intelligence. These ideas form the basis for understanding the evolution of intelligence throughout life and are based on theory from psychologist Dr Raymond Cattell (<https://psychology.fas.harvard.edu/people/raymond-cattell>). Fluid intelligence peaks in early to mid-adulthood, when one’s ability to innovate, analyze, and solve novel problems is at its best. As the prefrontal cortex declines in the 40s and early 50s, however, crystallized intelligence takes over, characterized by pattern recognition, specialized knowledge, and judgment.

The key to aging happier is to recognize and embrace crystallized intelligence and derive happiness from sharing knowledge. Dr Brooks says that the essential element to happiness hygiene is to find “meaningful work wherein you earn your success and you serve other people.” I pushed him on this in our discussion, thinking about the exhausted physicians at risk of burnout who earn their living by healing others. How much more can one be expected to contribute? I was curious how he would counsel the overburdened physician, buckling under a

heaving patient schedule and mountain of charting, to extend themselves further to impart wisdom and grow younger people.

I found that he answers this question best in his podcast conversation with Oprah ([www.oprah.com/own-podcasts/arthur-brooks-strength-to-strength](http://www.oprah.com/own-podcasts/arthur-brooks-strength-to-strength)). They urge high achievers to break the “striver’s curse”—a vicious cycle of constantly seeking happiness from the next achievement. Instead of banking successes, they suggest that we accept

the second curve and stop choosing to be special over being happy.

What resonated most with me was the principle of indispensability: they challenged listeners to consider what it is that only *they* can do. For example, someone else can do that eighth day of call, but no one else can be a mother to your kids. When you find yourself lamenting the passage of your fluid intelligence and being tempted by the striver’s curse, Dr Brooks’ advice would be to consider which of your virtues are most important: your “résumé virtues” (titles, money, etc.) or your “eulogy virtues” (generosity, wisdom, love, etc.).

As the holiday season approaches, my wish for my fellow physicians is that you find moments of respite, gratitude, and connection. Happy holidays, and may your path be a bit more illuminated by the wisdom of Dr Brooks. ■

—Caitlin Dunne, MD, FRCSC

**What resonated most with me was the principle of indispensability: they challenged listeners to consider what it is that only they can do.**

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# BC has the tools to address the drug poisoning emergency. Do we have the will to use them?

**D**rug poisoning is the leading cause of death among people aged 10 to 59 in BC and takes six lives per day in the province. BC's Provincial Health Officer declared a public health emergency in relation to drug poisoning in 2016, making it the only issue other than the COVID-19 pandemic that has prompted the use of this unique legislative power to unlock policy tools and resources. These deaths are due to the increasingly toxic supply of unregulated drugs, which contain unpredictable concentrations of substances such as fentanyl and carfentanil.<sup>1</sup>

Untapped and underused options are available to prevent deaths in our communities, including decriminalization and safer drug supply. In 2019, a report from the Provincial Health Officer detailed ongoing harms of criminalizing drug use and explicitly recommended decriminalization of drug possession for personal use.<sup>2</sup> Further, the BC Coroners Service has recommended the creation and expansion of a safer drug supply through both medical and nonmedical models.<sup>1</sup>

Decriminalization of drug possession is crucial to reduce drug poisoning harms in BC. Due to stigma and risk of legal punishment, people using drugs often avoid contact with the health care system and other services that can prevent overdose deaths. BC decriminalized possession of small amounts of drugs in February 2023 but has since introduced strict new laws against public use. The benefits of drug decriminalization in BC are at risk of being eroded before they can be realized: this approach has been described by advocates as recriminalizing drug use<sup>3</sup> and has been criticized by BC's Chief Coroner as pushing

drug use “into back alleys and back corners.”<sup>4</sup> Commitment to the goals of decriminalization is needed.

Meanwhile, safer drug supply can reduce the underlying hazard of a poisoned drug market. Medical models to provide safer opioids have existed for decades, including

**Policies and practices to prevent drug poisoning deaths are available, including accelerated action on decriminalization, safe supply, mental health, and the social determinants of health, such as housing.**

well-known opioid agonist therapies such as methadone. Research has found that a safer supply of drugs such as diacetylmorphine (heroin) can also reduce the risk of drug poisoning and other harms.<sup>5</sup> Safer supply in Canada, however, is provided at a trickle relative to the need. While approximately 100 000 people in BC have diagnosed opioid use disorder, and as many as 225 000 are at risk of poisoning from unregulated drugs,<sup>6</sup> only 4476 people were prescribed safe supply medications in July 2023.<sup>7</sup> Many remain at risk for drug poisoning, and BC's Chief Coroner has called for urgent expansion of programs.<sup>8</sup>

However, medical safe supply does not fit the needs of all who are at risk, such as those who may encounter barriers to prescribed models. Nonmedical models to provide a safer drug supply can help increase access. For example, a community-based organization in BC has used compassion

club drug testing to confirm the makeup of drugs distributed to members. To date, no deaths have been reported related to drugs distributed using this model.<sup>9</sup> With support to acquire pharmaceutical supplies of drugs, expert community-based organizations could provide users with known amounts of uncontaminated drugs. Medical and nonmedical safe supply models each provide distinct benefits.

Policies and practices to prevent drug poisoning deaths are available, including accelerated action on decriminalization, safe supply, mental health, and the social determinants of health, such as housing. Will these directions be taken with the same sense of urgency applied to novel measures early in the COVID-19 pandemic? Action must be pursued at a scale and urgency matched to the catastrophic toll of the drug poisoning emergency. ■

—Michael Schwandt, MD, MPH

## References

1. BC Coroners Service. BC Coroners Service death review panel: A review of illicit drug toxicity deaths. 2022. Accessed 19 October 2022. [www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/review\\_of\\_illicit\\_drug\\_toxicity\\_deaths\\_2022.pdf](http://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/review_of_illicit_drug_toxicity_deaths_2022.pdf).
2. Office of the Provincial Health Officer. Stopping the harm: Decriminalization of people who use drugs in BC. 2019. Accessed 19 October 2023. [www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/reports-publications/special-reports/stopping-the-harm-report.pdf](http://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/reports-publications/special-reports/stopping-the-harm-report.pdf).
3. McSheffrey E. 'Set up for more deaths': Advocate decries BC's new bill restricting public drug use. Global News. Updated 5 October 2023. Accessed 19 October 2023. <https://globalnews.ca/news/10007795/reaction-bc-bill-restricting-public-drug-use>.
4. DeRosa K. Proposed BC law would make drug use illegal in almost all public spaces. Vancouver Sun. Updated 6 October 2023. Accessed 19 October

2023. <https://vancouver.sun.com/news/local-news/proposed-b-c-law-would-make-drug-use-illegal-in-almost-all-public-spaces>.
5. Berridge V. Heroin prescription and history. *N Engl J Med*. 2009;361:820-821.
  6. BC Coroners Service. BC Coroners Service Death Review Panel: An urgent response to a continuing crisis. 2023. Accessed 27 November 2023. [www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/an\\_urgent\\_response\\_to\\_a\\_continuing\\_crisis\\_report.pdf](http://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/an_urgent_response_to_a_continuing_crisis_report.pdf).
  7. BC Ministry of Mental Health and Addictions. Escalated drug-poisoning response actions. 2023. Accessed 19 October 2023. <https://news.gov.bc.ca/factsheets/escalated-drug-poisoning-response-actions-1>.
  8. BC Coroners Service. At least 198 lost to toxic drugs in July as public health emergency continues. News release. 29 August 2023. Accessed 19 October 2023. [www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/news/2023/bccs\\_august2023\\_reporting.pdf](http://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/news/2023/bccs_august2023_reporting.pdf).
  9. Drug User Liberation Front. Compassion club and fulfillment centre. Accessed 19 October 2023. [www.dulf.ca/\\_files/ugd/fe034c\\_46d04259d6f44d1b920fe3e1500c676d.pdf](http://www.dulf.ca/_files/ugd/fe034c_46d04259d6f44d1b920fe3e1500c676d.pdf).

# Letters to the editor

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## Re: Truth before reconciliation; humility before truth

Kudos to both the *BCMJ* and Dr Greggain for this heartfelt and inspiring President's Comment [*BCMJ* 2023;65:240-241]. Imagine if all in our profession acted in accordance with the principles outlined in this piece.

As for Dr Greggain, hearing reports of finding remains of Indigenous children on the grounds of the Kamloops residential school was gut-wrenching for me. I worked in Kamloops for 15 years at the

Urban Aboriginal Health Centre. Many of my patients had attended that school. I recall utter exhaustion at the end of one clinic day and the realization as I looked over our patient list with our clinic MOA that 18 of the day's patients were seen for medical issues related to posttraumatic stress disorder.

I want to submit that two additional Calls to Action from the Truth and Reconciliation Commission of Canada (#33 and #34) are also health related, even though they are captured under the "Justice" category, and should be included with the Calls

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### Truth and Reconciliation Commission of Canada Calls to Action #33 and #34 (italics added by Dr Densmore)

33. We call upon the federal, provincial, and territorial governments to recognize as a high priority the need to address and prevent Fetal Alcohol Spectrum Disorder (FASD), and to develop, in collaboration with Aboriginal people, *FASD preventive programs* that can be delivered in a culturally appropriate manner.
34. We call upon the governments of Canada, the provinces, and territories to undertake reforms to the criminal justice system to better address the needs of offenders with Fetal Alcohol Spectrum Disorder (FASD), including:
  - i. Providing increased community resources and powers for courts to *ensure that FASD is properly diagnosed, and that appropriate community supports are in place for those with FASD.*
  - ii. Enacting statutory exemptions from mandatory minimum sentences of imprisonment for offenders affected by FASD.
  - iii. Providing community, correctional, and parole resources to maximize the ability of people with FASD to live in the community.
  - iv. Adopting appropriate evaluation mechanisms to measure the effectiveness of such programs and ensure community safety.

#### BOX. Truth and Reconciliation Commission of Canada Calls to Action #33 and #34.

[www2.gov.bc.ca/assets/gov/british-columbians-our-governments/indigenous-people/aboriginal-peoples-documents/calls\\_to\\_action\\_english2.pdf](http://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/indigenous-people/aboriginal-peoples-documents/calls_to_action_english2.pdf).

to Action that Dr Greggain drew our attention to [Box].

Calls #33 and #34 mean we as health care providers need to identify, diagnose, and appropriately support people with fetal alcohol spectrum disorder (FASD) and their families. We need to become FASD aware. When we diagnose people with FASD we can also learn about their family and their environment and can then recognize and advance opportunities for prevention. Prevention will require increased mental health and social support for birth mothers. Based on an estimate of 2400 federal jail inmates and 2400 provincial jail inmates, BC has approximately 4800 inmates; between 24% and 28% have FASD.<sup>1</sup> That is 1300 individuals. I have diagnosed about 14 incarcerated individuals with FASD in the last few years. Our clinic—currently the only clinic in BC that diagnoses adults with FASD—receives *no* sustainable funding from either the federal or provincial governments. More governmental support is required to meaningfully respond to Calls to Action #33 and #34. FASD is *not* a niche issue; FASD is diagnosed in 28% of foster and adopted youth referred to a children's mental health centre, 9% of children in special education programs, and 25% of children in foster care.<sup>1</sup>

—Rod Densmore, MD  
Medical Assessor, Adult FASD Clinic,  
Independent Living Vernon

#### Reference

1. Popova S, Lange S, Shield K, et al. Prevalence of fetal alcohol spectrum disorder among special subpopulations: A systematic review and meta-analysis. *Addiction* 2019;114:1150-1172.

## Re: Does working part-time mean I've failed as a feminist?

Thank you, Dr Dunne, for sharing your experience as a feminist who is also a physician, managing your time in the modern world [*BCMj* 2023;65:277]. Your experience is shared by many, many others. There is still a real, measurable gender gap in opportunities. And, if the medical profession wants to address that, we need to make systemic change, not place the burden on

individuals to decide if they can act like they have it all.

It is time for our professional physician organizations to stop observing the differences<sup>1-3</sup> and instead make real change to remove the burden of sexism from individuals and replace the structures that created it in the first place.

I admire Anne-Marie Slaughter's work, but I wonder if Audre Lorde's wise words might not be the better source for women to draw on at this time: "Caring for myself is not self-indulgence, it is self-preservation, and that is an act of political warfare."

Let's ask more of our profession and our peers to help solve these problems!

—Rita McCracken, MD, PhD, CCFP (COE), FCFP  
Vancouver

#### References

1. Cohen M, Kiran T. Closing the gender pay gap in Canadian medicine. *CMAJ* 2020;192:E1011-E1017.
2. Steffler M, Chami N, Hill S, et al. Disparities in physician compensation by gender in Ontario, Canada. *JAMA Netw Open* 2021;4:e2126107.
3. Canadian Medical Association. Equity and diversity in medicine. 20 March 2023. Accessed 23 October 2023. [www.cma.ca/physician-wellness-hub/content/equity-and-diversity-medicine](http://www.cma.ca/physician-wellness-hub/content/equity-and-diversity-medicine).

Thank you, Dr Dunne, for sharing your experience [*BCMj* 2023;65:277]. I share so much of your experience and, with my children now being adults, admire your commitment to your values in your choices.

I wonder if a less binary question might be helpful? How does your decision to work part-time *support* the cause of feminism? Exercising choice might be the most important contribution any of us can make.

—Cecile Andreas, MD  
Cranbrook

## The revolution in primary care

It was just 6 years ago that the Ministry of Health embarked on a mission of transforming primary care and the concept of patient unattachment entered the health administration lexicon. Over the last 5 years, we as frontline health care providers have been subjected to the

machinations of a health ministry obsessed with unattachment.

Reflecting on the countless hours we have spent attending meetings and webinars sponsored by health authorities, divisions of family practice, Doctors of BC, and the Ministry of Health to address issues on how to accurately measure unattachment, how to register unattached patients, and how to best collect and interpret data related to unattached patients, one cannot help but wonder if we should have spent some time dealing with the question of *why* we are deploying much-needed resources chasing solutions to questions that will have little or no benefit in getting us out of the crisis we are in.

