



THE UNIVERSITY OF BRITISH COLUMBIA Faculty of Medicine

DEPARTMENT OF ANESTHESIOLOGY, PHARMACOLOGY & THERAPEUTICS ANNUAL REPORT 2021



THE UNIVERSITY OF BRITISH COLUMBIA

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Message from the Department Head



Thank you for taking a few minutes to go through this report. This year the report highlights a few areas in our department, with the usual detailed information placed as appendices. Please share with colleagues in your department, so they too can celebrate the successes of our colleagues as well as hopefully understand this diverse department a little better.

The Department will be undergoing an External Review in Spring 2022 as I come to the end of my second term as Department Head. I believe

the Department has moved forward substantively since the 2017 internal review, and it is working as a truly merged department, seeking collaborations for research and teaching, and sharing resources.

Faculty Renewal

The Department has been successful in faculty renewal applications since 2018 with 2.5 positions gained via the FoM process, all of whom will have started by January 2022. In addition, the Therapeutics Initiative has received an endowment from the Ministry of Health that will allow for the hiring of tenure-track faculty to support the work of the TI. Searches have led to the hiring of one full-time TI researcher, and one part-time as part of the Dr. Wright 'replacement' tenure-track position. These individuals will be starting in March 2022. Finally, the Department has successfully recruited an individual into the 3 year limited term Assistant Professor Pharmacology position that allows us to us accrued soft funds. This individual will be starting in late 2022.

The Department's financial position is stable at present, with limited capacity to add any salaried positions given the recent faculty additions.

The Department has continued to build on faculty development and plans to restart the annual Faculty Development Day retreat in 2022 or 2023 (pandemic-dependent).

The Vancouver Summer Program, capably led at FoM level by Dr. Andrew Horne, will restart in 2023. The study program for international medical graduates to prepare for the Royal College Exams in Anesthesiology continues to be successful, thanks to all the faculty reviewers that Katharine manages to recruit (thanks Katharine!).

The Whistler Anesthesia Conference will return to in-person, with virtual hybrid options, in March 2022 after 1 year of on-line only in 2021. The co-chairs, Dr. Su-Yin MacDonnell and Dr. Sandy Kisilevsky have capably taken over and produce an excellent program, with the fantastic support from UBC CPD (Michelle Baysan).

The Pain Medicine Residency Program now accepts 2 new positions per year, and continues to improve the program offerings based upon feedback under the skilled leadership of Dr. Michael Butterfield. It successfully underwent Accreditation on November 26, 2020.

Research continues to flourish within the department. We have some very strong pharmacology researchers with well-established careers, and have our first CRC Tier 1 in the department: Congratulations to Dr. Tillie-Louse Hackett who started a Tier 1 Canada Research Chair in Asthma and COPD Lung Pathobiology & Therapeutics and Canadian Foundation for Innovation Funding for Single Cell Imaging Research on December 1, 2021.

On the anesthesia side, we have clinician-researchers such as Mark Ansermino, Stephan Schwarz, Don Griesdale, Alana Flexman, Himat Vaghadia, Ray Tang, Steve Petrar, Kevin Froehlich, Juliet Atherstone, Gord Finlayson, Jens Lohser, Zoe Brown, Gillian Lauder, Simon Whyte, John Veall, Jason Wilson, Simon Massey, Aaron MacInnes, Peter Choi, Sean McLean, Rael Klein, Kelly Mayson, Andrew Sawka, Jacquie Trudeau, Neal Badner, Janny Ke and Anton Chau, all of whose work is making a difference in health outcomes.

Teaching is what connects our department, with passion amongst so many for teaching students of all levels and interests. I would like to thank everyone who engages in teaching undergraduates and medical students as I know how important it is for the future of the department to incite passion for our work in our learners. Those teaching in pharmacology receive consistently excellent teaching evaluations and our undergraduate and graduate programs in Pharmacology are highly competitive. Our anesthesia training core sites (VGH, SPH, BCCH, BCWH, RCH) and our affiliated sites (Lions Gate, Richmond, Burnaby, Surrey, Delta, Langley, Abbotsford, Chilliwack, Victoria, Nanaimo, Prince George, Kelowna Vernon, Kamloops, Penticton, Terrace/Mills, Kootenay) all have numerous trainees from various disciplines, and have constant pressure to take on more.

I would like to thank all of you for continuing to be generous with your time, your energy, your knowledge and your passion. Despite our improved departmental financial picture, I can never provide adequate compensation for all your contributed time and effort as I would like to be able to. Let us work on our strategic priorities together, of which the most important is fostering the strengths of our people.

Most appreciatively

A handwritten signature in blue ink that reads "Roanne". The signature is written in a cursive, flowing style.

Roanne Preston, MD FRCPC
Department Head

Department Leadership

Roanne Preston – Department Head

Site Chiefs:

Jens Lohser – Head, VGH/UBCH Department of Anesthesia & Perioperative Care
Jim Kim – Head, St. Paul’s Hospital Department of Anesthesia
Simon Whyte – Head, BC Children’s Hospital Department of Anesthesia
James Brown, - BC Women’s Hospital Department of Anesthesia
Feisal Mohamedali – co-Head, Royal Columbian Hospital Department of Anesthesia
Kenneth Ryan – co-Head, Royal Columbian Hospital Department of Anesthesia
Feisal Mohamedali – Regional Head, Fraser Health Authority
Magda Lipowski – Head, Lions Gate Hospital Department of Anesthesia
Glenn Dong – Head, Richmond General Hospital Department of Anesthesia
Liz Chuah – Head, Burnaby General Hospital Department of Anesthesia
Clara Gramberg/Alex Vesely/Freda Wong – co-Heads, Surrey Memorial Hospital
Parisa Soltani – Head, Chilliwack General Hospital Department of Anesthesia
Catherina Mattheus – Head, Abbotsford Regional Hospital & Cancer Centre
Desmond Sweeney – Head, Victoria General/Royal Jubilee Hospitals Department of Anesthesia
Alistair Graham – Head, Kelowna General Hospital Department of Anesthesia
Adam van der Merwe – Medical Director Kelowna General Hospital Department of Anesthesia
Tom Cull – Head, Vernon Jubilee Hospital Department of Anesthesia
Mark Edge – Head, Royal Inland Hospital Kamloops Department of Anesthesia
Kenneth Harder – Head, Penticton Regional hospital Department of Anesthesia
Pal Dhadly – Head, University Hospital of Northern BC Department of Anesthesia

Academic Leadership

Colin Dormuth – Co-Managing Director, Therapeutics Initiatives
Ken Bassett – Co-Managing Director, Therapeutics Initiatives
Stephan KW Schwarz – Dr. Jean Templeton Hugill Chair in Anesthesia
K Malcolm Maclure – BC Patient Safety Chair
T. Laine Bosma – Anesthesia Residency Program Director
Sadiq Abdulla – Anesthesia Residency Program Associate Director
Michael Butterfield – Pain Medicine Residency Program Director
Alana Flexman – Vice-Chair, Equity, Diversity and Inclusion
Peter Choi – Vice-Chair, Education
Tillie Hackett – Vice-Chair, Research
Pascal Bernatchez – Basic Science Research Director
Don Griesdale – Clinical Research Director
Pascal Bernatchez – Director/Advisor, PCTH Graduate Program
Peter Choi – Medical Undergraduate Program Director
John McAlpine - Family Practice Anesthesia Residency Program Director
John Veall - Simulation Program Director
Sadiq Abdulla – BC Anesthesia Clinical fellowships Director
James Brown - Faculty Development Chair
Giselle Villar – Visiting Professor & Continuing Professional Development Program Director
Su-Yin Macdonell and Sandy Kisilevsky - Whistler Anesthesia Conference co-chairs
Bali Dhaliwal – Clinical Faculty Advisory Committee Representative

Divisions

Alexander Wong – Division Heads, Regional Anesthesia
Bobby Lee – Division Head, Cardiac Anesthesia
William Rieley – Division co-Head, Neuroanesthesia
Sandy Kisilevsky – Division co-Head, Neuroanesthesia
Aaron MacINNES – Division Head, Pain Management
Simon Whyte – Division Head, Pediatric Anesthesia
James Brown – Division Head, Obstetric Anesthesia
Travis Schisler – Division co-Head, Thoracic Anesthesia
Chris Durkin – Division co-Head, Thoracic Anesthesia

DEPARTMENT HIGHLIGHTS

AWARDS OF EXCELLENCE



Canadian Journal of Anesthesia – new Editor-in-Chief
Dr. Stephan Schwarz – Professor

The Canadian Journal of Anesthesia (The Journal) is owned by the Canadian Anesthesiologists' Society and is published by Springer Nature Switzerland AG. From the first year of publication in 1954, the international exposure of the Journal has broadened considerably, with articles now received from over 50 countries. The Journal is published monthly and has an impact Factor (mean journal citation frequency) of 3.779 (in 2019)



Michael Smith Foundation Health Research Scholar Award 2021
Dr. Matthew Wiens – Assistant Professor, Partner Track

Matthew has been conducting research examining the epidemiology of pediatric post-discharge mortality in Uganda since 2009. This research has focused primarily around the development of prediction models to identify children at high risk of mortality following discharge and on the development of interventions to improve post-discharge outcomes among these children.



Canada Research Chair – Tier 1
Dr. Tillie Louise-Hackett – Professor

Outstanding researcher acknowledged by their peers as world leaders in their fields. Chairholders aim to achieve research excellence in engineering and the natural sciences, health sciences, humanities, and social sciences. They improve our depth of knowledge and quality of life, strengthen Canada's international competitiveness, and help train the next generation of highly skilled people through student supervision, teaching, and the coordination of other researchers' work.



Craig H Neilsen Foundation Postdoctoral Fellowship Award
Dr. Ryan Hoiland – Postdoctoral Fellow (Griesdale Lab)



Craig H Neilsen Foundation Postdoctoral Fellowship Award
Dr. Lukas Linde (Kramer Lab)

RESEARCH IN THE SPOTLIGHT

Paper of the Year Awards

Dr. Pascal Bernatchez	Dr. Shannon Lockhart
	
High prevalence of plasma lipid abnormalities in human and canine Duchenne and Becker muscular dystrophies depicts a new type of primary genetic dyslipidemia	Personal protective equipment (PPE) for both anesthesiologists and other airway managers: principles and practice during the COVID-19 pandemic

15th Annual Research Day and Awards Night May 25, 2021 (2nd virtual Research Day)

Objective: To review research currently conducted by graduate and post-graduate trainees and fellows in the Department of Anesthesiology, Pharmacology & Therapeutics at the University of British Columbia.

[Winning Presentations](#)

[Oral - Anesthesiology](#)

1st Place – Parker Nann
2nd Place – Ryan Hoiland

[Oral - Pharmacology & Therapeutics](#)

1st Place – Kimia Ziafat

[Lightning Talks](#)

1st Place – Michael Jew
Runner Up – James Taylor

AWARDS 2021

Anesthesiology Residents

Dr. Derek Daniel Wolney Prize for Clinical Proficiency – Dr. Kelli O'Reilly

Dr. John A. McConnell Award for Academic Excellence – Dr. Daniel Werry

Dr. Jone Chang Memorial Award in Anesthesiology Excellence – Dr. Julena Foglia

Dr. Jone Chang Memorial Prize in Chronic Pain – Dr. Katrina Genuis

Ken C.K. Wong Award for Clinical Teaching – Dr. Alex Dotto

UBC APT Advanced Simulation Training Program –

Drs. Heather Cadenhead, Alex Dotto, Naima Kotadia, Stephen Miazga, Cole Wong

Dr. Dimitri Giannoulis Memorial Award in Regional Anesthesia – Dr. Michael Jew

Dr. Keith Mills Award for Excellence in Neuroanesthesia – Dr. Connie Drewbrook

Dr. Keith Mills Bursary for Excellence in Neuroanesthesia Studies – Dr. Kate Mittermaier

VGH Kenny Wong Award for Clinical Excellence and Collegiality – Drs. Julia Cory, Kate Mittermaier

BCAS Resident Award for Physician Leadership – Dr. Julena Foglia

Dr. Anthony Boulton Award for FPA Clinical Excellence – Dr. Mimi He

Dr. Paul Kliffer Golden Epidural Award –

Dr. Danielle Tinker (**Jr. Resident**); Dr. Darren Lam (**Sr. Resident**)

Dr. Michael Smith Award for Pediatric Anesthesia – Dr. Julena Foglia

RCH Resident Award for Clinical Excellence – Dr. Vivien Hu (**Jr. Resident**); Dr. Michael Jew (**Sr. Resident**)

Dr. Colin A. Sands Award for Most Collaborative R1 – Dr. David Li

Dr. Albert Pace Florida Memorial Award in Anesthesiology – Dr. Tyler Plyley

Pharmacology & Therapeutics Undergraduate

Esther Anderson Memorial Prize (highest graduating average in Honors Pharmacology)

Georgia Sloan De Rappard-Yuswack

Prakish Gill Memorial Prize (highest graduating average in Majors Pharmacology)

Amardeep Singh Sekhon

MERCK Canada Scholarship in Medicine -

Ms. Brynn Alexandra Walker

Thomas L. Perry Memorial prize in Medical Pharmacology

Ms. Vivian Morley-Senkler

Pharmacology & Therapeutics Graduate Awards

Sacks Prize (Best presentations)

Aileen Hsieh

Leighton Pharmacology Graduate Award

Arash Yousefzadeh-Tehrani

FACULTY AWARDS 2021

Master Teacher Awards:

VGH – Dr. Paul Kapnoudhis

SPH – Dr. Su-Yin Macdonell

RCH – Dr. Dr. Tonia Tauh

BCCH – Dr. Zoe Brown

BCWH – Dr. Anton Chau

Rural/Community – (Victoria)- Dr. Mark Vu

Medicine – (Critical Care) – Dr. Don Griesdale

Dr. Dimitri Giannoulis Resident Appreciation Award – Dr. Laine Bosma

FPA Master Teacher Award – Dr. Zoe Brown (**BCCH**)

FPA Master Teacher Award – Dr Anton Chau (**BCWH**)

PROMOTIONS 2021

Approved for Promotion from Clinical Instructor to Clinical Assistant Professor

Dr. Heng Gan – BC Children's Hospital
Dr. Jacqueline Hudson – Lion's Gate Hospital
Dr. Karen Wong – Nanaimo Regional General Hospital
Dr. Sivakumar Raghavan – Ridge Meadows Hospital
Dr. Simon Bruce – St. Paul's Hospital
Dr. Hao Chen – St. Paul's Hospital
Dr. Tim Jen – St. Paul's Hospital
Dr. Xi Lisa Li – St. Paul's Hospital
Dr. Shannon Lockhart – St. Paul's Hospital
Dr. Anne Marie Madden – St. Paul's Hospital
Dr. Steven Petrar – St. Paul's Hospital
Dr. Terri Sun – St. Paul's Hospital
Dr. Ainsley Sutherland – St. Paul's Hospital
Dr. Joshua Bennitz – Vancouver General Hospital
Dr. Kathryn Dawson – Vancouver General Hospital
Dr. Jason Fridfinnson – Vancouver General Hospital
Dr. Patrick Hecht – Vancouver General Hospital
Dr. Cyrus McEachern – Vancouver General Hospital
Dr. Steven Moore – Vancouver General Hospital
Dr. Darren Mullane – Vancouver General Hospital
Dr. Graham Noble – Vancouver General Hospital
Dr. Yvonne Peng – Vancouver General Hospital
Dr. Neil Ramsay – Vancouver General Hospital
Dr. William Rieley – Vancouver General Hospital
Dr. Peter Rose – Vancouver General Hospital
Dr. Logan Lee – Victoria General Hospital

Approved for Promotion from Clinical Assistant Professor to Clinical Associate Professor

Dr. Anton Chau – BC Women's Hospital
Dr. Scott Bell – St. Paul's Hospital
Dr. Matthew Coley – St. Paul's Hospital
Dr. Charles Lo – St. Paul's Hospital
Dr. Trina Montemurro – St. Paul's Hospital
Dr. Jill Osborn – St. Paul's Hospital
Dr. Raja Rajamohan – St. Paul's Hospital
Dr. Cynthia Yarnold – St. Paul's Hospital
Dr. Bali Dhaliwal – Vancouver General Hospital

Approved for Promotion from Clinical Associate Professor to Clinical Professor

Dr. Matt Klas – St. Paul's Hospital
Dr. George Isac – Vancouver General Hospital

Hospitals and Health Centres

CLINICAL OVERVIEW

Department Statistics

Full-time faculty - 21

Clinical Faculty - 534

Fellows - 20

Residents - 78

Medical Students – 332

Pharmacology Graduate Program – 16 students

Pharmacology Undergraduate Program – 39 students

Postdoctoral Research Fellows - 9

BRITISH COLUMBIA CHILDREN'S HOSPITAL

Dr. Simon Whyte
Department Head



The UBC Department of Pediatric Anesthesia centred at BC Children's Hospital has continued in its role as the home of pediatric academic and clinical anesthesia, perioperative medicine, and pain medicine.

Our clinical Faculty expanded in the academic 2020-21 year with the arrivals of Drs. Christa Morrison, Prakash Krishnan and Erica Dibb-Fuller. Meanwhile, Dr. Norbert Froese officially completed a 24-year career in the Department, during which time he served terms as Head of Cardiac Anesthesia and Head of Department. Happily for us all, he has remained available for clinical locum work, and ongoing mentorship, for which (the latter especially) I am extremely grateful.

The clinical fellowship program remained strong and active, providing both advanced pediatric anesthesia clinical training and academic research and teaching opportunities for our fellows. Stephan Kojic and Fabio Magistris, both Canadian, were our 2020-2021 Fellows. Our longstanding ambition to increase the size of our Fellowship program received concrete funding in mid-2021 and will come to fruition next year.

