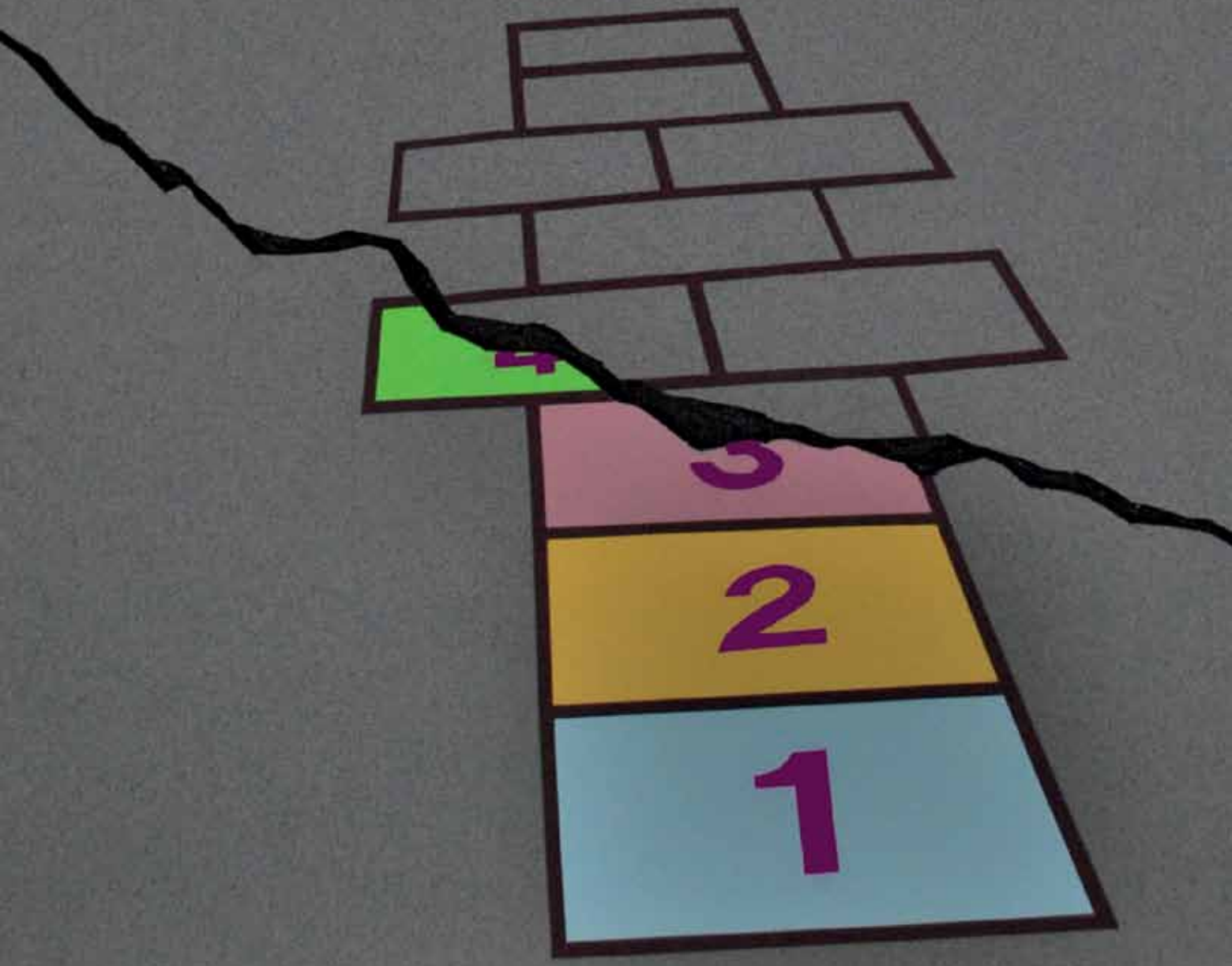
BCMJ
BC Medical Journal
April 2019; 61:3
Pages 101–148

IN THIS ISSUE:

Falling through the cracks:

How service gaps leave children with neurodevelopmental disorders and mental health difficulties without the care they need



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contents

April 2019
Volume 61 • Number 3
Pages 101–148

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BC Medical Journal

ON THE COVER

There is a lack of specialized mental health services for children with a dual diagnosis, and the resulting inadequate level of community support has placed the burden of care on families. Article begins on page 114.

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

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contents

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Langley City family practice

I have spent over 25 years of my life as a family physician in Langley and have seen many changes in my community during this time. The population has more than doubled, resulting in increased traffic congestion, commercial areas, infrastructure, and recreational facilities. Langley now has every big-box retailer known to Western civilization, including Costco, Walmart, Home Depot, and the Real Canadian Superstore. What was previously a quiet drive into the central core is now a stop-and-go traffic light adventure. Despite this, Langley has been good to me. My two children were raised here and I have made many good friends over the years. I also met my wife here, twice.* I managed to build a busy family practice while working at Langley Hospital, where I have fostered excellent relationships with many physicians and staff.

Speaking of relationships, one constant during all of this growth has been the welcome presence of the physicians with whom I work closely in our clinic. I feel so lucky and have been blessed to have shared these years with these quality individuals. Four became five, and now we are six. When I first joined the original three, I was surprised to find that our office desks were in the same room without any physical barriers to separate them. I found this lack of privacy unnerving and was concerned about confidentiality, interruptions, and noise levels. I wondered how work would get done in this open space. I shouldn't have worried, because this environment fostered closeness and sharing. There is always someone around to bounce ideas off and listen to concerns about this patient or that issue. Complaints are shared, lightening the burden each of us carries throughout our busy practices. We also regularly laugh and joke with one another. Fridays after work are one of my weekly highlights as we settle into the weekend by sharing some drinks and snacks.

We have seen each other through illnesses, accidents, tragedies, divorces, aging parents, and so much more. These people are my rocks and I know they have my back through thick and thin. Now don't get me wrong; we've had our disagreements over the years, but they have been handled with mutual respect and care. We hear about practices that have disbanded as a result of differences and disputes. I'm not sure if it was by luck or some unseen force, but I couldn't have chosen a better group of work colleagues. I have spent more time with these people than I have with most of my family and friends, yet I don't tire of their wit, humor, compassion, caring, and support. Perhaps I have become more sentimental as I begin to think about retirement, but it has been a wonderful journey working with these excellent physicians whom I am proud to call my friends.

Joining a practice is like a marriage in many ways, so to those physicians considering joining a practice, I encourage you to choose wisely. I know I did.

—DRR

*The first time we met there was an instant connection and a feeling of electricity passing between us . . . that apparently only I felt as she doesn't remember the interaction.

Reflections on my first year of independent practice, so far

When 1 July 2018 came around, I had done the countless paperwork and paid my dues. I finally got the okay to venture into the world of family medicine on my own. It was, and still is, an exciting time, but also a terrifying time. I spent the first few weekends of this monumental year thinking about all the cases I had seen the week prior and second guessing myself about some. I ended up calling several patients to check on how they were doing, and most of them were, first, surprised I called and, second, usually doing better, and if not, there was a plan of what to do next. This put my mind at ease somewhat. The unknown is still scary, but I know it is a part of the growing pains and transition. I'm also happy to say that my weekends are generally getting better.

Another thing I've noticed is the many remarks on my age and experience. The remarks I most often get are, "Oh, I thought I would be seeing someone . . . older," or, "You look like you are in high school!" I have not yet come up with a good response to these remarks, so it usually ends with an awkward laugh and shrug. I think most of the remarks come from genuine surprise, but some can come across as judgmental. One patient even talked to me for a good 10 minutes before he finally asked, "When am I going to see the *real* doctor?" I could only reply, "Sorry, Mr S., I am who you are seeing today."

I am able to share quite a bit of knowledge and pearls I have gained along the way, despite only having been in practice for a short time.

There will come a time when these remarks no longer occur. I'm not sure if I'm looking forward to that or not. Nonetheless, I remind myself that my training has enabled me to help patients, so being the most professional and knowledgeable that I can be is the best response. In the meantime, I may as well take them as a compliment.

The one thing I did not truly come to understand fully until recently is that the learning never stops in medicine. Yes, mentors and teachers told me that they are constantly learning something new. But for some reason, when I was in residency, the end goal seemed to be passing the CCFP. A small part of me thought that if I passed the exam then all the knowledge I needed for family medicine would be there, and, miraculously, between 30 June and 1 July I would become the wise, all-knowing doctor I strived to be. But I woke up on 1 July feeling like the same person I was the day before.

There are still many things I do not know, so I ask for help from colleagues, check resources, and consult specialists. I also look back and realize how much more I do know compared to only several months ago. I am more confident dealing with cases and making decisions. I was hesitant at first to teach medical students and residents because I thought I would not have much knowledge to share, but in reality, I am able to share quite a bit of knowledge and pearls I have gained along the way, despite only having been in practice for a short time.

This period of transition is an exciting time. There are finally no residency requirements to fulfill but we in turn become fully accountable for our patients. To my fellow colleagues who have also recently ventured into practice, let's continue to learn and grow together. I look forward to what lies ahead in our careers. **—YS**


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Are doctors territorial? When it comes to quality care, we better be

Being a doctor is no walk on the beach. Certainly it's rewarding work and it's a privilege to serve others, but recent headlines suggest that we have had sand thrown in our faces:

- The public is told that nurse practitioners can provide the same care as family doctors.[1]
- Naturopaths are legitimized through funding to treat patients after a car accident.[2]
- Some pharmacists want to give a diagnosis and then sell the treatment.[3]

Given the expected pushback from our profession, I was recently asked by a reporter why doctors are so territorial. My initial thought was, who is more collaborative than doctors? We work (most importantly) with our patients and their families, but also with pharmacists, kinesiologists, physio- and occupational therapists, social workers, speech and language therapists, administrators, staff, and many other health care professionals. We are asking for support to develop team-based care[4] so we can work together complementarily and practice to scope.[5]

But I have further reflected on this question. While we aren't necessarily territorial over who provides care to our patients, happily sharing it with other health care professionals in team-based settings, we are protective of our patients and of the health care system we work in. We are ardent about giving the best care—one need only look at the many online forums to see how passionately doctors advocate to protect patients from unproven or unlikely investigations and treatments such as magnetic field therapy, chelation therapy, or consuming herbs such as kava kava. (On a side note, although language is important and there are historical reasons for its use, we ought to find another term for *alternative* medicine, because the alternative to medicine is not medicine.)

We are also territorial in advocating for our health care system,[6] or at least some improved form of it. Through initiatives like the Guidelines and Protocols Advisory Committee,[7] continuing education, and many quality-focused organizations, we do not have space for those who promote unnecessary tests[8] or incorrect or imaginary diagnoses.[9] We recognize cultural humility[10] but strive to balance that with science, even as movements with malicious intent[11] aim to erode our societal constructs of science and medicine.

It is through this lens of advocating for our patients that we can understand recent actions. We are happy to work with nurse practitioners and do so in many settings, but the skills—and, quite frankly, the value—of doctors are unparalleled. Pharmacists are our medication experts and an important part of the health care team, but the question of conflict of interest[12] diverges from the principle of patient-centredness.

And although much online debate eventually degrades to prove Godwin's Law, we as doctors cannot stand by while some naturopaths and functional medicine doctors encourage people to pressure medical doctors to order tests[13] so that insurance will pay for it.

We enjoy serving our patients and putting them first. We want better ways to collaborate in teams where each health care professional works to their full scope. But when it comes to the well-being of our patients and our communities, we fiercely protect against wasteful investigation, shamanistic treatments, and fear-provoking propaganda. And if doing that makes us territorial, then let me be the first to draw a line in the sand.

—Eric Cadesky, MDCM, CCFP, FCFP
Doctors of BC President

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Continued on page 112

letters to the editor

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

Re: Cannabis use by adolescents

This article [*BCMJ* 2019;61:14-19] would be the first in the literature to establish different clinical effects from *C. sativa* and *C. indica* strains. While Dr Ocana insists that clinical research supports separating these strains because of their different effects (stimulating vs sedating), the reference he provided does not support this or even use these differing strain names. Recent chemical analysis of cannabis strains from Washington State argues against differences in CBD and THC between these strains.[1] Other cannabis scientists are in agreement that these terms are better suited to marketing than clinical use: "There are biochemically distinct strains of Cannabis, but the sativa/indica distinction as commonly applied in the lay literature is total nonsense and an exercise in futility."[2]

In Dr Ocana's article, results are presented from a cohort interviewed about their experiences with different strains; however, the results should be viewed more as those of the placebo effect in combination with observer bias, especially given the lack of quantification of the cannabis used.

Dr Ocana also states that deaths have increased with cannabis legalization. The cited reference mentions only one death, that of a child who died of myocarditis. This case was controversial enough for the case report's authors to publicly clarify, "We are absolutely not saying that marijuana killed that child."[3]

As Dr Ocana notes, it can be difficult to deal with misinformation; this is magnified when it is published in a medical journal. The three most commonly held misbeliefs among physicians are that cannabis overdose can be fatal, that cannabis is often contaminated with fentanyl, and that there are differences in effect between *C. indica* and *C. sativa* strains.

—Ian Mitchell, MD, FRCP
Clinical Associate Professor, UBC Department of Emergency Medicine
Site Scholar, Kamloops Family Medicine Residency Program

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Author replies

I thank Dr Mitchell for his opinion and for standing behind the quote, "There are biochemically distinct strains of cannabis, but the sativa/indica distinction as commonly applied in the lay literature is total nonsense and an exercise in futility."[1]

In effect, Dr Mitchell is saying "strain does not matter." I can't say Dr Mitchell is wrong, but it does not align with the data we collected.

Dr Mitchell proposes that my observations should be viewed more as results of the placebo effect in combination with observer bias, especially given the lack of quantification of the cannabis used.

I respectfully disagree. This is not a placebo effect. The data are based on a retrospective chart analysis of a heterogeneous population, in a naturalistic setting, with no exclusion criteria. Even after you remove the noise, our observations remained statistically more likely than expected by chance.

It seems that Dr Mitchell is suggesting that our observations are misinformation, worse because they are published in a peer-reviewed medical journal. Here's why I see it differently:

- Before our study, from reading the medical literature, I didn't even know there were two distinct strains.
- During our study, I was amazed how strong the signal remained, *despite* a possible placebo effect, observer bias, and regardless of the dose. Not only are the strains

different, they are opposites.
- After our study, I shared my observations with every clinician at every conference and everybody said what Dr Mitchell said, "There is no strain difference."

In essence, what our patients consider a self-evident truth, that *sativa* stimulates and *indica* sedates, is based on millennia of trial and error. It should not be a mystery to respected cannabis scientists. But it is. That's why I knew we had to publish it.

