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Province-wide implementation of the Vancouver Chest Pain Rule

IN THIS ISSUE

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Clinical and legal guidance on how physicians can conduct capacity assessments of patients based on statutory and common laws. Article begins on page 86.

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ON THE COVER
The Vancouver Chest Pain Rule is designed to safely reduce hospital admissions of ED patients with chest pain. An organized implementation of the rule was associated with a 5.3% relative reduction in hospitalizations, which translates to 1300 fewer hospitalizations annually. Article begins on page 80.

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Established 1959

Filtering
Focusing on what went badly; ignoring what went well.

Labeling
Negative self-talk: "I'm a failure!"

Black-and-white thinking
An event was either a success or a failure, without complexity.

Control fallacy
Assuming sole blame for an adverse event: "It's all my fault."

Mind-reading
Assuming what people are thinking: "My team thinks I'm stupid!"

Catastrophizing
Anticipating the worst possible outcome: "I will be sued!"

Common thinking traps from cognitive-behavioral therapy with definitions and examples pertaining to adverse event scenarios. Article with recommendations for a novel approach of advanced psychological preparedness for adverse events begins on page 77.

CLINICAL

ORIGINAL RESEARCH

REVIEW ARTICLE

SUBCLINICAL

ORIGINAL RESEARCH

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The sleepovers

Loyal readers of this publication will recall that in 2021 and 2022 I was Mother of the Year (MOTY).[1-3] In 2023, I was the runner-up, temporarily losing my crown to Jennifer Garner when she was able to get the sugar content of her white broccoli brown sugar cookies below 1 gram while mine remained at 4 grams. Nonetheless, you can understand my confidence heading into 2024 that my children were in excellent hands.

Stating the obvious, I also assumed that other people's children were in excellent hands with me. So, when my son's 9-year-old friend chose our house to attempt his first sleepover, it seemed like the natural choice.

To make the experience unsurpassable, I began by making sure the four mandatory criteria were met: 1. Pizza: Pepperoni (if you have to ask what type of crust, you probably shouldn't be entrusted with the care of children) and also cheese pizza (to allow for last-minute changes of taste). 2. Movie: *Home Alone* (the original with the swear words) but not *The Dark Knight* (I am not *that* kind of parent). 3. Privacy: Interruptions are to be kept to a minimum (Q47-61 minutes to facilitate tech support and bubbly water refills). 4. Bedtime: Begin with an opening offer of 8:00 p.m. to give the perception of submission to the cleverer party when you settle on 9:30 p.m.

After the hangout portion of the sleepover went perfectly, I navigated bedtime with the kids, taking care to be warm but not suffocating. Both boys gave me a hug and dutifully turned out the lights after reading about the latest from my favorite role model and protagonist, Greg Heffley, in *Diary of a Wimpy Kid*. It went seamlessly, and I remarked to my husband, "See, kids just feel safe here."

Given the thoroughness of my planning, I was unsurprised when the kids awoke happy and refreshed the next morning, already planning their next sleepover. My son's friend even remarked to his mother that our house was "the best" because we let them spray whipped cream into their mouths directly from the can (organic, of course).

FIGURE. The texts my son's 9-year-old friend sent to his mom.

You can imagine the damage to my osteoporotic psyche when the boy's mom later playfully showed me his texts **[Figure]**.

Determined not to let one setback derail my bid for MOTY 2024, I offered to host two of my daughter's friends for their first sleepovers a couple months later. My daughter is 2 years younger, so, to the untrained host, this might have seemed like more of a challenge. However, the infinite wisdom of my experience has taught me that younger children, while more agile during the daylight, are more exhaustible and, therefore, fall into sleep more quickly, increasing the chances of success.

The girls' sleepover began with some free time while I carefully prepped the ingredients for Nutella chocolate chunk cookies. The three children then self-sufficiently prepared the dough while I stood guard to ensure there was no double-dipping in the Nutella jar and the mixer-driver role was allotted evenly. Following that, there was paint-by-numbers and then a movie with pizza (in this case, obviously not from the place with the pure-sugar crust and the green stuff on top).

Bedtime was a breeze with the 7-year-olds as they all read their books independently, followed by a couple of stories read by me and a quick song. (Oh, did I mention that I sing?) One of the girls had expressed some nervousness about being away from her mom, so at her request I stayed in the room for bedtime. We had been texting with the girl's mother throughout the evening, and we phoned her together at bedtime to say goodnight. A nice touch, I thought.

Naturally, I want a better life for my children than the hardships I faced during my childhood sleepovers, so I happily dragged a mattress in from another room rather than having them suffer through sharing a bed. (A sleeping bag on the floor is out of the question.) The girls fell asleep quickly, and I congratulated myself on a mission accomplished.

A long while later, as I lay on the floor

Continued on page 74

Indigeneity is healing

I am a Dakelh (Carrier) physician who grew up in Northern BC close to my traditional territories in both rural and inner-city communities. We were always with family and community, helping one another, participating in gathering traditional foods, and sharing whatever we had. Teachings like "the pride of one is the pride of all" guided me to continuously work to be the best version of myself, as I knew that I reflected onto my family and community. In turn, I knew my culture, family, and ancestors always walked with me. Many weekends were spent at celebrations and cultural revival events. During the week we would organize time for the youth to learn to bead, sew, and drum from our Elders. Even during the darkest moments, my Indigeneity and my culture provided me with the roots I needed to continue to grow. My Indigeneity is my strength and continuous source of health and healing.

The intergenerational impacts of colonialism and anti-Indigenous racism were also present in my family. I have an adverse childhood experiences score of 6/10.[1] I'm the granddaughter of a residential school survivor, and we often struggled to make ends meet. I often heard stories of my family and community members experiencing harm and discrimination when they tried to access services. I saw how my fair-skinned relatives were often treated with more dignity and respect than my darker relatives. I didn't understand that the discrimination was rooted in associating poverty, trauma, and addiction with Indigenous heritage rather than being oppressed and underserved. I wasn't alone; tragically, the outcomes of intergenerational trauma (addiction, abuse, poverty, and high rates of disease) form the most common stereotypes about Indigenous people in Canada.

When I entered medical school, lecture after lecture would identify Indigenous heritage as a risk factor for many different conditions or cite Indigenous populations as having higher rates of illness and disease. Every time, I felt a tightness develop in my chest and throat, and I felt sad and angry. It didn't feel just. I was well aware of the health disparities Indigenous people faced, and I recognized that bringing awareness was important advocacy. The injustice I felt was due to the fact that who I am as an Indigenous person, which is a source of great strength and pride for me, was being outlined as the risk factor rather than the colonial systems and structures that resulted in generations of trauma, displacement, and cultural loss for me and my family.

Medical education continues to frame Indigenous ancestry as a risk factor, and this perpetuates the narrative of Indigenous people being sick, harboring disease, and being at fault for their ill health. Although unintentional, this can form biases that Indigenous people are inferior and less deserving of care. However, there is no evidence to suggest the health disparities Indigenous people face are due to their Indigeneity at all; instead, there is a wealth of information that identifies systemic oppression, marginalization, and colonialism as the root causes of the growing health disparity gap.[2]

Conversely, having a strong Indigenous identity and connection to culture has often been found to be a protective factor for Indigenous people. For example, one study showed that the more cultural practices Indigenous youth engaged in, the lower their rates of suicide.[3] Traditional diets have been linked to improvements in health outcomes, including a reduction in chronic diseases like type 2 diabetes.[4,5] Perhaps most profoundly, the science of how trauma impacts people and how it can be healed also points to Indigenous ways of knowing and being as helping to heal. The work of Yellow Bird on neurodecolonization outlines that Indigenous cultural practices like drumming, vocalizing, loud singing/chanting, rhythmic and repetitive dancing, and being connected to nature are all powerful practices that support healing.[5] Colonial laws that outlawed and demonized our culture restricted the very practices that could help us heal.

In my last year of residency, I was burned out and struggling with the weight of the traumas I carried from before and throughout my training. At that time, I had the honor of participating in a ceremony that helped me unpack the burdens I was carrying. I received clarity that my commitment to giving back to my community now included my profession, and I couldn't do that while holding onto the pain. I returned to my rotations reinvigorated and with an open mind and heart, which helped me become a better doctor. My Indigeneity continues to be a source of great strength personally and professionally, which helps mitigate the traumatic effects of colonialism and racism. ■

—Terri Aldred, MD

References

1. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. Am J Prev Med 1998;14:245-258.
2. Allan B, Smylie J. First Peoples, second class treatment: The role of racism in the health and well-being of Indigenous peoples in Canada. Toronto, ON: The Wellesley Institute, 2015. Accessed 28 February 2024. www.wellesleyinstitute.com/wp-content/uploads/2015/02/Summary-First-Peoples-Second-Class-Treatment-Final.pdf.
3. Chandler MJ, Lalonde CE. Cultural continuity as a protective factor against suicide in First Nations youth. Horizons 2008;10:68-72.
4. Sarkar D, Walker-Swaney J, Shetty K. Food diversity and Indigenous food systems to combat diet-linked chronic diseases. Curr Dev Nutr 2019;4 (Suppl 1):3-11.
5. Reeds J, Mansuri S, Mamakeesick M, et al. Dietary patterns and type 2 diabetes mellitus in a First Nations community. Can J Diabetes 2016;40:304-310.

Continued from page 72

next to the mattress, I heard a knock at the door. I went downstairs and was confused to find one girl's father at the door. Somehow, she had maneuvered her Apple watch under the sheets to conceal the light and sent an emergency sleepover pickup SOS text. She later described to me how the process was additionally complicated when she learned that her mom "had gone out with the ladies for sushi, so she knew she'd be drinking sake, so she also had to text her dad." With ninja speed, the little girl came down the stairs, bag packed, and was out the door.

"Okay! Bye! I'll bring your cookies to school on Monday!" I called after her.

"There's no nuts allowed at school," she promptly reminded me, and closed the car door.

When I asked my daughter if she thought I was a good mom for hosting a sleepover, she told me I was "pretty okay." In her experience, the best of the moms was the one who let them push the cart at Ikea before they got to lick envelopes and put the stamps on Christmas cards. It appears that the MOTY competition is fierce this year. I am thinking of buying a puppy. ■

—Caitlin Dunne, MD, FRCSC

References

1. Dunne C. Does working part-time mean I've failed as a feminist? BCMJ 2023;65:277.
2. Dunne C. Gratitude—the Christmas gift that keeps on giving. BCMJ 2022;64:420.
3. FakeNewsPapers.com. Fake newspaper article: Local mother wins "mother of the year." Accessed 22 February 2024. https://fakenewspapers.com/products/fake-joke-newspaper-article-local-mother-wins-mother-of-the-year.

Letters to the editor

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Re: Stop, collaborate, and listen

Thank you, Dr Chahal, for your editorial "Stop, collaborate, and listen" [*BCMJ* 2024;66:5]. I would suggest that many of us in family medicine and beyond have been doing this for many years, and now that we have the Longitudinal Family Physician Payment Model, we can dust off some of the projects we've dreamed about for years that stalled and failed due to inadequate remuneration.

Here in Victoria, we have been collaborating and listening since the formation of the Victoria Division of Family Practice 13 years ago. We started with great excitement and ambition, and our community benefited enormously from the new collegiality. How many meetings did I attend in which family physicians were paid by the Ministry of Health to sit down to collaborate with each other, our specialist colleagues, and our health authority? Unfortunately, as the years rolled by, it became apparent that many of the wonderful ideas and projects that we created could not be sustained. The basic element of remuneration to sustain the time to communicate was missing, even if we painstakingly (and expensively) managed to make changes to the system to enable this communication. There was no investment in sustainable action.

For example, my colleagues and I created a care transitions committee 13 years ago to address the communication gaps our patients experience as they transition into and out of acute care. For the last 8 years we have worked with our health authority and EMR vendors to create the primary care provider patient summary, a document created by primary care physicians and uploaded into the hospital EMR. To incentivize the work, our Shared Care Committee funder paid family physicians a modest fee to create these thoughtful documents. The summaries flowed for three iterations over 7 years, and we collected good data, which showed their value to patient care.

The bad news is that, despite our best efforts, we could not find a way to sustain remuneration of this work under the fee-for-service model. When the money dried up, the summaries stopped flowing, and they currently remain at a trickle. The new Longitudinal Family Physician Payment Model has given us hope, and my colleagues and I are working with BC's Digital Health Strategy to create a provincial system that will allow this sort of information exchange for everyone.

I imagine there are many collaborative projects around BC that can now be dusted off, revitalized, and hopefully sustained. I look forward to hearing what they may be!

—Lisa Veres, MD
Victoria

A lens of hope

As doctors, we are committed to the noble cause of making things better for our patients. Hundreds of years ago, Avicenna, one of the most eminent physicians and philosophers of his time, defined a physician's key responsibility as providing hope to patients in times of distress. Today, when the health care system is facing numerous challenges and many patients struggle to access and receive care, where does the hope come from? It comes from where it always has—our commitment to making things better, together.