BC Children's Hospital remained an active and engaged partner in the expanding UBC anesthesia residency training program. In addition, the department continues to provide exposure to anesthesia to non-anesthesia residents and fellows as well as medical students and associated health care providers.

The restructured Pediatric Anesthesia Research Team (PART) under the leadership of co-chairs Simon Whyte and Matthias Gorges has proven to be sustainable and effective in supporting clinical research in the Department. Andrew Poznikoff as the department's research coordinator provides the backbone of the unit's research support. The unit's effectiveness is evidenced by the breadth of active projects and the number of staff anesthesiologists involved in clinical research projects. We continue to enjoy success in the competitive funding opportunities provided by the BCCH Research Institute, and this year we were able to capitalise on increased subsidies for the UBC Co-op Student programme to hire two students to PART, in addition to our usual support for Summer Students.

**BRITISH COLUMBIA WOMEN'S HOSPITAL
& HEALTH CENTRE**

Dr. James Brown
Department Head

Dr. Jonathan Collins
Associate Department Head



DEPARTMENT OF
ANESTHESIA

Times have been interesting since the last BC Women's Anesthesia update. As an institution we continued to learn to live with the Global Pandemic and we not only maintained, but expanded our clinical services thanks in no small part to the flexibility and professionalism of the group. We are busier than ever on the Obstetric side, with increased cesarean section and epidural rates. We have expanded our Gynecology Surgical capacity (two full-time ORs with a further expansion to three rooms by early 2023) and case mix (adding two 23-hour inpatient stay beds). With this expansion we continue to grow the Department; this summer we are excited to welcome Drs. Andy Wang (UBC grad, completed a Fellowship in Toronto) and Elise Hindle (Retired Royal Air Force, most recently worked at the Birmingham Women's Hospital, UK). This Fall will bring the end of an era as Dr. David Lea takes his well-earned retirement; his good humour, endless anecdotes, and pragmatic clinical wisdom will be sorely missed and we wish him well. In terms of the Anesthesia Care Team we have employed a full-time PAC Nurse, and continue to work to 24/7 Anesthesia Assistant (AA) coverage with three AAs due to complete their training this year, and a further two next year.

Dr. Anton Chau announced his departure from the Research and Fellowship Director role at the end of this academic year. Anton has worked tirelessly to grow our Research Program at BC Women's and has gone above and beyond, again and again, to ensure that our Fellows get the most out of their time with us. We are excited that Dr. Clare Burlinson is taking over from Anton and bringing her ideas and energy to the program. Dr. Helen Parker has assumed the role of departmental simulation lead, expanding our program across disciplines and leading a number of very valuable airway skills refresher days. Dr. Katie Seligman has become our inaugural lead for Quality and Safety; in addition to leading quality reviews, she chairs regular M&M meetings, providing a welcome forum for reflection and learning.

BC Women's recently made the move to computerization by way of CST Cerner implementation; from an Anesthesia perspective this was relatively painless due to the work and support of many in the wider BC Anesthesia community. Locally, Dr. Mike Wong spent many hours proactively ensuring that CST represented our clinical workflows and needs. Sites where CST were already live (SPH, LGH, MSJ) graciously hosted BC Women's staff for part of their training, an invaluable opportunity to see CST for anesthesia in action. Drs. Jim Kim and Charles Lo were ever present and supportive during the Go-Live period. Thanks to you both, and to those many others who offered "at the elbow" support for your generosity and good humour!

Out of the events of the last couple of years there have been unexpected opportunities for which we are grateful. The CST implementation process and the opportunity to provide clinical cross-coverage between sites has presented a welcome opportunity to get to know our APT Faculty colleagues better. We are also delighted to have moved our department (including fellows, residents and AAs) into a single new space within the hospital, allowing us to literally bring our team closer, allowing enhanced awareness of the clinical situation, and collaboration on our research and quality portfolios.



VANCOUVER GENERAL/UBC HOSPITALS

Dr. Jens Lohser
Department Head



The year 2021 continued to be marked by the pandemic, but thanks to the early access to vaccinations, staff illnesses remained fortunately limited. While a dedicated Anesthesia Covid intubation team was no longer required, the department continued to support pandemic activities by lending staff for Covid ward coverage and occasional Critical care support.

The spring of 2021 saw the transition in departmental leadership. After 10 years at the helm of the Vancouver Acute Department of Anesthesia, which saw substantial growth of the department into multiple perioperative roles, major upgrades in equipment fleets due to successful foundation engagement and the transition onto the APP, amongst many other accomplishments, Dr Hamed Umedaly decided to step down from his role. After a year as Associate Head and pandemic lead, Dr Jens Lohser was appointed as his successor in April 2021.

Following the leadership transition the department underwent a retreat to establish a consensus strategic framework (Mission, Vision and Values) to guide our path in the coming years. In addition, the departmental leadership structure was amended to include a trio of associate heads with dedicated portfolios, Dr Andrea Brovender (Human Resources), Dr Jacqueline Trudeau (Clinical) and Dr Raymond Tang (Academic).

In May of 2021 the new operating room suite on the third floor of Jim Pattison Pavilion was opened and took on the majority of the 24/7 activity at VA. The 16 state of the art operating room suites have been well received and their design is being carried forward in eventual renovation of the existing operating room suite on the second floor of JPP. The original intent was to expand VGH operating room activity to 24 daytime rooms in September of 2021, however this implementation was delayed due to nursing shortages into the year 2022.

The long-term goal of the OR expansion continues to be to run 24 operating at VGH, in addition to 8 operating rooms at UBCH and the full complement of out of OR sites, including interventional radiology, cath lab, electrophysiology, radiology and ECT. This expansion is providing significant hiring pressure on our department, which we are actively addressing. At the end of 2021 our staffing level was up to 66 individuals with an anticipated staffing level of 80 in the coming 4-5 years.

Staffing departures in 2021

Dr Kristin McRae left the department to explore other opportunities in the lower mainland.

New staff hires in 2021:

Dr Rosie Earle joined our department after completion of her residency at UBC with plans for future Airway Anesthesia training.

Dr Dan Werry joined our department after completion of her residency at UBC with plans for future Regional Anesthesia training.

Staff returns in 2021

Dr Kali Romano returned after a Critical Care Fellowship at VGH and an additional Cardiac Anesthesia Fellowship at the Royal Papworth Hospital.

Dr. Nav Chima returned from a Trauma Anesthesia and Simulation Fellowship at Sunnybrook Hospital.

Dr. Amber Galbraith returned from a Regional Anesthesia fellowship at St Paul's Hospital.

ROYAL COLUMBIAN & EAGLE RIDGE HOSPITALS

Dr. Feisal Mohamedali

Regional Medical Director & Regional Department Head, Anesthesiology



Dr. Kenneth Ryan

Co-Head, Department of Anesthesia

Royal Columbian and Eagle Ridge Hospitals

The Department of Anesthesiology and Perioperative Medicine at Royal Columbian Hospital (RCH) provide anesthesia services at both RCH and Eagle Ridge Hospital (ERH). RCH along with Vancouver General Hospital, is one of two Level 1 trauma centres in the province and serves as the tertiary care referral centre for the Fraser Health Authority (FHA), with approximately 1.9 million people or 38% of British Columbia's population, as well as patients from other regions. RCH, the oldest hospital in the province, is a general hospital providing a wide spectrum of surgical and medical services. The range of surgical services provided at RCH is unmatched by any other single site in British Columbia.

RCH is the highest volume cardiac centre in BC, and cares for an ever growing volume of trauma patients, as a result of its large population base, proximity to major transportation corridors, among other factors. Supporting this care is a robust critical care team, and an ECMO service for patients with severe heart or lung dysfunction. RCH runs an orthopaedic trauma operating room 364 days per year. Additionally we have created a block room in the operating room, to facilitate the conduct and teaching of regional anesthesia for orthopaedic and plastic surgery patients. RCH is the regional neurosurgical referral centre for FHA, and sees a high volume of craniotomy, spine and neuro-interventional procedures annually.

RCH continues to have one of the best neonatal intensive care units in North America in terms of neonatal outcomes, and is the provincial centre of excellence for high-risk obstetrical care, specifically the management of complex invasive placenta conditions (e.g. placenta accreta), cases that require ICU and/or cardiac care for expectant mothers, while also being able to care for low birth weight, premature infants. A multidisciplinary approach to this complex work, underlies the successes we see at our site.

Over 60% of the cases performed at RCH are classified as urgent/emergent. Over the last decade, NSQIP data has consistently ranked RCH surgical patients as having some of the highest acuity amongst the hundreds of North American hospitals participating in the program. Furthermore, RCH is actively involved in multiple multicentre clinical trials and is actively expanding its research activities and quality improvement initiatives, supported by a full-time research assistant, summer students, and clinician scientists.

Royal Columbian Hospital and Eagle Ridge Hospital are core teaching sites for medical students and for anesthesia resident training. The residency program has expanded recently to 20 positions per year. As well, there is a new Fraser track for 32 3rd year medical students based primarily at our site, but involving other sites within the FHA. We also train anesthesia assistant (AA) students, and have a growing group of AA's who are integral to the work we do. We expect RCH to continue to evolve as an important academic and learning centre for medical learners in the years to come.

Finally, RCH is undergoing a \$1.5 billion redevelopment. Phase 1 which is completed, is the Mental Health and Substance Use Wellness Centre with a stand-alone neuro stimulation suite where our group provides anesthesia care for electroconvulsive therapy. Phase 2, the 10 level

Acute Care Tower (ACT), is under construction with a planned opening in July of 2025. This includes an interventional platform with 17 operating rooms, 3 cardiac catheterization laboratories, and 5 interventional radiology suites. There will be a 3 bay block room, for regional anesthesia as part of the Interventional Platform. The obstetrical service will exist on its own floor with 2 obstetrical operating rooms. Phase 3 will renovate the existing hospital for future needs, and to support the function of the ACT.

Eagle Ridge Hospital (ERH), is our lower acuity community hospital in Port Moody, BC. There are six operating rooms that provide space for nearly 10,000 surgical cases a year, the majority of which are Surgical Day Care cases. This now includes a same day arthroplasty program which has been launched this year at ERH, as well as minimally invasive major general surgery cases in selected patients. Most of the elective pediatric cases done by the Department are performed at Eagle Ridge Hospital. The work of the department is supported by a Certified Anesthesia Assistant at ERH.

SURREY MEMORIAL HOSPITAL

Dr. Clara Gramberg
Dr. Alexander Vesely
Dr. Freda Wong
Co-Heads, Department of Anesthesia



The past two years have seen a significant increase in the involvement of the Surrey Memorial Hospital Department of Anesthesia in the UBC Residency Program. 2019 UBC graduates Drs. Disha Mehta and Christine Graf took over the education leadership role last year from Dr. Alex Vesely, who has moved to co-Department Head after 7 years in the position.

Perennial favourites with residents rotating through the site continue to include Pediatrics, major Head and Neck, and Thoracics, for all of which we are the designated FHA site. New since 2020 is our Block Program, which has been very well received by surgeons, trainees and administration alike for its efficient high quality clinical service and educational experience in providing thoracic epidurals, upper and lower extremity, and truncal blocks to SMH surgical patients. Other new programs within the past year include a Surgical and Obstetric Hi-Fidelity Simulation Program led by Dr. Clara Gramberg, expansion of our Pacemaker implant program to include ICDs, and a nascent service to Interventional Radiology. We have also coordinated a practice Royal College oral exam session for the R5s since 2019.

Overall, SMH remains the second largest hospital in BC, with the busiest Emergency Department in the province, 46 bed ICU/HAU, and transfers from peripheral hospitals such as Delta and Peace Arch bringing substantial acuity. We also serve the busiest obstetric unit in BC outside of BCWH, now with over 5000 deliveries per year and growing.

Between SMH and our satellite ambulatory facility (Jim Pattison Outpatient Care and Surgery Centre, or JPOCSC), our highly varied mix of acute and fast paced inpatient/ambulatory elective surgery continues to expand. Other than the intermittent pandemic/congestion related slowdowns, we have come through the pandemic virtually unscathed, and have managed to preserve good morale and very low closures through sustainable growth. Despite the lack of new construction, we have benefited from renovations of our ORs and our Anesthesia space. In the coming year, completion of renovations and the activation of previously decommissioned/unused OR space will further grow what is already the busiest surgical program in FHA.

Our Department is sitting at 35 members totaling 25 FTE, having added several new members to the department with a diverse range of expertise throughout the 2021-2022 academic year, and we anticipate further expansion over the next few years to meet surgical demand. We have also very recently welcomed SMH's inaugural fellow in the UBC Clinical Anesthesiology Fellowship Program, Dr. Rajvir Chahal, with local supervision by Dr. Maha Iyer. Dr. Chiaw Ling Chiu has just completed her first oral exam cycle as a Royal College Examiner in 2022. Our site subspecialty leads include Dr. Tim Dickson for Obstetric and Regional anesthesia, Dr. Jeremy Neufeld for Thoracic anesthesia, Dr. Stefan Kojic for Pediatric anesthesia, Dr. Disha Mehta for POCUS, Dr. Christine Graf for Regional anesthesia, and Dr. Peter Gajecki for Perioperative anesthesia. In June, Dr. Sujith Dandina took the reins as Local Department Head for our multidisciplinary Chronic Pain Clinic.

We are proud of the progress we have made, and look forward with anticipation to further growing our future.

VANCOUVER ISLAND HEALTH AUTHORITY

Sites:

**Victoria General Hospital, Cowichan District Hospital
Royal Jubilee Hospital, Westcoast General**



Hospital

**Saanich Peninsula Hospital, Nanaimo Regional Hospital
Comox Valley Hospital, Campbell River Hospital**

Dr. Desmond Sweeney
Department Head

Division Heads:

Dr. Lindi Thibodeau: Campbell River/Comox Valley Hospital
Dr. Jason Lee: Nanaimo Regional Hospital/West Coast General Hospital
Dr. Christie Avenant: Cowichan District Hospital/Saanich Peninsula Hospital
Dr. Adrian Vethanayagan: Royal Jubilee Hospital/Victoria General Hospital
Dr. Christie Avenant: Family Practice Anesthesia

The health authority's mandate was continue to reduce surgical waiting lists. As a result, there were additional funds available to support this initiative and were principally directed to do more joint and dental surgery. This required additional hiring of nurses, surgeons, AA's and anesthesiologists.

Dept Highlights

Dr Richard Alexander is our Education Representative and has helped coordinate the many students and residents training in the South Island.
Dr. Sara Waters is the Clinical Education Lead until June 30 2022. Dr. Georgia Hirst will take on the role from July 1, 2022
Meghan O'Connell, organizes our CME events for the year
Dr Shuen King and Dr Sarah Hall (NRGH) continued to organize simulations for dept members. Several south island members host a Resident Exam Session annually in Victoria
Many sites host evening journal rounds and these have been successful in helping members get together and discuss topics of interest.
Dr Brent Caton organizes a CARE team from Victoria that travels to Guatemala annually

Future

The Department continues grow to meet increased surgical demand and provide innovative ways to improve efficiency and quality of care. We have had a great year and continue to appreciate the talented people contributing to the care of patients and education of others.

INTERIOR HEALTH AUTHORITY

Site

Royal Inland Hospital

Southern Medical Programme

Dr Liz Jacobs

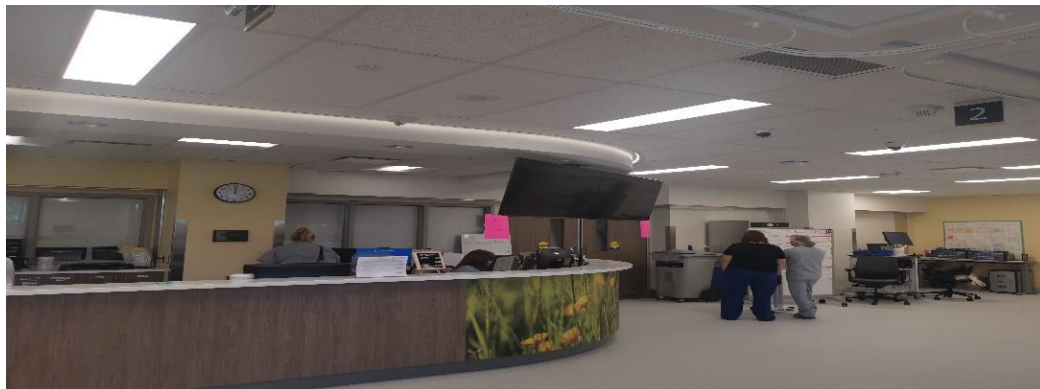
Education Lead



The Southern Medical Programme celebrated 10 years of high quality hands-on teaching in 2022. The Kamloops site welcomed and continues to welcome 6-8 medical students into the anaesthetic department annually, as well as residents as part of their community anaesthetics rotation. Royal Inland Hospital shown perseverance in quality care delivery despite the challenges of staff shortages, inclement weather and a pandemic. The medical students have learnt adaptability and resilience from watching their preceptors and mentors navigate these challenges.

The Phil & Jennie Gagliardi Tower construction was completed in March 2022 with Operating Room, Trauma and Obstetrical services opening to patients in July 2022. This gives learners the opportunity grow and work in a modern, state of the art facility with access to some of the most sophisticated and technologically advanced equipment and hospital structures in B.C. The new Tower will significantly assist with surgical expansion, allowing another operating room to run from August 2022, with the ability to run up to three additional OR's as staff recruitment allows. A new EMR was introduced to RIH in June 2021, with the hope of improving the efficiency and effectiveness of various order routines as well health care worker access to relevant medical patient information. The system has been adapted over the last 12 months, with continuous health care provider input, to suit the needs of the RIH staff.