Unattached patients do not benefit from knowing how staggering their numbers are. Hospitals and social media are quite able to provide the public with information on primary care providers looking to increase their panels. Studying data will not increase the resource base required to achieve full attachment.

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In pursuit of #equanimity. Many #physicians I admire possess calmness, levelheadedness, and composure in difficult situations—a state of equanimity if you will—that I wish to emulate.

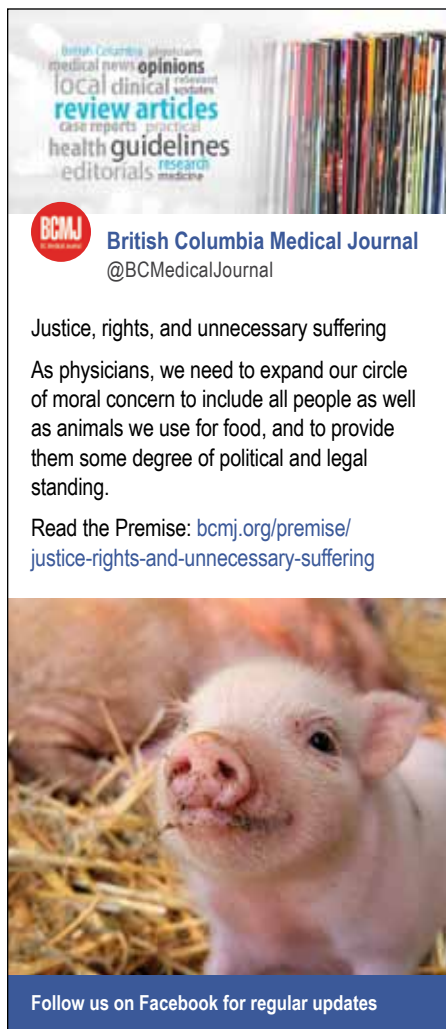
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Could it be that this all has more to do with politics than solving the current crisis? It is concerning that primary care providers who want to access the new longitudinal care option for remuneration must agree to submit their complete panel data to the ministry and register with the provincial attachment list. We have been reassured so many times by the ministry that we will not be required to take on additional patients that one cannot help but conclude this is a case of “methinks the maiden doth protest too much.”

We need to be careful that we are not being duped into sharpening the blade of the guillotine that is soon to sever us from the long-serving autonomy of practice that we fought so hard to preserve over time.

—Bruce Nicolson, MD  
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## Re: Early-onset colorectal cancer

I want to express my gratitude to Dr Gray for his article addressing early-onset colorectal cancer [*BCMJ* 2023;65:207-210]. While I value the article for its concise summary of this critical topic, I have several concerns, especially as a family physician and a patient personally impacted by early-onset colorectal cancer.

At the age of 36, I was diagnosed with stage IV colorectal cancer, despite being previously healthy and lacking any family history or known risk factors. My journey to diagnosis was fraught with delays and misdiagnoses. Initially, a specialist misdiagnosed my condition as hemorrhoids during an appointment I had waited 4 months for, providing me with a false sense of reassurance that only extended the time until my proper diagnosis. It wasn't until my rectal bleeding became severe that I presented to hospital. Even then, because my hemoglobin levels were within the normal range, I was considered low risk and almost sent home. I had to insist on an urgent colonoscopy, which finally took place the following day. Prior to the procedure, the possibility of malignancy was not discussed or considered, as all listed differentials were benign etiologies.

This was my experience navigating the health care system as a patient, despite being a physician who is well attuned to my own health. Regrettably, my story is not unique; I have connected with others in their 30s diagnosed with advanced-stage early-onset colorectal cancer who faced similar difficulties in accessing care. A common theme among them is that they were told by their primary care providers and specialists that they were “too young to have cancer.” It appears that there is a significant lack of awareness among both primary care physicians and specialists regarding the increasing incidence of early-onset colorectal cancer, especially in cases where there is no family history or obvious risk factors, as was the case with me.

The article commences with the well-intentioned statement that “[t]he BC

Guideline for colorectal cancer screening encourages physicians to evaluate younger adults with symptoms or a family history of colorectal cancer by using colonoscopy.” However, based on my experience as a family physician with years of practice in primary care, gaining access to a gastroenterologist for colonoscopy assessment is extremely challenging. Many times, I have had referrals flagged as “urgent” go unacknowledged, triaged as low priority with an 8- to 12-month wait, or worse, rejected for unjust or unclear reasons. I believe that many of my family physician colleagues can relate to similar experiences.

A recent systematic review on the role of colonoscopy in younger patients presenting with anorectal bleeding found that approximately 10% had a neoplastic lesion detected.<sup>1</sup> This underscores the importance of timely access to colonoscopy assessment for younger patients with colorectal cancer symptoms. I strongly advocate for a more efficient referral and access system for colonoscopy, particularly when colorectal cancer is suspected based on symptoms. I believe that implementing a centralized referral system, akin to the BC Colon Screening Program, which offers consolidated access to endoscopists (including gastroenterologists and general surgeons), would significantly enhance the current system's capacity to provide timely access to patients with concerning colorectal cancer symptoms, including those in the early-onset age range.

Last, I would like to acknowledge the success of the BC Colon Screening Program in patients aged 50–74 years. It has notably reduced the administrative burden for primary care providers and improved colorectal cancer screening access for our patients in this age group. On the question of lowering the screening age, I respectfully disagree with Dr Gray and advocate for lowering the screening age to 45, a topic on which I defer to my colleague, Dr Petra Wildgoose, for further discussion and exploration.

—Marko Yurkovich, MD, CCFP  
Vancouver



## Reference

- Colles T, Ziegelmann PK, Damin DC. The role of colonoscopy in young patients with rectal bleeding: A systematic review and meta-analysis. *Int J Colorectal Dis* 2023;38:230.

Thank you for highlighting the important issue of early-onset colorectal cancer [*BCM J* 2023;65:207-210].

In the article, it is stated that “population screening strategies in British Columbia remain unchanged, but recognition of possible early-onset colorectal cancer requires the vigilance of health care providers.” Diagnosis cannot depend strictly on the vigilance of health care providers when 59% of the population does not have a family doctor or has difficult accessing one and there is a known lack of public awareness of colorectal cancer symptoms and a delay in presentation to the primary care provider.<sup>1,2</sup> Vigilance of health care providers assumes that providers are educated on the signs and symptoms of early-onset colorectal cancer, the reasons for considering it in the differential, and the significance of obtaining an urgent colonoscopy. It is well known that patients are often misdiagnosed and feel dismissed by their primary care provider.<sup>2</sup> Public and provider education regarding early-onset colorectal cancer is paramount.

It is also stated that “[t]he BC Guideline for colorectal cancer screening encourages physicians to evaluate younger adults with symptoms or a family history of colorectal cancer by using colonoscopy.” Delays in obtaining a colonoscopy are associated with an increased risk of advanced-stage disease, and the Delphi Initiative for Early-Onset Colorectal Cancer international management guidelines recommend that colonoscopy be performed within 30 days of presentation with alarming symptoms.<sup>3</sup> (Red flag symptoms precede 70% to 95% of early-onset colorectal cancer cases.<sup>4</sup>) The Canadian Association of Gastroenterology Wait Time Consensus Group recommends endoscopy within 2 months. However, an Island Health 2020 performance assessment showed that 34% of patients waited

longer for colonoscopy than their priority benchmark, and a St. Paul’s Hospital 2016 retrospective chart review showed that symptomatic patients waited a mean of 86 days to endoscopy.<sup>5,6</sup> BC Colon Screening Program 2019 results showed a median wait time to colonoscopy of 134 days after an abnormal fecal immunochemical test, and 85 days for patients at higher-than-average risk (including those with a family history).<sup>7</sup> Given that symptomatic patients and patients eligible for screening colonoscopy are not being seen within target ranges, it seems highly unlikely that younger patients will receive timely access to colonoscopy once their symptoms are deemed worrisome enough by their primary care provider to warrant it. This statement as it stands is not sufficient; potential solutions need to be considered.

Four reasons are outlined as justification for not immediately adopting an earlier screening strategy. It is imperative to acknowledge that further discussion around lowering the screening age needs to occur through addressing various research gaps, including a comprehensive cost-benefit analysis of adopting population-based screening for individuals aged 45–50 at average risk of colorectal cancer, and a more detailed understanding of risk factor profiles, which could inform precision screening for early-onset colorectal cancer. Screening programs detect colorectal cancer at earlier stages of disease in the over-50 population, and, given that early-onset colorectal cancer patients are more likely to present with advanced disease, an understanding is warranted of whether lowering the screening age would reduce the stage of disease at diagnosis and, therefore, not only the physical and mental ramifications for the individual but also the downstream economic costs to both society and the health care system.

—Petra Wildgoose, MD, CCFP, MPH  
Toronto

## References


- Angus Reid Institute. Doc deficits: Half of Canadians either can't find a doctor or can't get a timely appointment with the one they have.

7 September 2022. Accessed 29 September 2023. <https://angusreid.org/canada-health-care-family-doctors-shortage>.

- Colorectal Cancer Alliance. Never too young survey report 2020. Accessed 29 September 2023. [www.ccalliance.org/about/never-too-young/survey](http://www.ccalliance.org/about/never-too-young/survey).
- Cavestro GM, Mannucci A, Balaguer F, et al. Delphi Initiative for Early-Onset Colorectal Cancer (DIRECt) international management guidelines. *Clin Gastroenterol Hepatol* 2023;21:581-603.
- Burnett-Hartman AN, Lee JK, Demb J, Gupta S. An update on the epidemiology, molecular characterization, diagnosis, and screening strategies for early-onset colorectal cancer. *Gastroenterology* 2021;160:1041-1049.
- Island Health. Island Health performance measures: Colonoscopy wait times. March 2020. Accessed 29 September 2023. [www.islandhealth.ca/sites/default/files/2019-07/t-colonoscopy-wait-times.pdf](http://www.islandhealth.ca/sites/default/files/2019-07/t-colonoscopy-wait-times.pdf).
- Janssen RM, Takach O, Nap-Hill E, Enns RA. Time to endoscopy in patients with colorectal cancer: Analysis of wait-times. *Can J Gastroenterol Hepatol* 2016;2016:8714587.
- BC Cancer Colon Screening, Provincial Health Services Authority. BC Cancer colon screening 2019 program results. March 2021. Accessed 29 September 2023. [www.bccancer.bc.ca/screening/Documents/Colon-Program-Results-2019.pdf](http://www.bccancer.bc.ca/screening/Documents/Colon-Program-Results-2019.pdf).


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## Gratitude and hope

“People will forget what you said, people will forget what you did, but people will never forget how you made them feel.” This quote from Maya Angelou has helped guide me throughout my career, and recently, as president of Doctors of BC, I have used it when speaking at events to encourage the audience to listen to the content not only with their ears, but also with their emotions. Years ago, an Indigenous Elder taught me the concept of listening with all three of our ears—the two on our head and the one in our hearts. And while Angelou’s quote has guided how I have engaged with you this past year, it also rings true for how being president has made me feel. After connecting with many of you in person, on Zoom, and through the written word, I have one prevailing feeling—gratitude.

In my travels, both virtually and in person, from urban to rural, remote, and Indigenous communities, you have welcomed me, and for that, I am eternally grateful. Thank you for inviting me into your boardrooms and living rooms and for having honest and candid conversations on topics from digital health to physician engagement, strategic direction, and system transformation, among others. Thank you for sharing your stories of innovation, resilience, and dedication, while also trusting the space to speak about more difficult conversations, including physician well-being and personal grief. I stand in awe of so many of you for persevering during challenging times and for teaching and leading your colleagues and our doctors of tomorrow, even if at times not feeling old enough or mature enough

to do so. Above all, I admire your unwavering dedication to your patients and your colleagues.

We walked together in forests, fished together in the ocean, drank coffee together at your favorite local coffee shops, and enjoyed meals together throughout the province. I am grateful for the opportunities to share

**Many of you have heard me introduce myself as a physician from Hope, both the municipality and the ideological vantage point.**

homemade eggs in your kitchen, enjoy bannock in your clinic, and spend time together in symposiums as well as in longhouses. It was the compilation of experiences that provided me the chance to truly connect. Thank you for the advice, consideration, and appreciation you gave me; I hope you felt the same in return.

Over the year, you may have heard me refer to the framework of human being, human doing, which is an approach I learned from Indigenous Elders. I believe it is our collective humanity that brings us together in our profession and in the care of our patients. This past year I saw immeasurable examples across the province. I am incredibly grateful to know you, as human beings, and for the human doings that you each carry out in your homes, offices, hospitals, and communities.

Many of you have heard me introduce myself as a physician from Hope, both the municipality and the ideological vantage point. As I look ahead, I am overcome with the feeling of hope—hope to find solutions to the challenges faced by so many and hope to see our profession come together to create a health care system that works for all. Many of you have told me that you feel more optimistic than you have over the last few years, that the work being done by Doctors of BC to reflect the physician voice in the space of advocacy, equity, and navigating collaborative partnerships gives you hope. I know many family physicians and specialists, urban and rural alike, have felt more hope this past year because of the Longitudinal Family Physician Payment Model and its impact on primary care. Collective hope is not a destination, but rather a journey that we travel together. Thanks to each one of you. I am confident that, overall, we are further along on this journey than when I started my term.

