BCMJ
BC Medical Journal

Elective surgery without COVID-19 testing will lead to excess morbidity and mortality

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Emergency preparedness project in Kamloops. From left: Rhonda Eden, Graham Dodd, and Colin Swan. Article begins on page 220.

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

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ON THE COVER
Elective surgery without COVID-19 testing will lead to excess morbidity and mortality
Assuming 37 000 planned surgeries are conducted per week in Canada (excluding Quebec), and the prevalence of COVID-19 infection cases is 0.20%, the number of avoidable deaths that could occur is estimated to be 11.7 but could exceed 17.0. Article begins on page 208.

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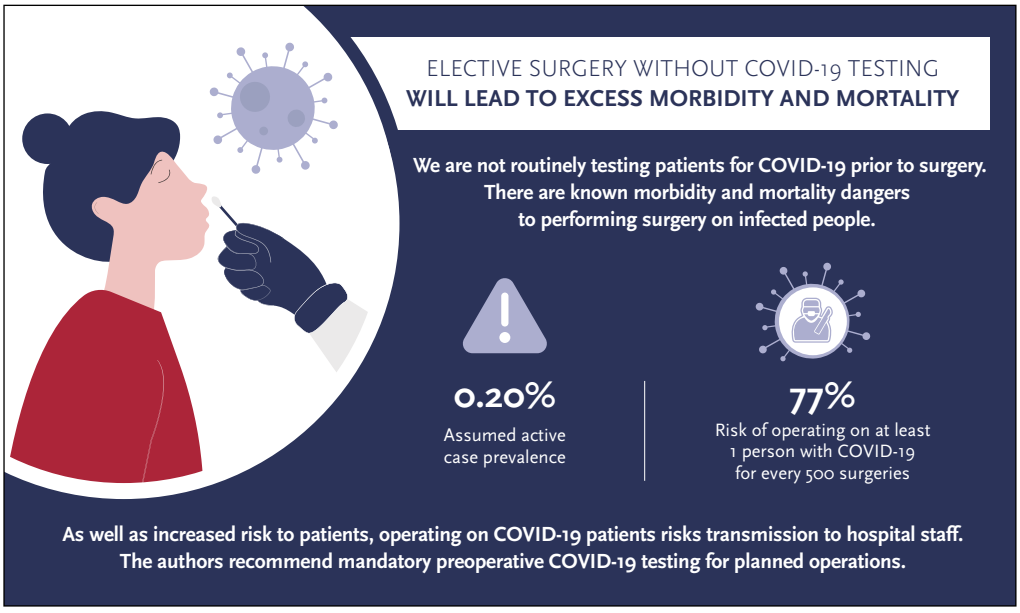

The authors argue that patients should be tested for COVID-19 prior to planned operations to prevent avoidable surgical complications and mortality. Article begins on page 208.

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Rights and freedoms

4 May 2021

I am writing this editorial as the provincial government just announced sweeping restrictions preventing British Columbians from moving between three defined regions.

Stuck between a rock and a hard place, the government made this difficult decision due to rising COVID-19 case numbers with hospitalizations and ICU admission levels reaching all-time pandemic highs. Despite pleas from our provincial health officer, people continue to travel and are propagating viral spread through their actions, albeit often unknowingly. Pandemic fatigue has led to the population craving some degree of normalcy and perhaps reducing their commitment to follow provincial guidelines.

Worried that this third viral wave has the potential to overwhelm our hospital resources, the powers that be made travel restrictions more stringent with the threat of roadblocks and fines. Tourism providers have been asked to cancel and refund customers who are from outside their regions. All recreational vehicles have been banned on BC Ferries.

As soon as these restrictions were announced, angry comments began to appear on social media about infringement of our basic rights and freedoms. I even had some patients complain that this was just another way that "they" were trying to control us. These are often the same individuals who are against vaccines and mask wearing. (I also suspect many of them have red MAGA hats hidden in their closets.)

Despite pleas from our provincial health officer, people continue to travel and are propagating viral spread through their actions, albeit often unknowingly.

I have often wondered who "they" are. I have even asked some of my patients, but I never seem to get a clear answer. As best as I can tell, "they" is some secret level of government or a collection of sinister wealthy individuals (Bill Gates is often mentioned) who want to track and control our movements. When I ask to what end would "they" want to restrict us, I do not get a definitive answer. I do, however, receive increasingly suspicious glances thrown in my direction as the belief grows that maybe I am part of "they."

A quick evaluation of our elected officials should be enough to doubt the government conspiracy idea. In addition, if you have ever had to deal with any government body, you'll recognize that the level of organization required to form a secret agency seems an unobtainable goal. Furthermore, I am pretty sure Bill Gates has enough money and access without monitoring or restricting the population's activities.

Society already limits many individual choices for the good of the majority. For example, I'm not allowed to drive drunk as a skunk without my seatbelt on at my chosen speed down the wrong side of the highway with a baby smoking on my lap.

The current temporary travel restrictions are no different and were created to buy time while the vaccination process continues.

"They" are simply trying to save some lives. ■

—David R. Richardson, MD

Restrictions on private health insurance

"Without a right of challenge through an independent body such as the judiciary, our legislative and executive bodies would be free to make arbitrary and discriminatory decisions respecting the health care benefits provided to Canadians with little or no consequence. Such a result would be contrary to the societal values upon which Canadian society is built." Chief Justice Christopher Hinkson of the BC Supreme Court made this statement in November 2005.

This month, Justice John Steeves' 2020 BC Supreme Court decision supporting government restrictions on private health insurance and physicians' dual practice will face a judicial review by the BC Court of Appeal. This appeal will rely almost exclusively on the evidence at trial, focusing on errors in law by the trial judge. Justice Steeves had, coincidentally, received government-funded surgery at the private False Creek Surgical Centre.

Our legal challenge began in January 2009. We had expected that government would want a quick decision on whether its laws violated the Canadian Charter of Rights. However, the trial did not start until late 2016 and consumed 194 court days going into a fourth year. The 880-page written decision was unusually lengthy.

Like for many doctors, my courtroom experience has mostly been as an expert in patient injury trials, but I had some previous informal legal education. In the early 1960s I enjoyed a long-running and successful television show, *Boyd QC*, and a decade later, *Rumpole of the Bailey*. More recently I watched *Suits*. Perhaps more impactful was my even earlier "hands-on" experience as a 5-year-old Crown witness (then one of the youngest in legal history) in a Liverpool criminal trial. I gave evidence identifying a thief I had witnessed stealing a watch (from my own wrist). He was convicted and sentenced to jail time. My recollection of that courtroom appearance remains vivid. The judge arrived in an escorted and chauffeured Rolls-Royce limousine with a small Union Jack flag on the front. He wore impressive crimson and black robes. He and the barristers wore wigs and went through scenic and impressive court formalities and rituals. All of these experiences, together with our intervention in the 2005 *Chaoulli* trial, gave me some insight into our legal case.

We remain optimistic that the higher courts will take some guidance from the *Chaoulli* precedent.

Significant differences between *Chaoulli* and our case included the multiple patient plaintiffs and the fact that we had authenticated, government-accepted, maximum wait times for thousands of procedures. Courts no longer had the burden of interpreting or defining what was acceptable. Governments had done that for them, and the trial judge acknowledged that, despite downplaying their relevance.

This data will, we hope and believe, prove to be vitally important and pivotal in later hearings. For example, in 2017–2018, only 16% to 38% of patients needing treatment for serious cancers of the bladder, ovary, prostate, lung, and colon were treated within the maximum acceptable benchmark. Unfortunately, for the tens of thousands of BC patients waiting, suffering, and sometimes dying on wait lists, the government's own self-incriminating data were largely ignored by the lower court.

Government lawyers implied that private care was for the "wealthy and healthy," despite the fact that not one patient witness was either. The BC government did not call a single BC patient witness or a single BC physician as an expert. They focused on demonizing doctors for not accurately "triaging" patients and foreseeing and forestalling any complications that waiting patients might possibly suffer. The judge accepted that harms and deaths were avoidable if doctors did their job properly. Government lawyers described desperate and suffering patients accessing private clinics as "parasitic."

The world has seen changes since the lower court hearings concluded, with the COVID-19 pandemic being the most impactful. Our already underperforming health system now faces even greater pressures.

We will argue before the higher courts that Canadian jurisdictions, which ban patient choice and exclude a safety valve, violate human rights. Even government experts at trial gave evidence that Canada's monopolistic system is unique, and that all countries permit private sector participation.

Chaoulli also lost at the lower-court level in Quebec. We remain optimistic that the higher courts will take some guidance from the *Chaoulli* precedent. In discussing the *Chaoulli* case, Canada's most renowned constitutional scholar, the late professor Peter Hogg, QC, opined that no provincial government would risk arguing that their citizens deserved less freedom under the law than those living in Quebec.

BC has proven him wrong.

Hogg also wrote: "No one was watching the *Chaoulli* case as it bubbled on up, but people will be watching the second case very, very closely. I think in practical terms the ruling is extremely important even if not literally binding for the rest of the country."

I have no doubt he will be proven right on that. ■

—Brian Day, MB

Letters to the editor

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

Compliments to the artist

The April issue's cover image is credited to Jerry Wong (Peaceful Warrior Arts). I want to pay a compliment as this is truly one of the best and most inspired covers I can recall. It truly illustrates the story on ectopic pregnancy. I hope it is entered into some contest, as it's a real winner!

—Paul Thiessen, MD, FRCPC
Vancouver

Value of family physicians

Yesterday we were in need of a professional gas fitter to make a house call to fix a problem with a gas line in our home. It was a simple problem for him, requiring about 10 minutes. His fee was $156 plus tax for a basic house call. I contrast that with a basic house call that I make as a physician. The last time I looked, the fee was about $110. I am thankful that none of my five children have chosen family medicine as a career. They are all in technical trades or engineering. It is interesting that I am to conclude that the services of a gas fitter are about 50% more valuable to society than the services of a family physician based on the fees paid to these two respective professions.

—Robert H. Brown, MD, CCFP
North Saanich

Re: Lost art of physical examination

I really appreciated Dr Walton's germane reflection on the role the physical examination seems to play in patient assessment these days [*BCMJ* 2021;63:102]. I'm one of those Neanderthal retired family docs who practised before CT scans, MRIs, and other magical technologies.

An acute appendix was first on a differential diagnosis as the result of history and specific physical examination. It was okay to then proceed to the OR, recognizing that it might rarely end as an exploratory event. It's now quite kosher to listen to breath and heart sounds through clothing—it's happened to me, by a fine young physician. The world moves on, but practising the fine points of physical diagnosis need not be a dying art.

—Neil Finnie, MD
Victoria

Re: The gender pay gap in medicine

Thank you, Dr Sin, for your April editorial on this important topic [*BCMJ* 2021;63:101]. Studies show that women also have increased rates of burnout compared with male colleagues. The pandemic has had an extra toll on women, making all of this much worse.

You point out that there are some clear recommendations that have been made to work to close this gap. We know this is a complex issue that will take many nuanced changes, but a few broad strokes can happen now. Encouraging men to take parental leave is a wonderfully achievable place to start, and is evidence-informed. Maybe we will see Doctors of BC promote this more widely. Doctors of BC could also be targeting and measuring its success in having women in leadership roles, and being transparent about what percentage of stipends goes to men versus women might be an enlightening project. The kind of encouragement needed for women to be in the places where decisions are made is often structural. This is not phoning, emailing, and telling them they would be great and should apply—not that kind of encouragement. We are talking about changing how we recruit, support, and retain women in leadership by making gender equity a priority through tangible goals, metrics, and system improvements. This is negotiation time for the PMA and gender equity could be a value that is baked into the process. Imagine what we might achieve if this were the case!

I am excited that you have opened up this conversation in a meaningful way for Doctors of BC and all of us in the province. I look forward to reading more articles on what we are doing and how well we are making progress to reduce the gender pay gap. Thanks for taking this brave step, since we know you are likely to experience significant backlash as a result of speaking out for gender equity.

—Brenda Hardie, MD
North Vancouver

I appreciate Dr Sin's call to action in her April editorial [*BCMJ* 2021;63:101]: "Ultimately, the question we should each be asking ourselves is not whether a gender pay gap exists in medicine, but what can I do to help close it?" And I urge our professional representative body (Doctors of BC) and our main payer (BC Ministry of Health) to (1) engage experts to do a review of processes and structures that are maintaining the gender pay gap, despite intentions to have it change, and (2) start to publicly report what this examination finds.

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

Re: On the nature of being a professional

Bravo, Dr Chow! I'm retired from practice now after 50 years as a GP/FP and found your article in the April issue to be a breath of fresh air [*BCMJ* 2021;63:105]. The profession is facing decreasing numbers of physicians. Physician burnout has become a byword. Physicians are losing the esteem from their patients, while other health care professionals are enjoying increasing popularity from their patients and clients. To be a physician was once to also be a trusted member of a patient's and their family members' special circle, trusted as a caring friend, but alas, the pressures of practice, bureaucracy, paperwork, and rules of conduct have disenfranchised us from the art of medicine, often creating a seemingly adversarial relationship with those we care for. Your philosophy of medical practice illustrates a means to bring back the very real joy of being that

caring professional friend to those we care for.

Thank you for the wise encouragement.

—Brian S. Pound, MBBS, LRCP, MRCS, LMCC
Victoria

Re: Managing vulnerable patients

I was interested to read the April 2021 article, "Management of vulnerable adult patients seeking to leave hospital: Understanding and using relevant legislation," having had just such a conundrum during my shift the previous evening. Unfortunately, the article did not specifically address a certain common situation. Any insights from the authors would be much appreciated.

Incapacity due to addiction

By my reading of the article, my patient (whose parents were strongly advocating be involuntarily admitted due to severe and progressive self-neglect as a result of alcoholism) fulfills the criteria to allow treatment under the Adult Guardianship Act (AGA) (1. self-neglect, 2. risks, already experienced—e.g., loss of licence to drunk driving, assault charges etc., and 3. incapacity due to chronic unremitting intoxication).

It is not regular practice to force treatment due to addictions. This patient was kept under the Health Care (Consent) and Care Facility (Admission) Act until sober enough to ambulate safely and have a discussion regarding his situation, at which point he could voluntarily continue treatment or leave against medical advice.

Is this sober window (reportedly the only such window in a very long time) enough to allow the patient to voluntarily proceed back into his state of chronic alcohol-induced incapacity (not withstanding that the illness of addiction renders the patient incapable of avoiding further intoxication)? If it is not, should we be using the AGA routinely in cases of addicted vulnerable adults?

Also, the fictional case of Ms Safe was a useful illustration. I imagine the statement that she'd "be fine" was explored in more detail. What if she'd meant: (1) I'll be fine because I wish to die from this illness, or (2) I understand the risks you're telling me but I'll be fine with the natural medicines I'm using, or my faith that God will heal me?