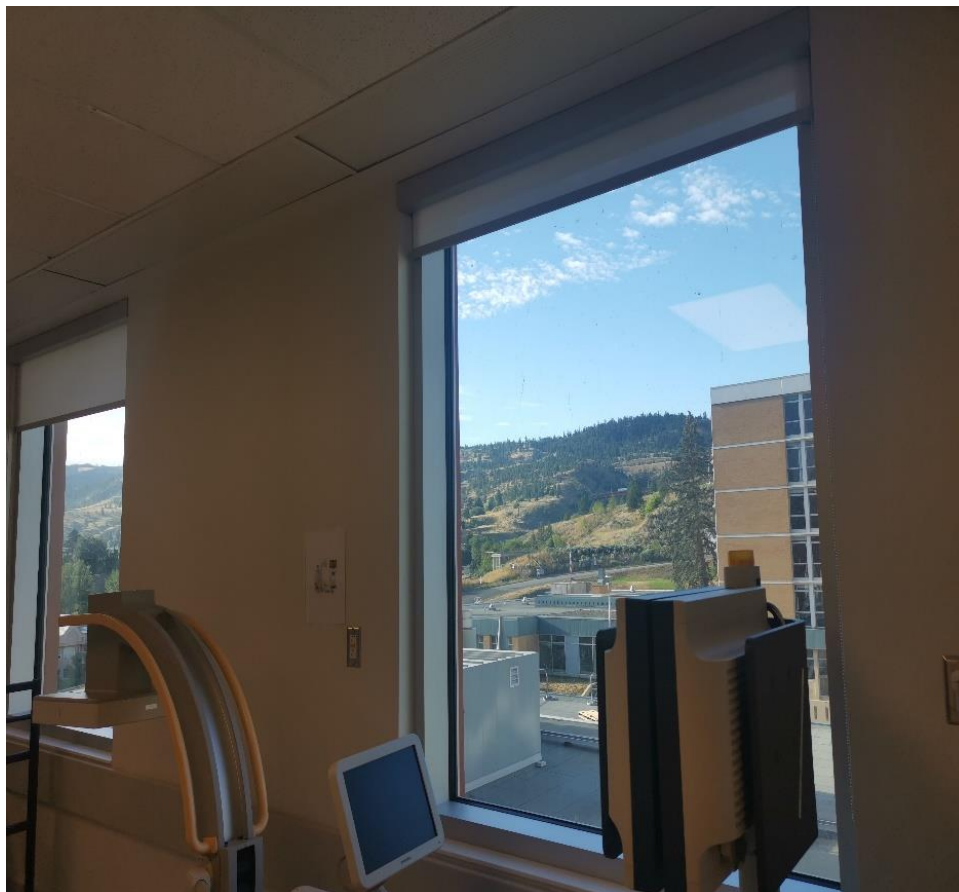
The RIH anaesthetic department has continued to actively recruit new staff as we continue to offer more services, including ECT and sedation for cardioversion. The input and expertise of our new recruits has significantly to the learning experience available to our students. RIH continues to grow its services in order to meet the needs of the growing community of Kamloops and its surrounds. Learners flourish in this grass roots community with many of our students returning to live and work in this area.



The new OR receiving area



Entrance to the new tower.



Some natural light in the new OR.



A fully equipped OR, ready for a day of operating.

Pharmacology and Therapeutics

PHARMACOLOGY

PHARMACOLOGY

As part of the Department of Anesthesiology, Pharmacology & Therapeutics (APT), we are committed to excellence in Pharmacology and Anesthesiology education and research through creativity and dedication. Our present research strength is in areas of neural, cardiovascular, respiratory, ion channels, and clinical pharmacology as well as drug development. We have strong collaborations within the Department in Anesthesiology, Pharmacology and the Therapeutics Initiative as well as outside of the Department.

In addition to research efforts, we have maintained our excellence in teaching at the undergraduate, graduate and postgraduate levels in both pharmacology and therapeutics. The department has been offering degree programs in undergraduate and graduate pharmacology. The PCTH 514 seminar series, led by Drs. Pascal Bernatchez and Issy Laher, continue to provide opportunities for our students to share their research interests and accomplishments with opportunity for faculty and students to be exposed to other related research areas from within and outside the university.

Medical Undergraduate Teaching

The pharmacotherapy content in the MD Undergraduate Program curriculum is undergoing revision. One week in the first-year curriculum has been revised to further emphasize pharmacotherapy. In collaboration with the Therapeutics Initiative, we the UBC medical school formulary is being revised to reflect prescribing patterns in BC. Pharmacology-driven educational activities and assessable learning objectives have been incorporated into most weeks of the first- and second-year curricula. Existing Case Based Learning (CBL) cases undergo continual review for opportunities to add further pharmacology content. The clinical experiences in years three and four continue to focus on clinical rotations where pharmacology teaching is integrated into the clinical setting. New modules on the pharmacology of drugs used in anesthesia and pharmacogenomics are being developed. Additional pharmacology teaching is being incorporated into several aspects of the Transition into Professional Practice (TIPP) course. Student shadowing and out-of-province electives were cancelled on account of COVID. All courses and exams were delivered online via Canvas and Zoom. 2021-2022 academic year is likely to return to in-person classes

Graduate Program

The department offers both Ph.D. and M.Sc. degrees in pharmacology and therapeutics. In 2020-2021, 6 new MSc students joined, and 2 students graduated with a degree. 7 new Ph.D students enrolled; 4 admitted to candidacy, no graduations.

Undergraduate Pharmacology

Undergraduate Education-Non-Medical, Bachelor of Science

The Department offers a 4-year B.Sc. and a 5-year B.Sc. Co-op Education program in Honours as well as Major pharmacology. The aim of our programs is to produce graduates broadly trained in all aspects of pharmacology. The B.Sc. Pharmacology program has been in existence under the Faculty of Science for about three decades. In the first and second years, the students take a basic science program. Since there is room for a maximum of 24 students in third year, all those registered in second year are interviewed by Dr. S. Karim as part of the selection process. Entrance to third year is primarily on the basis of marks and completion of a minimum of 60 credits within the winter terms of year 1 and 2. Students then select Honours or Majors in either the four year or five year (Co-op) program.

The program emphasizes the experimental and laboratory aspects of Pharmacology and students learn both the whole animal and isolated tissue techniques as well as biochemical and chemical procedures. Skills that are stressed include the ability to search for information, design appropriate experiments, carry out experiments individually and as a member of a team, analyze data and, communicate and write effectively.

Co-op Program

For the co-op program, in addition to classical laboratory-based university instruction, the students will do 12 to 16 months (i.e., 3 to 4 work-terms) of paid work placement (i.e., 3 to 4 work-terms) in pharmacology research laboratories in pharmaceutical companies or academic institutions.

Work placement starts in May or September after the completion of year 3 and continues through year 4. Students in the honours program will take additional credits in years 2,3, and 5 and conduct a laboratory-based research project for 6 months during year 5 (Sept. to March) within the Department and present an Honours thesis (PCTH 449).

Students participating in the Co-op program register for PCTH 398, 399, and 498, in addition to the normal academic requirements, and pay the Co-op Education Program fee for each course. PCTH 499 is optional for students who want to have four work placements.

Over the past few years, we have had our co-op students placed in various pharmaceutical and biotechnology companies in Canada, Japan, Germany, Singapore, Austria, and the United States.

THERAPEUTICS INITIATIVE

Dr. Colin Dormuth, MA, SM, ScD (Harv)
Co-Managing Director

Dr. Ken Bassett, MD MA PhD
Co-Managing Director



The Therapeutics Initiative (TI) was established in 1994 with the mission to provide prescribing physicians and dispensing pharmacists with up-to-date, evidence-based, practical information on prescription drug therapy in British Columbia. It is currently supported by a 5-year grant from the BC Ministry of Health to the University of British Columbia. The grant was first established in 1994 and the current grant ensures funding until March 31, 2023.

Over the years, the TI has substantially enhanced its ability to assess the clinical evidence presented in published articles, meta-analyses by the Cochrane Collaboration and scientific material presented by the pharmaceutical industry. In pace with the extensive assessment of clinical evidence, the TI has also developed effective ways of knowledge translation and dissemination of this evidence to all active players involved in drug therapy: physicians, pharmacists, nurses and policy-makers (Ministry of Health) and is committed to analyzing its own impact.

The TI is composed of 5 working groups that collaborate to assess and disseminate clinical evidence of prescription drugs:

- 1. Drug Assessment Working Group (DAWG):** assesses the clinical evidence of effectiveness and safety of new and existing drug therapies in the province and relate that evidence to the care of individual patients. The DAWG completed the following therapeutic reviews in 2021:

- Osteoporosis therapeutic class review
- Lurasidone therapeutic review

The DAWG provides problem-based learning opportunities regarding critical appraisal of clinical trials. Ten medical and pharmacy student trainees have attended the DAWG meetings by web teleconference this year. They learned to critically appraise systematic reviews with hands-on experience in drug assessment projects, where they presented and discussed the findings with the rest of the team.

- 2. PharmacoEpidemiology Group (PEG):** uses epidemiological methods to analyze linked administrative data to answer population-based questions which have not been adequately addressed in clinical trials. Projects include evaluation of drug policies and educational interventions, monitoring of drug utilization, and analysis of prescription drug safety and effectiveness. The PEG also help design, deliver, and evaluate the Portrait

program to improve the quality of prescribing in BC. The Portrait provides primary care prescribers with a concise evidence overview, a comparison of their prescribing to peers or evidence-based targets, and advice about possible improvements to their prescribing. In 2021, the PEG assessed the effect of Pharmacare’s new coverage policies for infliximab, etanercept, insulin glargine, rituximab and adalimumab.

The PEG also completed two pharmacoepidemiological studies:

- Antidiabetic medications
- Antihypertensive medications and non-melanoma skin cancer.

The PEG developed and distributed two prescribing portraits to physicians in BC:

- Oral antibiotics for uncomplicated urinary tract infection (UTI)
- Non-opioid pain medications dose response

3. Education Working Group (EWG): provides health professionals with up-to-date, evidence based, practical information about rational drug therapy. The EWG held 45 educational attended virtually by over four thousand healthcare professionals, highlights:

- Critical Appraisal Workshop Using Evidence in Shared Decision Making: A Case-based, Critical Appraisal Approach for Busy Clinicians (2-hour virtual event) on March 10, 2021
- Bringing Best Evidence to Clinicians: Annual Therapeutics Initiative Course (4-hour virtual event) on October 16, 2021
- Nurse and Nurse Practitioners of BC - Clinical Corner Presentation Series (February-December 2021)
- Island Health Pharmacotherapy Grand Rounds (April-December 2021)
- Powell River Division of Family Practice (May - June 2021)
- South Peace Division of Family Practice (May - September 2021)
- Best Evidence monthly webinar series on various clinical therapeutics issues
- Methods Speaker monthly webinar series on topics related to systematic reviews, meta-analysis, methods and statistics in evidence synthesis.

The EWG also publishes the Therapeutics Letters that provide brief practical messages on how to deal with problematic therapeutic issues. All issues of the Therapeutics Letter are distributed to physician prescribers across BC and available on the TI website in English and Spanish. The EWG published 6 Therapeutics Letters in 2021:

Issue Number / Publication Date	Title
TL 129 / February 2021	Mirtazapine for depression
TL 130 / March 2021	Evidence for statins in people over 70
TL 131 / May 2021	Tramadol: Where do we go from here?
TL 132 / July 2021	Rethinking Medication Adherence
TL 133 / September 2021	Primary hypertension therapy: after thiazide, an ACEI or an ARB?
TL 134 / November 2021	Finding the lowest effective dose for non-opioid analgesics

Despite pandemic restrictions, the EWG continued to provide virtual teaching and training sessions on evidence-based medicine, clinical pharmacology, systematic review, meta-analysis methodology, and critical appraisal of randomized controlled studies for 10 medical, pharmacy and undergraduate students at UBC.

4. Cochrane Hypertension Group (CHG): prepares, maintains and promotes systematic reviews of the effects of healthcare interventions for hypertension. The scope of CHG includes randomized controlled trials of interventions evaluating blood pressure and clinical outcomes for the prevention and treatment of essential hypertension. Part of the international Cochrane Collaboration, the CHG published the following Cochrane systematic reviews and protocols in 2021:

- Shawish MI, Bagheri B, Musini VM, Adams SP, Wright JM. Effect of atorvastatin on testosterone levels. *Cochrane Database Syst Rev.* 2021 Jan 22;1:CD013211. doi: 10.1002/14651858.CD013211.pub2. PMID: 33482034.
- Ben-Eltriki M, Cassels A, Erviti J, Wright JM. Why we need a single independent international hypertension clinical practice guideline. *Hypertens Res* 2021 May; 44: 1037–1039 (2021). DOI: 10.1038/s41440-021-00666-6
- Smith M, Dai Q, Ben-Eltriki M, Wright JM. Renin-angiotensin system inhibitors for treating COVID-19 in adults. *Cochrane Database of Systematic Reviews* 2021, Issue 4. Art. No.: CD013831. DOI: 10.1002/14651858.CD013831
- Garjón J, Saiz LC, Azparren A, Gaminde I, Ariz MJ, Erviti J. First-line combination therapy versus first-line monotherapy for primary hypertension. *Cochrane Database of Systematic Reviews* 2021, Issue 6. Art. No.: CD010316. DOI: 10.1002/14651858.CD010316.pub3
- Leache L, Gutiérrez-Valencia M, Finizola RM, Infante E, Finizola B, Pardo J, Flores Y, Granero R, Arai KJ. Pharmacotherapy for hypertension-induced left ventricular hypertrophy. *Cochrane Database of Systematic Reviews* 2021, Issue 10. Art. No.: CD012039. DOI: 10.1002/14651858.CD012039.pub3
- Pattanittum P, Ngamjarus C, Buttramee F, Somboonporn C. Roselle for hypertension in adults. *Cochrane Database of Systematic Reviews* 2021, Issue 11. Art. No.: CD007894. DOI: 10.1002/14651858.CD007894.pub3
- Pisano A, Iannone LF, Leo A, Russo E, Coppolino G, Bolignano D. Renal denervation for resistant hypertension. *Cochrane Database of Systematic Reviews* 2021, Issue 11. Art. No.: CD011499. DOI: 10.1002/14651858.CD011499.pub3
- Graudal NA, Hubeck-Graudal T, Jurgens G. Effects of low sodium diet versus high sodium diet on blood pressure, renin, aldosterone, catecholamines, cholesterol, and triglyceride. *Cochrane Database of Systematic Reviews* 2021, Issue 12. Art. No.: CD004022. DOI: 10.1002/14651858.CD004022.pub5
- Lee LL, Mulvaney CA, Wong YKY, Chan ES, Watson MC, Lin HH. Walking for hypertension. *Cochrane Database Syst Rev.* 2021 Feb 24;2:CD008823. doi: 10.1002/14651858.CD008823.pub2. PMID: 33630309.
- Semlitsch T, Krenn C, Jeitler K, Berghold A, Horvath K, Siebenhofer A. Long-term effects of weight-reducing diets in people with hypertension. *Cochrane Database Syst Rev.* 2021 Feb 8;2:CD008274. doi: 10.1002/14651858.CD008274.pub4. PMID: 33555049.

- Luo Y, Ye H, Liu W, Lv Z, Jia Y, Li C, Zhang Y. Effect of periodontal treatments on blood pressure. *Cochrane Database of Systematic Reviews* 2021, Issue 12. Art. No.: CD009409. DOI: 10.1002/14651858.CD009409.pub2

5. Communications and Outreach Group (COG): was created in 2020 to provide leadership in all aspects of communications to advance the TI strategic priorities. The overarching goal of the COG is to lead strategies to expand and enhance the reputation of the TI as an independent, non-partisan, university-based group providing therapeutics information to support the high quality and safe use of medicines in BC.

In 2021 we completed a major milestone in developing a secure website for Portrait Online that is now accessible to eligible GPs in BC. The secure portal includes the TI Assistant - a new tool that physicians can use for comprehensive searches for therapeutics information from Therapeutics Letters, drug safety advisories, and Pharmacare coverage information. The TI website www.ti.ubc.ca is updated regularly with evidence-based information, including TI webinars and Therapeutics Letters. In 2021 the TI website received over one million visits, averaging over 80,000 visits per month, or a visit every 25 seconds. Most of the visits originated from Google Search, with over 35 million “impressions” (number of times any page was viewed). The TI is also prominent on social media with a strong presence on Twitter and Facebook. In 2021 the Twitter accounts received over one million Tweet impressions (number of times our tweets were viewed). Among all ISDB members, @Drug_Evidence is second with regard to total followers, only @RevuePrescrire has slightly more followers and we are on track to surpass them in 2022. @CochraneHTN was the top gaining account in 2021 among all the 50 Cochrane review groups worldwide.

