

## 2018 J.H. MacDermot writing award winner



The *BCMJ* is pleased to present Dr Heather E. Cadenhead with the J.H. MacDermot Prize for Excellence in Medical Journalism

(2018) and the associated \$1000 award. Dr Cadenhead's article, "Sport-related ocular trauma in Vancouver, British Columbia: Not the usual suspects," was selected as the winner for this prize from all 2018 published medical-student articles. Dr Cadenhead graduated from UBC Medical School and has started her residency in anesthesia at UBC. Though her winning article is in the area of ophthalmology, she had a last-minute change of career choice and was drawn to anesthesia. She is looking forward to submitting anesthesia-related articles in the future.

BC medical students are encouraged to submit full-length scientific articles and essays for publication consideration. Each year the *BCMJ* awards a prize of \$1000 for the best article or essay written by a medical student in the province of British Columbia.

## Erratum: Hall of Honour

In the news item, "Vancouver Medical Staff Hall of Honour 2019 Inductees," published in the May 2019 issue, Drs Allison Harris, Silvia Chang, and Brenda Kosaka were incorrectly given the title "Ms." Dr Maria Chung was incorrectly listed as "Marie."

## Improving accuracy, sensitivity, and localization of radiation

Researchers have developed a system they say may improve the ability to

maximize radiation doses to cancer tissues while minimizing exposure to healthy ones. This new system, described in a study from UBC Okanagan and Duke University, may lead to improvements in dose accuracy, sensitivity, and localization during therapy.

Andrew Jirasek, UBC Okanagan physics professor and senior author of the study, explains that the solution is to make it easier to see exactly which tissues are getting a radiation dose and how much. The new system uses a specialized polymer gel to assess both the 3D location and the treatment dose. The team's first step was to validate the spatial accuracy of the gel, known as a dosimeter. They compared the dosimeter readings with traditional radiation treatment-planning algorithms and found that the gel dosimeter was accurate in mapping the spatial location of the delivered radiation. Measurements of the radiation dose were also validated and visualized with the dosimeter. The new system also allows for direct visualization of the radiation dose immediately after therapy, which results in efficient and accurate testing.

Jirasek worked with colleagues from Duke University to take advantage of positioning systems already in place on most linear accelerators that deliver a radiation beam to the patient, which allowed for a new adjustment to be implemented without significant changes to the equipment. Next steps are to improve the process so it can move into the clinic setting.

The research was published in the *International Journal of Radiation Oncology, Biology, and Physics*. The article, "Delivered dose distribution visualized directly with onboard kV-CBCT: Proof of principle," is available at [www.redjournal.org/article/S0360-3016\(18\)34189-0/fulltext](http://www.redjournal.org/article/S0360-3016(18)34189-0/fulltext).

## Promise of novel radiation treatment for metastatic cancer patients

A study co-led by BC Cancer researchers has found that the use of stereotactic ablative radiotherapy (SABR) technology may improve survival rates for patients with limited metastatic cancer. The findings are the result of the world's first randomized clinical trial of SABR as it relates to cancer that has already spread to other parts of the body. SABR technology is a highly precise form of radiotherapy where much higher doses of radiation can be safely delivered to tumors over a shorter time period. The technology features advanced machines with built-in CT scans that can sculpt the dose of radiation to tumors from multiple angles while reducing the dose to healthy nearby tissue.

Until now, there was not much evidence to support the claim that patients with a small number of additional tumors could be cured of the disease once all growths are killed with radiation. The SABR-COMET trial aimed to assess the effect of SABR on survival, outcomes, toxicity, and quality of life in patients with a controlled primary tumor and one to five additional tumors.

During the randomized trial, which took place over 4 years at 10 centres worldwide (including all six BC Cancer centres), the patient group who was treated with SABR technology saw an overall improvement in survival. However, there is a possibility of serious side effects, so future research is needed to confirm its efficacy.

Phase III trials are needed to conclusively show an overall survival benefit and to determine the number of metastatic tumors that could benefit from SABR treatment.