Thank you for the opportunity to serve you and the profession and for the feelings of gratitude and hope you have instilled in me. I can only hope that I have left you with a shared sense of both. And I think it only fitting to end this commentary as I have ended all my email correspondence this year and how I feel in general:

With gratitude,  
—Joshua Greggain, MD  
Doctors of BC President



## Dr Michael Schwandt

A public health perspective on the *BCMJ* Editorial Board

By Tara Lyon

**T**he *BCMJ* recently welcomed a new Editorial Board member, Dr Michael Schwandt—a specialist in public health and preventive medicine. Dr Schwandt serves as a medical health officer with Vancouver Coastal Health and a clinical associate professor in the UBC School of Population and Public Health, and he brings his public health expertise to reviewing and selecting articles for publication in the *BCMJ*.

Dr Schwandt, born and raised in Winnipeg, came by his fascination with science and medicine at a younger age than most. “When I was quite young, but old enough to understand, my dad had a cerebral aneurysm that required emergency brain surgery, and that exposed me in a very personal way to the impact of quality health services to individuals and families—it exposed me to medicine in a very positive

way.” He describes Winnipeg as a great city to grow up in. “It’s so far from other urban centres,” he explains, “and as a result, it’s a unique community with its own distinct local scene—it’s a great place for music, art, and theatre. For a city of its size, there’s a lot more to be exposed to than one might expect.” It was the University of Manitoba’s focus on public health topics that set him on his ultimate career path, he says. “That unique exposure ended up being what pointed me toward my long-term career.”

Dr Schwandt describes himself as a life-long avid reader whose interests eventually expanded to media and communications. He worked with UBC’s student newsletter, the *Ubyyssey*, during his undergrad degree and volunteered at the campus student radio station. “I’ve always been interested in learning about ways to disseminate good information,” he explains. When his undergrad and medical training were behind him, he started making more time for reading, both personally and professionally. “In terms of personal reading, I find myself reading a lot

of near future dystopian fiction—pandemics, climate change,” he says. “I like to look at negative and positive pathways for the near future. It’s a rich vein of reading for pleasure and reflection.”

When COVID-19 arrived in early 2020, Dr Schwandt’s interests in public health, pandemic scenarios, and dissemination of information converged. “Like all health care providers in a pandemic situation, we want to apply our training to the utmost ability. When the pandemic hit, we understood that it would bring to bear issues like contact tracing, the kinds of health communications that public health physicians are trained in, as well as testing, vaccination, etc.—these activities are all essential to public health practice. They all came to a peak at once, and we all found ourselves working with all the fundamentals. But the nonstop and prolonged nature of it was not something that people anticipated, and that it would be so immersive.”

Dr Schwandt says that there were many insights to be found in the way public health communications unfolded in the pandemic. “I was heartened by the broad uptake of the public health messages that were being disseminated, but, like everyone, I was disheartened by the spread of misinformation. If one person said the vaccine didn’t work, loudly, it got a lot of traction.” In future, he says, “We’ll need to see real efforts to fill spaces with quality information to drown out misinformation.”

Dr Schwandt sees his role on the Editorial Board as an opportunity to advance his interest in dissemination of health information and promote public health measures at the provincial level. “I’ve seen the *BCMJ* do a good job of promoting public health topics,” he says, “and I hope to carry that on by making links from the clinical topics to the preventive side. When we have excellent articles on work being done at the community level, I think physicians are also interested in expanding those efforts to prevention on a broader scale. I hope I can bring that on board.”

Read Dr Schwandt’s first editorial in this issue. ■

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*Ms Lyon is a staff member of the BC Medical Journal.*

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# ASA for postoperative venous thromboembolism prevention in patients with extremity or hip fractures: A critical appraisal of the PREVENT CLOT trial

The PREVENT CLOT trial demonstrated that ASA is noninferior to low-molecular-weight heparin in reducing all-cause mortality for extremity fractures. However, caution is necessary due to the limited representation of the patient population and the increased risk of symptomatic thrombotic events with ASA, underscoring the need for personalized thromboprophylaxis based on patient risk factors and preferences.

**Daniel Hong, PharmD, BCGP, Hans Haag, BSc, BSc (Pharm), ACPR, Anthony Lau, ACPR, PharmD, BCPS, CDCES, Agnes Y.Y. Lee, MD, MSc, FRCPC**

**ABSTRACT:** The open-label PREVENT CLOT trial compared ASA with low-molecular-weight heparin (LMWH) for thromboprophylaxis in extremity fractures. ASA was noninferior to LMWH in reducing all-cause mortality but was associated with more frequent symptomatic thrombotic events. The study findings should be cautiously interpreted due to the clinical relevance of the outcomes and the restricted

population studied. The PREVENT CLOT trial consisted primarily of healthy young patients with nonmajor trauma. These patients have inherently lower risk of venous thromboembolism than other patient cohorts of interest, such as frail, elderly, and polytrauma patients, limiting the generalizability of the results. Further, a more fulsome analysis of another higher-risk group, such as patients with proximal lower limb trauma, was lacking. No significant difference in bleeding was found between the ASA and LMWH arms, supporting LMWH use in patients with higher risk of thromboembolism. Ultimately, thromboprophylaxis choice for extremity fractures should be individualized based on patient risk factors and preferences.

## Background

The baseline risk of symptomatic venous thromboembolism (VTE) in the first 35 days after major orthopaedic surgery has been estimated at 4.3%.<sup>1</sup> This burden of VTE, along with a much higher incidence of asymptomatic cases and potential complications, is the basis for the numerous clinical trials that have investigated pharmaceutical options for thromboprophylaxis in

this patient population, including antiplatelet agents such as ASA and anticoagulants such as vitamin K antagonists, direct-acting anticoagulants, and low-molecular-weight heparin (LMWH). With these interventions, rates of VTE are reduced to 0.4% to 1.8% in patients with lower extremity surgeries; fatal VTE is very uncommon.<sup>1,2</sup> Therefore, thromboprophylaxis after major orthopaedic procedures that are associated with a higher risk of VTE is recommended as the standard of care by evidence-based clinical practice guidelines.

Although the total body of evidence supports a greater reduction of VTE with anticoagulants than with ASA, it is common practice for patients with orthopaedic fractures undergoing arthroplasties or fixations (e.g., nail insertions) to receive ASA for postoperative VTE prophylaxis, likely because of its lower cost and ease of administration compared with injections.<sup>3-6</sup> Enthusiasm for ASA use has been further amplified by favorable results in recent large trials.<sup>7,8</sup> In the EPCAT II trial, a multicentre double-blinded randomized controlled trial conducted in Canada,

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*This article has been peer reviewed.*

extended prophylaxis with low-dose ASA was noninferior to low-dose rivaroxaban in patients undergoing elective total hip or knee arthroplasties; both treatment arms had similar rates of symptomatic deep vein thrombosis, pulmonary embolism, and bleeding events.<sup>7</sup> In the PREVENT CLOT trial, a large open-label randomized controlled trial at 21 trauma centres in Canada and the United States, ASA was noninferior to LMWH (enoxaparin) in preventing postoperative all-cause mortality in patients with upper or lower extremity fractures.<sup>8</sup> While both trials have the potential to significantly influence clinical practice and guidelines, careful and selective application of the study findings to patients undergoing major orthopaedic surgery is warranted given the study designs and patient populations studied.<sup>9</sup> Here, we outline our concerns about extrapolating the findings of the PREVENT CLOT trial and applying them to unselected patients with orthopaedic fractures, particularly those who are considered at higher risk for VTE.

### Study summary

The PREVENT CLOT trial included 12211 adult patients with limb fractures surgically treated in trauma centres across North America, including those with pelvic or acetabular fractures who did not undergo surgery. Patients were randomized to receive ASA 81 mg orally twice daily or LMWH (enoxaparin) 30 mg twice daily by subcutaneous injection, with dose adjustment for weight and kidney function consistent with standards of care. During the 90-day follow-up period, the primary outcome of all-cause mortality occurred in 0.78% of the ASA arm and 0.73% of the LMWH arm. The authors concluded that ASA was noninferior to LMWH in preventing all-cause mortality when given as thromboprophylaxis for extremity fractures.

### Patient inclusion

Patients enrolled in the PREVENT CLOT trial were young (mean age: 44.6 ± 17.8 years), and most of them sustained nonmajor

trauma (85.6% had an Injury Severity Score of less than 15 out of 75). Cancer (2.5%), diabetes (8.3%), and a previous history of VTE (0.7%) were reported as comorbidities; the orthopaedic trauma event was the only known risk factor for thrombosis in 27.3% of patients. These characteristics suggest that patients in the PREVENT CLOT trial had a decreased baseline risk

**Thromboprophylaxis  
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of thrombosis and were less likely to require (and therefore benefit from) pharmacologic thromboprophylaxis. In comparison, previous studies in patients with hip fracture surgeries have typically been composed of patients older than 70 years of age, with up to 63% of patients having a history of cardiovascular disease.<sup>10-16</sup> Patients enrolled in the PREVENT CLOT trial also had lower injury severity compared with cohorts in other trauma studies.<sup>17,18</sup> Given that advanced age, a history of cardiovascular disease, and higher injury severity are well-established risk factors for VTE, a large number of patients in the PREVENT CLOT trial likely had a lower risk of VTE than the typical trauma cohort with hip fracture or major injuries.<sup>19</sup>

The PREVENT CLOT trial also included only patients with upper extremity fractures, which made up 12% of patients in each of the treatment arms. As thromboprophylaxis is not the standard of care for these patients, we question the rationale for including them. The inclusion of such a low-risk group may also reduce the ability to detect a difference in outcomes between ASA and LMWH.<sup>20</sup>

### Outcomes

The investigators of the PREVENT CLOT trial selected all-cause mortality as the primary outcome. While mortality rate is a significant outcome and a robust hard endpoint, it is neither a sensitive outcome for assessing the efficacy and safety of pharmacologic thromboprophylaxis nor a typical primary outcome in trauma-related thromboprophylaxis studies.<sup>3,21,22</sup> Furthermore, given the low-risk patient population, it is not surprising that 90-day mortality was low and was similar between the ASA and LMWH arms.

The secondary efficacy outcomes were more informative: cause-specific mortality, nonfatal pulmonary embolism, and deep vein thrombosis. Bleeding, wound complications, and surgical site infection were secondary safety outcomes. These outcomes are essential for assessing the efficacy and safety of thromboprophylaxis and are important determinants of quality of life and cost-effectiveness.<sup>23</sup> Consistent with previous orthopaedic trials with arthroplasties and lower limb fractures, a significantly lower incidence of symptomatic deep vein thrombosis was observed in the LMWH arm (1.71%) compared with the ASA arm (2.51%) in the PREVENT CLOT trial. Around 50% of these were proximal, which is a significant risk factor for pulmonary embolism.<sup>24</sup> Notably, the decreased rate of deep vein thrombosis in the LMWH arm was not accompanied by a statistically significant increased incidence of bleeding. The absence of a trade-off from a safety perspective adds reassurance of the value of LMWH as a safe choice of thromboprophylaxis compared with ASA in patients with a higher risk for VTE.

### Additional concerns

Another factor that limits our confidence in generalizing the trial results is the lack of detail about the collective group of lower extremity fractures. Although the number of patients in this group is well balanced between the two treatment arms, the distribution of fractures was not reported. Considering that the risk of VTE after a

## PREMISE

lower extremity fracture is higher with more proximal locations than with more distal locations (e.g., hip versus ankle), an imbalance in the distribution of these fracture locations between treatment arms may impact the findings.<sup>25,26</sup> Furthermore, it would be highly informative to know the proportion of fractures at different locations, because the recommended indication and duration of postoperative VTE prophylaxis differ depending on the location and type. A more detailed breakdown of outcomes according to different sites of fracture (e.g., upper extremity vs pelvis, proximal femur vs distal lower limb) would also be welcome and hypothesis generating.

The types of procedures and surgeries performed were also not available in the PREVENT CLOT publication. This is useful information for interpreting the results, because the type of surgery can have a significant influence on VTE risk, with arthroplasties being associated with lower risk compared with fracture surgeries such as nail insertions and cephalomedullary nailing.<sup>27</sup>

Finally, fewer patients were discharged on enoxaparin (88.8%) than ASA (93.6%). Both arms were prescribed thromboprophylaxis for a median of 21 days. However, the authors did not elaborate on compliance to these regimens at home. The uncertainty around medication adherence makes it challenging to determine what effect this had on the reported outcomes.

### Other published commentaries

Our appraisal of the PREVENT CLOT trial aligns with other critical reviews, editorials, and letters to the editor.<sup>28-30</sup> Importantly, the underrepresentation of a higher-risk population limits the generalizability of the PREVENT CLOT trial to those patients at higher risk of VTE, such as elderly patients and those with hip fractures.