Select TI Publications

- Carney G, Maclure M, Malfair S, Bassett K, Wright JM, Dormuth CR. Comparative Safety of Smoking Cessation Pharmacotherapies During a Government-Sponsored Reimbursement Program. *Nicotine Tob Res.* 2021 Jan 22;23(2):302-309. doi:10.1093/ntr/ntaa100. PMID: 32484873.
- Fisher A, Hudson M, Platt RW, Dormuth CR; Canadian Network for Observational Drug Effect Studies (CNODES) Investigators. Tofacitinib Persistence in Patients with Rheumatoid Arthritis: A Retrospective Cohort Study. *J Rheumatol.* 2021 Jan 1;48(1):16-24. doi: 10.3899/jrheum.191252. PMID: 33004534.
- Shawish MI, Bagheri B, Musini VM, Adams SP, Wright JM. Effect of atorvastatin on testosterone levels. *Cochrane Database Syst Rev.* 2021 Jan 22;1:CD013211. doi: 10.1002/14651858.CD013211.pub2. PMID: 33482034.
- Morrow RL, Mintzes B, Gray G, Law MR, Garrison S, Dormuth CR. Industry Sponsor Influence in Clinical Trial Reporting in Canada: A Qualitative Interview Study. *Clin Ther.* 2021 Dec 23:S0149-2918(21)00493-8. doi: 10.1016/j.clinthera.2021.11.019. Epub ahead of print. PMID: 34955232.
- Dormuth CR, Winqvist B, Fisher A, Wu F, Reynier P, Suissa S, Dahl M, Ma Z, Lu X, Zhang J, Raymond CB, Fillion KB, Platt RW, Moriello C, Paterson JM; Canadian Network for Observational Drug Effect Studies (CNODES) Investigators. Comparison of Pregnancy

Outcomes of Patients Treated With Ondansetron vs Alternative Antiemetic Medications in a Multinational, Population-Based Cohort. *JAMA Netw Open*. 2021 Apr 1;4(4):e215329. doi: 10.1001/jamanetworkopen.2021.5329. PMID: 33890993; PMCID: PMC8065380.

- Ben-Eltriki M, Cassels A, Erviti J, Wright JM. Why we need a single independent international hypertension clinical practice guideline. *Hypertens Res* 2021 May; 44: 1037–1039 (2021). DOI: 10.1038/s41440-021-00666-6
- Dormuth CR, Fisher A, Hudson M, Austin PC, Ernst P, Bresee L, Chateau D, Tamim H, Paterson JM, Lafrance JP, Taylor-Gjevre RM, Platt RW, Canadian Network For Observational Drug Effect Studies Cnodes Investigators. Impact of using concomitant conventional DMARDs on adherence to biologic DMARD treatment in rheumatoid arthritis: Multi-centre, population-based cohort study. *Semin Arthritis Rheum*. 2021 Dec;51(6):1291-1299. doi: 10.1016/j.semarthrit.2021.08.002. Epub 2021 Aug 19. PMID: 34462128.
- Lim J, McCracken RK, Panagiotoglou D. Opioid prescribing practice standard in British Columbia, Canada: Rationale, controversies, and directions. *Int J Drug Policy*. 2021 Nov;97:103363. doi: 10.1016/j.drugpo.2021.103363. Epub 2021 Jul 24. PMID: 34314955.
- Zekic F, Park I, Sekhon T, Tejani AM. Assessing reasons for nonadherence as an opportunity for dialogue. *Can Pharm J (Ott)*. 2021 Apr 19;154(3):136-138. doi: 10.1177/17151635211005796. PMID: 34104262; PMCID: PMC8165889.
- Aeng ESY, McDougal KC, Allegretto-Smith EM, Tejani AM. Hidden Costs of Multiple-Dose Products: Quantifying Ipratropium Inhaler Wastage in the Hospital Setting. *Can J Hosp Pharm*. 2021 Spring;74(2):117-121. Epub 2021 Apr 1. PMID: 33896950; PMCID: PMC8042182.
- Smith M, Dai Q, Ben-Eltriki M, Wright JM. Renin-angiotensin system inhibitors for treating COVID-19 in adults. *Cochrane Database of Systematic Reviews* 2021, Issue 4. Art. No.: CD013831. DOI: 10.1002/14651858.CD013831
- Garjón J, Saiz LC, Azparren A, Gaminde I, Ariz MJ, Erviti J. First-line combination therapy versus first-line monotherapy for primary hypertension. *Cochrane Database of Systematic Reviews* 2021, Issue 6. Art. No.: CD010316. DOI: 10.1002/14651858.CD010316.pub3

EDUCATION

POST-GRADUATE MEDICAL EDUCATION PROGRAM ANESTHESIA RESIDENCY

Dr. T. Laine Bosma
Program Director

Training Positions As of December 2021, a total of 68 residents were registered in the 5-year Royal College Physicians & Surgeons program. This continues to be a significant year over year increase. Twelve of these residents are scheduled to complete their residency during the 2021/2022 academic year and will be completing their RCPSC examinations in Anesthesiology in the spring of 2022. The number of CaRMs positions has been increased by 33% for 2022 with an intake to 20 new residents. Seventeen residents joined the program in 2021, 15 from CaRMs and 2 program transfers. We continued to have a large applicant pool of over 130 well qualified students with a large contingent of UBC students applying.

New Graduates

All of the PGY5 residents were successful in the 2021 Royal College specialty examinations in Anesthesiology. Our Exam Seminar Series, led by Dr. Ron Ree and Dr. Jason Wilson, continues to be very successful and a model for Royal College exam preparation. In the upcoming year, leadership will be transitioning to Dr. Katarina Kojic and Dr. Nav Chima. The vast majority of 2021's graduates have faculty positions at UBC academic hospitals.

Competency by Design

2021 was the final year of the traditional program and the "new competency by design curriculum" is the dominant curriculum. The initial cohort (2017) completed the first part of the new split RCPSC exam in September 2021, with the final applied portion of the exam upcoming in spring of 2022. The residents have progressed well through the Core Stage and are now completing the newly developed Transition to Practice stage. The Resident's and the faculty remain committed to building and delivering a very high-quality educational product through this transition.

Resident Selection Committee A very robust and active sub-committee of the Residency Program Committee (RPC) reviewed all applicants. The Selection Committee was chaired by the Associate Program Director, Dr. Sadiq Abdulla, with committee members representing all the major BC teaching hospitals. Resident members are also well represented on the committee. The committee is continuing ongoing work to explore and increase principles of equity, diversity, and inclusion into the selection process which also includes efforts to identify and manage internal bias and hidden curriculum present in the committee.

Resident Wellness

As in all areas of health care, wellness has been a significant concern and focus of ongoing support as the COVID pandemic continues to affect many areas of our lives. The program's systems of confident faculty and resident advisors, peer mentorship, faculty mentorship, UBC resident wellness office, and program specific resident wellness activities have been ongoing to try and help mitigate ongoing academic and social stressors.

Academic Program

- **COVID** – Through 2021, our residents worked and learned full time in the clinical environment without interruption. The residents continue to demonstrate incredible resilience, determination, and courage during this 2nd year of the pandemic.

- **Academic Day** - The full day academic program involving active participation from each of the teaching hospitals has been very successful. No sessions were cancelled with many sessions being a mix of virtual and in-person learning as required to manage and mitigate ongoing issues with COVID. The feedback on our academic sessions remained positive, with many reporting an appreciation of the convenience of virtual learning (reduced commute times, etc.) although the collegial interaction of in-person sessions continues to be significantly missed.
- The Residency Program Committee continues to support the autonomy of each participating UBC teaching hospital in delivering their contribution to the residents' educational program.
- **Simulation** - Led by Dr. John Veall, simulation continues to be a mainstay of our residency program. The Royal College CanNASc scenarios, required by the new curriculum, continue to be delivered successfully, recognizing that these sessions demand a large portion of our simulation human resources. Please refer to the simulation report for specific details
- **Journal Club** - an integral part of the academic program, meetings have continued mostly virtually through the 2021 academic year. Dr. Terri Sun continued in the coordinator role. In spite of everything, these sessions continue to provide the residents with an excellent educational opportunity to learn about critical appraisal skills.

Clinical Program

The clinical program continues to be a strong element of the UBC Anesthesiology training program. Training in both core anesthesiology as well as subspecialty anesthesiology is distributed between the primary teaching sites, as well as many secondary teaching sites. The program continues to work at recruiting new training experiences for residents, with Surrey Memorial Hospital and Kelowna General Hospital increasing their participation in the program. Plans are in place to have residents return to University Hospital of Northern British Columbia in the 2022/2023 academic year. The expansion of clinical training continues to be monitored closely.

Residency Program Committee (RPC)

This committee met 4 times in 2021 and as always was very effective in guiding the activities of the residency training program. Committee members include hospital program coordinators from each site, our Royal College Examiners, members at large, UBC APT Department Head, resident representation from all years, and the program director as chair.

Administration

In February 2021, Ms. Jill Delane left her position of Program Coordinator after 11 years of service. After a process to establish the needs of the program, a new position of Program Manager was established, and Ms. Jay Park was successfully recruited to fill the position. Susan Van Bruggen continues to be an excellent Program Secretary.

Summary

With ongoing change and expansion, 2021 was a highly successful year for the UBC Anesthesiology Residency Training Program. This success is due to the many hours of hard work on the part of our clinical faculty working with our residents, taking part in the academic program, as well as helping senior residents prepare for the oral exam and to become skilled anesthesiology consultants. In addition, the engagement of the resident body in building and improving the program has been beyond expectation. The goodwill and high level of commitment to residency training is a credit to this department.

POST-GRADUATE MEDICAL EDUCATION PROGRAM
FAMILY PRACTICE ANESTHESIA

Dr. John McAlpine
Program Director

The UBC FPA Enhanced Skills program can accommodate 3 residents per year with a mandate to produce family practice anesthesiologists committed to working in rural British Columbia. It is a challenging and demanding 12 month program with rotations in tertiary centers throughout the lower mainland in adult, pediatric, and obstetrical anesthesia, a community rotation in Whitehorse, adult ICU, and an elective block. Through an Enhanced Skills program and administered through the Dept of Family Practice, it naturally has a very close clinical affiliation with the Royal College anesthesia program from which it benefits greatly participating in its academic days and other educational opportunities such as airway, regional and simulation workshops in addition to the shared rotation experiences with the fabulous UBC anesthesia faculty.

Early in the year, the FPA residents attended the "FPA Bootcamp" which is an intensive and innovative conference/simulation training program hosted by the NOSM. It is a week in duration and comprised many hours of simulation sessions and lectures and receives very positive reviews from participants. The UBC FPA program is very grateful to the BC REAP program for supporting the tuition for this resident event.

In November, the annual UBC FPA Refresher Course was held with high attendance from the BC FPA community and increasing attendance from other regions. This conference receives tremendous support from the UBC Anesthesia faculty towards the academic content of lectures and workshops. This teaching contribution has been so greatly appreciated and is key to its success.

Summary

Overall, this has been a successful year for the UBC Anesthesiology Residency Training Program. This is due to the many hours of hard work on the part of our clinical faculty working with our residents, taking part in the academic program, as well as helping senior residents prepare for the oral exam and to become skilled anesthesiology consultants. The goodwill and high level of commitment to residency training is a credit to this department.

POST-GRADUATE MEDICAL EDUCATION PROGRAM

Pain Medicine Residency Program

Dr. Michael Butterfield MSc, MD, FRCPC (Psychiatry and Pain Medicine)
Program Director

PROGRAM OVERVIEW

A. New residents

The UBC Pain Medicine Program continues attract excellent applicants from a variety of specialties. Our program continues to be a leader in training residents from specialties not traditionally thought of as pain focused. This year the two positions were filled by individuals whose primary specialty is Emergency Medicine; the first emergency medicine specialists to match to a pain medicine residency program across the country. These residents bring with them a novel skill set to the program and help the program to continue to adapt to the learning needs of each resident.

B. Graduating residents

Dr. Sachin Rathee graduated from the program in June 2022 and will be remaining in British Columbia to start his career in pain medicine. Dr. Rathee will maintain a primarily pain focused practice at the Canadian Pain & Regenerative Institute in Vancouver.

Dr. Bilal Munir graduated from the program in April 2022. He has moved to Ontario to be closer with family and his practice involves a combination of general internal medicine and procedural pain medicine

EDUCATION

A. Competency By Design (CBD)

Pain Medicine is one of the last specialties to transition to CBD and in 2021-2022 we have been preparing for this change and working with the Royal College to develop assessment tools that capture the appropriate breadth and scope of pain medicine. The assessment tools have recently been approved and our program will move forward with CBD implementation in July 2023. We are looking forward to this transition and look forward to the improved the educational experience for our residents.

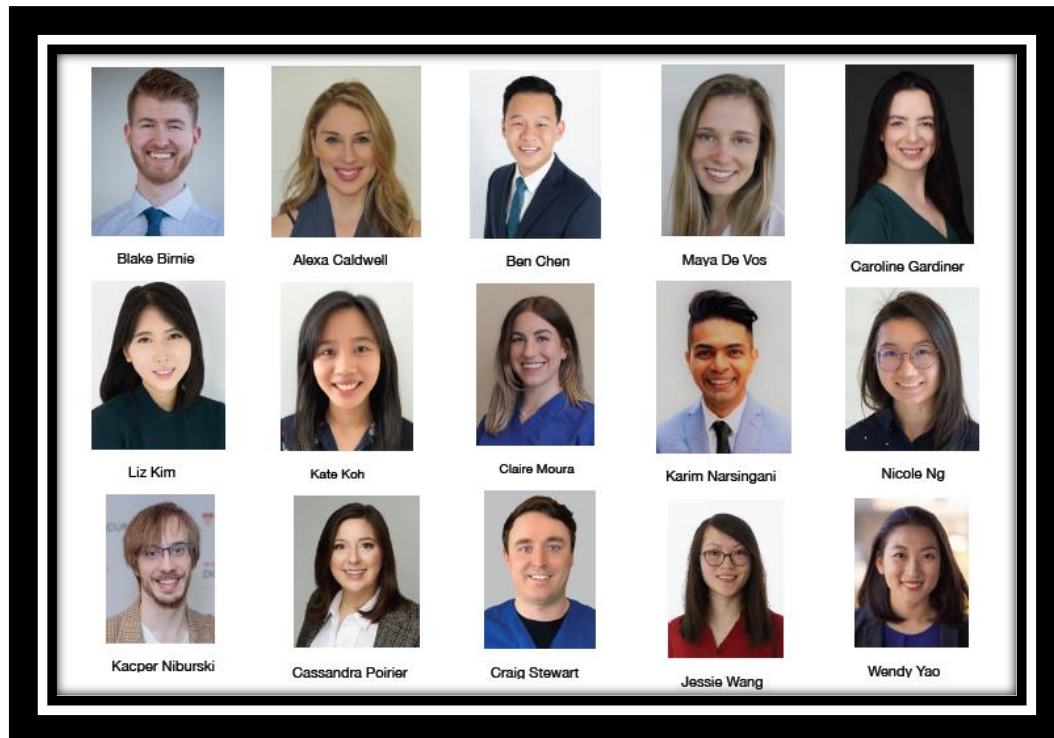
CLINICAL PROGRAM

- A.** With the implementation of virtual care across all educational sites, the program has adapted and provided the residents with various learning tools to aid in their education. Despite the change to virtual care in many settings, we have successfully continued to be able to provide the residents with exposure to clinical experiences including procedural pain medicine allowing them to become proficient in a wide range in pain procedures.
- B.** Residents provide patient care at multiple sites across the lower mainland and the program has further expanded to include not only sites across British Columbia, but also in Alberta with the addition of a focused musculoskeletal interventional pain medicine elective in Edmonton.

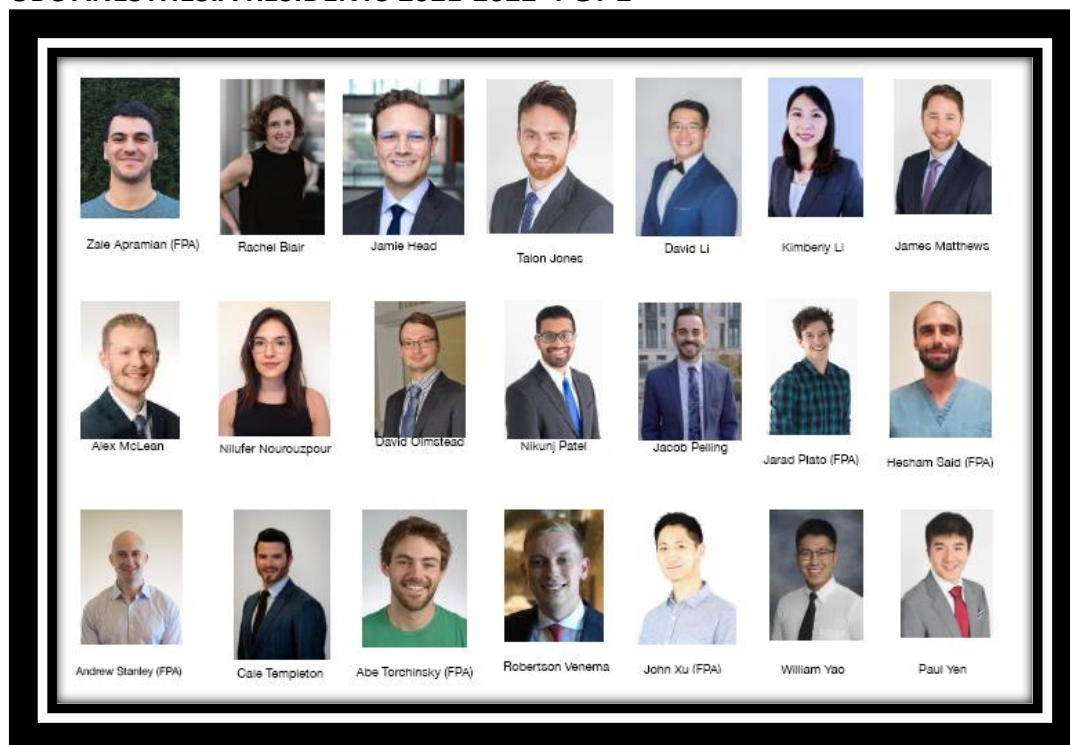
FUTURE DIRECTIONS

- A.** Expand our residents' role in education to other residents and medical students
- B.** Develop a dedicated simulation program for managing emergencies that can occur when performing interventional procedures
- C.** Improve access to various educational experiences for procedural pain medicine including neuromodulation
- D.** Increase resident engagement in leadership and community advocacy for individuals with chronic pain.