As part of Doctors of BC's new 5-year strategic plan, we have made it our mission to "support BC's doctors to be leaders in delivering and improving patient care." This mission statement was created to both acknowledge and emphasize the most important role doctors play in our patients' lives: providing quality, evidence-based care in a timely manner. We must put patients and their needs at the centre of every health care conversation. In an increasingly fragmented system, we also need to ensure the care we provide both is culturally safe and values every patient as an individual. The more we focus on providing care in this manner, the more we will continue to be seen as trusted leaders and partners in improving the health care system.

This model of care works. In Whistler, after years of challenges providing health care to residents, doctors came together with local community leaders to create the Whistler 360 Health Collaborative Society. This society operates a community-governed medical clinic, which alleviates the administrative burden doctors encounter in running a clinic and allows them to focus on looking after patients. With support from the Longitudinal Family Physician Payment Model, the clinic looks after 1000 more patients than it did before, increasing its capacity for patient care by 50%.

As doctors, we need to centre our conversations on our patients and the care they need and deserve.

An important part of this vision is helping doctors achieve professional satisfaction by feeling valued. Increasingly, the administrative burdens of practice have led to concerns about physician wellness and burnout. Further, focusing on these nonclinical tasks devalues physicians and decreases their connection to individual patients. In the last Physician Master Agreement, important efforts were made to decrease administrative burdens by creating a collaborative space with the Ministry of Health and health authorities, known as the Administrative Burdens Working Group. The goal is, over time, to reduce the nonclinical administrative work physicians do in order to increase their ability to provide direct patient care. The more time doctors spend with patients, the more satisfaction and joy they will experience in their work and the better health outcomes for patients will be.

As doctors, we need to centre our conversations on our patients and the care they need and deserve. This will require us to work together in new ways and collaborate with those we see eye to eye with and those who offer a different perspective. Take the referral process as an example. This was felt to be a key source of administrative burden for family doctors and consulting specialists, but through difficult conversations with each other and collaboration with the Ministry of Health via the Tariff Committee, Doctors of BC was able to deliver on major changes that will help reduce the indirect patient care workload for all doctors.

Effective leadership and partnership require trust. By focusing every conversation on how to provide patients with the best care possible, trust from the community and from our colleagues will follow. There is much work to be done, and it begins with looking at the future through a lens of hope. ■

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

The era of untruth

"Without facts, you can't have truth. Without truth, you can't have trust. Without all three, we have no shared reality, and democracy as we know it—and all meaningful human endeavors—are dead."

—Maria Ressa

The spread of misinformation is undermining the potential of the Internet as a force for good and posing serious risks to individual and societal health. Misinformation not only creates challenges to accessing and applying accurate information to support personal health decisions but also threatens to exacerbate public health crises, inequality, societal division, racism, conflict, climate change, and democracy itself.

The World Economic Forum Annual Meeting 2024 rated misinformation and disinformation (deliberate misinformation) as the most serious short-term global threat. In the hands of those with nefarious commercial, political, or personal motives, and assisted by artificial intelligence technology, global information systems are predicted to be increasingly flooded with false narratives.[1] In Canada, misinformation during the COVID-19 pandemic contributed to vaccine hesitancy, resulting in an estimated 3500 additional ICU admissions and 2800 additional deaths at a cost of $30 million.[2] The 2023 Edelman Trust Barometer found that up to 50% of respondents followed social media advice that contradicted their doctors' advice.[3]

This phenomenon is driven by increasing social media use, which is correlated with the likelihood of believing health-related misinformation or conspiracy theories.[4] Yet 55% of Canadians today rely on social media for their news. Unlike traditional media, social media content is developed and disseminated without journalistic integrity, oversight, or safeguards such as fact-checking. Technology platforms employ tactics like psychological manipulation, such as confining users within echo chambers, to boost profitability through increased clicks and shares.[2] Unfortunately, this comes at the expense of truth, given that inaccurate stories spread 6 times faster than true ones.[2]

Debunking established beliefs is possible using a respectful, empathetic approach.

Disseminators of disinformation use tactics to increase the appearance of legitimacy, citing false or discredited reports and using language or graphics designed to mimic credible sources. Scientific truths are distorted using simple, repetitive, and unambiguous messages to trigger emotional reactions. Anxiety, fear, and confusion drive people to accept false information—especially those in disenfranchised communities who have lost trust in mainstream media or science. The seemingly simple (yet false) solutions that are offered provide individuals with a sense of control and offer a target for their anger, however misdirected, particularly in times of uncertainty or insecurity.

To combat the problem at a systemic level, governments can increase support to trustworthy news media, develop media literacy education for all age groups, and broadly disseminate accurate information in effective and engaging ways. Additionally, governments can mitigate the harms of social media by regulating technology platforms to ensure greater transparency, accountability, and safety.

Individual practitioners should welcome discussions about patients' Internet use and help inoculate against susceptibility to misinformation. One approach is to recommend credible sites such as the Clarity Foundation (https://clarityfoundation.com), the United Nations' Verified campaign (https://shareverified.com), and online games like Go Viral and Bad News. Debunking established beliefs is possible using a respectful, empathetic approach (for example, saying "I get it; it's really confusing"), listening to patients' perspectives, gently exploring areas of shared values (health of family members), and being prepared to provide credible information to allow patients to do their own research.[4]

Although health professionals and scientists continue to be the most trusted sources of information, we must work to maintain that trust. Misinformation, patient fears, and conspiracy theories often grow from seeds of truth about corporate influence. Therefore, we need to continue to distance ourselves from sources of potential industry bias within our own profession and call out government when their decisions put corporate interests before public health.

Misinformation limits our ability as a society to develop a shared understanding of the problems we are facing and identify effective solutions to address them. Today, the truth matters more than ever. ■

—Ilona Hale, MD, FCFPC
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References on page 95

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Psychological preparedness for adverse events—A necessary addition to medical education

Ensuring physicians and physician trainees are psychologically prepared for adverse events could benefit patients, physicians, and the health system itself.

Clara MacDonald, MSc, MD

ABSTRACT: Adverse events in medicine are a frequent and unfortunate reality that can have a significant impact on patients and the physicians who care for them. This article provides an overview of the psychological impacts of adverse events and the role of anticipatory anxiety of such events on physicians and trainees. It draws from a medical student's insights and experience in relation to current literature. I propose proactive psychological preparedness as a strategy to lessen the emotional impact of adverse events and promote resilience. This approach has potential benefits to patient safety, quality, and system improvements, and a reduction of the shame-and-blame medical culture.

In an interactive online seminar I attended in April 2021, our class of second-year University of British Columbia medical students was asked to share our three biggest concerns about our upcoming clinical clerkship. Some of the most frequently occurring answers were making mistakes, hurting a patient, and prescribing incorrectly. The speakers addressed each issue in turn. When it came time to speak to the concerns related to adverse events in medicine, students were given blanket reassurance that this was largely a baseless worry given the careful supervision provided by preceptors and other hospital staff. This response dismisses realistic concerns.

Adverse events in medicine is an immense topic, and medical errors are only one component. Although there is no absolute definition in the literature, adverse events are largely considered to be any unintended complication secondary to health care intervention.[1-3] According to a Canadian study published in 2004, 7.5% of patients experience at least one adverse event during admission to an acute care hospital, nearly two-thirds of which are *not* preventable.[1] We had several patient safety seminars during our preclerkship years, but the topics of medical errors and adverse events were minimally integrated into the curriculum. At the time, it was primarily a cautionary tale. I can recall a case-based learning session in my first year where the discussion turned to diagnostic errors, and the tutor stated we "would never work again" if we made such an error. Although it was an off-the-cuff remark, it was enough to strike fear into the hearts of even the most confident among us.

Patients are the primary victims of adverse events, but caring physicians may also be deeply affected.[4] Second victim syndrome, a term first coined by Albert Wu in 2000,[5] describes the psychological impact of adverse events on physicians and other health care providers. Feelings of shame, grief, and guilt are common hallmarks of second victim syndrome[6] and may lead to chronic mental illness and burnout.[7] The state of burnout has also been associated with predisposition to medical errors,[2,7] potentially leading to a cycle of harm for vulnerable physicians and the patients they care for.

While a subset of the literature describes adverse events as primarily medical errors secondary to human fallibility,[2,7,8] there is increasing recognition that second victim syndrome is more often related to a *perceived* failure, over any objective error.[9] Second victim syndrome can occur after poor response to treatment, a suboptimal outcome, unexpected death,[10] and negative social interactions with a patient or their family.[11] Persistence of the view that adverse events always stem from human error[12] promotes a culture in which physicians experience distress over events outside of their control. Examples of impacts unrelated to human error include resource limitations, long transport times, and unpredictable biological processes. To its credit, the UBC undergraduate medical education program has instilled the importance of reflective practice through regular portfolio sessions, which take the form of individual narrative medicine journaling exercises on difficult experiences in clinical practice followed by group debriefs.

Dr MacDonald was a fourth-year medical student in the Faculty of Medicine in the University of British Columbia's Northern Medical Program at the time this article was written. Her previous research was in medical anthropology at the University of Toronto, and she is a current R1 in family medicine at the University of British Columbia in Victoria, BC.

This article has been peer reviewed.

However, these mostly respond to past difficulties faced by students, rather than acting as a form of proactive psychological preparedness education.

In collaboration with a colleague, I continued to host informal narrative medicine nights for Northern Medical Program students during my training, where I was struck by the pervasiveness of difficult emotions, self-blame, an exaggerated sense of responsibility, and under-recognition of personal exemplary contributions, especially related to events involving patient death or suboptimal outcome. These experiences have also been documented in the literature,[9,10,13,14] as is the concerning reality that second victim syndrome often goes unrecognized.[15] People may also be unwilling to discuss their experiences openly without previous training due to overwhelming shame or fear of stigmatization.[10]

There is a potential opportunity in preclinical years to prepare trainees psychologically for adverse events and thereby inoculate them against second victim syndrome. While intervention may still be helpful after exposure to an adverse event, delay allows for negative thought patterns (rumination on guilt and self-blame) to become practised and automatic. The importance of preparing physicians and trainees for adverse events and how to recognize the impact of second victim syndrome have been expressed by other authors,[3,15] and recent literature indicates a clear need. In a study of nursing students in Korea, nearly a quarter had experienced an adverse event directly, while over three-quarters had experienced one indirectly.[16] Among Italian physicians and trainees, the incidence of involvement in an adverse event was nearly 15% in medical students and 44% in residents, with 66% of these physicians in training reporting symptoms of second victim syndrome.[17] Of respondents to a survey of Irish urology trainees, nearly 90% felt their training did not sufficiently prepare them for the impact of adverse events.[4] Proactive education may also help address the psychological toll that anticipatory anxiety of adverse events has on medical students.[18]

As is true for most psychotherapy, learning healthy strategies to cope with adverse events would be most effective in a euthymic state and would take time and repetition to achieve the best therapeutic benefit.[19] Therefore, early introduction during preclinical years is the obvious choice. Increased resilience also has implications for quality of care. Resilient physicians may feel less guilt for system- or circumstance-related adverse events (e.g., transport times, resource limitations, rural location), accepting an appropriate level of responsibility with a mental state less overwhelmed by emotion and more conducive to learning and professional development. If fewer physicians are devastated by second victim syndrome, occurrences of burnout will also be reduced, which will lead to better outcomes for patients and a reduction in further adverse events. This aligns with current concepts of safety in health care, where success is more than simply the absence of failure.[20] Supporting providers prior to adverse events also addresses the shame-and-blame culture that persists in medical environments[8] and helps to counter the view that guilt equates to caring. Healthy physicians less burdened by difficult emotions may also be better able to tackle system improvements, express empathy to patients, and provide support to others following an adverse event.

Over the past few years, I have collaboratively developed an educational seminar/workshop on preparation for adverse events, which was initially presented at the Rural Coordination Centre of BC's Virtual BC Rural Health Conference 2021.[21] Further evaluation of this workshop has been made possible through a Rural Provider Preparation for Adverse Events grant, funded by the Rural Physician Research Support Project and sponsored by the Interior Health Authority. Ethics approval has been obtained, and the project was initiated in January 2024, with participants including physicians and medical, nursing, and social work students. The workshop was designed to introduce the topic of adverse events and provide tools and strategies to address them when they occur. It was held over Zoom and consisted of two groups of 15 participants, with opportunities for small-group learning, interaction, and time for questions and discussion. Our proposed tools are based on well-understood psychological principles that integrate with quality-of-care approaches. The tools include responsibility pie charts of positive and negative aspects of an adverse event, which allows learners to consider multiple factors, such as individual performance, team communication, and circumstance. We also provided strategies to develop a balanced view of performance **[Table]** and practised identifying common thinking traps **[Figure]** in stressful situations.

Our approach uses case studies to encourage guided application of tools, multidisciplinary physician and nurse participation, and emphasis on team functioning and the role of social support. Our highly adaptable tools can be used by individuals and teams and in peer-support settings. As this is a novel approach, we gathered pre- and post-intervention feedback from participants to assess the usefulness of this intervention. If this trial is a success, adaptation and dissemination to a wider audience of trainees will hopefully follow.