Whether this is a random finding or whether it represents the first stone on the scale that measures the weight of evidence, only time will tell.

—A.M. Ocana, MD, CCFP, ABAM
North Vancouver

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MyoActivation for the treatment of pain & disability

Chronic musculoskeletal pain is common in our society. One in five people suffer with chronic pain in Canada. We need alternatives to pharmacologic interventions that are cost effective, safe, and available to most patients. Ideally, these alternatives would be covered by MSP. Most importantly, alternative treatments could decrease our reliance on opiates.

I am a retired family physician who underwent right hip replacement surgery in 2018. I was skeptical when a colleague suggested I try myoActivation during my rehabilitation. A compensatory flexion and adduction contracture of my right hip was slowing my recovery. I also had weak hip abductors, hamstrings, and gluteus muscles.

What is myoActivation? It is a refined injection technique that targets damaged fascia, scars, and other trigger points in the body. Using multiple needling with hollow bore cutting needles with minute amounts of normal saline, soft tissue contractures are released.

I am now pain free and back to doing all of the activities I love to do.

Here are some interesting details that I picked up during my visits:
- A detailed history of all past injuries is considered in terms of myofascial contractures and scars.
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- The most painful sites are treated first, followed by re-evaluation of movements. Then the next painful area is treated.
- Multiple cycles of injections, followed by evaluation and further injections, are carried out at each appointment.
- Tissue realignment takes place the first few days after treatment, followed by stabilization.

The technique was pioneered by Dr Greg Siren,[1] a family physician with a focused practice in chronic pain in Victoria, BC.

At the time I write this letter, myoActivation is also available in Vancouver at the CHANGEpain Clinic, the Downtown Community Health Centre (Downtown Eastside), and the Complex Pain Service at BC Children's Hospital. It has been shown to be effective in treating chronic pain originating in the soft tissues in the elderly as well as children.

I hope this letter raises awareness about this technique. It can be practically delivered in primary care patient encounters and could be part of a multidisciplinary approach to treatment of chronic musculoskeletal pain.

—Suzanne Montemuro, MD, CCFP
Victoria

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To sleep or not to sleep

One thing that endears me to the *BCMJ* is the editor's page. DRR writes thoughtful, often funny comments about the world around us. His December 2018 editorial, "Sleep, when it no longer comes naturally," [*BCMJ* 2018;60:478] was a bit of a departure from his usually joyful character, and reading it filled me with concern and empathy for him. It revealed his struggle with anticipatory anxiety insomnia, wondering each night if sleep is going to come to him. The last line was: "…if anyone has suggestions for some good book titles, please send them my way."

I asked myself, what would be a good book for someone awake enough in the middle of the night to want to read, but anxious enough to hope to get back to sleep?

I scanned my list of 117 BC physician authors on www.abcbook

Continued on page 112

Continued from page 111

world.com, and looked for diaries, novels, short stories, historical stories, poetry, and theatrical plays published between the early 1800s and recent times. I looked for reading material that was relatively slow paced, interesting but not exciting or anxiety provoking, and long enough to get sleepy—or bored—while reading it.

Here are 10 books I recommend, written by some of our physician colleagues, in alphabetical order by author:

Burris HL. *Medical Saga: The Burris Clinic and Early Pioneers*

Cheadle WB. *Cheadle's Journal of Trip across Canada:1862–1863*

Duncan AC. *Medicine, Madams, and Mounties: Stories of a Yukon Doctor*

Emmott K. *How Do You Feel?* (1992 poetry collection)

Karlinsky H. *The Evolution of Inanimate Objects: The Life and Collected Works of Thomas Darwin (1857–1879)*

Kenyon A. *The Recorded History of the Liard Basin, 1790–1910*

Lee E. *Scalpels and Buggywhips*

Leighton K. *Oar and Sail: An Odyssey of the West Coast*

Swan A. *House Calls by Float Plane: Stories of a West Coast Doctor*

Tolmie WF. *The Journals of William Fraser Tolmie: Physician and Fur Trader*

Dear Dr DRR, have a good read and a good sleep!

—George Szasz, CM, MD
West Vancouver

Thank you for your concern, and I really appreciate your book suggestions.—Ed.

This letter originally appeared as a *BCMJ* blog post. Visit www.bcmj.org/blog to read all of our posts, and consider submitting your own.

Continued from page 109

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Erika Ono, MSW, RSW, Robin Friedlander, MD, FRCPC, Tamara Salih, MD, FRCPC

Falling through the cracks: How service gaps leave children with neurodevelopmental disorders and mental health difficulties without the care they need

Four clinical vignettes illustrate the challenges faced by families of children with a dual diagnosis in British Columbia and demonstrate the need for a wraparound approach to service delivery.

ABSTRACT: Children with neurodevelopmental disorders are at increased risk of developing mental health difficulties, and when neurodevelopmental and psychiatric disorders do co-occur, children and their families frequently face multiple barriers as they try to access services and resources. A literature review indicates that there is a lack of specialized mental health services for patients with a dual diagnosis, and the resulting inadequate level of community supports has placed the burden of care on families. Services for children in BC with a dual diagnosis are delivered by different agencies and programs, primarily under the Ministry of Children and Family Development and the province's health authorities. Depending on the specifics of the diagnoses, children may be eligible for community support services, outpatient mental health services, and inpatient psychiatry services. However, because of system fragmentation and insufficient collaboration and communication, obtaining these services can be challenging and many children are falling through the cracks. Four clinical vignettes illustrate how children and their families trying to access support face barriers, including bureaucratic processes, lack of respite, out-of-home service obstacles, and limited specialized training for care providers. Policy changes are needed to ensure a wraparound approach to care based on integrative interagency and cross-agency practices.

This article has been peer reviewed.

The *Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition)* defines neurodevelopmental disorders as "a group of conditions with onset in the developmental period. The disorders typically manifest early in development, often before the child enters grade school, and are characterized by developmental deficits that produce impairments of personal, social, academic, or occupational function-

Ms Ono is a PhD candidate and sessional lecturer in the School of Social Work at the University of British Columbia, an evaluation specialist at the Centre for Health Evaluation and Outcome Sciences, and a social worker at BC Children's Hospital Psychiatry Department. Dr Friedlander is clinical head of the Neuropsychiatry Clinic at BC Children's Hospital. He is also a clinical professor in the UBC Department of Psychiatry and director of the Developmental Disorders Program. Dr Salih is a psychiatrist in the Mood and Anxiety Disorders Clinic and the Neuropsychiatry Clinic at BC Children's Hospital. She is also a clinical instructor in the UBC Department of Psychiatry.

ing. There is a wide range of developmental deficits that vary from very specific limitations of learning or control of executive functions to global impairments of social skills or intelligence."[1] Major neurodevelopmental disorders include intellectual disability (ID), autism spectrum disorder (ASD), fetal alcohol spectrum disorder (FASD), and genetic conditions such as Prader-Willi, fragile X, and Down syndrome. Children with neurodevelopmental disorders are at increased risk of developing mental health difficulties, with 39% of children with a neurodevelopmental disorder requiring mental health services compared with 14% of children in the general population.[2]

Children with a dual diagnosis and their families frequently face multiple barriers when trying to access support services. Service delivery in BC is fragmented, with the health authorities and different agencies, programs, and contractors providing various kinds of care and funding, primarily through the Ministry of Children and Family Development (MCFD). Service gaps have resulted from this model, similar to those seen across Canada (oral communication from V. Dua, psychiatrist-in-chief, Surrey Place [Toronto, Ontario], 7 July 2017).

Literature review

In BC before the 1990s, children with neurodevelopmental disorders received services through three institutions: Woodlands, Tranquille, and Glendale. In 1981 the BC government announced plans to close all three institutions. This plan was implemented over the next 15 years, with Woodlands[3] officially closing in 1996.

Following deinstitutionalization, services became de-medicalized and more importance was placed on integrating individuals with intellectual disabilities in the community. In this process specialized psychiatric care diminished.[4] Individuals with a co-occurring neurodevelopmental disorder and mental health difficulties could only access generic mental health services in a system not set up for easy access to these services. The "generic [mental] health care model, combined with no national guidelines and provincially determined services shared by two distinct ministries has translated into poorly coordinated care for individuals with intellectual disabilities and mental health needs in Canada."[5] These systemic issues have "led to misdiagnoses, inappropriate treatments and over-reliance on psycho-pharmacological interventions."[6] As Ouelette-Kuntz states, "Individuals with mental health problems and ID experience 'double stigma'. . . . Persons with ID and mental health issues are often considered inappropriate for traditional ID community integrated services because of their psychiatric difficulties but are also considered inappropriate for usual mental health services because of their low IQ. Adding to this stigma is the lack of knowledge of mental health professionals with regard to this population because of deficiencies in training and the existing barriers to practice in this area."[6]

The attempt to integrate individuals with neurodevelopmental disorders into their communities has led to them being "segregated once again by a failure to address their specialized medical needs."[6] Social marginalization cannot be addressed solely by a shift to community care. The "work of deinstitutionalization does not stop at transferring participants into the community. . . unless relocation brings with it a fundamental change in the [quality of life] of participants, it creates only an illusion of deinstitutionalization."[7]

In addition to making access to specialized mental health services difficult, the inadequate level of community supports in general has placed the burden of care on families. "Caring for a child with a disability can be a demanding experience, taxing both the physical and emotional capacities of the caregiver, as well as the material resources of the family."[8] Challenges include increased caregiver physical and psychological stress, family distress, reduced marital satisfaction, and inadequate social supports for parents of these children.[9] Research indicates the need for adequate respite ("short-break residential services"); availability of additional respite services in emergencies; accessible out-of-home placements; flexibility in eligibility and service delivery; shorter waiting lists; psychoeducational support groups for parents; peer mentoring; on-site health clinics for caregiver accessibility, cultural sensitivity; and streamlining, coordination, and centralization of services.[10-12] Furthermore, as Goddard and colleagues note in their study of stories collected from parents, "Perhaps the most persistently troubling system for these parents was that of the bureaucracy. . . . Parents expressed their frustrations about how they have received the bureaucratic 'runaround,' especially from the social welfare system. . . . They described a system that compartmentalized, that regularized, and that fostered fear, confusion, and frustration."[13]

Current services

Services for children in BC with a dual diagnosis are delivered by different agencies and programs. Children may be eligible for a variety of community support services, outpatient mental health services, and inpatient psychiatry services, depending on the specifics of their diagnoses.

Assessment services for neurodevelopmental disorders

Regional health authorities in partnership with Provincial Health Services provide multidisciplinary assessments for autism spectrum disorder and fetal alcohol spectrum disorder through the BC Autism Assessment Network (BCAAN) and the Complex Developmental Behavioural Conditions (CDBC) program (**Figure 1**). In addition, a small number of children are assessed at BC Children's Hospital through the outpatient medical psychology department. Some psychological assessments are also conducted in child and adolescent inpatient psychiatry units across the province, and a smaller number in the BC Children's Hospital outpatient psychiatry clinics. Assessment for intellectual disability is done mainly through psychoeducational assessments at schools; however, these resources are limited and many children with intellectual disability are not assessed during childhood. The other option for assessment is private fee-for-service psychology clinics. Assessments for genetic conditions are undertaken by hospital-based services, including pediatrics, medical genetics, metabolic diseases, and neurology.

Community support services

The Ministry of Children and Family Development provides community support services for a range of neurodevelopmental and psychiatric disorders (**Figure 2**).

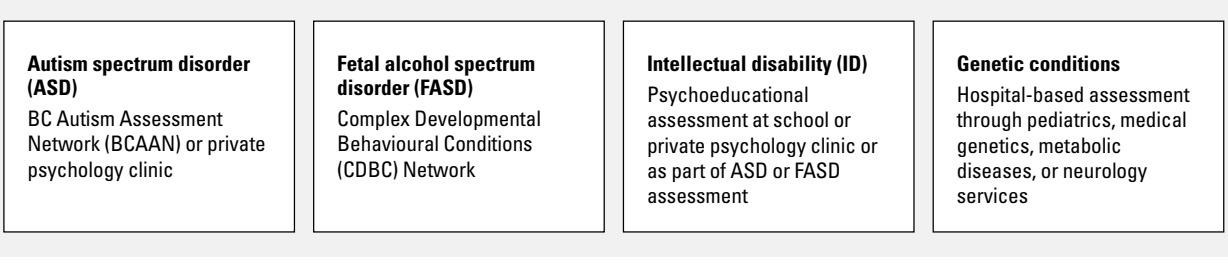

Figure 1. Assessment services for neurodevelopmental disorders.

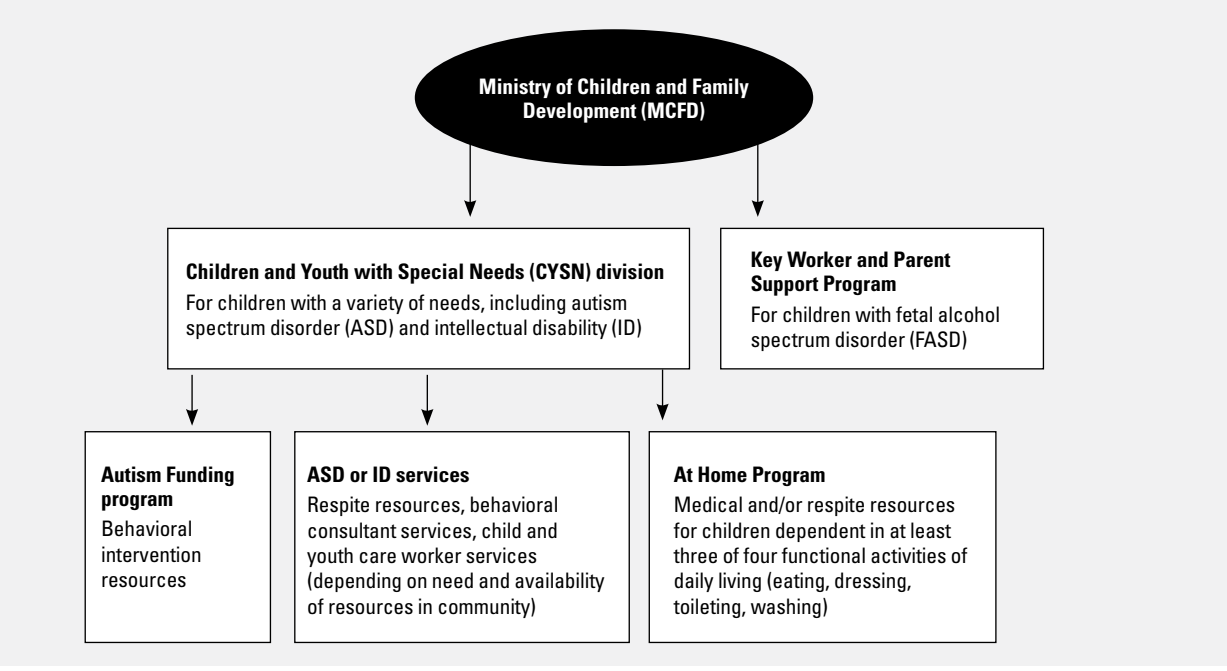

Figure 2. Community support services.