—Roger Seldon, MBChB, MD
Campbell River

Authors reply

Regarding use of the Adult Guardianship Act (AGA) for individuals with chronic substance use, it should be clarified that the Act allows involuntary admission in hospital to investigate whether a person meets full criteria for Section 59. Section 59 allows ongoing hospitalization until a support and assistance plan can be put in place to try to mitigate the risks of, in your example, self-neglect. The first criterion of the AGA is that the adult is unable to seek support and assistance when needed.[1] Such assessments are conducted by a designated responder, typically a social worker, once an individual is no longer intoxicated. Assessments for AGA eligibility will often incorporate information or assessments from other disciplines, such as occupational therapy, psychiatry, or geriatric medicine to assess for factors that increase vulnerability while not intoxicated, such as neurocognitive disorders. For many individuals without baseline cognitive impairment, the patient will demonstrate an ability to seek support and assistance when not under the influence of substances, rendering them ineligible for Section 59. However, if a patient shows that they are unable to seek support and assistance even once they are no longer intoxicated, for example because of a neurocognitive disorder secondary to alcohol use, they may meet the criteria for Section 59 if the other criteria are also satisfied, as outlined in Figure 1 of our article.[2]

Thought must also be given to how using a support and assistance plan can modify the identified risks of using substances, recognizing that we cannot typically force individuals to abstain from substances alone. Exceptions to this do occur, rarely, for individuals with significant vulnerabilities; for example, a neurocognitive disorder rendering them at risk of regular and significant substance abuse causing self-neglect. However, these cases typically exist after less intrusive measures have failed and are likely to involve a court-ordered support and assistance plan that restricts an individual's access to substances due to residing in a care facility.

Regarding the issue of "alcohol-induced incapacity," it is important to answer the question, capacity for what kind of decision? It is certainly reasonable to question an individual's capacity to make decisions about how they live their life when they are living at significant risk. For example, does the patient have capacity to make decisions about being homeless, or using substances? However, housing or substance use are not medical treatments and, therefore, don't fall under the Health Care (Consent) and Care Facility (Admission) Act. Therefore, saying that an individual is incapable of making decisions regarding substance use or housing does not permit us to take any action in the way of appointing a substitute decision maker as we would for medical treatment. Furthermore, even if someone fails to see the negative foreseeable consequences of their substance use,

Continued on page 201

Keeping you informed during negotiations

As I write this at the end of April, our province is facing a surge of COVID-19 cases. My neighborhood has been designated a high-transmission community, and I have been encouraging, cajoling, and even pleading with all my neighbors to get vaccinated. Perhaps shouting, "Get your shot!" out my car window to pedestrians was a bit much, but perhaps not. While I cannot claim any prescient ability, what I do know is that doctors—wherever you are and whatever you do—will have given your very best and fought hard for your patients. I, and every person in this province, thank you for this.

And now turning to something different: negotiations. The 2019–2022 Physician Master Agreement between Doctors of BC and the government will end on 31 March 2022. Formal negotiations for our next agreement begin in June.

In the past, members have said they want to be better informed as we go through the process, which we will do to the best of our ability. Doctors of BC and the government have agreed not to speak publicly about our bargaining positions, the status of negotiations, and how talks are going. This is not unusual—bargaining that takes place in the public domain often signals a serious problem. Still, we know you want to understand what is going on and how it will affect you.

To this end, we will be more proactive about communicating with members during the negotiations process, within the limits of bargaining rules. This will be a multiphased approach. We are currently in phase one, our lead-up to and moving through formal negotiations. Our goal during this stage, which could last up to a year, is to keep members informed of the steps in preparing for and conducting the PMA negotiations.

We have reached out to members in numerous ways to determine your key priorities. These have included our negotiations survey, meetings with the sections and other physician groups, Zoom webinars, and a Representative Assembly workshop.

Among a number of priorities important to you, which will be brought to the table, are two specific ones that were shared by a large majority of members: addressing the continually increasing cost of running a practice and the funding and provision of virtual services on a permanent basis. These, among others, will be considered by the Board as its sets the mandate for the PMA negotiations.

We will be more proactive about communicating with members during the negotiations process.

While we are in negotiations, public opinion is important because it will affect government priorities. We will continue to promote the value doctors bring to the health care system, their patients, and communities, and the effects of a shortage of doctors in several critical areas. During this pandemic year, we are able to talk about how doctors showed leadership provincially and in their communities, how quickly doctors were able pivot to virtual care, and the invaluable contribution of doctors to maintaining capacity within the health care system.

Our negotiations communications to members will mostly be via the *In Circulation* electronic newsletter. For those who have not yet signed up for it, I encourage you to do so at www.doctorsofbc.ca/account/subscriptions (log in required). There is now a special section titled Negotiations Update, which will include as much information as we are able to disclose and that will be updated regularly.

Phases two and three of negotiations will come into play if phase one is not successful. We would move into mediation and potentially into conciliation, which ends with the release of a report from a neutral conciliator. This is where we take the public foundation we have built and increase it, along with a number of other possible measures. We have not had to do this in recent times, but it will come as no surprise to you that we expect a challenging negotiation given the general state of society as it emerges from the pandemic.

Bottom line, we want our communications to you to demonstrate that you are being heard, that we understand your concerns, and that the negotiations team is doing its best to take your requests into account. ■

—Matthew C. Chow, MD
Doctors of BC President

Continued from page 199

which suggests incapacity, existing legislation does not address forcing individuals to abstain from substances alone if they are incapable of making a decision to use them. Instead, it is best to focus on whether an individual meets criteria for the AGA, or in some cases, the Mental Health Act.

Regarding the case of Ms Safe, she had communicated that she thought her health would remain unchanged or stable without IV antibiotics. Therefore, Ms Safe failed to appreciate the foreseeable negative consequences and risk of death if she refused treatment, rendering her incapable of making a decision to decline medical treatment. In reply to another of your examples, such as if the patient said she wished to die from her illness, that suggests she understands the foreseeable consequences of declining treatment, which is one of several important criteria of capacity. In our experience, that kind of response could signal a potential desire for hastened death, which would trigger a psychiatric consult to rule out an underlying mood disorder. For the other examples, capable patients may have spiritual beliefs or preferences for nonconventional treatments. The test of capacity would be whether the patient understands the nature and anticipated effects of the proposed investigation or treatment and available alternatives, including the consequences of refusing.[3,4]

—Jennifer Laidlaw, MD, FRCPC

—Leanne Lange, MPA

—Erin Henthorne, MSW, RSW

References

1. Province of British Columbia. Adult guardianship act. Victoria, BC; 2020. Accessed 25 August 2020. www.bclaws.ca/civix/document/id/complete/statreg/96006_01.
2. Laidlaw J, Lange, L, Henthorne, E. Management of vulnerable adult patients seeking to leave hospital: Understanding and using relevant legislation. BCMJ 2021;63:106-111.
3. Canadian Medical Protective Association. Is this patient capable of consenting? 2021. Accessed 11 May 2021. www.cmpa-acpm.ca/en/advice-publications/browse-articles/2011/is-this-patient-capable-of-consenting.
4. Canadian Medical Protective Association. Aid to capacity evaluation. 1996. Accessed 11 May 2021. www.cmpa-acpm.ca/static-assets/pdf/education-and-events/resident-symposium/aid_to_capacity_evaluation-e.pdf.

News

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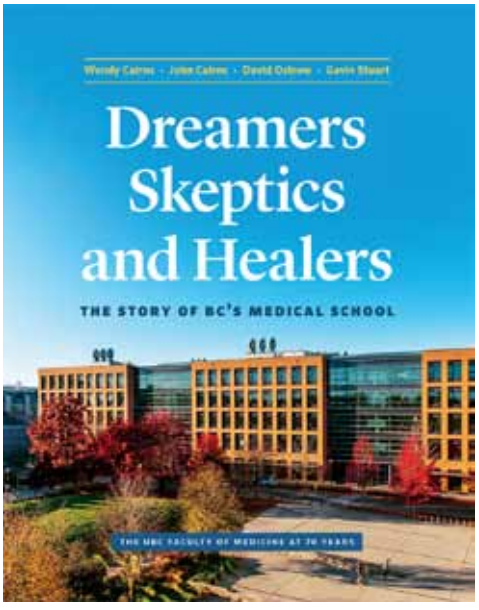


Book review: *Dreamers, Skeptics, and Healers: The story of BC's medical school*

By Wendy Cairns; John Cairns, MD; David Ostrow, MD; Gavin Stuart, MD. Vancouver: Page Two Books, 2021. ISBN 978-1-989603-89-5. Hardcover, 224 pages.

The mastermind behind this history of UBC Medical School was UBC graduate Wendy Elizabeth Cairns. After her premature death in 2018, her husband and former dean of the medical school, Dr John Cairns, along with Dr David Ostrow and Dr Gavin Stuart, took up the pen to expand on and complete the process of turning Wendy's rich research materials into this book. The title, *Dreamers, Skeptics, and Healers,* accurately reflects the history of a medical school that admitted its first class in 1950 after years of controversy and is now counted among the largest and most respected medical schools in North America.

I arrived in Vancouver in 1947 as an 18-year-old immigrant, full of hope that I might be able to enter medical school here. I learned with considerable anxiety that there was no medical school in BC, and that the likelihood of one opening soon was not very good. Only 4 years later, I was in UBC Medicine's second graduating class of 60 students, when the school was still located in former army barracks. Skeptics were abundant from before the school opened and throughout its early years; it was the dedicated deans, scientists, and healing practitioners who brought the dreams to reality.

This very handsome, easy-to-read book includes wonderful pictures of many of the doctors, healers, scientists, and administrators who made the school what it is today. The book is divided into seven parts. It starts with Dr John Sebastian Helmke's ideas for a health service, for a then fledgling population, in the 1870s. And it ends with a proud celebration of the research and innovation that has taken place over the past 70 years, with ideas for the future.

In between are accounts of how the school took off after years of arguments and disappointments, the unavoidable growing pains, and how it came into a respected early maturity, with some unexpected turnarounds, to become a world famous medical school (the Faculty of Medicine is now home to more than 4500 undergraduate, graduate, and postgraduate students), with students learning the art and science of medicine in almost every district of BC.

I had the feeling of reliving my student days as I read the sections on how Dr Kerr and Dr Walters conducted our oral exams at the bedside, how Dr Friedman, the head and professor of anatomy drew his diagrams on the blackboard with two hands at the same

time, or how Dr John William Boyd, head and professor of pathology, entertained us with his witty lectures.

Each dean's vision and legacy for the school over 70 years is sensitively explained. Some have come to life; some have not. For example, Dr McCreary's vision for an "if they learn together, they will work together" teaching program for all health professionals, for the purpose of strengthening integrated patient care by health sciences teams, is still not a reality.

Each section also introduces the leading figures in the various basic science and clinical faculties. The pictures of Dr Copp of physiology, Dr Williams of dermatology, Dr Bryans of obstetrics and gynecology, Dr Slade of family practice, and many others will evoke warm memories in former students. And, of course, there is the politics. I was at the tense locked-door meeting described in the book with Dr Pat McGeer, a graduate of the school, accomplished neuroscientist, UBC faculty member, and BC's Minister of Education at the time. He issued an ultimatum to the university: come up with a plan for increasing the number of medical students and a plan for a campus hospital or lose out on an unclaimed federal fund that was about to be closed. Student numbers were increased.

The book will rekindle memories for some and bring an understanding to nonmedical readers of the extreme complexity of gathering and maintaining the enthusiasm of dedicated practitioners, scientists, students, and other health-related professionals with the goal of understanding nature and serving mankind.

—George Szasz, CM, MD

What is critical illness insurance?

As one of the licensed, noncommissioned insurance advisors with Doctors of BC, I meet with physicians every day to talk about member-exclusive insurance offerings. Critical illness insurance is now part of every discussion, though it is less understood than life or disability insurance.

Critical illness insurance was introduced to the insurance industry on 6 October 1983. The founder, South African cardiac surgeon, Dr Marius Barnard, identified a gap in the insurance industry through the care of his patients. Since then, critical illness insurance has been accepted into insurance markets around the world. These policies provide the insured with a tax-free, one-time predetermined lump-sum payment in the event you are diagnosed with one of the 25 illnesses covered under the policy.

You may wonder how this is different from disability insurance. While disability insurance is designed to replace your income, critical illness insurance is designed to help with costs so you can focus on your health. These costs may include medical treatment not covered by MSP or your extended health benefits policy, in-home care, modifications to your home, equipment to assist with mobility, or replacement of income from a spouse who is caring for you. If you are fortunate to have a speedy recovery, you can use the money to pay down debt or top up savings.

Doctors of BC offers a group term plan that is available to members, their spouses, and dependent children. In addition, our insurance advisors can offer policies from major Canadian insurers, should you want additional features beyond what the group plan offers, such as premium refund upon cancellation.

Critical illness insurance provides protection against expenses that can come with a serious illness, and it can give you peace of mind that, if you are diagnosed with one of the covered conditions, you will not derail your retirement savings plan or be faced with increasing debt to assist with recovering. Proof of good health is required at time of application to determine eligibility. Doctors of BC advisors are available to discuss coverage options that best suit your needs.

—Hali Stus
Insurance Advisor, Members' Products and Services

Grant to offset costs of recruiting into team-based care practices

A new team-based care grant provides $15 000 to eligible family practices that have onboarded interprofessional team (IPT) members. The grant will help to address the costs of recruiting and onboarding into a practice, and it is just one of the resources provided by the GPSC to help break down barriers and provide supports for practices to implement team-based care.

How does it work?

The grant provides a lump sum payment of $15 000 for each FTE of net new eligible IPT positions filled by the family practice applying for the grant. An eligible IPT position may be filled by a staff member employed by the family practice or another organization, such as a health authority. Eligible family practices may apply for the grant for net new eligible IPT positions filled on or after 1 April 2019. An end date has not yet been established for this grant.

What are the requirements?

A minimum of 0.5 FTE of IPT position is required to apply for this grant. To claim this grant, a group of family doctors must submit an online application form together after an IPT position has been filled. Doctors and clinic owners may agree on how the funding is distributed among the parties.

What does it cover?

These are some examples of what family doctors can do with the grant:

- Cover the cost of setting up and upgrading EMR software and licensing and office hardware to enable interprofessional care.
- Compensate physicians or clinic staff for time spent:
  - Reviewing and implementing changes to office capacity to accommodate new IPT members.
  - Recruiting, interviewing, hiring, and onboarding new IPT members.
  - Reviewing medicolegal requirements relevant for particular IPT members.

Are you eligible?

To be eligible, family doctors of the group practice applying for the grant must:

- Work within a group practice consisting of two or more physicians that has added an eligible IPT member to the group practice. The physicians working together in a group practice may or may not be co-located and may have an arrangement to jointly fund an IPT position.
- Meet the definition of a community longitudinal family physician as per the GPSC preamble.
- Have completed phase two of the GPSC phases of panel management.
- Commit to participating in quality improvement activities related to team-based care such as services offered through the GPSC Practice Support Program, including team-based care coaches. Quality improvement activities should be aligned with the National Interprofessional Competencies Framework.
- Agree to work collaboratively with the Ministry of Health, the primary care network (if applicable), and other partners toward implementing the attributes of the patient medical home and primary care network.

For more information, visit https://gpscbc.ca/news/news/grant-announced-gpsc-offset-costs-of-recruiting-team-based-care-practices.

Preventing symptom escalation among mild COVID-19 patients

With several treatments available to care for the most urgent and severe cases of COVID-19, researchers are now investigating whether a common anti-inflammatory drug, ciclesonide, could help speed recovery in mild cases and put a stop to disease progression and potential hospitalization. When inhaled, the medication is directed to the nose and airways, the areas of the body most affected by the COVID-19 virus. While the long-term effects of the virus are not fully understood, studies have found that any level of disease severity can result in persistent physical and psychological symptoms. Ciclesonide has been shown to prevent viral activity against SARS-CoV-2 in some lab-based studies, and researchers hypothesize that giving it to patients early in the course of the disease could prevent the virus from replicating further and causing an increased inflammatory response.