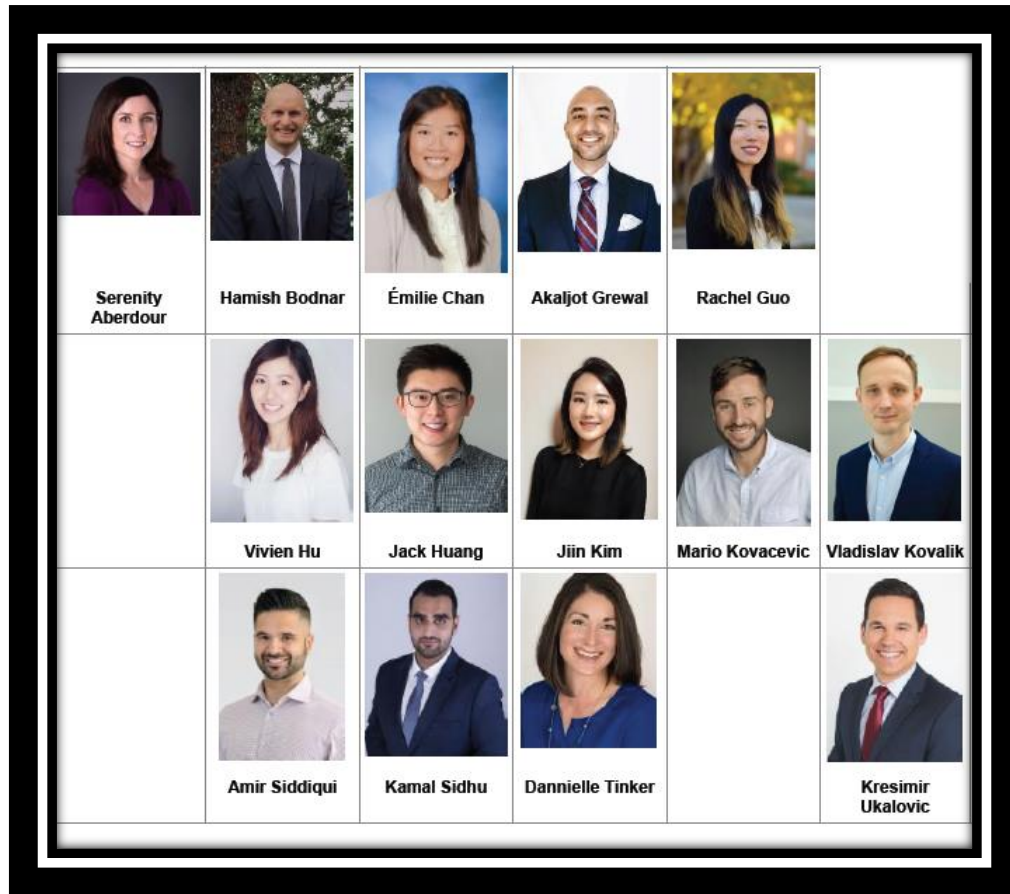
UBC ANESTHESIA RESIDENTS 2021-2022 - PGY 1



UBC ANESTHESIA RESIDENTS 2021-2022- PGY 2



UBC ANESTHESIA RESIDENTS 2021-2022 - PGY 3



UBC ANESTHESIA RESIDENTS 2021-2022 - PGY 4



UBC ANESTHESIA RESIDENTS 2021-2022 - PGY 5



Ayda Askari



Lily Chiu



Julia Cory



Connie Drewbrook



Katrina Genuis



Vanessa Giesbrecht



Michael Jew



Jimmy Lam



Kate Mittermaier



Taren Roughead



Mihaela Van Idour



Charles Yu



Christie Addison



Julena Foglia

CONTINUING PROFESSIONAL DEVELOPMENT & VISITING PROFESSOR PROGRAM

Dr. Giselle C Villar
Program Director

The goal of the Visiting Professor program is to provide anesthesiologists from around the province stimulating and thought provoking speakers throughout the academic year. Each regional hospital (Vancouver General Hospital, St. Paul's Hospital, Royal Columbian Hospital, BC Children's Hospital, BC Women's Hospital) selects a speaker which best reflects that hospital's interests at that particular time.

Our visiting professor committee consist of: Dr(s). Giselle Villar (Chair and BCWH representative), Stephan Malherbe (BCCH representative), Kevin Rondi (SPH representative), Paula Meyler (RCH representative), Jacque Trudeau (VGH representative).

We continue to video-conference the visiting professor lecture series with multiple sites now having access to our speakers in real time. Sites involved via video-conference link include Lions Gate, Nanaimo, Port Alberni, Prince George, Nanaimo, Vernon and Victoria. Feedback from the program has been very positive. Our video library of speakers continues to grow and is available on our website below.

<http://apt.med.ubc.ca/anesthesiology/video-lectures/>
Visiting Professor Video Lectures

The UBC department website is linked to the Canadian Anesthesiology Society Continuing Professional Development website so that interested anesthesiologists can access our departmental website and visiting professor videos.

Anesthesia Simulation Program

Vancouver General Hospital Simulation Centre (VGH SIM)-formerly CESEI



Children's and Women's Health Centre Simulation Centre



Vancouver Island Simulation Program
Airway workshop



Coastal Simulation Program Lions Gate Hospital



Interior Health Regional Simulation Program



Dr John Veall MD FRCPC
Anesthesia Simulation Program Director

The UBC anesthesia simulation program completed another successful year, exceeding pre-pandemic levels in terms of hours delivered. The simulation program at this stage consists of two distinct components: the educational or formative simulation curriculum (the classic simulation experience most would be familiar with) and the summative or assessment type simulation required by the Royal College (all CBD residents must successfully complete 5 scenarios prior to graduation). These scenarios are referred to as the CANNASC (Canadian National Anesthesiology Simulation Curriculum) scenarios.

Key to the delivery of the 30 or so formative simulation sessions were our simulation residents, Drs Serenity Aberdour, Vlad Kovalik, Amir Siddiqui, Vivien Hu, and Dr Parker Jobin, an aspiring anesthesia resident who volunteered with the program and subsequently matched to an Internal Medicine program in Los Angeles. For the delivery of the CANNASC sessions, we were dependent on our group of staff and senior resident volunteers including myself and Drs Ken McDonald, Paula Meyler, Shannon Lockhart, Kristen Kidson, Shelley Tweedle, Hao Chen, Kate Mittermaier, Jimmy Lam, Julia Corey, Rosie Earle, Julena Foglia, Connie Drewbrook, Helen Parker, Clara Gramberg, Nav Chima, Stephanie Heindel, Mark Mathieson, and this coming year, Drs Stephen Miazga, Heather Cadenhead, Naima Kotadia, Cole Wong, Alex Dotto and Mihaela Von Idour (apologies for any omissions or typos).

Our sim bootcamp day for new anesthesia trainees saw an unprecedented 25 participants and scenarios in a single day. Frankly, it was an intense day but with help from Dr Alex Dotto and our new sim residents, Drs Kim Li, David Olmstead, Roberston Venema, Paul Yen, and Nikunj Patel, it went smoothly beyond a catastrophic failure of our primary high fidelity manikin.

On that note, our primary high fidelity manikin, the Human Patient Simulator from CAE, keeps threatening/promising to die only to recover to a greater or lesser degree. The last year alone has seen its software severely corrupted, its internal organs and tubes shattered (someone did very effective CPR- I'll let you guess). It's taken more creativity and efforts to prolong its lifespan but that era appears to be nearing an end. The sim centre will be transitioning to a new moderate fidelity manikin (SimMan essential) combined with a new high fidelity lung simulator that we're excited to work with. Our hope is that we can maintain or exceed the prior standards once we've spent some time learning the new manikin.

Our high soilage manikin (the Vomikin) has also taken a beaten since it ended up on the trash heap and was repurposed for the education and entertainment of participants in the sim program. Thankfully, a grant has been negotiated with industry reps and they'll be donating a replacement to the sim centre for a similar role. They'll also be donating some lightly used videolaryngoscopy equipment that should represent a significant upgrade over what we've gotten used to in the sim centre in recent years. This is on top of an educational grant from UBC last year which restored our fiberoptic capacity and purchased a store of 'single use' videolaryngoscopes to support resident learning and teaching opportunities (available upon request).

Lastly, it is with great pleasure that I announce that Dr Taren Roughead from the anesthesia department at the Royal Columbian Hospital will be signing on as the CANNASC lead for the program, working with me as we continue to try to facilitate the successful completion of all mandatory scenarios by our residents during their R4 year. We are currently behind relative to prior years to a combination of manikin issues and centre availability but are optimistic we'll be able to catch up through the winter given strong staff and R5 interest in participating.



DIVISION REPORTS

DIVISION OF CARDIAC ANESTHESIA

Dr. Bobby Lee, Head

In 2021/22, the SARS-CoV-2 pandemic continued to cast its long shadow in the cardiac anesthesia world at UBC. In the context of the ongoing pandemic, everything from increased demands to navigate the growing cardiac surgical waitlists to educating UBC Anesthesiology residents to carrying out robust research, was more challenging. However, my colleagues were more than up to the task.

UBC Anesthesia Residency and Fellowship Training

UBC offers residents a 2 month rotation in cardiac anesthesia at 3 primary sites: Vancouver General (VGH), Royal Columbian (RCH), and St. Paul's Hospitals (SPH). Residents can also pursue elective educational opportunities in cardiac anesthesia at Kelowna General Hospital and Royal Jubilee Hospital in Victoria. Fellowships are offered at the 3 primary sites and new this year at the Royal Jubilee Hospital is their Cardiac Anesthesia Fellowship affiliated with UBC with their first fellow starting this September.

Each of the sites have their own unique educational opportunities such as endovascular thoracic aortic aneurysm repair, mechanical assist devices, transplants, and transcatheter aortic, mitral, and tricuspid valve repair/replacements outside of the standard experience during such a rotation.

Residents also spend one month in the Cardiac Surgery ICU (CSICU) while fellows complete a 3 month rotation. Given the increasing complexity of cardiac surgery patients, this has resulted in an excellent learning experience in managing complex patients with a variety of mechanical assist devices such as ECMO and LVAD's as well as challenging medical conditions historically seen in the ICU.



Dr. S. Bruce in the CSICU at St. Paul's Hospital

An additional one-month TEE/POCUS elective is also offered at two of the sites, Vancouver General and St. Paul's Hospitals, focusing on both cardiac anesthesia and perioperative medicine.

Site Updates/Highlights

Vancouver General Hospital

New Cardiac Anesthesia Staff in 2021/22

Dr. Simone Schülein

Dr. Sandy Pitfield

Dr. Kali Romano

Dr. Hilary Grocott

Research

Dexmedetomidine use in ICU sedation and postoperative recovery in elderly patients post-cardiac surgery (DIRECT): J Cardiothorac Vasc Anesth . 2022 Mar;36(3):880-892. Rael Klein, Jesse Sidhu, Darren Mullane, Janette Brohan, Rebecca Grey, Howie Paje et al.

Ongoing:

Albumin Utilization for Intravascular Volume Replacement Across Canadian Cardiac Surgical Centres: A Prospective Observational Study. Site Lead: Dr. D. Mullane

COP-AF: Colchicine For The Prevention Of Perioperative Atrial Fibrillation In Patients Undergoing Thoracic Surgery. Site Lead: Dr. S. McLean

Pragmatic Cluster Crossover Randomized Trial: Benzodiazepine-free Cardiac Anesthesia for Reduction of Postoperative Delirium (B-Free). Site leads: Drs Klein, J Atherstone, D Mullane

Adequacy Of Heparin Reversal After Standard Protamine Dosing: A Quality Assurance Project (HRAP).

J. Trudeau, D. Mullane, J. Atherstone, R. Klein, R. Grey, A. Sidhu, T. Smith

The Fares Study: A Multicenter, Randomized, Active-Control, Pragmatic, Phase 2 Pilot Study comparing Prothrombin Complex concentrate Versus Frozen Plasma in Bleeding Adult Cardiac Surgical Patients. Site Lead: Dr. B. Hughes

TRICS IV: Transfusion Requirements in Younger Patients Undergoing Cardiac Surgery An international, multi-centre, randomized controlled trial to assess transfusion thresholds in younger patients undergoing cardiac surgery, Site leads: Drs R. Klein, D. Mullane, and J. Atherstone.

A randomized trial of the safety of non-vitamin K oral anticoagulants compared to warfarin early after cardiac surgery: a pilot study. Site leads: Drs J. Atherstone, D. Mullane, R. Cook.

Kelowna General Hospital

Research

Ongoing:

TRICS IV: Transfusion Requirements in Younger Patients Undergoing Cardiac Surgery An international, multi-centre, randomized controlled trial to assess transfusion thresholds in younger patients undergoing cardiac surgery, Site lead: Dr. N. Kuzak

DEPOSITION – Decreasing Postoperative Blood Loss by Topical vs. Intravenous Tranexamic Acid in Open Cardiac Surgery

Royal Columbian Hospital
New Cardiac Anesthesia Staff in 2021/22

Dr. Jared McCormick

Dr. Tonia Tauh

Research

Ongoing:

The Fares Study: A Multicenter, Randomized, Active-Control, Pragmatic, Phase 2 Pilot Study comparing Prothrombin Complex concentrate Versus Frozen Plasma in Bleeding Adult Cardiac Surgical Patients.

Pragmatic Cluster Crossover Randomized Trial: Benzodiazepine-free Cardiac Anesthesia for Reduction of Postoperative Delirium (B-Free).

Cognitive Outcomes after Dexmedetomidine Sedation in Cardiac Surgery Patients: CODEX Trial.

St. Paul's Hospital

New Cardiac Anesthesia Staff in 2021/22

Dr. Dmitry Mebel

Research

Ongoing:

Lemborexant for the Prevention of Delirium After Cardiac Surgery: A Randomized Controlled Trial

Principal Investigator: R. Ree

Co-Investigators: T. Sun, E. Wang, A. Flexman

PERIOPERATIVE STROKE SCREENING TOOLS IN CARDIAC SURGERY (PESST-CARDIAC): A PILOT STUDY

PI: A. Flexman, Co-Investigator: T. Sun

QUALITY OF RECOVERY SCORE 15 FOLLOWING CARDIAC SURGERY

PI: T. Sun, Co-Investigator: A. Flexman

Efficacy of pecto-intercostal fascial plane catheters for reduction of sternal pain in cardiac surgery patients with complete median sternotomy: A randomized, placebo-controlled trial

PI: R. Ree; Co-Investigator: T. Jen

Perioperative Stroke Following Implantation of Left Ventricular Assist Device

PI: A. Flexman, Co-Investigators: T. Sun, D. Johnston, T. Field

Right ventricular function following sternotomy versus mini bilateral thoracotomy approach for implantation of left ventricular assist device

PI: T. Sun, Co-Investigators: A. Flexman, J. Bashir

Pragmatic Cluster Crossover Randomized Trial: Benzodiazepine-free Cardiac Anesthesia for Reduction of Postoperative Delirium (B-Free). Site lead: Dr. Raja Rajamohan

Cognitive Outcomes after Dexmedetomidine Sedation in Cardiac Surgery Patients: CODEX Trial.

Site PI: R. Rajamohan

DIVISION OF NEUROANESTHESIA

Co-Head, Dr Alexandra Kisilevsky MD PhD FRCPC

Co-Head, Dr William Rieley MBChB FRCA FRCPC

Former Head, Dr. Cynthia Henderson MD FRCPC

2021 members:

Dr Cynthia Henderson

Dr Jon McEwen

Dr Bali Dhaliwal

Dr Henrik Huttunen

Dr Jason Wilson

Dr Sandy Kisilevsky

Dr Joshua Bennitz

Dr Kelly Mason

Dr Lynn Martin

Dr Yvonne Peng

Dr William Rieley

Division Highlights:

A formal search for a new UBC neuroanesthesiology division head was undertaken by the department in 2021. The successful applicants, Drs Sandy Kisilevsky and William Rieley, officially took over the post from Dr Cynthia Henderson in March. As co-division heads, Drs Kisilevsky and Rieley share a common vision of promoting ongoing clinical excellence, providing high quality education to residents, fellows and faculty, and supporting research and QI activities within our subspecialty.

Resident Education:

Dr Kisilevsky continued in the position of the Neuroanesthesia Resident Subspecialty Coordinator. UBC anesthesiology residents spend 3 weeks each (as part of their VGH subspecialty block) in neuroanesthesiology and spine surgery. During this time, each resident completes a unique neuroanesthesia specific "Question of the Month". Resident write-ups can be found at <https://www.vghanes.com/neuro-questions-of-the-month>. There was no neuroanesthesia resident journal club in 2021. The next JC is anticipated in the 2022-2023 academic year.

Fellowship Training:

Dr Rieley continued in the position of the Neuroanesthesia Fellowship Program Director. The fellowship program retains its International Council of Perioperative Neuroscience Training (ICPNT) accreditation through 2025. Dr Andrew Lindberg completed the fellowship in January 2021 and has the distinction of the first fellow to graduate since ICPNT accreditation. He returned to Australia to take a position as Anaesthetist Visiting Medical Officer at Royal North Shore Hospital, Sydney. The subsequent neuroanesthesiology fellow, Dr Lillian Lukoko, arrived from Kenya in October 2021 following immigration delays during the COVID-19 pandemic. She anticipates completing fellowship in October 2022 and returning to Kenya to take a position with Aga Khan University hospital in Nairobi. Under the supervision of Dr Rieley, Dr Lukoko is working on a research project investigating the use of aprepitant for PONV in posterior fossa craniotomy cases.

