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Breast cancer, Part 2: Issues in treatment

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contents

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ON THE COVER

An increasing range of treatment options are now available when a patient is diagnosed with breast cancer, and progress has been made in surgery, systemic therapy, and radiotherapy, all of which have led to more individualized treatment. Part 2 of our theme issue on breast cancer begins on page 90.

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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THEME ISSUE: BREAST CANCER, PART 2

doctors of bc

contents

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Role reversal

I was an active child, or should I confess that perhaps "clumsy" would be a better description? I always seemed to be falling and would often lead with my least valuable body part—my head. I cut my chin jumping into a pool backwards, opened my scalp twice on the stone fireplace hearth, split my eyebrow on a door frame, and had my forehead skewered by a shovel held by my father. He may or may not have told me to get out of the sandbox while he topped up the level. On these instances, and on many more, my father would patiently load me into the car and take me to get sutured. I was a "frequent flyer"; I even had a hospital points card. My dad looked out for me (except for that time with the shovel) as parents do.

If you look up what it means to be a good parent, words like *listening, teaching, understanding, patience, love,* and *caring* are frequently mentioned. These words certainly describe my mother and father. I have tried to emulate my parents' example in raising my own children and am proud of the people they have become (not sure this has much to do with me; I failed quite a few times in the patience and understanding categories). I now watch in admiration as my children raise my grandchildren using the tools handed down from generation to generation.

Aging is an inevitable part of life. My parents are now in their 80s and are facing new challenges. They are beginning to need help with health care and mobility. Their independence is threatened and the upkeep of the family home is becoming too much for them. They are faced with considering a move to a facility where their needs can be met. I am sure all of this is a bit overwhelming. I'm not sure how I will handle this issue when I reach this point (which is in doubt due to my clumsiness). Contemplating a lack of control over my life and living situation isn't a pleasant thought.

Last week, for the first time ever I took my dad to visit his physician. This role reversal of supporting aging parents comes with many challenges that no one prepares you for. It is a little like becoming a parent to your parents, but not exactly. With children you have more control over their actions and decisions. Parents seem to have a mind of their own and often ignore their children's advice. The nerve to think that the years they have lived lead to any wisdom in the decision making process! My parents will phone asking for help on a health-related issue. After some discussion, during which I remind them that I am a physician, we agree on a plan that they then ignore because they think they know better. It's not like I can send them to their room for a time-out for disobeying. How am I going to enforce loss of TV or computer privileges?

I'm not prepared for this new chapter in my relationship with my parents, but I'm not sure anyone is. However, I do have faith that with love and patience and a little bit of humor we will safely navigate these uncharted waters together.

—DRR

The A-Team

My MOA: "Good morning, Dr Chahal's office."
Patient: "I need in today!"
MOA: "What's happening?"
Patient: "I'm having back pain."
MOA: "Is it urgent? How long have you had it?"
Patient: "Yes, it is urgent. I've had it for 5 years, and I need in now!"

My MOA asks the patient their name and takes a look at their chart. She realizes that they've no-showed the last three times for the same issue. She sighs and finds a spot to fit the patient in, yet again.

I am a solo family practitioner in a private practice with one full-time MOA and one part-time MOA. If you watched TV in the 1980s you may be familiar with *The A-Team*. My full-time MOA is like the B.A. Baracus of the team. She takes the brunt of the abuse from patients. But I pity the fool who crosses her. She is hard-nosed and serious about her job, but just a big softy underneath it all. My part-time MOA is like "Howling Mad" Murdock. He is quirky, loud, and brings an element of entertainment to the office. I guess I'm the John "Hannibal" Smith of the group. I'm always assessing the situation, creating the plan, and keeping the peace.

We face many frustrating scenarios at the clinic. Often our patients will walk in off the street and demand to be seen immediately for non-urgent issues when it's quite apparent that the waiting room is full. We have pharmacies asking us for refills of prescriptions that I've never written or refills when the patient has neglected to book a follow-up appointment on a timely basis. Patients want to be seen at lunchtime, in the evening, or on weekends as they don't want to take time away from their busy schedules to come in. Patients don't return calls, even after we've left three messages, but they expect me to take their calls immediately while I'm seeing booked patients. Patients will not only not show up for appointments at our clinic, they will also not show up for specialists' appointments. There are times when patients will complain to me about the service they've received from my staff. Or worse yet, patients will complain about my staff on online MD-rating sites.

We do see patients who walk in off the street, we do refill prescriptions when patients run out and don't have an appointment, we do give patients yet another chance when they've broken the no-show rules, but we also try to educate patients and encourage them to become more responsible for their health.

I always assess each situation immediately and address the concerns, trying to support both the patient and my MOAs. And yes, we do see patients who walk in off the street, we do refill prescriptions when patients run out and don't have an appointment, we do give patients yet another chance when they've broken the no-show rules, but we also try to educate patients and encourage them to become more responsible for their health. We, as a team, do a lot of debriefing of "the battle" at the end of the day. We provide honest feedback in a supportive manner, and there is often some laughter.

It all sounds pretty harsh—working in a medical clinic—but there are a lot of perks as well. We have many appreciative, kind, and interesting patients who make it all worthwhile. We see the cuddly babies, the energetic kids, the hardworking adults, and the lovely seniors. We see patients of all ethnicities and socioeconomic statuses. We get a lot of cards, chocolates, tea, wine, and most importantly, hugs, thanks, and good outcomes for our efforts.

We are always learning and evolving. I reassess the general well-being of my staff and my patients on a daily basis. Recently, and just as importantly, I have also been assessing my own well-being. We are now opening up same-day appointments in the morning as well as in the afternoon. I am doing more home visits for patients who are elderly or incapacitated. My MOAs and I are calling a lot more patients with results to ease their minds and to save them time from having to come in. We are becoming a well-oiled machine. We are listening to the needs of our patients, as they are an important part of the team as well.

We are the A-Team. Each of has the same goal, which is to provide compassionate, timely, and knowledgeable care for our patients, and to have a good time while we're doing it. There are many days that I look at our team and think to myself, "I love it when a plan comes together."

—JKC

Women in medicine—diversity and the glass ceiling

International Women's Day is celebrated in March, and despite the progress made since this day was named 110 years ago to highlight work toward equal rights for women, significant disparities still exist.

I entered medical school at a time when women were still a minority—just 30% of my classmates were women. My first rural practice elective after my second year of medical school was in an entirely male clinic. They had recently hired a new colleague and I asked if they had considered any women. "Oh no," they said. "Our community is not ready for a woman physician." Interestingly, 2 weeks after I started fumbling my way through clinical medicine, a number of patients called the clinic wanting to make appointments with "that new lady doctor" in town! And again, when I began practice I was the only woman in my clinic. I can still remember the look on the face of the older gentleman who was there for a complete exam as I walked into the exam room. I think he might have bolted if not for the fact that he was already in the flimsy exam gown. I ignored his panic and we got through the process. He even made a follow-up appointment, so I guess it went okay.

I encountered a fair amount of gender bias throughout my clerkship and internship, but I think we all expected it because we were women breaking new ground in a traditionally male-dominated field. I certainly experienced subtle and not-so-subtle questioning of my competence and career potential from attending physicians and, sadly, not always from men. In some instances it was hard to figure out if it was because I was a woman or just because I was a trainee.

My response was to work harder and longer and prove I was just as competent as any man. When pregnant with my first child I planned to work until delivery and take minimal time off, basically to prove my gender would not disadvantage the group. As often happens, my plan was thwarted. I developed pneumonia at 32 weeks, wound up hospitalized, then went through a bout of preterm labor—all

to say that my plans to work until I delivered were obliterated. My group covered my call, saw my patients, delivered my maternities, and helped me juggle all my responsibilities. Quite frankly, if not for their actions I would have ended my rural medical career. Because of my experiences during training, I was trying hard to prove myself to a group that, as it turned out, actually valued my contribution because I was the only woman in the practice.

Medicine has come a long way since then. It's been 30 years and my clinic is now more than half women. I don't think my community has even noticed. There are probably more folks now who would rather see a female doctor, which bothers me just the same as when folks refused to see me because I am female. Today's medical schools, both in Canada and the

US, have more women than men. Of family doctors under 40, more than half are women. And yet, significant barriers still exist for advancement, particularly in certain specialties, academic medicine, leadership, and medical politics.

I am the seventh female president of Doctors of BC. For an organization that was founded in 1900, we are not exactly at the forefront of visible female physician leadership. You may presume that having achieved this position I would find gender bias to be less prevalent. Not so. I have been astounded at the situations where others are visibly surprised to find a woman in this position, and even more surprised when I make a valuable contribution.

I believe that, although gender differences exist, there should be equal professional opportunities for all genders. Sadly we have a very long way to go to meet this goal. Our Board remains predominantly male, although we have a somewhat better balance on the Representative Assembly. I encourage more women to stand up and be involved in Doctors of BC committees, your division of family practice, or medical staff association. Become a leader in an area your feel passionate about, whether in your association or in your community. And most of all, own your success. Don't let anyone make you feel that you don't deserve what you have worked hard for.

We are actively striving to balance not just gender but age, stage, and type of practice on our committees.

I realize there are other differences that need to be addressed. Organizational cultural change is frustratingly slow. We are actively striving to balance not just gender but age, stage, and type of practice on our committees. Multicultural diversity must be considered as well. Given that Doctors of BC is an advocacy group for the profession, we need to promote diversity throughout the medical community. We can begin by addressing our own organization and leading by example. Let us continue to advocate for a medical profession that is truly inclusive with equal rights and opportunities for all.

—Trina Larsen Soles, MD
Doctors of BC President

letters to the editor

Concerns with the Therapeutics Initiative

I recently received the Therapeutics Letter, September/October 2017, from the government-funded Therapeutics Initiative. In this TI letter they quote a publication, *Prescrire*, from Europe, which they claim has credibility because of the authors' absence of conflicts of interest. Unfortunately, it appears that the authors do not read medication product inserts or the published clinical trials that have led to the registration of pharmaceutical agents both in Europe and internationally. I have participated in clinical trials funded by both government and various pharmaceutical sponsors, which have contributed to our evidence-based knowledge of osteoporosis and its treatment. In addition, I have, in the past, been elected for two terms to the Board of Doctors of BC, these being my potential conflicts of interest.

Prescrire lists denosumab (Prolia) under drugs for prevention of osteoporosis, which is not an indication for denosumab. The management of osteoporosis with medications is limited to patients with risk of fracture; denosumab is not recommended for widespread use to prevent postmenopausal bone loss. Furthermore, they conclude the medication is of "modest efficacy" with "disproportionate adverse effects such as back pain and serious infections." In the published phase-3 clinical trial of 7808 postmenopausal women randomized to denosumab or placebo for 3 years, vertebral fractures were reduced by 68% and hip fractures reduced by 40%. Back pain was commonly reported in this elderly female population, occurring in 34.7% of patients on denosumab and 34.6% of patients on placebo. Infections occurred in 54.4% of placebo patients and 52.9% of denosumab-treated patients. Serious adverse events of infections were reported in 3.4% of placebo subjects and 4.1% of denosumab subjects ($P = 0.14$).

The references quoted by the Therapeutics Initiative are limited to two of their previous bulletins and two *Prescrire* publications.

As a physician with knowledge of the osteoporosis peer-reviewed literature, I resent my provincial tax dollars being used to mislead colleagues with non-evidence-based information. The TI's provincial government budget is being used not just to create these materials but also to aggressively promote their views by mailing them to physicians in the province. The result is confusion with consequent deterioration in patient care.

—David Kendler, MD
Vancouver

Therapeutics Initiative replies

We thank Dr Kendler for the opportunity to respond to his comments on Therapeutics Letter #108, which summarized *Prescrire's* 2017 list of Drugs to Avoid.[1] In letter #108 we explain why we have confidence in the systematic reviews and conclusions of the completely independent French group, *Prescrire*.

In the original article that letter #108 summarized in tables, *Prescrire* wrote that "denosumab 60 mg in osteoporosis has very modest efficacy in the prevention of osteoporotic fractures and no efficacy for 'bone loss' during prostate cancer, but carries a disproportionate risk of adverse effects, including back pain, musculoskeletal pain, and serious infections (including endocarditis) due to the immunosuppressive effects of this monoclonal antibody."[2] We note that *Prescrire's* just-published 2018 list of Drugs to Avoid, also includes denosumab.[3] *Prescrire* provides references to the research that they conducted to come to that conclusion. We strongly encourage Dr Kendler to study those articles and to take up any issues he has with *Prescrire's* editors.

Dr Kendler cites a single trial[4] and relative risk reductions, which are well known to be a misleading way to present efficacy data. We refer readers to an excellent critical appraisal of that trial by another European independent bulletin.[5]

Prescrire's editors are health care professionals with no conflicts of interest. In contrast to an opinion from one clinician, *Prescrire's* reviews are critiqued by 10 to 40 reviewers prior to publication. Independent analysis of drugs and clinical trial results must remain the cornerstone of evidence-based decision making.

—Jim Wright, MD, PhD, FRCPC
Editor-in-Chief, Therapeutics

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Navigating care as an MD-patient

I am a practising physician in BC with chronic illness. It is not unusual to come up against conflict in communication and advocacy with my care providers. I have come to realize

Continued on page 82

Continued from page 80

that this unique relationship between an MD-patient and the care provider of an MD is insightful but at times challenging and stressful.

When conflict arises, I ask myself, "How would it have been different if I were not a doctor?"

A few weeks ago I had one of the more stressful encounters when I felt my psychiatrist was more concerned about protecting her relationship with her colleagues on the inpatient side, who took care of me during a hospitalization, than being my advocate first and foremost. There were adverse outcomes and her postdischarge follow-up note was sparse in details of the events. I felt a more detailed documentation of my concerns would have helped to improve future care.

The challenges of being an MD-patient is more prominent when a doctor is hospitalized. I remember once, after complaining to nursing staff about how they handled a patient in crisis whom I had befriended during my inpatient stay, the head nurse telling me in dismay, "If you think you can do better why don't you come and stand here and manage the unit?"

I often walk a thin line in maintaining boundaries and taking the patient role. I feel we, as doctors, are ill prepared for this role in our medical school training, despite the fact that most of us work well into our 60s and 70s and eventually face our own chronic illnesses.

I believe it would be so helpful for doctors with chronic health issues to support each other with similar challenges. Over the years, I have looked into the Physician Health Program in BC to see what services and supports are offered. There is much to learn from being "in the same boat." Disappointingly, the PHP position has focused mainly on one-to-one private consultation and referral. There was a community-based initiative, but no significant effort to create a province-wide peer-support program, which has been successfully set up in many countries such as the UK. These programs are relatively inexpensive to set up as private chat rooms governed by the doctors' associations. This is of particular importance in BC where some doctors are more isolated in the central and northern regions. When I approached the Physician Health Program in BC some years ago, they expressed some interest but said that due to limited funds they have prioritized physician-resiliency initiatives.

I continue to wait for the day when doctors with chronic illness in BC become a priority for enhanced supports. We are in an era of fighting stigma and this has to start from our own institutions, regulatory bodies, and most importantly the support of our peers. We encourage our patients to access such programs, yet we shy away from creating one for us.

—C.P., MD, Vancouver

The PHP replies

It's worthwhile to give careful consideration to Dr C.P.'s experiences as an MD-patient, and the question of whether these might have been different if they were not a physician.

In providing support to physicians who are treating their colleagues, we often advise trying to treat MD-patients just like any other patient. But Dr C.P.'s account shows how our colleagues are uniquely positioned to judge the quality of the care they receive, favorably or otherwise. And the fear of being judged harshly is one of the factors that doctors frequently cite when discussing their anxiety about treating colleagues.

While it is true that the mandate of the Physician Health Program of BC is first and foremost to provide trusted, confidential one-to-one service to the physicians who call us, it is not true that we have expended "no significant effort" to foster local networks of peer support.

In 2018, we have budgeted to run a pilot peer-support group for physicians with chronic mental health issues. From this pilot project we hope to learn whether and how such a program could be scaled up and become available across the province. We also are eager to collaborate with the many local physician organizations such as divisions of family practice and medical staff associations, whose existence is now supported through the Joint Collaborative Committees (GPSC and SSC). In fact, on 3 April we are hosting a symposium on this very topic at the Doctors of BC building. Further details are available on our website (www.physicianhealth.com/about-us/events).

On behalf of the PHP staff and the Steering Committee, I thank Dr C.P. for bringing attention to these complex challenges and the many initiatives now underway to address them.

—Andrew Clarke, MD, MEd, DOHS, Executive Director, Physician Health Program

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Patient and physician resources for naloxone use in BC

Since the overdose crisis was declared a public health emergency in BC in April 2016, the BC Centre for Disease Control (BCCDC), in partnership with the Ministry of Health, health authorities, and community partners, has been leading development of practises and distribution related to take-home naloxone kits in BC. Here are the most recent practise updates, including resources for patients, physicians, and other service providers.

BC's take-home naloxone program

The BCCDC reduces barriers to accessing naloxone by providing no-cost take-home naloxone kits to people at risk of witnessing or experiencing an overdose. Standardized training and kits are provided through more than 1000 distribution locations across BC. Distribution locations include 86 hospitals and emergency departments, 16 corrections facilities, and over 100 sites serving First Nations communities. Most are sites that have long provided harm reduction services to clients and also offer a range of education, services, and supports related to safer substance use.

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

Care providers should encourage patients to report their use of the take-home naloxone kits to the BCCDC.

Where to find take-home naloxone kits

Patients and the general public can locate their nearest take-home naloxone and harm-reduction sites at www.towardtheheart.com. There are currently more than 250 community pharmacies listed at this site, and pharmacy enrollment is ongoing. We estimate that over 65 000 kits have been distributed since the program began in 2012, and over 40 000 kits in 2017 alone.

Where to find training on administering naloxone

Two new training resources have been developed that are relevant for physicians, other service providers, patients, family members, and the general public.

Training for service providers

The Naloxone Administration Quick-Learn Lesson is an online training tool aimed at service providers who may need to respond to an opioid overdose, including not-for-profit and supportive-housing staff, and those who work directly with people at risk of overdose. This interactive, self-guided lesson on overdose recognition and response takes approximately 15 to 20 minutes to complete. It is available at www.towardtheheart.com/naloxone-course.

Training for the patients, families, and the public

Launched in November 2017, the online naloxone training application

was developed by Hello Cool World Media in collaboration with St. Paul's Hospital and the BCCDC's Harm Reduction Services. The self-guided training app provides standardized patient training for use in busy settings such as emergency departments and pharmacies. Patients, friends, or family of people at risk of opioid overdose can complete a thorough online review of overdose recognition and response scenarios in approximately 5 minutes. A certificate of completion is provided, which can then be displayed on a mobile device or printed and taken to a take-home naloxone site or participating pharmacy to show evidence of training and to receive a kit. The training application is available at www.naloxonetraining.com.

Naloxone use in BC communities

Care providers should encourage patients to report their use of the take-home naloxone kits to the BCCDC. Based on clients' reports of using the kits (gathered when they are replacing/refilling a kit), we estimate there have been 14 000 administrations (96% of them occurring in 2016 and 2017).

A detailed overdose event reporting form is also included in each kit, and there have been 2700 completed forms returned to date. The information provided in the completed forms has given us a better understanding of important issues such as the frequency of withdrawal symptoms.