The study was led at BC Cancer

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by Dr Robert Olson, radiation oncologist, along with an international team of researchers. The results will open the door for patients in the upcoming trial, titled SABR-COMET-3, a Phase III randomized controlled trial for patients across the province with one to three metastatic tumors; that trial is being led by Dr Olson from BC Cancer, Prince George.

The article, “Stereotactic ablative radiotherapy versus standard of care palliative treatment in patients with oligometastatic cancers (SABR-COMET): A randomised, phase 2, open-label trial,” was published in *The Lancet*. It is available at [www.thelancet.com/journals/lancet/article/PIIS0140-6736%2818%2932487-5/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2818%2932487-5/fulltext).

### Are Canadians in the dark about potential drug safety risks?

Government warnings about potential drug safety risks vary significantly across countries, according to a new international study coauthored by researchers at the University of British Columbia.

In a study published in *JAMA Internal Medicine*, researchers analyzed how often drug regulators in Canada, the US, the UK, and Australia issued safety advisories about the potential health risks of medications. After analyzing 1441 advisories over a 10-year period, covering 680 drug-safety concerns, researchers found that regulators in the four countries were only consistent in the decision to warn the public in their own country 10% of the time. Between 2007 and 2016, Health Canada issued safety warnings for only 50% of the drug safety issues identified by regulators in Australia, the US, and UK.

The study’s primary investigator, Barbara Mintzes, affiliate associate professor at UBC’s School of Population and Public Health and associate professor at the University of Sydney

in Australia, finds it concerning that there is so little consistency between countries regarding how they communicated emerging health risks of medicines.

Before new medicines hit the market, each country’s regulator approves them for use often based on limited safety evidence collected during clinical development. However, once a drug enters general use, other safety issues can become apparent including rarer or longer-term effects—prompting regulators to issue safety advisories on how to avoid these risks. For example, in January 2013, Health Canada issued a warning that statins were associated with a “risk of increased blood sugar levels and a small increased risk of diabetes among patients already at risk for the disease.” Regulatory warnings about this risk appeared almost a year earlier in the US and Australia.

Adverse drug reactions are estimated to account for up to two-thirds of drug-related emergency department visits and hospital admissions, according to the Canadian Institute for Health Information. More information is available at [www.med.ubc.ca/news/are-canadians-kept-in-the-dark-about-potential-drug-safety-risks](http://www.med.ubc.ca/news/are-canadians-kept-in-the-dark-about-potential-drug-safety-risks).

### Emergency room patients’ acuity levels not always considered when within wait time targets

New research from the UBC Sauder School of Business reveals that Metro Vancouver emergency patient acuity levels sometimes come second to wait time targets, largely due to doctors being unclear on existing emergency room prioritization guidelines. The study found that patient acuity levels are considered more seriously once wait time targets have passed.

The study is the first of its kind to statistically analyze doctor decision making in the emergency room and the impacts it can potentially

have. Through an analysis of more than 186 000 emergency department admissions between April 2013 and November 2014 in the four largest emergency departments in Metro Vancouver, the researchers modeled how decision-makers chose which patient was seen by the next available physician.

Metro Vancouver emergency departments currently use the Canadian Triage and Acuity Scale (CTAS) to classify patients into priority levels. While each level, ranging from one to five (most acute/serious to least acute/serious) has a suggested wait time for patients, it can still be difficult for ED physicians to decide who should be seen next.

Researchers found that once triage level-2 patients waited beyond 13.3 minutes and triage level-3 patients waited beyond 18.9 minutes, physicians put more consideration on other attributes, such as acuity level, chief complaint system, age, and so on, rather than waiting time.

The study’s authors suggest future policy revision should call for detailed guidelines on how wait times can be weighed against the patient’s acuity level, rather than simple targets based on wait times.

The article, “Patient prioritization in emergency department triage systems: An empirical study of Canadian Triage and Acuity Scale (CTAS),” was published in the journal *Manufacturing & Service Operations Management*.