Multi-disciplinary rounds:

Combined neuroanesthesia-epilepsy neurology rounds took place in October 2021. Discussion focused on perioperative patient management during electrocorticography (ECOG) monitoring as

well as the implementation of a new protocol using etomidate for speech and memory testing (eSAM). The new eSAM protocol will involve a neuroanesthesiologist in all instances.

Publications:

Forbes CM, Chehroudi AC, Mannas M, Bisailon A, Hong T, So AI, **Mayson K**, Black PC. 2021. Defining postoperative ileus and associated risk factors in patients undergoing radical cystectomy with an Enhanced Recovery After Surgery (ERAS) program. *Can Urol Assoc J.* 15(2):33-39.

Kisilevsky AE, Addison CM, **Flexman AM**. 2021. Neurosurgical interventions for neurotrauma in the obstetrical population: A systematic review. *JNA.* 33(3):203-211.

Lindberg AP, **Flexman AM**. 2021. Perioperative stroke after non-cardiac, non-neurological surgery. *BJA Educ.* 21(2):59–65.

Presentations

Bennitz, J. Neuromonitoring Pharm, Phys abd ArtiPhacts. CAS virtual rounds, Dec 14 2021.

DIVISION OF PAIN MANAGEMENT

Dr. Aaron MacInnes

Head

With another year behind us, it appears that we are moving towards normalcy after the last few years. Within the Division of Pain Management we have continued to see growing activities as well as ongoing interest both provincially and nationally in the arena of chronic pain and pain medicine.

Federally, the Canadian Pain Task Force, which has been meeting over the last three years, has come forward with its third and final report. Several key recommendations for advancing chronic pain and pain care throughout our country have been proposed within each of the three reports. From the most recent report the task force has provided the following guidance to "...provide recommendations on priority actions that ensure people with pain are recognized and supported and that pain is understood, prevented, and effectively treated throughout Canada. The report also provides direction for supporting future change to better meet the needs of people living with chronic pain. As with other complex and large-scale public health challenges, addressing chronic pain will require multiple and diverse approaches to change. Health Canada will continue to work with partners to explore how best to move recommendations into action." For more information please see: <https://www.canada.ca/en/health-canada/corporate/about-health-canada/public-engagement/external-advisory-bodies/canadian-pain-task-force.html>

Within our province, despite ongoing funding challenges and a lack of resources, each of the health authorities continues to provide multidisciplinary pain care in an academic setting to the 1 in 5 British Columbians who suffer from chronic pain. We are still awaiting further direction and organization from the Ministry of Health to develop and implement a strategy for the development of more accessible and comprehensive pain care services for all those in our province. There does appear to be renewed interest and optimism that we will try to address some of these issues in the coming year.

As far as educational opportunities the BC Echo Program which continues to provide multidisciplinary case-based education for all health care providers in the area of pain management. The program is funded through a Shared Care grant and the regularly scheduled meetings are organized through PainBC and are available free virtually. For further information and to access prior topics please see the following: <https://painbc.ca/health-professionals/education/echo>.

UBC continues to participate as an academic site for the CIHR Chronic Pain Clinical Research Network. The initial six year network grant has completed and the network is now transitioning to support for researchers throughout Canada in chronic pain. UBC has participated in several studies both nationally and locally to advance the areas of pain research and knowledge building. We look forward to future research to help build on the current body of work to assist those living with chronic pain.

DIVISION OF REGIONAL ANESTHESIA

Dr. Alexander Wong

Head

Clinical Report:

With the ongoing COVID-19 pandemic, 2021 continued to have unique challenges for our hospitals. Despite these issues, we have carried on delivering high standard of care utilizing regional anesthesia techniques in the perioperative management of our patients.

St. Paul's Hospital continued on with its well established block room program with a high volume of both upper and lower limb nerve blocks. In addition, the breast program at Mount St. Joseph's Hospital continued to provide paravertebral blocks for various oncological breast procedures. For many of these procedures, patients were able to forgo a general anesthetic and have the surgery done under sedation supplemented with surgically administered local anesthetic infiltration.

At VGH, the implementation of a hip fracture protocol and a rib fracture protocol has been well received. With improvement in the ability to better staff the Perioperative Anesthesia Intervention Service (PAIS), hip fracture patients have had the opportunity to receive nerve blocks for better pain control and to optimize perioperative care for this often frail population. Such blocks include the pericapsular nerve group (PENG) block, superficial fascia iliaca (SIFI) block, and femoral nerve block. After previously completing a regional anesthesia fellowship in Ottawa, Dr. Peter Rose helped implement a rib fracture protocol in which the Perioperative Pain Service (POPS) would be consulted on patients with higher risk for pulmonary complications. Based on the Ottawa protocol and in collaboration with the VGH Trauma Service, these high risk patients would often receive serratus anterior plane (SAP) nerve block catheters, erector spinae plane (ESP) block catheters, or thoracic epidurals as deemed appropriate.

In the era of climate change, ongoing PACU nursing shortages, and emphasis of multimodal analgesia, regional anesthesia continues to have a prominent role going forward for all sites in providing high quality of care in a system with finite resources.

Academic Report:

Training of Residents:

Anesthesia residents continue to go through St. Paul's Hospital for their core regional rotation. Due to the ongoing pandemic restrictions, the traditional resident regional anesthesia day at the VGH Simulation Centre was canceled. Fortunately, Lead Resident, Dr. Michael Jew was able to organize a separate Workshop session at SPH with appropriate COVID precautions. Residents continue to also obtain regional anesthesia experience at other UBC teaching sites around BC, such as Surrey Memorial Hospital, Burnaby Hospital, and Lions Gate Hospital. As the residency program looks to expand in the coming years, more formalized training at these sites outside of SPH will likely become increasingly important.

Training of Fellows:

Dr. Amber Galbraith completed her regional anesthesia fellowship at SPH and returned to VGH in 2021. With her experience at the MSJ breast program, she will be looking to increase the usage of paravertebral blocks to improve perioperative management of breast surgery patients coming through VGH and UBCH.

Conferences:

Typically, UBC is well represented at local, national and international conferences but many of these events were disrupted due to COVID-19. The Whistler Anesthesia Summit (WAS) normally has regional workshops with organizers and instructors from various UBC-affiliated sites. With the pandemic, the WAS was held virtually this year but looks to return in 2022 with in-person workshops.

Research Report:

UBC faculty has continued to work with the residents and fellows in publishing articles in the area of regional anesthesia and continues to do high quality research. For example, at VGH, Drs. Beau Klaibert and Jason Wilson are currently working with other colleagues on publishing research on the use of ESP blocks in the setting of VATS wedge resection surgery.

DIVISION OF THORACIC ANESTHESIA

Co-head Dr. Chris Durkin

Co-Head Dr. Travis Schisler

Membership

In 2021, there were 9 members in the Division of Thoracic Anesthesia at Vancouver Acute - Dr. Chris Durkin, Dr Gord Finlayson, Dr Brett Fitzmaurice, Dr. Patrick Hecht, Dr Bevan Hughes, Dr Jens Lohser, Dr. Sean McLean, Dr. Kali Romano, and Dr. Travis Schisler. Departures in 2021 included Dr. Paul Kapnoudhis and Dr. Hamed Umedaly. We thank them for all their contributions and leadership in thoracic and lung transplant anesthesia. The division looks forward to welcoming Dr. Sandy Pitfield who is returning from a cardiothoracic fellowship at St. Paul's Hospital and Toronto General Hospital.

Education

The UBC anesthesia residents complete a three-week rotation at Vancouver General Hospital where they gain experience primarily in anesthesia for video assisted and open lung resection surgery. Further exposure is gained at Surrey Memorial Hospital, Kelowna General Hospital and Victoria General Hospital. Emphasis is placed on the preoperative assessment for lung resection surgery and understanding bronchoscopic anatomy to inform lung isolation strategies and ultimately develop a plan that is safe, patient-centered and considers the risk and benefits of all approaches. Evidence based one-lung ventilation strategies are discussed as are approaches to the less common scenarios of anterior mediastinal masses and pulmonary hemorrhage. Residents also gain exposure to several different approaches to esophagectomy including MIS, Ivor Lewis and transhiatal. Opportunities are plenty to acquire skill in thoracic epidural, paravertebral catheter, and serratus anterior catheter placement. The division remains engaged with leading the thoracic themed academic days as well as providing mentorship for a UBC wide thoracic journal club (held virtually in 2021).

Research

The division continues to remain active in both local and international research projects. Dr. Sean McLean has been the site lead for the international COP-AF trial looking at the prevention of perioperative atrial fibrillation in patients undergoing thoracic surgery. In 2021 Cohen's Comprehensive Thoracic Anesthesia textbook was published. Dr. Jens Lohser and Dr. Travis Schisler contributed a chapter to this comprehensive review and update on thoracic anesthesia. The division continues to contribute to the "Thoracic Year in Review" published annually in the Journal of Cardiothoracic and Vascular Anesthesia. Drs Lohser, Romano and Durkin published a review paper on the significance of hypoxemia during one lung ventilation in Current Anesthesiology Reports. The division is collaborating in quality improvement work alongside thoracic surgery to discover best practices for pain management after VATS lobectomy surgery.

Lung Transplantation

The lung transplant program continues to expand in frequency and complexity. In 2022, 66 double lung transplants were completed with excellent outcomes.

RESEARCH

Dr. Donald Griesdale
Clinical Research Director (Anesthesiology)



The UBC Department of Anesthesiology, Pharmacology and Therapeutics is the largest in western Canada with over 480 Faculty. The Department's strategic plan promotes translational research through excellence, collaboration, creativity and diversity across our four academic domains – Research, Education, Clinical Practice, Patient Safety and Knowledge Translation.

Our faculty members are advancing our understanding through drug development, pharmaco-epidemiology, basic sciences, technological advancement and clinical sciences in the following 11 research themes, which are conducted at 13 UBC Research Centers across 4 healthcare authorities in BC:

- Acute and chronic pain management
- Cardiopulmonary sciences and anesthesiology
- Clinical outcomes and patient safety
- Equity in Medicine
- Evidence-based medicine and knowledge translation
- Intensive care, transplant & transfusion medicine
- Neuro sciences & anesthesiology
- Obstetric and pediatric anesthesiology
- Perioperative technology integration
- Pharmacoepidemiology
- Regional anesthesiology

Since 2010, we have had a continual increase in the number of publications generated by our integrated Department. For the last two years on average over 250 publications have been generated by research and collaborations of our 20 academic and 430 clinical faculty.



2021 Publication
 (Please refer to Appendix for details)

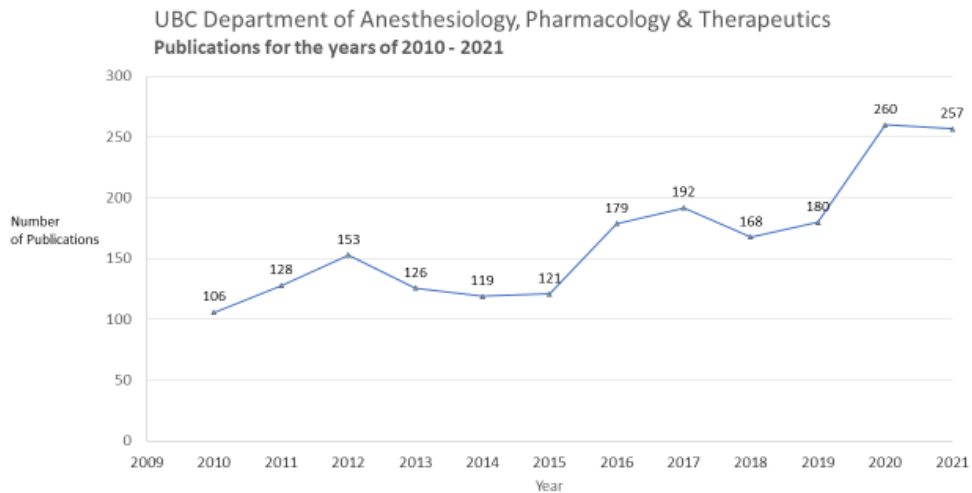
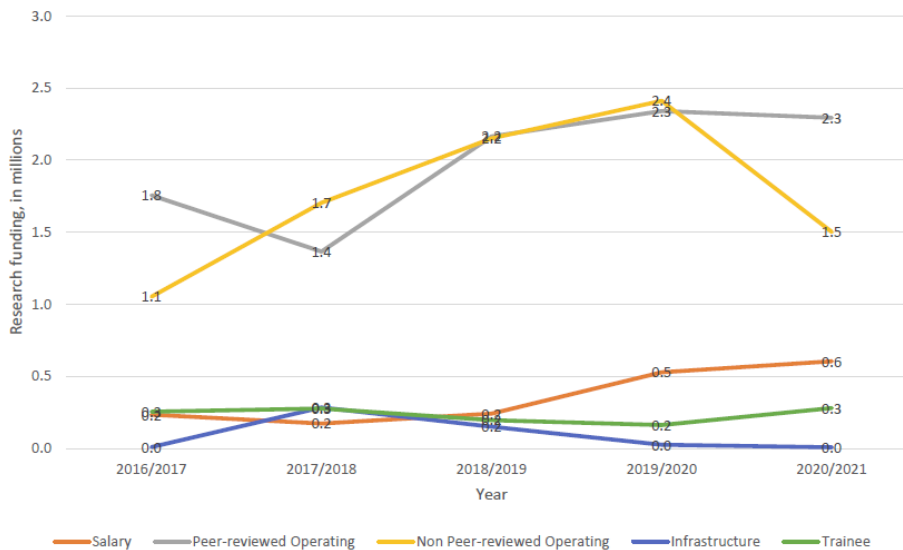


Figure 3, demonstrates the research funding that is held within the Department divided by salary, peer-reviewed operating, non-peer-reviewed operating, infrastructure and trainee awards. It is important to note that faculty with the Department that are based at UBC research centres (majority of all faculty) also hold funding within their research institutions and this is not reflected in this financial report from UBC central. Investigator funding sources are derived from CIHR, NSERC, CFI, several foundations, grand challenges Canada, NIH and provincial government funding. (data supplied by Dr. Tillie Hackett)



DR. JEAN TEMPLETON HUGILL CHAIR IN ANESTHESIA

2021 Highlights

HUGILL ANESTHESIA RESEARCH CENTRE

Dr. Stephan K W Schwarz, Chair



Welcome to the *Dr. Jean Templeton Hugill Chair in Anesthesia* section of our Department's 2021/22 Annual Report! As always, I am delighted to summarize below some of the highlights and activities that took place under the aegis of the Chairship. My principal priority was to continue to foster the interdisciplinary team-based laboratory research in the *Hugill Anesthesia Research Centre (HARC)* while at the same time supporting clinical research at St. Paul's Hospital.

Regarding the latter, I am pleased to announce the joining of a new graduate student, Jaycee Farmer, who is jointly supported by the Department of Anesthesia at St. Paul's Hospital and HARC and co-supervised by Dr. Alana Flexman and myself, working on a project related to the important topic of perioperative brain health.

Another highlight was the fruitful work of a new interdisciplinary research group dedicated to the intersection of perioperative medicine with BC's worsening opioid crisis and created in 2020. Together with faculty colleagues, Drs. Malcolm Maclure, Anton Chau, and Michael Krausz (Addiction Psychiatry) as well as numerous students, we completed two extensive projects to study postoperative opioid prescription patterns and trends in BC, the results of which were accepted for publication as two full-length manuscripts in the top-quartile peer-reviewed literature. Overall, and despite the challenges imposed by the COVID-19 pandemic, results from our various research avenues again appeared in numerous national and international abstract and poster presentations as well as full-length peer-reviewed manuscripts, listed in the APT Annual Report's Publications section.

The period of 2021/22 also marked the early phase of my tenure as the new Editor-in-Chief the *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*, a national leadership position which I commenced effective January 1, 2021 and undoubtedly represents the greatest privilege of my career. I feel deeply honoured and humbled to be able to pursue this prestigious portfolio here at UBC as our Department's *Dr. Jean Templeton Hugill Chair in Anesthesia* and am immensely grateful for my university and clinical departments for their invaluable support.

As those who know me are aware, it has always been a priority of mine to utilize the *Hugill Chair* position to continue to build bridges between Anesthesiology and Pharmacology & Therapeutics; as a reflection of this spirit, an important goal was to once again bring in a high-profile speaker for our Department's annual *Hugill Lecture* who could help accomplish just that. Supported by the *Hugill Endowment* and honoring Dr. Hugill's spirit and intent to celebrate and promote research, we again held the annual *Hugill Lecture* concomitantly with the *Annual APT Research Day* as keynote presentation. Dr. Phil Jones from The University of Western Ontario was invited Guest Lecturer at the 15th Annual (2nd Virtual) Research Day on May 25, 2021, on the topic "*False Discoveries in Biomedical Research — A Problem We Need to Tackle*"

Some of the other activities as *Hugill Chair* included service as an invited presenter and panellist at the 17th World Congress of Anaesthesiologists (virtual; September 2, 2021: Workshop "Scientific Writing for Beginners") and the 2021 Annual Congress of the European Society of

Anaesthesiology and Intensive Care (Euroanesthesia 2021; virtual; December 17, 2021: Avoid these five reasons why your manuscript might get rejected). I also was invited to serve as Visiting Professor on the occasion of World Anesthesia Day 2021 at the Department of Anesthesia & Perioperative Medicine, Schulich School of Medicine & Dentistry, Western University, London, ON (virtual; October 20, 2021) where I presented Citywide Grand Rounds on “Accepting the baton at the CJA in the times of COVID: a vision for the future and taking a moment to celebrate successes, science, and diversity” and gave a Resident and Fellow Lecture on “Publishing in anesthesia 101: how to write an abstract, prepare a poster, and approach the editor’s response letter.”