Preventing opioid withdrawal in overdose events

Completed overdose event reporting forms show that in 70% of take-home naloxone administration events there are no or mild withdrawal symptoms reported. Training points based on this evidence include:

- When an overdose is witnessed, continue giving one breath every 5 seconds until the victim is breathing on their own or help arrives.
- To avoid withdrawal symptoms, and to reduce the risk that someone recovering from an overdose will feel the need to use additional substances, give one dose of naloxone every 3 to 5 minutes.

The BCCDC's take-home naloxone program provides lifesaving training and kits to people who are likely to witness or experience an overdose. Physicians and health care providers play an important role in facilitating access to this lifesaving intervention.

Online naloxone resources

- Naloxone training application for patients: www.naloxonetraining.com
- Naloxone Administration Quick-Learn Lesson for service providers: www.towardtheheart.com/naloxone-course
- Take-home naloxone site finder: www.towardtheheart.com/site-finder
- Take-home naloxone information for health professionals: www.towardtheheart.com/health-professionals
- History of take-home naloxone use in BC: www.bccdc.ca/resource-gallery/Documents/THN%20timeline_Colour%2020170628.pdf
- Take-home naloxone infographic: www.towardtheheart.com/thn-in-bc-infograph

—Jane Buxton, MD
Physician Epidemiologist and Harm Reduction Lead
—Mark Gilbert, MD
Medical Director
—Margot Kuo, Epidemiologist
—Emily Ogborne-Hill, Harm Reduction Operations Coordinator
—Sara Young, Manager, Harm Reduction and Hepatitis Services

DriveABLE no longer used by RoadSafetyBC to assess drivers

As of 1 March, DriveABLE assessments will no longer be used by RoadSafetyBC to make licensing decisions; it will be replaced by a new Enhanced Road Assessment (ERA) administered by ICBC.

The ERA will also replace the existing RoadSafetyBC referred Class 5 and Class 7 road test re-examinations currently conducted by ICBC. When a driving assessment is required to make a licensing decision, the ERA will be used by RoadSafetyBC to evaluate drivers of any age with a cognitive, motor, or visual deficit. It consists of a pre-trip vehicle orientation, on-road drive with a feedback component, and post-trip review. There is no in-office computer-based screening component, and the ERA will be administered in a driver's own vehicle, at no cost to the driver.

In real-world driving, drivers need to self-navigate without assistance and adapt to unexpected changes in a familiar route. Unlike a traditional road test where the driver is guided in a structured environment, the ERA has tasks that are similar to the cognitive workload of real-world driving. The driver's ability to complete these tasks and simultaneously maintain the basic driving skills are evaluated by the driver examiner.

The results of the ERA will be reviewed by RoadSafetyBC, along with all other information related to the driver's medical fitness to drive in order to make a licensing decision.

Commercial drivers requiring an on-road driving assessment will continue to be referred for a commercial-class ICBC road test re-examination. There is no change to the age 80 Driver Medical Examination Report process.

For more information on the ERA, including Q&As for medical professionals, please visit: https://www2.gov.bc.ca/gov/content/transportation/driving-and-cycling/driver-medical/driver-medical-fitness/driver-medical-fitness-information-for-medical-professionals.

New Urgent Care Centre at BC Women's Hospital

The new Urgent Care Centre at BC Women's Hospital is the only one of its kind in Canada for women who are pregnant through until 6-weeks post-birth, who arrive for triage, assessment, and admissions to BC Women's Hospital. The new facility provides care to mothers in a quiet, private, welcoming space while enabling interdisciplinary collaboration. It features:

- 10 large, private single-patient rooms with designated space for a family member and private patient washrooms.
- Redesigned clinical and patient areas to improve line-of-sight and flow of patients.
- Large team-care centre and private providers' area to ensure interprofessional consults and interdisciplinary work.
- Improved infection control with dedicated infection isolation rooms.

The new Urgent Care Centre is supported by a $3 million gift from the Lalji family.

Huntington Society of Canada reaches rural areas

Thanks to a new partnership with the BC Centre for Palliative Care (BCCPC) and a $5000 grant, the Huntington Society of Canada (HSC) is expanding its services to reach rural and remote communities in BC and educating them on Huntington disease (HD) palliative care approaches.

Currently, there are families impacted by HD that do not have access to critical support including information about palliative care and how to build a network of support. By expanding the program to rural and remote communities in BC, these individuals and families will have the opportunity to connect with the HSC Family Services Team for support and information on palliative care through the HD Education Program.

The HD Education Program strives to help break down the sense of isolation experienced by those impacted and assist individuals and families in making informed decisions about their life by gaining access to support and information. Palliative care, especially, is a critical component of the program. By introducing palliative care early in the course of the disease, individuals and families have the opportunity to integrate their learning and work with HD staff to prepare a long-term plan.

Since spring 2016, BCCPC, in partnership with the British Columbia Hospice Palliative Care Association, has provided seed grants, totaling $304 858, to support 67 projects delivered by 48 hospice societies and other not-for-profit organizations across BC.

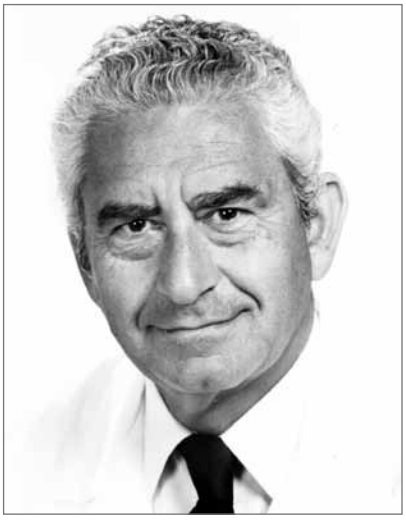
Communities who wish to have an information session held by HSC on HD palliative care in their area are encouraged to contact the British Columbia Resource Centre or HSC by calling 604 822-7195 or emailing Rhonda Romolock at rromolock@huntingtonsociety.ca.

For more information about HD and HSC visit www.huntingtonsociety.ca.

The BC Centre for Palliative Care is a provincial organization that supports not-for-profit organizations that strive to improve the everyday experiences for people affected by serious illness or who are nearing end of life.

Continued on page 126

Dr George Szasz: Clinician, educator, innovator



Dr Szasz thinks of his three careers as hanging together by "some sort of invisible string, so that what [he] did and learned in one career formed the basis for [his] next one—there was not a clean break between them, it was like a transplanted tree that bore three different fruits."

Vera Frinton, MD, FRCSC

Often honored and awarded, Dr George Szasz blames the successes of his various ventures and life experiences on luck and the help of others. I have known George since my teens, and to me he has been a friend, teacher, and mentor. It was not until I recently spent time talking with him about his life that I started to understand its complexities. Concentrating on his medical life made me realize how our mentors help shape our careers and our lives. The following few words are to salute George, but also those who helped him. I have named a few of those individuals in this article. Perhaps we should all think back on our careers and raise a glass to the many good doctors of British Columbia who have supported, and continue to support, their younger colleagues.

This article has been peer reviewed.

Dr Frinton is a retired obstetrician and gynecologist. She is a graduate of and a professor emerita in the UBC Faculty of Medicine. She was elected to the Council of the College of Physicians and Surgeons, and sat on most committees over her 12 years on Council. After retiring from 30 years of clinical practice at St. Paul's Hospital, she became the associate dean, admissions, during the expansion of the UBC Faculty of Medicine.

In the beginning

The Nazis murdered many of Szasz's family members during World War II, but circumstances from the previous Austro-Hungarian Empire were such that George and his immediate family were safe. This was the "luck" that saved George's life even before he was born. Until after the war, when they moved to Budapest, generations of the Szasz family had lived in the large Hungarian city of Szeged, where George's father managed its famous sausage factory. Bribing the ruling communists with salami may have helped George obtain the necessary passport and exit visa to leave for a study period in Canada. He would live with an uncle and cousin who had emigrated in 1936. George arrived in Vancouver from Hungary in 1947.

Studies

George had been an excellent student, graduating summa cum laude from his gymnasium (high school). Paying with eggs, George's parents sent him to a private tutor to learn English. On arrival in Vancouver, George was admitted to UBC as one of the small quota of foreign students. He had always wanted to be a physician—there had been doctors in the family—and his interest was further fueled by the unjust deaths of medical family members. At UBC George studied sciences in preparation for medical school, but UBC itself did not yet have a medical school. On the advice of Dr Rocke Robertson, one of the founding professors of UBC's still embryonic school, George went to McGill for premedical studies as it had a quota for BC and foreign students. George, at age 19, owning little more than a tennis racquet, moved into student housing in former barracks outside of Montreal. His roommates were several Jamaican students among whom he perfected his English with a

Continued on page 88

Continued from page 87

Jamaican accent. He returned to Vancouver to work summers in a lumber plant, while his friends became porters on the Canadian trains. These friendships were long-lasting.

The UBC Faculty of Medicine admitted its first students in 1950. George was admitted in 1951 after completing his pre-med studies and taking further English courses. In exchange for free room and board, he and some other senior medical students were lured by the 15 doctors of the North Shore to the North Vancouver General Hospital to complete histories and physicals on admitted patients. George recalls having a fantastic year as he and the other student-interns became integral to the functioning of the hospital. They learned a great deal and had such significant hands-on experiences that George found his internship year in 1955–56 at St. Paul's Hospital to be far less challenging.

A life in medicine

Family practice

Vancouver's North Shore soon became home for George. He met and married Bess, the love of his life, and Dr Clarence McNeill invited him to join him in practice. For the next 10 years George enjoyed a stimulating full-service family practice. He also participated in administrative medical staff issues, taught sex education in high schools, and helped care for pregnant teenagers who were sheltered in the nearby convent. In his spare time he was a father, an athlete, and an artist, carving wood and drawing cartoons.

The new Lions Gate Hospital opened in 1962. George, along with the other local physicians, had been instrumental in its planning, budgeting, and fundraising. During this experience he realized that family practice was changing and that he would require further training. He continued to be enthusiastic about family medicine but was becoming interested in other aspects of medicine as well. His next career, as an academic, was ahead.

Academia

Dr John McCreary, dean of the UBC Faculty of Medicine, was initiating discussions about health care teams and creating a Health Sciences Centre at UBC. In 1966 George was made an assistant professor in the Department of Public Health, with Dr Conrad McKenzie as his mentor. George was the first nonspecialist in an academic position in any Canadian medical school. To quote George, "my task was to focus on the attitudinal aspect of medical, nursing, social work, pharmacy, and rehabilitation therapies in pursuit of the mythical health-team concept," and "to create an academic atmosphere for change." George continued clinical practice at the Student Health Service, but most of his time was spent learning to be an educator. The Milbank Foundation in New York provided funding, which allowed him to study at the Chicago School of Medical Education and develop long-standing camaraderie with other Milbank fellows.

George spent the next few years trying to organize interprofessional teaching and programs. The UBC Instructional Resources Centre originated through this work, as did an interprofessional group for pre-med students. Overall the plan failed for many reasons, including the realization that there was no model on which to base this initiative. During this time George created interprofessional eve-

When not caring for his wife Bess, Dr George Szasz writes frequent BCMJ blog posts and stays fit with walking, tennis, and rowing.

ning classes, including one on human sexuality. This, of course, was popular, with as many as 700 health science students attending! George also designed a course for the medical school curriculum, and Dr Harold Copp, then head of the Department of Physiology, made time for it.

Although the office that was devoted to the goal of interprofessional education basically closed down, George remained a faculty member. He continued to push for integrated learning, and his sex education lectures in nursing and medicine were very successful. UBC-trained readers will recall these lectures, not only because the topic was sex, but also because of George's exceptional teaching ability, charm, and use of cartoons and three-screen audiovisual materials. This was long before PowerPoint.

George was keen to learn more and was able to visit with the research team of William H. Masters and Virginia E. Johnson in Missouri. On his return, he and Dr Bill Maurice, a new faculty member in the Department of Psychiatry, started the Sexual Medicine Clinic. Bill, George, and obstetrics and gynecology residents cared for couples using the methods of Masters and Johnson. The clinic continues today with interprofessional staff, and there has been a considerable wait list since its opening.

Innovations

In 1975 Dr Joe Schweigel, the new head of the Acute Spinal Cord Injury Unit, invited George to review and make recommendations regarding the sexual concerns of the predominantly young men who had suffered a spinal cord injury. Their fear of not functioning sexually was more urgent than their fear of not walking again. Now in his third career, George was in his element working in a clinic that functioned with a health care team, each member having a specific and equally important role. George's presence, along with the words "Sexual Medicine" clearly printed on his office door, publicly confirmed for the patients that their concerns were of utmost importance. For the next 20 years the newly energized George worked clinically, and in research, along with sexual health clinicians, urologists (particularly Dr Mark Nigro), gynecologists, family physicians, and others on the team. They helped the spinal-cord injured or neurologically impaired men with erectile and sexual problems. Similarly, women with spinal cord injuries or neurological problems such as multiple sclerosis or spina bifida were evaluated for their specific sexual and obstetrical needs. During the team's research and study it became evident that their patients' future fertility could also be addressed. The team innovated, published papers, wrote book chapters, and made presentations. In 1995, at the time of George's mandated retirement at age 65, using refined and innovative techniques, over 40 babies had been born. One was named George.

I hope that George will join his fellow physician authors and write his own story.

Outside of work

Although George has already had three medical careers—clinical, academic, and innovative—he did not stop there. From 1962 until 2000, George served on the Library Committee of the College of Physicians and Surgeons. As Jim Henderson, former director of medical library services, stated in a 2001 *BCMJ* tribute: "His guidance supported efficient access to medical knowledge for members across BC… He saw the shift from the print to the electronic era and ensured the appropriate application of new technology in the Library." In his honor, the College Council created the George Szasz Award to be given annually to a College Library staff member.

George has also been interested in identifying BC physicians who published literary books, as distinct from scientific work. Currently 117 BC physicians are registered at www.abcbookworld.com. George was the nurturer of the "physician author" key word listing. He now writes blog posts for the *BCMJ*, which you can find at www.bcmj.org/blog/listings. His post entitled, "For Thanksgiving: Thank you, Dr Whitelaw," is also a tribute to his mentors, with particular mention of an incident with Dr Max Whitelaw, describing a lesson about humanity in medicine.

I hope that George will join his fellow physician authors and write his own story, the fascinating and moving details of which I did not include in this article.

George is perhaps now on his fourth medically related career, immersed in and knowledgeable about Alzheimer disease as he helps care for his beloved Bess in the comfort of their home. For breaks he walks with friends, plays tennis, and rows his single boat at the Vancouver Rowing Club.

And the awards? George Szasz, CM, MD, is a professor emeritus in the UBC Faculty of Medicine, an honorary member of the College of Physicians and Surgeons of BC, a member of the Order of Canada, a recipient of the Queen's Golden Jubilee medal and of the Queen's Diamond Jubilee medal, to name a few. All these honors were given with respect to his significant accomplishments. George Szasz is without question The Good Doctor. BCMJ

Breast cancer, Part 2: Issues in treatment

Dr Rona Cheifetz

Dr Elaine McKevitt

Breast cancer treatment has evolved over the past 50 years to become increasingly multimodal and multidisciplinary. BC statistics from 2016 show an age-adjusted net survival rate for breast cancer of 88%,[1] while an American source notes that patients with stage I disease are currently felt to have a life expectancy similar to age-matched peers.[2] Improved survival is attributed to a combination of screening and treatment.[3,4] An increasing range of treatment options are available now when a patient is diagnosed with breast cancer, and progress has been made in the areas of surgery, systemic therapy, and radiotherapy, all of which have led to more individualization of treatment plans. In BC most breast cancer treatment begins with surgery at one of 46 hospitals in the province providing this service.

Since randomized control trials in the 1970s demonstrated the safety of a breast conserving approach, many women have had the choice of surgical treatment with either mastectomy or breast conserving surgery. For women needing a mastectomy, advances in breast reconstruction have made this procedure more widely available and given women a greater range of reconstructive options. Axillary lymph node surgery has also evolved, with sentinel lymph node biopsy being recommended for most patients with a clinically negative axilla and fewer indications for axillary lymph node dissection.

Just as breast surgery has evolved, so has adjuvant therapy. In addition to the traditional considerations of age and stage of disease, decisions for optimal systemic treatment are being guided by the biology of the tumor. Chemotherapy is being used more often before surgery (neoadjuvant) in patients with operable breast cancer to shrink the tumor and allow for less-invasive breast conserving surgery. For selected patients this approach can also permit preoperative genetic testing or additional treatment through clinical trials, and can provide prognostic information from their response to chemotherapy.

Radiation therapy has also evolved and there are more postmastectomy indications for radiotherapy. Trials have demonstrated benefit with radiation for medial tumors and axillary metastasis, while other trials are underway to determine the safety of omitting radiation in older women with small, estrogen-receptor-positive breast cancers.

The increase in therapeutic options means that multidisciplinary case conferences are being used more often to optimize treatment and to sequence therapy. As advances continue and treatment becomes more individualized, a larger number of women will be managed in this way.

With more coordinated and targeted therapy, it may also be possible to reduce treatment sequelae. Already women can be reassured that physical activity following axillary

This article has been peer reviewed.

surgery presents no increased risk to the treated arm, and new evidence has shown there is no need to avoid medical procedures on the treated arm following axillary surgery. As well, strategies are being developed to optimize function and to minimize posttreatment pain, which is reported to affect between 25% and 60% of patients.[5]

Addressing many of these concerns and complementing Part 1 of this theme issue, which dealt with diagnosis, Part 2 focuses on initial breast cancer treatment. In the first article, Dr Rebecca Warburton and colleagues review the current surgical management of breast cancer. This works stems from a provincial initiative to update surgical recommendations for breast cancer that was facilitated by the BC Cancer Surgical Oncology Network.

In the second article, Drs Michelle Sutter and Alison Ye present current recommendations for radiotherapy in initial treatment of breast cancer and discuss the impact of opening the BC Cancer Centre for the North in Prince George in 2012. The authors report that travel time for patients in the north needing radiotherapy has decreased and the number of women treated with breast conserving therapy in the region has increased.

In the third article, Dr Christine Simmons discusses patient selection for neoadjuvant chemotherapy. She also reviews the experience of patients receiving neoadjuvant therapy at the BC Cancer Vancouver Centre since 2013.

In the final article, Drs Connie Chiu, Brenda Lau, and Alan Nichol use their experience in Fraser Health and the Provincial Health Services Authority to address some of the physical concerns breast cancer patients may face after treatment, including lymphedema, cosmetic changes to the breast that affect self-image, and chronic pain.

We have been fortunate to witness an improvement in outcomes for breast cancer over the past 20 years with more individualized and multimodal treatment options. As our understanding of optimal treatment progresses, we anticipate an increasing need for multidisciplinary consultation and management, and better coordination in developing treatment plans. We also anticipate that the evolution of treatment will require a system that provides timely access to care in all areas of BC.

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None declared.

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Current surgical management of breast cancer

Evolving indications for radiotherapy and systemic therapy along with less-aggressive surgical techniques have changed the way breast malignancies are managed.

ABSTRACT: Definitive treatment of breast cancer is surgical. Typically, the primary tumor is excised and axillary nodes are removed for staging. The decision on optimal treatment for the breast can be challenging for the clinician and the patient because of the wide variety of surgical options, including breast conserving surgery and mastectomy with or without immediate or delayed breast reconstruction. Surgical management of the axilla for clinically node-negative and node-positive patients has progressed significantly over time. Sentinel node biopsy is now recommended for many clinical scenarios that would have previously required axillary node dissection. As optimal management of breast cancer is becoming more complex, many patients may benefit from early multidisciplinary review to aid in clinical decision making and to develop a patient specific treatment strategy. Current surgical management of breast cancer in British Columbia is based on consensus recommendations from the Breast Tumour Group of the BC Cancer Surgical Oncology Network.