Adverse events will always occur in our health care system, whether because of the inherent fallibility of humans; the pressures on an underfunded system; or the difficulty of meeting the needs of a physically, spiritually, culturally, and economically diverse patient population spanning an immense area. It is time to introduce formal psychological preparation for adverse events because of the potential for improved patient care and, equally importantly, for the sake of our colleagues, friends, family, and ourselves. ■

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TABLE. Examples of self-reflections following an adverse event, implementing a balanced view.

What happened?	Emotions	What did I do well?	Balanced thought	What happened next?
A patient presented with a foot injury to a remote solo rural practice. X-rays were negative, but on follow-up, the patient was found to have a Lisfranc fracture of the forefoot. I missed the diagnosis because of a failure to order a CT scan on presentation, due to being unfamiliar with changes in the suggested approach to investigation in the correct clinical context.	Upset Guilty	Immediately sought follow-up care for my patient with a specialist and myself. Apologized sincerely to the patient with a full explanation. Learned to order a CT scan for similar injuries to the foot in the future.	I am a generally conscientious physician who developed an unperceived gap in my medical knowledge.	Apologized and made amends. Attended education sessions on orthopaedic management, which brought to light other ways that management of orthopaedic injuries had changed. Successfully diagnosed and referred in time a subsequent Lisfranc injury that had been missed by one of my locums and her resident. Notified the locum of the misdiagnosis without shame or blame.

FIGURE. Common thinking traps from cognitive-behavioral therapy with definitions and examples pertaining to adverse event scenarios.

Competing interests

None declared.

References

1. Baker GR, Norton PG, Flintoft V, et al. The Canadian Adverse Events Study: The incidence of adverse events among hospital patients in Canada. CMAJ 2004;170:1678-1686.
2. Heiss K, Clifton M. The unmeasued quality metric: Burn out and the second victim syndrome in healthcare. Semin Pediatr Surg 2019;28:189-194.
3. Carugno J, Winkel AF. Surgical catastrophe. Supporting the gynecologic surgeon after an adverse event. J Minim Invasive Gynecol 2018;25:1117-1121.
4. O'Meara S, D'Arcy F, Dowling C, Walsh K. The psychological impact of adverse events on urology trainees. Ir J Med Sci 2023;192:1819-1824.
5. Wu AW. Medical error: The second victim. The doctor who makes the mistake needs help too. BMJ 2000;320:726-727.
6. Ozeke O, Ozeke V, Coskun O, Budakoglu II. Second victims in health care: Current perspectives. Adv Med Educ Pract 2019;10:593-603.
7. Marmon LM, Heiss K. Improving surgeon wellness: The second victim syndrome and quality of care. Semin Pediatr Surg 2015;24:315-318.
8. Clancy CM. Alleviating "second victim" syndrome: How we should handle patient harm. J Nurs Care Qual 2012;27:1-5.
9. Hu Y-Y, Fix ML, Hevelone ND, et al. Physicians' needs in coping with emotional stressors: The case for peer support. Arch Surg 2012;147:212-217.
10. Davidson JE, Agan DL, Chakedis S, Skrobik Y. Workplace blame and related concepts: An analysis of three case studies. Chest 2015;148:543-549.
11. Klatt TE, Sachs JF, Huang C-C, Pilarski AM. Building a program of expanded peer support for the entire health care team: No one left behind. Jt Comm J Qual Patient Saf 2021;47:759-767.
12. Chen S, Skidmore S, Ferrigno BN, Sade RM. The second victim of unanticipated adverse events. J Thorac Cardiovasc Surg 2023;166:890-894.
13. Seys D, Scott S, Wu A, et al. Supporting involved health care professionals (second victims) following an adverse health event: A literature review. Int J Nurs Stud 2013;50:678-687.
14. Harrison R, Lawton R, Perlo J, et al. Emotion and coping in the aftermath of medical error: A cross-country exploration. J Patient Saf 2015;11:28-35.
15. Chung AS, Smart J, Zdradzinski M, et al. Educator toolkits on second victim syndrome, mindfulness and meditation, and positive psychology: The 2017 Resident Wellness Consensus Summit. West J Emerg Med 2018;19:327-331.
16. Choi EY, Pyo J, Ock M, Lee H. Second victim phenomenon after patient safety incidents among Korean nursing students: A cross-sectional study. Nurse Educ Today 2021;107:105115.
17. Rinaldi C, Ratti M, Russotto S, et al. Healthcare students and medical residents as second victims: A cross-sectional study. Int J Environ Res Public Health 2022;19:12218.
18. Nevalainen MK, Mantyranta T, Pitkala KH. Facing uncertainty as a medical student—A qualitative study of their reflective learning diaries and writings on specific themes during the first clinical year. Patient Educ Couns 2010;78:218-223.
19. Parsons CE, Crane C, Parsons LJ, et al. Home practice in mindfulness-based cognitive therapy and mindfulness-based stress reduction: A systematic review and meta-analysis of participants' mindfulness practice and its association with outcomes. Behav Res Ther 2017;95:29-41.
20. Smaggus A. Safety-I, Safety-II and burnout: How complexity science can help clinician wellness. BMJ Qual Saf 2019;28:667-671.
21. MacDonald C, Overhill K. We can be very hard on ourselves when things do not go perfectly: Rural provider preparation for adverse events. Presented at the Rural Coordination Centre of BC's Virtual BC Rural Health Conference 2021, Prince George, BC, 30 May 2021.

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Province-wide implementation of the Vancouver Chest Pain Rule

Provincial implementation of the Vancouver Chest Pain Rule was associated with 1300 fewer hospitalizations annually and fewer consultations, follow-up visits, diagnostics, and adverse cardiac events.

ABSTRACT

Background: The Vancouver Chest Pain Rule is designed to safely reduce hospital admissions of emergency department patients with chest pain. We describe the impact of provincial implementation of the Vancouver Chest Pain Rule on hospital admissions.

Methods: From 2017 to 2018, in 29 British Columbia emergency departments that had a wide range of patients and resources, we encouraged the use of the Vancouver Chest Pain Rule via a coordinated campaign that included in-person meetings, webinars, and online messaging. In a retrospective cohort, we collected all chest pain patients from 2016 to 2017 (before) and 2018 to 2019 (after) for the primary outcome of 30-day hospital admission.

Results: We collected 94 058 (before) and 90 170 (after) visits. Median ages (56), gender (female: 50%), and comorbidities were similar. The admission rate decreased from 23.7% to 22.5% (relative decrease 5.3%; absolute decrease 1.3%).

Conclusions: An organized implementation of the Vancouver Chest Pain Rule was associated with a 5.3% relative reduction in hospitalizations, which translates to 1300 fewer hospitalizations annually.

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This article has been peer reviewed.

Background

Approximately 5% of North American emergency department visits involve the evaluation of acute chest pain,[1] which translates to 90 000 annual visits for chest pain in British Columbia.[2] While few of these patients will have an acute coronary syndrome, to ensure safety, many will undergo prolonged observation and intensive testing. In low-risk patients, these tests may be unnecessary, lead to false positives, and divert resources from higher-risk patients in the emergency department. Various scoring systems have been devised to identify chest pain patients who are at low risk and can be safely discharged from the emergency department with little follow-up testing.[2-9]

In particular, use of the HEART score, which provides 6-week estimates of acute coronary syndrome risk for chest pain patients, has been popular, and implementation of HEART-based risk scores[8,9] to standardize emergency department management of chest pain patients has resulted in either no change[10] or some decreases in hospital admissions, while maintaining safety.[11-13] While these studies have typically been conducted in a small number of motivated academic sites, it is unclear whether such decreases would be achievable across a wider geographic setting with many emergency departments, many of which have limited resources. However, the HEART score can also be challenging to use in a clinical sense: even the lowest-risk patients have a 1.7% risk of acute coronary syndrome within 6 weeks.[8,9] Should an emergency physician discharge a patient back to primary care under these circumstances, or should the patient be admitted to hospital for additional testing?

In contrast, the Vancouver Chest Pain Rule **[Box]**, which was derived[7] and validated,[7,14] does not provide acute coronary syndrome risk estimates *per se*. Rather, it provides physicians with guidance on when to safely discharge patients without additional investigations (such as stress tests)

or hospital admission. The main goal of the Vancouver Chest Pain Rule is to reduce admissions of low-risk patients. The rule is more than 99% sensitive and more than 20% specific for acute coronary syndrome.[7,14] We hypothesized that if we conducted an organized campaign to promote use of the Vancouver Chest Pain Rule by BC emergency department physicians and regional leaders, this would be associated with a lower 30-day hospital admission rate and a lower emergency department revisit rate and stress test rate, without a change in mortality. Recently, across 13 Southern California sites, all within the same organization with the same electronic medical record, the introduction of a HEART-based pathway reduced admissions from 14.7% to 13.2%, a relative 10% decrease.[13] Considering our setting was far more diverse in terms of population, geography, distance, resources, and medical informatics, we felt that a 5% relative decrease in hospital admissions was reasonable.

Methods

Setting and study type

To examine potential decreases in hospital admissions for chest pain patients after the dissemination of information on the Vancouver Chest Pain Rule, we completed a retrospective analysis using linked databases in BC, which had a population of approximately 5 million during the study period. BC has more than 100 emergency departments, which are remarkably diverse. Twenty-nine emergency departments—including the five sites that have full cardiovascular capability—report to a provincial database and serve more than 90% of BC's population. The 12 largest sites are staffed with board-certified emergency physicians and cardiologists; other sites have substantial proportions of primary care physicians that staff emergency departments and may have internists rather than cardiologists. All sites have at least telephone access to an on-call cardiologist, and although patients at such sites can be admitted to an internal medicine ward, those who require coronary interventions must be transported to one of the five sites with full cardiovascular capability.

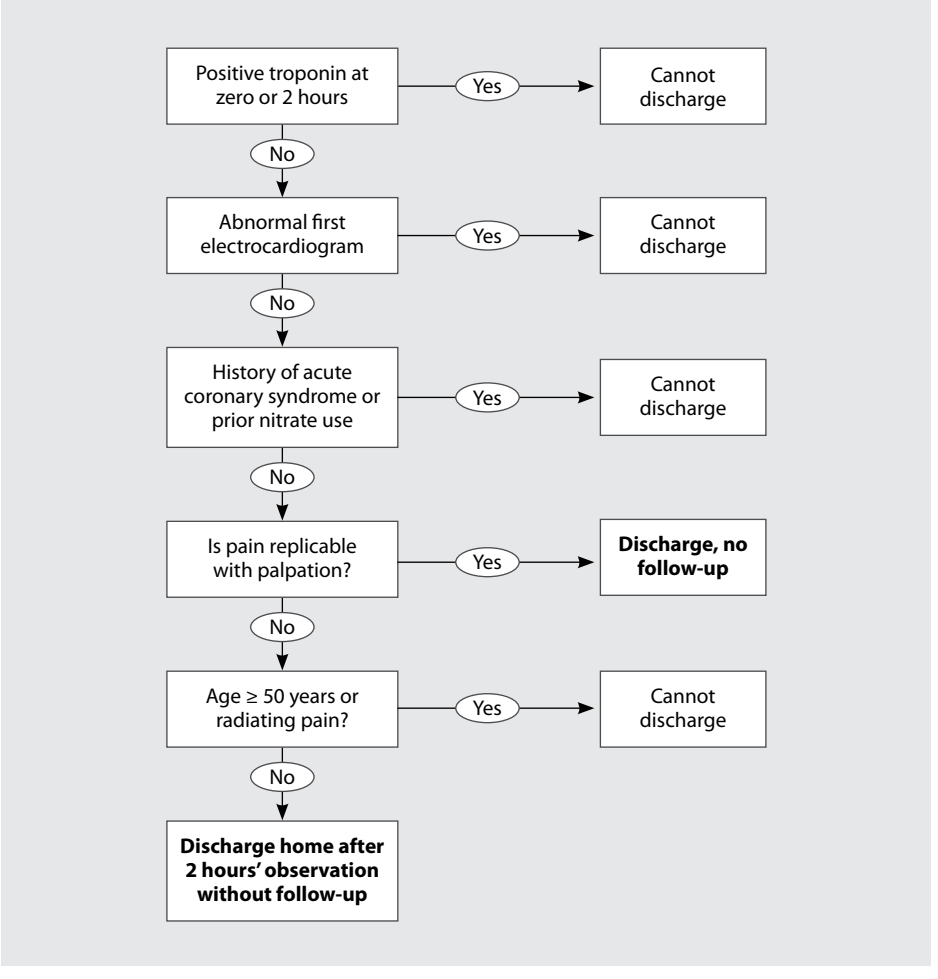
For patients with potential ischemic chest pain, Canadian emergency physicians employ unstructured judgment and typically have wide latitude in obtaining emergency department–based investigations and treatments, hospital-based consultations, and medication adjustments. Emergency physicians also have an array of options for outpatient follow-up, including cardiology consultations; exercise stress testing, which is widely available; and nuclear medicine scanning, stress echocardiography, and coronary computed tomography angiography, which are available at only a few large centres.