Ciclesonide was approved by the US Food and Drug Administration in January 2008 for use in humans to treat asthma, rhinitis, and other nasal and airway conditions. The CONTAIN study team selected ciclesonide as a possible treatment option because of its low rate of side effects and drug interactions, as well as evidence linking this particular steroid with antiviral effects.

Dr Sara Belga, a clinical assistant professor in the Division of Infectious Diseases at the University of British Columbia, is the principal investigator in the province of the CONTAIN study, headed by Dr Nicole Ezer from the McGill University Centre for Health Outcomes Research. The study is recruiting individuals living in Quebec, Ontario, or British Columbia. Adults 18 years and older can qualify to participate if they apply via the CONTAIN study's online portal within 5 days of being diagnosed with COVID-19. Eligible participants must also be recovering at home with a mild fever, shortness of breath, and/or symptomatic cough. Visit www.contain-covid19.com for more information about the study and how to participate.

Clicks, tweets, and likes

Social media use by medical journals.

Faizan Bhatia, MD, Arman Mojtabavi, BSc, Azim Ahmed, BSc, Vishal Varshney, MD, FRCPC, Alana M. Flexman, MD, FRCPC

ABSTRACT: Medical literature is expanding at an astonishing rate and physicians are increasingly using social media professionally. Currently, we lack a comprehensive understanding about the use of social media by medical journals. We included the top 100 medical journals by H-index, and analyzed 88 journals after excluding nonmedical journals. We described the use of social media platforms and followers stratified by H-index and journal type (general versus specialty). We found a high level of engagement with Twitter (100%), YouTube (94.3%), Facebook (64.5%), and Instagram (62.5%). General (versus specialty) medical journals had higher H-indices and a larger numbers of followers on Twitter and Facebook. Higher-impact journals were more likely to have social media accounts, although this finding was not observed when controlling for journal type. The use of social media to facilitate education and knowledge dissemination is increasingly common and requires further research to determine the effectiveness.

Dr Bhatia was a fourth-year medical student in the Vancouver Fraser Medical Program at the University of British Columbia when he submitted this article for publication consideration. He graduated from UBC Medicine in May 2021. He is also a co-founder of the UBC medical student podcast MEDamorphosis (https://medamorphosis-podcast.simplecast.com). Mr Mojtabavi is a recent graduate with an integrated science degree in physiology, psychology, and pharmacology from the University of British Columbia and is a co-founder and director of the not-for-profit Campus Nutrition (https://campusnutrition.ca). Mr Ahmed is a recent graduate with an integrated science degree in pathophysiology and kinesiology from the University of British Columbia. Dr Varshney (@VarshneyMD) is a staff anesthesiologist and pain medicine physician at St. Paul's Hospital and Providence Health Care, and a clinical instructor at the University of British Columbia. Dr Flexman (@alanaflex) is a staff anesthesiologist and research director at St. Paul's Hospital and Providence Health Care, a clinical associate professor at the University of British Columbia, and an associate editor at the Canadian Journal of Anesthesia.

This article has been peer reviewed.

Background

Social media activity has been associated with increased visibility of published articles, including downloads and citations.[1,2] As a result of the perceived benefits to and engagement with readers, medical journals are increasingly using social media such as Twitter, Facebook, Instagram, and YouTube to share content. Many physicians are also engaging with journals in this context and increasingly using social media as an avenue for CME.[3,4] Despite an increase in activity over the past decade, little is known about the frequency of social media use by medical journals, including engagement with specific social media platforms, number of followers, and the relationship between these activities and objective measures of journal impact such as the H-index. The journal H-index is defined as the number of articles (H) that have received at least H citations and, therefore, combines an assessment of both quantity (number of papers) and quality (impact).

Our primary study objective was to describe the use of various social media platforms by high-impact medical journals. Our secondary objectives were to analyze the relationship between social media engagement and journal type (specialty versus general), the impact factor, and the H-index.

Methods

This analysis did not require ethics approval as all information was publicly available. The ranking of medical journals was obtained through SCImago Journal and Country Rank database (www.scimagojr.com). We selected the most recent ranking (2019) of the top 100 journals by H-index. We excluded journals that were not primarily focused on clinical medicine.

We classified journals as having either a specialty or general medical focus by consensus and noted the most recent H-index and impact factors available. We collected information on social media engagement across four social media platforms: Twitter, Facebook, Instagram, and YouTube. To optimize fast and accurate data collection, we developed a program to web-scrape data using Selenium Webdriver 3.141.0 on Python. All data from Instagram and Facebook were gathered on 16 February 2020, while all Twitter and YouTube data were gathered on 2 March 2020. For each account, when available, we noted followers, likes, and number of posts.

Data were described using percentage and median (interquartile range [IQR]). Normal distribution of continuous variables was determined using the Shapiro-Wilk test for normality. Specialty and general medical journals were compared using a Wilcoxon rank sum and Fisher's exact test for continuous and categorical data, respectively. Multivariable linear regression was used to explore the relationship between H-index and the social media activity. *P* values less than .05 were considered significant. Statistical analysis was completed in R version 3.6.3 and STATA 12.1 (StataCorp, Texas, USA).

Results

We identified the top 100 journals by H-index and excluded 12 journals that were found to not

be primarily medical after further review, leaving 88 journals for the analysis. Missing data were minimal and included only the YouTube channel subscribers and views from three journals. We classified 84% (n = 74) of journals as specialty and 16% (n = 14) as general. Characteristics of included medical journals are summarized in **Table 1**. Included journals (n = 88) had a median H-index of 278 (IQR 245, 332) and a median journal impact factor of 9.6 (IQR 6.1, 19.1). All journals had associated Twitter accounts, while 94.3%, 64.8%, and 62.5%, of journals had associated YouTube, Facebook, and Instagram accounts, respectively. Followers were the highest on Facebook, followed by Twitter, Instagram, and YouTube. General medical journals had higher H-indices and impact factors than specialty journals. Both types of journals used social media platforms at similar frequency, although general medical journals had more Twitter and Facebook followers, and specialty journals had more Instagram followers. **Figure 1** and **Figure 2** display a general increase in the frequency of available social media accounts for medical journals from the lowest to highest H-index and impact factor quartile. From left to right, the bars under each category in **Figure 1** signify quartile 1 to 4: Q1 (< 244.5), Q2 (244.5 < < 278), Q3 (278 < < 332), Q4 (> 332), while those in **Figure 2** signify quartile 1 to 4: Q1 (< 6.08), Q2 (6.08 < < 9.5765), Q3 (9.5765 < < 19.1305), Q4 (> 19.1305). Presence of an Instagram account predicted H-index (coefficient 56.8, 95% CI 9.5 to 104.1, $P = 0.019$) but not Facebook (coefficient 39.9, 95% CI -8.89 to 88.6, $P = 0.108$) or YouTube (coefficient 60.1, 95% CI -41.2 to 161.5, $P = 0.241$). When controlling for journal type, the presence of social media accounts did not predict H-index **[Table 2]**. Since all journals had associated Twitter accounts, the presence of this account was not included in the model.

Discussion

Our analysis provides a contemporary snapshot and formal analysis of social media use by high-impact medical journals in 2020. We found that all journals included in our study used some form of social media, with universal use of Twitter and frequent use of YouTube. Facebook and Instagram were used by

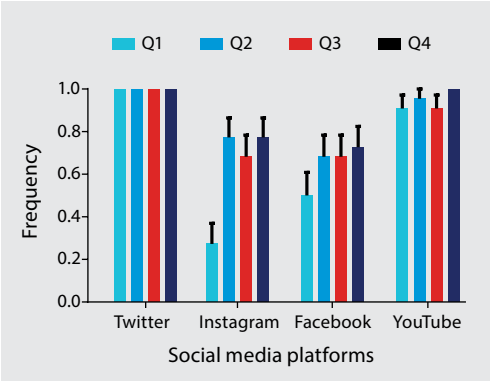


FIGURE 1. Frequency of social media platforms used by medical journals, stratified by H-index quartiles.

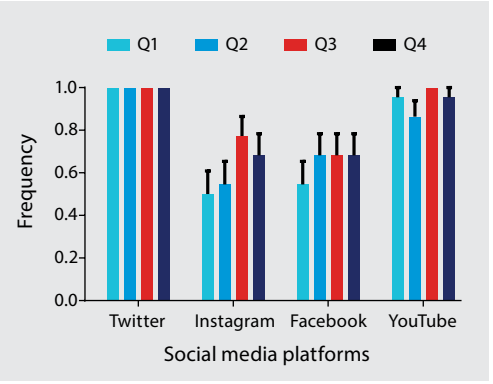


FIGURE 2: Frequency of social media platforms used by medical journals, stratified by impact factor quartiles.

TABLE 1: Characteristics of included medical journals.

	Overall (N = 88)	Specialty (N = 74)	General (N = 14)	*P* value
H-index	278 (245, 332)	270 (238, 326)	353 (289, 497)	0.0016
Impact factor	9.6 (6.1, 19.1)	9.0 (6.1, 16.6)	22.5 (7.8, 51.3)	0.0277
Twitter (N, %)	88 (100)	74 (100)	14 (100)	—
Twitter followers	10 776 (3529, 29 689)	9006 (3212, 25 898)	82 956 (12 486, 331 681)	0.0054
Total tweets	3900 (2023, 7819)	3650 (1744, 7198)	12 134 (3531, 20 624)	0.0188
YouTube (N, %)	83 (94.3)	69 (93.2)	14 (100)	0.411
YouTube subscribers	3705 (549, 12 000)	2950 (527, 11 600)	6845 (1960, 20 500)	0.1506
YouTube videos	265 (77, 527)	265 (74, 527)	316 (88, 516)	0.8593
Facebook (N, %)	57 (64.8)	46 (62.2)	11 (78.6)	0.193
Facebook followers	27 858 (8359, 99 880)	24 260 (4480, 74 045)	99 880 (46 489, 498 408)	0.0223
Facebook likes	26 853 (8012, 98 452)	23 500 (4402, 71 431)	98 452 (45 753, 492 594)	0.0223
Instagram (N, %)	55 (62.5)	44 (59.5)	11 (78.6)	0.146
Instagram followers	5893 (1695, 87 979)	8483 (2478, 87 980)	2021 (162, 13 796)	0.0626
Instagram posts	276 (110, 771)	343 (158, 753)	114 (18, 925)	0.1779

All values are median (interquartile range) unless otherwise indicated.

TABLE 2. Linear regression model to predict journal H-index.

	Coefficient	95% CI	*P* value
Facebook	20.9	-24.0 to 65.7	0.358
Instagram	36.6	-7.8 to 81.0	0.105
YouTube	33.3	-57.7 to 124.2	0.469
General (vs specialty)	127.6	69.8 to 185.4	< 0.001

$R^2 = 0.2613$ $P < 0.001$

a majority of journals but less frequently than other platforms. General medical journals had higher H-indices, impact factors, followers, and higher engagement with social media compared to specialty journals. Of the four platforms analyzed, journals had the greatest number of interactions on Facebook (such as followers and likes). Our data offer a unique perspective that quantifies the use of social media by high-impact medical journals, and describes a high level of engagement, particularly by general medical journals.

The use of social media in medical publishing to disseminate research and information has evolved relatively rapidly over the last decade. Social media itself has been introduced relatively recently (Facebook was founded in 2004, YouTube in 2005, Twitter in 2006, and Instagram in 2010). The adoption of social media is uneven, and its use varies among different generations of medical professionals.[5] Uptake is high among medical students; as many as 90% of medical students are active on social networking sites.[6] Many journals now formally appoint a social media editor, a role which encompasses a range of responsibilities from disseminating new publications via social media, summarizing articles, and managing social media accounts.[7,8] Sharing visual abstracts (visual summaries of an article's content) on social media is increasing and may improve an article's visibility and engagement compared to sharing citations only.[9] Twitter is increasingly embraced as a CME tool, encompassing activities such as online journal clubs and virtual networking. These formats offer several advantages such as lower cost, accessibility, and innovative methods of engagement.[3,10,11] An open label randomized trial found that CME practice tips provided by Twitter and Facebook can improve clinical knowledge and promote behavior change,[12] and another study found Facebook more effective than email at delivering medical education.[13] Our study results suggest that the majority of medical journals perceive these benefits and have now embraced these platforms.

Social media may offer several benefits to journals in promoting knowledge dissemination and article engagement, although the evidence supporting an effect on citation is mixed. There is some evidence to suggest that use of social media platforms may drive traffic toward CME initiatives,[14] and that social media coverage predicts citations of articles,[2,15] although greater social media attention may simply reflect higher-quality articles that are more likely to be cited. Two randomized trials have found that tweeting articles increased Altmetric scores and citations over time compared to those that were not shared on Twitter.[16,17] In contrast, another randomized study did not find that social media exposure increased article citations or downloads.[18] A recent systematic review found "suggestive yet inconclusive" evidence that the use of social media increases article citations, with notable limitations and inconsistent findings in the literature.[1]

Our analysis has several limitations. Although we described the use of social media and the relationship with journal impact (H-index), we cannot establish a causative effect of social media engagement on the journal's performance or research. Furthermore, our results represent a snapshot in time that will continue to evolve, and further research to establish trends over time would be valuable. Finally, we included only the top 100 medical journals by H-index; the use of social media by lower-impact journals may vary.

Our study findings clarify the current state of social media use by high-impact medical journals and indicate these journals are highly engaged with these platforms. General medical journals have a greater impact and reach on social media compared to specialty journals, as measured by followers and subscribers. The use of social media to facilitate medical education and knowledge dissemination is increasingly common and future research should address questions about whether social media can increase article citation, improve CME, and efficiently disseminate knowledge. ■

Competing interests

Dr Flexman is an associate editor of the *Canadian Journal of Anesthesia* and the *Journal of Neurosurgical Anesthesiology*.

References

1. Bardus M, El Rassi R, Chahrour M, et al. The use of social media to increase the impact of health research: Systematic review. J Med Internet Res 2020;22:e15607.
2. Sathianathen NJ, Lane III R, Murphy DG, et al. Social media coverage of scientific articles immediately after publication predicts subsequent citations - #SoME_Impact Score: Observational analysis. J Med Internet Res 2020;22:e12288-e12288.
3. Wray CM, Auerbach AD, Arora VM. The adoption of an online journal club to improve research dissemination and social media engagement among hospitalists. J Hosp Med 2018;13:764-769.
4. Ghanem O, Logghe HJ, Tran BV, et al. Closed Facebook™ groups and CME credit: A new format for continuing medical education. Surg Endosc 2019;33:587-591.
5. El Bialy S, Jalali A. Go where the students are: A comparison of the use of social networking sites between medical students and medical educators. JMIR Med Educ 2015;1:e7.
6. Guraya SY. The usage of social networking sites by medical students for educational purposes: A meta-analysis and systematic review. N Am J Med Sci 2016;8:268-278.
7. Lopez M, Chan TM, Thoma B, et al. The social media editor at medical journals: Responsibilities, goals, barriers, and facilitators. Acad Med 2019;94:701-707.
8. Siau K, Lui R, Mahmood S. The role of a social media editor: What to expect and tips for success. United European Gastroenterol J 2020;8:1253-1257.
9. Oska S, Lerma E, Topf J. A picture is worth a thousand views: A triple crossover trial of visual abstracts to examine their impact on research dissemination. J Med Internet Res 2020;22:e22327.
10. Thamman R, Gulati M, Narang A, et al. Twitter-based learning for continuing medical education? Eur Heart J 2020;41:4376-4379.
11. Topf JM, Sparks MA, Phelan PJ, et al. The evolution of the journal club: From Osler to Twitter. Am J Kidney Dis 2017;69:827-836.
12. Tunnecliff J, Weiner J, Gaida JE, et al. Translating evidence to practice in the health professions: A randomized trial of Twitter vs Facebook. J Am Med Inform Assoc 2017;24:403-408.
13. Chan WS, Leung AY. Facebook as a novel tool for continuous professional education on dementia: Pilot randomized controlled trial. J Med Internet Res 2020;22:e16772.
14. Flynn S, Hebert P, Korenstein D, et al. Leveraging social media to promote evidence-based continuing medical education. PLoS One 2017;12:e0168962.
15. Chau M, Ramedani S, King T, Aziz F. Presence of social media mentions for vascular surgery publications is associated with an increased number of literature citations. J Vasc Surg 2021;731096-1103.
16. Luc JGY, Archer MA, Arora RC, et al. Does tweeting improve citations? One-year results from the TSS-MN prospective randomized trial. Ann Thorac Surg 2021;111:296-300.
17. Ladeiras-Lopes R, Clarke S, Vidal-Perez R, et al. Twitter promotion predicts citation rates of cardiovascular articles: A preliminary analysis from the ESC Journals Randomized Study. Eur Heart J 2020;41:3222-3225.
18. Tonia T, Van Oyen H, Berger A, et al. If I tweet will you cite? The effect of social media exposure of articles on downloads and citations. Int J Public Health 2016;61:513-520.