### Conclusions

The PREVENT CLOT trial provided evidence that in patients with lower risk of VTE after extremity fractures, there appears to be little difference between twice-daily

regimens of ASA or LMWH for primary thromboprophylaxis. However, given the patient population and the primary outcome that were studied, we caution against generalizing and extrapolating the results to higher-risk populations who were underrepresented, such as elderly patients, patients with moderate or severe injuries, and those with comorbidities that increase

**Patients in the PREVENT CLOT trial had a decreased baseline risk of thrombosis and were less likely to require (and therefore benefit from) pharmacologic thromboprophylaxis.**

risk for VTE (e.g., cardiovascular disease, cancer, history of VTE, obesity). It remains paramount for clinicians to assess VTE risk in individual patients with orthopaedic fractures to determine the appropriateness of ASA versus LMWH for pharmacological thromboprophylaxis. ■

### Competing interests

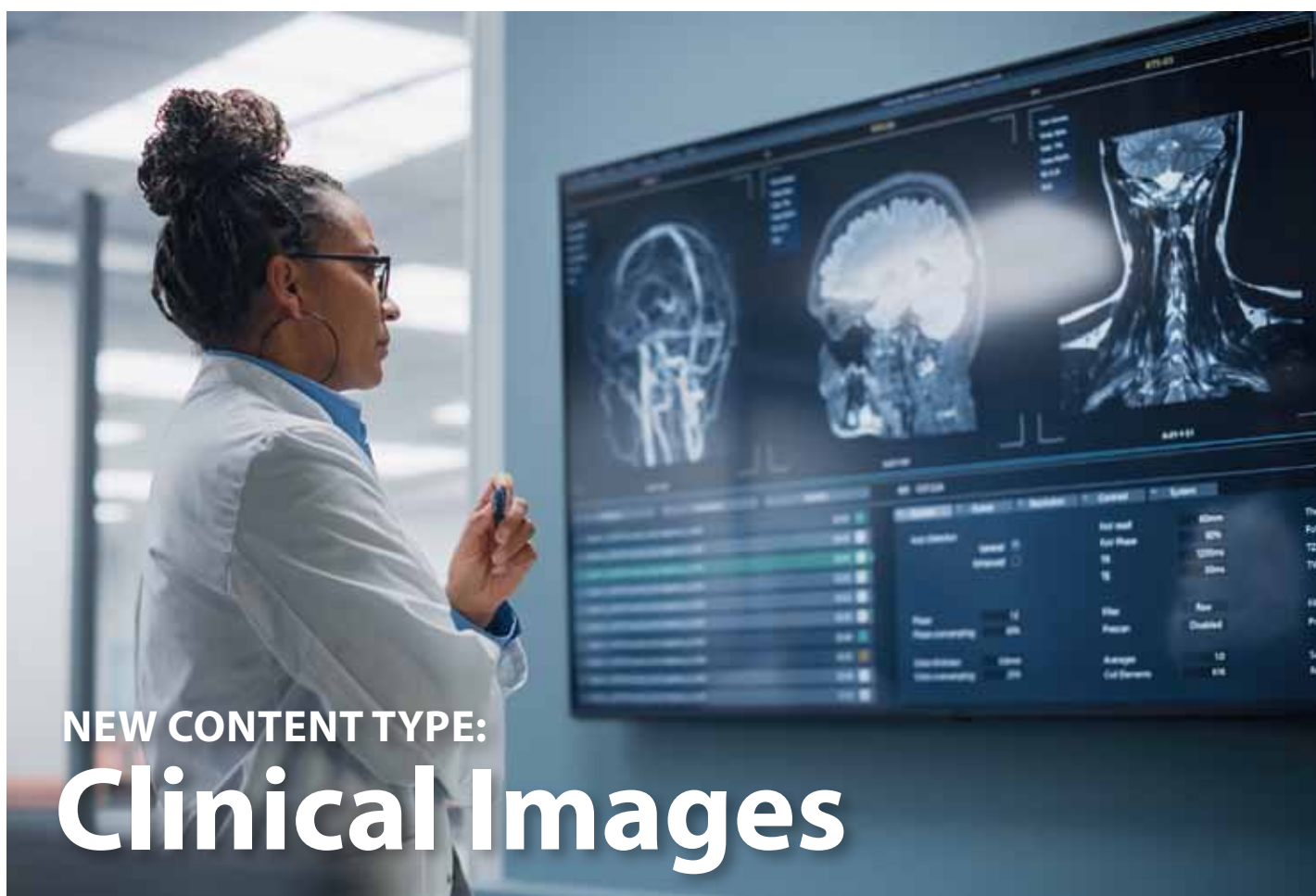
This research did not receive specific grant funding from agencies in the public, commercial, or not-for-profit sectors. Dr Lee has received consultancy fees and honoraria from Bayer, Bristol Myers Squibb, Janssen, LEO Pharma, and Pfizer.

### References

1. Falck-Ytter Y, Francis CW, Johanson NA, et al. Prevention of VTE in orthopedic surgery patients: Antithrombotic therapy and prevention of thrombosis, 9th ed: American College of Chest Physicians evidence-based clinical practice guidelines. *Chest* 2012;141(Suppl 2):e278S-e325S.
2. Gade IL, Kold S, Severinsen MT, et al. Venous thromboembolism after lower extremity orthopedic surgery: A population-based nationwide cohort study. *Res Pract Thromb Haemost* 2021;5:148-158.
3. CRISTAL Study Group. Effect of aspirin vs enoxaparin on symptomatic venous thromboembolism in patients undergoing hip or knee arthroplasty: The CRISTAL randomized trial. *JAMA* 2022;328:719-727.

4. Kearon C, Akl EA, Ornelas J, et al. Antithrombotic therapy for VTE disease: Chest guideline and expert panel report. *Chest* 2016;149:315-352. Erratum in: *Chest* 2016;150:988.
5. Anderson DR, Morgano GP, Bennett C, et al. American Society of Hematology 2019 guidelines for management of venous thromboembolism: Prevention of venous thromboembolism in surgical hospitalized patients. *Blood Adv* 2019;3:3898-3944.
6. Sidhu V, Naylor JM, Adie S, et al. Post-discharge patient-reported non-adherence to aspirin compared to enoxaparin for venous thromboembolism prophylaxis after hip or knee arthroplasty. *ANZ J Surg* 2023;93:989-994.
7. Anderson DR, Dunbar M, Murnaghan J, et al. Aspirin or rivaroxaban for VTE prophylaxis after hip or knee arthroplasty. *N Engl J Med* 2018;378:699-707.
8. Major Extremity Trauma Research Consortium (METRC). Aspirin or low-molecular-weight heparin for thromboprophylaxis after a fracture. *N Engl J Med* 2023;388:203-213.
9. Costa M. Thromboprophylaxis after extremity fracture—Time for aspirin? *N Engl J Med* 2023;388:274-275.
10. Rosencher N, Vielpeau C, Emmerich J, et al. Venous thromboembolism and mortality after hip fracture surgery: The ESCORTE study. *J Thromb Haemost* 2005;3:2006-2014.
11. Fixation using Alternative Implants for the Treatment of Hip fractures (FAITH) Investigators. Fracture fixation in the operative management of hip fractures (FAITH): An international, multicentre, randomised controlled trial. *Lancet* 2017;389(10078):1519-1527.
12. The HEALTH Investigators. Total hip arthroplasty or hemiarthroplasty for hip fracture. *N Engl J Med* 2019;381:2199-2208.
13. The HIP ATTACK Investigators. Accelerated surgery versus standard care in hip fracture (HIP ATTACK): An international, randomised, controlled trial. *Lancet* 2020;95(10225):698-708. Errata in: *Lancet* 2021;398(10315):1964; *Lancet* 2023;401(10382):1078.
14. Beauchamp-Chalifour P, Belzile ÉL, Michael R, et al. The risk of venous thromboembolism in surgically treated hip fracture: A retrospective cohort study of 5184 patients. *Orthop Traumatol Surg Res* 2022;108:103142.
15. Llopis-Cardona F, Armero C, Hurtado I, et al. Incidence of subsequent hip fracture and mortality in elderly patients: A multistate population-based cohort study in eastern Spain. *J Bone Miner Res* 2022;37:1200-1208.
16. Sullivan KJ, Husak LE, Altebarmakian M, Brox WT. Demographic factors in hip fracture incidence and mortality rates in California, 2000–2011. *J Orthop Surg Res* 2016;11:4.
17. Tarabaddkar N, Alton T, Gorbaty J, et al. Trends in orthopedic fracture and injury severity: A level I trauma center experience. *Orthopedics* 2018;41:e211-e216.
18. Girshausen R, Horst K, Herren C, et al. Polytrauma scoring revisited: Prognostic validity and usability in daily clinical practice. *Eur J Trauma Emerg Surg* 2022. doi: 10.1007/s00068-022-02035-5.

19. Anderson FA Jr, Spencer FA. Risk factors for venous thromboembolism. *Circulation* 2003;107(23 Suppl 1):I9-I16.
20. Flevas DA, Megaloikonomos PD, Dimopoulos L, et al. Thromboembolism prophylaxis in orthopaedics: An update. *EFORT Open Rev* 2018;3:136-148.
21. Alsheikh K, Hilabi A, Aleid A, et al. Efficacy and safety of thromboprophylaxis post-orthopedic surgery. *Cureus* 2021;13:e19691.
22. Shahi A, Bradbury TL, Guild GN III, et al. What are the incidence and risk factors of in-hospital mortality after venous thromboembolism events in total hip and knee arthroplasty patients? *Arthroplast Today* 2018;4:343-347.
23. Hogg K, Kimpton M, Carrier M, et al. Estimating quality of life in acute venous thrombosis. *JAMA Intern Med* 2013;173:1067-1072.
24. Kabashneh S, Singh V, Alkassis S. A comprehensive literature review on the management of distal deep vein thrombosis. *Cureus* 2020;12:e8048.
25. Ricci WM, Broekhuysen H, Keating JF, et al. Thromboprophylaxis an update of current practice: Can we reach a consensus? *OTA Int* 2019;2:e027.
26. Gouzoulis MJ, Joo PY, Kammi AJ, et al. Risk factors for venous thromboembolism following fractures isolated to the foot and ankle fracture. *PLoS One* 2022;17:e0276548.
27. MacDonald DRW, Neilly D, Schneider PS, et al. Venous thromboembolism in hip fracture patients: A subanalysis of the FAITH and HEALTH trials. *J Orthop Trauma* 2020;34(Suppl 3):S70-S75.
28. Vergallo R, Patrono C. Aspirin for venous thromboprophylaxis after fracture: Ready for prime time? *Eur Heart J* 2023;44:1299-1300.
29. Sourmelis S, Zagoreos N. Aspirin for thromboprophylaxis after a fracture. *N Engl J Med* 2023;388:e57.
30. Wu X-D, Min J. Aspirin for thromboprophylaxis after a fracture. *N Engl J Med* 2023;388:e57.



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# Navigating the nonarthritic hip: Labral tears and femoroacetabular impingement

Nonarthritic hip pain is difficult to diagnose and requires a thorough history, a physical examination, and appropriate imaging modalities.

**ABSTRACT:** Hip pain is a common symptom presented to primary care physicians. The diagnosis is often difficult when the pain is not associated with arthritic changes. Patients with nonarthritic hip pain, more specifically femoroacetabular impingement, typically present with anterior hip pain that is worse in the position of impingement. Physical examination is typically positive for decreased range of motion and pain using the flexion, adduction, and internal rotation test. Diagnosis can be made with a thorough history, a physical examination, and radiographic imaging with anteroposterior pelvis and modified Dunn views. MRI arthrography should be avoided in any patient with signs of osteoarthritis on initial films. First-line treatment is nonoperative and can be commenced pending referral to orthopaedics. Proper workup, including history, physical examination, and appropriate imaging, can help identify patients who may be

suitable for hip arthroscopic surgery and provide timely referral to an orthopaedic surgeon.

**H**ip pain is a common symptom presented to primary care physicians and can be debilitating for patients of all ages. Since Sir John Charnley's early success with total hip replacement, the procedure has proven tremendously successful and has undergone innovation over the last half century in the management of the arthritic hip. However, it fails to provide a good solution for patients suffering from nonarthritic hip pain. The understanding of nonarthritic hip pain and the recognition of diagnoses and their management have increased since the turn of the 21st century, which has fostered surgical innovation.<sup>1</sup>

Hip arthroscopy has rapidly gained popularity in the management of young adult nonarthritic hip pain, most commonly for femoroacetabular impingement and labral pathology. Its use increased eighteenfold in the United States between 1999 and 2009, and a similar trend occurred in the United Kingdom in more recent years.<sup>2,3</sup> The procedure allows for the visualization and management of intra-articular pathology without open exposure. In the right setting, it may provide excellent outcomes, with high satisfaction rates in patients, and may allow for a return to function and sporting activities at a high level.

Differential diagnosis is expansive and includes pathologies that involve intra-articular and extra-articular structures. The spectrum of intra-articular causes of nonarthritic hip pain ranges from acetabular dysplasia (under-coverage of the hip) to femoroacetabular impingement (premature abutment of the femoral head on the acetabulum due to bony prominence). These morphologies can affect the articular cartilage and acetabular labrum, which may cause pain. The extra-articular causes of hip pain can be viewed with an anatomic approach outside the hip joint. Some examples include tendon pathologies (degenerative changes, tears, or traumatic ruptures), inflammation of the bursae, and neurological and vascular causes. A detailed analysis of extra-articular hip pain is beyond the scope of this article.

Due to the complex nature of hip pain, accurate diagnosis is important to formulate a treatment plan. Improper imaging can result in irrelevant incidental findings, patient anxiety, and inappropriate surgical referrals. Contrarily, delay in referral for patients with abnormal pathology can result in prolonged disability and delay to surgery and return to activities.<sup>4,5</sup> The purpose of this article is to review the workup of nonarthritic hip pain, with the goal of facilitating optimal and timely care in the community in partnership with orthopaedic surgeons.