This article has been peer reviewed.

Over the years, surgery for breast cancer has become less invasive in both the breast and axilla.[1-4] Surgical techniques have advanced to provide better cosmesis in breast conservation and also in breast reconstruction for woman who require mastectomy.[5,6] Because definitive treatment of breast malignancy continues to be surgical, the surgeon remains a crucial member of the multidisciplinary team caring for breast cancer patients. Women faced with this diagnosis often have options on how best to manage the breast and axilla in both invasive and in situ malignancy. Decision making surrounds the extent of mastectomy for immediate breast reconstruction, the use of neoadjuvant therapy, and breast cancer at extremes of age. These can be challenging decisions and often require multidisciplinary care to guide best treatment.

Prior to surgery

To diagnose breast cancer, a patient will require a detailed history, physical examination, breast imaging, and tissue biopsy to confirm and identify the extent of disease. Bilateral diagnostic mammogram is the only required imaging. Breast or axillary ultrasound may be needed to rule out multifocal disease or regional metastasis.[7,8] Bilateral breast MRI is not recommended in the routine assessment of unilateral breast cancer. MRI has been shown to lead to additional investigations that delay surgery and result in overtreatment with no improvement in survival, recurrence, or repeat surgery rates.[9]

The use of staging investigations to identify distant disease prior to surgery is not recommended unless patients have symptoms suggestive of metastatic disease or have advanced breast cancer (i.e., stage III). Routine use of bone scan and chest or abdom-

Drs Warburton, Chiu, Wijayanayagam, Cader, Baliski, Sutter, Cheifetz, and McKevitt are surgeons in BC associated with the BC Cancer Surgical Oncology Network. Dr Roberts is a surgeon in Ottawa associated with the BC Cancer Surgical Oncology Network. As well, Drs Warburton, Chiu, and Cader are clinical instructors in the Department of Surgery at UBC; Drs Baliski and Sutter are clinical assistant professors; Dr Cheifetz is an associate professor; and Dr McKevitt is a clinical associate professor. Dr Wai is a radiation oncologist at the BC Cancer Vancouver Island Centre and a clinical associate professor in the Department of Surgery at UBC.

inal imaging for early cancer is discouraged as these investigations have a low yield, can delay treatment, and can cause anxiety.[7,8,10]

Breast conserving surgery

Breast conserving surgery (BCS) is the recommended approach for most patients with early stage breast cancer. BCS includes local resection of breast tissue (known as lumpectomy, partial mastectomy, or segmental mastectomy) and is typically followed by radiotherapy. BCS combined with radiotherapy has been shown in multiple randomized control studies to be equivalent to mastectomy in terms of survival in patients with early stage disease[2,11,12] and new studies suggest a potential survival advantage for BCS and radiotherapy when compared to mastectomy.[13] BCS should be offered if the tumor-to-breast ratio would give a reasonable cosmetic outcome following the procedure. If the tumor is too large to allow for a reasonable cosmetic result, altering the surgical technique or the timing of systemic treatment may make the patient a candidate for BCS. Oncoplastic approaches that combine breast conservation and plastic surgery techniques have developed to allow BCS in larger tumors.[5] Another option for some women motivated to undergo breast conservation is the use of neoadjuvant therapy (NAT), which may shrink the tumor enough to allow BCS. These strategies have permitted more women with larger tumors to achieve acceptable oncologic and cosmetic outcomes after BCS.[5,14,15]

The main challenge presented by BCS is the need for reoperation because of positive margins and a slight increased risk of local in-breast recurrence when BCS and radiotherapy are compared to mastectomy.[2,11] Patients with positive margins should be evaluated for further surgery. Patients with negative margins (no ink on tumor) do not require any additional surgery as reoperation for close margins (less than 2 mm) does not significantly improve their outcome.[16] Unnecessary reoperation has increased risk of complications, can delay adjuvant treatments, and can be costly and detrimental to cosmesis.[17,18] Reoperation occurs in 20% to 30% of BCS cases.[19] Local in-breast recurrence after BCS and radiation occurs in less than 10% of women and is usually treated with mastectomy.[20] Again, despite increased local recurrence risk, the survival outcomes for BCS with radiotherapy are at least equivalent to mastectomy.[2]

Contraindications for BCS include multicentric disease, unfavorable tumor-to-breast ratio, previous radiation therapy to the area, and disease processes that limit the use of radiation therapy.[21] Some woman can avoid radiation if they have small tumors with favorable biology that would confer a reduced risk of recurrence. Patients in remote communities who have traditionally opted for mastectomy to avoid travel for radiotherapy might be eligible for BCS alone in some circumstances. If this is considered, a preoperative discussion with a radiation oncologist is recommended.[22]

Mastectomy

Breast cancer that cannot be treated adequately with breast conserving surgery will require mastectomy. Mastectomy is recommended for patients when radiotherapy is contraindicated or there is a desire to avoid radiotherapy. Mastectomy is also recommended for patients who would have a poor cosmetic outcome with BCS, and those with multicentric disease or invasive cancer associated with diffuse, extensive ductal carcinoma in situ (DCIS). Mastectomy should also be considered in those who continue to have positive margins with invasive disease after multiple attempts at BCS.[20] Women who choose mastectomy in order to avoid radiation treatment must be counseled that the indications for postmastectomy radiotherapy are increasing and the additional benefit of radiotherapy is not always known at the time of preoperative consultation because it is dependent on final pathology.[23] Mastectomy offers no survival advantage when compared to BCS with radiation therapy and can still result in local recurrence on the chest wall of 2% to 5%.[2] Aside from the particular situations requiring mastectomy described above, BCS with radiation therapy is the standard for patients with early stage breast cancer.[12]

Breast reconstruction

Many women consider breast reconstruction after mastectomy. Immediate breast reconstruction (IBR) can be performed at the time of mastectomy or delayed breast reconstruction can be undertaken afterwards. Options for breast reconstruction include autologous tissue or implant reconstruction. If IBR is performed, skin sparing mastectomy or nipple sparing mastectomy techniques are possible. There are specific oncologic and patient factors that will influence surgical decision making regarding the extent of mastectomy and the ability to offer skin or nipple preservation. Skin sparing mastectomy with IBR has shown no increased risk of recurrence. Immediate breast reconstruction is not recommended for patients who are morbidly obese or current smokers, or patients with inflammatory breast cancer or a cancer that will not permit skin sparing techniques with negative margins. Many women who are not candidates for IBR can consider delayed reconstruction when their cancer treatments

are completed. It is now considered the standard of care for every woman requiring or choosing a mastectomy for treatment of breast cancer to be made aware of her breast reconstruction options (immediate and delayed) and have access to consultation with a plastic surgeon (either at diagnosis or into survivorship).[6,24]

For women who require mastectomy and are candidates for IBR, a nipple and/or areola sparing technique may also be a viable option. The breast oncologic surgeon and the reconstructive surgeon will make that determination together based on tumor factors (small tumors located more than 2 cm from the nipple without extensive malignant type calcifications suggesting DCIS) and patient factors (small to moderate breast size with minimal ptosis). A nipple margin (core) should be taken when a nipple sparing mastectomy is performed.[20,25] Nipple sparing mastectomy patients are at risk of nipple necrosis (5.9%) and local (including nipple/areola) cancer recurrence (2.38%).[25]

Contralateral prophylactic mastectomy

Patients who require a mastectomy to treat unilateral breast cancer often inquire about the risk of a contralateral breast cancer (CBC) and the possibility of contralateral prophylactic mastectomy (CPM). A detailed medical and family history is required to assess these patients.

For the average woman, the risk of CBC is less than 0.7% per year. CBC is more common in higher risk patients (e.g., women who are *BRCA* mutation carriers) and the risk is reduced by CPM but not eliminated completely. Systemic treatments also reduce the risk of CBC.

Rates of contralateral prophylactic mastectomy are rising at more than 1% per year[26] and have been known to almost double the risk of complications after surgery. CPM in an average risk woman does not improve cancer outcomes.[27] As such, CPM is not recommended for women with unilateral breast cancer, but may be considered in cases where a patient is at moderate risk of CBC because of very young age, a strong family history of breast cancer, other high-risk features such as atypical ductal hyperplasia or lobular carcinoma in situ, or when asymmetry after unilateral mastectomy (with or without breast reconstruction) is a concern.

High-risk unilateral breast cancer patients (e.g., genetic mutation carriers, those with a history of mantle field radiation) should be counseled on the risk of CBC, and CPM may be recommended.[27]

A Canadian expert consensus statement on this issue is a work in progress. Other groups, including the American Society of Breast Surgeons[27] and Choosing Wisely,[28] have consensus statements discouraging the routine use of CPM.

It is now considered the standard of care for every woman requiring or choosing a mastectomy for treatment of breast cancer to be made aware of her breast reconstruction options.

Staging

Axillary staging provides important prognostic information, guides adjuvant therapy decisions, and can improve regional control for some patients with invasive breast cancer. Traditionally, dissection of level I and II axillary lymph nodes has been the standard of care for all patients with invasive breast cancer. Axillary lymph node dissection (ALND) has now been replaced by sentinel lymph node biopsy (SLNB) for most patients with clinically node-negative breast cancer.[3,29] Sentinel lymph node biopsy is associated with less morbidity[30] and when compared with ALND has similar staging accuracy and oncologic outcomes in early breast cancer.[3] SLNB should be offered to all eligible patients. As the role of axillary staging and the extent of axillary surgery continue to evolve, multidisciplinary conferences can be helpful in making the best decision for the patient. Practice guidelines (**Table**) have been developed to help guide decision making for ALND.[29,31]

SLNB is adequate axillary surgery for node-negative patients,[3] for many women with low volume nodal metastasis (one or two positive nodes), and for patients with lower risk disease who take systemic treatment.[31] ALND is generally recommended for patients with three or more positive sentinel nodes or for those at high risk for gross residual nodal disease after SLNB.[31] ALND in this situation may improve regional control but has no proven survival advantage.[1] Patients with node-positive breast cancer will often be offered radiotherapy regardless of the degree of nodal burden to reduce regional recurrence and improve survival.[32] For women with positive results on SLNB, radiotherapy gives local control comparable to that achieved by ALND and results in less morbidity.[33] Women who require both ALND and regional radiotherapy are at the highest risk for lymphedema. In the absence of a proven survival advantage for ALND, and significant risk for patients who may require regional radiotherapy and ALND, thoughtful multidisciplinary decision making regarding the best management of the axilla should be undertaken prior to proceeding with ALND.

Table. Axillary lymph node dissection (ALND) consensus recommendations from the Breast Tumour Group of the BC Cancer Surgical Oncology Network.

ALND recommended for:	· Inflammatory breast cancer. · Occult breast cancer presenting as axillary nodal metastasis. · Node-positive axilla confirmed by fine needle aspiration or core biopsy in a patient for whom neoadjuvant chemotherapy is not planned. · Axillary nodes that remain positive after neoadjuvant chemotherapy. · Axillary recurrence following breast cancer treatment.
ALND to be considered for:	· Failed sentinel lymph node mapping in invasive cancer with high-risk features. · Positive sentinel nodes not meeting eligibility criteria for Z0011 study* (multidisciplinary discussion recommended). · Node-positive disease prior to neoadjuvant chemotherapy (role of sentinel node biopsy has been evolving; multidisciplinary discussion recommended). · Axillary staging required in the setting of previous mastectomy.
ALND not recommended for:	· T1– T2 N0 breast cancer (sentinel node biopsy should be offered). · Positive sentinel nodes meeting criteria for Z0011 study.* · Ductal carcinoma in situ.

*American College of Surgeons Oncology Group Z0011 trial eligibility criteria: T1–T2 invasive breast cancer, no palpable axillary nodes, one or two sentinel nodes positive, treated with breast conserving surgery with clear margins (no tumor at ink), no matted nodes or gross extranodal disease, no neoadjuvant therapy, hormonal therapy, or chemotherapy[31]

Ductal carcinoma in situ

Ductal carcinoma in situ is a nonobligate precursor of invasive breast cancer that is being diagnosed more often with breast cancer screening and advances in breast imaging. DCIS currently represents 20% to 25% of all breast malignancies. At present, all patients with DCIS are offered treatment. Patients with DCIS may be treated with breast conserving surgery or mastectomy.[34] Skin sparing mastectomy and immediate breast reconstruction are appropriate for most patients who require mastectomy for DCIS, although nipple sparing approaches are still controversial. All management strategies are associated with survival exceeding 98%.[35]

Ideally, DCIS is removed with a wide margin as this approach is associated with less risk of in-breast tumor recurrence. The margin recommended in DCIS (2 mm) is wider than that recommended in invasive breast cancer (no ink on tumor) because of the growth pattern of DCIS (skip lesions) and the lack of routine systemic treatment in these patients. Margin widths greater than 2 mm do not confer a significant benefit in local control.[36] Currently, adjuvant radiotherapy is recommended for women with DCIS greater than 1 cm who are treated with BCS to reduce local recurrence. Women with well-differentiated DCIS that is less than 1 cm with wide excision may be considered for management by wide excision alone.[37]

Axillary staging is not routinely recommended for patients with pure DCIS because the risk of axillary nodal involvement is less than 1%. Sentinel lymph node biopsy is advised for patients undergoing mastectomy for DCIS[29] because of the possibility of an invasive component in the final surgical specimen. SLNB is also recommended for patients with DCIS with microinvasion.[38] The risk that DCIS will be upstaged to invasive cancer at final pathology is about 30%, a result of undersampling by core biopsy.[39]

Breast cancer at extremes of age

Women 40 years old or younger with breast cancer require special consideration for treatment, and early review by a multidisciplinary team is recommended. Surgical management options (BCS or mastectomy) are the same as for women older than 40, but additional concerns in this age group include fertility preservation and contraception, pregnancy and breastfeeding after treatment,

increased underlying genetic risk, breast reconstruction, sexual health, and psychosocial issues common to young families and working-age women.[40] Many centres across British Columbia are enrolling young women in a national study called RUBY (Reducing the bUrden of Breast cancer in Young women). This will provide a better understanding of the specific needs of these women and their oncologic outcomes.[41]

Surgeons are often the first clinical specialist to discuss the diagnosis of breast cancer with a patient.

Older women may require a modified treatment plan as well. Women older than 70 years can have comorbidities that increase the risk posed by surgery and adjuvant treatments. Study results suggest that oncologic outcomes for this patient population may not be significantly affected by axillary staging[42] or adjuvant radiotherapy after BCS.[22] Alteration of the usual treatment course is only considered in older women with favorable tumor biology (e.g., estrogen-receptor-positive low-grade tumors), and multidisciplinary discussion is recommended to optimize outcomes while limiting morbidity related to treatment.

Neoadjuvant therapy

Surgeons are often the first clinical specialist to discuss the diagnosis of breast cancer with a patient. The surgeon must then refer the patient to a medical oncologist in cases where it may be appropriate to begin by treating the patient systemically with neoadjuvant therapy. Patients with inoperable locally advanced breast cancer (LABC) or inflammatory breast cancer must start medical treatment prior to surgery. Currently, more patients with early, operable breast cancer (up to 15% of breast cancers) are being treated with NAT. If the patient is known to require systemic therapy regardless of findings from surgery and if their tumor is likely to respond favorably to systemic treatment (e.g., HER2-positive breast cancer), NAT can be considered. NAT can make it possible to use surgical techniques such as breast conserving surgery or skin sparing mastectomy that would be contraindicated otherwise, can allow time to complete genetic testing before making recommendations regarding the extent of surgery (e.g., to determine if a *BRCA* mutation makes a bilateral mastectomy appropriate), and can provide in vivo assessment of treatment response and prognostication associated with pathologic complete response (e.g., to determine if viable tumor cells are evident after systemic therapy).[14,15,43,44] Early multidisciplinary discussion for these patients is recommended.

Multidisciplinary discussion

Many clinical scenarios require multidisciplinary discussion. The multidisciplinary cancer conference (MCC) is designed to assist in clinical decision making and patient management by involving radiologists, medical and radiation oncologists, pathologists, and surgeons.[45] MCC review has been shown to provide care that adheres to known guidelines and alters management and treatment recommendations in 41% of cases,[46,47] but it is unclear from the literature if MCC improves clinical outcomes. Each community may have different ways to ensure multidisciplinary input for breast cancer cases and to determine which patients may benefit the most from MCC. Weekly multidisciplinary cancer conferences are routine at each of the six BC Cancer centres. Referral to BC Cancer for preoperative assessment is welcome, particularly when patients may benefit from neoadjuvant therapy or require a discussion of adjuvant therapy to aid in their initial surgical decision making. These appointments may facilitate discussion at the weekly conference, but in some circumstances patients not yet referred to BC Cancer may be discussed at these conferences after direct communication with a BC Cancer oncologist.

Summary

Surgical management of breast cancer has progressed significantly and is, in many cases, becoming more complex. Complexity arises from the multidisciplinary requirements of breast cancer patients, the need to balance cancer outcomes with morbidity related to treatment, evolving indications for radiotherapy and systemic therapy, and the quickly changing

literature that supports different, and often less-aggressive, surgical techniques. General surgeons and surgical oncologists must be familiar with the wide spectrum of treatment options to allow for the best surgical management of their breast cancer patients. Participation in multidisciplinary cancer conferences, where available, or preoperative discussion of patients with local medical and radiation oncologists will help ensure that patients throughout BC receive optimal care. BCMJ

Competing interests

None declared.

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Radiation therapy in the management of breast cancer and the impact of BC Cancer Centre for the North on patient choice of treatment

Easier access to radiation therapy in Northern BC appears to be why an increasing number of patients in one surgeon's practice have opted for partial mastectomy and adjuvant radiation rather than mastectomy.

ABSTRACT: While radiation therapy for breast cancer can be omitted in some settings, in others it is now being recommended more often. Radiation is usually recommended for patients with invasive breast cancer who have undergone breast conserving surgery. Internationally, there is general agreement that regional nodal radiation is beneficial when four or more nodes are positive, and in BC adjuvant regional nodal radiation also tends to be offered to all patients with any number of positive nodes after both breast conserving surgery and mastectomy. Most patients who are found to be node-negative after mastectomy do not require adjuvant radiation therapy. However, patients at risk because of their young age or the size and biology of their tumors may be candidates for radiation therapy. Because adjuvant radiation therapy is based on pretreatment staging, it is important to accurately determine both the primary and nodal stage, especially in the setting of neoadjuvant chemotherapy. Typically, radiation therapy sessions last 15 to 20 minutes and can be given over 16 to 20 sessions. Patients are monitored regularly during treatment for management of side effects, which can include fatigue, dermatitis, and breast/chest wall tenderness. In the long term there can be permanent cosmetic changes, and rare risks of lung, rib, and heart damage, as well as second malignancies.

Before 2012 any patient choosing breast conserving surgery in Northern BC needed to travel to a regional cancer centre in Southern BC for adjuvant radiation therapy. Since the opening of BC Cancer Centre for the North in Prince George on 1 November 2012, patients undergoing breast conserving surgery in Northern BC have been able to receive radiation therapy closer to home, and this appears to be why an increasing number of patients in one surgeon's practice have opted for partial mastectomy and adjuvant radiation rather than mastectomy.