Workers Compensation Act amended to include COVID-19

To be compensable under the Workers Compensation Act, an occupational disease must be due to the nature of any employment in which the worker was employed (the work causation requirement). There are two general approaches to establishing work causation: where a presumption applies and where one does not.

Where a presumption applies, the starting point is that work causation is presumed. This means that a claim can be accepted even though no specific evidence of work causation is produced. However, the presumption is rebutted if the evidence shows the occupational disease was not due to the worker's employment.

Where no presumption applies, WorkSafeBC must determine whether the evidence in the specific case shows the occupational disease is due to the worker's employment. In making this determination, WorkSafeBC decision-makers apply guidance found in WorkSafeBC's Contagious Diseases policy.[1]

Where no presumption applies, WorkSafeBC must determine whether the evidence in the specific case shows the occupational disease is due to the worker's employment.

Schedule 1 presumption

On 20 August 2020, Schedule 1 of the Act was amended to add a work causation presumption for infections caused by communicable viral pathogens, including COVID-19. The presumption refers to infections caused by communicable viral pathogens, rather than COVID-19 specifically, to ensure it will apply to similar infections that may arise in the future. At this time, BC is the only Canadian workers' compensation jurisdiction with presumptive legislation for COVID-19 infections. (Newfoundland does not have a specific COVID-19 presumption, but it does have a more general presumption for infectious diseases "contracted in an occupation where there is a particular risk of contamination," which could apply to COVID-19.)

The presumption requires the infections to be subject to a BC-specific emergency declaration or notice under the BC Public Health Act, BC Emergency Program Act, or Vancouver Charter. Limiting the presumption in this way ensures it applies only in exceptional circumstances. Other common outbreaks (e.g., the common cold) continue to be adjudicated on a case-by-case basis using existing law and policy.

Under this presumption, work causation is presumed (unless the contrary is proved) if both:

- The worker's employment involves a risk of exposure to source(s) of infection significantly greater than the public at large.
- The exposure risk occurs during the time period and within the geographical area of the BC-specific emergency or notice.

The second requirement further ensures the presumption applies only in exceptional circumstances.

COVID-19 claims statistics

As of 19 March 2021, 4314 claims have been submitted to WorkSafeBC related to a workplace COVID-19 exposure. Of the COVID-19 claims that proceeded to an allow/disallow decision, 71% have been allowed to date. (Not all claims registered receive an allow or disallow decision; some are suspended when insufficient information is available or a worker decides not to proceed.) If exposure-only claims—those where the worker was potentially exposed, tested, and/or required to self-isolate, but didn't develop the illness, as confirmed with a negative test result or absence of symptoms—are excluded from the disallowed claims, then the allow rate is approximately 95%. This better represents the allow rate on claims where the worker developed COVID-19.

Currently, the majority of COVID-19 claims are from workers in the health care, social services, and education subsectors (e.g., acute care, long-term care, and public school districts). ■

—Michelle Vukelic
Research Analyst, WorkSafeBC

Reference

1. WorkSafeBC. Rehabilitation services and claims manual, volume II. Accessed 20 April 2021. www.worksafebc.com/en/resources/law-policy/rehabilitation-services-and-claims-manual-volume-ii/rehabilitation-services-and-claims-manual-volume-ii/rehabilitation-services-and-claims-manual-volume-ii?lang=en.

Further information

- Schedule 1 of the Workers Compensation Act: www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/19001_09.
- WorkSafeBC's current policies on compensation and rehabilitation for injured workers: www.worksafebc.com/en/law-policy/claims-rehabilitation/compensation-policies/rehab-claims-volumeii.
- COVID-19 claims statistics on WorkSafeBC's website (updated weekly): www.worksafebc.com/en/covid-19/claims/covid-19-claims-by-industry-sector.

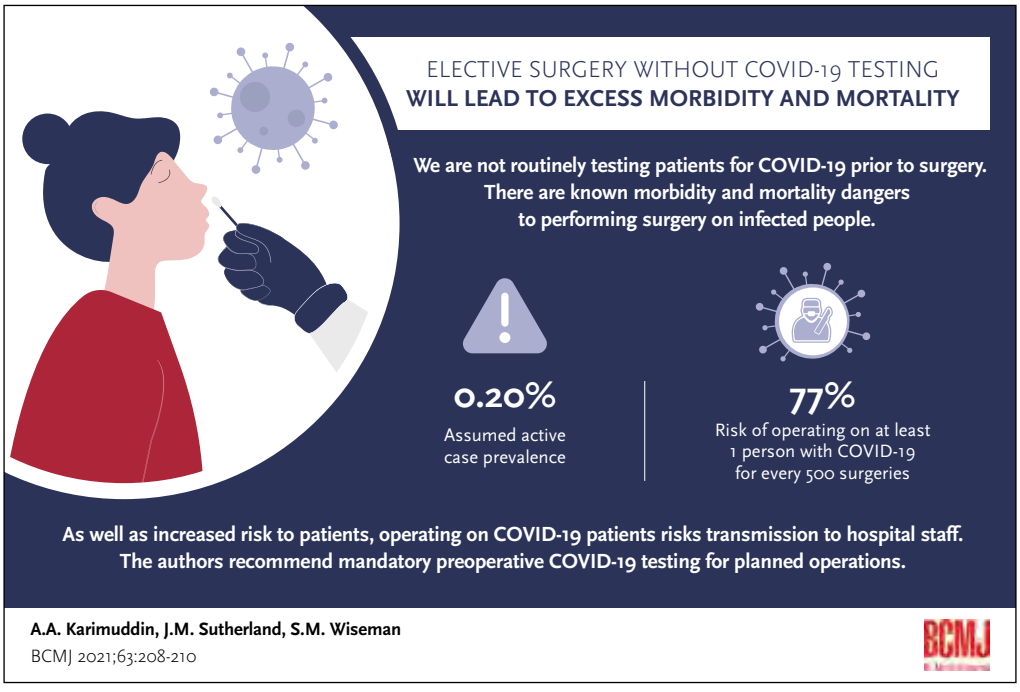
This article is the opinion of WorkSafeBC and has not been peer reviewed by the BCMJ *Editorial Board.*

Ahmer A. Karimuddin, MD, FRCSC, Jason M. Sutherland, PhD, Sam M. Wiseman, BSc, MD, FRCSC

Elective surgery without COVID-19 testing will lead to excess morbidity and mortality

Patients should be tested for COVID-19 prior to planned operations to prevent avoidable surgical complications and mortality.

ABSTRACT: Countless surgical procedures have been canceled worldwide due to the COVID-19 pandemic. As surgical volumes increase globally to address unmet surgical need, consideration must be given to how to navigate surgical risk during this pandemic. Using current COVID-19 prevalence rates, the risk of operating on COVID-19–infected patients in the absence of routine mandatory testing was modeled. Assuming 37 000 planned surgeries are conducted per week in Canada (excluding Quebec), and the prevalence of COVID-19 infection cases is 0.20%, the number of avoidable deaths that could occur is estimated to be 11.7 but could exceed 17.0. Given the risk of increased morbidity and mortality after elective surgery in asymptomatic COVID-19-infected patients, preoperative testing should be considered mandatory.



Dr Karimuddin is a surgeon in the Department of Surgery, St. Paul's Hospital, and a clinical associate professor at the University of British Columbia. Dr Sutherland is a professor at the Centre for Health Services and Policy Research, School of Population and Public Health, University of British Columbia. Dr Wiseman is a surgeon in the Department of Surgery, St. Paul's Hospital, and a professor at the University of British Columbia.

This article has been peer reviewed.

Based on global experiences during the early days of the COVID-19 pandemic, most elective operations were canceled to create capacity for an anticipated surge in pandemic-related hospitalizations. Cancelation of elective surgeries reduced the risk of hospitals serving as transmission sites and avoided a significantly increased risk of postoperative complications and death.[1,2]

As the pandemic begins to ebb in many countries, there is a focus on returning to prepandemic surgical volumes, and even increasing volumes to catch up with delayed or canceled procedures.[3] Whether in public health care systems, where surgical access was previously constrained and now is further exacerbated by the pandemic, or in mixed public–private health care models like those in the United States, where providers view surgical services as a business, there will be increasing demands on surgical capacity and a need for increasing surgical volumes.[4,5]

Preoperative testing

Faced with pressure to increase surgical volumes, hospitals should understand their options and the risks of inaction regarding COVID-19 infection. The first decision is whether to preoperatively test all asymptomatic elective surgical patients for infection. The feasibility and utility of testing varies from centre to centre and is influenced by many factors, including the test itself (availability, practicality, performance metrics), type of proposed operation (risk of aerosolization), preferences of the surgical team (surgeons, anesthesiologists, and nurses), centre-specific characteristics (policies, facility size, surgical volumes, availability of personal protective equipment), and surgical population (age, comorbidities, COVID-19 prevalence rate).

Recent research has raised concerns about increased risks of pulmonary complications and mortality in COVID-19–infected patients, whether they are asymptomatic or presymptomatic at the time of elective surgery.[6,7] Although many infected patients are completely asymptomatic or have a few minor symptoms, they have significantly increased perioperative morbidity and mortality. Furthermore, they pose an infection risk to all hospital personnel and other patients they come into contact with during their hospitalization. Recently, the Misericordia Community Hospital in Alberta had to be closed and all elective surgeries were canceled for a second time due to a hospital-wide COVID-19 outbreak.

Direction from public health, specifically in Canadian centres, has not included mandatory COVID-19 testing of asymptomatic patients who are considered low risk on screening prior to elective surgery.[8] While prescreening can identify some people who are at increased risk of harboring COVID-19 infection and warrant preoperative testing, it has not been shown to be effective or to protect patients or their health care providers when compared with mandatory testing. Routine preoperative testing of elective surgical patients has been recommended in guidelines issued by many surgical organizations.[9,10] At the height of the pandemic in New York City, 99 orthopaedic surgical patients were screened and also underwent nasopharyngeal swab testing for COVID-19. Seven of 12 patients (58.3%) who were found to be infected with COVID-19 were completely asymptomatic; however, even the asymptomatic patients suffered from a higher incidence of postsurgical pulmonary complications than would otherwise be expected.[11] Based on similar observations, researchers from Italy concluded that surgery should be postponed in COVID-19–infected patients whenever possible.[12] Thus, the possibility of patients undergoing elective surgery when unknowingly infected with COVID-19 represents a critically important preoperative concern.

Modeling risk

We modeled the likelihood of operating on a COVID-19–infected patient based on assumptions regarding COVID-19 prevalence in the population. Current prevalence data from Canada and other countries, which ranged from a low of 0.01% to a high of 0.30% prevalence, were used to form the model's assumptions. These rates reflect current findings from member countries of the Organisation for Economic Co-operation and Development, whereas according to the Worldometer, as of 12 January 2021, the prevalence of active cases was 0.20% in Canada and 2.74% in the United States. At a local active case prevalence of 0.20%, for every 500 surgeries conducted in a hospital, the risk of operating on at least one person with COVID-19 is 77%.

According to the Canadian Institute for Health Information, between 1 February and 30 April 2019, approximately 475 000 operations, or 37 000 per week, were performed in Canada, excluding Quebec. While it is not known what proportion of these planned operations were considered emergent and had to be performed regardless of patient COVID-19 infection status, based on our assumption of a 0.20% active case prevalence in Canada and extrapolating from 2019 Canadian surgical volumes, more than 70 patients with COVID-19 are likely to be operated on weekly.

COVID-19 has been shown to significantly increase morbidity and mortality among surgical patients.[6] Fifty-three percent of COVID-19–infected patients are assumed to have pulmonary complications, and their death rate is assumed to be 25%; among COVID-19–infected patients who do not experience pulmonary complications, the death rate is assumed to be 9%. These outcomes are compared with the assumption that 15% of operative cases have pulmonary complications, and pulmonary complication-related deaths account for 5%, whereas the death rate among patients without pulmonary complications is 1%. The difference between the two models represents the "excess" deaths attributable to increased morbidity and mortality of COVID-19–infected patients who have undergone surgery.

The **Figure** illustrates the excess, or avoidable, deaths in a non-testing environment, assuming 37 000 planned surgeries per week in

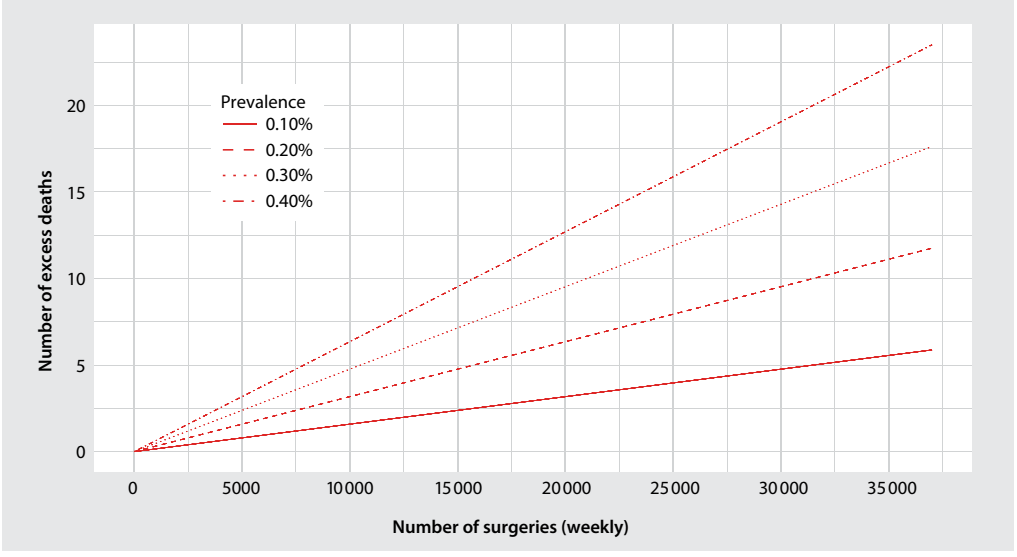


FIGURE. Estimated number of excess deaths of COVID-19–infected surgical patients in the absence of preoperative testing.