Children and Youth with Special Needs (CYSN). Most of the services for children with autism spectrum disorder and intellectual disability are delivered through the Children and Youth with Special Needs division of MCFD.[14] Services are often delivered by contracted agencies or individual care providers. Families receive support services for children with autism spectrum disorder and/or intellectual disabilities, which can include direct-funded respite, contracted respite, respite relief, homemaker/home support, behavioral support, child and youth care worker support, and parent support. The availability of services is dependent on which programs are running through contracted agencies, which varies from one location to another. Children with ASD receive additional services under the Autism Funding program, which provides support for intervention services: $22 000 annually for children under age 6 (early intervention) and $6000 annually for children age 6 to 18.

At Home Program. The At Home Program provides medical and/or respite benefits to assist parents with the costs of caring for a child with severe disabilities at home. To be eligible for the program, children must be dependent in at least three of four functional activities of daily living (eating, dressing, toileting, washing), have a palliative condition, or meet the requirements for direct nursing care provided by provincial Nursing Support Services.

Key Worker and Parent Support Program. Key workers help families understand fetal alcohol spectrum disorder by providing education and information specific to the needs of the child and family. They also help families access support, health, and education services for the child. Local parent support agencies provide parent and grandparent FASD training and parent mentoring sessions, and sponsor parent support groups.

Outpatient mental health services

Outpatient services are provided primarily by divisions of the Ministry of Children and Family Development and the province's health authorities (**Figure 3**). In addition, some services are provided by private practitioners such as psychologists and counselors.

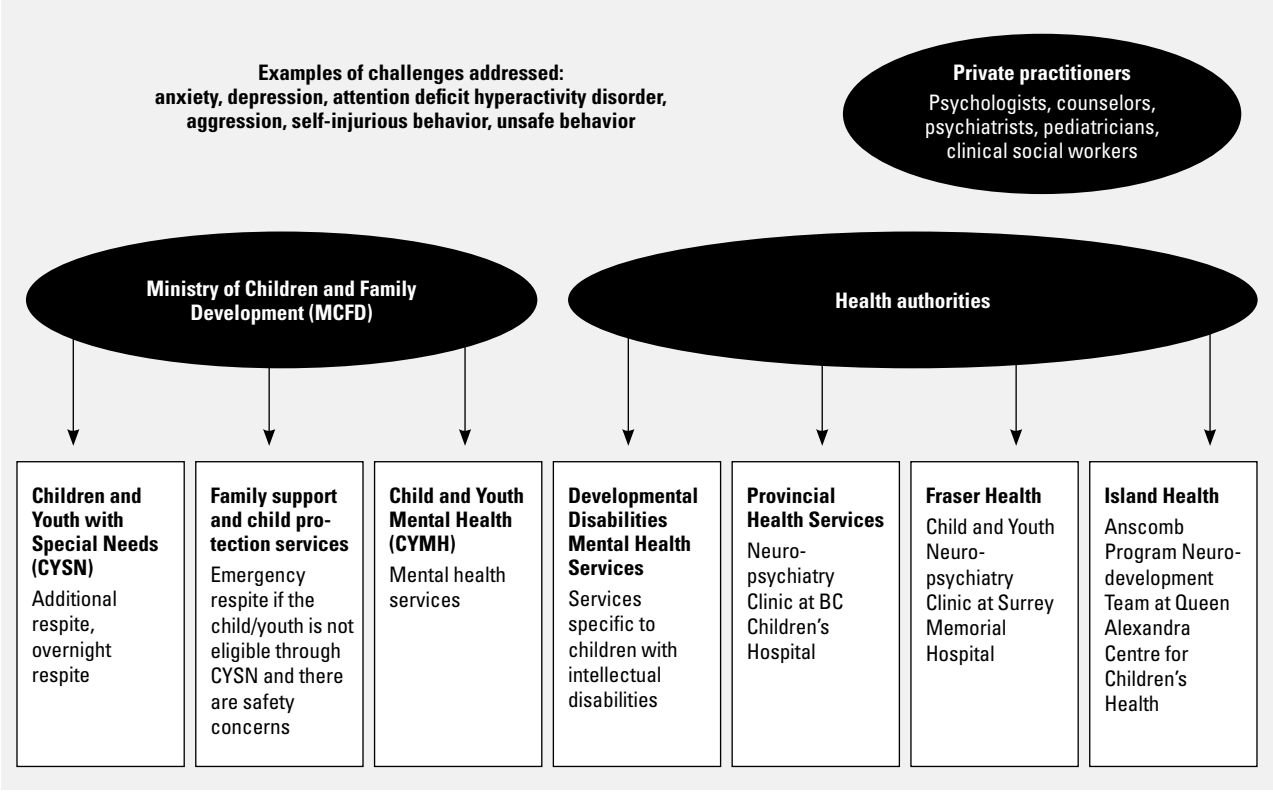

Figure 3. Outpatient services for patients with mental health and/or behavioral challenges.

Child and Youth Mental Health (CYMH). Child and Youth Mental Health delivers psychiatric services to children up to age 18. However, this service does not provide specialized care for children with a dual diagnosis. If children with neurodevelopmental disorders are assessed as "too severe" or "low functioning," they are often denied mental health services, regardless of mental health concerns or diagnosed psychiatric comorbidities. Since 2014 the referral process for Child and Youth Mental Health has changed to primarily self-referrals. Unfortunately, this has created obstacles for many families who are in crisis and find applying for services to be challenging. Moreover, most Child and Youth Mental Health offices offer drop-in intake sessions for only a few hours 1 day a week. This can create additional barriers for parents of children with neurodevelopmental disorders, families with English as a second language, working parents, single parents, and families without transportation.

Developmental Disabilities Mental Health Services. Developmental Disabilities Mental Health Services is operated by regional health authorities to provide specialized mental health care for youth with co-occurring intellectual disability and mental health or behavioral challenges. This unique program offers psychiatric assessments and treatment, clinical counseling, music and art therapy, and case management. Eligibility requirements include a diagnosis of intellectual disability accompanied by severe mental health difficulties. Services are available to individuals starting at age 12 in the Lower Mainland and Vancouver Island and age 14 in the rest of the province.

Health authority neuropsychiatry services. Outpatient child and youth neuropsychiatry services are provided at clinics in three tertiary care centres: BC Children's Hospital (Provincial Health Services Authority), Surrey Memorial Hospital (Fraser Health), and the Queen Alexandra Centre for Children's Health (Island Health). The neuropsychiatry and neurodevelopment teams working at these centres provide assessments and limited treatment.

Inpatient psychiatry and residential services

Inpatient psychiatry and residential services are provided by the Ministry of Child and Family Development, health authorities, and Community Living BC (CLBC) (**Figure 4**). Two child inpatient/day programs and several adolescent inpatient psychiatry units operate across the province. However, there are no specialized inpatient psychiatry units for children and youth with a dual diagnosis.

Residential group homes. When families are struggling to care for their children, placement in a group home may be required. To obtain residential care, parents must apply to the Ministry of Children and Family Development. They must then sign a Special Needs Agreement or a Volun-

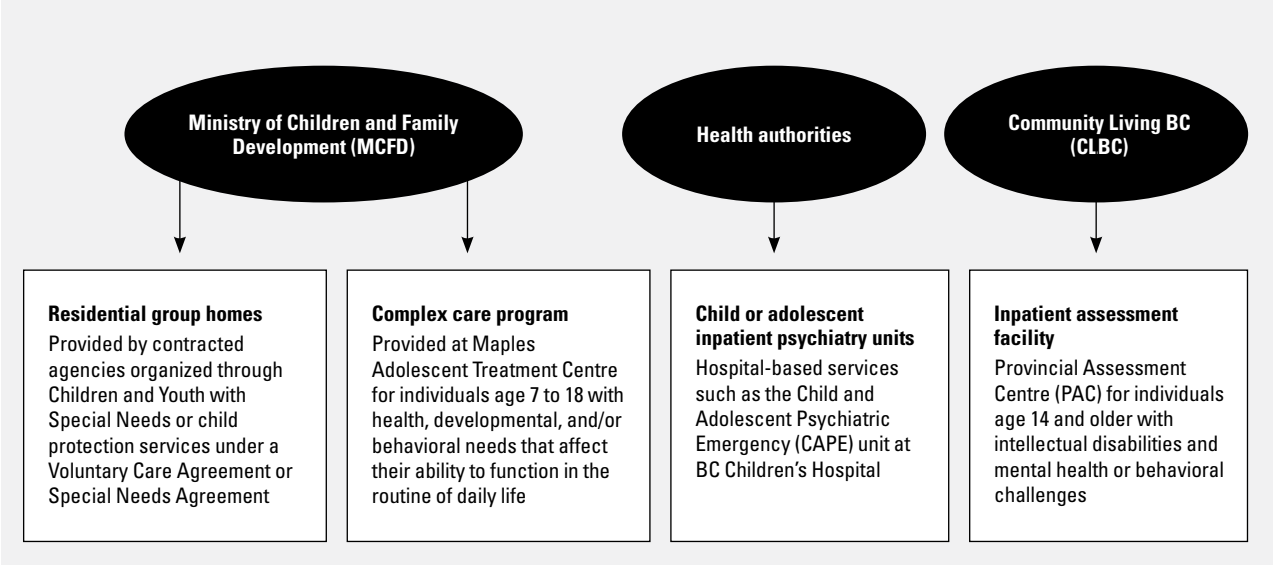

Figure 4. Inpatient psychiatry and residential services.

tary Care Agreement, which places the child in the care of the ministry. Families have no options for long-term out-of-home care that does not require going through Children and Youth with Special Needs or child protection services and giving up care of their child. Group homes typically do not have mental health staff.

Complex care program. The Maples Adolescent Treatment Centre offers residential care for children with mental health concerns and troubling behavior. A complex care program for children age 7 to 18 includes individual treatment and service plans.

Provincial Assessment Centre (PAC). The Provincial Assessment Centre is a designated tertiary psychiatric service under the Mental Health Act, mandated to provide multidisciplinary assessment and treatment for individuals age 14 and older with an intellectual disability and concurrent mental health and/or behavioral challenges. PAC is part of Community Living BC, the provincial Crown corporation that funds and supports services to adults with developmental disabilities, autism spectrum disorder, and fetal alcohol spectrum disorder.

Clinical vignettes

The following clinical vignettes are fictionalized amalgamations of patient symptoms and systemic barriers commonly seen at tertiary outpatient neuropsychiatry clinics in British Columbia. The vignettes do not represent actual patients. They have been included to illustrate the recurring issues and gaps in services that children with a dual diagnosis and their families experience.

Alex

Alex is a 13-year-old male with fetal alcohol spectrum disorder, attention deficit hyperactivity disorder, post-traumatic stress disorder, and a specific learning disorder in reading and written expression. Alex lives with his adoptive mother, who is a single parent and has her own mental health struggles. She currently receives income assistance as a person with disabilities. Over time, the behavioral difficulties stemming from Alex's multiple diagnoses (temper outbursts, aggression toward his mother and peers, stealing) have led to caregiver burnout.

Services accessed and recommended. The family has access to a community key worker and a psychiatrist at a tertiary outpatient neuropsychiatry clinic. The psychiatrist has recommended Alex receive ongoing treatment in the community to monitor his medications and see a therapist for emotional regulation and a behavioral consultant to design an intervention program. The psychiatrist has also recommended respite care and counseling for Alex's mother.

Gaps in services. Multiple obstacles have made it difficult to move forward with the psychiatrist's recommendations. Because Alex has an IQ of 84 he is not eligible for services through Children and Youth with Special Needs, which requires an IQ of 70 or less when defining intellectual disability. Had he met this eligibility requirement, the family could have benefited from respite care and the services of a child and youth care worker and a behavioral consultant. Alex is also not eligible for care under Developmental Disabilities Mental Health Services because he does not meet that agency's requirements for intellectual disability either. Alex's mother, supported by the neuropsychiatry clinic, had previously called the Ministry of Children and Family Development and asked to be considered for respite and other support services. She was told that because there were

There are two distinct patient populations: in one the children have few comorbidities and need limited specialized intervention and support, while in the other the children have significant mental health comorbidities and sometimes extremely challenging behaviors that require intervention for which funding is not readily available.

"no child protection concerns" the ministry would not open a file, even though the MCFD does open files for family support services as well as child protection services. She then used the self-referral intake process for Child and Youth Mental Health to access required mental health services for ongoing therapy and medication management for Alex and was refused services. The reason given was Alex's diagnosis of fetal alcohol spectrum disorder. Because of this diagnosis, Alex's co-occurring mental health conditions were discounted.

Leo

Leo is an 11-year-old male with Prader-Willi syndrome, a rare genetic disorder affecting chromosome 15. Individuals with this diagnosis commonly have insatiable appetite, developmental and cognitive delays, hypogonadism, and behavioral and psychiatric difficulties. Leo has an IQ of 67, placing him in the mild intellectual disability range. Leo engages in chronic skin-picking and self-harm, typical of the behavioral phenotype associated with Prader-Willi syndrome. He also inserts objects into his rectum and smears feces over his body, stabs his wounds with sharp objects, and fills them with dirt. His parents have often had to stay up all night to prevent him from worsening the multiple self-inflicted wounds on his body. Leo exhibits impulsive behaviors and is a flight risk. Leo's parents are overwhelmed by managing the difficult behaviors associated with his neurodevelopmental disorder and co-occurring psychiatric problems.

Services accessed and recommended. The family has access to Children and Youth with Special Needs services because Leo's IQ is less than 70. Leo has an education assistant at school and sees a psychiatrist at a tertiary outpatient neuropsychiatry clinic for consultation and short-term treatment. The psychiatrist has recommended that Leo receive support from a behavioral consultant and behavioral interventionist and be started on medication and monitored in the community.

Gaps in services. Because Leo does not have a diagnosis for autism spectrum disorder he is not eligible for the Autism Funding program, which would cover the cost of a behavioral interventionist to implement a treatment plan developed by a behavioral consultant. Leo cannot be referred to Child and Youth Mental Health to address his mental health concerns because his clinical needs require more than the services of a general mental health clinician, and he cannot access a psychiatrist through Child and Youth Mental Health without seeing a clinician first. In addition, he is unable to access a psychiatrist through Developmental Disabilities Mental Health Services because he is younger than 12, and a private child psychiatrist will not accept the referral.