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*This article has been peer reviewed.*



## Hip anatomy

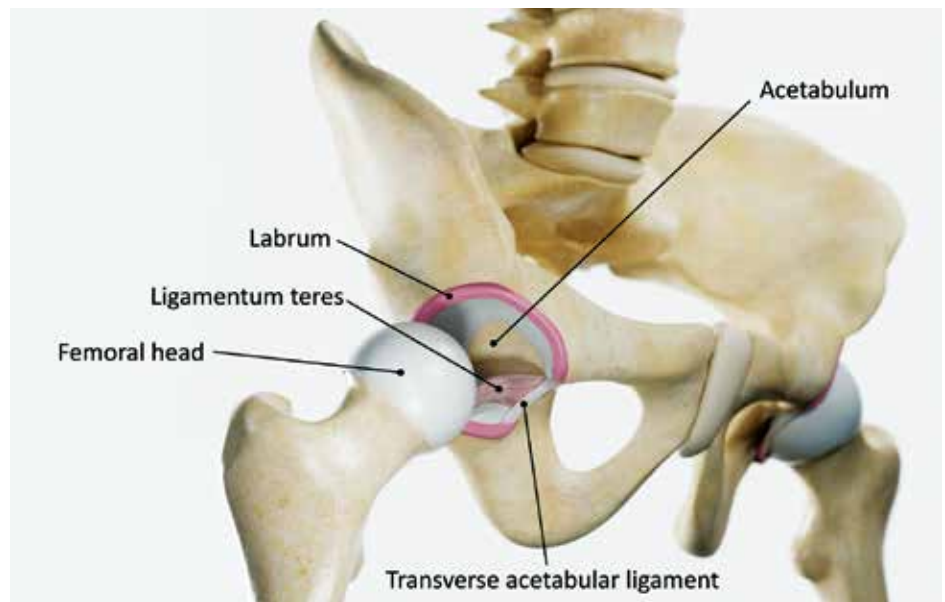
The hip is a ball-and-socket synovial joint formed primarily of hyaline cartilage on the femoral head and acetabulum [Figure 1].<sup>6</sup> The acetabular rim has a triangular fibrocartilage, known as the labrum, that encircles the entire acetabulum except for the inferior portion.<sup>6</sup> It functions mainly to add stability to the hip, and it maintains the joint's negative pressure with its sealing effect.<sup>6</sup> This, in turn, resists the distracting forces and evenly distributes compressive loads to ultimately reduce stress on the surrounding cartilage.<sup>7</sup>

Anterior structures are mainly the hip flexors, including the iliopsoas, sartorius, and rectus femoris.<sup>8</sup> Laterally, the most prominent structure is the greater trochanter, which is the insertion point of a large portion of the hip abductors (gluteus medius and minimus) and external rotators. Superficial to it lies the trochanteric bursa. The short external rotators of the hip lie posteriorly, including the piriformis muscle. Posteromedially, the proximal hamstring (semimembranosus, biceps femoris, and semitendinosus) tendons originate at the ischial tuberosity.<sup>9</sup>

## Pathophysiology

Abnormal bony anatomy on the femoral head or acetabulum can cause mechanical impingement known as femoroacetabular impingement. A loss of sphericity that creates a prominence of bone on the anterosuperior femoral head is known as a cam deformity; an overhang at the acetabular rim is known as a pincer deformity.<sup>10</sup> These entities can occur in isolation or in combination.<sup>11</sup> These morphologies may cause increased mechanical stress on the hip joint and labrum and can contribute to pain at extreme ranges of motion and to labral tears.<sup>10</sup>

A large proportion of the asymptomatic population has imaging findings that are consistent with femoroacetabular impingement and labral pathology. A systematic review conducted in 2015 noted that the prevalence of asymptomatic cam and pincer deformities was 37% and 67%, respectively.<sup>12</sup> Labral tears were found in



**FIGURE 1.** Anatomy of the hip.

69% to 85% of asymptomatic patients in a cross-sectional study.<sup>13</sup> These findings underscore the importance of obtaining a proper patient history and performing a relevant physical examination to aid in appropriately diagnosing a patient with symptomatic femoroacetabular impingement and/or a labral tear, as asymptomatic labral tears are not indicated for repair.

## Differential diagnosis for nonarthritic hip pain

Causes of hip pain can be categorized based on the location of the pain. Most commonly, pain in the hip is felt laterally, posteriorly, or anteriorly.

Lateral hip pain is most often caused by trochanteric bursitis. Degeneration or tears of abductor tendons can also cause lateral hip pain and snapping.

Posterior hip pain can be referred from the spine or can originate at the sacroiliac joints or the ischial tuberosity and proximal hamstring tendons. Piriformis syndrome and ischiofemoral impingement would also result in posterior hip pain.

Anterior hip pain, if not arthritic or related to avascular necrosis, can be caused by tendinitis of the iliopsoas hip flexor muscle or intra-articular derangement such as

femoroacetabular impingement or labral tears. Pathologies to rule out include neoplasm and fractures (from trauma or stress reaction).

## Initial workup

### Patient history

Patient age is an important factor in differentiating the common causes of hip pain. Skeletally mature patients who are younger than 50 years of age most commonly have pain related to musculoskeletal strains, femoroacetabular impingement, and labral pathology.<sup>14</sup> Patients 50 years of age or older more commonly have pain related to degenerative changes and osteoarthritis.

Patients should be asked about any history of trauma to the hip or surrounding areas, including the spine and knee. The location of pain and time of pain onset should be clarified, as well as alleviating and aggravating factors. It is also important to assess the impact this pain has on the patient's quality of life, vocation, and ability to perform activities of daily living and participate in recreational activities and sports.

Patients who present with femoroacetabular impingement typically have insidious onset of symptoms to the anterior hip that are exacerbated with joint loading

and movement, particularly hip rotation and flexion.<sup>14</sup> The pain typically starts during recreational activities but can progress to affect activities of daily living.<sup>14</sup> These patients often present with pain while sitting for prolonged periods due to the abutment of the impinging bone to the labrum and cartilage. Patients with intra-articular hip pain typically describe the pain by cupping their hand over the greater trochanter, known as the “C-sign”<sup>14</sup> [Figure 2, left]. Other symptoms include clicking, snapping, or catching in the affected hip.<sup>14</sup>

**Physical examination**

Examination of the hip should begin with an inspection of the surrounding soft tissues to determine whether there is any deformity, edema, ecchymosis, or muscle

atrophy. Comparison to the contralateral hip is useful in detecting minor disparities. The patient’s gait pattern should be assessed to determine whether they have an antalgic or Trendelenburg gait. A positive Trendelenburg gait and sign occurs when the contralateral hip swings inferiorly when the patient is standing on the affected limb [Figure 2, centre and right]. A positive test indicates weakness in the abductor muscles.

This examination should be followed by palpation of the hip joint, which should focus on palpating the anterior hip, greater tuberosity, and ischial tuberosity, and posteriorly at the hip external rotators. Point tenderness at the greater tuberosity is indicative of trochanteric bursitis or abductor (gluteal) tendon pathology. Ischial tuberosity pain is associated with proximal hamstring

pathology, such as tendinopathy or tear.

Taking the patient through all ranges of motion can help differentiate between intra-articular and extra-articular pain. Pain with flexion and internal rotation of the hip indicates intra-articular pathology. Decreased hip internal rotation may be a clinical sign of impingement or arthritis.

There are many tests for the hip that can direct a care provider to certain pathologies. The flexion, abduction, and external rotation (FABER) test positions the patient’s hip in flexion, abduction, and external rotation and rests the ipsilateral ankle on the contralateral knee [Figure 3, left]. Pain anteriorly is suggestive of intra-articular pathology; pain posteriorly suggests pain deriving from the sacroiliac joints or lower lumbar region. The flexion, adduction, and internal rotation (FADIR) test positions the patient’s hip in flexion, adduction, and internal rotation [Figure 3, right]. Pain in this position is a positive test and indicates intra-articular pathology, including labral tears and femoroacetabular impingement but also osteoarthritis or inflammation. The Ober test is done with the patient in the lateral position, with the affected hip up. The patient’s leg is positioned in an adducted and extended position. Pain laterally or the inability to passively adduct the hip past midline suggests a positive test. A positive test indicates tightness of the iliotibial band/fascia lata and can be



**FIGURE 2.** C-sign (left) and Trendelenburg sign (centre and right).



**FIGURE 3.** Flexion, abduction, and external rotation test (left) and flexion, adduction, and internal rotation test (right).

present in the setting of external snapping hip syndrome or greater trochanteric pain.

The lumbar spine, the ipsilateral knee, and the contralateral hip should be included in the examination. The hip examination should involve a thorough neurovascular examination of the affected limb.<sup>14</sup>

A systematic review by Haldane and colleagues showed that 65% of patients with femoroacetabular impingement reported hip and groin pain, 57% of patients had a positive FADIR test, and 41% had a positive FABER test.<sup>15</sup> The most common physical findings for patients with femoroacetabular impingement syndrome are decreased internal rotation of the hip at 90-degree flexion and a positive FADIR test.

### Imaging

Initial radiographic workup for nonarthritic hip pain should begin with radiographs of the affected hip. These should include a weight-bearing anteroposterior pelvis view and a modified Dunn view of both hips. These views should be standard for imaging atraumatic hip pain in patients younger

than 50 years of age. Initial imaging can identify other causes of hip pain, including osteoarthritis, dysplasia, stress fracture, or neoplasm.<sup>16</sup> The contralateral hip serves as a comparative platform to aid in the understanding of bony architecture. If the patient is unable to weight-bear at the time of imaging, supine anteroposterior pelvis imaging should be performed to rule out a fracture.<sup>16</sup> It is important that the entire pelvis is included in the radiograph to assess the various bony relationships.

On the anteroposterior standing pelvis view, the lateral centre edge angle is measured to assess lateral acetabular femoral head coverage [Figure 4]. An angle of more than 40 degrees represents acetabular over-coverage and pincer deformity.<sup>16</sup> A cam deformity, historically described as a pistol grip deformity, can also be noted on the anteroposterior pelvis view.

A modified Dunn view is obtained by having the patient lie supine with the hips flexed to 45 degrees and abducted to 20 degrees. This allows for more precise assessment of a cam deformity. On this view, the

alpha angle and femoral head-neck offset are used to delineate the deformity.

An alpha angle of more than 55 degrees is abnormal and associated with a cam deformity.<sup>15</sup> The alpha angle and head-neck offset are described and illustrated in Figure 4. A head-neck offset value of less than 8 mm is abnormal and suggestive of a cam deformity.<sup>17</sup>

If the patient's history, physical examination, and radiographs are suggestive of nonarthritic intra-articular hip pathology, a referral to a musculoskeletal expert such as a sports medicine physician or an orthopaedic surgeon should be obtained. Alternatively, a multidisciplinary model of care is suggested for efficient screening and triaging of nonarthritic hip pain, such as that provided by the Vancouver Hip Institute. It is then that a clinical decision should be made regarding the indications for further imaging modalities, such as an MRI arthrogram.

Concrete indications for MRI and MRI arthrography have not been well established in the literature. An MRI arthrogram is



**FIGURE 4. Left:** Standing anteroposterior pelvis X-ray with lateral centre edge angle, which is measured by drawing a vertical line from the centre of the femoral head superiorly. A second line is then drawn from the centre of the femoral head to the most lateral aspect of the acetabular rim. The angle between the two lines is the lateral centre edge angle. An angle of more than 40 degrees represents acetabular over-coverage and pincer deformity.<sup>16</sup>

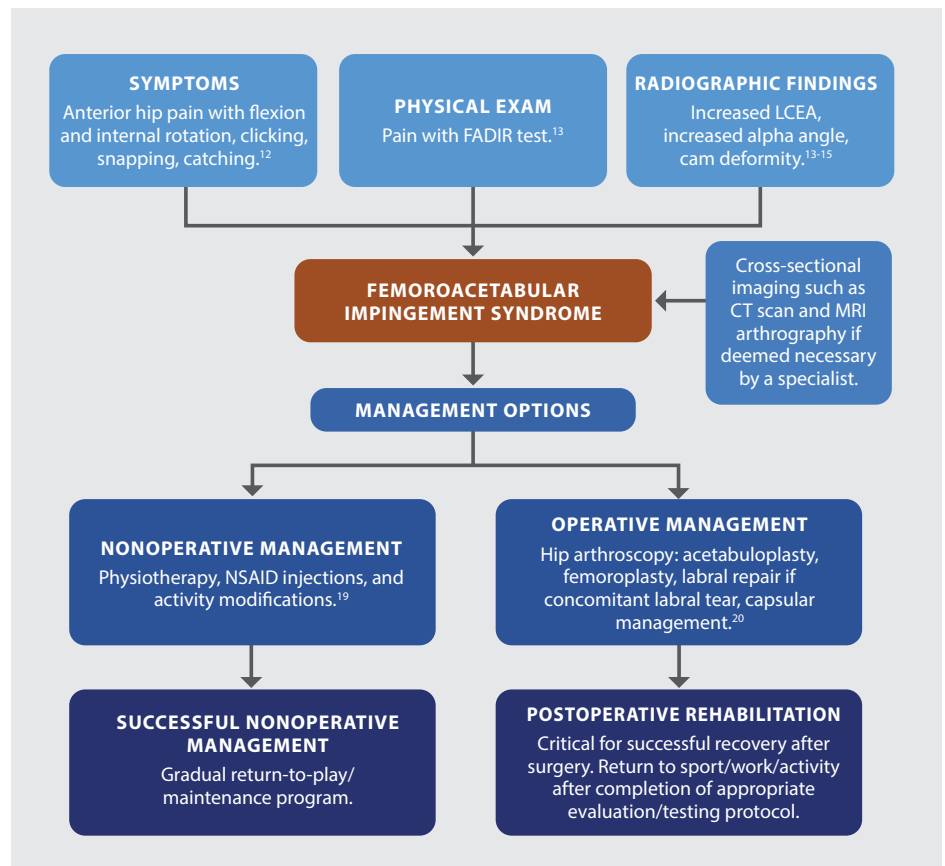
**Right:** Modified Dunn view with illustrated alpha angle (right hip) and head-neck offset measurement (left hip). The alpha angle is measured by initially drawing a circle of best fit around the femoral head. A line is drawn up the centre of the femoral neck to the centre of the femoral head. A second line is then drawn from the centre of the femoral head to the point at which the femoral head extends past the margin of the drawn circle. The angle between these two lines is the alpha angle. The head-neck offset is calculated by drawing two parallel lines, one on the femoral neck axis at the anterolateral aspect of the femoral neck and the other at the anterolateral edge of the femoral head. The distance between these two lines is the head-neck offset. A value of less than 8 mm is abnormal and suggestive of a cam deformity.<sup>16</sup>

typically indicated for patients who are suspected to have intra-articular nonarthritic hip pathology.<sup>17</sup> This is especially important for patients who may be undergoing arthroscopic treatment.<sup>16</sup> An MRI arthrogram involves an intra-articular gadolinium injection, which allows for visualization of cartilage and the acetabular labrum, which aids in preoperative surgical planning.<sup>17</sup> Sixty-nine percent to 85% of asymptomatic adults will have a labral tear on MRI; therefore, many labral tears seen on MRI or MRI arthrogram may be incidental, and interpretation needs to be made in consideration of the entire clinical picture.<sup>13</sup>

Any significant radiographic signs of osteoarthritis will preclude the patient from being a candidate for hip preservation procedures done through arthroscopy. MRI in the setting of degenerative changes is an inefficient use of resources and often results in noncontributing incidental findings.<sup>18</sup> One hundred percent of patients with moderate osteoarthritis on X-ray will have a labral tear reported on MRI arthrogram, and 93.3% of patients 50 years of age and older will have a labral tear on MRI arthrogram. There are very few indications for an MRI arthrogram in this population unless it will change management by the treating hip expert.<sup>19</sup>

**Diagnostic injections**

Intra-articular diagnostic hip injections can be useful in further aiding the diagnosis of intra-articular pathology. They can be done with ultrasound or fluoroscopic guidance. An injection in the hip joint of 4 to 6 mL of local anesthetic (with or without steroid) followed by an improvement in the patient’s pain can confirm the presence of intra-articular pathology.<sup>17</sup> For documentation purposes, it is imperative that the patient keeps a pain diary for 24 hours following the injection.<sup>17</sup> Pain relief with a diagnostic injection supports the diagnosis of intra-articular pathology and femoroacetabular impingement, whereas minimal pain relief postinjection is predictive of poor outcomes from hip arthroscopy.<sup>20</sup>



**FIGURE 5. Femoroacetabular impingement syndrome.**

FADIR = flexion, adduction, and internal rotation.  
LCEA = lateral centre edge angle.