If the emergency physician deems the patient at low risk of acute coronary syndrome, the patient's consultations and investigations are deferred to the outpatient setting. (Consultations and outpatient tests are typically available within 2 weeks, but patients with worsening symptoms during that period are instructed to return to hospital for additional evaluation and possible admission.) Consequentially, index visit admissions are generally reserved for high-risk patients, such as those with acute myocardial infarctions and unstable angina; in Canada, the admission rate is approximately 25%.[2,15]

Intervention

Emergency Care BC[16] (formerly known as the BC Emergency Medicine Network, which was governed and funded by the BC Academic Health Science Network) is now a Health Improvement Network in the Provincial Health Services Authority with the goal of improving emergency care in BC. It has more than 1000 physician

BOX. Vancouver Chest Pain Rule.



members and, as a learning health system, acts as an information exchange and knowledge implementation platform to promote best practices across the province's diverse emergency departments. From late 2017 to mid-2018, emergency physician topic experts visited sites, including rural and remote areas; held town hall meetings and webinars; and provided relevant educational information about the Vancouver Chest Pain Rule to emergency department heads and regional leaders. The Emergency Care BC website and social media feeds encouraged the use of the Vancouver Chest Pain Rule. Emergency Care BC leadership sought feedback on the knowledge translation approach and made changes to it as suggested by physicians, emergency department heads, and regional leaders.

Patient selection

Using the validated National Ambulatory Care Reporting System,[17] we collected consecutive patients from 1 September 2016 to 31 August 2019 who presented with Canadian Emergency Department Information System[18] complaints 003 (chest pain with cardiac features) or 004 (chest pain with noncardiac features) or *ICD-10A* codes R07.4 (chest pain), I21.9 (acute myocardial infarction), I20.0 (unstable angina), or I20.9 (angina pectoris). Patients could be included if they re-presented at least 30 days after the index emergency department visit. We linked these patients to several provincial databases. We used the Canadian Institute for Health Information Discharge Abstract Database[19] to identify all hospital admissions, emergency department visits, and cardiac procedures up to 30 days past the index emergency department visit. We also used this database to identify cardiac procedures in the year prior to the index emergency department visit.

We used the provincial Medical Services Plan billing database[20] to ascertain cardiovascular comorbidities identified over the year prior to the emergency department visit, but we realized this would result in a systemic undercount of all comorbidities, because patients may not have visited their primary care physician, internist, or cardiologist during that time frame. However, the main purpose of this information was not to ascertain the exact risk profile of each patient, but to ensure that the before and after groups were reasonably similar. The same database was also used to obtain information on stress tests and cardiology, internist, and primary care visits in the 30 days after the index emergency department visit. All data were provided as aggregated rather than line items.

Outcomes

The primary outcome was 30-day admissions, defined as the sum of admissions at the index emergency department visit and additional hospital admissions within 30 days. We reasoned this might include patients who were admitted at the index visit and again within 30 days or patients who were readmitted with a noncardiac cause, but we would not expect a difference in this ratio between study periods. While Poldervaart and colleagues[10] documented no before–after changes, Mahler and colleagues[11,12] and Sharp and colleagues[13] estimated at least 10% relative decreases in admissions; however, we expected lower decreases, given that Canadian chest pain admission rates are already far lower at baseline[3,14] than those described by Mahler and colleagues and Sharp and colleagues.[11-13]

We measured additional outcomes at 30 days: emergency department revisits after index visit discharge, the number of stress tests conducted, follow-up visits (cardiology, internal medicine, and primary care), revascularizations (percutaneous coronary intervention and coronary artery bypass grafting), and mortality. We expected the latter two outcomes to have low absolute numbers.

Data analysis

We used Microsoft Excel 2019 (Microsoft Corporation, Redmond, WA) and SAS version 9.4 (SAS Institute Inc., Cary, NC) for data entry and analysis. We reported discrete variables as percentages and continuous variables as means with standard deviations if normally distributed or as medians with interquartile ranges otherwise. The unit of analysis was the patient encounter. We had no way to address missing data. Given that the educational intervention took place from late 2017 to mid-2018, we used a "before" time period of 1 September 2016 to 31 August 2017 and an "after" time period of 1 September 2018 to 31 August 2019. We used appropriate testing, including Student's *t* tests, chi-square tests, and

TABLE 1. Demographics and baseline variables.

Variable	Before (*n* = 94 058) *n* (%) unless indicated	After (*n* = 90 170) *n* (%) unless indicated	Difference *n* (%) (95% CI)
Unique patients	85 015 (90.4)	81 894 (90.8)	0.4 (0.02 to 0.07)
Median age (years) (interquartile range)	56 (40 to 70)	56 (40 to 70)	0
Female patients	42 455 (49.9)	41 506 (50.7)	0.7 (0.4 to 1.0)
Ambulance arrival	22 821 (24.2)	20 855 (23.1)	1.1 (0.7 to 1.5)
Comorbidities identified in past year			
Diabetes	4 060 (4.3)	3 789 (4.2)	−0.1 (−0.3 to 0.07)
Hypertension	3 225 (3.4)	3 006 (3.3)	−0.1 (−0.2 to 0.07)
Percutaneous coronary intervention	468 (0.5)	383 (0.4)	−0.07 (−0.1 to 0.0)
Coronary artery bypass graft	252 (0.3)	197 (0.2)	−0.05 (−0.1 to 0.0)

Fisher exact tests, to ascertain any differences. Due to the retrospective nature of this study, the wide setting, and the prolonged data collection period, we expected to obtain very large numbers of patients.

The Research Ethics Board of Providence Health Care approved this study.

Results

The 2016–2017 (before) cohort had 94 058 encounters (85 015 unique patients); the 2018–2019 (after) cohort had 90 170 encounters (81 894 unique patients). The median age in both cohorts was the same, and the proportion of females was similar **[Table 1]**.

The proportion of patients with same-year diagnoses of high blood pressure and diabetes in each cohort was similar, as was the proportion with same-year percutaneous coronary intervention and coronary artery bypass graft **[Table 1]**.

TABLE 2. 30-day outcomes before and after the introduction of the Vancouver Chest Pain Rule.

Variable	Before (*n* = 94 058) *n* (%)	After (*n* = 90 170) *n* (%)	Difference *n* (%) (95% CI)
Admissions			
All admissions to 30 days*	22 328 (23.7)	20 278 (22.5)	−1.3 (−1.6 to −0.9)
At index visit	14 734 (15.7)	13 315 (14.8)	−0.9 (−1.23 to −0.57)
After index visit to 30 days	7 594 (8.1)	6 963 (7.7)	−0.4 (−0.6 to −0.1)
All-cause emergency department revisit to 30 days	28 607 (30.4)	26 529 (29.4)	−1.0 (−1.4 to −0.6)
30-day physician visits			
Cardiology consultation	18 173 (19.3)	18 806 (20.9)	1.5 (1.2 to 1.9)
Internist consultation	7 750 (8.2)	2 480 (2.8)	−5.5 (−5.7 to −5.3)
Primary care visit	54 338 (57.8)	48 384 (53.6)	−4.1 (−4.6 to −3.7)
Total follow-up visits	73 286 (77.9)	69 670 (77.2)	−0.6 (−1.0 to −0.2)
30-day diagnostics			
Exercise stress test	22 418 (23.8)	20 384 (22.6)	−1.2 (−1.6 to −0.8)
Nuclear medicine scan	4 058 (4.3)	3 379 (3.8)	−0.5 (−0.8 to 0.4)
Echocardiogram	142 (0.2)	182 (0.2)	0.05 (0.1 to 0.9)
Total follow-up diagnostics	26 617 (28.3)	23 945 (26.6)	−1.7 (−2.1 to −1.3)
30-day outcomes			
Percutaneous coronary intervention	2 690 (4.7)	2 450 (4.8)	0.03 (−0.2 to 0.3)
Coronary artery bypass graft	1 254 (2.2)	1 030 (2.0)	−0.2 (−0.40 to −0.04)
Mortality	580 (0.6)	532 (0.6)	−0.03 (−0.10 to 0.04)
Major adverse cardiac event	3 294 (3.5)	2 886 (3.2)	−0.3 (−0.47 to −0.14)

* Primary outcome.

Overall, 23.7% of encounters (95% CI, 23.4 to 24.0) in the before cohort and 22.5% (95% CI, 22.2 to 22.8) in the after cohort were admitted by 30 days, an absolute reduction of 1.3% and a relative reduction of 5.3%. The proportion of patients admitted at the index visit declined from 15.7% to 14.8%, a decrease of 0.9% and a relative reduction of 5.6%; the proportion of patients admitted after the index visit up to 30 days declined from 8.1% to 7.7%, a decrease of 0.4% and a relative reduction of 4.3%. The proportion of patients that revisited an emergency department for any cause within 30 days declined from 30.4% to 29.4%, a decrease of 1.0% and a relative reduction of 3.3%. All declines were statistically significant **[Table 2]**.

At 30 days, 77.9% of follow-up physician visits took place in the before period and 77.2% occurred in the after period, a significant reduction of 0.6%. The proportion of follow-up diagnostics decreased from 28.3% to 26.6%, an absolute reduction of 1.7% and a relative reduction of 6.0% **[Table 2]**.

Overall, in the before and after cohorts, 4.7% and 4.8% of patients, respectively, had percutaneous coronary intervention and 2.2% and 2.0% of patients, respectively, had a coronary artery bypass graft; neither was a significant change. Thirty-day mortality in both groups was 0.6%. Major adverse cardiac events decreased significantly from 3.5% in the before cohort to 3.2% in the after cohort, a reduction of 0.3% (95% CI, −0.47 to −0.14) **[Table 2]**.

Discussion

Our analysis of nearly 185 000 patients in BC who were admitted to the emergency department with potential ischemic chest pain indicated that the use of the Vancouver Chest Pain Rule was associated with a relative 5.3% reduction in 30-day hospital admissions, which translates to approximately 1300 fewer hospitalizations annually. In addition, there were significant decreases in consultations, follow-up visits, diagnostic testing, and major adverse cardiac events. Given that the typical length

of stay in a Canadian hospital for a patient admitted with chest pain is 2 to 6 days,[17] in BC, which has a population of 5 million people and more than 90 000 hospital visits for chest pain annually, implementation of the Vancouver Chest Pain Rule would likely save 2600 to 7800 hospital bed days; hundreds of hospital-to-hospital transfers from smaller sites to larger, angiography-capable sites; thousands of follow-up visits and diagnostic investigations; and 900 emergency department return visits per year—along with millions of dollars—while maintaining similar safety outcomes.

Prior work has shown that implementation of an organized approach to emergency department chest pain management has reduced hospitalizations, although these approaches have been used at single sites or in health networks that have large, reasonably comparable emergency departments.[10-13,21] Poldervaart and colleagues used a stepped-wedge design to explore the effect of using a HEART-based clinical pathway in emergency departments in 10 Netherlands sites, ranging from 500 to 1200 inpatient beds, for patients with chest pain.[10] No differences between the before and after cohorts were found, and adjusted admissions decreased by a nonsignificant 0.7%.[10] At a single North Carolina emergency department with more than 100 000 annual visits, Mahler and colleagues randomly assigned 282 chest pain patients to a HEART-based pathway versus usual care and reported a decrease in index admissions from 78% to 60%, a commensurate decrease in objective cardiac testing, and no change in major adverse cardiac events or mortality at 30 days.[11] Finally, Sharp and colleagues studied more than 65 000 chest pain patients across 13 emergency departments in California that implemented the HEART score and reported that the index visit admission rate declined from 14.7% to 13.2%, an absolute decrease of 1.5% and a relative decrease of 10.2%, without an increase in missed myocardial infarctions or mortality.[13]

Non-HEART-based pathways have also been described. Than and colleagues introduced an acute coronary syndrome pathway at seven New Zealand sites, which involved more than 31 000 patients, and reported that the proportion of patients who had a length of stay less than 6 hours increased from 8% to 18%,[21] but the authors did not comment on hospital admissions. In a setting more similar to our study population and using similar methodology, Greenslade and colleagues found that the introduction of high-sensitivity troponins reduced the length of stay across 21 Queensland sites by 1.9 hours; however, since the admission rates decreased from 6.8% to 5.7%, it is reasonable to assume that the patients were systematically healthier than our cohort. Importantly, neither study reported an increase in downstream myocardial infarctions or mortality.[22]

Our analysis of nearly 185 000 patients in BC who were admitted to the emergency department with potential ischemic chest pain indicated that the use of the Vancouver Chest Pain Rule was associated with a relative 5.3% reduction in 30-day hospital admissions.

It is critical to note that compared with our province-wide investigation, prior studies (except for the Queensland study[22]) have been conducted in large academic sites—typically with far more on-site cardiovascular resources—and have received more financial, educational, and material support. Our study, which included many smaller sites with few cardiology-specific resources, suggests that interventions to modify clinical pathways and physician behavior may apply across large geographic areas with a wide range of emergency department and hospital types rather than only to strongly motivated academic sites. While our findings require replication in other settings and possibly with other chest pain care pathways, overall, this could preserve scarce resources for higher-risk patients while alleviating unnecessary hospitalization and ancillary testing for lower-risk patients, which may represent a significant opportunity for system-wide capacity improvement.