Emily

Emily is a 9-year-old female with autism spectrum disorder, moderate intellectual disability, separation anxiety disorder, and Tourette syndrome. Emily must wear a helmet, gloves, and knee pads because of her severe self-injurious behavior. Her parents have had to stand by helplessly while Emily bruises and batters her head and face. Despite multiple trials of medication by several psychiatrists and community-based behavioral interventions, Emily's self-injurious behavior is worsening.

Services accessed and recommended. Emily is under the care of a psychiatrist at a tertiary outpatient neuropsychiatry clinic and receives benefits through the Autism Funding program. Previously, community-based consultants who were not experts in self-injurious behavior were contracted by Children and Youth with Special Needs to provide in-home behavioral consultation and intervention. These interventions did not change Emily's behaviors. For the past 2 years Emily's psychiatrist has been strongly recommending she see a behavioral consultant skilled in managing self-injurious behavior and be considered for placement in a residential facility specializing in challenging behaviors. As the behaviors continue and worsen, the mental health of Emily's parents is precipitously declining and their marriage is under heavy strain. One parent is unable to continue working because of the constant care Emily requires.

Gaps in services. Lack of communication from Children and Youth with Special Needs initially delayed securing appropriate supports for Emily. While her family now receives benefits through the Autism Funding program, the $6000 per year provided does not cover the interventions she needs. Also, despite the very obvious challenges Emily's parents face, they have had to continuously and tirelessly assert their needs and advocate for their child. An additional issue for this family has been the requirement to sign a Special Needs Agreement for residential treatment, which involves relinquishing care of their child to CYSN. This is a difficult step for the family to take, but is the only way to access a specialized residential program.

Harpreet

Harpreet is a 14-year-old female with moderate intellectual disability. Her comorbidities include epilepsy, anx-

iety, sleep disturbance, obsessive-compulsive disorder, and episodes of major depression that have recurred over the past 2 years. She has irregular periods, constipation, and anemia. Harpreet squeezes, pinches, and grabs peers, teachers, and her parents. She is nonverbal and gets very upset if people talk about her in her presence. Harpreet is only allowed to attend school for half a day as the school staff report that they cannot manage her behaviors for longer. Harpreet is on high doses of antipsychotic medications to manage her behaviors, keep her in school, and prevent her parents from becoming completely overwhelmed to the point where they can no longer care for her. Harpeet is an only child and her parents are immigrants who require an interpreter during appointments. Her mother suffers from depression caused by the stress of caring for Harpreet.

Services accessed and recommended. Harpeet sees a psychiatrist at a tertiary outpatient neuropsychiatry clinic. Her intellectual disability makes her eligible for services from Children and Youth with Special Needs, but she does not qualify for benefits under the Autism Funding program. Harpreet is eligible for the At Home Program and will be able to receive medical and/or respite resources once a referral from a physician is completed.

Gaps in services. Numerous obstacles are keeping Harpeet and her family from receiving sufficient support. Harpeet's pediatrician has not yet made the referral needed for her to receive At Home Program resources. Her parents have difficulty communicating in English and do not know how to navigate in a system unfamiliar to them or what services can be provided through Children and Youth with Special Needs. The parents are exhausted and need appropriate respite to avoid burnout. Previously, the neuropsychiatry clinic's social worker helped the family contact their Children and Youth with Special Needs social worker for assistance with direct-funded respite, which requires advertising for and interviewing respite providers. Given the parents' limited ability to communicate in English, these tasks were extremely challenging. While they did eventually manage to find someone, the caregiver quit after 1 week. The parents would still like to find out-of-home respite for a few days each month, but have been told their only option for more respite is to put Harpreet in care, which they do not want to do.

Barriers

As the clinical vignettes illustrate, children and families trying to access services for co-occurring neurodevelopmental and psychiatric disorders face a number of barriers caused by system fragmentation, bureaucratic processes, lack of respite, out-of-home service obstacles, and limited specialized training for care providers.

System fragmentation

Children with a dual diagnosis and their families often do not obtain the support they need because services are fragmented and there is insufficient interagency collaboration and communication. This system fragmentation means that many children fall through the cracks. As seen in some of the clinical vignettes, children are denied Child and Youth Mental Health services because of their neurodevelopmental disorder diagnoses, yet are not considered eligible for mental health services through Children and Youth with Special Needs. Even when families do manage to access some services, the care they receive does not always meet the complex needs of their children. These issues are particularly challenging when families are faced with long waitlists and do not have a case manager or care coordinator to help them navigate through the system and advocate for them. The situation is especially difficult for single parents and families who are already challenged by socioeconomic stressors, previous negative experiences with the Ministry of Children and Family Development, and language barriers.

Even when families do manage to access some services, the care they receive does not always meet the complex needs of their children.

Families new to British Columbia (or Canada) have a particularly difficult time with unfamiliar social service and health care systems.

Bureaucratic processes

Parents of children with a dual diagnosis often have to advocate for needed supports over many years in a system that is hard to understand and to navigate. They have to endure bureaucratic processes, jump through hoops, and wait for long periods of time for services. They often experience parent-blaming for the behavioral challenges their children exhibit. Coping mechanisms can fail and family breakdown becomes more likely when care is difficult to access. Adequate services are often put into place only after crises occur and families are overwhelmed.

Adequate services are often put into place only after crises occur and families are overwhelmed.

Lack of respite care

Many families of children with a dual diagnosis need respite to prevent caregiver burnout. Despite this common need, families still struggle to get sufficient respite. Difficulties include inconsistent offerings of respite hours for families and communities, long waitlists for contracted respite providers recruited and monitored by Children and Youth with Special Needs, the need for parents to independently recruit direct-funded respite providers, and the need for parents to advocate constantly for respite. When parents do obtain funding for respite, the amount that CYSN provides for an hourly wage is low and many families cannot afford to top this up to make a reasonable wage for the respite provider. The low wages, along with safety issues in many cases, make it very hard to retain respite providers. Additionally, there is a limited number of skilled respite providers with specialized training and an understanding of both neurodevelopmental disorders and mental health issues.

Out-of-home service obstacles

The routes to receiving out-of-home placement or residential treatment are confusing and fragmented. One route involves going through Children and Youth with Special Needs and signing a Special Needs Agreement or a Voluntary Care Agreement. In this case, parents relinquish care of their child to the Ministry of Children and Family Development for the duration of the placement. The placement can be in an existing group home or a home arranged specifically for the individual child. Generally, these homes are operated by agencies contracted by the ministry to provide care, and are staffed with group home workers who do not have mental health training. Another route to receiving out-of-home treatment involves going through inpatient psychiatry. There are currently no specialized pediatric neuropsychiatry inpatient units in BC. While the Provincial Assessment Centre can help individuals with intellectual disability and co-occurring mental health and/or severe behavioral concerns who are age 14 and older, PAC is focused primarily on assessment and stabilization and does not offer services for children younger than 14, nor does it offer services to youth with neurodevelopmental disorders other than intellectual disability. Many children with neurodevelopmental disorders who are referred to child or adolescent psychiatry units are declined service because the milieu in these units is not suitable for children with a dual diagnosis.

Limited specialized training

Specialized neuropsychiatry training is needed for those who provide care for children with neurodevelopmental disorders and mental health issues, but a limited amount of this training is currently available. More training is needed for psychiatrists, pediatricians, general practitioners, nurses, social workers, counselors, psychologists, behavioral consultants, respite providers, and group home workers.

Recommendations

The way services for children with a dual diagnosis are currently structured in BC does not involve a wrap-around system of care approach.[15] Such an approach supports children and their families by using integrative interagency and cross-agency practices to ensure collaboration and communication among child-serving agencies and programs. The current service delivery design in BC also fails to ensure a continuum of care by providing a comprehensive range of

health services spanning all levels of intensity.[16]

Addressing the complex needs of children with a dual diagnosis will require ensuring a continuum of care, improving Ministry of Children and Family Development services, improving health authority services, and establishing a wraparound system of care.

Ensuring a continuum of care

- Provide timely access to various levels of care.
- Provide community-based programs and outreach.
- Provide intensive in-home support (nurse, behavioral consultant, etc.) for both prevention and step-down care when children and youth are discharged from inpatient psychiatry or residential treatment.
- Provide more out-of-home temporary respite options for complex cases to prevent caregiver burnout and safety concerns.
- Provide dedicated neuropsychiatry beds in current child and adolescent psychiatry units.

Improving Ministry of Children and Family Development services

- Provide integrated cross-agency service delivery to families accessing mental health, special needs, child protection, and family support services.
- Hold joint meetings to determine the most appropriate services for referrals between each division, and regular meetings for all professionals involved.
- Designate a case manager for children with a dual diagnosis and complex care needs.
- Address limitations in specific service areas:

Child and Youth with Special Needs

- Provide a program with funding based on need rather than diagnosis—currently designated funding is only available to children with autism spectrum disorder, regardless of their level of functioning, mental health comorbidities, and support needs.
- Develop separate funding models for children and youth with autism spectrum disorder and/or intellectual disability alone versus those with dual diagnosis.
- If separate funding models are not feasible, allocate distinct funding for these complex cases to the health authorities that frequently treat these children and have more specialized training in psychiatric comorbidities and treatment.
- Include treatment teams (mental health, specialist health care, pediatrics) in Ministry of Children and Family Development decision-making processes such as residential placements.
- Help families find skilled respite providers and behavioral intervention services when they must do so under the terms of direct-funded respite and Autism Funding.
- Provide designated respite programs for families of children with dual diagnosis.
- Provide training in dual diagnosis to Children and Youth with Special Needs social workers.
- Provide more out-of-home respite options for dual-diagnosis cases before resorting to ministry placement.

Child and Youth Mental Health

- Provide services to children with dual diagnosis.
- Assign designated clinicians on teams for dual-diagnosis cases, similar to concurrent disorder clinicians on mental health teams.
- Provide more staff training in specialized therapy for dual diagnosis.

Family support and child protection services

- Have family support services more readily available when other supports are not yet put in place.

Improving health authority services

Address limitations in specific service areas:

Developmental Disabilities Mental Health Services

- Provide services for children younger than age 12.
- Expand eligibility for services to include other neurodevelopmental disorders such as autism spectrum disorder and fetal alcohol spectrum disorder rather than providing services only for youth with a diagnosis of intellectual disability.

Outpatient tertiary neuropsychiatry

- Ensure that every health authority has a neuropsychiatry clinic.
- Include a behavioral consultant on the neuropsychiatry clinic team.
- Provide outreach and more consultation to general practitioners and pediatricians in BC who are already prescribing extensively for children with a dual diagnosis.

Inpatient psychiatry

- Establish designated neuropsychiatry beds.
- Develop a specialized short-term (3 to 6 months) neuropsychiatry intensive assessment and treatment unit for children and youth staffed with mental health professionals, behavioral consultants, and behavioral interventionists.
- Provide more training on dual diagnosis.

Physician training

- Provide mandatory training on dual

diagnosis for family medicine, pediatric, and psychiatry residents to increase community capacity.
- Provide ongoing funded opportunities for general practitioners, pediatricians, and psychiatrists to increase their knowledge and skill set in this area.

Establishing a wraparound system of care

- Support children and families by using integrative interagency and cross-agency practices among child-serving services provided by the Ministry of Children and Family Development and the province's health authorities.
- Provide a case manager to help families of children with a dual diagnosis navigate the system of care.
- Provide care that is individualized and least restrictive.
- Ensure early identification and intervention.
- Organize transitions to adult services.
- Provide culturally safe, trauma-informed, and clinically competent services.

In British Columbia the current system of care for children with neurodevelopmental disorders does not appear to recognize there are two distinct patient populations: in one the children have few comorbidities and need limited specialized intervention and support, while in the other the children have significant mental health comorbidities and sometimes extremely challenging behaviors that require intervention for which funding is not readily available. Where this second population is concerned, vigorous family advocacy is required to access services and family breakdown can result. The Child and Youth with Special Needs division of the MCFD operates on an underlying assumption that parents are able and willing to take on a case manager role to access appropriate resources. This role is usually not appropriate for parents whose children have a dual diagnosis and require guidance and additional support to access specialized services.

BC needs policies and practices that recognize and address the complex needs of children with a dual diagnosis. BCMJ

Competing interests

None declared.

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The value of independent drug assessment

Type 2 diabetes in British Columbia as a case study to explain the work of UBC's Therapeutics Initiative.

James M. Wright, MD, PhD, Ken Bassett, MD, PhD, Thomas L. Perry, MD, Aaron M. Tejani, PharmD

The November 2018 issue of the *BCMJ* included two articles about diabetes management in British Columbia and a guest editorial that referred to the Therapeutics Initiative (TI). We would like to respond to the information provided in that issue by clarifying our organization's goals and processes and our role in BC's health care system.

The TI was established in 1994 by the Department of Pharmacology and Therapeutics in cooperation with the Department of Family Practice at the University of British Columbia. We are an independent academic unit, separate from government and the pharmaceutical industry, funded by a grant to UBC from the BC Ministry of Health.

Our mission is to provide physicians and pharmacists with up-to-date, evidence-based, practical information on prescription drug therapy. A founding principle and raison d'être was health professionals' need for independent, unconflicted assessments of new drug therapies to balance drug industry–sponsored information sources. Over the last 25 years, our team has developed expertise in identifying and critically appraising both published and unpublished sources of evidence. Taking the time and effort to apply these skills meticulously to the review of clinical trial evidence distinguishes our approach from many other groups.

In his guest editorial,[1] Dr Ehud Ur states that the TI "provides physicians with its own unique interpretation of the diabetes literature through bimonthly Therapeutics Letters that often cast doubt on the findings of robust trials and guideline recommendations issued by highly respected international organizations." Our interpretation of evidence from clinical trials is not, indeed, unique. We consider the work of regulatory agencies such as the US FDA and European Medicines Agency, other independent drug bulletins, and other academic groups. Our analyses are often relatively concordant with those published by nonconflicted experts in diabetes.[2-4] Our uncertainty about how to interpret the EMPA-REG OUTCOME trial, seen by some as relatively controversial, was reflected in the narrow 12:11 approval of its cardiovascular prevention indication by the FDA's advisory committee and shared by an independent assessment from Spain.[5,6]

The article by Dr Maureen Clement and colleagues,[7] and Dr Ur's editorial note differences between some recommendations from Diabetes Canada, the BC Guidelines and Protocols Advisory Committee, and certain conclusions drawn by the TI

Continued on page 126

This article has been peer reviewed.