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Adjuvant radiation therapy plays a significant role in the treatment of patients with breast cancer because it reduces the relative risk of recurrence by two-thirds and can improve survival.[1] The decision to recommend adjuvant radiation is influenced by the type of surgery performed, whether breast conserving surgery (BCS) or mastectomy, and also by the stage of the cancer and a combination of histopathologic factors. With access to radiation therapy made easier with the opening of the BC Cancer Centre for the North in Prince George in 2012, patient choice of surgical procedures appears to have been affected.

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Management recommendations

In recent years, recommendations for managing breast cancer have evolved, and while radiation therapy can be omitted in some settings, in others it is being recommended more often.

Noninvasive malignancies

Lobular carcinoma in situ requires no adjuvant radiation treatment. The local management of ductal carcinoma in situ (DCIS), however, is similar to that of invasive ductal cancer, despite the noninvasive nature of DCIS. The general approach to noninvasive malignancies is BCS followed by adjuvant whole-breast radiation. In select patients with small and widely excised tumors, radiation may be omitted.[2] Consultation with a radiation oncologist is recommended after surgical removal of DCIS to discuss these cases individually. Adjuvant radiation is not necessary after mastectomy for DCIS.

Invasive node-negative breast cancer

In general, adjuvant whole-breast radiation is recommended for patients with node-negative disease who have undergone BCS as this approach reduces the risk of local recurrence by two-thirds and prevents one breast cancer death for every four local recurrences.[1]

There is now evidence that older patients with small tumors and favorable receptor status (i.e., ER-positive, PR-positive, HER2-negative) may not gain any survival advantage from adjuvant radiation.[3] Therefore, for patients older than 70 with ER-positive stage I breast cancer (T1 N0 M0), it is reasonable to omit radiation therapy and treat with a hormonal maneuver alone. BC Cancer has just completed participation in a trial to assess this treatment strategy in women older than 55 years of age with small (less than 2 cm) tumors and ER-positive, PR-positive, HER2-negative, node-negative disease. Partial-breast radiation, which can be delivered over shorter time periods, is not currently considered standard treatment in British Columbia but is under investigation.

In general, adjuvant whole-breast radiation is recommended for patients with node-negative disease who have undergone BCS as this approach reduces the risk of local recurrence by two-thirds and prevents one breast cancer death for every four local recurrences.

Node-positive breast cancer

The general consensus internationally is that when four or more regional nodes are positive, adjuvant radiation therapy improves survival, with a reduction in breast cancer mortality of as much as 5%.[4] While there is some controversy in the setting of fewer positive nodes (one to three), a recent trial has shown that the addition of regional nodal radiation not only improves locoregional control by a further 3% when compared to breast radiation alone, but also results in a reduction in breast cancer recurrence, with a 5% improvement in disease-free survival although not in overall survival.[5] Similar benefit is also seen in the postmastectomy setting with one to three positive nodes.[6] In British Columbia we tend to offer adjuvant regional nodal radiation to all patients with any number of positive nodes after both BCS and mastectomy.

High-risk node-negative breast cancer

Patients who have had a mastectomy and are node-negative do not usually require adjuvant radiation therapy. In a similar vein, patients who have had breast conserving surgery and are node-negative require only radiation to the breast, and not to the regional lymph nodes. However, high-risk patients may have radiation delivered to the chest wall and regional nodes or to the breast and regional nodes in order to improve locoregional control and breast cancer mortality.[7,8] Examples of factors that increase risk are patient age younger than 50, tumor larger than 2 cm, medial primary tumor location,[9] lymphovascular space invasion, high-grade disease, and estrogen receptor negativity. Usually, a combination of these risk factors is required for an individual patient to be considered high-risk. For these patients, careful discussion with a radiation oncologist regarding the potential benefits and side effects of radiation therapy is important. Particular long-term side effects to be considered would be lymphedema, along with the rare occurrence of brachial plexopathy

and radiation-induced second malignancy, which is of greater concern in younger patients.

Radiation following neoadjuvant chemotherapy

Patients who have undergone neoadjuvant chemotherapy can have dramatic responses with significant downstaging of their tumors. Currently, adjuvant radiation treatment recommendations are based on pretreatment staging. Therefore, the accurate determination of both primary and nodal stage prior to initiating chemotherapy is important. Ideally, this would mean either image-guided biopsy of suspicious nodes or axillary ultrasound in clinically node-negative patients. This practice may evolve as we continue to gain long-term experience with neoadjuvant chemotherapy and associated outcomes.

Radiation delivery and side effects

Radiation delivered for breast cancer is most commonly external beam radiation, namely X-rays. Prior to radiation treatment, patients must have a CT simulation scan to plan for treatment. The patient undergoes a noncontrast CT scan in the treatment position (typically, supine with arms up above the head), and tattoos are placed on the skin for accurate positioning on the treatment table. Radiation is delivered daily, with patients in the treatment room for 10 to 15 minutes for each session. Typically, radiation therapy is delivered in an accelerated fashion over 16 to 20 sessions. Depending on patient factors such as large breast size, potential cosmetic concerns, and plans for reconstructive surgery, 25 to 28 sessions may be recommended. Patients are advised about skin care and monitored regularly during treatment for management of side effects. The acute side effects of radiation therapy are fatigue, dermatitis, and breast/chest wall tenderness. Radiation-induced dermatitis can range from moderate to severe erythema, along with dry to moist desquamation. There is also a subacute risk of pneumonitis, which can develop anywhere from 4 to 12 weeks after radiation. This condition presents with nonproductive cough, dyspnea, low-grade fever, chest pain, malaise, and/or weight loss, and the diagnosis can be confirmed on radiographic imaging. For patients with more than minimal symptoms, prednisone is recommended for 2 weeks, followed by dose tapering for 3 to 12 weeks.[10] Consultation with the treating oncologist is recommended in such cases. In the long term, inferior cosmesis resulting from telangiectasia and fibrosis is common. There is also a risk of pulmonary fibrosis and rib osteoporosis, as well as lymphedema if nodal radiation is given. There are rare risks of cardiotoxicity in left-sided breast cancers, brachial plexopathy if nodal radiation is given, and radiation-induced second malignancy.[11]

Impact of Centre for the North opening on breast cancer treatment

Breast surgery for cancer has become less extensive over the years, moving from the Halsted (radical) mastectomy to the simple mastectomy to the partial mastectomy known commonly as lumpectomy. In 1973 a randomized controlled trial was started to compare survival in patients undergoing either simple mastectomy or partial mastectomy. Results after follow-up at 5, 8, 12, and 20 years showed no difference in overall survival or disease-free survival between the two groups.[12] Despite this, patients in rural centres may choose mastectomy over BCS in order to avoid traveling for the radiation therapy recommended following BCS.[13]

Data from the University Hospital of Northern BC (UHNBC) suggest that access to a radiation centre close to where patients live can affect surgical choice.

On 1 November 2012 the BC Cancer Centre for the North opened in Prince George. Before this date, any patient choosing to have BCS would have to travel to a regional cancer centre in Southern BC for adjuvant radiation therapy. Data from the University Hospital of Northern BC (UHNBC) suggest that access to a radiation centre close to where patients live can affect surgical choice. In 2011, before the Centre for the North opened, one of the authors of this article (FMS) performed 49 procedures for breast cancer (excluding cases where patients had neoadjuvant chemotherapy) at UHNBC. Of the patients treated, 86% (42/49) had mastectomies and 14% (7/49) had partial mastectomies (and presumably subsequent radiation therapy, although information on this was not

collected). In contrast, 60 breast cancer procedures were performed by the same surgeon in 2016 (again excluding cases where patients had neoadjuvant chemotherapy). Of the patients treated, only 35% (21/60) had mastectomies and 65% (39/60) had partial mastectomies ($P < .01$, Fisher Exact test). This 51% decrease in the mastectomy rate represents a dramatic change in surgical care in the 5-year period after the opening of the Centre for the North, which was able to provide patients in Northern BC with closer-to-home access to radiation.

Access to adjuvant radiation therapy is an important factor in surgical decision making, with the availability of a local treatment centre allowing more women to choose breast conserving surgery rather than mastectomy.

From the opening of the centre on 1 November 2012 to 31 January 2017, a total of 633 breast cancer consultations were completed by three full-time-equivalent radiation oncologists, and the number of consultations per year rose annually. One possible explanation for this is that the number of referrals has increased as physicians and patients have become more aware of the availability of radiation treatment. During this time, 317 courses of breast or chest wall plus or minus regional nodal adjuvant radiation were delivered to breast cancer patients from Northern BC.

Summary

Adjuvant radiation therapy is a critical component in the care of women who have had breast conserving surgery and may also be recommended for some women who have had a mastectomy. The indications for radiation therapy are evolving. Access to adjuvant radiation therapy is an important factor in surgical decision making, with the availability of a local treatment centre allowing more women to choose breast conserving surgery rather than mastectomy. BCMJ

Competing interests

None declared.

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Christine E. Simmons, MD, MSc, FRCPC

The changing role of neoadjuvant therapy in breast cancer: Considering systemic treatment for patients with operable as well as inoperable disease

The evolution of systemic treatment for breast cancer that began in the early 1970s is being furthered by studies addressing the role of preoperative chemotherapy and endocrine therapy in improving patient outcomes.

ABSTRACT: Neoadjuvant therapy for breast cancer has been studied since the early 2000s, but the pathway of care and the uptake of this treatment strategy have been highly variable when different centres are compared. Clinicians surveyed for the Canadian national expert consensus on neoadjuvant therapy for breast cancer agreed that any patients presenting with inoperable locally advanced breast cancer should be referred for neoadjuvant therapy, and that patients presenting with operable locally advanced breast cancer should be preferentially considered for neoadjuvant therapy. The recommendations from other groups tend to be slightly less specific than those of the Canadian experts, and state simply that patients assessed as appropriate candidates for chemotherapy in the adjuvant setting can be considered for chemotherapy in the neoadjuvant setting. The optimal pathway of care for patients undergoing neoadjuvant therapy requires initiating treatment in a timely manner, monitoring for response, and discussing second-line treatment options for any patient not responding to therapy. Data from the prospective neoadjuvant database of the BC Cancer Vancouver Centre show that wait times have improved since an audit and feedback quality assurance initiative began. While further studies are needed to delineate the value of achieving a pathologic complete response with neoadjuvant therapy, this response remains the main goal for the time being because of its association with improved disease-free survival and overall survival.

This article has been peer reviewed.

Historically, the treatment of breast cancer involved aggressive surgical resection, an approach based on the rationale that the more complete the removal of tissue the less likely the disease would be to recur. However, it became apparent that even after radical mastectomy breast cancer could still recur.[1] The evolution of systemic therapy for breast cancer began in the early 1970s with the first studies assessing the use of chemotherapy after resection being driven largely by the surgical community.[2] Significant improvements in breast cancer outcomes followed, and chemotherapy is now largely accepted as the standard of care in patients with node-positive or high-risk node-negative breast cancer.[3] Currently, guidelines suggest that breast cancer patients with disease that has spread

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to the regional lymph nodes, tumors larger than 5 cm, or high-risk features such as estrogen receptor insensitivity or HER2 positivity be considered candidates for chemotherapy.[4] In recent years, the use of systemic therapy in the preoperative setting, referred to as neoadjuvant therapy (NAT), has been increasing. Although historically reserved for patients presenting with inoperable disease, NAT is gaining in popularity for use in operable, earlier stage disease for several reasons.[4]

The only true head-to-head comparison of neoadjuvant therapy with adjuvant therapy was in the NSABP B-18 study in which patients with operable breast cancer were randomized to receive either four cycles of doxorubicin and cyclophosphamide followed by surgery or surgery followed by four cycles of doxorubicin and cyclophosphamide.[5] The study found that postponing surgery until after chemotherapy had been delivered did not result in an inferior overall survival (OS) or disease-free survival (DFS), and that patients who had a pathologic complete response (pCR), defined as no invasive cancer in the breast or axilla, experienced improved DFS and OS compared with those who did not achieve a pCR. Other studies have demonstrated that neoadjuvant chemotherapy can increase surgical options, allowing many patients who were not originally candidates for breast conserving surgery to become candidates for this procedure.[6,7]

Since the early 2000s there has been a flurry of studies on neoadjuvant approaches. While there has never been a documented improvement in DFS or OS in patients receiving NAT compared with those receiving adjuvant therapy in clinical trials, this strategy is now largely accepted as appropriate. According to international guidelines, any patient who would be considered eligible for adjuvant therapy could be considered for neoadjuvant therapy.[4]

According to international guidelines, any patient who would be considered eligible for adjuvant therapy could be considered for neoadjuvant therapy.

Patient selection

Several guideline committees have grappled with patient selection for neoadjuvant therapy using different methodologies and with varying degrees of rigor. The Canadian national expert consensus on neoadjuvant therapy for breast cancer was developed to address the question of patient selection and management. A modified Delphi protocol was used to obtain the opinions of 85 expert clinicians from across the country, and these opinions were then compared with available evidence.[8] Agreement of opinion was found regarding the most appropriate candidates for NAT, the types of investigations to conduct before initiating therapy, the ways to monitor patients during therapy, and the type and timing of therapy. The experts agreed that any patients presenting with inoperable locally advanced breast cancer (LABC) should be referred for neoadjuvant therapy in an effort to improve curability of their disease, an approach already well understood. In addition, experts agreed that patients presenting with operable locally advanced breast cancer should be preferentially considered for neoadjuvant therapy. The definition of LABC agreed upon by experts surveyed was "a T3 or T4 tumour of any clinical N status, or an N2 or N3 tumour of any size, which might be operable or inoperable upon presentation and which includes inflammatory breast cancer."[8]

Other international committees have also addressed the question of patient selection for NAT by seeking consensus during meetings and panel discussions. The recommendations from these groups tend to be slightly less specific than those of the Canadian experts, and state simply that patients assessed as appropriate candidates for chemotherapy in the adjuvant setting can be considered for chemotherapy in the neoadjuvant setting. This implies that all information required to determine candidacy for chemotherapy is available (i.e., receptor status, clinical staging), and that the breast tumor is palpable and easily followed clinically for signs of response or progression on neoadjuvant therapy.[9]

In terms of local experience, patients receiving NAT at the BC Cancer Vancouver Centre have been studied prospectively since 2013 using a clinical database of information on patient characteristics at time of

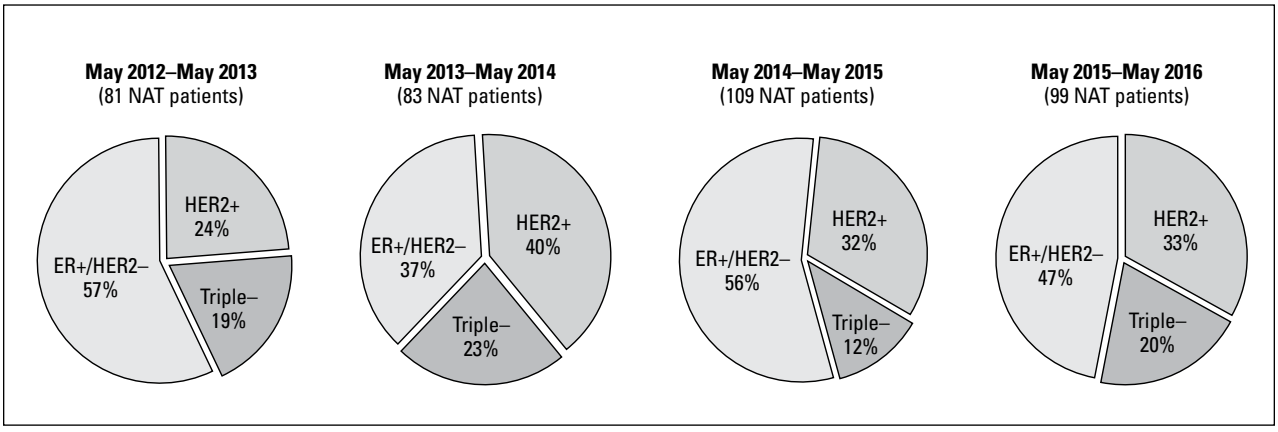

Figure. Proportion of patients receiving neoadjuvant therapy (NAT) at the BC Cancer Vancouver Centre, by breast cancer subtype, 2012 to 2016.

presentation, clinical stage, receptor status, type of neoadjuvant therapy delivered, response, and surgical outcomes. Reviewing these data ensures that goals for guideline adherence and wait times are met.

To date, information on over 650 patients has been entered in the database and has helped to improve wait times and standardize care. Approximately 75% of patients referred for NAT were offered therapy. Of these patients, 75% received chemotherapy and 25% received endocrine therapy. In terms of staging, 53% of patients offered NAT presented with clinical stage II disease, and 42% presented with clinical stage III disease. A small minority of patients presenting with clinical stage I disease (4%) were offered NAT, usually because of very aggressive biology or other complicating factors. In terms of breast cancer subtypes, about 50% of patients were ER-positive and HER2-negative, 35% were HER2-positive, and 20% were triple-negative. While there has been a trend toward decreased use of NAT for patients with ER-positive breast cancer, use of NAT for patients with triple-negative disease has increased, as shown in the **Figure**, because of a sensitivity to chemotherapy noted in this group. Overall, patient selection for neoadjuvant therapy at the BC Cancer Vancouver Centre follows the recommendations of the Canadian national expert consensus and international guidelines.

Although guidelines are helpful, in practice the decision to offer neoadjuvant therapy to a patient is made primarily by the family doctor and surgeon. Thus it is important to ensure that all clinicians involved understand the indications and value of neoadjuvant therapy over adjuvant therapy, especially because patients will often return to their family doctor or surgeon for advice about this approach. The absolute and relative indications for neoadjuvant therapy for breast cancer are summarized in **Table 1**.

Pathway of care

A review of the medical literature indicates that an estimated 10% to15% of breast cancer patients are treated with neoadjuvant therapy[10] and that the pathway of care can be confusing for patients and sometimes for clinicians as well. To establish an optimal pathway of care, the group responsible for developing the Canadian national expert consensus on neoadjuvant therapy for breast cancer considered clinician opinion and the management strategies employed in phase 3 randomized controlled trials.[8]

Initiating therapy

One of the benefits of initiating neoadjuvant therapy is expedited treatment of both in-breast disease and micrometastatic disease. Understandably, most

Table 1. Absolute and relative indications for neoadjuvant therapy (NAT) for breast cancer.

NAT should be offered	NAT could be offered
Patient has inflammatory breast cancer	Patient has locally advanced breast cancer with a tumor > 5 cm and/or palpable axillary lymph nodes
Patient has inoperable locally advanced breast cancer	Patient requires mastectomy but NAT could lead to downstaging of tumor and permit breast conserving surgery
	Patient is a candidate for adjuvant chemotherapy and has a palpable tumor

patients and clinicians agree that timely initiation of therapy is crucial. While it has not yet been determined if more expeditious initiation of therapy leads to improved outcomes, expert opinion holds that chemotherapy should be started within 28 days of biopsy, and ideally earlier in the setting of HER2-positive and triple-negative disease.[8]

Data from the neoadjuvant therapy database of the BC Cancer Vancouver Centre indicate that 82% of patients started therapy within 31 days of biopsy, and that the mean wait time for patients with triple-negative disease was 23 days. While this is not far from ideal, there is still room for improvement. Continuous audit and feedback have helped key stakeholders reduce the time from biopsy to chemotherapy, with a median decrease in wait time of 3 days since this audit and feedback quality assurance initiative began.