Study limitations

This study was undertaken in a single Canadian province with universal health care; therefore, the results may not be reproducible elsewhere. Typical limitations of a before–after study design apply, and we cannot conclusively demonstrate that our campaign directly led to a reduction in hospital admissions. Cluster randomization or stepped-wedge implementation[10] would have provided stronger evidence, but this would have been challenging across our diverse sites. The 70 smallest hospitals—all rural and serving less than 10% of the provincial population—do not submit standardized data, so we could not assess them. Importantly, individual emergency departments and hospitals may have instituted their own protocols to reduce chest pain admissions during the study period, and we cannot account for this potential confounder. Our admission rates may be different from those in other jurisdictions,[11-13] but they are generally comparable with Canadian norms.[15] The Vancouver Chest Pain Rule informs physicians about the need for downstream testing, whereas the HEART score provides an acute coronary syndrome risk estimate; therefore, the two systems have different goals. Our goal was to test whether the Vancouver Chest Pain Rule could reduce admissions; had we implemented and tested the HEART score (or a similar tool), our results may have been different.

We had a 1-year run-in period to liaise with the numerous sites. We did not have access to important traditional data, such as prior cardiac illness, family history, smoking background, initial electrocardiogram, and laboratory biomarkers, and our estimates of comorbidities and prior cardiac

interventions were obviously low. While we have little reason to suspect that these variables would be substantially different between the two cohorts, the lack of such baseline data precluded any adjusted analysis of baseline risk at an individual level. Furthermore, since we had no line-item data, we could not perform an individual- or site-level analysis. Some of our post-index visit admissions may have been unrelated to cardiac disease, but we also would not expect this to differ between time periods. Outcomes are to 30 days, although this is typical for emergency department–based literature regarding cardiovascular issues. Finally, we cannot comment on patient or provider satisfaction, emergency department or hospital length of stay, or costs. ■

Conclusions

In BC, the organized implementation of the Vancouver Chest Pain Rule was associated with a 5.3% relative reduction in hospitalizations, which translates to 1300 fewer hospitalizations annually, as well as fewer consultations, follow-up visits, diagnostics, and adverse cardiac events.

Competing interests

None declared.

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References

1. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. National hospital ambulatory medical care survey: 2019 emergency department summary tables. Accessed 14 September 2023. www.cdc.gov/nchs/data/nhamcs/web_tables/2019-nhamcs-ed-web-tables-508.pdf.
2. Canadian Institute for Health Information. NACRS emergency department visits and lengths of stay. 2023. Accessed 14 September 2023. www.cihi.ca/en/nacrs-emergency-department-visits-and-lengths-of-stay.
3. Than M, Cullen L, Aldous S, et al. 2-hour accelerated diagnostic protocol to assess patients with chest pain symptoms using contemporary troponins as the only biomarker: The ADAPT trial. J Am Coll Cardiol 2012;59:2091-2098.
4. Jaffery Z, Hudson MP, Jacobsen G, et al. Modified thrombolysis in myocardial infarction (TIMI) risk score to risk stratify patients in the emergency department with possible acute coronary syndrome. J Thromb Thrombolysis 2007;24:137-144.

The Vancouver Chest Pain Rule informs physicians about the need for downstream testing, whereas the HEART score provides an acute coronary syndrome risk estimate.

5. Than M, Cullen L, Reid CM, et al. A 2-h diagnostic protocol to assess patients with chest pain symptoms in the Asia-Pacific region (ASPECT): A prospective observational validation study. Lancet 2011;377(9771):1077-1084.
6. Mahler SA, Miller CD, Hollander JE, et al. Identifying patients for early discharge: Performance of decision rules among patients with acute chest pain. Int J Cardiol 2013;168:795-802.
7. Scheuermeyer FX, Wong H, Yu E, et al. Development and validation of a prediction rule for early discharge of low-risk emergency department patients with potential ischemic chest pain. CJEM 2014;16:106-119.
8. Six AJ, Backus BE, Kelder JC. Chest pain in the emergency room: Value of the HEART score. Neth Heart J 2008;16:191-196.
9. Backus BE, Six AJ, Kelder JC, et al. Chest pain in the emergency room: A multicenter validation of the HEART score. Crit Pathw Cardiol 2010;9:164-169.
10. Poldervaart JM, Reitsma JB, Backus BE, et al. Effect of using the HEART score in patients with chest pain in the emergency department: A stepped-wedge, cluster randomized trial. Ann Intern Med 2017;166:698-697.
11. Mahler SA, Lenoir KM, Wells BJ, et al. Safely identifying emergency department patients with acute chest pain for early discharge. Circulation 2018;138:2456-2468.
12. Mahler SA, Riley RF, Hiestand BC, et al. The HEART pathway randomized trial: Identifying emergency department patients with acute chest pain for early discharge. Circ Cardiovasc Qual Outcomes 2015;8:195-203.
13. Sharp AL, Baecker AS, Shen E, et al. Effect of a HEART care pathway on chest pain management within an integrated health system. Ann Emerg Med 2019;74:171-180.
14. Cullen L, Greenslade JH, Than M, et al. The new Vancouver Chest Pain Rule using troponin as the only biomarker: An external validation study. Am J Emerg Med 2014;32:129-134.
15. Scheuermeyer FX, Innes G, Grafstein E, et al. Safety and efficiency of a chest pain diagnostic algorithm with selective outpatient stress testing for emergency department patients with potential ischemic chest pain. Ann Emerg Med 2012;59:256-264.e3.
16. Abu-Laban RB, Christenson J, Lindstrom RR, Lang E. Emergency care clinical networks. CJEM 2022;24:574-577.
17. Canadian Institute for Health Information. Emergency and ambulatory care. Accessed 14 September 2023. www.cihi.ca/en/topics/emergency-and-ambulatory-care.
18. Grafstein E, Bullard MJ, Warren D, et al. Revision of the Canadian Emergency Department Information System (CEDIS) presenting complaint list version 1.1. CJEM 2008;10:151-173.
19. Canadian Institute for Health Information. Discharge abstract database (DAD) metadata. Accessed 4 March 2023. www.cihi.ca/en/discharge-abstract-database-metadata-dad.
20. British Columbia Ministry of Health. Medical Services Plan data set. Accessed 4 March 2023. www.popdata.bc.ca/data/health/msp.
21. Than MP, Pickering JW, Dryden JM, et al. ICare-ACS (Improving Care Processes for Patients with Suspected Acute Coronary Syndrome): A study of cross-system implementation of a national clinical pathway. Circulation 2018;137:354-363.
22. Greenslade JH, Parsonage W, Foran L, et al. Widespread introduction of a high-sensitivity troponin assay: Assessing the impact on patients and health services. J Clin Med. 2020;9:1883.

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Successful succession: Evaluating financial capacity, testamentary capacity, and undue influence in BC

Clinical and legal guidance on how physicians can conduct capacity assessments of patients based on statutory and common laws.

ABSTRACT: The ability to manage one's finances or to make a will can become important under certain circumstances. Physicians are sometimes asked to evaluate the financial or testamentary capacity of their patients, particularly vulnerable, older, and cognitively impaired individuals, and thus can play a vital role in assisting with the legal process of determining one's capacity. Undue influence may be a factor affecting an individual's judgment. Identifying signs that signal susceptibility to undue influence can be both clinically and legally relevant, and the British Columbia Law Institute's recently published guide for recognizing and preventing undue influence can aid in such an evaluation. This review provides guidance for clinicians in assessing patients for financial capacity, testamentary capacity, capacity to assign a power of attorney or a representative, and undue influence, particularly if the individual has been deemed incapable.

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According to the Canadian census, the population of British Columbia in 2021 was just over 5 million citizens, and 20.3% were aged 65 years or older.[1] With an aging population, a concomitant increase in the rate of major neurocognitive disorder (i.e., dementia), and the projected largest generational wealth transfer in history as baby boomers get older, decisional capacity in areas such as managing financial affairs, drawing up a will (testamentary capacity), or gifting a large asset becomes important. Elderly individuals are more likely to be vulnerable to exploitation in these areas. The overall prevalence of financial abuse has been estimated to be 4.2% for community-dwelling seniors, based on a contemporary systematic review and meta-analysis;[2] there is a higher likelihood of 14.1% in those who are institutionalized,[3] and even higher rates that can approach 50% in those with major neurocognitive disorder.[4]

It is a fundamental part of Canadian law that all adults are presumed to be capable. An adult lacks capacity only if they do not meet the requisite test. Physicians are sometimes called upon to assist in determining capacity in these matters. The threshold at which someone is deemed incapable varies depending on their circumstances and what is at stake.[5] In this review, the clinical and legal aspects of these specific types of decisional capacities are discussed, along with the various courses of action once a person is determined to be incapable. Decision making regarding managing one's personal affairs (e.g., one's ability to live safely and independently) is not within the scope of this review. The recent changes in provincial legislation that guides the determination of some of these capacities[6] and the recent publication from the British Columbia Law Institute to help guide the assessment and prevention of undue influence in these contexts[7] are highlighted.

Case study: The mercenary late life partner—Part 1

Jack, a moderately wealthy divorced man with three adult children, was in his late 70s when he met Edna, who was then 52, also divorced, with two grown children of her own. Jack and Edna began living together in Jack's town house. In his early 80s, Jack began to show signs of short-term memory loss after suffering from a mild stroke and subsequently exhibited declining instrumental activities of daily living and increasing dependence on Edna. He was persuaded to assign power of attorney and a representation agreement for health care decisions to Edna.

Appointing a power of attorney or representative

In BC, an adult can appoint an attorney pursuant to a power of attorney. Most powers of attorney in BC are enduring powers of attorney, meaning that the power of attorney remains valid even if the adult becomes incapable. The test for a power of attorney is set out in statutory law **[Table 1]**.[8] Every adult is presumed capable unless they are incapable of understanding the nature and consequences of the proposed enduring power of attorney.[8] Similarly, the test for capacity to appoint a representative to make a medical decision is detailed in statutory law and depends on the type of representation agreement. There are two types of representation agreements: a simpler section 7 agreement and an enhanced section 9 agreement[9] **[Table 1]**. A standard representation agreement (section 7) requires only that the person is able to understand the decision they are undertaking.[10] For an enhanced section 9 representation agreement, an adult may authorize a representative to decide on a wider scope of interventions, such as determining place of residence, including facility care, or withdrawing life-supporting treatment.

TABLE 1. Types of decisional capacities.

Type of capacity	Common law or statutory law	Essential elements (what the individual must know/express)
Financial	Common law	• Knowledge, functional ability, judgment
Personal (e.g., personal care decisions)	Common law	• Nature of decision • Risks/advantages of decision • Appreciation of safety issues • Accepting needed home supports
Testamentary (e.g., a will)	Common law	• Spouse/children/family • Assets/obligations • What the will says/does • Nature of a will: disposes of estate after death
Power of attorney	Statutory law	• Assets • Obligations to spouse/children • Attorney can do anything financial except make a will • May revoke power of attorney at any time if capable • Attorney may abuse power and reduce value of assets
Representation agreement – section 7	Statutory law	• Expresses desire to have a representative • Representative will make decisions that affect the adult's health care
Representation agreement – section 9	Statutory law	• Expresses desire to have a representative • Representative will make decisions that affect the adult's health care as specifically outlined in the section 9 agreement
Health care decisional capacity	Common law and statutory law	• Understands the purpose of the proposed care or treatment • Understands the benefits and risks of care or treatment • Understands the information given by the health care provider • Understands that the information applies to the person

Case study: The mercenary late life partner—Part 2

Jack was hospitalized with another stroke and became hemiplegic. Edna requested that her power of attorney be activated so she could formally manage Jack's finances. Social work staff asked medical staff to make a capacity assessment, and Jack was found incapable, so the power of attorney was activated due to his substantial cognitive impairment. Over time, Jack's children became concerned that Edna was misappropriating his funds to her own children and sought legal advice to apply for committeeship to manage his personal and financial affairs. The lawyer asked for a medical opinion.

Letter of instruction and process of assessment

Often, it is a lawyer who requests an assessment from a physician, and the lawyer will typically provide the physician with a letter of instruction. The physician may request one if it is not provided. The letter of instruction should provide background information and set out what type of capacity is at issue and what the legal test is for that type of capacity.[11] A determination of susceptibility to undue influence may also be requested if the legal advisor has concerns. If the assessment is intended to be used in court, the letter should include any relevant court procedures or forms the physician is required to follow.[12]

In general, assessments should be performed under circumstances that optimize sensory input and comfort. The assessor should state the purpose of the evaluation, particularly since questions on these subjects may cause surprise and unease, and enough time should be allotted so one should not feel rushed or overwhelmed when responding. With a language barrier, the use of a professional interpreter is highly recommended, since employing family members or friends can be (though not necessarily by intention) misleading or inaccurate. Virtual visits are now widespread and recent legislative amendments validated the virtual witnessing of will signing (even to have a full virtual will).[6] Nevertheless, especially in the older adult who has sensory and/or cognitive impairment, it is prudent to conduct the interview in person and alone, particularly if undue influence is raised. In most cases, these kinds of assessments should be accompanied by cognitive screening. The Montreal Cognitive Assessment is preferred over the Mini-Mental State Examination because it is more sensitive in detecting frontal executive deficits.[13] There is no cutoff score to indicate whether the person is capable or not, but a positive

screen for major neurocognitive disorder or even mild neurocognitive disorder (i.e., a mild cognitive impairment) will give a higher index of suspicion for incapacity.[14]

Financial capacity

Generally, decision making falls on a spectrum of legal capacity where the level of capacity required to decide is dependent on the complexity of the decision. For example, the capacity to manage finances generally falls on the most stringent end of a spectrum because it necessarily involves many complex cognitive steps and evaluations, whereas capacity to grant a power of attorney is less stringent.