Canada (excluding Quebec). Assuming the prevalence of COVID-19 infection cases is 0.20%, the number of excess deaths is estimated to be 11.7. It is important to note that the number of excess deaths is an underestimation because surgical case volumes for Quebec were not included, and COVID-19 preoperative testing methodologies are currently evolving and may not diagnose all infected cases. Further, if the true Canadian prevalence rate is higher (e.g., 0.40%) due to variable testing practices or a lack of testing among asymptomatic Canadians, it is expected that the number of excess deaths will exceed 23.5. The impact of vaccination, and the presence of viral variants, on perioperative COVID-19–related mortality and morbidity, and whether it should influence preoperative testing protocols, is not established and warrants further study.

Summary

Government policymakers, hospitals, surgeons, other medical personnel, and patients must reckon with the knowledge that even at the lowest COVID-19 prevalence rates, without preoperative testing, infected people will undergo elective surgery and have an increased risk of avoidable morbidity and mortality; they will also present an avoidable risk of transmission to hospital staff.

Currently, no province has a mandate to routinely test elective surgical patients for COVID-19 preoperatively. Based on our analyses, we recommend that provinces and hospitals mandate preoperative testing for planned operations to prevent avoidable surgical complications and patient mortality. ■

We recommend that provinces and hospitals mandate preoperative testing for planned operations to prevent avoidable surgical complications and patient mortality.

Competing interests

None declared.

References

1. Aminian A, Safari S, Razeghian-Jahromi A, et al. COVID-19 outbreak and surgical practice: Unexpected fatality in perioperative period. Ann Surg 2020;272:e27-e29.
2. Li Y-K, Peng S, Li L-Q, et al. Clinical and transmission characteristics of Covid-19 – A retrospective study of 25 cases from a single thoracic surgery department. Curr Med Sci 2020;40:295-300.
3. British Columbia Ministry of Health. A commitment to surgical renewal in BC. Coronavirus COVID-19. 7 May 2020. Accessed 25 February 2021. www2.gov.bc.ca/assets/gov/health/conducting-health-research/surgical-renewal-plan.pdf.
4. Kruse FM, Jeurissen PPT. For-profit hospitals out of business? Financial sustainability during the COVID-19 epidemic emergency response. Int J Heal Policy Manag 2020;9:423-428.
5. Nepogodiev D, Omar OM, Glasbey JC, et al. Elective surgery cancellations due to the COVID-19 pandemic: Global predictive modelling to inform surgical recovery plans. Br J Surg 2020;107:1440-1449.
6. COVIDSurg Collaborative. Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: An international cohort study. Lancet 2020;396:27-38.
7. Nahshon C, Bitterman A, Haddad R, et al. Hazardous postoperative outcomes of unexpected COVID-19 infected patients: A call for global consideration of sampling all asymptomatic patients before surgical treatment. World J Surg 2020;44:2477-2481.
8. British Columbia Centre for Disease Control, British Columbia Ministry of Health. Infection prevention and control (IPC) protocol for surgical procedures during COVID-19: Adult. Coronavirus COVID-19. 21 May 2020. Accessed 25 February 2021. www.bccdc.ca/Health-Professionals-Site/Documents/COVID19_IPCProtocolSurgicalProceduresAdult.pdf.
9. Dowdy S, Fader AN. Surgical considerations for gynecologic oncologists during the COVID-19 pandemic. Society of Gynecologic Oncology. Accessed 25 February 2021. www.sgo.org/wp-content/uploads/2020/03/Surgical_Considerations_Communique.v14.pdf.
10. American College of Surgeons. Local resumption of elective surgery guidance. 17 April 2020. Accessed 25 February 2021. www.facs.org/covid-19/clinical-guidance/resuming-elective-surgery.
11. Gruskay JA, Dvorzhinskiy A, Konnaris MA, et al. Universal testing for COVID-19 in essential orthopaedic surgery reveals a high percentage of asymptomatic infections. J Bone Joint Surg Am 2020;102:1379-1388.
12. Doglietto F, Vezzoli M, Gheza F, et al. Factors associated with surgical mortality and complications among patients with and without Coronavirus disease 2019 (COVID-19) in Italy. JAMA Surg 2020;155:1-14.

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Delay in diagnosis and management of adolescent anterior cruciate ligament injuries in patients with lower socioeconomic status

Reconstructive surgery for anterior cruciate ligament injuries in adolescents with lower socioeconomic status may have been delayed because their families had less capacity to seek multiple medical opinions and were less likely to be able to afford privately funded services such as physiotherapy and private advanced imaging.

ABSTRACT

Background: Anterior cruciate ligament (ACL) injuries are common in physically active adolescents. Delayed treatment of these injuries is associated with increased intra-articular pathology. This study aimed to identify the patient factors associated with delayed ACL reconstruction in adolescents, the relationship between time to ACL reconstruction and frequency of intra-articular pathologies, and the barriers to timely access to treatment of ACL injuries in a publicly funded health care system.

Methods: A retrospective chart review was conducted for adolescents undergoing primary ACL reconstruction at a tertiary care pediatric hospital. Data on patient demographics, physiotherapy, income, and intraoperative status of cartilage were collected, and time from injury to orthopaedic referral, consult, and ACL reconstruction were calculated. Federal census data were used to determine the patients' socioeconomic status. A multivariate linear regression model was used to identify the association between time to ACL reconstruction and the patient's sex, age, family income, and distance to hospital. The model was run for each of the four time variables: injury to ACL reconstruction, injury to orthopaedic referral, referral to orthopaedic consultation, and consultation to ACL reconstruction. A logistic regression model was used to determine whether delayed reconstructive surgery led to higher likelihood of intra-articular pathology. Delayed time to ACL reconstruction was considered to be more than 180 days after injury.

Results: Eighty-three patients were identified. Mean time from injury to reconstruction was 286 days. Although no association was found between time to ACL reconstruction and frequency of medial or lateral meniscal tear or articular cartilage damage, most patients had experienced delayed treatment and had meniscal or articular cartilage damage at the time of ACL reconstruction. Income was the only variable that had a significant effect on time to ACL reconstruction. For every $10 000 increase in income, time to ACL reconstruction was reduced by 20.9% (43 days).

Conclusions: Most adolescent patients are having delayed ACL reconstruction, potentially contributing to increased frequency of intra-articular pathology. Increased income was associated with a significant decrease in time to ACL reconstruction. Further research is needed to determine why patient socioeconomic status was associated with differential access to ACL reconstruction within a publicly funded health care system.

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Background

Anterior cruciate ligament (ACL) rupture is a common sporting injury in physically active adolescents.[1] The incidence of this injury has been increasing over the last 20 years,[2] likely due to increased sporting involvement among adolescents and improved diagnostic techniques.[3,4] ACL rupture is frequently associated with

articular cartilage damage and meniscal tears, which contribute to degenerative changes in the joint over time.[5,6] Historically, there was considerable concern that ACL reconstruction in skeletally immature patients could damage the physis and cause associated growth abnormalities.[7] However, more recent evidence has shown that ACL reconstruction can be done safely and effectively with techniques that protect the actively growing physis.[8-10] Surgical reconstruction for adolescent and pediatric ACL rupture is now considered standard care.[11,12] In young, active patients, nonoperative management or planned delayed ACL reconstruction often results in recurrent episodes of instability due to a lack of adherence to activity modifications and bracing.[13] A delayed ACL rupture diagnosis similarly leads to recurrent episodes of instability due to a lack of knowledge that activity modification, bracing, or surgical reconstruction is needed. With each episode of instability, the patient is at risk of causing further damage to intra-articular structures, including the meniscus and articular cartilage.[14] Thus, delaying ACL reconstruction in adolescents leads to higher incidence and severity of medial meniscal tears[5] and irreparable chondral damage at the time of surgery.[10,14]

A family may elect to delay ACL reconstruction due to a variety of patient considerations. However, often the delay from injury to ACL reconstruction is related to a delay in diagnosis, access to specialist consultation, or access to operating room time. Patient factors, injury mechanism, and model of health care delivery can all contribute to the timing of diagnosis and definitive management after ACL rupture.[15,16] Socioeconomic status has also been found to be an important factor in the use of orthopaedic resources and access to treatments.[17-19] Specific patient factors that contribute to delayed ACL reconstruction and the consequences of this delay in a publicly funded health care system are poorly understood. The aim of this study was to identify patient factors associated with delayed ACL reconstruction in adolescents, understand the relationship between time to ACL reconstruction and frequency of intra-articular pathologies, and describe barriers to timely access to care for ACL injuries in a publicly funded health care system. Identifying and clearly defining risk factors that contribute to late presentation and reconstruction of ACL ruptures in adolescents will aid in screening, detection, and improvement of patient outcomes.

Often the delay from injury to ACL reconstruction is related to a delay in diagnosis, access to specialist consultation, or access to operating room time.

Methods

This was a retrospective case series. Following institutional review board approval, consecutive patients who had undergone ACL reconstruction at a single tertiary care pediatric hospital were identified. Inclusion criteria were children and youth less than 18 years of age who had undergone ACL reconstruction between 2014 and 2018. Patients were excluded if they had undergone a revision ACL reconstruction during that period. Information collected included the patients' date of birth, sex, sport involvement, side of involvement, history of prior injury, and history of physical therapy prior to orthopaedic consult. Presence of articular cartilage damage or meniscal pathology was determined by review of the intra-operative surgical report. To assess socioeconomic status, federal census data were used to estimate mean after-tax individual income by postal code. Time variables recorded included date of injury, referral for orthopaedic consult, MRI, orthopaedic consult, and surgery.

Descriptive statistics were used to analyze differences between patients who had presented early after ACL injury and those with a delayed presentation. A multivariate linear regression model was used to determine the association between time to reconstructions (log transformed) and the patient's sex, age, family income, and distance to hospital. The model was run for each of the four time variables: injury to reconstruction, injury to orthopaedic referral (W0), referral to orthopaedic consult (W1), and consult to reconstruction (W2). A P value of < .0125 was considered significant to correct for the four independent models evaluated. A logistic regression model was used to determine whether delayed reconstructive surgery led to a higher likelihood of intra-articular pathology. A P value of < .05 was considered significant. Delayed time to ACL reconstruction was defined as more than 180 days after injury. All analyses were conducted using SAS (version 9.4).

Results

Eighty-three patients were identified and had a mean age of 14.7 years (range 9–17) **[Table 1]**. Fifty-five patients were female (66.3%). Fifty-three patients (63.9%) had meniscal or articular cartilage damage at the time of ACL reconstruction. Twenty-one patients (25.3%) had medial meniscal tears; 36 (43.4%) had lateral meniscal tears. Forty-six patients (55.4%) had received physiotherapy prior to reconstruction, and 5 (6.0%) had not; history was missing for the remaining 32 (38.6%) patients. At the time of injury, 76 patients (91.6%) were playing sports: the most common sports included soccer (23, 27.7%), basketball (12, 14.4%), skiing (5, 6.0%), volleyball (4, 4.8%), running (3, 3.6%), and trampoline (3, 3.6%). Of the remaining patients, 6 were involved in non-sport activities at the time of injury, and for one patient, the mechanism of injury was unknown.

Mean time from injury to reconstruction was 286 days, injury to referral (W0) was 80

TABLE 1. Demographics.

Variable	Study cohort (N = 83)
Sex (no.)	
Female	55 (66.3%)
Male	28 (33.7%)
Mean age (years)	14.7
Side of involvement	
Right	43 (51.8%)
Left	40 (41.2%)
Mean after-tax individual income	$40 092 (SD 9590)

days, referral to consult (W1) was 30 days, and consult to reconstruction (W2) was 161 days **[Table 2]**.

Fifty patients (60.2%) were treated more than 180 days after injury. There was no significant effect of patient sex, age, or distance from home address to hospital on time to reconstruction, but individual income did have a significant effect **[Table 3]**. For every $10 000 increase in individual income, time to reconstruction was reduced by 20.9%. Using the median time to reconstruction of 223 days, this represents a decrease of 47 days for every $10 000 incremental increase in income. When time from injury to reconstruction was divided into W0, W1, and W2, individual income showed a significant effect on time from injury to referral (W0) **[Table 3]**, with a decrease of 43.8% for every $10 000 incremental increase in individual income. No association was found between income and W1 or W2 **[Table 3]**. No association was found between time to ACL reconstruction and odds of medial or lateral meniscal tear or articular cartilage damage **[Table 4]**.

Interpretation

Most ACL reconstructions conducted at the publicly funded pediatric tertiary care hospital in this study were delayed. In 60.2% of patients, ACL reconstruction was performed more than 6 months after the initial injury. This type of delay was previously documented at another Canadian centre, where mean time from injury to ACL reconstruction was 342 days (range 42–1637).[20] This is similar to our mean of 286 days (range 51–1623). Times from injury to reconstruction at American medical centres are considerably shorter than those reported at Canadian medical centres. One US study reported a mean time to ACL reconstruction of 101 days;[5] other studies reported that 65% of patients were treated in less than 150 days,[21] and 59% were treated within 90 days.[14]

We were able to better understand the discrepancy in access to ACL reconstruction between Canada and the United States by analyzing the time from ACL injury to reconstruction in our study based on three separate time segments: injury to orthopaedic referral (W0), referral to orthopaedic consultation (W1), and consultation to ACL reconstruction (W2). The

TABLE 2. Wait time variables.

Variable	Mean	SD	Range
Injury to reconstruction	286 days	240.62	51–1623
Injury to referral (W0)	80 days	145.95	0–1030
Referral to consult (W1)	30 days	34.45	0–230
Consult to reconstruction (W2)	161 days	143.50	16–759

TABLE 3. Effect of sex, age, income, and distance to hospital on time variables.

Injury to reconstruction (total wait)

Variable	Comparison	Time ratio	95% CI		*P* value
Sex	M > F	1.1207	0.8013	1.5674	0.5010
Age	per year	0.9938	0.9019	1.0950	0.8983
Individual after-tax income*	per 10 k	0.7914	0.6739	0.9292	0.0048
Distance	per 100 km	1.0329	0.9765	1.0926	0.2544

Injury to referral (W0)

Variable	Comparison	Time ratio	95% CI		*P* value
Sex	M > F	0.6987	0.3266	1.4945	0.3475
Age	per year	0.9823	0.7984	1.2084	0.8627
Individual after-tax income	per 10 k	0.5619	0.3852	0.8197	0.0036
Distance	per 100 km	1.1592	1.0187	1.3190	0.0259

Referral to consult (W1)

Variable	Comparison	Time ratio	95% CI		*P* value
Sex	M > F	0.7569	0.3965	1.4447	0.3912
Age	per year	1.0229	0.8669	1.2070	0.7848
Individual after-tax income	per 10 k	0.8022	0.5940	1.0833	0.1470
Distance	per 100 km	1.0901	0.9449	1.2576	0.2316

Consult to reconstruction (W2)

Variable	Comparison	Time ratio	95% CI		*P* value
Sex	M > F	1.1025	0.7474	1.6264	0.6187
Age	per year	0.9950	0.8892	1.1134	0.9302
Individual after-tax income	per 10 k	0.8489	0.7047	1.0225	0.0836
Distance	per 100 km	1.0305	0.9655	1.0998	0.3610

*Red text indicates significance ($P < 0.0125$).

TABLE 4. Effect of time to anterior cruciate ligament reconstruction on odds of intra-articular damage.