**Femoroacetabular impingement syndrome**

When evaluating a patient with potential femoroacetabular impingement, it is important to differentiate between positive imaging findings associated with impingement and femoroacetabular impingement syndrome. In 2016, an international consensus endorsed by 25 clinical societies stated that for a diagnosis of femoroacetabular impingement syndrome, a patient must have positive symptoms, a physical examination, and imaging findings. Without all of these, femoroacetabular impingement syndrome cannot be diagnosed.<sup>16</sup> Figure 5 illustrates all components associated with the appropriate diagnosis of femoroacetabular impingement syndrome and outlines treatment modalities.<sup>16</sup>

**Management**

**Nonoperative management.** First-line treatment for femoroacetabular impingement syndrome should be nonoperative measures consisting of physical therapy, activity modifications, walking aids, and pain relief with anti-inflammatories.<sup>21</sup> Physical therapy should incorporate core and hip-specific exercises and activity modifications to avoid positions that cause impingement (e.g., deep squats). The exercise program should be performed 3 to 5 times per week to ensure the best opportunity to relieve symptoms.<sup>21,22</sup> A weight loss program specific to each patient may be beneficial to off-load the hip joint and relieve pain.<sup>22</sup>

All of these interventions should be initiated while the patient is waiting for referral to a specialist; none of them will exacerbate the patient’s condition. The Vancouver Hip Institute provides a

helpful resource for nonoperative treatments at [www.vancouverhipinstitute.ca/hip-preservation/treatment-options/non-surgical-treatment-options](http://www.vancouverhipinstitute.ca/hip-preservation/treatment-options/non-surgical-treatment-options).

**Operative management.** Patients are candidates for operative management of femoroacetabular impingement syndrome if they have a history, a clinical examination, and imaging findings consistent with the diagnosis, have exhausted all nonoperative measures, and continue to have symptoms that affect their quality of life.<sup>23</sup> Any significant arthritic changes seen on radiographic imaging preclude the patients from hip arthroscopy.<sup>18</sup>

Patients are typically treated with hip arthroscopy, femoroacetabuloplasty, and labral repair. Femoroacetabuloplasty consists of arthroscopic removal of abnormal bony morphology that is generating hip impingement. Femoroplasty refers to the excision of the cam deformity; acetabuloplasty refers to the removal of the pincer deformity. Patients are typically partial flat-foot weight-bearing in a hip brace for several weeks. Return to full activities typically occurs around 6 months postoperatively after successful completion of rehabilitation and, preferably, a return-to-play assessment.<sup>23</sup> Each surgeon has a specific postoperative protocol that patients will follow with guidance from a physiotherapist. The Vancouver Hip Institute provides a postoperative rehabilitation protocol at [www.vancouverhipinstitute.ca/wp-content/uploads/2022/08/Post-Op-Hip-Instructions.pdf](http://www.vancouverhipinstitute.ca/wp-content/uploads/2022/08/Post-Op-Hip-Instructions.pdf).

We recommend withholding any discussion of operative treatment options with patients pending referral to a specialist. In our experience, this can lead the patient to create a premature notion of a treatment plan that may or may not be indicated and could lead to anxiety and possible distrust of the hip specialist if no surgery is indicated. Treatment options will be discussed in detail once all history, physical examination findings, and pertinent imaging have been reviewed.

## Summary

Nonarthritic hip pain is difficult to diagnose and requires a thorough history, a physical examination, and appropriate imaging modalities. Specifically, femoroacetabular impingement can cause anterior hip pain, decreased range of motion, and pain in extreme rotations in young, nonarthritic

**Any significant arthritic changes seen on radiographic imaging preclude the patients from hip arthroscopy.**

patients. Proper workup and diagnosis, as we have outlined, can help identify potential patients suitable for hip arthroscopic surgery and provide timely referral to an orthopaedic surgeon with a subspecialty in the procedure. ■

## Competing interests

None declared.

## References

- Lodhia P, McConkey MO, Leith JM, et al. Graft options in hip labral reconstruction. *Curr Rev Musculoskelet Med* 2021;14:16-26.
- Zhang J, Pettit M, Sunil Kumar KH, Khanduja V. Recent advances and future trends in hip arthroscopy. *J Athrosc Surg Sports Med* 2020;1:81-89.
- Palmer AJR, Malak TT, Broomfield J, et al. Past and projected temporal trends in arthroscopic hip surgery in England between 2002 and 2013. *BMJ Open Sport Exerc Med* 2016;2:e000082.
- Register B, Pennock AT, Ho CP, et al. Prevalence of abnormal hip findings in asymptomatic participants: A prospective, blinded study. *Am J Sports Med* 2012;40:2720-2724.
- Wing KM, Younger ASE. Regional variations in access to orthopaedic care in BC. *BCMJ* 2018;60:160-163.
- Domb BG, Hartigan DE, Perets I. Decision making for labral treatment in the hip: Repair versus débridement versus reconstruction. *J Am Acad Orthop Surg* 2017;25:e53-e62.
- Bsat S, Frei H, Beaulé PE. The acetabular labrum: A review of its function. *Bone Joint J* 2016;98-B:730-735.
- Wilson JJ, Furukawa M. Evaluation of the patient with hip pain. *Am Fam Physician* 2014;89:27-34.
- Grumet RC, Frank RM, Slabaugh MA, et al. Lateral hip pain in an athletic population: Differential diagnosis and treatment options. *Sports Health* 2010;2:191-196.

- Bedi A, Kelly BT. Femoroacetabular impingement. *J Bone Joint Surg Am* 2013;95:82-92.
- Sankar WN, Nevitt M, Parvizi J, et al. Femoroacetabular impingement: Defining the condition and its role in the pathophysiology of osteoarthritis. *J Am Acad Orthop Surg* 2013;21(Suppl 1):S7-S15.
- Frank JM, Harris JD, Erickson BJ, et al. Prevalence of femoroacetabular impingement imaging findings in asymptomatic volunteers: A systematic review. *Arthroscopy* 2015;31:1199-1204.
- Schmitz MR, Campbell SE, Fajardo RS, Kadmas WR. Identification of acetabular labral pathological changes in asymptomatic volunteers using optimized, noncontrast 1.5-T magnetic resonance imaging. *Am J Sports Med* 2012;40:1337-1341.
- Nepple JJ, Prather H, Trousdale RT, et al. Clinical diagnosis of femoroacetabular impingement. *J Am Acad Orthop Surg* 2013;21(Suppl 1):S16-S19.
- Haldane CE, Ekhtiari S, de Sa D, et al. Preoperative physical examination and imaging of femoroacetabular impingement prior to hip arthroscopy—A systematic review. *J Hip Preserv Surg* 2017;4:201-213.
- Griffin DR, Dickenson EJ, O'Donnell J, et al. The Warwick Agreement on femoroacetabular impingement syndrome (FAI syndrome): An international consensus statement. *Br J Sports Med* 2016;50:1169-1176.
- Nepple JJ, Prather H, Trousdale RT, et al. Diagnostic imaging of femoroacetabular impingement. *J Am Acad Orthop Surg* 2013;21(Suppl 1):S20-S26.
- Saadat E, Martin SD, Thornhill TS, et al. Factors associated with the failure of surgical treatment for femoroacetabular impingement: Review of the literature. *Am J Sports Med* 2014;42:1487-1495.
- Jayakar R, Merz A, Plotkin B, et al. Magnetic resonance arthrography and the prevalence of acetabular labral tears in patients 50 years of age and older. *Skeletal Radiol* 2016;45:1061-1067.
- Khan W, Khan M, Alradwan H, et al. Utility of intra-articular hip injections for femoroacetabular impingement: A systematic review. *Orthop J Sports Med* 2015;3:2325967115601030.
- Wall PDH, Fernandez M, Griffin DR, Foster NE. Non-operative treatment for femoroacetabular impingement: A systematic review of the literature. *PM R* 2013;5:418-426.
- Lodhia P, McConkey M, Leith J, et al. Conservative management of non-arthritic hip pain. Vancouver Hip Institute. Accessed 15 September 2023. [www.vancouverhipinstitute.ca/wp-content/uploads/2022/08/Consevative-Management-of-Non-Arthritic-Hip-Pain-.pdf](http://www.vancouverhipinstitute.ca/wp-content/uploads/2022/08/Consevative-Management-of-Non-Arthritic-Hip-Pain-.pdf).
- Nasser R, Domb B. Hip arthroscopy for femoroacetabular impingement. *EFORT Open Rev* 2018;3:121-129.

**Correction:** This article has been revised. The authors requested the highlighted change postpublication: "A head-neck offset value of **more less** than 8 mm is abnormal and suggestive of a cam deformity."

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# Third-degree heart block secondary to Lyme carditis

Increased awareness of Lyme carditis is essential for prompt diagnosis; early antibiotic initiation; and prevention of pacing, complications, and death.

**ABSTRACT:** Third-degree heart block is an uncommon but severe and potentially fatal complication of Lyme disease. We present the case of a previously healthy 42-year-old male with no prior cardiac history who developed persistent third-degree heart block and Bell palsy secondary to untreated Lyme disease. The patient later achieved complete symptomatic resolution with antibiotic therapy and avoided intervention via cardiac pacing. This case highlights a need for increased awareness of the clinical manifestations of Lyme disease and disseminated Lyme disease to improve patient outcomes and reduce potential complications.

## Case data

A previously healthy 42-year-old male with no cardiac history was admitted to hospital after presenting to the emergency department with presyncope and palpitations. Approximately 2 months prior, he had traveled extensively in Texas; northern

Mexico; southeastern Ontario; and British Columbia. While in Ontario, he had resided in a cabin and received an insect bite. One week later, he developed erythema migrans [Figure 1], followed by fatigue. He presented to a walk-in clinic and was prescribed a 7-day course of cephalexin three times daily for a presumed spider bite. One week later, his skin manifestations spread to his neck and axillae, and he was provided a second 7-day course of cephalexin at a walk-in clinic.

After developing heart palpitations and presyncope, the patient presented to the emergency department. Laboratory investigations, a chest X-ray, and an electrocardiogram (ECG) showed no abnormalities. However, 2 days later, he returned with a right eye droop, tongue numbness, and right lower lip numbness. He was diagnosed with Bell palsy and prescribed a course of prednisone and retroviral therapy, and Lyme serology was ordered. Approximately 10 days later, he returned with significant fatigue and heart palpitations. ECG revealed a complete atrioventricular dissociation with junctional escape rhythm [Figure 2]. Lyme serology returned positive and identified the presence of *Borrelia burgdorferi*. The remaining laboratory investigations were largely unremarkable.

The patient was started on IV ceftriaxone and was admitted to the cardiac unit, where he continued to suffer from heart palpitations and presyncope. Upon examination, he remained bradyarrhythmic, with a heart rate of 41 beats per minute,



**FIGURE 1.** Erythema migrans on the patient's lower back.

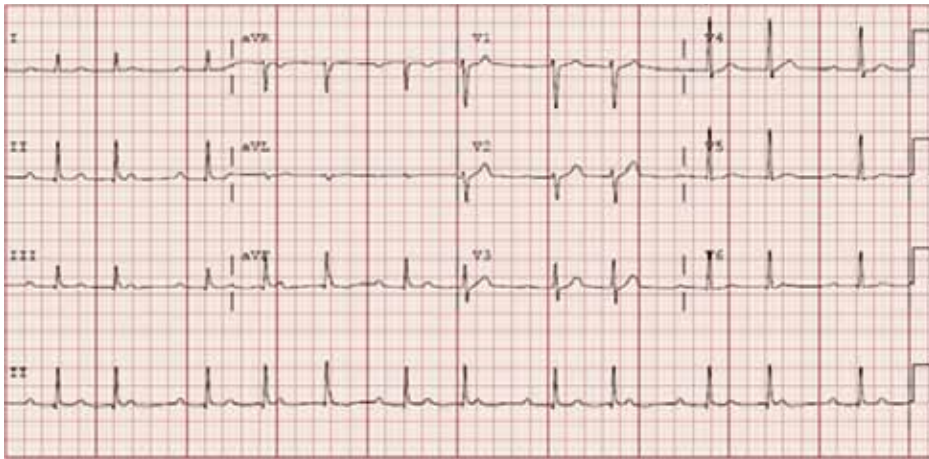
and had a slight right-sided facial droop. Telemetry revealed an intermittent atrioventricular block, and ECG showed sinus rhythm, premature atrial complexes, and a prolonged PR interval of 338 m/s. Repeat ECG showed sinus rhythm with a 2:1 heart block. A transthoracic echocardiogram revealed a third-degree atrioventricular block, with mild mitral regurgitation due to atrioventricular dissociation.