A financial capacity assessment may be requested when concerns are raised about a person's declining cognitive and functional abilities, impulsivity, or disinhibition, or the possible presence of an abuser or undue influencer. An assessment may be needed to authorize an existing power of attorney or representation agreement or to apply to the court for committeeship (i.e., guardianship).[15] Financial capacity encompasses understanding that certain decisions are necessary, appreciation that those decisions apply to oneself, and reasoning by weighing the risks and benefits of making or failing to make a particular decision.[5,16] Financial capacity involves at least three key elements: knowledge of the extent of one's finances, functional ability to carry out financial transactions, and financial judgment.

Knowledge of one's finances includes an understanding of one's assets (e.g., bank account, real estate, vehicles, investments, valuables), liabilities (e.g., mortgage, loans, credit card and tax debts, obligations owed to dependants), income (e.g., government and private pensions, investment income), and expenses (e.g., rent, loan payments, utilities, phone/Internet, tax payments, cost of care). Even if the person can demonstrate a working knowledge of the nature of their finances, there can be a task-specific deficit regarding financial management such that the individual cannot implement the necessary action. Collateral information is especially important in these situations because the person may come across as functioning "normally" yet be quite impaired. Typically, this is seen in those with frontal executive dysfunction rather than those with just memory dysfunction, such as in major neurocognitive disorder caused by vascular events in the frontal cortex or certain areas subcortically, frontotemporal major neurocognitive disorder, and sometimes Lewy body major neurocognitive disorder. Initially, Alzheimer disease typically affects memory and, therefore, one's financial knowledge, but in later stages, the disease can also affect frontal executive areas.

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Judgment can be impacted by pathology in certain frontal areas, such as the orbitofrontal region.[17] Poor judgment often accompanies poor knowledge and/or poor executive function in relation to finances, but if judgment becomes the sole reason for deeming someone incapable, it can sometimes be challenging to prove since it is interpreted subjectively by the assessor. For instance, a person may be spending extravagantly but still within their means. Clues that might help the assessor decide could be a departure in the person's usual spending habits or other personality changes that do not relate to spending. Potentially treatable primary or concurrent mental disorders, such as bipolar disorder, substance use disorder, and gambling disorder, would need to be ruled out. It is also possible that extravagant spending is a lifelong pattern that is more reflective of personality and upbringing than poor judgment. More broadly, a person's current ability to manage finances needs to be considered longitudinally since they may have had very little financial responsibility in their lifetime because someone else handled it for them in the past.

There are validated measures that incorporate financial management abilities as a subscale in an overall functional assessment, such as the Independent Living Scales[18] and the Cognitive Competency Test,[19] but they are not practical enough to be administered by most physicians, and they involve training. Instead, the person can be asked to do some simple arithmetic or identify and count currency to supplement the assessment.

The finding of incapacity may trigger several options to protect the person's finances and ensure bills and debts are paid **[Figure]**. The enduring clause for a pre-existing power of attorney[8] or representation agreement[9] may come into effect, or a committeeship application may be initiated. These options are facilitated by a medicolegal letter or a report from the physician. One no-cost alternative to committeeship that merits consideration is the application for a pension income trusteeship, pertaining to federal benefits only, such as Old Age Security and the Canada Pension Plan, by assigning a private trustee, who can be any trusted individual(s) or even a not-for-profit organization (e.g., the Bloom Group in Vancouver). Unfortunately, this type of trustee will not be able to manage other aspects of financial affairs. A certificate of incapability form is filled out by the physician.[20] For those situations where financial abuse is alleged, the Office of the Public Guardian and Trustee[21] may become involved. After an investigation, the Public Guardian and Trustee may ask a physician to complete the Public Guardian and Trustee–specific certificate of incapability before intervening. Two certificates are required, and one of them should be completed by a designated trained assessor, who is usually a social worker. These details are set out in section 3 of the Adult

Guardianship Act.[22] There is some financial compensation for physicians who undertake a capacity assessment at the request of the Public Guardian and Trustee.

There can be situations where the person is deemed incapable of managing finances but no further action is required. This can occur, for example, when a trustworthy person is already informally assisting with financial affairs or a paid professional such as a financial advisor or a trust manager is already involved. Alternatively, the person may still be considered marginally capable if they exercise sufficient judgment in allowing others to help, even though they may lack sufficient knowledge or functional abilities to manage their finances. However, presuming that these parties are always acting in the person's best interest can be fraught with hazard, so ensuring that a formal legal mechanism, whether it is a power of attorney, a representation agreement, or something else, is initiated for oversight would be preferred in most cases.

Case study: The mercenary late life partner—Part 3

Jack's first will indicated that his estate was to be left to his three children in equal shares. When Edna moved in, Jack made a second will, which divided his estate equally between Edna and his three children, giving each a 25% share. When Jack became increasingly dependent on Edna after the last stroke, he made his last will, appointing Edna as his executor and residuary beneficiary. The will gave substantial legacies to Edna's son and daughter and only $100 to each of Jack's own three children. Jack's children were unaware of these changes.

Testamentary capacity

Testamentary capacity requires that (1) the person understands the nature and act of making a will and its effects—in other words, that the adult is giving away their property and belongings when they die to certain people/entities under the will; (2) the person understands the extent of their estate—this involves a broad appreciation of the person's assets and value but not exact figures; (3) the person understands the claims of those who might expect benefit from the will maker (both those persons included and those excluded)—this includes spouses, children, and other family members; and (4) the will maker does not have a mental illness that influences them to make decisions in their will that they would not have otherwise made absent the illness.[11,23] The test for making a will is a common law test based on *Banks v. Goodfellow*,[23] meaning that it is not written into statutory law. A person may lack the capacity to manage their finances, but they may still have the capacity to make a will, power of attorney, or representation agreement. Physicians should be aware that the will maker's decisional capacity can be overborne by undue influence.

Case study: The mercenary late life partner—Part 4

Prior to his death and before his last will, Edna discouraged other people from seeing or talking to Jack, especially his children, on the pretext that he was not well and visits would tire him. At the same time, she encouraged her own children to visit frequently. She would hint strongly that his own uncaring family did not deserve to inherit his estate.

Undue influence

Physicians are sometimes asked to assess patients for susceptibility to undue influence, usually in conjunction with a request

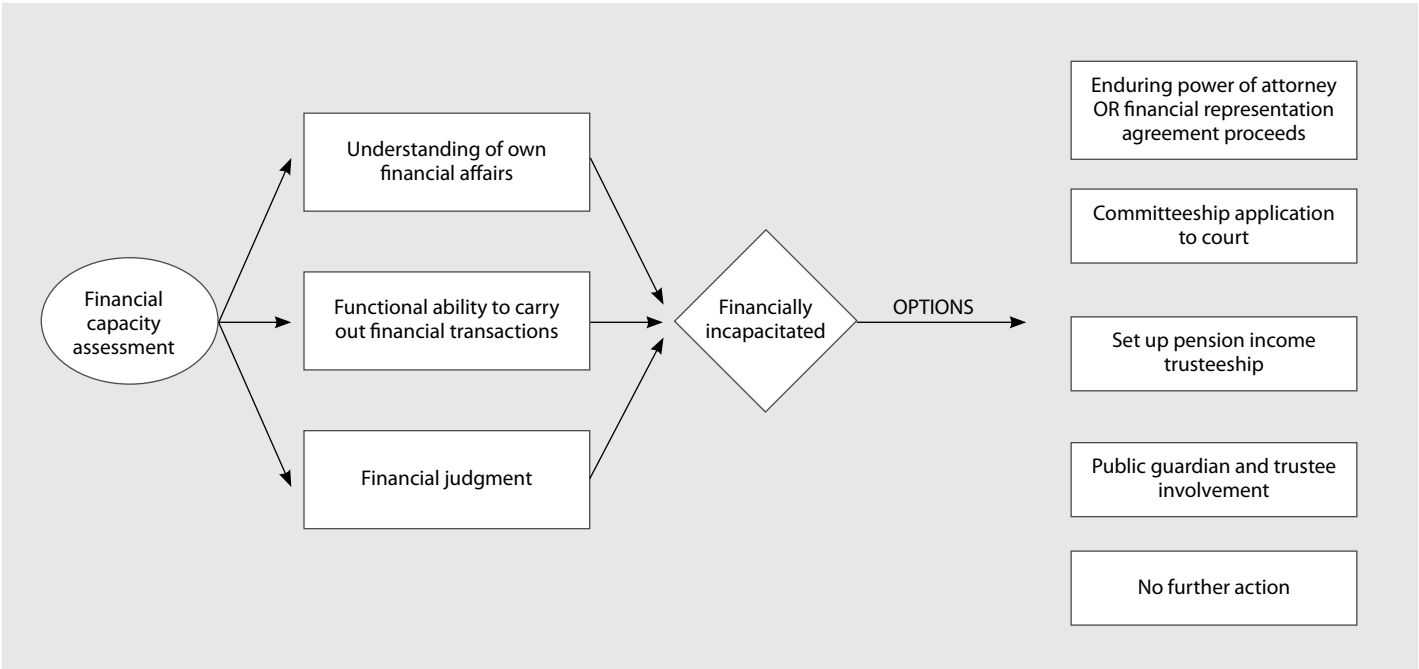

FIGURE. Financial capacity assessment and pathways for intervention.

for an opinion on testamentary capacity or capacity to manage finances. Undue influence is a separate matter from mental capacity required to perform a legally significant act like making a will or gift or granting a power of attorney. An assessment of mental capacity does not normally address susceptibility to undue influence in the absence of a specific request to cover it in the opinion. Nevertheless, concern about undue influence often arises in association with concerns that family members or financial and legal advisors raise about someone's financial and testamentary capacity.

Undue influence is the legal term for pressure or deception that overcomes the free will of another person and induces the person to carry out a legal act in accordance with the wishes of the influencer rather than those of the victim.[24] Undue influence is not mere persuasion;[25] it is the imposition of the influencer's will to the extent that the victim cannot be considered to be acting freely. Benefit to the influencer is not essential for undue influence as long as the act desired by the influencer is procured because the victim believes there is no other choice open. The validity of a legal act or transaction depends not only on the presence of the requisite mental capacity to perform the act, but also on the act being the product of a freely operating independent mind.[26]

The legal implications of undue influence differ somewhat, depending on whether the undue influence relates to the terms of a will (testamentary undue influence) or to an act or transaction intended to take effect in the victim's lifetime (nontestamentary or *inter vivos* undue influence). Nontestamentary undue influence can range from outright coercion to manipulation through misinformation or fear, or simply wearing down the victim by importuning over a period of time.[27] Testamentary undue influence, by contrast, has usually been said to require coercion.[28,29] However, what amounts to coercion in particular cases may vary with the vulnerability of the victim. Verbal or psychological pressure, without overt threats, can amount to undue influence affecting a will if the victim is highly dependent on the influencer or is severely weakened in mind and body.[27,30] Providing misinformation that leads the victim to make a will that would not have been made otherwise also amounts to undue influence.[28]

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In addition to being a legal concept, undue influence is actual financial abuse. Influencers exploit relationships of physical and economic dependence, confidence, and trust. Typically, influencers operate by isolating the victim physically or socially. It is especially common for influencers to systematically misinform their victims and control victims' sources of information. Language barriers and difficulty with cross-cultural communication often play into the influencer's hands as well.

Detection of undue influence by legal advisors, social workers, and others in a position to help the victim is often complicated by conflicting emotions and misplaced familial loyalty on the part of the victim toward the influencer, who is often a family member or someone in whom the victim has placed trust. This often manifests in denial by the victim when asked questions intended to aid in determining whether they are being coerced, manipulated, or otherwise abused. While anyone can be a victim of undue influence regardless of age and mental acuity, cognitive impairment is broadly recognized as a factor that increases the risk of victimhood.[31-34] Major neurocognitive disorder involves impairment in one or more cognitive domains, which can affect testamentary capacity or susceptibility to undue influence **[Table 2]**.[7] Factors

TABLE 2. Impact of neurocognitive disorder on testamentary capacity and susceptibility to undue influence.