### Ketamine alleviates acute pain during ambulance rides

In December 2015 Dr Gary Andolfatto had a biking accident, broke his femur, and dragged himself for almost 4 hours until he found a park ranger who called an ambulance. In a great deal of pain, the emergency physician was shocked to find that nitrous oxide was the only option. The attending primary care paramedic was frustrated too, explaining that it was par-



Dr Gary Andolfatto believes that primary care paramedics in BC should be permitted to administer ketamine.

ticularly difficult during hours-long transports in rural areas.

Dr Andolfatto, a clinical assistant professor in the Department of Emergency Medicine in the UBC Faculty of Medicine and researcher with the Vancouver Coastal Health Research Institute, embarked on a research study to find a solution. His findings were published recently in the *Annals of Emergency Medicine*. In the study, Dr Andolfatto and his colleagues found that when ketamine is added to nitrous oxide and administered as a nose spray, it provides clinically significant pain reduction and improved comfort.

Between November 2017 and May 2018, 120 patients suffering with acute pain were given nitrous oxide, per existing paramedic protocols. Half of the 120 patients also randomly received intranasal ketamine and half received the placebo, a saline solution. Neither the paramedic nor the patient was told which had been administered. Individuals who received ketamine along with the nitrous oxide experienced a clinically significant reduction in pain at 15 minutes and 30 minutes after administration. Comfort was most pronounced at 15 minutes. While the majority of patients reported mild dizziness and a feeling of unreality, their levels of satisfaction

were higher than those who received the placebo.

Dr Andolfatto wants to see primary care paramedics throughout the province permitted to use ketamine, a controlled substance. Advanced and critical care paramedics have more training and therefore more pain-alleviating options, including the use of ketamine, but of the more than 4000 paramedics in BC, 70% are primary care paramedics.

Ketamine is the most commonly used anesthetic worldwide because it doesn't hamper breathing. It has previously gained notoriety for being an animal tranquilizer popular with ravers. "With low-dose ketamine, says Dr Andolfatto, "there is no risk of serious harm, the technology is simple and cheap, and the level of training is negligible. There are many reasons why it makes sense for this to be used more widely in an ambulance setting."

### No benefits to eating placenta

Eating the placenta provides no mental health benefits for new mothers, suggests new research from the BC Mental Health and Substance Use Services Research Institute and the University of British Columbia. The study, published in the *Journal of Obstetrics and Gynaecology Canada*, is the largest so far to look at the effects of eating one's placenta—a practice known as placentophagy. Researchers used data from a 10-year genetic study involving 138 women with a history of mood disorders, and compared outcomes of those who had eaten their placenta to those who had not.

Eating one's placenta following childbirth is a growing trend, with celebrities claiming that the practice provided them with health benefits, including preventing postpartum depression. However, previous studies have shown that consuming the human placenta poses risks for mothers

and their babies, including viral and bacterial infections.

The study also showed that women who consumed their placentas did not have more energy, had no increase in their vitamin B12 levels, and required no less lactation assistance than women who did not consume their placentas. More information is available at <https://news.ubc.ca/2019/05/02/new-research-suggests-no-mental-health-benefits-to-eating-your-placenta>.

### New method of HIV transmission and effective prevention technique

New studies from Lawson Health Research Institute and Western University have found for the first time that HIV can be transmitted through the sharing of equipment used to prepare drugs before injection and that a simple intervention—heating the equipment with a cigarette lighter for 10 seconds—can destroy the virus, preventing that transmission. The findings, used to inform a public health campaign called Cook Your Wash, have helped reduce rates of HIV transmission in London, Ontario.

The two studies published in the *Journal of Acquired Immune Deficiency Syndromes* were initiated in 2016 to address a public health emergency in London, Ontario, when HIV rates among injection drug users more than doubled. The outbreak occurred despite London having Canada's largest per capita sterile needle and syringe distribution program, a strong opiate substitution therapy program, and a multidisciplinary HIV clinic, so researchers knew there must be a novel method of HIV transmission at play.

From August 2016 to June 2017, the research team interviewed 119 injection drug users to understand their injection behaviors and risk for HIV. They discovered that those who shared equipment used to prepare drugs for injection were 22 times more likely to contract HIV than

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those who did not, despite not sharing needles or syringes.