Monitoring response

Once therapy is initiated, it is important to monitor clinical response. We know from previous studies that roughly 10% of patients have no response to neoadjuvant therapy.[11] In such cases, the systemic therapy should be changed or the patient should be scheduled for surgery as soon as possible. If disease progression or lack of response occurs and the patient does not have operable disease, salvage radiation therapy can be considered. Multidisciplinary review and discussion of any patient who is not responding to neoadjuvant therapy are needed to choose optimal second-line therapy—be it an alternate chemotherapy agent, surgery, or radiation.[8]

When undergoing NAT, patients should be monitored using physical examination as well as clinical measurement of the breast and, if present, axillary lymph nodes. While other guidelines are not specific about assessing tumor response during neoadjuvant treatment, the Canadian national expert consensus recommends methods to assess tumor response during treatment. According to the experts surveyed, clinical assessment of patients undergoing a course of neoadjuvant endocrine therapy should be performed monthly, and clinical assessment of patients undergoing chemotherapy should be performed at each cycle of treatment. In both cases a tape measure or calipers should be used to facilitate standardization and reduce the chance of observer bias.[8]

As during adjuvant therapy, assessment during neoadjuvant therapy should focus on side effects and the need for any adjustments to the therapeutic protocol or supportive therapies to ensure tolerability of treatment. The side effect profile for neoadjuvant therapy does not differ from that of adjuvant therapy, as shown in **Table 2**. While each chemotherapeutic protocol has slightly different effects, alopecia, neutropenia, and nausea are common. Side effects common to endocrine therapy include hot flushes, night sweats, and arthralgias/myalgias.

Table 2. Common side effects of adjuvant and neoadjuvant therapy.

Chemotherapy	Endocrine therapy
Fatigue	Hot flushes
Nausea (vomiting should be minimal with supportive medication)	Night sweats
Neutropenia	Arthralgias/myalgias
Alopecia	
Amennorrhea (if patient is premenopausal)	

After therapy

A review of all randomized controlled trials involving neoadjuvant therapy considered the timing of surgery upon completion of NAT. In these studies, patients underwent surgery 3 to 4 weeks after the last dose of chemotherapy.[12-14] Radiation was then offered to these patients based on initial clinical stage. This is consistent with the Canadian national expert consensus. The transition periods in the pathway of care (from systemic therapy to surgery, from surgery to radiation) can be confusing for patients and requires coordinated multidisciplinary communication. Data from the prospective neoadjuvant database of the BC Cancer Vancouver Centre show that the median time from completion of chemotherapy to surgery is 32 days. Again, this has improved since the audit and feedback quality assurance initiative began, but is still not ideal. Ongoing strategies to improve communication between disciplines is essential to ensure continued optimization of patient outcomes.

Outcomes

As Wolmark and colleagues[5] demonstrated in 2001, patients who experience a pathologic complete response to NAT have improved survival compared with those who do not achieve a pCR.[4] Whether pCR can be used as a reliable surrogate marker for disease-free survival or overall survival in randomized controlled trials has been a subject of debate. Nonetheless, in clinical practice, pCR is a very reassuring outcome and suggests that the patient has achieved maximal benefit from the neoadjuvant therapy provided.

Data from the BC Cancer prospective neoadjuvant database show that in a nontrial setting, the overall pCR rate achieved in patients with triple-negative breast cancer is 30% and the rate achieved in patients with HER2-positive disease is 40%, but patients with ER-positive disease achieve a pCR rate of only 7% on average. Other prognostic methods based on response in those with ER-positive disease have emerged, such as the RNA degradation index and CPS+EG staging system, but these are being used predominantly in research settings.[15,16] As further work is done to validate these outcomes we may move toward differential assessments of response based on subtype of disease. For the time being, however, pCR remains the main goal of neoadjuvant systemic therapy because of its association with improved DFS and OS. Tumor downstaging to allow breast conserving surgery is another valuable outcome in the treatment of these patients, but has not been shown to be as reliably associated with improved prognosis. Further studies will help to delineate the value of achieving this outcome.

Future directions

Currently, further chemotherapy is not recommended if complete pathologic response is not achieved after neoadjuvant therapy. Targeted therapy in the form of endocrine agents for ER-positive disease and anti-HER2 agents for HER2-positive disease should be continued for patients who undergo primary surgery upfront, but additional chemotherapy is not the standard of care.

The issue of what to do when pCR is not achieved has been the subject of many clinical trials. To date, only the CREATE-X study[17] has demonstrated an improvement in DFS and OS in HER2-negative patients who went on to receive capecitabine after surgery if residual disease was found. This benefit was primarily seen in the triple negative subgroup of patients who experienced an 8% absolute improvement in OS, with more modest gains seen in the hormone receptor positive subgroup of patients.

Several ongoing international multicentre clinical trials are assessing the role of further targeted therapy in the adjuvant setting in patients who do not achieve pCR. Focusing on residual ER-positive disease, PENELOPE is a phase 3 randomized controlled trial of endocrine therapy alone compared with endocrine therapy and a CDK4/6 inhibitor.[18] Focusing on residual triple-negative disease, OlympiA is a trial available to patients with *BRCA1* and *BRCA2* mutations, and will assess the role of an adjuvant PARP inhibitor to improve outcomes.[19] Focusing on residual HER2-positive disease, KATHERINE is a trial assessing the benefit of increased anti-HER2-directed therapy.[20] As these studies continue, our understanding of adjuvant therapy in patients with residual disease will likely shift. Patient enrolment in these studies should be encouraged.

Summary

As well as considering neoadjuvant therapy for patients with inoperable disease or inflammatory breast cancer, NAT should be considered for patients with operable locally advanced breast cancer: palpable T2 or T3 with any clinical N status or clinical N2 or N3 disease regardless of T stage. Ideally, patients should start systemic therapy within 28 days of diagnosis by core biopsy, and should be monitored with careful clinical examination at each cycle of chemotherapy or each month of endocrine therapy. Surgical excision 4 weeks after a last dose of chemotherapy is the standard used in randomized controlled trials. Adjuvant radiation should be offered based on the patient's initial clinical stage, but adjuvant chemotherapy is not recommended if a full course of neoadjuvant therapy has already been received. Studies assessing the role of targeted therapies in the adjuvant setting for those with residual disease are ongoing and may further delineate the overall pathway of care for these patients. Several centres adopting this strategy, including the BC Cancer Vancouver Centre, have noted an improvement in wait times and

Studies assessing the role of targeted therapies in the adjuvant setting for those with residual disease are ongoing.

outcomes when an audit and feedback quality assurance initiative is employed. Continuing to monitor real-world experience will help inform the best strategies to ensure that our patients benefit from improved outcomes in years to come. BCMJ

Competing interests

None declared.

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Survivorship care: Understanding the sequelae of breast cancer treatment

Management of posttreatment risks, including arm lymphedema, cosmesis, and chronic pain, may help patients navigate their recovery after breast cancer treatment.

ABSTRACT: Survivorship care has improved as the sequelae of breast cancer treatment have become better appreciated and understood in an era of increasing focus on patient-centred care. Development of arm lymphedema is a risk following axillary treatment. The introduction of less-invasive surgical procedures has resulted in decreased rates of lymphedema. It is now recognized that physical activity and routine medical procedures on the treated arm are safe and do not increase the risk of lymphedema. Patient education regarding early detection of lymphedema and timely referral to physiotherapy may be beneficial. Cosmesis may represent another survivorship concern. The appearance of the treated breast may impact self-image and recovery. The decision between breast conserving therapy and mastectomy is complex and is best supported through patient education and a patient-centred process of care. Lastly, chronic posttreatment pain may affect certain individuals. The optimal management of posttreatment pain involves a multimodal early-intervention strategy. This approach can be instituted in the pretreatment, intraoperative, and postoperative phase, using balanced multimodal analgesics, self-management techniques, and upper body physical recovery. This article reviews current approaches to arm lymphedema, posttreatment cosmesis, and reducing posttreatment pain.

An increasing number of patients in British Columbia are survivors of breast cancer and are navigating life in their "new normal." Survivorship care is an evolving field that strives to recognize, understand, and manage the issues that arise in the posttreatment phase. For some women, the sequelae of treatment have a significant and long-lasting impact on their physical, emotional, and psychological health. Some concerns in survivorship care are arm lymphedema, cosmesis, posttreatment pain, and cancer surveillance.

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Arm lymphedema

The reported incidence of arm lymphedema following breast cancer treatment is highly variable. The estimated risk for patients undergoing axillary lymph node dissection (ALND) is 20%, compared with 5% for sentinel lymph node biopsy (SLNB).[1] However, a more clinically meaningful and relevant interpretation of risks is the presence of severe edema alone (defined as more than a 5-cm difference in arm circumference), which has an estimated incidence of 3.0% for ALND and 0.5% for SLNB.[2] The use of axillary radiation is an independent and added risk factor for development of clinically significant lymphedema, with an incidence of 8% in patients undergoing combined axillary surgery and radiation.[3] The onset of lymphedema is typically seen within 3 years of axillary intervention,[1,4] while the ongoing risk beyond 3 years is estimated at 1% per year to at least 20 years.[4] Prevention strategies focus on reducing axillary intervention and other risk factors. Once lymphedema is diagnosed, management efforts focus on preventing progression and addressing associated symptoms.

Diagnosis

Arm circumference is a commonly utilized and simple clinical measurement for assessing lymphedema. Measurements are taken at 15 cm above and below the medial epicondyle. Diagnosis is based on the difference between the treated and untreated arm, or between the preoperative and postoperative arm. Differences greater than 2 cm indicate clinical lymphedema, which is further classified as mild (2 to 3 cm), moderate (3 to 5 cm), or severe (more than 5 cm).[5]

Arm circumference is a commonly utilized and simple clinical measurement for assessing lymphedema.

Risk factors

The mechanism leading to lymphedema following axillary intervention is not well understood but is thought to involve posttreatment fibrosis obstructing remaining lymphatic channels. Once clinically evident lymphedema develops, the changes are generally irreversible. Although theoretically lymphedema can be reversed in the subclinical phase, there are currently no diagnostic or intervention tools available for common clinical use.

While avoidance of trauma to the treated extremity, including blood pressure measurement and skin puncture, may appear sensible, the evidence for this is extremely poor and a growing body of literature does not support these precautions.[6]

The impact of blood pressure measurement on lymphedema risk was addressed in four recent level 2 and 3 studies, three of which did not identify a significant association.[7-9] Other studies evaluating the use of a pneumatic tourniquet during hand surgery in patients with previous axillary surgery did not demonstrate increased risk of lymphedema.[10,11]

The risk of skin puncture leading to lymphedema has been considered in 11 studies. Those that endorsed avoidance of skin puncture were primarily historical retrospective observational studies or single-subject case reports.[6] Among the three prospective cohort studies available, one identified a significant risk of lymphedema in patients with a history of skin puncture,[12] although recall bias has since been raised as an issue, and subsequent studies have found no significant association between skin puncture and lymphedema.[7-9]

Although using the untreated arm for medical procedures when possible remains a sensible precaution, repeatedly advising patients to limit use of the treated arm may cause unnecessary anxiety and restrict activities. Given the evidence, it is reasonable for medical teams to move away from overly restrictive advice. Patients can be reassured that studies have demonstrated that blood pressure readings and medical procedures on the treated arm do not increase the risk of lymphedema.

Prevention and management

The only risk factors for lymphedema identified consistently are axillary surgery, axillary radiation, high body mass index, and cellulitis.[1,2,4,8,9,12]

Cellulitis represents a proven and widely accepted risk factor for lymphedema. Thus, early recognition and treatment of extremity infections is important. Avoidance of ALND when feasible may also reduce the risk of lymphedema.

Randomized controlled trials (RCTs) have shown upper extremity exercise and weight training to be safe following axillary intervention, with no increased risk of lymphedema in patients without lymphedema at baseline.[13] Physiotherapy and/or manual lymphatic drainage produced encouraging results in modifying the risk of lymphedema,[14,15] while patient education regarding early recognition of lymphedema, timely referral to physiotherapy, and use of compression sleeves were shown to be useful management strategies.[14-16]

Cosmesis

Once a cancer is surgically excised, patients must live with the new appearance of the treated breast. Using patient-reported outcomes, researchers have demonstrated the importance of cosmesis and its impact on self-image and recovery.[17] Of the numerous validated psychometric patient-reported outcome measures (PROMs) available, the BREAST-Q[17] has become one of the most widely utilized for breast reconstruction and breast conserving surgery (BCS).[18]

Breast conserving surgery versus mastectomy

The nononcologic goals of breast conserving surgery include preservation of the breast's esthetic appearance, sense of wholeness, and sensation. The likelihood of achieving these goals with BCS, mastectomy with reconstruction, or mastectomy alone is discussed with the patient. Patients with small tumors, relatively large breasts, and/or lesions in the upper outer breast quadrant are considered more suitable candidates for BCS.[19,20]

The relationship between cosmetic outcome, psychological adjustment,[21,22] and quality of life[23] has been well demonstrated. Reports evaluating patient satisfaction with cosmesis after BCS with radiation and after mastectomy with reconstruction have shown differing results. While some studies comparing patient satisfaction favor BCS,[24] others favor mastectomy with reconstruction,[21,25] and others have observed no difference.[26] These findings are likely due to the varied cosmetic results achieved with both procedures, and the complexity of individual perception and expectations. However, regardless of procedure, factors associated with lower patient satisfaction and/or cosmesis are high body mass index (BMI),[22,25,26] delayed wound healing or postoperative complications,[22,26,27] axillary surgery,[22] and radiation boost to the tumor bed.[27] Age did not correlate with satisfaction with cosmesis.[22,26]

Most studies have found that mastectomy alone is associated with the lowest patient satisfaction when compared with BCS or mastectomy with reconstruction.[21,24-26] Guidelines state that all patients undergoing mastectomy should be offered consultation with a plastic surgeon regarding immediate reconstruction.[28] Immediate reconstruction has particular benefits compared with delayed reconstruction, including a reduction in the number of surgeries, superior cosmesis, and improved restoration of breast appearance and sense of wholeness.[21,25]

The relationship between cosmetic outcome, psychological adjustment, and quality of life has been well demonstrated.

Numerous studies have shown that patients who reported taking an active role in deciding between BCS and mastectomy were significantly more satisfied with their decision compared to patients who reported less involvement in the decision-making process. To this end, patient-centred care and education to ensure understanding of expected outcomes have been identified as important factors.[29,30]

Options to improve cosmesis

Breast defects resulting from cancer treatment can be difficult to predict. The tissue fibrosis that occurs with surgery and radiation can evolve over 12 to 18 months following completion of BCS. This process may result in retraction of the lumpectomy site,

visible breast volume loss, and/or nipple displacement. Unfortunately, the options for posttreatment surgical correction are limited. Immediate oncoplastic approaches may help to mitigate some of these undesirable effects.[19] Simple approximation of the parenchymal flap at the time of lumpectomy represents an effective method of distributing the volume loss and providing tissue coverage with resultant reduced retraction and change in breast contour. Complex oncoplastic procedures may be undertaken with the participation of a plastic surgeon. These coordinated procedures include a lumpectomy combined with a planned reduction mammoplasty, recentralization of the nipple-areolar complex, and volume replacement.[19] For patients who are candidates for neoadjuvant chemotherapy, preoperative systemic treatment may reduce the primary tumor size prior to BCS and improve cosmesis.[31]

Posttreatment pain

Chronic pain following breast cancer treatment has been reported to affect between 25% and 60% of patients and has been variably defined.[32] As the surgical management of breast cancer has changed over time, particularly regarding the axilla, such historic reports of pain incidence must be interpreted with caution. In a large national cohort study, chronic posttreatment pain was observed in 47% of patients, with a mean time of 26.0 months from surgery to data collection.[33] On a scale of 0 to 10, with 0 representing no pain and 10 representing worst imaginable pain, 48% had light pain (1 to 3), 29% had moderate pain (4 to 6), and 13% had severe pain (7 to 10). In a continuation of this cohort study at a mean time of 72.5 months from surgery, 36% of patients who initially reported pain had persistent pain at follow-up.[34]

Causes

The development of posttreatment pain is multifactorial and may result from neuropathic stimuli of surgically damaged nerves, muscular changes at the surgical site, and referred pain from related connective tissues.[35] Factors that can intensify pain and disability and have a negative impact on quality of life include intrinsic nervous system changes (central sensitization), inflammatory processes, and psychosocial factors affecting recovery or timely access to services.[36]

Assessment

Patient risk factors for the development of posttreatment pain include pre-existing pain, psychosocial determinants, biology, and genetics.[32,33,36] Assessment can aid in identifying patients at risk and allow for implementation of risk-reducing and early intervention strategies.

Pre-existing pain in the breast as well as other anatomic areas not related to the surgery can potentially cause sensitization in the nervous system and changes that are further altered postoperatively. Existing pain may be evaluated using a standard numeric rating scale or a screening instrument for neuropathic pain such as the DN4 questionnaire.[37] Neck and arm range of motion should be assessed and the torso and upper extremity musculature should be palpated to identify dysfunctional movement patterns or tender trigger points that might be aggravated by surgery and need to be addressed preoperatively.

Preoperative psychological risk factors, including depression, anxiety, fear of pain, and catastrophizing, have been observed to affect pain perception and behavior.[36] These factors may be identified with existing screening questionnaires for depression (e.g., Patient Health Questionniare-9[38]), anxiety (e.g., Generalized Anxiety Disorder-7[39]), and functional decline (e.g., Brief Pain Inventory[40]).