Dr Wright is a professor in the Department of Anesthesiology, Pharmacology, and Therapeutics and the Department of Medicine at the University of British Columbia and has worked in that role since 1977. He is also a practising specialist in internal medicine and clinical pharmacology at UBC Hospital, co-managing director of the Therapeutics Initiative, editor-in-chief of the Therapeutics Letter, and coordinating editor of the Cochrane Hypertension Review Group. His current research focuses on issues related to appropriate use of prescription drugs, clinical pharmacology, treatment of hypertension and hyperlipidemia, clinical trials, systematic review, meta-analysis, and knowledge translation. Dr Bassett is a professor of medicine in the Department of Family Practice and the Department of Anesthesiology, Pharmacology, and Therapeutics at UBC. He has directed the Drug Assessment Working Group of the Therapeutics Initiative since 1993 and co-managed the Therapeutics Initiative since 2010. His ongoing research interests are in the systematic review of drug therapy and drug funding policy. Dr Perry is a general internist/clinical pharmacologist who chairs the Therapeutics Initiative Education Working Group. Dr Tejani is a researcher with the Therapeutics Initiative and co-chairs the Education Working Group and the Drug Assessment Working Group. He is a clinical assistant professor with the Faculty of Pharmaceutical Sciences at UBC, and a medication use evaluation pharmacist with Lower Mainland Pharmacy Services (Vancouver, BC).

Continued from page 125

from our evidence reviews. Dr Clement and colleagues note that "general practitioners and specialists looking for guidance in the complex pharmacological management of type 2 diabetes in BC can find themselves frustrated by contradictory recommendations from these three bodies: Diabetes Canada, the British Columbia Guidelines and Protocols Advisory Committee, and the Therapeutics Initiative."

It should not be surprising if health care professionals and people with type 2 diabetes are confused or frustrated by the range of guidelines available, and their mutability over time. This problem is hardly unique to diabetes care. Over the life of the TI (and long before) there are numerous examples of guideline recommendations that were subsequently repudiated or superseded by objective evidence from clinical trials. This applies to nephrology, cardiology, infectious diseases, intensive care, pediatrics, many fields of surgery, and various types of screening and other preventive interventions.

Different organizations composed of specialists, patient advocates, or government officials have varying mandates and apply markedly different processes to assess evidence. This can yield a broad spectrum of recommendations, many of which will not look wise in retrospect. Were only the vagaries of human biology so simple to understand and control as some direct-to-consumer TV ads make it look: "I just love my numbers!"

The role of the TI is not to write guidelines for any disease. Our mandate is solely to assess randomized clinical trial evidence and to summarize our detailed assessments for clinicians to help them and their patients make evidence-informed drug therapy decisions.

We employ a standardized, systematic, transparent process to all drug assessments, including those for glucose-lowering medications. If our results differ from recommendations offered by pharmaceutical manufacturers and industry-funded thought leaders, it is likely because our review process differs in a number of ways. We start by defining the outcomes of greatest importance to patients, ranked in a standard hierarchy derived from Cochrane Collaboration methodology. Our reviews routinely attempt to include unpublished data available now from regulatory reviews and from the detailed clinical study reports compiled by clinical trial sponsors, and from trial registry websites. Including regulatory documents and clinical study reports (when available) is critical, rather than superfluous, to informing conclusions regarding a new drug or indication. This often involves very hard work. For example, the version of the LEADER trial of liraglutide for type 2 diabetes in the *NEJM* comprises 12 pages plus a 69-page appendix. The corollary US FDA briefing document is 166 pages. The transcript of the FDA advisory committee meeting is 382 pages, and the underlying clinical study report for LEADER is 3603 pages. It is not clear that Diabetes Canada's Expert Committee has included this level of review to inform its most recent pharmacotherapy recommendations.[8]

Focusing on clinical outcomes that are most relevant for patients accounts for many differences in interpretation of clinical trials. For example, Dr Clement and colleagues write that "Glycemic control is an important risk factor for microvascular disease, including retinopathy, nephropathy, and peripheral neuropathy. Early improved glucose control slows progression to these endpoints." Yet considering the same clinical trial evidence, the 2018 American College of Physicians Guidance Statement on HbA1c targets for type 2 diabetes articulates more clearly that "the main effect of more intensive glycemic control is a small absolute reduction in risk for microvascular surrogate events, such as retinopathy detected on ophthalmologic screening or nephropathy defined by development or progression or albuminuria."[3] Similarly, the 2017 meta-analysis cited by Dr Clement and colleagues did not identify an effect of intensive glucose control on the risk of neuropathy, and noted that effects on retinopathy and nephropathy were modest and determined by less-serious complications.[9]

A founding policy of the TI in 1994 was to ensure that members of our academic group have no conflicts of interest with manufacturers of pharmaceuticals. This is neither because of antagonism to the important benefits of innovative pharmacotherapies nor to the challenges of developing them. It is because we agree with those who have concluded that conflicts may introduce insidious biases with the potential to impair scientific judgment. It has been clear for years that conclusions and recommendations of clinical guidelines could be strengthened greatly through attention to contemporary standards that increase their trustworthiness. The 2011 report of the US National Academies, "Clinical Practice Guidelines We Can Trust,"[10] explores in depth how guidelines should be developed and what standards should be employed to ensure their reliability, including a foundation of transparency and management of conflicts of interest. Its approach has been followed in some recent guidelines developed in the US and Canada, yet such high standards remain an exception rather than the rule in medicine.

If BC clinicians feel confused by guidelines that offer conflicting advice, the best remedy would be for complex scientific research to be analyzed free from pharmaceutical industry funding, and then crafted into trustworthy recommendations that are relevant to individual patient care. As others have pointed out, this is a

more than Herculean endeavor; most clinical trials screen out the type of complex multimorbidity seen by doctors in everyday practice.[11]

We think that our careful and unconflicted scrutiny of research findings helps to produce succinct Therapeutics Letters that physicians can trust as a resource to serve their patients. However, we have never claimed to have all the answers or recommended treatment paradigms for individual patients. To suggest that the TI is responsible for confusing and frustrating BC's family physicians and specialists underrates their intelligence, education, and judgment. We believe BC doctors are capable of thinking critically for themselves and synthesizing information from different sources. This is especially so when they can access unbiased and rigorous evidence about drug therapies, based on thorough and systematic reviews. Understanding the strengths and weaknesses of evidence about drugs for type 2 diabetes (or any other condition), combined with clinical experience and willingness to integrate their patients' goals, provides the best foundation for optimal care. This is really the definition of evidence-based medicine: "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients."[12]

BCMJ readers may also wish to understand better the process used by the Pharmaceutical Services Division of the Ministry of Health to decide on drug coverage. This is explained in detail at www2.gov.bc.ca/gov/content/health/health-drug-coverage/pharmacare-for-bc-residents/what-we-cover/drug-coverage/drug-review-process-results.

After Health Canada approves a drug for use in humans, the national Common Drug Review (CDR) of the Canadian Agency for Drugs and Technologies in Health reviews drug submissions from drug manufacturers for potential public plan coverage. Most of the submissions are then reviewed by the ministry's Drug Benefit Council (DBC) to contextualize CDR's evidence syntheses and recommendations. Sometimes the ministry requests additional analysis from the TI. Our members may attend DBC meetings when requested to explain evidence and answer questions. However, TI members neither vote on nor make funding decisions. We help to elucidate and clarify available evidence, typically from randomized controlled trials. The Pharmaceutical Services Division then makes its funding decisions after considering the recommendations of the CDR and DBC.

Over the past 25 years the TI has enjoyed international recognition for our consistently rigorous approach. We have often been among the first to understand the real available evidence about drugs, and it is hardly surprising that this has frequently proven controversial. If additional evidence changes our understanding of the merits of new diabetes drugs, we will naturally welcome therapeutic approaches that are more successful than the limited tools available to doctors and patients since the discovery of insulin.

We welcome challenges to our interpretation of evidence and would be pleased to work with our critics to exchange ideas regarding literature review methods. As always, we look forward to hearing from BC doctors, including those who are critical of our approaches or conclusions.

Competing interests

Drs Wright, Bassett, Perry, and Tejani receive part-time salaries from UBC via the Ministry of Health Contributory Agreement (grant) to UBC to support TI.

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Modern-day cardiac auscultatory teaching and its role alongside echocardiography

Maximizing physicians' cardiac auscultatory abilities alongside use of advanced diagnostic technologies results in better diagnostic accuracy and increased patient interaction.

Caleb A.N. Roda, BSKin

ABSTRACT: In the hands of a skilled user, the stethoscope is a quick, inexpensive, and readily available way to screen and assess patients for cardiac pathology at initial point of care. Unfortunately, reliance on sophisticated diagnostic technologies such as echocardiography and, more importantly, outdated auscultatory teaching methods has led to a decline in practitioners' ability to correctly identify heart sounds through auscultation. Current research shows cardiac auscultatory teaching should place more emphasis on auditory repetition in conjunction with visual integration, testing, and scheduled refresher learning of heart sounds. This can be done in an accessible, affordable, and self-paced manner through online or phone applications. Proficient cardiac auscultation and new diagnostic technologies have the potential to work synergistically with one another to improve patient outcomes.

This article has been peer reviewed.

Mr Roda is a medical student in the Vancouver Fraser Medical Program, class of 2020, at the UBC Faculty of Medicine.

Introduction

The stethoscope has been a part of the physician's toolkit for over 200 years since its invention in 1816 by French physician Rene Laennec.[1] Binaural, electronic, and more recently, iPhone stethoscopes with the ability to amplify, record, and share heart sounds are options for health care professionals to use in their daily practice.[2] Auscultation serves as a quick and inexpensive way for the modern-day physician to infer a variety of disease states about the cardiovascular, respiratory, and gastrointestinal system, which allows for streamlined diagnoses and management. However, with long patient lists, access to sophisticated diagnostic technology, and stagnant auscultatory teaching methods, more time is being spent combing through patient electronic medical records rather than examining and auscultating the patient. The identification of auscultated heart sounds among most medical students,[3-5] residents,[4-6] and physicians[5,7-9] is poor. Practitioners at all levels of training find it difficult to identify and distinguish pathological from normal heart sounds, which can lead to delayed diagnoses and treatment, as well as unnecessary, potentially harmful investigations.

Auscultation or echocardiography?

The decline in physicians' ability to identify auscultated heart sounds could be due, in part, to the widespread introduction and reliance on advanced diagnostic technologies such as echocardiography.[10] The diagnostic accuracy of echocardiography is superior to auscultation when identifying many subtle cardiac pathologies, and has the capability to improve detection over cardiac auscultation alone.[11-14] Relatively recent advances in medical technology have led to the development of handheld ultrasound devices that can be used at the initial point of care to assess cardiac function. Cardiologists using handheld ultrasound outperformed cardiologists using physical examination with auscultation for identifying the majority of common cardiac pathologies.[15] Medical schools are beginning to incorporate ultrasonography early into their undergraduate curriculum as a regular part of the physical examination.[16] Proponents of point-of-care ultrasound acknowledge the relatively high risk of misdiagnosis among inexperienced practitioners.[16] Even with experienced ultrasonographers, there are circumstances where echocardiography misses car-

diac pathology that the stethoscope is able to pick up. Dr Valentine Fuster describes one of many such clinical situations, where a pericardial rub is heard through auscultation in a patient with chest pain and fever, despite echocardiography's inability to show any pericardial effusion.[17] The existence of better tests does not negate the stethoscope, but rather, pushes us to understand its limitations and value alongside cardiac auscultation in the physical examination.

Modern-day cardiac auscultatory teaching

Apart from technological advances, a compelling reason for poor auscultatory heart sound identification is that teaching methods for cardiac auscultation among medical programs has not changed much over the last half century.[18] Current evidence-based cardiac auscultatory teaching methods involving online platforms and phone applications have the potential to revitalize cardiac auscultation in medical programs.[19] The technical auditory skill of recognizing abnormal from normal heart sounds, extra heart sounds, and common pathological murmurs during auscultation tends to be inadequately taught, and consequently, poorly understood by medical students. Accurate heart sound identification requires the brain to be able to recognize the volume, frequency, and timing of sounds.[20] This skill can only be developed by hearing many repetitions of the same, often subtle sound, in order to incorporate that new pattern of sound into long-term memory.[20] Multiple studies have shown that auditory training, compared to traditional teaching methods, can markedly advance a learner's ability to recognize abnormal from normal heart sounds, extra heart sounds, and common pathological murmurs.[7,21-23] In addition to benefiting novice and intermediate learners, cardiologists significantly improved their identification of basic and advanced murmurs after listening to 400 repetitions of each murmur while viewing cardiac images.[7] Auditory training is a promising technique that should be paired with visual animations of the hemodynamics and valvular actions of the given sound,[24-26] in addition to skill testing and scheduled refresher learning.[18,21,27] Such training allows the learner to visualize the flow of blood through the heart and best understand the pathophysiology responsible for the given sound, extending retention.[25] Testing and periodic refresher learning ensure a high degree of competency has been reached and will be maintained over time.

Computers, smart phones, and heart sounds

Successfully incorporating the required cardiac auditory repetition into the schedules of medical students and practising professionals poses a challenge. However, with the increasing range of Internet connectedness and use of cellphones, this challenge can be overcome. The American College of Cardiology and Teaching Heart Auscultation to Health Professionals websites offer free online auditory training programs with hundreds of repetitions of various hearts sounds, training assessments, and downloadable mp3 files for offline use on a computer or smart phone.[28,29] Blaufuss Medical Multimedia Laboratories has also created a free online platform for learning four common valvular lesions using auditory repetitions of heart sounds combined with interactive computer animations and detailed text.[30] In addition to the online platforms, there are a variety of smart phone applications available, such as HeartMurmurs and Murmur Pro that offer auditory repetitions in combination with visual aids, descriptions, and quizzes to assess competence. The online platforms, and more specifically, the phone-based applications, offer a low-cost, flexible, and effective medium for incorporating evidence-based auscultatory teaching into the schedules of health care professionals.

Conclusion

Cardiac auscultatory skills can work synergistically with new diagnostic technologies like point-of-care ultrasound. Cardiac auscultatory teaching methods should be modernized by incorporating auditory repetition to hone technical auscultation skills, using concurrent visualizations to improve conceptual understanding of cardiac pathology, and employing testing and periodic refresher sessions to ensure long-term knowledge re-

Continued on page 130

Continued from page 129

tention. Online platforms and phone applications offer a portable learning medium that is affordable, readably accessible, and self-paced for mastering the technical and conceptual aspects of cardiac auscultation, in addition to the basic foundational knowledge and physical exam skills already being taught in medical schools and residency. Maximizing cardiac auscultatory ability instills confidence and encourages physical examination alongside advanced diagnostic technologies, resulting in better diagnostic accuracy, increased patient interaction, and more importantly, human connection.