Cognitive domain	Memory	Executive function	Language	Social cognition	Reality testing
Mental function impairment	Short-term memory loss (early) with long-term memory loss (later)	Poor insight or judgment, impulsivity, loss of critical appraisal, amotivation	Loss of ability to understand, communicate, and/or express oneself clearly	Underrecognizing the emotions and motivations of others or social cues	Fixed, false, or firmly held beliefs
Testamentary capacity (*Banks v. Goodfellow* criteria)	Cannot recall what a will is or their assets or rightful beneficiaries	Poor understanding of wills or reasoning about division of assets	Inability to articulate wishes or reasoning about division of assets	Misconceiving intentions and attitudes of natural heirs	Delusion of the mind
Susceptibility to undue influence	Cannot recall past decisions about existing wills or conversations with beneficiaries	Poor judgment leading to favoring the influencer over others, apathy	Reliance on the influencer to communicate on their behalf	Lack of ability to appraise the motivation of the influencer	Paranoia with vulnerability to misinformation provided by the influencer

that influence dependency, such as physical conditions that create difficulty in activities of daily living, behavioral disorders, and substance abuse, are also recognized as risk factors for undue influence.[31]

Lists of risk factors ("red flags") typically associated with undue influence or the potential for it to occur can be found in medicolegal literature.[7,31,35] These lists comprise both personal characteristics (physical and mental conditions) and circumstances such as physical or economic dependency, impaired mental function, illiteracy, recent bereavement, and language barriers, to name a few. No empirical studies have verified these lists of red flags in terms of prevalence or importance, but they are recognized as significant indicia by civil courts.[31]

A request for assessing susceptibility to undue influence should explain the legal concept of undue influence and ask a question along these lines: "Are there medical reasons why the client is more vulnerable to undue influence in making decisions?"[7] Another way to express the essential question to which the assessment should be addressed is "Can this person say no to relatives and others despite pressure from them to say yes?" Physicians who receive such a request may find helpful background information in the British Columbia Law Institute's guide *Undue Influence: Recognition and Prevention. A Guide for Legal Practitioners* (including case studies such as "The mercenary late life partner," as adapted here) and the accompanying reference aid, which encapsulates red flags associated with susceptibility to this form of financial abuse.[7] While the guide is intended primarily for an audience of lawyers and notaries, it explains why physicians may be asked to give opinions on susceptibility to undue influence and how the request and the opinion should be framed to be as informative as possible for the assessing physician and the requesting legal practitioner, respectively.

If a video assessment is unavoidable, care should be taken at the start to confirm that the subject is alone and no one else is within earshot. The subject could be asked to provide a 360-degree scan of the surroundings to verify this. If this is impractical because of the subject's condition, it would be best to postpone the assessment until an in-person interview can take place. If there are serious concerns that undue influence is actually being exerted, it is essential to conduct the assessment interview in person with the subject alone, except for a professional interpreter when needed.

The physician may be asked to prepare a written report, which could be used in various ways, such as to trigger an event, to discuss in negotiations, or for court proceedings.

There is disagreement in the medicolegal literature regarding whether information about patterns of will making by the patient is relevant to the medical assessment of susceptibility to testamentary undue influence. The International Psychogeriatric Association Task Force on Testamentary Capacity and Undue Influence considered that shifts from previous will-making patterns are relevant to the medical assessment of susceptibility.[32] Plotkin and colleagues disagreed on the ground that the significance of will-making behavior is outside the expertise of medical assessors and rests with the court.[33] It is important to keep in mind that the medical assessor's role is to give an opinion on susceptibility to undue influence, not to determine whether the patient has actually been subjected to undue influence.

After the assessment

The physician may be asked or required to take further steps after assessing a person's capacity. For example, the physician may be asked to affirm an affidavit (a written statement taken under oath), which is often drafted by a lawyer. The physician may be asked to prepare a written report, which could be used in various ways, such as to trigger an event, to discuss in negotiations, or for court proceedings. Writing the report is not compensable by MSP. For court proceedings, the physician may be cross-examined on their opinion or the affidavit they made. The physician's notes may be subpoenaed. The physician's role in any

BOX. Resources for evaluating financial capacity, testamentary capacity, and undue influence.

- **British Columbia Law Institute:** Undue influence: Recognition and prevention. A guide for legal practitioners. 2022. www.bcli.org/wp-content/uploads/undue-influence-recognition-prevention-guide-final-3.pdf
- **Public Guardian and Trustee of British Columbia:** www.trustee.bc.ca
- **Public Guardian and Trustee of British Columbia:** Incapability assessments: A review of assessment and screening tools. 2021. www.trustee.bc.ca/documents/sta/incapability_assessments_review_assessment_screening_tools.pdf
- **Public Guardian and Trustee of British Columbia:** Adult information sheet: Assessing an adult's ability to manage their financial affairs. 2016. www.trustee.bc.ca/reports-and-publications/Documents/Adult%20Information%20Sheet.pdf
- **Attorney General of British Columbia:** Enduring power of attorney [form]. 2011. www2.gov.bc.ca/assets/gov/health/managing-your-health/incapacity-planning/enduring_power_of_attorney.pdf
- **Attorney General of British Columbia:** Representation agreement (section 9) [form]. 2011. www2.gov.bc.ca/assets/gov/health/managing-your-health/incapacity-planning/representation_agreement_s9.pdf
- **Service Canada:** Agreement to administer benefits under the Old Age Security Act and/or the Canada Pension Plan by a private trustee [form]. https://catalogue.servicecanada.gc.ca/apps/EForms/pdf/en/ISP-3506_OAS.pdf

proceeding will be either a fact witness or an expert witness. The physician may be called as a fact witness and asked questions such as when and where the patient was examined and what was observed. The physician may be called as an expert witness to provide opinion evidence on a person's capacity.

Summary

Capacity assessments by physicians can play a vital role in serving the best interests of their patients. This review is intended to provide clinical and legal guidance on how physicians can proficiently conduct capacity assessments in light of statutory and common laws that inform practice. A list of online resources for the various agencies discussed is included in the **Box**. ■

Competing interests

None declared.

Capacity assessments by physicians can play a vital role in serving the best interests of their patients.

References

1. Statistics Canada. Census of population. 2021. Accessed 17 January 2024. www12.statcan.gc.ca/census-recensement/index-eng.cfm.
2. Yon Y, Mikton CR, Gassoumis ZD, Wilber KH. Elder abuse prevalence in community settings: A systematic review and meta-analysis. Lancet Glob Health 2017;5:e147-e156.
3. Yon Y, Ramiro-Gonzalez M, Mikton CR, et al. The prevalence of elder abuse in institutional settings: A systematic review and meta-analysis. Eur J Public Health 2019;29:58-67.
4. Rogers MM, Storey JE, Galloway S. Elder mistreatment and dementia: A comparison of people with and without dementia across the prevalence of abuse. J Appl Gerontol 2023;42:909-918.
5. Appelbaum PS, Grisso T. Assessing patients' capacities to consent to treatment. N Engl J Med 1988;319:1635-1638.
6. Wills, Estates and Succession Act, SBC 2009, Chapter 13. Accessed 17 January 2024. www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/09013_01.
7. British Columbia Law Institute. Undue influence: Recognition and prevention. A guide for legal practitioners. Vancouver: 2022. Accessed 17 January 2024. www.bcli.org/wp-content/uploads/undue-influence-recognition-prevention-guide-final-3.pdf.
8. Power of Attorney Act, RSBC 1996, Chapter 370. Accessed 17 January 2024. www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96370_01.
9. Representation Agreement Act, RSBC 1996, Chapter 405. Accessed 17 January 2024. www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96405_01.
10. BC Centre for Palliative Care. What you need to know about standard representation agreements (section 7). 2021. Accessed 17 January 2024. https://bc-cpc.ca/wp-content/uploads/2021/11/RA7-Guide_SPREAD.pdf.
11. The British Medical Association, the Law Society, Keen AR. Assessment of mental capacity: A practical guide for doctors and lawyers. 5th ed. London, UK: London Law Society Publishing; 2022.
12. Court Rules Act, Supreme Court Civil Rules, 2009, BC Reg 168/2009. Accessed 17 January 2024. www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/168_2009_00.
13. Pinto TCC, Machado L, Bulgacov TM, et al. Is the Montreal Cognitive Assessment (MoCA) screening superior to the Mini-Mental State Examination (MMSE) in the detection of mild cognitive impairment (MCI) and Alzheimer's disease (AD) in the elderly? Int Psychogeriatr 2019;31:491-504.
14. Bejenaru A, Ellison JM. Medicolegal implications of mild neurocognitive disorder. J Geriatr Psychiatry Neurol 2021;34:513-527.
15. Patients Property Act, RSBC 1996, Chapter 349. Accessed 17 January 2024. www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96349_01.
16. Adult Guardianship Act, Statutory Property Guardianship Regulation, 2014, BC Reg 115/2014. www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/115_2014.
17. Fellows LK. The role of orbitofrontal cortex in decision making: A component process account. Ann NY Acad Sci 2007;1121:421-430.
18. Baird A. Fine tuning recommendations for older adults with memory complaints: Using the Independent Living Scales with the Dementia Rating Scale. Clin Neuropsychol 2006;20:649-661.
19. Zur BM, Rudman DL, Johnson AM, et al. Examining the construct validity of the Cognitive Competency Test for occupational therapy practice. Can J Occup Ther 2013;80:171-180.
20. Service Canada. Agreement to administer benefits under the Old Age Security Act and/or the Canada Pension Plan by a private trustee [form]. 17 January 2024. https://catalogue.servicecanada.gc.ca/apps/EForms/pdf/en/ISP-3506_OAS.pdf.
21. Public Guardian and Trustee of British Columbia. Accessed 17 January 2024. www.trustee.bc.ca.
22. Adult Guardianship Act, RSBC 1996, Chapter 6. Accessed 17 January 2024. www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96006_01.
23. Banks v. Goodfellow, [1870] 5 LR QB 549 (Eng QB).
24. Royal Bank of Scotland Plc v. Etridge (No. 2), [2001] UKHL 44, [2002] 2 AC 773.
25. Daniel v. Drew, [2005] EWCA Civ 507.
26. Geffen v. Goodman Estate, [1991] 2 SCR 353.
27. Tribe v. Farrell, [2006] BCCA 38.
28. Boyse v. Rossborough, [1857] 6 HLC 2, 10 ER 1192.
29. Vout v. Hay, [1995] 2 SCR 876.
30. Wingrove v. Wingrove [1885] 11 PD 81.
31. Herrmann N, Whaley KA, Herbert DJ, Shulman KI. Susceptibility to undue influence: The role of the medical expert in estate litigation. Can J Psychiatry 2022;67:5-12.
32. Peisah C, Finkel S, Shulman K, et al. The wills of older people: Risk factors for undue influence. Int Psychogeriatr 2009;21:7-15.
33. Plotkin DA, Spar JE, Horwitz HL. Assessing undue influence. J Am Acad Psychiatry Law 2016;44:344-351.
34. Shulman KI, Cohen CA, Kirsh FC, et al. Assessment of testamentary capacity and vulnerability to undue influence. Am J Psychiatry 2007;164:722-727.
35. Silberfeld M. Susceptibility to undue influence in the mentally impaired. Estates, Trusts & Pensions J 2002;21:331-344.

The public health paradox of wildfire smoke

When the BCCDC presents on the public health impacts of wildfire smoke, we often ask audiences to consider the following question: If there are 10 asthma-related physician visits on a slightly smoky day, how many occur on a day with 10 times as much smoke? Based on epidemiologic evidence, the answer is about 20 **[Figure]**. Based on human intuition, however, the most common response is 100. This is true even among professionals who are trained in environmental public health.

Wildfire smoke is a complex mixture of gases and fine particulate matter ($PM_{2.5}$), all of which can affect health.[1] However, concentrations of $PM_{2.5}$ are typically used as a proxy for the whole mixture, for a few reasons. First, $PM_{2.5}$ is the ambient air pollutant most consistently elevated by wildfire smoke. Second, $PM_{2.5}$ is widely measured by regulatory and community science air-quality monitoring networks. Third, decades of research have demonstrated that $PM_{2.5}$ exposure is harmful to respiratory, cardiovascular, endocrine, brain, and reproductive health.[2]

Despite human intuition, the relationship between $PM_{2.5}$ concentrations and acute respiratory outcomes is nonlinear, with steeper slopes at lower concentrations and a plateau at higher concentrations **[Figure]**. The same pattern has been described for long-term $PM_{2.5}$ exposure and the development of cardiovascular disease.[3] This nonlinear concentration-response relationship is likely due to biological saturation of the cellular processes that cause health harms at high $PM_{2.5}$ concentrations.[4]

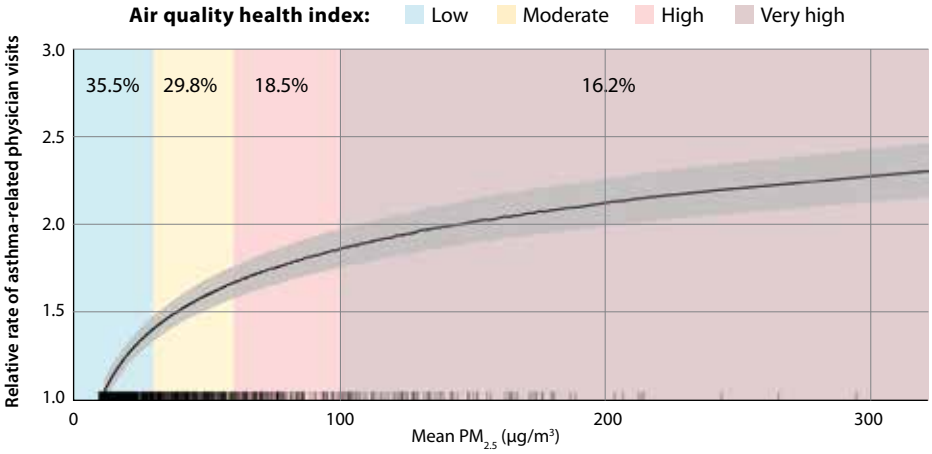

FIGURE. The relationship between 24-hour fine particulate matter ($PM_{2.5}$) concentration and the relative rate of asthma-related physician visits (black line with 95% CI) in BC from 2016 to 2022. The rate at all concentrations is shown relative to the rate at concentrations less than 10 µg/m³, which is the typical air quality in BC. The carpet plot along the *x*-axis shows the frequency distribution of higher daily $PM_{2.5}$ concentrations. The background shading indicates the ranges of 1-hour $PM_{2.5}$ concentrations corresponding to each level of the air quality health index. Percentages at the top of each shaded area indicate how much of the total burden of excess asthma-related physician visits are attributable to $PM_{2.5}$ concentrations higher than 10 µg/m³ in that range.