Young age is a commonly reported factor for posttreatment pain,[32,33] which may be related to the physiological effects of age or differences in subjective pain expressions. High body mass index has also been observed to increase pain and sensory disturbances,[32,33] possibly due to the increased tissue trauma inherent in surgeries dealing with large breast and axillary volumes and obesity-related sequelae of reduced mobility and nutritional imbalance.[32,33] Furthermore, genetic variation in individual responses to noxious stimuli and pharmacogenetic variations may influence the development of posttreatment pain and alter response to pain medications.[41]

ALND has been associated with an increased risk of chronic pain when compared with SLNB.[32-34] The underlying mechanism for this is not well understood but may arise from the surgical impact on the intercostobrachial nerves. Interestingly, studies have not identified a significant difference between BCS and mastectomy on the risk of posttreatment pain,[32,34] although one study found proportionately more patients in the mastectomy group with moderate to severe pain.[33] The finding of little difference between BCS and mastectomy may be explained by the common use of radiotherapy in patients undergoing lumpectomy, as the association between radiation treatment and chronic pain is well established.[32-34]

Preoperative interventions

Interventions to prevent the development of chronic posttreatment pain can begin prior to surgery with a multimodal approach that optimizes preoperative health and conditioning.[42] Studies have shown that active coping strategies such as self-man-

agement (exercise, distracting activities, and positive self-statements) and obtaining emotional support from others are associated with reduced psychological distress, feelings of helplessness, catastrophizing, and fear, which have all been associated with increased postoperative pain and disability.[36] A practical and simple technique that can be utilized to enhance coping is the box breath: an inspiration of 4 to 8 seconds followed by prolonged breath hold for 3 to 5 seconds, expiration over 4 to 8 seconds, and a rest period of 3 to 5 seconds.[43] Analgesic benefits result from activating the baroreceptor reflex and producing a generalized inhibitory effect on the central nervous system, which includes a reduction in nociception.[43]

Treatment of pre-existing pain utilizing nonpharmacological methods helps reduce opioid use and medication side effects and can improve musculoskeletal function and self-management skills that will be useful in the posttreatment phase.[42]

Intraoperative considerations

Intraoperative local and regional nerve blocks may be effective methods to prevent chronic posttreatment pain. Initial reports on the use of paravertebral nerve blocks have shown decreased chronic pain incidence and pain intensity following breast surgery.[44] Systemic lidocaine and magnesium sulfate have been found to reduce intraoperative and postoperative opioid needs and pain intensity. Intraoperative systemic lidocaine also improved postoperative functional recovery in one trial.[45]

Postoperative interventions

Effective strategies to manage chronic pain that were begun preoperatively can be continued postoperatively to prevent the progression of acute pain to chronic pain. Treatment includes rationalization of analgesics, functional restoration, graded physical reconditioning, and strategies to reduce the impact of pain on daily activities.[42] Early recognition and intervention are key to preventing or reducing the disabilities caused by undertreated pain. Current management approaches are extrapolated from the literature on neuropathic pain and postoperative pain syndromes. Specific pain management options can be applied in the acute and subacute postoperative phase (initial 3 months).[42]

The first few weeks after surgery are critical to modifying pain and its related long-term disabilities. Initially, soft tissue and fascia lose their plasticity and pliability. To counter this effect, patients are encouraged to carry out range of motion exercises immediately following surgery. Optimizing analgesia while avoiding or minimizing use of opioids is preferred and achievable with a multimodal approach. Acetaminophen and anti-inflammatory medications should be used regularly. Daily magnesium malate or bisglycinate supplementation (250 mg to 500 mg) in divided doses has multiple benefits, including pain relief through muscle relaxation, deactivation of receptors associated with hyperalgesia and neuropathic pain, and sleep improvement.[46,47]

Beyond the first 4 weeks, a graded functional restoration approach is recommended. Any patient who deviates from the expected pain recovery trajectory should be identified. Symptoms that raise concern include burning skin, intolerance to light touch, phantom breast sensation, spread of pain beyond the surgical site, shortness of breath, and chest tightness. Initial medication choices include tricyclic antidepressants or anticonvulsants (e.g., pregabalin).[46] Adjunctive therapies such as capsaicin cream, oral mexilitine (a membrane stabilizer), intravenous ketamine, intravenous lidocaine, intravenous steroids, cannabinoids, and dextromethorphan have also been utilized.[48]

Early intervention has been observed to reduce the psychological and physical disabilities associated with undertreated pain. For patients at risk of chronic pain or those with pain beyond 3 months after surgery, early referral to a pain clinic specializing in a multimodal management of neuropathic and myofascial pain should be considered.

Treatment of pre-existing pain utilizing nonpharmacological methods helps reduce opioid use and medication side effects.

Surveillance

The object of surveillance is to identify new primary breast cancers and curable recurrences in the treated breast and axilla. Recommended posttreatment surveillance includes:

- Breast and nodal examination every 6 months for 5 years, then yearly thereafter.
- Annual diagnostic bilateral mammogram.

Routine CT imaging and blood tests for detection of incurable metastatic disease have not been shown to improve patient outcomes and are not recommended. Posttreatment investigations should be based on patient symptoms.

Summary

As our ability to treat and cure breast malignancies continues to improve, more women are navigating life as cancer survivors. For some, the treatment sequelae have significant and long-lasting effects on their physical, emotional, and psychological health. Understanding the long-term risks and impact of treatment can allow physicians to identify survivorship care issues such as arm lymphedema, cosmesis, and posttreatment pain, to base posttreatment cancer surveillance on patient symptoms, and to provide optimal support to patients as they recover from treatment. BCMJ

Competing interests

Dr Lau is co-founder of the CHANGEpain Clinic, which charges fees for services not covered by MSP and accepts referrals for patients requiring pain management. Drs Chiu and Nichol have no competing interests to declare.

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Influenza and pneumococcal disease vaccinations: Is there a role for prevention in the emergency department?

Results from a recent BC study suggest emergency department patients should be considered a target group for vaccination campaigns to prevent serious complications from influenza and pneumonia.

ABSTRACT

Background: **Influenza and pneumococcal disease are vaccine-preventable illnesses and account for significant morbidity and mortality worldwide. Influenza vaccination reduces influenza-related mortality and pneumococcus vaccination reduces the incidence of invasive pneumococcal disease. Our objective was to determine what proportion of adult patients presenting to the emergency department qualify for and are willing to be vaccinated against influenza and pneumococcal disease during their visit.**

Methods: **Our study used a convenience sample of adult patients presenting to the emergency department who were able to communicate in English. Participating patients consented to be screened for demographic characteristics, vaccination status, risk factors for complications from influenza and pneumococcal disease, and contraindications to vaccination. Critically ill patients and patients in severe pain were excluded.**

Results: **A total of 254 of 358 patients who met the inclusion criteria completed the Vaccination in Emergency Survey for a response rate of 71%. We found 20% of patients at high risk for influenza complications were unvaccinated and willing to be vaccinated in the emergency department, while 15% of patients were at high risk for pneumococcal disease complications and were unvaccinated and willing to be vaccinated in the emergency department. In the study population overall, 83% of patients were at high risk for complications from influenza and 58% were at high risk for complications from pneumococcal disease.**

Conclusions: **Our study demonstrates that patients presenting to the emergency department include many at high risk for complications from influenza and pneumococcal disease, and that some are willing to be vaccinated during their visit. Our findings suggest that these patients are not being reached in other ways and could be a target group for vaccination campaigns.**

This article has been peer reviewed.

Background

Influenza is an important seasonal respiratory illness that is estimated to account for 12 200 hospital admissions and 3500 deaths per year in Canada.[1-3] Emergency department (ED) care for influenza consists mainly of supportive therapies and antiviral medications such as neuraminidase inhibitors, which provide modest benefits by reducing influenza symptoms by less than 1 day.[4] Vaccination is recommended for influenza prevention and is provided free for high-risk groups in British Columbia.[5] In one case-control study, influenza vaccination was shown to reduce mortality by 41%, and among those who had been vaccinated previously mortality was reduced by 75%.[6]

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Like influenza, pneumococcal disease is a significant cause of morbidity and mortality in ED patients. Although we know that pneumococcus vaccination reduces the incidence of invasive pneumococcal disease, studies have not been powered to detect a reduction in all-cause mortality.[7] In British Columbia this vaccine is also provided free of charge to high-risk groups.[8] In 2011, influenza and pneumonia combined were the eighth leading cause of death in Canada.[2]

Vaccination programs in the ED have been described previously.[9-12] While the vaccination rates in the ED for pneumococcal disease and influenza have been so low that they are difficult to estimate (less than1% of vaccinations), vaccination in the ED for tetanus has been very effective, with an estimated 27 738 000 vaccinations given in the US between 1992 and 2000.[11] However, the burden of influenza and pneumococcal disease is exponentially greater than that of tetanus, with 114 000 hospitalizations annually for influenza in the US and 49 015 for pneumococcal disease, compared with fewer than 50 hospitalizations for tetanus.[11]

With the significant burden of disease and the capacity to vaccinate any willing, high-risk, previously unvaccinated patients, emergency departments present a significant opportunity to implement a valuable public health intervention. The objective of our study was to determine what proportion of adult patients in the ED qualify for and are willing to be vaccinated against influenza and pneumococcal disease during their visit.

Methods

Patients presenting to the emergency department at Vancouver General Hospital from 1 May to 31 August 2015 were approached to enroll in our study. The convenience sample obtained included adults (19 years and older) who could communicate in English and consented to be screened for demographic characteristics, vaccination status, risk factors for influenza and pneumococcal infection, and contraindications to vaccination. Critically ill patients and patients in severe pain were excluded from the study.

The primary outcome we sought was the proportion of patients presenting to the ED who could be immunized for influenza and pneumococcal disease (i.e., at high risk, unvaccinated, and willing to be vaccinated). Secondary outcomes we sought included the proportion of patients with a contraindication to vaccination, the proportion of patients at high risk for influenza and pneumococcal disease, the characteristics of vaccinated and unvaccinated patients, and the characteristics of patients willing to be vaccinated and unwilling to be vaccinated. Based on previous studies, we estimated that approximately 20% of screened vaccination-eligible patients would be willing to receive immunization in the ED. For this estimated proportion of 0.2 and a desired precision of +/- .05 we calculated a required sample size of 246. Data were reported as descriptive statistics and proportions with confidence intervals.

We received approval for this study from our institutional ethics board and obtained consent from patients to participate in the study.

Results

We screened 413 patients (mean age 55 years) using study inclusion and exclusion criteria (**Figure 1**) and collected data on the characteristics of all

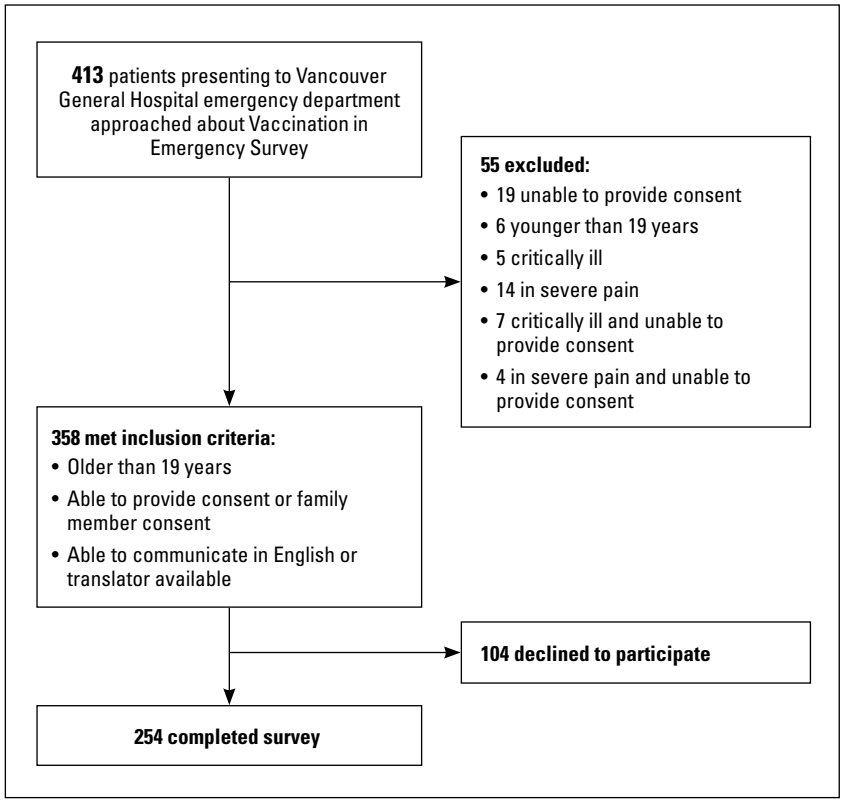

Figure. Results of screening process to enroll study participants.

patients screened (Table 1). A total of 254 of 358 patients who met the inclusion criteria agreed to participate and completed the Vaccination in Emergency Survey for a response rate of 71%. Our group of primary interest included 52 patients (20%) who were at high risk for influenza complications, unvaccinated, and willing to be vaccinated in the ED, and 39 patients (15%) who were at high risk for pneumococcal disease, unvaccinated, and willing to be vaccinated in the ED.

Looking at the study population overall, 83% of patients were at high risk for complications from influenza and 58% were at high risk for complications from pneumococcal disease. Risk factors reported for influenza (Table 2) and for pneumococcal disease (Table 3) show that heart and lung disease were common in both groups, and that many patients had multiple risk factors. Of the patients at high risk for complications, many were unaware that they were at high risk for influenza (56%) and pneumonia (63%). Contraindications to influenza vaccination were present in 0.78% of patients (0.39% had previous severe allergic reaction to vaccine or components and 0.39% had previous Guillain-Barré syndrome). No patient had a contraindication to pneumococcal vaccination (severe allergic reaction to the vaccine or components).

If vaccination were to be offered in the ED, 53% of patients responding to the survey would accept influenza vaccination and 44% would accept pneumococcal vaccination. Among high-risk patients, 55% would accept influenza vaccination and 45% would accept pneumococcal disease vaccination. Many more patients stated that they would consider vaccination if they had the opportunity to talk with a health care provider. The reasons for not wanting to be immunized in the ED for influenza (Table 4) and for pneumococcal disease (Table 5) were varied, with "Do not think I am at high risk" being a common response for patients declining influenza vaccination (18%) and pneumococcal disease vaccination (27%).

Table 1. Characteristics of patients who completed the Emergency Vaccination Survey at Vancouver General Hospital, 2015.

	Number (%)
Gender	
Male	124 (49)
Female	130 (51)
Canadian Triage and Acuity Scale rating	
1	1 (0)
2	55 (22)
3	129 (51)
4	61 (24)
5	8 (3)
Triage area in ED where treated	
Acute area	98 (39)
Treatment area	125 (49)
Rapid assessment area	31 (12)
Family physician named	
Yes	220 (87)
No	32 (13)
Other	2 (1)

Table 2. Risk factors for influenza complications among patients surveyed in Vancouver General Hospital emergency department (ED), 2015.

	Number (%)
65 years or older	93 (36.6)
Heart disease	49 (19.3)
Works in setting with potential for outbreak	44 (17.3)
Lung disease	40 (15.7)
Diabetes	39 (15.4)
Cares for children < 5 years	39 (15.4)
Weakened immune system	29 (11.4)
Cancer	29 (11.4)
Difficulty swallowing	25 (9.8)
Visitor to health care facility or care home	25 (9.8)
Anemia	24 (9.4)
Lives in assisted living or other group living	23 (9.1)
Neurologic disorder	23 (9.1)
Lives with someone with high-risk condition	23 (9.1)
Aboriginal	21 (8.3)
Health care worker	19 (7.5)
Kidney disease	15 (5.9)
Liver disease	14 (5.5)
Pregnant during influenza season	5 (2.0)
Obese	5 (2.0)

Table 3. Risk factors for pneumococcal disease among patients surveyed in Vancouver General Hospital emergency department (ED), 2015.

	Number (%)
65 years or older	93 (36.6)
Heart disease	49 (19.3)
Lung disease	40 (15.7)
Weakened immune system	29 (11.4)
Lives in assisted living or other group living	23 (9.1)
Kidney disease	15 (5.9)
Liver disease	14 (5.5)
Alcohol dependency	5 (2.0)
Organ transplant recipient or awaiting transplant	4 (1.6)
No spleen or a spleen that is not working	3 (1.2)
Homeless	1 (0.4)
Uses illicit drugs	1 (0.4)
Sickle cell disease	0 (0.0)

Conclusions

Our data show that if we offered five patients vaccination for influenza, one of these would be a high-risk patient who had not been reached by other offers of influenza vaccination and was willing to be vaccinated in the ED. This is similar to previously reported numbers.[12] For pneumococcal disease, it would be necessary to offer vaccination to seven patients in order to reach one high-risk, unvaccinated patient who was willing to be vaccinated. Very few patients had contraindications to vaccination, making it

Table 4. Reasons for declining influenza vaccination in the Vancouver General Hospital emergency department (ED), 2015.

	Number (%)
Other	39 (32.8)
Do not want to get the shot when I am sick	29 (24.4)
Do not think I am at high risk	22 (18.5)
Believe that vaccine is not effective	18 (15.1)
Concern about side effects	12 (10.1)
Do not trust that vaccination is safe	11 (9.2)
Getting vaccine is uncomfortable	7 (5.9)
Not a high priority	6 (5.0)
Previous negative experience with vaccine	5 (4.2)
Contraindication to vaccination	2 (1.7)
Do not believe influenza is a serious disease	1 (0.8)
Too busy to get vaccinated	0 (0.0)
Cost of vaccine	0 (0.0)

Table 5. Reasons for declining pneumococcus vaccination in the Vancouver General Hospital emergency department (ED), 2015.

	Number (%)
Other	37 (37.8)
Do not think I am at high risk	26 (26.5)
Do not want to get the shot when I am sick	20 (20.4)
Concern about side effects	9 (9.2)
Do not trust that vaccination is safe	7 (7.1)
Not a high priority	5 (5.1)
Believe that vaccine is not effective	5 (5.1)
Getting vaccine is uncomfortable	4 (4.1)
Previous negative experience with vaccine	2 (2.0)
Contraindication to vaccination	1 (1.0)
Too busy to get vaccinated	0 (0.0)
Do not believe pneumonia is a serious disease	0 (0.0)
Cost of vaccine	0 (0.0)

feasible to screen a large number of patients rapidly.

Large percentages of the ED patient population in our study were found to be at risk for complications of pneumococcal disease (58%) and influenza (83%), rates higher than those previously reported.[12] Patients seen in Canadian EDs are increasingly complex and have multiple medical comorbidities.[13] In our experience, these patients generally have more comorbidities than would be seen in a family doctor's office or a community vaccination clinic. The emergency department provides a unique opportunity to reach a particularly high-risk cohort of patients through a vaccination program.

Barriers

We recognize that there are many barriers to influenza and pneumococcus vaccination in the emergency department, including concerns about disruption of ED patient flow, scarcity of time and resources, and personal attitudes of health care staff toward vaccination.[14] To address these concerns, we implemented an influenza vaccination program in our ED that maximized efficiency in immunizing patients while minimizing resources, time, and training required. Physicians screened patients for contraindications to vaccination (previous anaphylactic reaction to the influenza vaccine or components, fever higher than 38 °C, or previous Guillain-Barré syndrome) and wrote an order for influenza vaccine. ED nurses administered influenza vaccine to patients. Since our data showed a very high proportion of our patients at risk for influenza complications, we offered the influenza vaccine to any unvaccinated patients who did not have a contraindication. We used a single vaccine rather than the multiple available products to simplify the vaccination process for ED physicians and nurses. While we did not specifically study the time it took to complete an influenza vaccination in the ED, our screening and administration process was comparable to that used for tetanus vaccination, a process well established in the ED, and it is unlikely that adding influenza vaccination to the patient visit increased ED length of stay or wait times.

Many patients expressed interest in vaccination for influenza and pneumococcal disease but wanted to speak with a health care provider before proceeding. Also, many patients did not realize that they were part of a high-risk group, and some had concerns about side effects and vaccine effectiveness. These and other common reasons for patients declining vaccination represent opportunities for education and informed decision making regarding vaccination.

Study limitations

Our study had some limitations. First, we relied on self-reported data to determine patient vaccination status and the comorbidities that are risk factors for complications of influenza and pneumococcal disease. Patients may not have reported their vaccination status accurately and may have underreported or overreported their comorbidities. Second, the number of patients willing to be vaccinated may be an overestimate since those patients who declined to participate in our study would be more likely to decline vaccination than those who did participate. However, our response rate of 71% was reasonably high and thus the effect of the nonparticipants would likely be small.

Summary

Our study demonstrates that a significant number of high-risk patients presenting to the emergency department

would be willing to be vaccinated for influenza and pneumococcal disease while in the ED. In our tertiary care ED we found a very high number of risk factors for complications from influenza and pneumonia and identified many patients with multiple risk factors. Few ED patients have contraindications to influenza and pneumococcus vaccination and many of the reasons for declining vaccination can be addressed through health care provider education and recommendations. ED patients should be considered a target group for vaccination campaigns to prevent serious complications from influenza and pneumococcal disease. BCMJ

Our study demonstrates that a significant number of high-risk patients presenting to the emergency department would be willing to be vaccinated for influenza and pneumococcal disease while in the ED.

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Competing interests

None declared.

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On pins and needles: More support for prison needle exchanges

Implementing prison needle exchange programs is not a solution to cure all the related harms of intravenous drug use in the prison setting, but it is a humane, ethical, and critical part of the solution.