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Indoor air quality

Indoor air quality in an office environment is meant to be safe and comfortable. The office environment is very different from the industrial setting. Toxic emissions in an office setting are not expected but may occur on rare occasions due to something unusual in the office environment or the entrainment of pollution from outside. Air pollutants may originate from a neighboring industry, somehow bypassing the building's ventilation system, or they may enter the building due to poor design, such as a ventilation air intake located in a parking lot, resulting in entrainment of car exhaust into the office space.

Many modern office buildings are sealed to the outside with windows that do not open. These buildings rely completely on the ventilation system for healthy indoor air quality. A well-maintained, well-balanced, properly running heating, ventilation, and air conditioning (HVAC) system should provide a cleaner and more comfortable environment than the outdoors. This system filters out most outdoor dust and particulates. It also maintains the temperature and relative humidity within the recommended range for occupant comfort. It provides an adequate mix of recycled and fresh air to minimize heating or cooling costs, while avoiding staleness of the air.

Typically, four parameters are measured when evaluating indoor air quality: temperature, relative humidity, carbon dioxide (CO_2) levels, and carbon monoxide (CO) levels (see **Box**). CO_2 is emitted by people working in the office building. An excessive accumulation of CO_2 indicates an inadequate amount of fresh air for the number of people in the space. Elevated levels of CO_2 commonly correlate with complaints of poor air quality and a multitude of nonspecific health symptoms. This can be corrected simply by increasing the fresh air intake. CO originates from incomplete combustion of organic matter, and common sources include fires, internal combustion engines, furnaces, and cigarette smoke. The occupational exposure limit for CO level is 25 ppm or less. However, in an office building, there should not be any CO in the air. Any level of CO in the ambient air of an office building should be investigated and mitigated.

A well-maintained, well-balanced, properly running heating, ventilation, and air conditioning (HVAC) system should provide a cleaner and more comfortable environment than the outdoors.

There are other contaminants that can be found in office buildings, such as emissions from printers, photocopiers, and fax machines. These machines can release ozone and volatile organic compounds (VOC), as well as fine dust. To mitigate the effects of these emissions, fax and photocopy machines can be placed in a separate, enclosed room with higher local ventilation to prevent entrainment of the emissions into the general office environment.

Office furnishings, carpeting, and wall coatings such as paint can also emit VOC through off-gassing. This is typically worse when the furnishings, carpets, and paints are relatively new and gradually diminishes over time. Other emissions may originate from occupants, in the form of body odor or scented personal care products. While these products are not harmful, they can produce many complaints, and a general office policy regarding their use is usually sufficient to eliminate the problem.

Office renovations are also often the source of air-quality complaints from office workers, as the renovations may involve the release of unwanted aerosols in the form of particulates, volatile chemicals, and paint vapors, as well as noise. Many of these contaminants will eventually be removed by the HVAC system, but controlling the release of pollutants at the source is of primary importance to maintaining good air quality. One way to do this is to isolate the source of emissions by containing the area of work. For example, office renovations can be done during non-business hours. The renovation area should be enclosed, and localized ventilation can be used to prevent the migration of pollutants.

For more information, visit www.worksafebc.com and search for "indoor air quality," or contact a medical advisor in WorkSafeBC's Occupational Disease Services at 604 231-8842.

—Sami Youakim, MD, MSc, FRCP
WorkSafeBC Occupational Disease Services

Acceptable indoor air quality levels

Temperature: 20 to 27 °C

Relative humidity: 30% to 60%

CO_2: < 1000 ppm above the outdoor concentration

CO: ≤ 25 ppm (should be 0 ppm)

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

Changes to the Editorial Board

Timothy Rowe, MD

It is not without a little sadness that the *BCMJ* says goodbye to Dr Timothy Rowe. Dr Rowe has been an Editorial Board member since the dawn of civilization (1993), and his vast experience will be missed. Dr Rowe applies his high intellect in the pursuit of both correctness (particularly grammar) and wisdom. The Editorial Board would like to thank Dr Rowe on behalf of all members and wish him the best in his next endeavors.

Amanda Ribeiro, MD

Dr Rowe's place at the *BCMJ* table has been filled by Dr Amanda Ribeiro. Dr Ribeiro is an OB/GYN resident and a former co-editor of the *UBC Medical Journal*. She is as well rounded as they come and brings a welcome, passionate, younger voice to our Board. Dr Ribeiro's contributions will ensure ongoing excellence at the *BCMJ* in the years to come.

–DRR

Read the quarterly GPSC newsletter online

Emailed directly to BC family physicians, the GPSC's quarterly newsletter, GP Update, is also available online at www.gpscbc.ca/news/publications.

The winter 2019 issue features news on:

- Proactive panel management.
- Improving care for at-risk moms.
- Change to some GPSC fees.
- New committee members.
- Top 10 GPSC stories for 2018.

To subscribe to the GPSC newsletter, log in to your account on the Doctors of BC website and adjust your subscription preferences accordingly.

GPSC article update

The GPSC outlined details about eligibility for the GPSC Panel Development Incentive in its November *BCMJ* article, "New GPSC incentive supports family doctors to implement panel management" [2018;60:432-433]. Since publication of that article, details about claiming the Panel Development Incentive have changed. According to revised GPSC policy, sessional payments claimed for PSP-supported panel work occurring on or before 11 September 2018 are no longer deducted from the Panel Development Incentive. Sessional payments claimed for PSP-supported panel work occurring after 11 September 2018 will continue to be deducted from the Panel Development Incentive. Visit www.bcmj.org/gpsc/new-gpsc-incentive-supports-family-doctors-implement-panel-management to read the article.

Compass program

Compass is a province-wide service to support evidence-based care for all BC children and youth living with mental health and substance use concerns. Community care providers such as primary care providers, specialist physicians, child and youth mental health team clinicians, Foundry clinicians, and concurrent disorders/substance use clinicians have access to information, advice, and resources they need in order to deliver appropriate and timely care to children and youth close to home.

When you call for a consultation, you will have access to a multidisciplinary team who can offer:

- Telephone advice and support.
- Identification and help with connection to local and online resources.
- Telehealth consultation to you and your patient, when needed.
- Tailored training and education.

The multidisciplinary team includes child and youth psychiatrists, mental health and substance use clinicians (social workers, nurses, psychologists, etc.) and a care coordinator.

The Compass team can help with diagnostic clarification, medication recommendations, treatment planning, consultation on cognitive behavioral therapy, dialectical behavior therapy, substance counseling, behavioral issues, family issues, trauma treatment, and general support when things aren't going well. You will receive a written record of all consultation recommendations for your patient's chart.

Compass aims to have a member of our multidisciplinary team answer most phone calls and respond to your questions in real time. For more specialized questions, we aim to get back to you within the same or next day. Telehealth consultations are organized on an as-needed basis following the initial phone consultation.

What you need to know to use the service:

- Compass is a consultative service and community providers retain full clinical responsibility of their patients. Recommendations provided by Compass should not supersede the best clinical judgment of an in-person care provider.
- If patients and family consent, Compass will collect identifying patient information to facilitate any needed follow-up with you (or with the families directly). If patients or

families don't want their information stored, Compass can provide recommendations on an anonymous basis.
- Compass is not a crisis intervention service, but will support providers with advice on safety planning, risk assessments, etc. Please contact your local crisis services for any emergencies.
- Compass will collect and store your demographic and practice-related information.
- Compass will periodically reach out to providers to better understand their experience with the service and communicate any upcoming workshops or educational opportunities.

For more information, call 1 855 702-7272, Monday to Friday, 9:00 a.m. to 5:00 p.m. Register at www.bcchildrens.ca/compass.

Online sexually transmitted infection testing offers many benefits

Researchers with the BC Centre for Disease Control (BCCDC) and the University of British Columbia (UBC) published three studies evaluating users' experiences of the free and confidential online testing program, GetCheckedOnline (http://getcheckedonline.com), during the first few years of its operation. Users reported that online sexually transmitted infection (STI) testing removes some of the barriers that prevent people from getting tested while providing key information about health and wellness.

GetCheckedOnline tests for STIs and blood-borne infections such as HIV and hepatitis C. It is the first online sexual health service in BC and is available to people living in Metro Vancouver and, in partnership with Island Health and Interior Health Authorities, some parts of Vancouver Island and the Interior. More than 12 000 tests have been completed since it launched in 2014, and 43% of people have used it for testing more than once.

While online health care is expected to be more convenient for users, there are concerns that it won't deliver the same opportunities to educate patients about their health and well-being, and preventive measures. One of the studies compared clients' knowledge of HIV testing and prevention among clinic visitors and GetCheckedOnline users. The researchers found that GetCheckedOnline users had equal knowledge of HIV as people who had gone to clinics for testing, even 3 months after testing.

Along with online services, processes that connect clients with doctors when needed are still required. Some users also noted face-to-face visits provide opportunities to discuss other health matters and can lead to referrals for further care. Previous research from the BCCDC shows there is a growing interest in integrating mental and sexual health services.

The three studies were recently published in *Sexually Transmitted Infections*:
- "Qualitative analysis of the experiences of gay, bisexual and other men who have sex with men who use GetCheckedOnline.com: A comprehensive internet-based diagnostic service for HIV and other STIs" (https://sti.bmj.com/content/early/2019/01/12/sextrans-2018-053645)
- "Differences in experiences of barriers to STI testing between clients of the internet-based diagnostic testing service GetCheckedOnline.com and an STI clinic in Vancouver, Canada" (https://sti.bmj.com/content/early/2018/02/15/sextrans-2017-053325)
- "Post-test comparison of HIV test knowledge and changes in sexual risk behaviour between clients accessing HIV testing online versus in-clinic" (https://sti.bmj.com/content/early/2019/01/12/sextrans-2018-053652.long)

For more information, vist http://getcheckedonline.com.

Tool to help with early detection of melanoma

Work is being done on a simple compact laser probe that can distinguish between harmless moles and cancerous ones in a matter of seconds. Daniel Louie, a PhD student, constructed the device as part of his studies in biomedical engineering at the University of British Columbia. The probe works on the principle that light waves change as they pass through objects. Researchers aimed a laser into 69

Skin cancer probe

lesions from 47 volunteer patients at the Vancouver General Hospital Skin Care Centre and studied the changes that occurred to this light beam. Because cancer cells are denser, larger, and more irregularly shaped than normal cells, they caused distinctive scattering in the light waves as they passed through. Researchers were able to invent a novel way to interpret the patterns instantaneously. This optical probe can extract measurements without needing expensive lenses or cameras, and it can provide a more easily interpreted numerical result like those of a thermometer. Although the components of the probe cost only a few hundred dollars, it is not envisioned to be a consumer product. Tim Lee, an associate professor of skin science and dermatology at UBC and a senior scientist at both BC Cancer and the Vancouver Coastal Health Research Institute, supervised the

Continued on page 134

Continued from page 133

work. He believes the device would be a good future addition to standard cancer screening methods, but not a replacement.

This is a joint project between UBC, BC Cancer, and the Vancouver Coastal Health Research Institute. Researchers hope to eventually achieve Health Canada certification and approval before being able to offer this testing through health professionals. This will require further refinement of the technology and additional clinical testing in more patients.

Study authors are Daniel C. Louie, Jamie Phillips, Lioudmila Tchvialeva, Sunil Kalia, Harvey Lui, Wei Wang, and Tim K. Lee. The article describing the study, "Degree of optical polarization as a tool for detecting melanoma: Proof of principle," is in the *Journal of Biomedical Optics*. It is available online at https://doi.org/10.1117/1.JBO.23.12.125004.

Pre- and postnatal nutrition program in Victoria

Victoria Best Babies is a pre- and postnatal nutrition program that provides support to improve the health and well-being of pregnant women, new mothers, and babies facing challenging life circumstances. The program aims to improve maternal–infant health, increase the rates of healthy birth weights, and promote and support breastfeeding. The program also aims to promote the creation of partnerships in communities and strengthen community capacity to increase support for vulnerable pregnant women and new mothers.

What is included:

- Educational sessions.
- One-on-one support.
- Monthly food vouchers and Good Food Box produce.
- Prenatal vitamins and vitamin D drops.
- Baby food demos.
- Healthy snacks and lunches.
- Hospital tours and hospital preregistration.
- On-site access to a public health nurse, a dietitian, and a dental hygienist.

For more information, or to refer a patient to the program, contact Shonna at 250 381-1552 (ext.116) or Shonna@fernwoodnrg.ca.

This program is sponsored by Fernwood NRG with funding from the Public Health Agency of Canada.

Protein "switch" could be key to controlling blood poisoning

Scientists at the University of British Columbia have discovered a new protein "switch" that could stop the progression of sepsis and increase the chances of surviving the life-threatening disease. Sepsis causes an estimated 14 million deaths every year. In a study published recently in *Immunity*, researchers examined the role of a protein called ABCF1 in regulating the progression of sepsis. Researchers discovered that ABCF1 acts as a "switch" at the molecular level that can stop the uncontrolled chain-reaction of inflammation in the body and dampen the potential damage. With no specific course of treatment, management of sepsis for the 30 million people who develop it each year relies on infection control and organ-function support.

Though sepsis is hard to diagnose, scientists do know that it occurs in two phases. The first phase, systemic inflammatory response syndrome (SIRS), results in a "cytokine storm," a dramatic increase in immune cells such as macrophages, a type of white blood cell. This results in inflammation and a decrease in anti-inflammatory cells, leading to chemical imbalances in blood and damage to tissues and organs. Recovery starts to take place when the body enters a second phase (endotoxtin tolerance, or ET), where the opposite occurs.

Building on previous knowledge of ABCF1 as part of a family of proteins that plays a key role in the immune system, researchers examined its role in white blood cells during inflammation in a mouse model of sepsis. They discovered that ABCF1 had the ability to act as a "switch" in sepsis to transition from the initial SIRS phase into the ET phase and regulate the "cytokine storm." Furthermore, without the ABCF1 switch, immune responses are stalled in the SIRS phase, causing severe tissue damage and death.

The discovery opens up potential for new treatments for chronic and acute inflammatory diseases, as well as autoimmune diseases.

The research was conducted in collaboration with the Vancouver Prostate Centre, a Vancouver Coastal Health Research Institute research centre, and was funded by the Canadian Institutes of Health Research. The article is available online at https://doi.org/10.1016/j.immuni.2019.01.014.

Canadian physicians support mandatory alcohol screening

In May 2010, the Canadian Medical Association passed the following resolution: "The Canadian Medical Association supports the use of random breath tests (i.e., MAS) in existing police spot-check programs, as part of a comprehensive plan to reduce drunk-driving related mortality and morbidity in Canada. Any such programs should be consistent with the protections in the Canadian Charter of Rights and Freedoms."