It has been an immense privilege to serve to honour and spread Dr. Jean Hugill’s spirit and vision, and I look forward to another exciting academic year!



APPENDIX

Consolidated List of Publications – 2021

1. Abbas Q, Holloway A, Caporal P, López-Barón E, Agulnik A, Remy KE, Appiah JA, Attebery J, Fink EL, Lee JH, Hooli S, Kisson N, Miller E, Murthy S, Muttalib F, Nielsen K, Puerto-Torres M, Rodrigues K, Sakaan F, Rodrigues AT, Tabor EA, von Saint Andre-von Arnim A, **Wiens MO**, Blackwelder W, He D, Kortz TB, Bhutta AT. Global PARITY: Study Design for a Multi-Centered, International Point Prevalence Study to Estimate the Burden of Pediatric Acute Critical Illness in Resource- Limited Settings. *Front Pediatr.* 2022 Jan 28;9:793326. doi: 10.3389/fped.2021.793326. PMID: 35155314; PMCID: PMC8835113.
2. Al Moosawi M, **Trudeau J**, Smith T, Lefebvre A, Shih AW. ROTEM in the setting of liver transplant surgery reduces frozen plasma transfusion. *Transfus Apher Sci.* 2021 Jun;60(3):103125. doi: 10.1016/j.transci.2021.103125. Epub 2021 Mar 23. PMID: 33775554.
3. Al-Gubory KH, **Laher I**, Garrel C. Pomegranate peel attenuates dextran sulfate sodium-induced lipid peroxidation in rat small intestine by enhancing the glutathione/glutathione disulfide redox potential. *J Sci Food Agric.* 2021 Aug 15;101(10):4278-4287. doi: 10.1002/jsfa.11067. Epub 2021 Jan 28. PMID: 33417238.
4. Aliste J, Layera S, Bravo D, Jara Á, Muñoz G, Barrientos C, Wulf R, Brañes J, **Finlayson RJ**, Tran Q. Randomized comparison between pericapsular nerve group (PENG) block and suprainguinal fascia iliaca block for total hip arthroplasty. *Reg Anesth Pain Med.* 2021 Oct;46(10):874-878. doi: 10.1136/rapm-2021-102997. Epub 2021 Jul 20. PMID: 34290085.
5. Aliste J, Layera S, Bravo D, Jara Á, Muñoz G, Barrientos C, Wulf R, Brañes J, **Finlayson RJ**, Tran Q. Reply to Dr Pascarella and colleagues. *Reg Anesth Pain Med.* 2022 Mar;47(3):201. doi: 10.1136/rapm-2021-103125. Epub 2021 Sep 13. PMID: 34518370.
6. Aliste J, Layera S, Bravo D, Jara Á, Muñoz G, Barrientos C, Wulf R, Brañes J, **Finlayson RJ**, Tran Q. Reply to Brown. *Reg Anesth Pain Med.* 2022 Mar;47(3):199-200. doi: 10.1136/rapm-2021-103106. Epub 2021 Aug 27. PMID: 34452983.
7. Alvarez-Villegas D, Giménez-Milà M, Sbraga F, Camprubí I, Gil A, **Valchanov K**, Shayan H, Castillo J, Weiner MM. Dealing With the Right Side: Carcinoid Heart Disease. *J Cardiothorac Vasc Anesth.* 2021 Oct 29:S1053-0770(21)00950-2. doi: 10.1053/j.jvca.2021.10.030. Epub ahead of print. PMID: 34863651.
8. Aman MM, Mahmoud A, Deer T, Sayed D, Hagedorn JM, Brogan SE, Singh V, Gulati A, Strand N, Weisbein J, Goree JH, Xing F, Valimahomed A, Pak DJ, El Helou A, Ghosh P, Shah K, Patel V, Escobar A, Schmidt K, Shah J, **Varshney V**, Rosenberg W, Narang S. The American Society of Pain and Neuroscience (ASPN) Best Practices and Guidelines for the Interventional Management of Cancer-Associated Pain. *J Pain Res.* 2021 Jul 16;14:2139-2164. doi: 10.2147/JPR.S315585. PMID: 34295184; PMCID: PMC8292624.
9. Archer C, **Rose P**, **Vaghadia H**. Novel cause of hypoxemia and difficult bag-mask ventilation in a patient with nasocutaneous fistula. *Can J Anaesth.* 2021 Sep;68(9):1462-1463. doi: 10.1007/s12630-021-02030-1. Epub 2021 May 20. PMID: 34018163.
10. Asiri YI, Fung DH, Fung T, Barr AM, Puil E, **Schwarz SKW**, MacLeod BA. A new hypertonic saline assay for analgesic screening in mice: effects of animal strain, sex, and diurnal phase. *Can J Anaesth.* 2021 May;68(5):672-682. English. doi: 10.1007/s12630-021-01923-5. Epub 2021 Feb 18. PMID: 33598887.

11. Aspinall P, Harrison L, Scheuren P, Cragg JJ, Ferguson AR, Guest JD, Hsieh J, Jones L, Kirshblum S, Lammertse D, Kwon BK, **Kramer JLK**. A Systematic Review of Safety Reporting in Acute Spinal Cord Injury Clinical Trials: Challenges and Recommendations. *J Neurotrauma*. 2021 Aug 1;38(15):2047-2054. doi: 10.1089/neu.2020.7540. Epub 2021 Jun 3. PMID: 33899507.
12. Atashak S, Stannard SR, Daraei A, Soltani M, Saeidi A, Moradi F, **Laheer I**, Hackney AC, Zouhal H. High-intensity Interval Training Improves Lipocalin-2 and Omentin-1 Levels in Men with Obesity. *Int J Sports Med*. 2022 Apr;43(4):328-335. doi: 10.1055/a-1560-5401. Epub 2021 Jul 28. PMID: 34320659.
13. Badran M, Abuyassin B, Ayas N, Sin DD, **Laheer I**. Vascular and renal telomere shortening in mice exposed to chronic intermittent hypoxia. *Can J Physiol Pharmacol*. 2021 Oct;99(10):1112-1113. doi: 10.1139/cjpp-2021-0143. Epub 2021 May 5. PMID: 33951396.
14. Baitz HA, Jones PW, Campbell DA, Jones AA, Gicas KM, Giesbrecht CJ, Loken Thornton W, Barone CC, Wang NY, Panenka WJ, Lang DJ, Vila-Rodriguez F, Leonova O, **Barr AM**, Procyshyn RM, Buchanan T, Rauscher A, MacEwan GW, Honer WG, Thornton AE. Component Processes of Decision Making in a Community Sample of Precariously Housed Persons: Associations With Learning and Memory, and Health-Risk Behaviors. *Front Psychol*. 2021 Jul 2;12:571423. doi: 10.3389/fpsyg.2021.571423. PMID: 34276459; PMCID: PMC8285095.
15. Bajaj S, **Griesdale D**, Agha-Khani Y, Moien-Afshari F. Cerebrospinal Fluid Pleocytosis Not Attributable to Status Epilepticus in First 24 Hours. *Can J Neurol Sci*. 2022 Mar;49(2):210-217. doi: 10.1017/cjn.2021.83. Epub 2021 Apr 27. PMID: 33902768.
16. Beauchamp-Chalifour P, **Flexman AM**, Street JT, Fisher CG, Ailon T, Dvorak MF, Kwon BK, Paquette SJ, Dea N, Charest-Morin R. The impact of frailty on patient-reported outcomes after elective thoracolumbar degenerative spine surgery. *J Neurosurg Spine*. 2021 Aug 6;1-9. doi: 10.3171/2021.2.SPINE201879. Epub ahead of print. PMID: 34359047.
17. Ben-Eltriki M, Cassels A, Erviti J, **Wright JM**. Why we need a single independent international hypertension clinical practice guideline. *Hypertens Res*. 2021 Aug;44(8):1037-1039. doi: 10.1038/s41440-021-00666-6. Epub 2021 May 12. PMID: 33981025; PMCID: PMC8338545.
18. Ben-Eltriki M, Hopefl R, **Wright JM**, Deb S. Association between Vitamin D Status and Risk of Developing Severe COVID-19 Infection: A Meta-Analysis of Observational Studies. *J Am Coll Nutr*. 2021 Aug 31:1-11. doi: 10.1080/07315724.2021.1951891. Epub ahead of print. PMID: 34464543; PMCID: PMC8425440.
19. Blokland KEC, Habibie H, Borghuis T, Teitsma GJ, Schuliga M, Melgert BN, **Knight DA**, Brandsma CA, Pouwels SD, Burgess JK. Regulation of Cellular Senescence Is Independent from Profibrotic Fibroblast-Deposited ECM. *Cells*. 2021 Jun 29;10(7):1628. doi: 10.3390/cells10071628. PMID: 34209854; PMCID: PMC8307656.
20. Boisen ML, Fernando RJ, Kolarczyk L, Teeter E, **Schisler T**, La Colla L, Melnyk V, Robles C, Rao VK, Gelzinis TA. The Year in Thoracic Anesthesia: Selected Highlights From 2020. *J Cardiothorac Vasc Anesth*. 2021 Oct;35(10):2855-2868. doi: 10.1053/j.jvca.2021.04.012. Epub 2021 Apr 17. PMID: 34053812.

21. Boisen ML, **Schisler T**, Kolarczyk L, Melnyk V, Rolleri N, Bottiger B, Klinger R, Teeter E, Rao VK, Gelzinis TA. Corrigendum to 'The Year in Thoracic Anesthesia: Selected Highlights from 2019' [Journal of Cardiothoracic and Vascular Anesthesia 34 (2020) 1733-1744]. *J Cardiothorac Vasc Anesth*. 2021 Jan;35(1):343. doi: 10.1053/j.jvca.2020.06.085. Epub 2020 Jul 15. Erratum for: *J Cardiothorac Vasc Anesth*. 2020 Jul;34(7):1733-1744. PMID: 32680770.
22. Bourguignon L, Vo AK, Tong B, Geisler F, Mach O, Maier D, **Kramer JLK**, Grassner L, Jutzeler CR. Natural Progression of Routine Laboratory Markers after Spinal Trauma: A Longitudinal, Multi-Cohort Study. *J Neurotrauma*. 2021 Aug 1;38(15):2151-2161. doi: 10.1089/neu.2021.0012. Epub 2021 May 28. PMID: 33882712; PMCID: PMC8309438.
23. Boyda HN, Procyshyn RM, Tse L, Yuen JWY, Honer WG, **Barr AM**. A comparison of the metabolic side-effects of the second-generation antipsychotic drugs risperidone and paliperidone in animal models. *PLoS One*. 2021 Jan 28;16(1):e0246211. doi: 10.1371/journal.pone.0246211. PMID: 33508013; PMCID: PMC7842964.
24. Brohan J, **Taylor J**, West A, Albert A, **Chau A**. Developing an institutional focused cardiac ultrasound course for obstetric anesthesiologists. *Int J Obstet Anesth*. 2022 Feb;49:103233. doi: 10.1016/j.ijoa.2021.103233. Epub 2021 Nov 2. PMID: 34810055.
25. Bui E, Merchant K, **Seligman KM**. Alternatives to neuraxial analgesia for labor and delivery. *Int Anesthesiol Clin*. 2021 Jul 1;59(3):22-27. doi: 10.1097/AIA.000000000000328. PMID: 34029246.
26. Cadarette SM, **Maclure M**, Delaney JAC, Whitaker HJ, Hayes KN, Wang SV, Tadrous M, Gagne JJ, Consiglio GP, Hallas J. Control yourself: ISPE-endorsed guidance in the application of self-controlled study designs in pharmacoepidemiology. *Pharmacoepidemiol Drug Saf*. 2021 Jun;30(6):671-684. doi: 10.1002/pds.5227. Epub 2021 Apr 1. PMID: 33715267; PMCID: PMC8251635.
27. Cadili L, DeGirolamo K, McKeivitt E, Brown CJ, **Prabhakar C**, Pao JS, Dingee C, Bazzarelli A, Warburton R. COVID-19 and breast cancer at a Regional Breast Centre: our flexible approach during the pandemic. *Breast Cancer Res Treat*. 2021 Apr;186(2):519-525. doi: 10.1007/s10549-020-06008-3. Epub 2020 Nov 4. PMID: 33146785; PMCID: PMC7640574.
28. Carney G, **Maclure M**, Malfair S, Bassett K, Wright JM, Dormuth CR. Comparative Safety of Smoking Cessation Pharmacotherapies During a Government- Sponsored Reimbursement Program. *Nicotine Tob Res*. 2021 Jan 22;23(2):302-309. doi: 10.1093/ntr/ntaa100. PMID: 32484873.
29. Chandrapatham K, Cardim D, Corradi F, Sekhon M, **Griesdale D**, Czosnyka M, Robba C. Arterial and Venous Cerebral Blood Flow Velocities in Healthy Volunteers. *Acta Neurochir Suppl*. 2021;131:131-134. doi: 10.1007/978-3-030-59436-7_27. PMID: 33839833.
30. Chen IS, Eldstrom J, **Fedida D**, Kubo Y. A novel ion conducting route besides the central pore in an inherited mutant of G-protein-gated inwardly rectifying K⁺ channel. *J Physiol*. 2022 Feb;600(3):603-622. doi: 10.1113/JP282430. Epub 2021 Dec 29. PMID: 34881429.
31. Chin KJ, Lirk P, Hollmann MW, **Schwarz SKW**. Mechanisms of action of fascial plane blocks: a narrative review. *Reg Anesth Pain Med*. 2021 Jul;46(7):618-628. doi: 10.1136/rapm-2020-102305. PMID: 34145073.

32. Chitnis S, **Mullane D**, Brohan J, Noronha A, Paje H, Grey R, Bhalla RK, Sidhu J, **Klein R**. Dexmedetomidine Use in Intensive Care Unit Sedation and Postoperative Recovery in Elderly Patients Post-Cardiac Surgery (DIRECT). *J Cardiothorac Vasc Anesth*. 2022 Mar;36(3):880-892. doi: 10.1053/j.jvca.2021.09.024. Epub 2021 Sep 30. PMID: 34887180.
33. Choi JV, Cheung RM, Mozel MR, **Merchant RN**, **Lee SM**. Perioperative Outcomes After Preoperative Epidural Analgesia in Patients with Hip Fracture Undergoing Surgical Repair: A Systematic Review. *Pain Med*. 2022 Feb 1;23(2):234-245. doi: 10.1093/pm/pnab176. PMID: 34022058.
34. Chui J, **Flexman AM**. Intraoperative neuromonitoring for scoliosis surgery: is there an end to justify the means? *Can J Anaesth*. 2021 Apr;68(4):454-459. English. doi: 10.1007/s12630-020-01899-8. Epub 2021 Jan 6. PMID: 33403544.
35. Clunies-Ross N, Roston TM, **Taylor J**, **Whyte S**, Albert A, **Görges M**, **Chau A**. The Effect of Carbetocin Dose on Transmural Dispersion of Myocardial Repolarization in Healthy Parturients Scheduled for Elective Cesarean Delivery Under Spinal Anesthesia: A Prospective, Randomized Clinical Trial. *Anesth Analg*. 2021 Feb 1;132(2):485-492. doi: 10.1213/ANE.0000000000004712. PMID: 32149759.
36. Coleman J, Ginsburg AS, Macharia WM, Ochieng R, Zhou G, Dunsmuir D, Karlen W, **Answermino JM**. Identification of thresholds for accuracy comparisons of heart rate and respiratory rate in neonates. *Gates Open Res*. 2021 Oct 8;5:93. doi: 10.12688/gatesopenres.13237.2. PMID: 34901754; PMCID: PMC8630397.
37. COVIDSurg Collaborative; GlobalSurg Collaborative. SARS-CoV-2 infection and venous thromboembolism after surgery: an international prospective cohort study. *Anaesthesia*. 2022 Jan;77(1):28-39. doi: 10.1111/anae.15563. Epub 2021 Aug 24. PMID: 34428858; PMCID: PMC8652887.
38. Cowan J, Hutton M, Owen A, Lam D, Bracco D, Hurdle H, **Lohser J**, Hirshberg J, Cory J, Chow L, McDonald S, Haber J. Cognitive Aids for the Management of Thoracic Anesthesia Emergencies: Consensus Guidelines on Behalf of a Canadian Thoracic Taskforce. *J Cardiothorac Vasc Anesth*. 2021 Oct 28:S1053-0770(21)00951-4. doi: 10.1053/j.jvca.2021.10.032. Epub ahead of print. PMID: 34802832.
39. Cui JZ, Harris KC, Raedschelders K, Hollander Z, Potts JE, De Souza A, Kiess M, McManus BM, **Bernatchez P**, Raffin LA, Paine H, van Breemen C, Sandor GGS, Esfandiarei M. Aortic Dimensions, Biophysical Properties, and Plasma Biomarkers in Children and Adults with Marfan or Loays-Dietz Syndrome. *CJC Open*. 2020 Dec 28;3(5):585-594. doi: 10.1016/j.cjco.2020.12.018. PMID: 34027363; PMCID: PMC8134910.
40. Currie LM, Rush K, Burton L, Mattei M, **Görges M**. Perceptions of Personal Health Records in Rural Primary Health Clinics in Canada - Patient Perspectives. *Stud Health Technol Inform*. 2021 Dec 15;284:285-289. doi: 10.3233/SHTI210724. PMID: 34920527.
41. Dana N, Karimi R, Mansourian M, Javanmard SH, **Laher I**, Vaseghi G. Magnesium intake and lung cancer risk: A systematic review and meta-analysis. *Int J Vitam Nutr Res*. 2021 Sep;91(5-6):539-546. doi: 10.1024/0300-9831/a000598. Epub 2019 Jul 15. PMID: 31303138.
42. Daniels AH, **Flexman AM**, Lorello GR. Intersection of gender, race, and academic rank in anesthesiology. *Can J Anaesth*. 2021 Feb;68(2):272-273. doi: 10.1007/s12630-020-01862-7. Epub 2020 Nov 18. PMID: 33210218.