Ryan Danroth, BSc

Harm reduction

It comes as no surprise to health care workers that sharing syringes and injection paraphernalia increases the risk of HIV/hepatitis C seroconversion. There is a plethora of evidence available that supports the use of needle exchange programs to reduce the incidence of bloodborne disease in a community. Wherever they are implemented, these programs are safe, efficacious, and cost-effective.[1] There is no controversy about this in the 90 countries around the world that have needle exchange programs, including Canada. Evidence shows that these work: A global survey found that "in cities with needle exchange or distribution programs the HIV incidence rate decreased by 5.8% annually. In cities without such programs, HIV incidence increased by 5.9% annually."[2]

However, one subject that is still controversial is whether to implement needle exchange programs in at-risk prison populations. With the absence of harm reduction options inside Canadian prisons, incarcerated individuals under government care are at greater risk of seroconverting than the nonincarcerated population. Further, someone who seroconverts inside prison, if left undiagnosed and untreated, could potentially pass the virus onto others in the community when they complete their sentence.

Prison health

In Canada, HIV and hepatitis C rates in prison are, respectively, 10 and 30 to 39 times higher than in the general population. In a study of Canadian male prisoners, four out of five federally sentenced prisoners were identified as having a substance-use disorder, two out of three were under the influence of substances while committing the offences they were imprisoned for, and one out of six reported injecting drugs in prison over the previous 6 months.[3]

There are several factors contributing to the significantly higher risk of prisoners contracting or transmitting HIV, hepatitis C, STIs, TB, and MRSA. One critical factor is the lack of harm reduction supplies such as sterile syringes.[4] Injection materials are often shared multiple times over months and years, being repaired and reinforced with rubber bands and resharpened until they are mechanically unusable. Syringe sharing is a preventable cause of bloodborne pathogen transmission inside prisons and preventing such sharing would result in significant cost savings to the health care system. New occurrences of hepatitis C are expected to cost over $60 000 to treat[5] and new occurrences of HIV are estimated to cost around $250 000 in medical treatment over an average patient's lifetime.[6]

Another factor is the high mobility between prisons and the communities that prisoners return to, with rapid turnover within provincial prisons as prisoners cycle in and out or are granted temporary absences. The result is that many prison-acquired bloodborne diseases go undiagnosed and untreated. When a prisoner is released from jail, prison health issues necessarily become community health issues.[7]

Prison needle exchange programs

Under the UN's International Bill of Human Rights, which has been signed and ratified by the Canadian government, there is a clear case for implementing prison needle exchange programs (PNEPs) in Canada. According to the bill, prisoners maintain all rights except those that are explicitly removed by incarceration, such as freedom of movement. Incarcerated populations maintain the right to the highest standard of care and the prohibition of cruel or torturous punishment. As bloodborne disease prevention and needle exchange

Continued on page 122

This article has been peer reviewed.

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Continued from page 121

programs are part of the highest standard of care, it can be argued that it is the government's obligation to provide this care to prisoners.

Additionally, in Canada, the Corrections and Conditional Release Act guarantees prisoners a standard of health services equivalent to that provided to the general community, which includes adequate bloodborne disease prevention measures such as sterile needles. There have also been arguments put forth that Sections 7, 12, and 15 of the Canadian Charter of Rights and Freedoms serve as a legal basis on which to seek a pilot project of PNEPs.[2] The Canadian government is legally bound to respect, protect, and fulfill guaranteed rights, including the right to the highest attainable standard of health.

As of June 2016, almost 250 organizations had signed a declaration with the Canadian HIV/AIDS Legal Network to immediately implement prison needle exchanges in Canada,[8,9] but that call went unanswered by the Canadian government. A lawsuit was filed in September 2012 against the government of Canada's refusal to implement adequate harm reduction services in prisons, as a constitutional challenge. Years later, but just a week before mediation talks were about to commence, the government abruptly withdrew from the talks, in effect further delaying the much-needed implementation of evidence-based harm reduction services in prisons.[10]

As part of my research, I attended the HR17 conference on harm reduction in Montreal and listened to talks about prison-based harm reduction. During the *Lancet* Panel on HIV and Related Infections in Prisons, there was a discussion about the major barriers to implementing a prison needle exchange program. The major arguments against PNEPs that were addressed can be divided into the following three categories.

1. **Concern:** If we provide syringes to prisoners, they will be used as weapons.
   Response: Among all the prison needle exchanges that operate globally, there are no reported incidents of syringes being used as weapons.[2,11,12] In fact, needlestick injuries often decrease after implementing a PNEP because there is a lack of hidden contraband syringes. In most prison needle exchange models, if a syringe is hidden, a prisoner will receive a disciplinary charge, but they will not when the syringe is out in the open. Having syringes in plain sight reduces the chance of accidental needlestick injuries during cell inspections or prisoner body searches, which means PNEPs are in the best interest of prison workers as well.
2. **Concern:** If we provide syringes, it may increase the number of prisoners using drugs, or could cause them to start using drugs while in prison.
   Response: There is no evidence to suggest that the availability of sterile syringes in prisons leads to more injection drug use.[2,11,12] Syringes are already available in prison; however, they are nonsterile and frequently shared.
3. **Concern:** If we provide sterile needles in prison, we are admitting there is a security and screening failure, and that drugs are prevalent in prison.
   Response: There is already bleach being offered to prisoners to attempt to disinfect syringes; although, this method is not fully effective in eliminating the risk of transmission and instruction on the effective use of bleach is not routinely shared. There are also voluntary drug-free prison wings inside some prisons. This is an admission that drugs are in every other wing in the prison, and that the influx of drugs into prisons cannot be adequately controlled.

It is also notable that the inertia in implementing PNEPs in Canada can sometimes be attributed to the strong prison-workers' unions that are against these projects. This may be alleviated in part through collaboration with these unions, with concerns and barriers being addressed by looking to the reviews of other PNEPs implemented globally. There are many examples of PNEPs operating successfully.

There is an old maxim, attributed to American journalist H.L. Mencken: "For every complex problem there is a solution that is simple, neat, and wrong." It serves as a warning to those who may mistakenly think that making a single change to a multifactorial problem will remedy all that ails the system. Implementing PNEPs will not cure all the related harms of intravenous drug use in the prison setting, but it is a humane, ethical, and critical part of the solution.

The question we must ask is not *if* they will work, but *how* they will work. Different prisons have different cultures, populations, and needs, and each requires a solution that considers multiple factors and caters to them specifically. This solution will require working with prisoners, advocates, correctional staff, and policymakers to address the specific needs in each location. Ina Tcaci, coordinator of UNODC Project Moldova, said during her talk at HR17 that:

> You must negotiate with the inmates themselves to understand how these programs can be implemented, how they will be used by them, what they need and want. You cannot simply adapt a community needle exchange to operate inside a prison. Each prison will be different, and each population must be considered.[13]

PNEP models

Four models of PNEPs have proven successful around the world, organ-

ized here by syringe-distribution method:

- Distribution by private dispensing machines.
- Distribution by peer workers.
- Distribution by nongovernmental organizations or external personnel.
- Distribution by prison health services.[6]

These examples represent what is possible—a jumping-off point for a pilot project—but we must remain flexible and open to modifying a program if it does not address the needs of, or is not being accessed by, the population that it serves.

Call to action

Change is not easy, especially in large institutions. Change on this scale requires the metaphorical aligning of planets between the needs of the incarcerated, public opinion, political powers, and an army of change-makers and leaders inside the system and outside the gates. Our collective voices matter, and speaking up matters. The evidence has long been established yet there has not been aggressive change. A conversation needs to take place among health professionals and in the greater public arena to bring PNEPs into reality. In 2006 Ralf Jürgens and Glenn Betteridge[2] wrote:

> In many countries, including Canada, there has been lack of political leadership and political will to provide prisoners with the means to protect their health. Increasing the quantity of the same type of existing research is unlikely to lead to an increase in the likelihood of PNEP implementation . . . [as] the evidence strongly suggests that countless people have become infected with HIV as a result of sharing injection equipment in prison, even though the means to prevent many of those infections are available and have been proven to be feasible and effective. This represents not only a human tragedy, but also a gross infringement by governments of prisoners' rights to the highest attainable standard of physical and mental health.

We need to stand united, as health care workers and Canadians, and demand implementation of evidence-based medicine to combat the increasing prevalence of bloodborne disease in prisons. PNEPs are necessary to alleviate needless suffering of incarcerated populations and stop preventable transmission of bloodborne diseases inside prisons and in the greater community.

The Corrections and Conditional Release Act guarantees prisoners a standard of health services equivalent to that provided to the general community.

Acknowledgments

I would like to acknowledge Dr Ruth Elwood Martin for being a supportive and knowledgeable mentor and supervisor as well as Dr Jane Buxton, Mr Blake Stitilis, and Ms Ciara Morgan-Feir for their thoughtful comments and edits.

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obituaries

Dr Donald Stewart Burris 1920–2018

On 31 January 2018, Dr Donald Stewart Burris died peacefully at the Marjorie Willoughby Snowden Memorial Hospice Home after a brief illness.

Stewart was the oldest child of Dr H.L. and Robina Burris. He was born and raised in Kamloops, spending some of his early school years at Vernon Preparatory School before graduating from high school in Kamloops. He obtained his BA at UBC in Vancouver and his medical degree at McGill University in Montreal. He then undertook his internship at Montreal General Hospital. In 1950, he began his postgraduate education in obstetrics and gynecology in London, England, and after completing this, returned to Kamloops in 1952 and joined the Burris Clinic.

Stewart loved the practice of medicine, and over the next 4 decades he delighted in providing medical care to the people of Kamloops and surrounding areas. With the assistance of many nurses, he was involved in the delivery of several thousand Kamloops residents.

Stewart had many and varied interests throughout his life. In his early years, he excelled in badminton, competing in national-level tournaments, and continued to play various racquet sports well into his 60s. Other sports he enjoyed were alpine and cross-country skiing in winter, and windsurfing in summer. He loved to spend time in his garden or in the woods at Shuswap Lake. Many hours were spent by Stewart reading all kinds of books, and he was particularly interested in local and provincial history. At various times, his civic interests included the Chamber of Commerce, the Rotary Club, and the Kamloops Museum. He also loved walking to and from work, and enjoyed talking to anyone he met on his route.

Stewart is survived by his wife Jean; sons Alan (Sherry) of Kamloops, and Gordon (Terri) of Calgary; and daughter-in-law, Adele, of Vancouver. He also leaves his sisters, Joan Churchill of Kelowna and Elspeth Lindsay of Sorrento, and his brother-in-law Roger Dickson of Knutsford. He will be missed by grandchildren Tim, Adam, Jamie-Lee, Christie, Jeff, and Sarah, and all his nieces and nephews. Stewart was predeceased by his son, John, his sister, Helen Dickson, his brother, John, and his nephew, John Churchill.

The family would like to thank all those involved in Stewart's care at Kamloops Seniors Village as well as at Royal Inland Hospital and the Hospice Home.

A service will be held at a date to be determined. In lieu of flowers, donations may be made in Stewart's name to a charity of your choice.

—Alan Burris, MD
Kamloops

Dr Yan Po (YP) So 1932–2017

Never judge a book by its cover or a man by his stature. Despite Yan's strenuous assertions to the contrary, at no time in his life was he taller than five foot even. But packed into this diminutive frame was a human dynamo!

At age 85 he succumbed to a neurological disease at Foyer Maillard, a facility where he had served as the medical director for 6 years, comforted by his family and visited by his patients. This marked life's end for a remarkable individual and family physician whose career spanned 56 years.

Yan's life journey began in Hong Kong, number two of eight children. After completing school in Hong Kong and attending Lingnan University in Guangzhou, Yan immigrated to Canada in 1952—relishing his tale of 3 weeks in ship's steerage. It took him several years to adjust to the cultural shock, but this proved invaluable to his future career as a family physician.

He was accepted into the UBC Faculty of Medicine, graduating in 1958—his classmates included Bill Brown, Eugene Chan, Peter Grantham, John Hunt, Pat McGeer, and Bill Webber. Yan would not disappoint.

After interning at VGH and acquiring a mint condition VW Coach Capri (photo), he assimilated 6 months of trauma skills as an emergency physician at the Royal Columbian Hospital in New Westminster. More importantly, he crossed paths with a rookie RN, Jean Patricia Chapman, who would prove to be a formidable match and soulmate for the next 53 years.

After a 2-year partnership in Port Coquitlam with Drs Bob Heffelfinger and Harry Shaw at the Elgin Medical Clinic, Yan started a solo general practice in Coquitlam in December 1961. Thus began his amazing medical career.

Yan's success as a GP was due to his credo: "When you sit down face to face with a patient, the patient should

feel she or he is the only person important at that moment, and time should not enter into your accounting. *One should never ever look at one's watch*. By listening attentively to your patient's complaints, you establish rapport. That is very important to establish not only a good relationship between patient and doctor but also trust between the two parties." For most of us this was virtually impossible to practise while remaining financially viable, but his patients loved his philosophy and undivided attention.

As a result, the term *punctuality* almost ceased to exist in his vocabulary, practice, and family life. Common were calls to Jean that he would be late for dinner—9:00 or 10:00 p.m. Bedtime vignettes ended with Yan falling asleep before the story's end, in his work clothes until morning. In this milieu his practice thrived and his family flourished. His practice was open to all new patients despite protestations from the staff. On one occasion, early in his practice, he made a late-night house call to assess a young boy who had been lost in the shuffle of care. The resulting diagnosis of meningitis was lifesaving. The extended family became lifelong patients.

During this time Yan and Jean juggled the challenges of raising Robyn, Stephen, Julie, and Christopher and were justly rewarded with six grandchildren and one great-grandson, Felix. Their granddaughter, Courtney, would play an important chapter in Yan's career, filling the role of his MOA for his last decade of practice. Despite infinite attempts and maneuvers, she was unable to orchestrate him to start his office on time. On pressing she did confess to Yan's one secret addiction that necessitated punctuality—the opera. On those days, without fail, he was on time. Hopelessly romantic, he wept at every performance of *Madama Butterfly*.

Yan was a man of absolute dedication to two mistresses—medicine and

family, in that order—and was able to satisfy both. His secret to success was that he incorporated his family, including Jean, children, and grandchildren, into the web of his practice. It was a magical formula that worked. At his memorial service it was obvious that he had struck the perfect balance between family, patients, and even next-door neighbors. The impossible mix!

Despite all his other commitments Yan was able to find time to worship his BC Lion and Vancouver Canuck heroes. He was also a consummate chef and connoisseur of fish—his pièce de résistance being barbecued salmon. Otherwise he couldn't make much beyond tea and toast. Yan was always dedicated to the medical community during his monumental career. In addition to being the medical director of Foyer Maillard, he served for 20 years as the medical care coordinator of Como Lake Hospital/Lakeshore Care Centre. Over the years he had a special affection for Saint Mary's and Queens Park Hospitals, being an active staff member of both and serving numerous terms as president of medical staff. He was also an active staff member of Royal Columbian and Eagle Ridge Hospitals. In 2004 he reluctantly gave up his maternity practice. The last baby he delivered was the third child of a patient who he had delivered. This patient was the daughter of his former MOA.

The fact that Yan was a member of our on-call roster was a very humbling experience. My colleagues and I always dreaded the Sunday evening changeover. Almost without exception he had discovered significant history that we were not aware of and diagnoses that we had not considered. These exchanges were never brief, demonstrating his passion for medicine, compassion for patients, painstaking thoroughness, and fervor for mentorship. He knew how to keep the young bucks honest and on their toes. So much for stature.

Yan's world turned upside down when Jean was diagnosed with aggressive oral cancer. Despite this setback he continued full-time practice until her death in 2014. This is testimony to his dedication to his patients. In similar fashion, he managed to persevere in his hospital and office practice despite fracturing a lower extremity. This would not have been

Continued on page 126

Continued from page 86

The British Columbia Hospice Palliative Care Association is a not-for-profit, membership organization that has been representing individuals and organizations committed to promoting and delivering hospice/palliative care to British Columbians since 1986.

eFIT Technology Engagement Forum—Creating a physician community of innovation

Would you consider increasing the use of innovative technologies in your practice in the upcoming year? If you responded "yes," you are not alone. More than 90% of participants in a recent technology conference for physicians responded in the same way.

As featured in the November and December 2017 issues of the *BCMJ*, digital health is becoming mainstream in health care service delivery and innovations. Physicians play a vital role in partnership with health policy makers, other health professional groups, patients, and caregivers toward judicious introduction, selection, validation, and implementation of technological innovations into health practices in communities and hospitals. The opportunities and challenges of these innovations, and how physicians can contribute to accelerate their adoption judiciously and meaningfully, were the topics of the Technology Innovation Engagement Forum held on 25 January 2018 at the Vancouver General Hospital.

Organized by the engagement For Innovative Technologies (eFIT) Interest Group, sponsored by the Vancouver Physician Staff Association Facilities Engagement Initiative, and supported by Vancouver Coastal Health and VGH+UBC Hospital Foundation, the forum had three primary objectives:

- Bring together medical peers and trainees, experts, and mentors to build a thriving community of interest.
- Share experiences to translate innovative ideas into clinical care, system innovation, and commercialization.
- Collaborate with VCH and health organizations to accelerate technology uptake to bring benefits to patients and health systems.

VCH CEO Mary Ackenhusen opened the session noting the important role of technology in health system transformation, themes echoed by Dr Trina Larsen Soles, president of Doctors of BC, Dr Dermot Kelleher, dean of the UBC Faculty of Medicine, Barbara Grantham, CEO of VGH+UBC Hospital Foundation, and Dr Lyne Filiatrault, Vancouver Physicians Staff Association facilities engagement co-lead.

Over 150 physicians, medical trainees, health care leaders, and industry partners participated in the forum to hear brief presentations from physician innovators who shared their insights and experiences. Presentations were followed by a panel discussion, dinner, and an opportunity to network and learn more from poster displays and colleagues involved with medical technology initiatives.

Examples of physician-led innovations presented at the forum included a software application for reducing repeat adverse drug events, a portable headband to monitor brain vital signs, a real-time activity display board for operating room scheduling inspired by the airline industry, and web-based sharing and search for locums to cover medical practices.

Of course, not all innovative concepts make it. Dr Eric Cadesky, eFIT co-chair, emphasized how quickly technology changes and that all too often an idea is obsolete by the time it is ready to be shared. His advice to early innovators was to make sure to fail fast so they could learn and innovate again.

The event was livestreamed via webcast (available at www.digem.med.ubc.ca/eFIT) and tweets trended in Vancouver, resulting in more than 19 800 impressions that evening. At the conclusion of the event, 83% of participants thought that the forum was timely, and 86% felt is was important. Participants were eager to know what the next steps were, and there are already requests to hold another forum soon.

We would very much like to receive further feedback. If you would like to contact us or join eFIT, visit www.digem.med.ubc.ca/eFIT, email digem.assistant@ubc.ca, or follow us at @VPSA_eFIT or #eFIT4Change.

—Kendall Ho, MD
—Eric Cadesky, MD
—David Wilton, MD
Co-chairs, engagement For Innovative Technologies (eFIT) Interest Group, Vancouver Physicians Staff Association

obituaries

Continued from page 125

possible were it not for his trusted MOA, Courtney, pinch-hitting as his chauffeur.

With his goals, dreams, and aspirations fulfilled, Yan chose to retire at age 82. True to form he made a house call on his last day in practice.

During his final days he was lovingly supported and cared for by his close-knit family and patients.

The loss of this amazing man leaves a warm, deep void that will be impossible to fill. He is dearly missed by his family, friends, and colleagues.