Variable	Odds ratio	95% CI		*P* value
Odds intra-articular damage: Total wait	0.698	0.368	1.325	0.271
Odds meniscal tear: Total wait	0.825	0.443	1.539	0.546
Odds articular cartilage tear: Total wait	0.462	0.211	1.013	0.054

longest mean wait times and standard deviations were recorded in W0 (80 [146] days) and W2 (161 [144] days) **[Table 2]**. The long W0 time may suggest a delay in presentation, in diagnosis by the initial health care provider, or in obtaining advanced imaging. The large standard deviation for this variable suggests that some patients were accessing health care resources better than others. The long W2 time may reflect a variation in management due to physiologic differences (swelling, stiffness, skeletal immaturity, concomitant injuries), availability of operating room time, scheduling conflicts due to the child's schooling, or lack of surgeon availability. The large standard deviation for this variable was likely related to differences in clinical patient factors. We did not identify any discrepancies in access to health resources based on socioeconomic status that would explain the variability in W2 among patients. Many of those delays can be attributed to insufficient funding or resources within the Canadian health care system. However, the discrepancies in access to health resources in W0 suggest there was systematic discrimination against patients with lower socioeconomic status.

Our analysis showed that an increase in individual income was associated with a significant decrease in time from injury to ACL reconstruction. When neighborhood-level individual income was used to reflect patient socioeconomic status, every $10 000 increase in income was associated with a 20.9% reduction in time to ACL reconstruction. However, socioeconomic status affected only the W0 time variable: for every $10 000 incremental increase in individual income, time from injury to referral decreased by 43.8%. Delay in referral to a specialist was often related to missed diagnosis of ACL tear after initial injury, failure to present to a medical practitioner, or reduced access to advanced imaging modalities. We hypothesize that the effect of income on time to orthopaedic referral was due to reduced access to musculoskeletal specialists (e.g., sports medicine clinics), health care resources, privately funded physiotherapy, or private MRI. In a publicly funded system that is often functioning at or above capacity, patient advocacy from the family and medical practitioner is often necessary to obtain appropriate care in a timely fashion. Our findings suggest that children and adolescents from families with lower socioeconomic status may have less support or capacity to seek multiple medical opinions, private physiotherapy, or private advanced imaging, which can contribute to a delay in diagnosis and an increase in W0. These patients are also less likely to have parental support or capacity for multiple outpatient visits, which require time off work, or the insurance and/or money necessary to pay for privately funded services.

Our analysis showed that an increase in individual income was associated with a significant decrease in time from injury to ACL reconstruction.

Discrepancy in access to health care based on socioeconomic status has also been found in American adolescent patients with ACL injuries. Patel and colleagues found that children in the United States who had no private health insurance coverage and relied on government health care had delayed ACL reconstructive surgery compared to children with private coverage.[15] Individual income was also a significant and independent predictor of ACL reconstruction timing, with patients with lower socioeconomic status experiencing delays in treatment. In contrast to our study, Patel and colleagues found an association between socioeconomic status and time from initial orthopaedic evaluation to surgical reconstruction. The authors speculated that this was due to reduced access to care, familial resources, and social support.[15] In our publicly funded health care system, all patients have equal access to specialist consultation (time to consultation from referral) and surgical reconstruction (time to reconstruction from consultation) independent of socioeconomic status; however, further work is needed to address discrepancies in access to resources for early diagnosis of injuries.

By understanding the timing of delay in management of adolescent ACL injuries and the patients at risk of experiencing those delays, attention can be focused on initiatives to address those gaps in care. Improving W0 for all patients could be achieved without significant increased cost of care or health care resources. Education on ACL injuries in adolescents that is aimed at parents, coaches, and primary care health practitioners would likely improve W0 by reducing the time to diagnosis and improving the quality of orthopaedic referrals, which could lead to an additional decrease in W1. Educational initiatives for primary care physicians would help them recognize the importance of accurate and timely diagnosis of adolescent acute knee injuries. This would result in an increase in appropriate referral for advanced imaging and specialist care after an initial patient presentation. Likely, these initiatives would have the greatest effect if they were implemented during medical training and provided easily accessible resources for knowledge acquisition and skill development (physical examination). There is a discontinuity between the amount of time spent on musculoskeletal teaching during medical training and the volume of musculoskeletal pathology seen in a typical primary care practice. Although a large proportion of visits to primary care providers involve musculoskeletal issues, many physicians feel this is not adequately addressed in their medical undergraduate training.[22] A summary of current recommendations for the diagnosis of adolescent ACL injuries for primary care providers is provided in **Table 5**.[23-26]

Several studies have shown an association between increasing time from injury to reconstruction and frequency and severity of intra-articular pathology.[5,12,14,19-21,27] A systematic review and meta-analysis of ACL reconstruction and associated medial meniscal and articular cartilage damage in children and adolescents that was conducted in 2018 showed a significant reduced risk of concomitant medial meniscal injury in patients with early ACL reconstruction (26%) compared to those with delayed ACL reconstruction (47%). There was also a reduced risk of chondral damage in the early versus late ACL reconstruction groups.[11] We did not find an association between time to ACL reconstruction and odds of intra-articular pathology. However, treatment of most of our

TABLE 5. Adolescent anterior cruciate ligament injury diagnosis recommendations for primary care providers.

Provide injury prevention education to highly active adolescents, their parents, and coaches	Certain injury prevention programs have been well established in the pediatric population, including FIFA 11+.[23] These programs should target athlete biomechanics, using strength, plyometric, and sports-specific agility exercises.[24]
Acute knee injury diagnosis	History: • Twisting or contact acute knee injury obtained during high-risk sports (skiing or cutting sports such as soccer, football, volleyball, etc.). • Recurrent episodes of instability/giving way with activity. • Acute period of knee swelling with stiffness and possible difficulty weight-bearing. Physical examination: • Large effusion/hemarthrosis within 24 hours. • Decreased range of motion—loss of terminal extension suggestive of large meniscus tear. • Ligamentous laxity—Lachman, pivot shift,[25] and anterior drawer test.
Imaging	Begin with plain knee radiographs (findings suggestive of ACL tear include presence of hemarthrosis, Segond fracture). These will also assist in ruling out other intra-articular pathology/fractures. An MRI should be obtained in all adolescent patients presenting with an acute hemarthrosis or recurrent episodes of instability.[26]
Referral to specialist	Urgent referral to a musculoskeletal specialist should be made for all adolescent patients with an acute hemarthrosis or loss of terminal extension after an acute knee injury, recurrent episodes of instability/giving way, or concern of ligamentous knee injury.

patients was delayed (60.0% to 87.0% depending on the definition of *delayed*),[5,21,28] and the frequency of meniscal tears and articular cartilage damage was reflective of this finding: 53 patients (63.9%) had meniscal or articular cartilage damage at the time of ACL reconstruction. This is further support for what has already been established in the literature: delayed reconstruction leads to increased intra-articular pathology, likely due to ongoing instability. It is important to advocate for more medical resources for adolescent acute knee injuries to try to reduce the time to ACL reconstruction for all patients and prevent irreversible intra-articular damage when access to resources is delayed.

Limitations and future directions

Due to the retrospective nature of our study and gaps in our data, we were unable to identify a relationship between access to private health care services and time to ACL reconstruction. We hypothesized that history of access to physiotherapy could be used as a surrogate for socioeconomic status and overall family support. More than half the patients (55%) in this study had access to a physiotherapist prior to surgical reconstruction. However, no association was found between access to physiotherapy and time to ACL reconstruction. This possibly is related to the inherent challenges of retrospective data collection, as no history on access to physiotherapy was available for 39% of patients. We similarly hypothesized that access to private MRI would reduce time to ACL diagnosis and reconstruction. However, due to incomplete MRI data, we were unable to investigate this further. This is an area that will be assessed in future prospective studies.

Geographic-based census data were used to estimate patient socioeconomic status, which contributed to an ecological fallacy. A number of studies have used census data to predict socioeconomic status.[12,15,18,29] However, it is possible that incomes estimated using this method were not always reflective of patient socioeconomic status. The estimates are based on average income for a given geographic region. It is possible that some of the delay in treatment of ACL injuries could be related to challenges in accessing health care resources in a given geographic region. However, distance to the tertiary care hospital in our study was not associated with a delay in diagnosis and definitive management of ACL injuries. Any interaction between geographic location and access to health care is likely a complex interaction among availability of local resources, proximity to higher level care, and family socioeconomic status.

Future research is needed to provide more insight on the discrepancy between income and surgical wait time. A prospective cohort would provide more accurate information on income levels, as well as any other patient factors (such as ethnicity) related to delayed injury presentation and reconstruction. Additionally, communicating with primary health care providers about possible gaps in education on musculoskeletal injuries in pediatric populations may help identify where to target educational resources.

Conclusions

At a pediatric tertiary care hospital in a public health care system, most adolescent patients experienced delays in ACL reconstruction, which contributed to a high rate of intra-articular pathology. Increase in parental income was associated with a significant decrease in time to orthopaedic referral, which suggests there was differential access to health care resources based on patient socioeconomic status. Further research is needed to determine the specific factors that caused this discrepancy in access to health care within a publicly funded system. ■

Competing interests

Dr Leveille received a clinical research stimulus award from the BC Children's Hospital Research Institute to help cover research-related costs. None of the authors received financial support for the completion of this project.

References

1. Frobell RB, Roos EM, Roos HP, et al. A randomized trial of treatment for acute anterior cruciate ligament tears. N Engl J Med 2010;363:331-342.
2. Werner BC, Yang S, Looney AM, Gwathmey FW. Trends in pediatric and adolescent anterior cruciate ligament injury and reconstruction. J Pediatr Orthop 2016;36:447-452.
3. Beck NA, Patel NM, Ganley TJ. The pediatric knee: Current concepts in sports medicine. J Pediatr Orthop Part B. 2014;23:59-66.
4. Jaremko JL, Guenther ZD, Jans LBO, MacMahon PJ. Spectrum of injuries associated with paediatric ACL tears: An

MRI pictorial review. Insights Imaging 2013;4:273-285.
5. Millett PJ, Willis AA, Warren RF. Associated injuries in pediatric and adolescent anterior cruciate ligament tears: Does a delay in treatment increase the risk of meniscal tear? Arthroscopy 2002;18:955-959.
6. Friel NA, Chu CR. The role of ACL injury in the development of posttraumatic knee osteoarthritis. Clin Sports Med 2013;32:1-12.
7. Calvo R, Figueroa D, Gili F, et al. Transphyseal anterior cruciate ligament reconstruction in patients with open physes: 10-year follow-up study. Am J Sports Med 2015;43:289-294.
8. Dunn KL, Lam KC, Valovich McLeod TC. Early operative versus delayed or nonoperative treatment of anterior cruciate ligament injuries in pediatric patients. J Athl Train 2016;51:425-427.
9. Kocher MS, Heyworth BE, Fabricant PD, et al. Outcomes of physeal-sparing ACL reconstruction with iliotibial band autograft in skeletally immature prepubescent children. J Bone Joint Surg Am 2018;100:1087-1094.
10. Henry J, Chotel F, Chouteau J, et al. Rupture of the anterior cruciate ligament in children: Early reconstruction with open physes or delayed reconstruction to skeletal maturity? Knee Surg Sports Traumatol Arthrosc 2009;17:748-755.
11. Kay J, Muzammil M, Shah A, et al. Earlier anterior cruciate ligament reconstruction is associated with a decreased risk of medial meniscal and articular cartilage damage in children and adolescents: A systematic review and meta-analysis. Knee Surg Sports Traumatol Arthrosc 2018;26:3738-3753.
12. Vavken P, Murray MM. Treating anterior cruciate ligament tears in skeletally immature patients. Arthroscopy 2011;27:704-716.
13. Reid D, Leigh W, Wilkins S, et al. A 10-year retrospective review of functional outcomes of adolescent anterior cruciate ligament reconstruction. J Pediatr Orthop 2017;37:133-137.
14. Lawrence JTR, Argawal N, Ganley TJ. Degeneration of the knee joint in skeletally immature patients with a diagnosis of an anterior cruciate ligament tear: Is there harm in delay of treatment? Am J Sports Med 2011;39:2582-2587.
15. Patel AR, Sarkisova N, Smith R, et al. Socioeconomic status impacts outcomes following anterior cruciate ligament reconstruction status. Medicine (Baltimore) 2019;98:e15361.

Further research is needed to determine the specific factors that caused this discrepancy in access to health care within a publicly funded system.

16. McCarthy M, Dodwell E, Pan T, Green DW. Long term follow up of pediatric ACL reconstruction in New York state: High rates of subsequent ACL reconstruction. Orthop J Sports Med 2015;3:2325967115S00129.
17. Pandya NK, Wustrack R, Metz L, Ward D. Current concepts in orthopaedic care disparities. J Am Acad Orthop Surg 2018;26:823-832.
18. Jones MH, Reinke EK, Zajichek A, et al. Neighborhood socioeconomic status affects patient-reported outcome 2 years after ACL reconstruction. Orthop J Sports Med 2019;7: 2325967119851073.
19. Newman JT, Carry PM, Terhune EB, et al. Delay to reconstruction of the adolescent anterior cruciate ligament: The socioeconomic impact on treatment. Orthop J Sports Med 2014;2:2325967114548176.
20. Guenther ZD, Swami V, Dhillon SS, Jaremko JL. Meniscal injury after adolescent anterior cruciate ligament injury: How long are patients at risk? Clin Orthop Relat Res 2014;472:990-997.
21. Dumont GD, Hogue GD, Padalecki JR, et al. Meniscal and chondral injuries associated with pediatric anterior cruciate ligament tears: Relationship of treatment time and patient-specific factors. Am J Sports Med 2012;40:2128-2133.
22. Pinney SJ, Regan WD. Educating medical students about musculoskeletal problems. Are community needs reflected in the curricula of Canadian medical schools? J Bone Joint Surg Am 2001;83:1317-1320.
23. Thorborg K, Krommes KK, Esteve E, et al. Effect of specific exercise-based football injury prevention programmes on the overall injury rate in football: A systematic review and meta-analysis of the FIFA 11 and 11+ programmes. Br J Sports Med 2017;51:562-571.
24. Lauersen JB, Bertelsen DM, Andersen LB. The effectiveness of exercise interventions to prevent sports injuries: A systematic review and meta-analysis of randomised controlled trials. Br J Sports Med 2014;48:871-877.
25. Mall NA, Paletta GA. Pediatric ACL injuries: Evaluation and management. Curr Rev Musculoskelet Med 2013;6:132-140.
26. Ardern CL, Ekås G, Grindem H, et al. 2018 International Olympic Committee consensus statement on prevention, diagnosis and management of paediatric anterior cruciate ligament (ACL) injuries. Knee Surg Sports Traumatol Arthrosc 2018;26:989-1010.
27. Sommerfeldt M, Goodine T, Raheem A, et al. Relationship between time to ACL reconstruction and presence of adverse changes in the knee at the time of reconstruction. Orthop J Sports Med 2018;6:2325967118813917.
28. Hagino T, Ochiai S, Senga S, et al. Meniscal tears associated with anterior cruciate ligament injury. Arch Orthop Trauma Surg 2015;135:1701-1706.
29. Ko G, Shah P, Kovacs L, et al. Neighbourhood income level and outcomes of extremely preterm neonates: Protection conferred by a universal health care system. Can J Public Health 2012;103(6):e443-7.

Last in line: Impacts of the COVID-19 pandemic on the health and well-being of young adults in BC

Prior to the COVID-19 pandemic, young adults age 18 to 30 years in British Columbia faced a challenging social, economic, and employment landscape due to changing norms around key life transitions, increasing income inequality, and declining housing affordability. The prevailing characterization of young adults as healthy, highly social, and irresponsible is inaccurate and detrimental to pandemic recovery planning. Emerging data forecast serious impacts of pandemic response measures on the social determinants of young adult health while intensifying existing downstream effects on their health behaviors, care, and outcomes.[1] The BCCDC COVID-19 Young Adult Task Force was commissioned in response to concerning impacts to highlight areas for action to mitigate those impacts.