Five days after admission, the patient remained bradycardic with intermittent palpitations, and a complete third-degree atrioventricular block with a heart rate of 38 beats per minute was found on ECG and again upon repeat. A 2:1 atrioventricular block occurred the next day, which persisted. A cardiac MRI showed no abnormalities or evidence of myocardial edema, inflammation, scar, or infiltrative process. Ten days after admission, the patient returned to sinus bradycardia with second-degree type 1 atrioventricular block conduction. Repeat ECG showed sinus bradycardia with

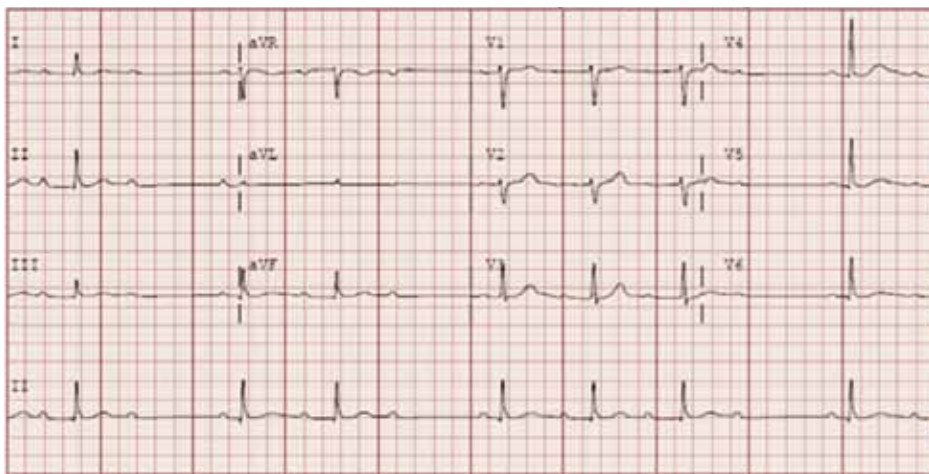
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**FIGURE 2.** Standard 12-lead electrocardiogram showing complete atrioventricular dissociation with junctional escape rhythm.



**FIGURE 3.** Standard 12-lead electrocardiogram showing second-degree atrioventricular block, Mobitz type 1.

second-degree type 1 atrioventricular block. Clinically, the patient continued to improve with IV antibiotics.

Upon discharge, ECGs demonstrated sinus rhythm with heart rates upward of 90 beats per minute, with intermittent first-degree atrioventricular block and intermittent second-degree type 1 atrioventricular block without evidence of higher-grade heart blocks [Figure 3]. With this improvement, the patient avoided intervention with temporary pacing. He was discharged on oral doxycycline 100 mg twice daily and was instructed to complete a 24-hour Holter monitor, with close follow-up with Kelowna General Hospital's cardiology and infectious diseases services. An outpatient Holter monitor 19 days postdischarge depicted

complete normalization of the conduction system without evidence of heart block or concerning arrhythmias. Nearly 3 months after the tick bite, the patient remained clinically at his baseline without any persisting symptoms.

## Discussion

### Epidemiology

Lyme disease, the tick-borne illness caused by the spirochete *B. burgdorferi*, has been recorded across North America. There is a known geographic expansion of the black-legged tick responsible for Lyme disease, *Ixodes scapularis*, which is thought to be associated with increasing global temperatures due to climate change.<sup>1</sup> As a result, increasing cases of Lyme disease have been

reported throughout Canada, with most occurring in Ontario.<sup>1</sup>

Second- or third-degree heart block occurs in approximately 1% of reported Lyme disease cases.<sup>2</sup> The literature also reports a predominance of Lyme carditis occurring in teenaged to middle-aged males, with most cases occurring during the summer to late autumn.<sup>3,4</sup> While Lyme disease has a bimodal age distribution, third-degree atrioventricular block secondary to Lyme carditis predominantly affects those aged 10 to 45 years.<sup>5</sup> The case of the patient discussed in this study is consistent with others reported in the literature, including in terms of demographics, location, and time frame, which highlights that Lyme disease is an important consideration in young patients who present with atrioventricular block without an apparent cause.<sup>3</sup>

### Clinical manifestation

Early Lyme disease typically presents with erythema migrans, fatigue, fever, myalgias, and arthralgias.<sup>6</sup> If left untreated, Lyme disease can disseminate over weeks to months, which can affect the central and peripheral nervous systems, joints, skin, and cardiovascular system.<sup>6</sup> However, with early recognition and antibiotic therapy, most patients do not progress to multisystem manifestations, such as Lyme carditis.<sup>7</sup>

All structures of the heart can be affected by the Lyme bacterium, including the myocardium, pericardium, endocardium, vasculature, valves, and atrioventricular node.<sup>8</sup> Lyme carditis develops when host immune cells detect the invading bacteria and results in inflammation and cardiac tissue damage, which can impair the electrical conduction system.<sup>9</sup> Most Lyme carditis cases lead to atrioventricular block, a cardiac manifestation that can be fatal.<sup>9</sup> The most common symptoms of Lyme carditis include shortness of breath, light-headedness, syncope, palpitations, and chest pain.<sup>9</sup>

Cardiac involvement of Lyme disease can present with varying severities of atrioventricular block, prolonged QT intervals, sinus node disease, and interventricular delay.<sup>3</sup> Atrioventricular block in Lyme carditis

can fluctuate between first-, second-, and third-degree block, as occurred in our patient.<sup>3</sup> Transient, atrioventricular block can progress rapidly, with approximately one-third of patients requiring temporary pacing.<sup>4</sup> In our patient, the progression to third-degree atrioventricular block was rapid, occurring only weeks after the tick bite.

### Treatment

The recommended duration of either oral or parenteral antibiotic therapy for patients with atrioventricular block and/or myopericarditis associated with early Lyme disease is 14 to 21 days.<sup>10</sup> Due to the fluctuating and rapidly progressive nature of Lyme carditis, it is recommended that symptomatic patients, those with second- or third-degree atrioventricular block, and those with first-degree atrioventricular block with a PR interval of 300 m/s or higher be hospitalized and provided with continuous monitoring and assessment by a cardiologist.<sup>10</sup> IV ceftriaxone 2 g daily is the recommended first-line antibiotic treatment for hospitalized or unstable patients; doxycycline 100 mg by mouth twice daily is recommended for outpatients.<sup>10</sup> If untreated, this rare but serious cardiac manifestation can be fatal. However, with appropriate antibiotic therapy, atrioventricular block can be reversed, and the overall prognosis can be excellent.<sup>10</sup> If symptoms remain refractory to medical management or if the patient is dangerously unstable, the standard treatment for high-degree atrioventricular block

is transvenous or transcutaneous pacing. Rarely, a permanent pacemaker implantation is required.<sup>7</sup> Other complications of atrioventricular block induced by Lyme carditis include pericarditis, myocarditis, and death.<sup>7</sup>

**In our patient, the progression to third-degree atrioventricular block was rapid, occurring only weeks after the tick bite.**

### Summary

Lyme carditis is a rare but severe manifestation of Lyme disease that can rapidly progress to third-degree atrioventricular block and death. Recognition and increased awareness of Lyme disease and Lyme carditis are essential for prompt diagnosis; early antibiotic initiation; and prevention of pacing, complications, and death. Furthermore, a detailed history of travel and outdoor activities is warranted in young, previously healthy patients who present with atrioventricular block. This case highlights the need for early identification of erythema migrans and an increased awareness of and clinical suspicion for Lyme disease and Lyme carditis. ■

### Competing interests

None declared.

### Acknowledgments

The authors thank the patient for his input, efforts to increase awareness of Lyme carditis, and willingness to participate in this project.

### References

1. Nelder MP, Wijayasri S, Russell CB, et al. The continued rise of Lyme disease in Ontario, Canada: 2017. *Can Commun Dis Rep* 2018;44:231-236.
2. Forrester JD, Mead P. Third-degree heart block associated with Lyme carditis: Review of published cases. *Clin Infect Dis* 2014;59:996-1000.
3. Wan D, Blakely C, Branscombe P, et al. Lyme carditis and high-degree atrioventricular block. *Am J Cardiol* 2018;121:1102-1104.
4. Fuster LS, Gul EE, Baranchuk A. Electrocardiographic progression of acute Lyme disease. *Am J Emerg Med* 2017;35:1040.e5-1040.e6.
5. Stanek G, Wormser GP, Gray J, Strle F. Lyme borreliosis. *Lancet* 2012;379(9814):461-473.
6. Horowitz HW, Sanghera K, Goldberg N, et al. Dermatomyositis associated with Lyme disease: Case report and review of Lyme myositis. *Clin Infect Dis* 1994;18:166-171.
7. Besant G, Wan D, Yeung C, et al. Suspicious index in Lyme carditis: Systematic review and proposed new risk score. *Clin Cardiol* 2018;41:1611-1166.
8. Steere AC, Batsford WP, Weinberg M, et al. Lyme carditis: Cardiac abnormalities of Lyme disease. *Ann Intern Med* 1980;93:8-16.
9. Krause PJ, Bockenstedt LK. Lyme disease and the heart. *Circulation* 2013;127:e451-e454.
10. Wormser GP, Dattwyler RJ, Shapiro ED, et al. The clinical assessment, treatment, and prevention of Lyme disease, human granulocytic anaplasmosis, and babesiosis: Clinical practice guidelines by the Infectious Diseases Society of America. *Clin Infect Dis* 2006;43:1089-1134.



# Pediatric nutrition—What's new?

**T**he new BC Pediatric Nutrition Guidelines<sup>1</sup> introduce a holistic, family-centred approach to feeding children aged 0–6 years, focusing as much on *how* to feed as *what* to feed. The introduction draws attention to important social and cultural determinants of eating, such as food insecurity and nontraditional diets.

Nutrition is one of the most important modifiable determinants of health. At birth, the brain's potential for change with minimal intervention is almost infinite. Early feeding can influence epigenetic changes, neuroendocrine pathways, and behavioral patterns that establish the trajectory for lifelong eating, metabolism, and weight; it is critical that we empower patients with good information from the very start.

## Responsive feeding

A key principle emphasized in the guideline is responsive feeding, which involves responding to children's cues for hunger and fullness in developmentally appropriate ways without pressuring or overt restriction. Responsive feeding can be operationalized using a division of responsibility—parents decide what to offer and children decide if and how much to eat. Babies should be fed on demand and gradually transitioned toward regularly scheduled snacks and family mealtimes. Parents can be reassured that children's appetites and tastes vary and develop over time, eating more at some times than others, and parents may need to offer a new food up to 15 times or more before children accept it. Responsive feeding promotes autonomy and allows children

to retain their natural ability to recognize internal cues for fullness and hunger. This, in turn, is linked to healthy eating habits, self-regulation of food intake, lower rates of malnutrition, and a more consistent growth trajectory across the lifespan.

Nonresponsive feeding, such as bribing, coaxing, forcing, or using food for boredom, distraction, reward, or punishment, is associated with picky eating, emotional eating, growth faltering, and weight acceleration. Excessive restriction of higher-fat,

**Responsive feeding promotes autonomy and allows children to retain their natural ability to recognize internal cues for fullness and hunger.**

sugary, or processed foods can adversely affect self-regulation and inadvertently lead to over- or underconsumption. Parents can offer these foods in moderation as part of family meals or celebrations to help children experience them as a normal part of eating, not as forbidden foods. Eating together with available adults and making mealtimes an enjoyable social experience, free of distractions (such as screens), is associated with healthier eating habits and improved mental well-being.

## Growth monitoring

The guidelines include an important new section on routine growth monitoring and its potential to cause anxiety and undermine responsive feeding when parents or providers place too much emphasis on weight. Given its lack of evidence in relation to long-term health benefits, providers should exercise caution when interpreting routine growth monitoring. Providers should use

only proportional (weight-for-length and body mass index), not age-based, measures to avoid overdiagnosing short or tall children as under- or overweight, respectively. They should also recognize that infants' and children's weight fluctuates normally over time; the smooth lines of growth charts are population averages and don't reflect how individual children grow. During their first 2 to 3 years, children often cross percentile lines as they transition from their intrauterine-determined weight to their genetically determined future weight. Primary care providers should be mindful of their own anxiety and understand that for otherwise healthy and asymptomatic babies who are shifting percentiles, a period of watchful waiting is often appropriate.

## A few more tips from the guidelines

- Introduce allergenic foods (e.g., peanut butter, seafood, soy) around 6 months and offer them frequently as some of the first foods, especially for babies with a family history of atopy or allergy. Parents need only wait 3 to 4 hours between introducing different foods.
- Introduce high-iron foods first (e.g., meat, fish, eggs, legumes, iron-fortified cereal).
- Avoid all honey (even pasteurized) until 1 year of age due to the risk of infant botulism.
- Encourage water for thirst between meals and milk only with meals (maximum 2 cups per day) to avoid overconsumption of milk, which can displace other foods and contribute to iron deficiency.
- Avoid sweetened beverages, including juice, sweetened milks, and nutritional supplement drinks, before age 2; energy drinks should be avoided for all children, especially before age 4.

*Continued on page 388*

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

# Perspectives on the value of the clinical exam for your patients with work-related medical conditions

**W**hen I started my medical training in 1984, the general understanding was that clinical history contributed about 70% to establishing a diagnosis, with physical examination and investigations contributing about 20% and 10%, respectively. Since then, remarkable advancements in medical imaging (MRI became widely available only in the early 1990s), other rapidly advancing technologies, practice pressures, and virtual care have all influenced the role of the physical exam.