Here lies the public health paradox: wildfire smoke gets a lot of public and media attention when $PM_{2.5}$ concentrations are extreme, but it causes much more harm at the lower concentrations that occur more frequently. In BC, concentrations over 100 µg/m³ are responsible for less than 20% of asthma-related visits attributable to wildfire smoke. However, more than 35% occur at concentrations between 10 and 30 µg/m³ **[Figure]**.

The climate in BC is changing, and wildfire smoke is starting to dominate our lifetime exposure to air pollution.[5] As with all other types of air pollution, reducing exposure to wildfire smoke will reduce the associated health risks. If we focus our attention on the extreme events and ignore the more moderate impacts, we miss most of our opportunity to protect health. We should collectively start to manage exposures whenever wildfire smoke is affecting air quality.

Most people spend the majority of their time indoors, so cleaner indoor air should be the primary focus. Large buildings need smoke-readiness plans, while commercial and DIY air cleaners are effective for homes and smaller spaces.[6] If we combine cleaner indoor air with other simple strategies such as taking it easy outdoors and wearing respiratory protection when appropriate, we can reduce the short- and long-term health impacts of wildfire smoke. ■

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Continued on page 95

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

Obituaries

We welcome original tributes of less than 700 words; we may edit them for clarity and length. Obituaries may be emailed to journal@doctorsofbc.ca. Include birth and death dates, full name and name deceased was best known by, key hospital and professional affiliations, relevant biographical data, and a high-resolution head-and-shoulders photo.

Dr Robert Alan Hewko

1953–2023

Dr Rob Hewko, a well-loved clinical professor in the University of British Columbia's Department of Psychiatry and the former medical lead for the consultation-liaison service at Vancouver General and UBC Hospitals, passed away in December 2023. He leaves behind an extraordinary legacy of dedication to clinical service, education, and leadership in medical psychiatry.

For more than 30 years he roamed the wards at VGH, finding solutions to arcane patient puzzles, using what he called a biopsychosocial model. Over the years his focus was on delirium, pain, addiction, pseudoseizures, and other clinical problems that high-tech modern medicine all too often minimizes or ignores. His calm demeanor reassured patients who were often amazed to discover a physician who not only listened but was also able to help. Rob never ignored ostensibly minor details and was meticulous about taking a proper history. It didn't hurt that he had a near-eidetic memory and an encyclopedic medical knowledge, remembering some rare disease he had read about only once in medical school. He spent countless hours explaining to residents, nurses, families, patients, and anyone within earshot how and why some condition had evolved and why it was essential to understand the underlying mechanism(s) and epistemology. Nursing staff appreciated his support, and students of all stripes flocked to his many lectures and talks, where the usual PowerPoint slides were interspersed with colorful, often funny, clinical anecdotes.

His liaison with the American Academy of Psychosomatic Medicine (now the Academy of Consultation-Liaison Psychiatry) began long before anyone in BC had even heard of it; this allowed him to bring international standards of care to VGH, which spread across the province through hundreds of trainees and colleagues. He was especially proud of teaching off-service residents who could bring a higher standard of care for conditions like delirium back to their own disciplines. Within consultation-liaison psychiatry, Rob carved out new clinical fields, such as innovative approaches to managing pain and addiction in a model that continues to be followed today.

Many awards and accolades were thrown his way, the most recent being the BC Psychiatric Association's Distinguished Contribution to Psychiatry award, but overall, Rob was more interested in clinical work and never lost sight of the vulnerable, ill person at the centre of it. His sharp intellect, medical acumen, and deep understanding of pharmacology (which he ascribed to his undergraduate work in biochemistry) not only resulted in exemplary patient care but also expanded the clinical role of hospital psychiatry beyond its traditional borders as he set the gold standard for consultation-liaison psychiatry in BC and beyond. He will be missed.

—Susan Baxter
Vancouver

—Jesse Sidhu, MD
Vancouver

COHP

Continued from page 76

References

1. World Economic Forum. Global risks report 2024. Accessed 17 January 2024. www.weforum.org/publications/global-risks-report-2024.
2. Council of Canadian Academies. Fault lines: Expert panel on the socioeconomic impacts of science and health misinformation. 2023. Accessed 18 January 2024. https://cca-reports.ca/wp-content/uploads/2023/01/Report-Fault-Lines-digital.pdf.
3. Edelman. 2023 Edelman trust barometer: Global report. 2023. Accessed 22 January 2024. www.edelman.com/sites/g/files/aatuss191/files/2023-03/2023%20Edelman%20Trust%20Barometer%20Global%20Report%20FINAL.pdf.
4. American Psychological Association. Using psychology to understand and fight health misinformation: An APA consensus statement. 2023. Accessed 16 January 2024. www.apa.org/pubs/reports/health-misinformation.

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Continued from page 93

—Jiayun Angela Yao, PhD
Senior Scientist, BCCDC Environmental Health Services

—Michael J. Lee, PhD
Environmental Epidemiologist, BCCDC Environmental Health Services

References

1. Reisen F, Duran SM, Flannigan M, et al. Wildfire smoke and public health risk. Int J Wildland Fire 2015;24:1029-1044.
2. Feng S, Gao D, Liao F, et al. The health effects of ambient $PM_{2.5}$ and potential mechanisms. Ecotoxicol Environ Saf 2016;128:67-74.
3. Smith KR, Peel JL. Mind the gap. Environ Health Perspect 2010;118:1643-1645.
4. Thangavel P, Park D, Lee YC. Recent insights into particulate matter ($PM_{2.5}$)-mediated toxicity in humans: An overview. Int J Environ Res Public Health 2022;19:7511.
5. Burke M, Childs ML, de la Cuesta B, et al. The contribution of wildfire to $PM_{2.5}$ trends in the USA. Nature 2023;622:761-766.
6. Barn PK, Elliott CT, Allen RW, et al. Portable air cleaners should be at the forefront of the public health response to landscape fire smoke. Environ Health 2016;15:116.

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Gondoliers' footwear

A capricious survey of shoe choices among Venetian watercraft operators.

Adam Zanbilowicz, MS(Medical Education), DPM(Hons), Sophia Zanbilowicz

ABSTRACT: Gondoliers, often overlooked in the realm of occupational safety, navigate the intricate waterways of Venice while providing essential services to wealthy tourists. The footwear choices of these professionals are crucial for their performance, especially on wet, unstable surfaces. This groundbreaking study sheds light on the diversity of gondoliers' footwear preferences. Analyzing 74 discreetly photographed gondoliers on a tax-deductible research trip, the authors have shone light on a new area of academic inquiry. The greatest strength and simultaneous weakness of this study involved the researchers being blinded through the befuddling effects of Aperol. Other beverages will be considered to reduce investigator bias in future research of this series.

Dr Zanbilowicz is a podiatrist practising at the Caledonian Clinic in Nanaimo with a master's degree in medical education from McGill and a Yozma Fellowship to Yale University. He completed his surgical residency in Vancouver in 2000. Dr Zanbilowicz was the principal researcher and creator of a physician-initiated Pfizer study on prophylaxis of postoperative orthopaedic pain using Celebrex (the study was not published due to insufficient patients being recruited). He has also served on the BC Podiatric Medical Association board, has been a keynote lecturer at wound care conferences, and is beginning to work as part of the peer review practice standards assessment group through the College of Physicians and Surgeons of BC. Ms Zanbilowicz is an undergraduate student in the health sciences program at Queen's University in Kingston, Ontario. She is also an outreach committee executive for MOVE4MANA Canada and co-author of Introduction to Statistics for the Health Sciences, *a textbook pending publication at Queen's University.*

This article has been peer reviewed.

Introduction

Despite their crucial role in Venice's tourism industry, gondoliers remain understudied. There are no prior investigations into their footwear choices. In fact, a PubMed search returned no results for the search terms "Venetian boatman" or "gondolier." Operating within the confines of a UNESCO World Heritage Site, these skilled professionals engage in high-risk activities on slippery surfaces. Their tasks range from propelling vessels to assisting passengers, which often requires strength and agility. This study begins the exploration of their footwear preferences, with the expectation that future research will enable safety recommendations. It is our aspiration that an exhaustive series of studies will not only advance knowledge but also facilitate investigator tax deductions for European travel research expeditions.

Methods

The methodology involved discreetly capturing images of 74 consecutive gondolier footwear selections while seated at a bar along the Grand Canal. A Google Pixel 7 cellphone was used for the remarkable zoom capabilities of the purpose-acquired

FIGURE 1. Data collection. Aperol spritz obscuring footwear leading to data loss. The diversity of gondolier movement may be noted in the background of the photo where a gondolier is pushing off the wall with his foot, highlighting the need for traction.

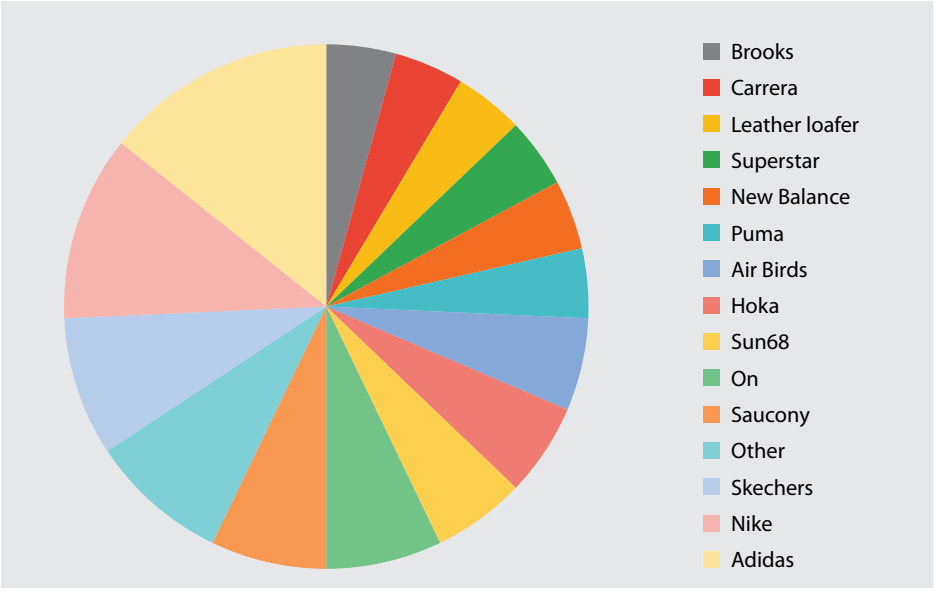

FIGURE 2. Frequency of shoe brands identified. One pair of Sketchers not included as it was not being worn during the data-collection phase.

device (which the authors believe to be tax-deductible). To ensure impartiality, gondoliers remained unaware of being photographed, and the researchers consumed numerous Aperol spritzes and one limoncello. Researcher inebriation was a great asset to this study. Post–data collection, when the researchers had sobered from the exhaustive 3-hour session, footwear photos were carefully analyzed. Attempts to conduct interviews with the gondoliers proved futile due to diminishing communication skills, although the researchers' inability to speak Italian was not felt to be an impediment to the attempts. Exclusion criteria were based mainly on low-quality photos caused by the optical effects of wine glasses obscuring the view of gondoliers' feet **[Figure 1]**.

Researcher inebriation was a great asset to this study.

Discussion

The results indicate a notable diversity in the footwear choices of gondoliers, with some trends emerging. Predominantly, minimalist shoe brands such as Nike (10.8%) and Adidas (13.5%) were common. However, intriguing anomalies included the maximalist Hoka shoes, representing 5.4% of all footwear observed. Notably, one gondolier was observed barefoot, with cushioning Skechers left on the boat's deck. The significance of this observation remains unclear, as Skechers were a prevalent choice among study subjects. Interviews with less-intoxicated data collectors might be of benefit. Future studies should aim to better manage researcher inebriation levels. Additionally, potential secondary endpoints, such as the correlation between red- or black-striped shirts and shoe types, could be explored with a larger sample size.

Conclusion

This preliminary investigation highlights the considerable diversity in footwear choices among professional gondoliers. Looking toward future exhaustive studies, we hope to embark on tax-deductible research expeditions to further explore this fascinating topic. ■

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