Young adults in BC are experiencing a severe economic crisis: the unemployment rate has more than doubled in this age group during the pandemic and has not yet recovered to prepandemic levels.[2,3] Young adults have been more likely than others to lose their job during the pandemic and many report increased difficulty meeting household financial needs.[3] Education and job training have been disrupted or delayed for many. Students report delays in program completion and challenges securing work experience (e.g., co-op opportunities).[4] Poor housing affordability contributes to overcrowded living conditions and increased risk of COVID-19 exposure. Risk of exposure is also increased due to frontline work in grocery stores, restaurants, and retail stores, as well as being last in line for the COVID-19 vaccination. Indeed, according to the BCCDC, as of April 2021, young adults represented 31% of BC individuals infected during the pandemic but only 17% (892 543) of the BC population.

Young adults experienced peak rates of mental health and substance use disorders prior to the COVID-19 pandemic and are now experiencing substantial increases in mental health concerns and stress. In a BC survey of almost 400 000 participants in May 2020, more than half (54%) of young adults reported worsening mental health at the onset of the pandemic compared to 46% of the general BC population.[3] Many young adults with mental illness report disruptions in mental health services they had accessed prior to the pandemic.[5] Although there has been an increase during the pandemic in access to crisis-oriented virtual counseling, in-person access to continuing mental health services is limited, stigmatized, expensive, or difficult for young adults to find.[3,5]

Many young adults with mental illness report disruptions in mental health services they had accessed prior to the pandemic.

Declining physical activity, escalating sedentary behavior, disruptions in sleep and nutrition, and increased substance use (alcohol and cannabis), with repercussions on emotional and physical well-being, have been reported by young adults during the pandemic.[3] The lack of structure created by work and education contribute to these problems, along with decreased access to settings, resources, and opportunities that promote healthy behaviors. For example, restrictions on parks and other public spaces particularly impact young adults, who are more dependent on them for socializing and recreation.[6] Social networks, daily routines, and mobility of young adults have also been significantly disrupted by the COVID-19 pandemic.[3]

There is an urgent need to monitor health trends, characterize health trajectories, and identify key determinants of health through ongoing, timely, and targeted longitudinal monitoring. Data are severely lacking for historically underserved populations (e.g., Indigenous and racialized groups; those living in rural, remote, and northern communities; and gender-diverse people). Engaging youth to speak to their needs and experiences will be critical in both guiding and evaluating policy, education, labor, and health-service interventions for this age group. A better understanding of the unique needs and impacts of the pandemic on young adults will enhance the ability for health care practitioners to support this population. ■

—Hasina Samji, PhD, MSc
BCCDC and Simon Fraser University

—Naomi Dove, MD, MPH, FRCPC
Office of the Provincial Health Officer of BC

—Megan Ames, PhD, RPsych
University of Victoria

—Meridith Sones, MPH
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—Bonnie Leadbeater, PhD, FRSC
University of Victoria
For the BCCDC COVID-19 Young Adult Task Force

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

References

1. Samji H, Dove N, Ames M, et al. British Columbia Centre for Disease Control Young Adult Task Force. Impacts of the COVID-19 pandemic on the health and well-being of young adults in British Columbia. 2021.

References continued on page 218

Hidden gems on the bookshelves

Libraries are normally quiet, and they have been even more so during the pandemic. The physical College Library is closed and staff are working mainly from home. However, the Library has had a virtual aspect even from its beginnings in 1906—BC physicians could access librarian support and books through the mail. Now, e-books have made the book collection all the more accessible. In the past year, 70% of new books purchased are in electronic form. Why not 100%? Several reasons: most people prefer reading physical books[1] and have deeper reading experiences, especially with longer tracts of narrative,[2] and electronic books are not always reasonably priced: e-books can be the same price as the physical item but are sometimes even 10 times more expensive. Generally, librarians weigh the anticipated use as educational or in-depth research material (physical book) versus use as a reference tool (e-book), and select the format accordingly.

Regardless of format, books often hold chapters that are gems, not necessarily heralded by a book's title. Here's a selection from recent acquisitions:

- "Hypoglycemia in the Toddler and Child," chapter in: *Sperling Pediatric Endocrinology*. 2021, e-book.
- "Thyroid Imbalance and Subfertility," chapter in: *Subfertility: Recent Advances in Management and Prevention*. 2021, e-book.
- "Nutritional Support in Esophageal Cancer," chapter in: *Esophageal Cancer: Prevention, Diagnosis and Therapy*. 2020, e-book.
- "Parkinson's Disease and Related Disorders," chapter in: *Neuropalliative Care: A Guide to Improving the Lives of Patients and Families Affected by Neurologic Disease*. 2019, e-book.
- "Culturally Appropriate Care," chapter in: *Adolescent Nutrition: Assuring the Needs of Emerging Adults*. 2020, e-book.
- "Oppression and Mental Health," chapter in: *Oppression: A Social Determinant of Health*. 2012, physical book.

Regardless of format, books often hold chapters that are gems, not necessarily heralded by a book's title.

The College Library's online catalogue (https://szasz.cpsbc.ca) lists almost 1000 electronic and 3000 physical books. Simply use a CPSBC login to view e-books, and contact the library to request physical books through the mail at www.cpsbc.ca/library/services-hours (return postage is included). ■

—Karen MacDonell
Director, Library Services

References

1. Espresso. Economist. Why printed books are still popular. 2016. Accessed 22 April 2021. https://espresso.economist.com/21e8cadba9839cd22bc29597866632e3.
2. Mangen A, Olivier G, Velay J-L. Comparing comprehension of a long text read in print book and on Kindle: Where in the text and when in the story? Front Psychol 2019. doi: 10.3389/fpsyg.2019.00038.

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

Continued from page 217

2. Statistics Canada. Unemployment rate, participation rate, and employment rate by type of student during school months, monthly, unadjusted for seasonality. Accessed 30 April 2021. www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410002101&pickMembers%5B0%5D=1.11&pickMembers%5B1%5D=4.1&pickMembers%5B2%5D=5.2&cubeTimeFrame.startMonth=02&cubeTimeFrame.startYear=2020&cubeTimeFrame.endMonth=03&cubeTimeFrame.endYear=2021&referencePeriods=20200201%2C20210301.
3. BC Centre for Disease Control. BC COVID-19 R1 2020 SPEAK Survey. 2020.
4. Toronto Science Policy Network. COVID-19 graduate student report: The early impacts of COVID-19 on graduate students across Canada. 2020. Accessed 24 February 2021. www.toscipolicynet.ca/covid19-report.
5. Hawke LD, Barbic SP, Voineskos A, et al. Impacts of COVID-19 on youth mental health, substance use, and well-being: A rapid survey of clinical and community samples: Répercussions de la COVID-19 sur la santé mentale, l'utilisation de substances et le bien-être des adolescents : un sondage rapide d'échantillons cliniques et communautaires. Can J Psychiatry 2020;65:701-709.
6. Dewis G. Access and use of parks and green spaces: The potential impact of COVID-19 on Canadian households. Statistics Canada; 2020. Accessed 24 February 2021. www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00031-eng.htm.

Obesity as chronic disease

The term *chronic disease* has been defined by several public health agencies, including the CDC and WHO. While somewhat varied, the definitions generally agree that chronic diseases have complex etiologies, are of long duration, and progress slowly. They are associated with functional impairment or disability and while they cannot be cured, they can be managed.

The 2020 "Obesity in Adults: A Clinical Practice Guideline" states that obesity is a complex chronic disease in which abnormal or excess adiposity impairs health, increases the risk of long-term medical complications, and reduces lifespan.[1] Many adiposity-related conditions, such as diabetes, hypertension, and cardiovascular disease, are recognized as chronic diseases. The guideline emphasizes the limitations of using BMI to define obesity and advocate for novel approaches that incorporate the requirement that individuals not only have an elevated BMI but also experience health consequences (metabolic, physical, and psychological parameters) as a result of excess adiposity.[2] The guideline also clarifies that obesity management is primarily about the improvement of the health and well-being of patients, not just about weight loss. It acknowledges that many individuals with elevated BMI are physically and mentally healthy, and not at the same risk for complications. This aligns with the standard definition of the term *disease*, which refers to "any *harmful* deviation from the normal structural or functional state of an organism."[3]

Although many will recoil at the idea of labeling individuals with obesity as having a disease, the words we use are important in how they influence our understanding. Recognizing obesity as a disease, not an individual lifestyle choice, helps us shift the deeply held societal belief that people with obesity simply lack willpower and just need to eat less and exercise more. Even among health professionals, this intrinsic belief is prevalent and leads to bias and stigma despite extensive evidence that obesity is no more an individual choice than cancer or dementia.[4] Understanding obesity as a medical condition like any other will help relieve patients of the typical shame and blame they regularly experience. It will also help them understand that their condition is not the result of personal failure, but rather the result of a complex interplay of genetics, physiology, environment, and early life experiences; it is *not* their fault. This understanding would help alleviate the underlying mental health problems related to the guilt or shame associated with repeated failures to maintain weight loss, often unwittingly exacerbated by medical professionals. The fear of being shamed or humiliated in the doctor's office can result in patients with obesity avoiding care altogether, leading to yet other health issues.

Understanding obesity as a medical condition like any other will help relieve patients of the typical shame and blame they regularly experience.

Recognizing obesity as a chronic disease has important implications for patients. Until obesity is recognized as a chronic disease, health systems will not allocate resources to prevent and manage obesity as they do for other chronic diseases. This can increase the out-of-pocket costs that patients pay for evidence-based obesity treatments and wait times to access publicly funded treatments.

Until obesity is recognized as a chronic disease, health care professionals will not receive adequate obesity training, leading to delays in screening, diagnosis, and treatment, and needless progression of illness with deepening negative effects on quality of life. There is also the concern that patients having no other options may seek expensive treatments that are not evidence-based and are potentially harmful.

The WHO recognized obesity as a chronic disease in 1948. The Canadian Medical Association recognized obesity as a chronic disease in 2015, and several other provinces have followed suit (Yukon in 2019, Saskatchewan in 2015, Ontario in 2020, and Alberta in 2021). British Columbia has not yet taken this important step. A resolution recognizing obesity as a chronic disease within our province will help us advocate for safe, effective, sustainable management that focuses on the root causes and management of complications with the intent to improve overall quality of life for people living with obesity. ■

—Ilona Hale, MD

—Priya Manjoo, MD

References

1. Wharton S, Lau DCW, Vallis M, et al. Obesity in adults: A clinical practice guideline. CMAJ 2020;192:E875-E891.
2. Sharma AM, Kushner RF. A proposed clinical staging system for obesity. Int J Obes (Lond) 2009;33:289-295.
3. Scarpelli DG, Burrows W. Disease. Encyclopedia Britannica, 2020. Accessed 9 April 2021. www.britannica.com/science/disease.
4. Fruh SM, Nadglowski J, Hal HR, et al. Obesity stigma and bias. J Nurse Pract 2016;12:425-432.

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

Emergency preparedness project rises to the challenge with pandemic response

From left: Rhonda Eden, project lead, Dr Graham Dodd, family physician lead, and Colin Swan, Interior Health emergency management coordinator, in Sahali Terrace Nature Park overlooking Royal Inland Hospital in Kamloops.

In recent years, we've grown increasingly accustomed to emergency situations in BC. Forest fires, flooding, and other natural disasters are on the rise, and the province's hospitals have been developing their responses to these events and their effects on public health.

As the physician lead for the Thompson Region Division of Family Practice (TRDFP) with a special interest in emergency disaster management, I began thinking that the burden of such crises should not fall entirely on hospitals when there are community primary care providers that can share that burden. Dividing the load would allow hospitals to treat emergency patients when appropriate, while freeing them from tasks that might be handled by others, such as respiratory ailments caused by forest fire smoke.

The TRDFP agreed and embarked on an Emergency Preparedness and Response Project in 2019 with funding from the Shared Care Committee. In addition to me, the project team included Dr Joslyn Conley, community specialist lead; Ms Rhonda Eden, project lead; and Mr Colin Swan, Interior Health emergency management coordinator (Kamloops, Thompson Cariboo Region). Collectively, we began exploring how to integrate community care providers into emergency planning in collaboration with the health authority.

Then COVID-19 hit, and it became clear that not only was the crisis a threat to the efficient operation of our hospitals, it was also unsafe for panicked communities to gather in emergency wards en masse for everything from COVID-19 testing to asthma attacks. No matter the emergency, hospitals must continue with their work, from delivering babies to doing heart surgery. The theme of our Shared Care project became all the more relevant, because its objective was to distribute the load more equitably, preventing Interior hospitals and medical facilities from being swamped by people who could readily be helped elsewhere in the community.

The team immediately rallied to shift the focus of the project to a community emergency response. We seized the chance provided by the pandemic to help develop community resilience in real time, fostering partnerships, building networks, and facilitating effective communications. Meanwhile, the division facilitated the sharing of emergency management expertise between its partners throughout the health authority.

This response was its own form of preparedness. The division created geographical groupings of its primary care providers—forming community-wide "division member" networks that included family physicians and nurse practitioners, medical office assistants, and partners such as community specialists, allied health care professionals, and Interior Health and government representatives.

Each network identified a physician and an administrative lead, which allowed for efficient communication both upstream and downstream. When a call went out for personal protective equipment (PPE) early in the COVID crisis, for instance, health authority supplies were rapidly directed to those most in need.

The problem with emergency disaster management is that when you're in the midst of a community crisis, you don't have time to plan for a better response in the future, and immediately afterward you're exhausted from having responded as best you could. Emergencies are usually short-lived as well—they're resolved and then the community moves on. However, as a long-term public health emergency, the pandemic has been an eye-opener. While terrible on so many fronts, it has left a positive legacy in

The Emergency Preparedness and Response Project is funded by the Shared Care Committee. This article has not been peer reviewed by the BCMJ *Editorial Board.*

the aforementioned improvements—channels are open throughout the health care community, and the importance of integrating community providers into emergency planning is now abundantly clear.

When the dust settles on the pandemic, our team hopes to bring together emergency response providers from across the province, even from across Western Canada, for a symposium. The lessons we've learned over the past year, within our Shared Care project and beyond it, are that collaboration, integration, innovation, education, and funding are key to emergency management success. Ideally, BC will establish an ongoing province-wide network with a solid organizational structure and the backing of the divisions and the health authorities, merging the skills of clinical champions of emergency planning with those of community health care providers, among other crucial players. ■

—Graham Dodd, MD
Physician Lead, Emergency Preparedness and Response Project
Thompson Region Division of Family Practice

CME calendar

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

PSYCHOLOGICAL PPE, PEER SUPPORT BEYOND COVID-19

Online (Wednesdays)

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

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

Online (ongoing)

This is a short online CME course designed for family physicians and primary care providers in Canada. This course will introduce you to gbMSM health issues and implications with the intent to provide you with the knowledge and skills to improve the care of your gbMSM patients. Designed in partnership by UBC CPD and Community-Based Research Centre, Health Initiative for Men, Interior Health, Island Health, Fraser Health, Northern Health, Men's Health Initiative, Providence Health Care, and Vancouver Coastal Health. This course can be taken anytime and is divided into four lessons: (1) Social and Political Context of gbMSM health, (2) Epidemiology & Life Course, (3) Safer Spaces, Language, and Communication, and (4) Case Studies. For more information visit https://ubccpd.ca/course/gbmsm-online.