The equipment includes a metal cooker used to dissolve drugs in water and a filter used to draw the mixture, known as the wash, into the syringe. Injection drug users reported reusing the equipment when consuming controlled-release hydromorphone, one of the most commonly injected opioids.

Controlled-release hydromorphone is expensive and difficult to dissolve. After the first wash, large amounts

of the drug remain in the equipment which is then saved, shared, or sold for future use. While people know not to share needles, some use their own needle multiple times, allowing for contamination of the equipment.

The team took their findings back to the research laboratory and confirmed that, on average, 45% of the drug remains in the equipment after the first wash and that HIV can be transmitted between needles, cookers, and filters. They also discovered that controlled-release hydromorphone has properties that promote survival

of the virus. However, when the cooker is heated with a cigarette lighter for approximately 10 seconds, or until the wash bubbles, the virus is destroyed. Heating the cooker did not impact drug concentration. They termed the technique “cook your wash.”

After running a Cook Your Wash public health campaign with local community groups, local rates of new HIV cases fell dramatically. While the researchers acknowledge that the campaign wasn't the sole reason for the reduction in HIV rates as other interventions were also introduced, the timing suggests it was part of the solution.

The studies build on previous research that shows sharing equipment can lead to the transmission of hepatitis C, and controlled-release hydromorphone can promote the survival of bacteria that can cause endocarditis.

### Celebrating the work of BC's family doctors

This year, BC Family Doctor Day is 19 May, a day when the BC College of Family Physicians recognizes and celebrates the important work of the more than 6000 family doctors who practise in communities across the province. Whether in hospitals, other health care facilities, patients' homes, or community-based doctors' offices or clinics, family doctors are experts in diagnosing and treating the whole person, and are often a patient's first point of contact with the health care system. In recognition, the BCCFP's annual awards include five patient-nominated My Family Doctor awards, honoring recipients from each of BC's health regions, as well as peer-nominated awards for family doctors and family medicine residents. The BCCFP award recipients for 2019 are:

**BC Family Physician of the Year:** Dr Catherine Textor, Prince George

**First Five Years of Practice Award:** Dr Aryn Khan, Vanderhoof

**Small Changes, Big Difference Award:** Opioid Agonist Treatment (OAT) Force—an initiative of the Surrey–North Delta Division of Family Practice

**My Family Doctor Award:**

- Dr Elizabeth Payne, Port Coquitlam
- Dr Steven Broadbent, Kamloops
- Dr Christopher Collins, Nanaimo
- Dr Marlowe Haskins, Smithers
- Dr Margo Sweeny, Vancouver

**Resident Leadership Award:** Dr Saima Ali

**Dr Manoo and Jean Gurjar Award, BCCFP Family Medicine Resident Scholarship:**

- Dr Natalie Chan
- Dr Vincent Wong

For more information about the award recipients, visit <https://bccfp.bc.ca/bccfp-awards/2019-award-recipients>. To learn more about BC Family Doctor Day, visit <https://bccfp.bc.ca/news/bc-family-doctor-day>.

### Lab offers e-check-in for patients

LifeLabs has introduced an electronic service that lets patients skip the line by virtually checking into a queue at a LifeLabs patient service centre. Available for BC, Ontario, and Saskatchewan, the service can be accessed on the LifeLabs website or through an app downloaded from the App Store or Google Play website. To learn more, visit [www.lifelabs.com/save-my-spot](http://www.lifelabs.com/save-my-spot).

### Rural citizens: What are your care planning priorities?

The Rural Evidence Review project's goal is to work with rural citizens and communities to provide high-quality, useful evidence for rural care planning in BC. The project team at UBC is conducting a survey that is voluntary and anonymous. In most cases it will take 10 minutes to complete. To learn more or to take the survey, go to [https://ubc.ca1.qualtrics.com/jfe/form/SV\\_77zOjfWWBNV3wax](https://ubc.ca1.qualtrics.com/jfe/form/SV_77zOjfWWBNV3wax).