In June 2018, Parliament enacted Bill C-46, which among other things authorized police to demand a roadside breath test from any driver who they have lawfully stopped. Mandatory alcohol screening (MAS) changes only one aspect of Canada's impaired driving law—the basis for demanding a roadside breath test. Police already had authority to stop drivers to inspect their documents and question them about their driving and sobriety. Previously, a roadside breath test could only be demanded from a driver who was reasonably suspected to have alcohol in his or her body.

Research indicates that police detect only a small fraction of drinking drivers when they are required to rely solely on their own unaided senses, as was the case in Canada. Survey, arrest, and conviction data show that, on average, a Canadian could drive impaired once a week for over 3 years without being charged, and for over 6 years without being convicted of an impaired driving offence.

Some critics claim that MAS is unnecessary because the impaired driving laws were working well. In fact, Canada has long had a very poor impaired driving record relative to comparable countries. The US Centers for Disease Control reported that in 2013 Canada had the highest percentage of alcohol involvement in crash deaths (33.6%) among 20 high-income countries. While Canadians drink considerably less than residents of many of these countries, they are much more likely to die in alcohol-related crashes. Not surprisingly, almost all of these countries have MAS programs. Despite recent progress, impairment-related crashes were killing approximately 1000 Canadians a year and injuring another 60 000, a disproportionate number of whom were teenagers or young adults.

Conviction data show that, on average, a Canadian could drive impaired once a week for over 3 years without being charged, and for over 6 years without being convicted of an impaired driving offence.

Forty-five years of research in numerous countries have established that comprehensive MAS programs dramatically reduce impaired driving and crash deaths. For example, when Switzerland enacted MAS in 2005, the percentage of alcohol-positive drivers fell to 7.6% from about 25%, and alcohol-related crash deaths dropped approximately 25%. New Zealand's MAS program resulted in a 54.1% decrease in total serious and fatal nighttime crashes and saved society more than $1 billion in 1997. Ireland's MAS legislation came into force in July 2006. By the end of 2015, total traffic deaths had fallen 54.5%, and serious injuries had decreased 59.8%. Rather than overburdening criminal justice resources, MAS greatly reduced impaired driving charges, which fell to approximately 6525 from 18 650.

Critics of MAS also allege that MAS could be used to target visible minorities. According to leading Australian researchers, exactly the opposite occurred when MAS was implemented. Rather than drivers being stopped and assessed based on an individual officer's subjective assessment, all drivers approaching a MAS checkpoint are stopped (unless there is a backlog), and all stopped drivers are tested.

While MAS, like many criminal amendments, will face Charter challenges, it must be put in the context of other accepted screening procedures. Millions of Canadians are routinely subject to mandatory screening at Canadian airports, borders, and government facilities. MAS operates the same way and serves the same protective purposes as these other screening programs.

The Canadian courts have never held that these mandatory searches, or those imposed on courtroom entrants, violated the Charter. Indeed, the Ontario Court of Appeal stated that searching all courtroom entrants makes for a safer environment, is not intrusive or stigmatizing, and does not violate the Charter. Given that the courts have upheld the constitutionality of these procedures, there is no principled basis for reaching the opposite conclusion regarding MAS.

Continued on page 142

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

British Columbia's Tuberculosis Strategic Plan: Refreshed and focused on TB elimination

Despite being both preventable and curable, tuberculosis (TB) remains one of the top 10 causes of death worldwide and is the leading cause of death from a single infectious agent.[1] In 2017, an estimated 10 million people developed TB disease globally, resulting in an estimated 1.6 million deaths, with 300 000 of those deaths occurring in people living with HIV.[1]

TB is not just an international public health issue. Cases are diagnosed every day in Canada. In BC, there were 241 cases of active TB in 2016. In 2015, 745 clients were started on latent tuberculosis infection (LTBI) therapy to prevent dormant TB from progressing to the active, infectious state.[2] Although active TB incidence has generally declined over the last 10 years, BC's active TB incidence remains slightly higher than the national rate (5.1/100 000 population compared to 4.8/100 000).[2] TB also disproportionately affects persons with comorbid medical conditions (e.g., chronic kidney disease, transplant) and other marginalized groups.

In an effort to reduce the incidence, morbidity, and mortality of TB in BC, the BC Strategic Plan for Tuberculosis Prevention, Treatment and Control[3] was released in 2012. The 10-year plan was developed in partnership with a broad range of stakeholders including the BC Ministry of Health, health authorities, and community organizations. The plan contains five strategic goals, each supported by corresponding objectives and actions. Implementation of the Strategic Plan continues to be a collaborative effort supported by the BC TB Strategic Committee (TBSC) with broad representation from all regional health authorities, the First Nations Health Authority, PHSA, and the ministry.

Priority areas	Key deliverables
Contact evaluation	Develop, implement, and evaluate a cascade of care that approximates measurable indicators from screening of contacts to LTBI treatment completion and outcome.
LTBI screening and treatment	Streamline TB screening recommendations for those entering congregate living settings and implement a variety of LTBI treatment options.
Active TB treatment	Remove barriers to care and support clients through treatment including identifying social support resources and trialing virtual health methods for reaching clients and providers.
Labs	Create efficiencies within laboratory services and assemble a formal working group to move key lab work forward.
Service provision	Develop service maps and/or relationship algorithms between BCCDC's TB Services and each health authority, which helps to depict roles, identify points of intersection, and reduce duplication, as well as incorporate patient-centred care into the method of care delivery.
TB literacy	Conduct a TB needs assessment to identify learning and literacy gaps for both clients and providers and consider findings for future resource development.

Table. British Columbia's TB Strategic Plan, summary of priority areas and corresponding deliverables.

The refreshed TB Strategic Plan guides the provincial response to TB and signifies a solid commitment from involved stakeholders to ensure British Columbians are protected from TB and receive quality care should infection or disease occur.

In late 2017, midway through the current plan, members of the TBSC came together over 2 days to reprioritize and streamline the objectives noted in the 2012 plan. This face-to-face meeting helped to identify successes and challenges to date, highlight key areas of focus, identify gaps in the plan, and clarify responsibility and ownership for the refreshed priorities. Refreshed provincial TB priorities and key deliverables are summarized in the Table.

The refreshed TB Strategic Plan guides the provincial response to TB and signifies a solid commitment from involved stakeholders to ensure British Columbians are protected from TB and receive quality care should infection or disease occur. This plan also helps solidify the importance of TB prevention and treatment as a provincial health priority. On an international level, the refreshed plan is aligned with the World Health Organization's goal of eliminating TB in low-incidence countries like Canada.[4] The British Columbia Tuberculosis Strategic Plan 5-Year

Continued on page 137

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

DynaMed Plus: Updated point-of-care tool now available

The College Library now subscribes to DynaMed Plus, the updated version of DynaMed. Like its predecessor, DynaMed Plus is a point-of-care resource providing current disease guidance and recommendations for treating and managing patients. It contains more than 3200 topic summaries created by physicians and evaluated by an editorial team for clinical relevance and scientific validity. Topic summaries are updated daily based on a review of the scientific literature.

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

DynaMed Plus provides improved search functionality, medical graphs and images, links to Micromedx drug content, and a new mobile app. Relevant medical images and drug content specific to the topic are located with the summaries. The mobile app features access to content offline, the option to bookmark favorite topics, and the ability to email topics. CME credits are available for reading topic summaries in DynaMed Plus. To take advantage of CME credits, readers must first create a user account with DynaMed Plus.

Topic summaries are updated daily based on a review of the scientific literature.

Registrants may access DynaMed Plus from the College Library's Point of Care and Drug Tools webpage (www.cpsbc.ca/library/search-materials/point-of-care-drug-tools, login required). Instructions for updating to the DynaMed Plus app (iOS or Android) are available on the Apps and Audiovisual page (www.cpsbc.ca/library/search-materials/audiovisual).

For further information about DynaMed Plus or any of our other e-resources, please contact the library at medlib@cpsbc.ca or call 604 733-6671.

—Robert Melrose
Librarian

bccdc

Continued from page 136

Refresh (2017–2021) can be found at combined-files-april.docwww.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Publications/TB/BC%20TB%20Strat%20Plan%20Refresh%202017.pdf.

—Shaila Jiwa, RN, MScPPH
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—Victoria Cook, MD, FRCPC
Medical Head, Provincial TB Services, BCCDC

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1. World Health Organization. Global tuberculosis report, 2018. Accessed 13 February 2019. https://apps.who.int/iris/bitstream/handle/10665/274453/9789241565646-eng.pdf?ua=1.
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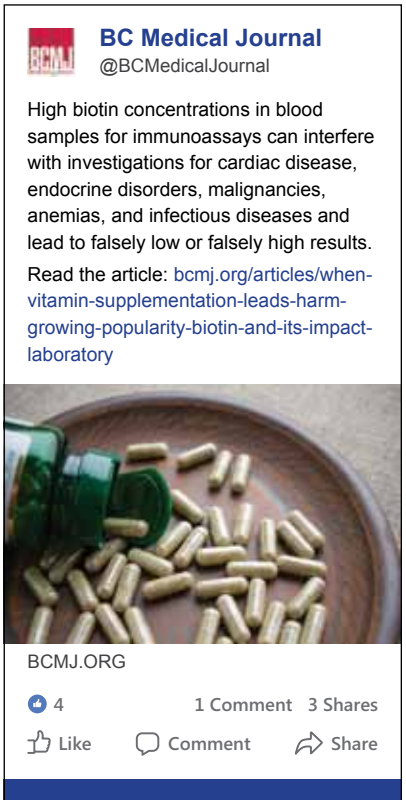
3. BC Communicable Disease Policy Advisory Committee. BC strategic plan for tuberculosis prevention, treatment and control. Accessed 26 February 2019. www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Publications/TB/BC_Strategic_Plan_Tuberculosis.pdf.
4. World Health Organization. Towards TB elimination: An action framework for low-incidence countries, 2014. Accessed 19 February 2019. https://apps.who.int/iris/bitstream/handle/10665/132231/9789241507707_eng.pdf;jsessionid=1575EF1019F0C5EE82EAC6AD26D86C0C?sequence=1.



cme calendar

CME listings rates and details

Rates: $75 for up to 1000 characters (maximum), plus GST per month; there is no partial rate. If the course or event is over before an issue of the *BCMJ* comes out, there is no discount. Visa and MasterCard accepted.

Deadlines:
Online: Every Thursday (listings are posted every Friday).
Print: The first of the month 1 month prior to the issue in which you want your notice to appear, e.g., 1 February for the March issue. The *BCMJ* is distributed by second-class mail in the second week of each month except January and August.

Place your ad at www.bcmj.org/cme-advertising. You will be invoiced upon publication. Payment is accepted by Visa or MasterCard on our secure online payment site.

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

BCMJ
BC Medical Journal

OBESITY SUMMIT
Vancouver, 6 Apr (Sat)
To be held at the Morris J. Wosk Centre for Dialogue, UBC CPD's 7th annual Obesity Summit aims to connects health care practitioners with specific interests in caring for patients who are obese. Expert and guest speakers from the obesity discipline will discuss a broad range of topics on obesity and bariatrics. Target audience: family physicians, surgeons, registered dietitians, nurses, physiotherapists, occupational therapists, residents, and others interested in caring for patients who are obese. Topics covered: medical and dietary management of obesity, challenging medico-surgical case rounds, preoperative and postoperative patient care, and obesity management with additional medical issues. Course format consists of collaborative didactic lectures and interactive small group workshops and panel discussions. Time has been set aside for networking. Join us at the end of the day for a reception to meet with friends and colleagues. Program details and online registration: https://ubccpd.ca/course/BCOS2019. BC Obesity Society website http://bcobesity.net/. Tel 604 675-3777, email cpd.info@ubc.ca; ubccpd.ca.

NUTRITION IN PRIMARY CARE
Vancouver, 6 Apr (Sat)
Nutrition in Primary Care: Update and Controversies 2019 will be held at SFU Harbour Centre. This program is designed to enhance primary care providers' knowledge of applied nutritional biochemistry and the associated research literature pertaining to several conditions commonly encountered in clinical practice. Various levels of evidence will be presented for evaluation and discussion in order to facilitate improved communication with patients about health promotion, disease prevention, and preferences for treatment. This group learning program has been certified by the College of Family Physicians of Canada for up to 5.75 Mainpro+ credits. At the conclusion of this activity, participants will be able to critique current evidence for nutritional support in several conditions commonly encountered in primary care including the prevention of dementia and support of cardiovascular health; evaluate claims for potential health benefits or adverse effects resulting from popular weight loss diets; explain nutritional biochemistry related to specific metabolic pathways and physiological processes influencing stress and adrenal health; and communicate knowledgeably with patients about their preferences for treatment, including the use of specific diets and nutritional supplements. Download the program brochure for additional information. Scholarships are available to undergraduate and graduate medical students. Online registration: https://isom.ca/event/npc-bc. Email info@isom.ca.

MINDFULNESS IN MEDICINE WORKSHOPS AND RETREATS
Tofino, 26–29 Apr (Fri–Mon)
Cortes Island, 14–19 Jun (Fri–Wed)
Join Dr Mark Sherman for an exploration of mindfulness and meditation and how these practices support the work you do, the life you live, and the person you are. Tofino: Foundations of Theory and Practice Workshop for Physicians and Partners. Cortes Island (Hollyhock): A Physician Meditation Retreat. For more information or to register please go to www.livingthismoment.ca/events.

PEDIATRIC EMERGENCY MEDICINE UPDATE
Vancouver, 2–4 May (Thu–Sat)
The 16th annual Pediatric Emergency Medicine Update will be held at UBC Robson Square. Course theme: Care of the complex child in the emergency department (ubccpd.ca/course/PedER2019). Course highlights: Newsies: 2018–2019 Practice altering articles (Dr Ran Goldman); It's complicated: Abdominal pain in the adolescent girl (Dr Karen Black); Bend It Like Beckham: Common sports medicine emergencies (Dr Paul Enarson); Nick of time: Common mistakes in pediatric resuscitations (Dr Melissa Chan); Sinister: Pediatric oncologic emergencies (Dr David Dix); The hurt locker: Headaches in children (Dr Badri Narayan); Eyes wide shut: Common eye emergencies (Dr Benetta Chin); Lost: Children with complex medical needs in the ER—A case-based approach (Dr Esther Lee). Target audience: pediatricians, emergency physicians, family physicians, allied health professionals, and residents. Accreditation: Up to 12.5 MOC Section 1/Mainpro+ credits. Course content: ubccpd.ca/course/PedER2019#agenda. Pre-conference course, Thu, 2 May: APLS: Advanced Pediatric Life Support Course (https://ubccpd.ca/course/PedER2019#pre_post). Requirement: successful previous completion of PALS or APLS course suggested. Only for physicians who are routinely involved in the care of critically ill or injured children. Accreditation: Up to 16.0 MOC Section 3 credits or 16.0 Mainpro+ credits (2cr/hr). Maximum participants: 24. Register: https://events.eply.com/PedER2019.