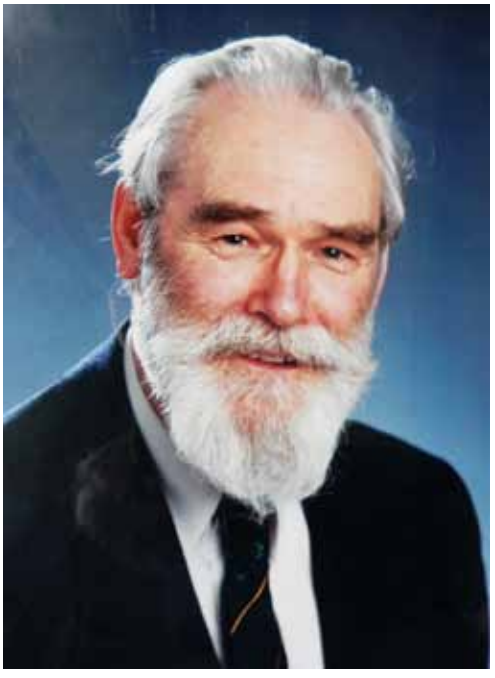
GP IN ONCOLOGY EDUCATION

Vancouver (27 Sept–29 Oct)

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

Obituaries

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



Dr Robert Lachlan MacLeod Coupe

1935–2021

Robert died peacefully after a long and rich life, 1 day short of his 86th birthday in January 2021. He was born in Manchester, England, and attended Merchant Taylors' School, where he won a state scholarship with a distinction in biology, going on to take his medical degree at the University of Liverpool. In 1958 he came to Canada, interning in St. John's, doing an internal medicine residency in Halifax, and his dermatology fellowship in Montreal. His last years of specialty training were in Minneapolis, leading to an FRCPC in 1963 and MSc 2 years later.

His passion for mountaineering then brought him to Vancouver, initially to a research position in skin tissue culture at UBC. Robert was one of the first full-time clinician scientists in dermatology in Vancouver, with his work supported by the Medical Research Council of Canada. He later transitioned to community dermatology practice in Burnaby as a clinical faculty member while providing consulting services at both Vancouver General and Burnaby Hospitals. He became an expert in clinical hair disorders and also ran our pediatric hair clinic at BC Children's Hospital. Robert enthusiastically shared his clinical expertise with residents and medical students, and we all marveled at his astute and meticulous attention to the morphologic details of skin lesions as well as his kind and reassuring manner.

For many years Robert was the only dermatologist in Burnaby, and many Burnaby residents were his patients. They might have been surprised to see him walking home through Deer Lake Park before the days of the boardwalk. When the lake flooded he rolled up his trousers and pushed on through the mud, carefully balancing his briefcase above it. After diminishing eyesight forced him into retirement, many patients still greeted him on the street. He remained the volunteer librarian for the university department's dermatology collections, some of which he personally donated.

Robert's energy, acute intelligence, and sharp memory led to many interests. He climbed many BC mountains, although the Cuillin mountain range on the Isle of Skye was his "spiritual home." These roots led him to enjoy Scottish country dancing and do extensive research on his ancestors. Robert was an accomplished scholar of William Morris, the 19th-century poet, designer, publisher, and socialist, and published his own definitive book on illustrated editions of Morris' works. That interest lives on in the *Robert Coupe Collection of Works by and about William Morris*, now in SFU Library Special Collections. Late in life, Robert expanded his inner horizons by writing five novels.

Robert was a man of principle, adhering to a life-long vegetarian diet. He also had a discriminating taste for fine wine and good honey. As in his professional career, he insisted on precision in everything, doing complex mathematical calculations in his head down to the last decimal point. Robert and his wife Rosemary were a perfect team in their large garden, she planting and he trimming back. He was a wise and kind father and grandfather. Many friends, colleagues, students, and patients held him in great affection and admiration.

—Harvey Lui, MD, FRCPC
Vancouver

—Rosemary Coupe
Burnaby

Recently deceased physicians

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

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Classifieds

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PRACTICES AVAILABLE

NORTH VAN, PORT COQUITLAM, LANGLEY—FAMILY PRACTICE/WALK-IN
FT/PT position at Integrated Wellness Medical. Experienced general practitioner or specialist looking to move their practice and expand their medical team. Be a part of our busy clinics in three central and growing locations across the Lower Mainland with fully equipped offices, EMR, and qualified support staff and management. Contact us at s.aljaf@maunsell investment.ca.

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

EMPLOYMENT

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

CANADA—ARE YOU A PHYSICIAN LOOKING FOR A NEW ROLE?
Locum, long-term, city, or rural—we have it all. Whether you are a physician looking for work across Canada, or a medical facility requiring physicians, our friendly recruitment team at Physicians for You can help. Your time is valuable. Let our dedicated years of experience in Canada and extensive knowledge of the licensure processes work for you. Our strong reputation is built on exceptional service and results. Check out our current job postings on our website and call the trusted recruitment team today. Visit our website at www.physiciansforyou.com, email info@physiciansforyou.com, or call 1 778 475-7995.

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

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

NISGA'A VALLEY—FAMILY MEDICINE IN BEAUTIFUL NISGA'A VALLEY
Family physicians needed to provide primary and urgent care

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

NORTH VAN—FP LOCUM

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

NORTH VANCOUVER—FP LOCUM

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

POWELL RIVER—LOCUM

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

SOUTH SURREY/WHITE ROCK—FP

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

SURREY—GPS AND SPECIALIST OPPORTUNITIES

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

SURREY (BEAR CREEK AND NEWTON)—FAMILY PRACTICE

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

SURREY CITY CENTRE—SPECIALISTS, RMTS, PHYSIO, DIETITIANS

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

SURREY/DELTA/ABBOTSFORD—GPS/SPECIALISTS

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

VANCOUVER—PSYCHIATRISTS WANTED

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

VANCOUVER/RICHMOND—FP/SPECIALIST

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Dr Jenn Tranmer

Dr Tranmer answers the Proust Questionnaire, telling us about her heroes, regrets, and what she values most in colleagues.

What profession might you have pursued, if not medicine?
I came close to a career in health policy and economics. In my daydreams now though, perhaps writing.

Which talent would you most like to have?
I would love to play an instrument, carry a tune, and know more languages.

What do you consider your greatest achievement?
My two girls. They challenge me tremendously, but I can't think of anything greater I could leave on this earth.

Dr Tranmer is a co-founder of Grow Health in Victoria, BC, where she practises family medicine, maternity, and newborn care. She is actively involved in teaching and was vice-chair of the South Island Division of Family Practice. She is currently the president of BC Family Doctors.

Who are your heroes?
Just about any woman who walks the face of this earth. I revel in the everyday heroes I get to meet each day at my job. The courage, bravery, strength, and warmth it takes to be a woman these days never ceases to amaze me.

What is your idea of perfect happiness?
Finding, knowing, and practising your true purpose. Getting to express all the many facets of yourself. Having love for and peace with the person who you are, and having beings around to share this with.

What is your greatest fear?
Not allowing myself to follow my heart and soul. And, of course, I'm a mom, I worry about my kids with most breaths.

What is the trait you most deplore in yourself?
Self-critique. (Ha! You have to find the irony in that!)

What characteristic do your favorite patients share?
Gratitude, empathy, patience.

Which living physician do you most admire?
Every single physician who works with me at Grow Health. Their stories, their lives, their struggles, and their passions are an inspiration every single day.

What is your favorite activity?
It's a three-way tie between vinyasa, running in the woods, and horseback riding.

On what occasion do you lie?
Some days, when patients ask, "How are you?" I say, "I'm good." Honestly, some days I'm not good. No one is good on all the days.

Which words or phrases do you most overuse?
"Please, I beg you, just eat your dinner." Or, "I'm leaving now." (I never leave then; usually it's about 30 minutes later.)

What is your favorite place?
It's a tie between the top of my kids' heads or my husband's right shoulder.

What medical advance do you most anticipate?
Improved approaches to address trauma.

What is your most marked characteristic?
Many say I am calm and thoughtful. I hope they are right.

What do you most value in your colleagues?
Trust, empathy, authenticity.

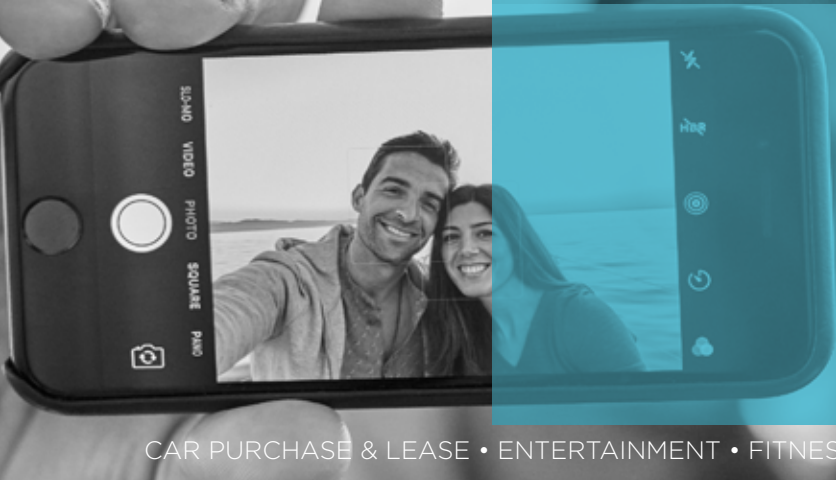
What are your favorite books?
The Artist's Way, *Daring Greatly*, *Untamed*, *Shoe Dog*, *Never Split the Difference*, *The Testaments*, and *Blindness*.

What is your greatest regret?
I had to put one of my horses down at the beginning of high school. He was my great partner. I wish I had spent more time with him in the last months. I wish I had tried harder to find a different way.

What is the proudest moment of your career?
Creating great friendships and keeping deeply in touch with the residents I have taught.

What is your motto?
Do the work when it's in front of you.

How would you like to die?
Quietly, sitting in a rocker, in my bedroom, at my home in Nicaragua. Surrounded by animals and the people I love. Staring out over the ocean, trees, birds, and flowers. ■



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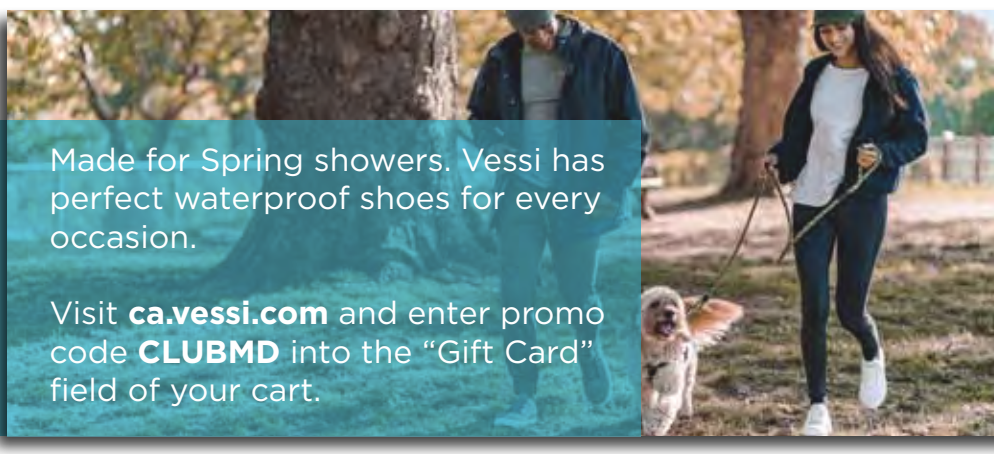

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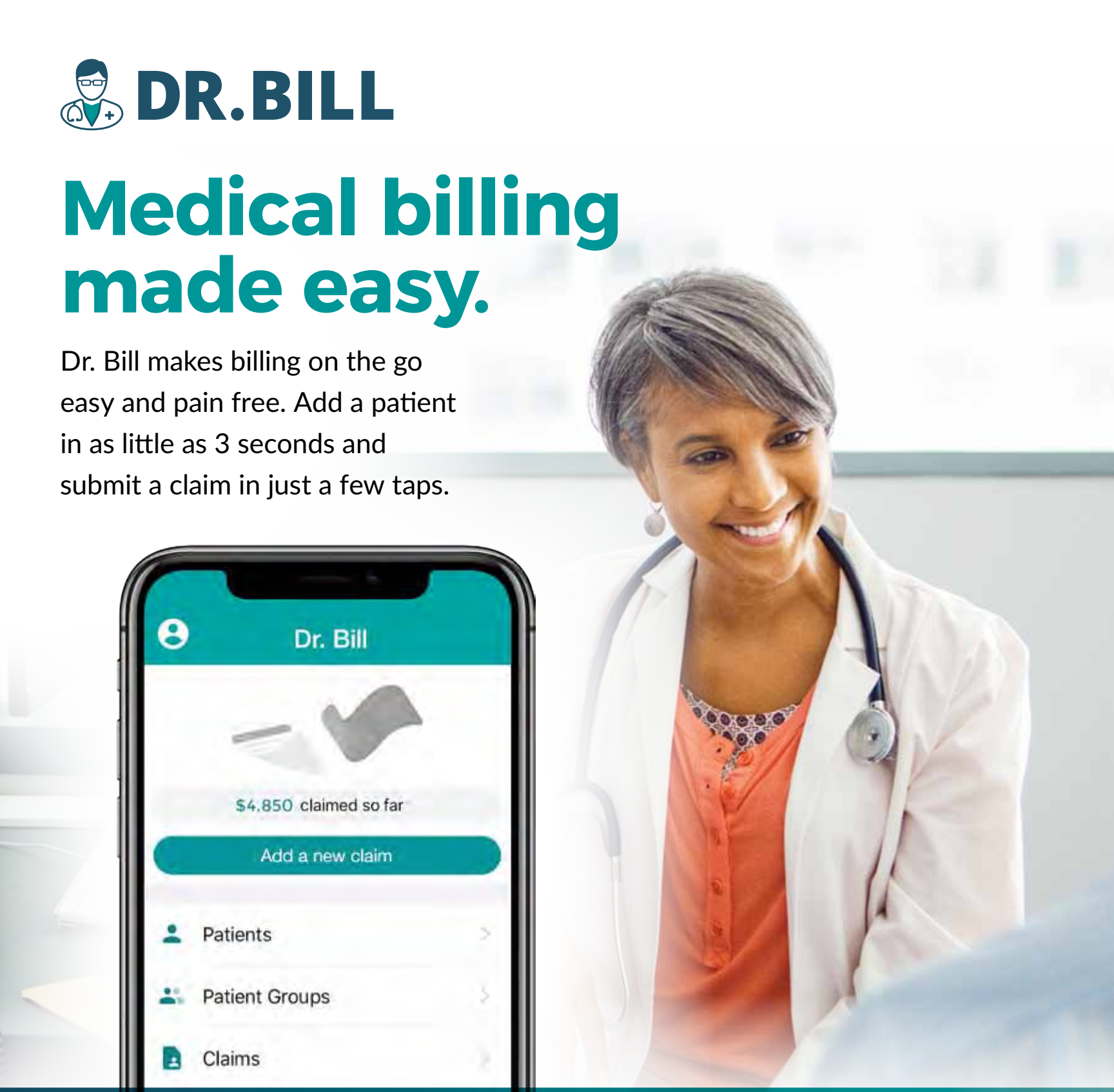

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