Donations to the Yan P. So Award in Family Medicine would be greatly appreciated: online at memorial.support.ubc.ca/yan-so; via mail to 500–5950 University Blvd., Vancouver, BC, V6T 1Z3; or by calling 604 827-4111.

—Jack Albrecht, MD
Burnaby

CME listings rates and details

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

Deadlines:

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

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

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

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

BCMJ BC Medical Journal

CHRONIC ILLNESS AND THE FAMILY

Vancouver, 23–24 Mar (Fri–Sat)

The emerging field of social genomics has begun to identify how social relationships and genes interact to shape susceptibility to disease. For most of us, our family is the most influential set of relationships we have, both as children and as adults. This 2018 spring conference, to be held at St. Paul's Hospital with Drs Steve Cole and Michael Kerr, will explore how emotional process in the family can interact with the expression of certain genes in members of the family that affect our behavior and our health. Clinical cases will also be presented. Live video registration is also available. Visit www.livingsystems.ca or email info@livingsystems.ca for more information.

ALLIED TEAM TRAINING FOR PARKINSON DISEASE

Vancouver, 4–6 Apr (Wed–Fri)

State-of-the-art care can make the difference between satisfaction and despair for those affected by Parkinson disease and staff providing care. This event is intended to improve health care professionals' knowledge of Parkinson disease (PD) and build capacity for interprofessional care in its treatment. Faculty includes interdisciplinary and senior movement disorder specialists. Learning objectives: Effective participation in an interdisciplinary team; PD challenges and medication side effects; Self-management as a support for a person with PD and care partner; Characteristics of early, middle, and late stage PD; and Building interprofessional networks and community partnerships. Prior to the course, each registrant will complete online modules providing an overview of PD, interdisciplinary care teams, and neuropsychiatric symptoms and management. Credits: a maximum of 24.75 AMA PRA Category-1 Credits. Scholarships are available www.parkinson.bc.ca/attp-scholarships. To register and for more information: bit.ly/ATTPVancouver.

BC OBESITY SUMMIT

Vancouver, 7 Apr (Sat)

UBC CPD's 6th annual BC Obesity Summit is a forum connecting health care practitioners with a specific interest in caring for the obese patient. The meeting will be held at the Morris J. Wosk Centre for Dialogue. 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 the obese patient. Topics covered: medical management of obesity, challenging medical and surgical case rounds, preoperative and postoperative patient care. Course format: Collaborative didactic lectures and interactive small group workshops, panel discussions, with plenty of time for networking opportunities, practice-based exhibits, and a job fair. Join us at the end of the day for a networking reception to meet with friends and colleagues! Conference information, program details, and online registration: https://ubccpd.ca/course/6th-annual-bc-obesity-summit. Tel 604 875-5101; fax 604 875-5078, email cpd.info@ubc.ca; web: http://ubccpd.ca.

NUTRITION IN PRIMARY CARE

Vancouver, 7 Apr (Sat)

Nutrition in Primary Care: Evidence and Controversies is a continuing medical education program designed to enhance primary care providers' knowledge of applied nutritional biochemistry and the associated research

Continued on page 128

Continued from page 127

literature pertaining to several conditions commonly encountered in clinical practice, including: insomnia, food and fatigue, gluten-free diets, and menopause. 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 5.5 Mainpro+ credits. Scholarships are available to undergraduate and graduate medical students. For additional information and online registration visit: csom.ca/event/npc-vancouver. Email: info@csom.ca.

CME ON THE RUN
VGH and various videoconference locations, 13 Apr–8 Jun (Fri)
CME on the Run sessions are held at the Paetzold Lecture Hall, Vancouver General Hospital, and there are opportunities to participate via videoconference from various hospital sites. Each program runs on Friday afternoons from 1 p.m. to 5 p.m. and includes great speakers and learning materials. Topics and dates: 13 Apr 2018 (prenatal, pediatrics, and adolescents)—Fussy eaters: When to worry, how to screen, what to look for (2 to 5 years old); Formula 101: Use of formula and intro to foods in the first year; Adolescent substance addiction; Office management; Childhood immunization update; Pediatric rashes that are not eczema; Fertility management and counseling; Screen time: What to advise parents; and Managing adolescent anxiety. The next sessions are 11 May (infectious disease and travel); 8 Jun (MSK, sports medicine, and rheumatology). To register and for more information visit https://ubccpd.ca, call 604 875-5101, or email cpd.info@ubc.ca.

MEDICAL DISORDERS IN PREGNANCY
Vancouver, 14 Apr (Sat)
Don't miss this educational conference designed for practitioners that deal with the management of disorders in pregnant patients. This accredited event, to be held at the Sheraton Wall Centre, will provide a focused, expert review of common medical conditions in pregnancy and will provide practical strategies for their management. Target audience: all those interested in advancing their knowledge in the medicine of pregnancy and the care of complex obstetrics patients. Early bird cost: $305. Event is accredited for up to 6.25 Mainpro+ and MOC Section-1 credits. For more details and to register, visit the conference website at http://ubccpd.ca/course/MDP2018, email us at info.cpd@ubc.ca, or call 604 875-5101.

MINDFULNESS-BASED STRESS REDUCTION
Vancouver, 17 Apr–5 Jun (Tue eves)
Physicians are increasingly at risk for burnout and moral distress. Furthermore, growing evidence points to physician wellness as having vital consequences for health care systems and the quality of patient care. Participating in this accredited, evidence-based 8-week program has been shown to improve resilience and self-care, expand situational and self-awareness, reduce burnout, and increase capacity for harmonious communication. The course is highly participatory and includes guided instruction in meditation practices (including movement), group inquiry, and review of current evidence. Audio and written materials are included. Course duration: 8 consecutive Tuesdays from 6:30 p.m. to 9 p.m. at the Royal Columbian Hospital plus an all-day program on 26 May. Twenty-two participants welcome.

To register or receive a detailed brochure, please email the facilitator: Dr Rahul Gupta at gupta.v2v@gmail.com, and to review past testimonials visit www.voice2vision.net.

MOVEMENT IS MEDICINE
Vancouver, 28 Apr (Sat)
Few doctors feel comfortable prescribing exercise to their patients—do you? Movement is Medicine: What's Your Patient's Best Exercise Prescription is an interactive half-day workshop designed to empower primary health care providers with the skills, confidence, and tools to provide exercise counseling and prescription to patients of all ages. Learning objectives: Review evidence for the harms of physical inactivity and benefits of physical activity; Understand the Canadian Physical Activity Guidelines for patients of all ages; Learn to incorporate the Exercise Vital Sign into your office visits in 1 minute or less; Use simple motivation interview strategies to reframe barriers and enhance behavioral change; Is exercise safe? Do I need to medically clear patients for exercise? Learn what the best approach is for your patients with pre-existing chronic disease.Credits: 7 Mainpro+ credits. To register and for more information, visit casem-acmse.org/event/eimc/ or email eimc.ubc@gmail.com.

VULVOVAGINAL HEALTH UPDATE
Vancouver, 3 May (Thu)
UBC CPD is excited to announce the first BC conference addressing vulvar health! We expect a strong regional interest as vulvovaginal disorders are one of the top reasons women seek help from their family doctors. To be held at UBC Robson Square, this unique conference was planned with women's health care providers in mind, and will provide education in vulvovaginal disorders. Areas that will be addressed include: vulvar skin conditions, urogenital symptoms of menopause, sexual health concerns, vulvar pain conditions, and recurrent vulvovaginal infections. The focus will be on practical diagnosis and management. Target audience: family physicians, gynecologists, dermatologists, nurse practitioners, residents, and medical students. Presentation by invited speaker Lynne Margesson, MD, Geisel School of Medicine, Dartmouth, on Vulvar Ulcers Update and Office Management of Hidradenitis Suppurativa of the Vulva. Conference information, program details, and online registration: https://ubccpd.ca/course/vulvar-health-2018. Tel 604 875-5101, fax 604 875-5078, email cpd.info@ubc.ca, web https://ubccpd.ca.

Calendar continued on page 130

Continued from page 129

PEDIATRIC EMERGENCY MEDICINE UPDATE
Vancouver, 4–5 May (Fri–Sat)
The Division of Emergency Medicine at BC Children's Hospital and UBC Continuing Professional Development present the 15th Annual Pediatric Emergency Medicine Update for Pediatricians and Emergency Physicians at UBC Robson Square. The 2-day conference highlights the latest trends in the practice of pediatric emergency medicine in urban and rural settings. APLS (Simulator-Mediated Advanced Pediatric Life Support) course will be offered on Thursday, 3 May. Target audience: pediatricians, emergency physicians, family physicians, allied health professionals, and residents. The event is accredited for up to 12.5 MOC Section-1 credits/Mainpro+. For more details and to register, visit the conference website at https://ubccpd.ca/course/PedER2018 and email us at cpd.info@ubc.ca, or call 604 875-5101.

TROPICAL AND GEOGRAPHIC MEDICINE
Vancouver, 7–11 May (Mon–Fri)
The University of British Columbia Faculty of Medicine is pleased to once again offer this short intensive course for health care providers who seek an update on infectious tropical diseases and determinants of health in these geographic settings. This course runs 8 a.m. to 5 p.m. and is especially useful for those who intend to practise in areas endemic for these diseases. Material to be covered includes clinical descriptions and approaches to evaluation and treatment of tropical diseases, strategies for infection control within communities, and a focus on infections whose management makes a critical difference to survival. Participants will gain practical experience through laboratory and problem-solving exercises. Nearly 250 physicians, nurses, pharmacists, and other health professionals have successfully completed this course. Spaces filled quickly in each of the past 4 years since this course was first offered in Canada. Register early. For course details and to register: http://spph.ubc.ca/continuing-education/tgm2018. Contact: spph.ce@ubc.ca. Tel: 604 822-9599.

PRACTICE SURVIVAL SKILLS
Vancouver, 9 Jun (Sat)
UBC CPD's 11th annual Practice Survival Skills—What I Wish I Knew in My First Years of Practice will be held at UBC Robson Square. This course will emphasize practical, nonclinical knowledge crucial for your career, with topics such as billing, navigating through the medical organizations, accreditation, practice audits, medicolegal advice and report writing, job finding, office skills and management, physician resources, practice management, and avoiding physician burnout. Target audience: family physicians, specialty physicians, locums, IMGs, physicians new to BC, family practice and specialty residents, physicians working in episodic care settings. Course format: Collaborative didactic lectures and interactive small-group workshops; plenty of networking opportunities; practice-based exhibits. Join us at the end of the day for a job fair and networking reception to meet with colleagues and make career connections! Conference information, program details, and online registration: https://ubccpd.ca/course/practice-survival-skills-2018. Tel 604 875-5101, fax 604 875-5078, email cpd.info@ubc.ca, web https://ubccpd.ca.

GP IN ONCOLOGY TRAINING
Vancouver, 10–21 Sep and 18 Feb–1 Mar 2019 (Mon–Fri)
The BC Cancer Agency'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.

MINDFULNESS IN MEDICINE
Molokai, HI, 13–20 Oct (Sat–Sat)
The culture and practice of medicine offers unique challenges to physicians in terms of self-care and wellness. This can lead to unhealthy stress, mood disorders, relationship challenges, and burnout. Join us on the pristine Hawaiian island of Moloka'i for this 7-day meditation retreat for physicians. Learn mindfulness and meditation for deep relaxation and healing; connect with fellow physicians; and bring a restored perspective and vitality into your personal and professional lives. This retreat will offer instruction in basic and more advanced meditation skills interspersed with small-group discussion and sharing, as well as opportunities for self-reflection and deep rest. Please see www.livingthismoment.ca for more information and to register. This retreat only has room for 18 participants so please register today. Contact mark@livingthismoment.ca for more information.

Medical conditions and driving: Changes from RoadSafetyBC

RoadSafetyBC is responsible for assessing and determining driver medical fitness to ensure the safety of all road users. Through the Driver Medical Fitness Program, RoadSafetyBC ensures drivers are provided the maximum licensing privileges possible, while considering the effects that medical conditions may have on the functions necessary for driving.

Family physicians are familiar with forms such as the Driver's Medical Examination Report, which patients may have received with a requirement to be completed within 45 days. Additionally, physicians may become concerned about a patient's medical fitness to drive, prompting them to submit a Report of a Condition Affecting Fitness and Ability to Drive. The issue of assessing a patient's ability to drive may be challenging for physicians and can impact the relationship they have with patients and their families. However, physicians also play an important role in ensuring that their patients remain medically fit to drive, for their own safety and the safety of others.

Introduction of the Enhanced Road Assessment

As of 1 March 2018, RoadSafetyBC will be using a new Enhanced Road Assessment (ERA) administered by ICBC to evaluate drivers of any age who may have a cognitive, motor, or visual deficit that could impair their ability to drive safely. The results of the ERA will be reviewed by RoadSafetyBC, along with all other information related to the individual's medical fitness to drive, in order to make a licensing decision.

RoadSafetyBC may require individuals experiencing one or more medical or functional impairment issues to complete an ERA as part of the process of making a Driver Medical Fitness determination. The requirement to complete an ERA is based on the driver's medical or functional condition, not age. The ERA is an on-road assessment and will only be provided to drivers with a Class 5 or Class 7 licence, not commercial drivers. The ERA will be used to assess drivers currently referred for an ICBC road test re-examination, as well as drivers who would have previously been assessed by DriveABLE.

RoadSafetyBC and ICBC have been in consultation to develop and implement the ERA, which will include the following changes:

- ICBC's existing 75 minute re-exam will be extended to 90 minutes and will include new components to assess driving errors that may result from cognitive impairment and other areas of medical concern.
- A mid-assessment feedback component will be incorporated to allow drivers an opportunity to improve their driving for the remainder of the assessment.
- The ERA will be delivered by ICBC Driver Examiners (DEs) at approximately 70 ICBC locations throughout the province.
- The enhanced assessment will not include an in-office (computer-based) component.
- The ERA will be conducted in the driver's own vehicle.

Impact on clinical practice

With the change to the ERA, DriveABLE assessments will no longer be used by RoadSafetyBC to make licensing decisions. Physicians who think a patient requires a driving assessment due to cognitive impairment or other medical condition may recommend that RoadSafetyBC refer the patient for an ERA. Additionally, any DriveABLE assessments completed after 28 February 2018 will not be reimbursed and the results will not be used to make a licensing decision.

RoadSafetyBC requests that medical professionals continue to provide detailed information by completing and submitting the updated Report of a Condition Affecting Fitness and Ability to Drive form, which no longer lists DriveABLE as a recommendation, or when a patient brings a Driver's Medical Examination Report for completion.

Drivers who reach age 80 will continue to be required to have their physician complete a Driver Medical Examination Report every 2 years. This does not mean they will be required to take an ERA, or other assessment. RoadSafetyBC will review the information provided in the Driver Medical Examination Report, along with all other relevant information on file, and determine whether further information or assessment is required. Referrals to the ERA will be made based on the entirety of the information on a driver's file, which may include information from medical professionals, police, and the individual's driving record.

For additional information on the ERA, visit RoadSafetyBC's website (https://www2.gov.bc.ca/gov/content/transportation/driving-and-cycling/driver-medical/driver-medical-fitness/enhanced-road-assessment).

—Helen Thi, BA
—Chris Rumball, MD

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

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Practices available

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employment

ABBOTSFORD—LOCUMS
Full-service East Abbotsford walk-in clinic requires locum physicians for a variety of shifts, including weekends and evenings. Generous split; pleasant office staff and patient population. Please contact Cindy at 604 504-7145 if you are interested in obtaining more info.

ARMSTRONG—FT FAMILY PHYSICIAN
Haugen Medical Group, located in the heart of the North Okanagan, is in need of a full-time family physician to join a busy family practice group. Flexible hours, congenial peers, and competent nursing and MOA staff will provide exceptional support with very competitive overhead rates. Obstetrics, nursing home, and inpatient hospital care are not required, but remain optional. Payment schedule: fee for service. If you are looking for a fulfilling career balanced with everything the Okanagan lifestyle has to offer, please contact Maria Varga for more information at mariaka1@telus.net.

BURNABY—FP/WALK-IN, FT OR LOCUM
Canway Medical Centre, Burnaby, is seeking an associate to join their team of family physicians. Clinic has diverse patient population (ages and genders). We have OSCAR EMR; friendly, knowledgeable, and skilled staff. Flexibility to work full- or part-time, walk-ins or build your own practice. This clinic is bright and spacious, situated in a Burnaby neighborhood close to businesses, BCIT, and Burnaby Hospital. We have a pharmacy and free parking on site. We have an overwhelming flow of patients. If interested or for more information, call 604 428-8123, email canwaymedical@shaw.ca, or visit our website: www.canwaymedicalcentre.ca.

KELOWNA—FAMILY PHYSICIAN
Busy family-practice clinic centrally located in Canada's four-season playground looking to add a third family physician. Modern, spacious, recently renovated clinic; congenial staff; fully computerized; EMR. Opportunity to branch into residential care, immigration medicine, medical arts research. Hospital optional. Contact griswold1605@gmail.com.

KELOWNA—RADIOLOGIST LOCUM
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DR, US with procedures, CT with biopsies, MRI, mammography and stereo biopsies. NM, angio/interventional available but not required. Contact Dr Mike Partrick at michael.partrick@interiorhealth.ca.

NANAIMO—GP
General practitioner required for locum or permanent positions. The Caledonian Clinic is located in Nanaimo on beautiful Vancouver Island. Well-established, very busy clinic with 26 general practitioners and 2 specialists. Two locations in Nanaimo; after-hours walk-in clinic in the evening and on weekends. Computerized medical records, lab, and pharmacy on site. Contact Ammy Pitt at 250 390-5228 or e-mail ammy.pitt@caledonianclinic.ca. Visit our website at www.caledonianclinic.ca.

NORTH DELTA—GP
Very busy, established family practice located on Scott Road. The practice consists mainly of Punjabi-speaking patients. Two spacious exam rooms plus a private office available for the physician. Underground parking. No set-up fees or equipment required. Everything is included in the billing split (80/20). Potential to earn 400K per year. Physician may decide their own schedule. Each exam room is fully equipped with everything required. EMR: Med Access. Very friendly medical office assistant and office manager. For more information contact Dr Jagtar Rai at raimedicalclinic@gmail.com.

NORTH VAN—FP LOCUM
Physician required for the busiest clinic/family practice on the North Shore! Our MOAs are known to be the best, helping your day run smoothly. Lucrative 6-hour shifts and no headaches! For more information, or to book shifts online, please contact Kim Graffi at kim graffi@hotmail.com or 604 987-0918.

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

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S SURREY/WHITE ROCK—FP
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Continued on page 134

Continued from page 133
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VANCOUVER—FT/PT FAMILY PHYSICIANS & PSYCHIATRISTS
New medical office in the Fairmont Medical Building is looking for family physicians who want to move or start a practice. Office features four fully furnished exams rooms; able to accommodate both paper and EMR (Accuro) practices. Office hours are flexible and available 7 days a week (7 a.m.–7 p.m.). MOA and support staff provided. Clinic has many unattached patients looking for a family doctor, and is accompanied with available VDofP supports to help build a practice. Offering 70/30 split. Email raz@elitemedicalassociates.com.

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

VICTORIA—PERMANENT/P-T FP
Experienced family physician wishing to expand medical team at Mattick's Farm in beautiful Cordova Bay. Fully equipped office, OSCAR EMR, congenial staff, close to schools. Contact phoughton@shawcable.com, phone 250 658-5228.

Medical office space

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

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