TROPICAL & GEOGRAPHIC MED INTENSIVE SHORT COURSE
Vancouver, 6–10 May (Mon–Fri)
The University of British Columbia Faculty of Medicine is pleased to offer this 6th annual CME course for health care providers who seek to learn an approach to preventing, diagnosing, evaluating, treating, and managing tropical diseases. It is especially useful for those who intend to practise in areas endemic for these diseases. Three broad areas are emphasized: clinical tropical medicine, parasitology, and public health. Material to be covered includes clinical descriptions and approaches to evaluation and treatment of tropical diseases and strategies for infection control within communities that make a critical difference to survival. Participants will gain practical experience through laboratory and problem-solving

Continued on page 140

Continued from page 139
exercises. Register early as space is limited. More information at www.spph.ubc.ca/continuing-education/tgm2019/. Contact: spph.ce@ubc.ca, tel 604 822-9599.

DIABETES DIRECTORS SEMINAR
Vancouver, 10 May (Fri)
The Endocrine Research Society is pleased to present the 31st Diabetes Directors Seminar, an annual UBC-accredited gathering of leading diabetes experts and caregivers from across British Columbia. Join us at the Sandman Hotel Vancouver City Centre for a full-day presentation series covering the latest and most pertinent aspects of diabetes, therapeutics, and clinical care. Target audience: specialists and family physicians with an interest in diabetes care, nurses, dieticians, pharmacists, and other diabetes educators responsible for diabetes management in their own groups and communities. Register now; space is limited. Register online at www.endocrineresearchsociety.com/events/31st-annual-diabetes-directors-seminar. For further information contact Tristan Jeffery, Endocrine Research Society: email endocrine.research.society@gmail.com, phone 604 689-1055.

PRESCRIBERS COURSE
Vancouver, 10 May (Fri)
Family physicians consistently rate prescribing for chronic pain amongst the most difficult areas of their professional lives. In a discipline where communication is the core skill set, talking to patients in realistic terms about the risks and benefits that attend the use of opioids, benzodiazepines, and other potentially habituating medications challenges even the most seasoned practitioners. This 1-day course (8 a.m. to 5 p.m. with registration starting at 7:30 a.m.) will be held at the College of Physicians and Surgeons of BC, 300 – 669 Howe St. Course fee: $420 (includes GST). Participants in this intensive course will learn new approaches, primarily through interview simulations in small groups, supported by sympathetic, experienced, clinical teachers. At the conclusion of this course, participants will be able to identify common clinical pitfalls in the prescribing of drugs of potential abuse to patients; develop a tool kit and strategies to assist in the management of chronic noncancer pain with opioid medications; identify and begin to apply clinical interviewing strategies that assist in managing difficult problems in the office setting; develop and begin to apply strategies to detect and manage misuse and abuse of drugs of potential abuse in their practice; implement changes to their practice as a result of attending this course and reflecting on the implications of its content. This group learning program meets the certification criteria of the College of Family Physicians of Canada and has been certified by UBC CPD for up to 7.25 Mainpro+ credits. Each physician should claim only those credits they actually spent in the activity. Registration: drugprograms@cpsbc.ca, or 604 733-7758 ext. 2629.

CME ON THE RUN
VGH and various videoconference locations, 10 May (Fri)
CME on the Run sessions are held at the Paetzold Lecture Theatre, Vancouver General Hospital and there are opportunities to participate via videoconference from various hospital sites. Each program runs on Friday afternoons from 1 p.m. to 5 p.m. and includes great speakers and learning materials. Date and topics: 10 May (internal medicine). Topics include: Management of obesity; Management of migraine; COPD: Current treatments; Common cardiac arrhythmias: When to worry and refer; Atrial fib initial management; Lyme disease update; Gut microbiome: The second brain; Central sensitization syndrome: Management pearls. To register and for more information, visit ubccpd.ca, call 604 675-3777, or email cpd.info@ubc.ca.

PsychedUP CME
Vancouver, 31 May (Fri)
To be held at UBC Robson Square, 800 Robson St. This accredited CME event (9 a.m. to 2 p.m.) has been attended by 800 health care professionals so far. Some of the testimonials we received can be viewed at www.psychedupcme.com/testimonials. Dr Diane McIntosh says, "I developed PsychedUp CME to make psychiatry continuing medical education clinically relevant, practical, engaging, and interactive. Our patients are counting on us to be at the leading edge when we diagnose a mental illness, and prescribe or switch psychotropic medications. You'll be there with PsychedUp CME." Target audience: psychiatrists, family physicians, nurse practitioners, registered nurses, and pharmacists. Accreditation: 4.5 Mainpro+ and Section 1 credits. Topics: Anxiety disorders and adult ADHD. Bipolar disorder will be covered time permitting. You'll leave PsychedUp CME with a plan for conducting highly effective, time-efficient diagnostic interviews; a review of the most up-to-date, evidence-based, clinically relevant psychiatric treatments; a patient-focused, individualized, prescribing plan that will save you time, lessen your clinical burden, and relieve your patients' suffering; renewed confidence when managing mental illnesses in your busy practice. For more information, write to us at info@psychedupcme.com. Register on psychedupcme.com.

ORTHOMOLECULAR MEDICINE TODAY
Vancouver, 31 May–2 Jun (Fri-Sun)
To be held at the Fairmont Hotel, the 48th annual International Orthomolecular Medicine Today conference is a continuing education event for

medical doctors, naturopathic doctors, nurse practitioners, pharmacists, and other health care professionals. The conference is presented by the International Society for Orthomolecular Medicine, which brings together orthomolecular associations established in more than 20 countries around the world. Orthomolecular Medicine Today provides a forum for leading clinicians and researchers to present current advances in orthomolecular oncology, immunology, and general medicine. Learn about the safe and effective use of naturally occurring molecules for improving patient outcomes. Additional information and online registration at https://isom.ca/event/omt2019/. Email: info@isom.ca.

SKIN SPECTRUM SUMMIT
Vancouver, 1 Jun (Sat)
Skin Spectrum Summit, Canada's Conference on Ethnodermatology, is a landmark 1-day event designed to enhance patient care provided by GPs, FPs, NPs, dermatologists, and residents, when treating patients with skin of color, notably Fitzpatrick Scale Skin Types III–VI. Location and time: Coast Coal Harbour Hotel, 7:30 a.m. to 3 p.m. Curriculum chair: Dr Jason Rivers, University of British Columbia. Learning objectives: Learn about the different skin conditions in Canada's ethnic population including the manifestations of common dermatological problems for persons with skin of color. Improve diagnostic practices of different skin conditions in the growing ethnic population. Learn strategies and tools to better manage patients with skin of color including potential unique challenges they may face in their treatment. Registration at www.skinspectrum.ca. When registering enter this exclusive discount code BCMedJou20 to receive 20% off your registration.

EMERGENCY AND CRITICAL CARE CONFERENCE
Parksville, 1–2 Jun (Sat–Sun)
Join us in Parksville on Vancouver Island for this year's Vancouver Island "Top 5 in 10" Emergency and Critical Care conference. This course will be held at the Parksville Community Centre and is geared to emergency physicians, family physicians, registered nurses, residents, and students. This event has been expanded to 2 days and will maintain the same great format of 10-minute lectures, fun intermissions, contests, entertainment, and videos. Come laugh and learn. Saturday night mixer with special guest Dr Brian Goldman. Course features at the new venue will now include the critical care component. Great speakers: Drs Grant Innes, Peter Rosen, David Williscroft, and more. There may also be an APLS pre-conference course—stay tuned. Accommodation: The Beach Club Resort: http://bit.ly/viec2019rooms. Group code: UBC CPD-Vancouver Island Emergency Conference. Booking deadline: 30 Apr. Program details and registration: https://ubccpd.ca/course/viec2019. Tel 604 675-3777, email cpd.info@ubc.ca.

PRACTICE SURVIVAL SKILLS
Vancouver, 15 Jun (Sat)
The 12th annual Practice Survival Skills—What I Wish I Knew In My First Years of Practice conference will be held at the UBC AMS Nest and emphasize practical, nonclinical knowledge crucial for your career. Topics include billing and billing forms, rural incentives, MSP audits, medicolegal advice and report writing, job finding and locums, financial and insurance planning, practice management and incorporation, licensing and credentialing, and digital communication advice. Target audience: family physicians, specialty physicians, locums, IMGs, physicians new to BC, family practice and specialty residents, and physicians working in episodic care settings. Course format comprises collaborative didactic lectures and interactive small-group workshops; plenty of networking opportunities, and practice-based exhibits. Join us in the afternoon for a job fair and networking reception to meet with colleagues and make career connections. Program details and online registration at https://ubccpd.ca/course/practice-survival-skills-2019. Tel 604 675-3777, email cpd.info@ubc.ca.

GP IN ONCOLOGY TRAINING
Vancouver, 9–20 Sep and 3-14 Feb 2020 (Mon–Fri)
The BC Cancer's Family Practice Oncology Network offers an 8-week General Practitioner in Oncology training program beginning with a 2-week introductory session every spring and fall at the Vancouver Centre. This program provides an opportunity for rural family physicians, with the support of their community, to strengthen their oncology skills so that they may provide enhanced care for local cancer patients and their families. Following the introductory session, participants complete a further 30 days of customized clinic experience at the cancer centre where their patients are referred. These can be scheduled flexibly over 6 months. Participants who complete the program are eligible for credits from the College of Family Physicians of Canada. Those who are REAP-eligible receive a stipend and expense coverage through UBC's Enhanced Skills Program. For more information or to apply, visit www.fpon.ca, or contact Jennifer Wolfe at 604 219-9579.

Continued from page 135

As well, the Court's arguments apply with far greater force in regard to MAS. Driving is a privilege, not a right, and the risks posed by impaired drivers are several hundred times greater than those posed by violent courtroom entrants. Put bluntly, far more Canadians are killed in alcohol-related crashes every year than by terrorists on airplanes, travelers at our borders, or courtroom entrants. Screening drivers is minimally intrusive, entails no stigma, and takes about 2 minutes while drivers remain seated in their vehicles.

Canadian physicians applaud the federal government for introducing MAS. The lives of many Canadian citizens will be saved.

—Roy Purssell, MD
Professor, Department of Emergency Medicine, UBC
Emergency Physician, Vancouver General Hospital

—Robert Solomon, LLB, LLM
Distinguished University Professor, Faculty of Law, Western University
National Director of Legal Policy, MADD Canada

—Erika Chamberlain, PhD
Dean and Professor, Faculty of Law, Western University
Member of the Board of Directors, MADD Canada

Suggested reading

Solomon R, Chamberlain E. The road to traffic safety: Mandatory breath screening and Bill C-46. Can Criminal Law Rev 2018;23:1-42.

guidelines for authors (short form)

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1. Gilsanz V, Gibbons DT, Roe TF, et al. Vertebral bone density in children: Effect of puberty. Radiology 2007;166:847-850.

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2. Mollison PL. Blood Transfusion in Clinical Medicine. Oxford, UK: Blackwell Scientific Publications; 2004:178-180.
3. O'Reilly RA. Vitamin K antagonists. In: Colman RW, Hirsh J, Marder VJ, et al. (eds). Hemostasis and Thrombosis. Philadelphia, PA: JB Lippincott Co; 2005:1367-1372.
4. Health Canada. Canadian STD Guidelines, 2007. www.hc-sc.gc.ca/hpb/lcdc/publicat/std98/index.html (accessed 15 July 2018).

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Proust questionnaire: Dr Caitlin Dunne

What profession might you have pursued, if not medicine?
I was in the clinical psychology program at McGill before medical school.

Which talent would you most like to have?
The ability to heal 100% of the time. I think every doctor wants that.

What do you consider your greatest achievement?
Writing for the popular media has become a passion. It gives me a platform to raise awareness for women's health and battle the stigma of infertility.

Who are your heroes?
I have two: my late grandmother and my husband, each for their character and their feminism.

What is your idea of perfect happiness?
Happy children.

What is your greatest fear?
That gender equality will not be achieved within my daughter's lifetime.

What is the trait you most deplore in yourself?
That I cannot think of a witty answer to this question.

What characteristic do your favorite patients share?
Optimism.

Which living physician do you most admire?
Dr Roberta Bondar.

What is your favorite activity?
Running at sunrise while listening to the *New York Times* podcast.

On what occasion do you lie?
I don't admit when I am having a bad day. I say something positive instead.

Which words or phrases do you most overuse?
Congratulations, you're pregnant.

What is your favorite place?
Sitting on the dock at the cottage.

What medical advance do you most anticipate?
Gene editing in embryos.

What is your most marked characteristic?
Hard work and consistency.

What do you most value in your colleagues?
Integrity. My partners are known for it.

What are your favorite books?
I like listening to David Sedaris's audiobooks.

What is your greatest regret?
Not learning a second language. As a result, my kids are learning three.

What is the proudest moment of your career?
Joining the Pacific Centre for Reproductive Medicine as a co-director right after fellowship.

What is your motto?
"If a job's worth doing, it's worth doing well." I read that in an Amelia Bedelia book when I was a kid and it has stuck with me.

How would you like to die?
Old, in my sleep, after eating a bunch of cupcakes with my family.

Dr Dunne is a co-director at the Pacific Centre for Reproductive Medicine (PCRM) and a clinical assistant professor at the University of British Columbia. She specializes in reproductive endocrinology and infertility.

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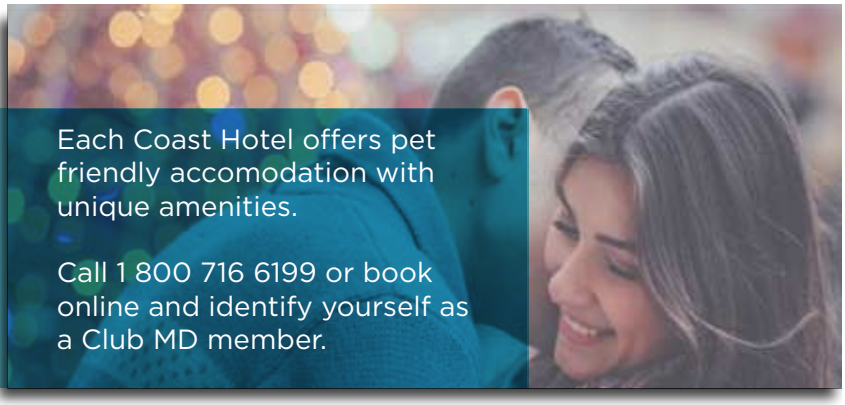

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