WorkSafeBC depends on external information to adjudicate a worker's claim and relies on the information physicians submit to support the worker's treatment and recovery from a workplace injury or illness. When a WorkSafeBC medical advisor (a physician) reviews claims, they also review the examination findings from attending physicians. Missing or incomplete findings can impact a worker's entitlement to WorkSafeBC benefits such as physiotherapy and expedited assessments, investigations, and surgery. Missing information also makes it difficult to identify safe options for a graduated return to work, which can imperil a worker's livelihood.

## Looking closely at an injury with persistent symptoms

Imagine the following patient comes to see you for an injury that occurred at work. Bob is a 54-year-old construction worker who

has been your patient for over 20 years. He notices a sharp pain in his right knee while straightening up after bending to the right to pick up a box of nails from the ground. Bob has seen you several times over the past 10 years for episodic pain in his knees;

**Evidence shows that telemedicine is better suited to some patients than others and is most suitable for stable patients with chronic disease who have an existing relationship with their physician.**

X-rays have shown mild osteoarthritis. Bob shrugs off the pain and completes his shift. Bob's knee feels worse the following day, and he is able to schedule a telehealth visit in 2 weeks' time. Bob submits a claim for his knee and informs his employer that he is not able to work due to the pain.

At a virtual assessment 2 weeks after the work incident, Bob reports that his knee feels a bit better. The swelling is almost gone, but descending stairs is uncomfortable. You diagnose a sprain/strain of the knee. Bob states that his knee is too sore to go back to work and wonders about taking more time off. You recommend 4 more weeks off work, physiotherapy, and an NSAID, and you schedule a follow-up telehealth visit. At follow-up, Bob informs you the swelling is gone and his knee feels mostly back to normal, except for occasional

stabs of pain when squatting. When you suggest Bob try working, he asks why his knee is still sore and then asks if it is safe to resume working on ladders.

At this point, WorkSafeBC may have additional interventions to help Bob throughout his claim and return to work. To assist with interventions, WorkSafeBC medical advisors may be asked to provide opinions on the diagnoses provided by community physicians. Physical examination findings are an important part of the information reviewed. An accurate diagnosis ensures a worker receives appropriate treatment and receives the benefits to which they are entitled. Returning to your patient, Bob, stabbing knee pain persisting for 6 weeks is atypical for a sprain/strain. A physical examination can help differentiate between worsening osteoarthritis of the knee, meniscus injury, sprains of the cruciate or collateral ligaments, tendon injuries, and nontraumatic conditions. An accurate diagnosis with physical findings allows WorkSafeBC to find appropriate resources to help Bob recover and helps increase the chance of him preserving his livelihood.

## Putting it together

Evidence shows that telemedicine is better suited to some patients than others and is most suitable for stable patients with chronic disease who have an existing relationship with their physician.<sup>1</sup> The Canadian Medical Protective Association calls the physical exam "a powerful tool" for improving the accuracy of diagnoses

*Continued on page 388*

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

# New pneumococcal conjugate vaccines for older and high-risk adults

British Columbia introduced the pneumococcal polysaccharide 23-valent (PPV23) vaccine in 1996 for bone marrow transplant recipients and asplenic. Over the next 2 years, the program expanded to residents of long-term care and adults 65 years and older, implemented in the year one turns 65. Select underlying medical conditions were added in later years, including people who are homeless, underhoused, or using illicit drugs, following a 2008 outbreak of serotype 5 disease.<sup>1</sup> A once-only second dose 5 years later is publicly funded for select groups but is not routinely provided in BC to older adults. Current indications are available on the PPV23 product page in the *BC Immunization Manual*.<sup>2</sup>

The PPV23 vaccine was designed to cover the majority of serotypes causing disease in adults. A recent systematic review and meta-analysis found no randomized trials of PPV23 efficacy but assessed results from nine observational studies of adults aged 60 years and older immunized within the prior 5 years and concluded that PPV23 vaccine effectiveness against vaccine-type invasive pneumococcal disease ranged from 42% to 64%, with slightly higher estimates for adults without immunocompromise; effectiveness against vaccine-type pneumonia has been variable, with some studies showing no effectiveness.<sup>3</sup>

Polysaccharides are T-cell-independent antigens and generally do not produce long-term B-cell memory or prime the immune system for subsequent response

upon re-exposure (boosting). These vaccines are poorly immunogenic in infants, who experience the highest rates of invasive pneumococcal disease. As a result, conjugation technology to bind the polysaccharide to a protein carrier such as diphtheria toxoid was developed and results in a T-cell-dependent response with induction of B-cell memory.<sup>4</sup> Pneumococcal conjugate

**The PPV23 vaccine was designed to cover the majority of serotypes causing disease in adults.**

vaccines (PCVs) have been highly effective in young children, and their valencies have been designed around serotypes that cause disease in that age group. These vaccines have been used in the routine childhood immunization schedule since 2003, with initial introduction of a 7-valent vaccine (PCV7), replaced by a 13-valent vaccine (PCV13) in 2010. However, PCV13 had not been recommended for routine use in older adults by the Canadian National Advisory Committee on Immunization (NACI). This was despite favorable results in an efficacy trial of PCV13 published in 2015, conducted in the Netherlands, where polysaccharide vaccine had not been used in adults. The trial, Community-Acquired Pneumonia Immunization Trial in Adults (CAPiTA), found 75% efficacy against invasive pneumococcal disease due to PCV13 serotypes and 45% efficacy against noninvasive PCV13-type pneumonia among adults aged 65 years and older.<sup>5</sup> Routine use of PCV13 in older adults was recommended

in 2014 by the US Advisory Committee for Immunization Practices on the heels of a ninefold reduction in PCV13-type invasive pneumococcal disease in those aged 65 and older between 2000 and 2014, following the introduction of PCV vaccines for children, attributed to indirect protection due to reduced nasopharyngeal carriage among immunized children.<sup>6</sup> Continued declines in older adult disease were expected with the addition of direct protection from PCV13, in addition to PPV23, but were not observed despite moderate uptake of both vaccines in the older adult population. As a result, the US recommendation for PCV13 use in older adults was modified to shared decision making.

Two new PCVs have been authorized for use in adults in Canada: a 20-valent product (Pneumovax20, Pfizer Canada ULC) and a 15-valent product (Vaxneuvance, Merck Canada Inc.). Approval was based on serological response, with comparisons to PCV13 and/or PPV23 serotypes. The immune response to some of the serotypes shared with PCV13 are lower, but the clinical relevance of this is unknown. Neither vaccine generates stronger response to serotype 3, the type most commonly associated with vaccine failure. Data on effectiveness will need to be generated in postmarketing use. NACI has recommended the use of PCV20 for older and high-risk adults to replace the use of PPV23. NACI has further recommended that if PCV15 is used in these adult populations, PPV23 should continue to be offered because of the benefit of protection from the additional strains.<sup>7</sup> Provincial and territorial public health programs will consider the introduction of these vaccines for older and high-risk adults in the coming months. In

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

## BCCDC

the meantime, these vaccines are commercially available for purchase in the private market. ■

—**Monika Naus, MD, MHSc, FRCPC, FACPM**  
**Medical Director, Immunization Programs and Vaccine Preventable Diseases Service, BC Centre for Disease Control**

### References

1. BC Centre for Disease Control. History of immunization in BC. In: Communicable disease control manual, chapter 2: Immunization (BC immunization manual). Accessed 30 October 2023. [www.bccdc.ca/health-professionals/clinical-resources/communicable-disease-control-manual/immunization](http://www.bccdc.ca/health-professionals/clinical-resources/communicable-disease-control-manual/immunization).
2. BC Centre for Disease Control. Part 4: Biological products (vaccines and immune globulins). In: Communicable disease control manual, chapter 2: Immunization (BC immunization manual). Accessed 30 October 2023. [www.bccdc.ca/health-professionals/clinical-resources/communicable-disease-control-manual/immunization/biological-products](http://www.bccdc.ca/health-professionals/clinical-resources/communicable-disease-control-manual/immunization/biological-products).
3. Farrar JL, Childs L, Ouattara M, et al. Systematic review and meta-analysis of the efficacy and effectiveness of pneumococcal vaccines in adults. *Pathogens* 2023;12:732.
4. Pollard AJ, Perrett KP, Beverley PC. Maintaining protection against invasive bacteria with protein-polysaccharide conjugate vaccines. *Nat Rev Immunol* 2009;9:213-220.
5. Bonten MJ, Huijts SM, Bolkenbaas M, et al. Polysaccharide conjugate vaccine against pneumococcal pneumonia in adults. *N Engl J Med* 2015;372:1114-1125.
6. Matanock A, Lee G, Gierke R, et al. Use of 13-valent pneumococcal conjugate vaccine and 23-valent pneumococcal polysaccharide vaccine among adults aged ≥ 65 years: Updated recommendations of the Advisory Committee on Immunization Practices. *MMWR Morb Mortal Wkly Rep* 2019;68:1069-1075. Erratum in: *MMWR Morb Mortal Wkly Rep* 2020;68:1195.
7. National Advisory Committee on Immunization. Recommendations on the use of conjugate pneumococcal vaccine – 15 valent (PNEU-C-15) and 20 valent (PNEU-C-20) in adults: Economic evidence supplementary appendix: An advisory committee statement. Public Health Agency of Canada, 24 February 2023. Accessed 30 October 2023. [www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/public-health-level-recommendations-use-pneumococcal-vaccines-adults-including-use-15-valent-20-valent-conjugate-vaccines/economic-evidence-supplementary-appendix.html](http://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/public-health-level-recommendations-use-pneumococcal-vaccines-adults-including-use-15-valent-20-valent-conjugate-vaccines/economic-evidence-supplementary-appendix.html).

## COHP

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- Plant-based beverages (e.g., soy, oat, and almond milks) are not nutritionally equivalent to dairy milk and are not recommended before age 2. Soy-based formula is an acceptable alternative to dairy formula for vegan infants and others.
- Full-fat cow's or goat's milk can be introduced at 9 to 12 months (once infants are eating a wide variety of solids) and continued until 24 months.
- Providers are encouraged to use neutral and nonjudgmental language rather than talking about healthy, unhealthy, or junk foods. ■

—**Ilona Hale, MD, FCFPC**  
**Council on Health Promotion Member**

### Reference

1. BC Centre for Disease Control. BC pediatric nutrition guidelines (birth to six years). 2022. Accessed 19 October 2023. [www.bccdc.ca/Health-Professionals-Site/Documents/healthy\\_eating/Pediatric\\_Nutrition\\_Guidelines.pdf](http://www.bccdc.ca/Health-Professionals-Site/Documents/healthy_eating/Pediatric_Nutrition_Guidelines.pdf).

## WORKSAFEBC

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and cautions that “how you perform the physical exam, and how often you perform it, can change over time and become overly limited without you realizing the impact on patients.”<sup>2</sup> Performing a physical exam can also increase patients' confidence in the physician and validate that they have been heard.

If you have questions about your patients with workplace injuries/illnesses and would like to speak with a physician at WorkSafeBC, please contact us through the RACE app at [www.raceconnect.ca/race-app](http://www.raceconnect.ca/race-app). ■

—**Harvey Koochin, MD**  
**Manager, Medical Services, WorkSafeBC**

### References

1. Lee PS, Koo S, Panter S. The value of physical examination in the era of telemedicine. *J R Coll Physicians Edinb* 2021;51:85-90.
2. Canadian Medical Protective Association. What happened to the physical exam? Last modified October 2021. Accessed 16 October 2023. [www.cmpa-acpm.ca/en/advice-publications/browse-articles/2019/what-happened-to-the-physical-exam](http://www.cmpa-acpm.ca/en/advice-publications/browse-articles/2019/what-happened-to-the-physical-exam).



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## Dr Vivian Frances Paul 1948–2023

Surrounded by love, Dr Vivian Frances Paul made her transition from life into death at approximately 12:30 a.m. on 27 September 2023. She died just 10 days before her 75th birthday, after battling stage IV cancer since her diagnosis in August 2020.

Vivian wanted us to remember that she had a great life, and she felt grateful for everything she achieved and experienced. Born 6 October 1948 in Winnipeg, Vivian grew up in a large and loving family that

prioritized hard work, education, family, and faith. Despite humble beginnings, she won a scholarship to McGill University, where she studied chemistry before leaving on an adventure to study fashion in Paris. While abroad, Vivian decided she wanted to be a doctor. She climbed Machu Picchu and worked as a flight attendant for Air Canada while awaiting the results of her medical school application. The day she got into medical school was one of the happiest days of her life. Vivian attended medical school at the University of Manitoba, then moved to BC and began working in family practice and obstetrics in Langley and later Vancouver. Vivian raised four children while maintaining a busy family practice along with frequent maternity shifts at St. Paul's, Peace Arch, Surrey Memorial, and Burnaby Hospitals.

Around all this work Vivian also loved to have fun. Every summer she would vacation at Shuswap Lake with her husband, children, and grandchildren. She also traveled with her husband, Robert Douglas, to Hawaii, Japan, Bermuda, Alaska, Newfoundland and Labrador, Mexico, and Argentina (for tango lessons). She enjoyed

church, dancing, swimming, playing bridge, book club, and spending time with her children, grandchildren, and friends.

Throughout her life, Vivian touched the hearts of many of her patients and colleagues with her caring and extraordinarily thoughtful nature, and she made wonderful friendships along the way. Toward others, Vivian was gentle, kind, compassionate, nonjudgmental, patient, and empathetic.

Vivian was very grateful to her doctor, Isaiah Bregman; the BC Cancer team, including Dr Sharlene Gill; and the Palliative Care Unit at Vancouver General Hospital. She had the opportunity to attend a Callanish retreat for adults diagnosed with cancer, and she was incredibly grateful for this experience, which helped her become at peace with her departure from this Earth.

—Michael Gordon  
Vancouver

—Claire Gordon Pijanowski  
Vancouver

—Erica Gordon  
Vancouver

—Sarah Gordon  
Vancouver



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