43. Daraei A, Ahmadizad S, Rahmani H, Hackney AC, Johnson KE, **Laher I**, Saeidi A, Zouhal H. L-Arginine Improves Endurance to High-Intensity Interval Exercises in Overweight Men. *Int J Sport Nutr Exerc Metab*. 2021 Jan 1;31(1):46-54. doi: 10.1123/ijsnem.2020-0054. Epub 2020 Dec 1. PMID: 33260139.
44. d'Arville A, **Walker M**, Lacey J, Lancman B, Hendel S. Airway management in the adult patient with an unstable cervical spine. *Curr Opin Anaesthesiol*. 2021 Oct 1;34(5):597-602. doi: 10.1097/ACO.0000000000001040. PMID: 34325462.
45. De Schoenmacker I, Berry C, Blouin JS, Rosner J, Hubli M, Jutzeler CR, **Kramer JLK**. An intensity matched comparison of laser- and contact heat evoked potentials. *Sci Rep*. 2021 Mar 25;11(1):6861. doi: 10.1038/s41598-021-85819-w. PMID: 33767259; PMCID: PMC7994633.
46. Dhanani S, Hornby L, van Beinum A, Scales NB, Hogue M, Baker A, Beed S, Boyd JG, Chandler JA, Chassé M, D'Aragon F, Dezfulian C, Doig CJ, Duska F, Friedrich JO, Gardiner D, Gofton T, Harvey D, Herry C, **Isac G**, Kramer AH, Kutsogiannis DJ, Maslove DM, Meade M, Mehta S, Munshi L, Norton L, Pagliarello G, Ramsay T, Rusinova K, Scales D, Schmidt M, Seely A, Shahin J, Slessarev M, So D, Talbot H, van Mook WNKA, Waldauf P, Weiss M, Wind JT, Shemie SD; Canadian Critical Care Trials Group; Canadian Donation and Transplantation Research Program. Resumption of Cardiac Activity after Withdrawal of Life-Sustaining Measures. *N Engl J Med*. 2021 Jan 28;384(4):345-352. doi: 10.1056/NEJMoa2022713. PMID: 33503343.
47. **Dormuth CR, Fisher A**, Hudson M, Austin PC, Ernst P, Bresee L, Chateau D, Tamim H, Paterson JM, Lafrance JP, Taylor-Gjevrev RM, Platt RW, Canadian Network For Observational Drug Effect Studies Cnodes Investigators. Impact of using concomitant conventional DMARDs on adherence to biologic DMARD treatment in rheumatoid arthritis: Multi-centre, population-based cohort study. *Semin Arthritis Rheum*. 2021 Dec;51(6):1291-1299. doi: 10.1016/j.semarthrit.2021.08.002. Epub 2021 Aug 19. PMID: 34462128.
48. **Dormuth CR**, Winquist B, **Fisher A**, Wu F, Reynier P, Suissa S, Dahl M, Ma Z, Lu X, Zhang J, Raymond CB, Filion KB, Platt RW, Moriello C, Paterson JM; Canadian Network for Observational Drug Effect Studies (CNODES) Investigators. Comparison of Pregnancy Outcomes of Patients Treated With Ondansetron vs Alternative Antiemetic Medications in a Multinational, Population-Based Cohort. *JAMA Netw Open*. 2021 Apr 1;4(4):e215329. doi: 10.1001/jamanetworkopen.2021.5329. PMID: 33890993; PMCID: PMC8065380.
49. Drew T, Carvalho JCA, Subramanian C, Yoon EW, Downey K, **Thorneloe B**, Balki M. The association of shock index and haemoglobin variation with postpartum haemorrhage after vaginal delivery: a prospective cohort pilot study. *Int J Obstet Anesth*. 2021 Feb;45:67-73. doi: 10.1016/j.ijoa.2020.10.010. Epub 2020 Nov 4. PMID: 33298343.
50. Dridi R, Dridi N, Govindasamy K, Gmada N, Aouadi R, Guénard H, **Laher I**, Saeidi A, Suzuki K, Hackney AC, Zouhal H. Effects of Endurance Training Intensity on Pulmonary Diffusing Capacity at Rest and after Maximal Aerobic Exercise in Young Athletes. *Int J Environ Res Public Health*. 2021 Nov 24;18(23):12359. doi: 10.3390/ijerph182312359. PMID: 34886081; PMCID: PMC8656668.
51. Dullemond K, Renschler C, Trojanowski J, Scheuermeyer F, Stenstrom R, **Griesdale D**, MacRedmond R, Nattrass E, Farina L, Yoo J. Correction to: Success and complications of endotracheal intubation in critical care settings under COVID-19 protocols. *CJEM*. 2021

Jul;23(4):573. doi: 10.1007/s43678-021-00111-0. Erratum for: CJEM. 2021 Jul;23(4):512-517. PMID: 33751493; PMCID: PMC7983344.

52. Durand M, Schnitzer ME, Pang M, Carney G, Eltonsy S, Filion KB, **Fisher A**, Jun M, Kuo IF, Matteau A, Paterson JM, Quail J, Renoux C; Canadian Network for Observational Drug Effect Studies (CNODES) Investigators. Effectiveness and safety among direct oral anticoagulants in nonvalvular atrial fibrillation: A multi-database cohort study with meta-analysis. *Br J Clin Pharmacol*. 2021 Jun;87(6):2589-2601. doi: 10.1111/bcp.14669. Epub 2020 Dec 16. PMID: 33242339.
53. Durkin C, **Romano K**, Egan S, **Lohser J**. Hypoxemia During One-Lung Ventilation: Does It Really Matter? *Curr Anesthesiol Rep*. 2021;11(4):414-420. doi: 10.1007/s40140-021-00470-5. Epub 2021 Jul 7. PMID: 34254003; PMCID: PMC8263011.
54. Eadie L, Lo LA, Christiansen A, Brubacher JR, **Barr AM**, Panenka WJ, MacCallum CA. Duration of Neurocognitive Impairment With Medical Cannabis Use: A Scoping Review. *Front Psychiatry*. 2021 Mar 12;12:638962. doi: 10.3389/fpsy.2021.638962. PMID: 33790818; PMCID: PMC8006301.
55. Eapen MS, Lu W, **Hackett TL**, Singhera GK, Mahmood MQ, Hardikar A, Ward C, Walters EH, Sohal SS. Increased myofibroblasts in the small airways, and relationship to remodelling and functional changes in smokers and COPD patients: potential role of epithelial-mesenchymal transition. *ERJ Open Res*. 2021 Jun 7;7(2):00876-2020. doi: 10.1183/23120541.00876-2020. PMID: 34109247; PMCID: PMC8181830.
56. Eapen MS, Lu W, **Hackett TL**, Singhera GK, Thompson IE, McAlinden KD, Hardikar A, Weber HC, Haug G, Wark PAB, Chia C, Sohal SS. Dysregulation of endocytic machinery and ACE2 in small airways of smokers and COPD patients can augment their susceptibility to SARS-CoV-2 (COVID-19) infections. *Am J Physiol Lung Cell Mol Physiol*. 2021 Jan 1;320(1):L158-L163. doi: 10.1152/ajplung.00437.2020. Epub 2020 Nov 11. PMID: 33174446; PMCID: PMC7869956.
57. Eldstrom J, McAfee DA, Dou Y, Wang Y, **Fedida D**. ML277 regulates KCNQ1 single-channel amplitudes and kinetics, modified by voltage sensor state. *J Gen Physiol*. 2021 Dec 6;153(12):e202112969. doi: 10.1085/jgp.202112969. Epub 2021 Oct 12. PMID: 34636894; PMCID: PMC8515649.
58. Faria A, Allen AH, Fox N, Ayas N, **Laher I**. The public health burden of obstructive sleep apnea. *Sleep Sci*. 2021 Jul-Sep;14(3):257-265. doi: 10.5935/1984-0063.20200111. PMID: 35186204; PMCID: PMC8848533.
59. Faw TD, Lakhani B, Schmalbrock P, Knopp MV, Lohse KR, **Kramer JLK**, Liu H, Nguyen HT, Phillips EG, Bratasz A, Fisher LC, Deibert RJ, Boyd LA, McTigue DM, Basso DM. Eccentric rehabilitation induces white matter plasticity and sensorimotor recovery in chronic spinal cord injury. *Exp Neurol*. 2021 Dec;346:113853. doi: 10.1016/j.expneurol.2021.113853. Epub 2021 Aug 28. PMID: 34464653.
60. Fergusson NA, Hoiland RL, Thiara S, Foster D, Gooderham P, Rikhraj K, Grunau B, Christenson J, Ainslie PN, **Griesdale DEG**, Sekhon MS. Goal-Directed Care Using Invasive Neuromonitoring Versus Standard of Care After Cardiac Arrest: A Matched Cohort Study. *Crit Care Med*. 2021 Aug 1;49(8):1333-1346. doi: 10.1097/CCM.0000000000004945. PMID: 33711002.
61. **Fisher A**, Hudson M, Platt RW, **Dormuth CR**; Canadian Network for Observational Drug Effect Studies (CNODES) Investigators. Tofacitinib Persistence in Patients with

- Rheumatoid Arthritis: A Retrospective Cohort Study. *J Rheumatol*. 2021 Jan 1;48(1):16-24. doi: 10.3899/jrheum.191252. Epub 2020 Oct 1. Erratum in: *J Rheumatol*. 2021 Jan 1;48(1):1-2. PMID: 33004534.
62. Fletcher R, Braithwaite FA, Woodhouse M, **MacInnes A**, Stanton TR. Does readiness to change influence pain-related outcomes after an educational intervention for people with chronic pain? A pragmatic, preliminary study. *Physiother Theory Pract*. 2021 May;37(5):608-619. doi: 10.1080/09593985.2019.1636436. Epub 2019 Jul 3. PMID: 31267821.
 63. **Flexman AM**, Kim CNH, Plyley T, Vila-Rodriguez F, Gelb AW, Field TS. Postoperative Screening With the Modified National Institutes of Health Stroke Scale After Noncardiac Surgery: A Pilot Study. *J Neurosurg Anesthesiol*. 2021 May 31. doi: 10.1097/ANA.0000000000000779. Epub ahead of print. PMID: 34054030.
 64. **Flexman AM**, Shillcutt SK, Davies S, Lorello GR. Current status and solutions for gender equity in anaesthesia research. *Anaesthesia*. 2021 Apr;76 Suppl 4:32-38. doi: 10.1111/anae.15361. PMID: 33682100.
 65. Forbes CM, Chehroudi AC, Mannas M, Bisailon A, Hong T, So AI, **Mayson K**, Black PC. Defining postoperative ileus and associated risk factors in patients undergoing radical cystectomy with an Enhanced Recovery After Surgery (ERAS) program. *Can Urol Assoc J*. 2021 Feb;15(2):33-39. doi: 10.5489/cuaj.6546. PMID: 32745002; PMCID: PMC7864711.
 66. Gagne OJ, Cheema A, Abuhantash M, **Ree R**, Penner M, Wing K, Younger A, Salat P, Veljkovic A. Effect of Dexamethasone in Peripheral Nerve Blocks on Recovery of Nerve Function. *Foot Ankle Int*. 2021 Jan;42(1):23-30. doi: 10.1177/1071100720952075. Epub 2020 Sep 23. PMID: 32964737.
 67. Geoffrion R, Yang EC, Koenig NA, Brotto LA, **Barr AM**, Lee T, Allaire C, Bedaiwy MA, Yong PJ. Recreational Cannabis Use Before and After Legalization in Women With Pelvic Pain. *Obstet Gynecol*. 2021 Jan 1;137(1):91-99. doi: 10.1097/AOG.0000000000004207. PMID: 33278297.
 68. Ghanad Poor N, West NC, Sreepada RS, Murthy S, **Görges M**. An Artificial Neural Network-Based Pediatric Mortality Risk Score: Development and Performance Evaluation Using Data From a Large North American Registry. *JMIR Med Inform*. 2021 Aug 31;9(8):e24079. doi: 10.2196/24079. PMID: 34463636; PMCID: PMC8441599.
 69. Gicas KM, Cheng A, Panenka WJ, Kim DD, Yau JC, Procyshyn RM, Stubbs JL, Jones AA, Bains S, Thornton AE, Lang DJ, Vertinsky AT, Rauscher A, Honer WG, **Barr AM**. Differential effects of cannabis exposure during early versus later adolescence on the expression of psychosis in homeless and precariously housed adults. *Prog Neuropsychopharmacol Biol Psychiatry*. 2021 Mar 2;106:110084. doi: 10.1016/j.pnpbp.2020.110084. Epub 2020 Sep 2. PMID: 32890696.
 70. Ginsburg AS, Kinshella MW, Naanyu V, Rigg J, Chomba D, Coleman J, Hwang B, Ochieng R, **Answermino JM**, Macharia WM. Multiparameter Continuous Physiological Monitoring Technologies in Neonates Among Health Care Providers and Caregivers at a Private Tertiary Hospital in Nairobi, Kenya: Feasibility, Usability, and Acceptability Study. *J Med Internet Res*. 2021 Oct 28;23(10):e29755. doi: 10.2196/29755. PMID: 34709194; PMCID: PMC8587184.

71. Ginsburg AS, Macharia W, **Answermino JM**. Evaluating neonatal medical devices in Africa. *Lancet Digit Health*. 2021 Apr;3(4):e211-e212. doi: 10.1016/S2589-7500(21)00025-X. Epub 2021 Feb 24. PMID: 33640307.
72. Gonzalez-Cava JM, Carlson FB, Troeng O, Cervin A, **van Heusden K**, Dumont GA, Soltesz K. Robust PID control of propofol anaesthesia: Uncertainty limits performance, not PID structure. *Comput Methods Programs Biomed*. 2021 Jan;198:105783. doi: 10.1016/j.cmpb.2020.105783. Epub 2020 Oct 5. PMID: 33049452.
73. **Görges M**, Rush KL, Burton L, Mattei M, Davis S, Scott H, Smith MA, Currie LM. Preferred Functions of Personal Health Records in Rural Primary Health Clinics in Canada: Health Care Team Perspectives. *Appl Clin Inform*. 2021 Jan;12(1):41-48. doi: 10.1055/s-0040-1721397. Epub 2021 Jan 20. PMID: 33472257; PMCID: PMC7817336.
74. Grant JM, Song WHC, Shajari S, Mak R, **Meikle AT**, Partovi N, Masri BA, Lau TTY. Safety of administering cefazolin versus other antibiotics in penicillin- allergic patients for surgical prophylaxis at a major Canadian teaching hospital. *Surgery*. 2021 Sep;170(3):783-789. doi: 10.1016/j.surg.2021.03.022. Epub 2021 Apr 21. PMID: 33894984.
75. Grassner L, Garcia-Ovejero D, Mach O, Lopez-Dolado E, Vargas-Vaquero E, Alcobendas M, Esclarin A, Sanktjohanser L, Wutte C, Becker J, Lener S, Hartmann S, Girod PP, Koegl N, Griessenauer C, Papadopoulos MC, Geisler F, Thomé C, Molina-Holgado E, Vidal J, Curt A, Scivoletto G, Guest J, Maier D, Weidner N, Rupp R, **Kramer JLK**, Arevalo-Martin A. A NEW SCORE BASED ON THE INTERNATIONAL STANDARDS FOR NEUROLOGICAL CLASSIFICATION OF SPINAL CORD INJURY FOR INTEGRATIVE EVALUATION OF CHANGES IN SENSORIMOTOR FUNCTIONS. *J Neurotrauma*. 2021 Dec 23. doi: 10.1089/neu.2021.0368. Epub ahead of print. PMID: 34937399.
76. Grassner L, Petr O, Warner FM, Dedeciusova M, Mathis AM, Pinggera D, Gsellmann S, Meiners LC, Freigang S, Mokry M, Resch A, Kretschmer T, Rossmann T, Navarro FR, Gruber A, Spendel M, Winkler PA, Marhold F, Sherif C, Wais JP, Rössler K, Pfisterer W, Mühlbauer M, Trivik-Barrientos FA, Rath S, Voldrich R, Krska L, Lipina R, Kerekanic M, Fiedler J, Kasik P, Priban V, Tichy M, Krupa P, Cesak T, Kroupa R, Callo A, Haninec P, Pohlodek D, Krahulik D, Sejkorova A, Sames M, Dvorak J, Suchomel P, Tomas R, Klener J, Juran V, Smrcka M, Linzer P, Kaiser M, Hrabovsky D, Jancalek R, Kälin V, Bozinov O, Niggli C, Serra C, Guatta R, Kuhlen DE, Wanderer S, Marbacher S, Lavé A, Schaller K, Esculier C, Raabe A, **Kramer JLK**, Thomé C, Netuka D. Trends and outcomes for non-elective neurosurgical procedures in Central Europe during the COVID-19 pandemic. *Sci Rep*. 2021 Mar 17;11(1):6171. doi: 10.1038/s41598-021-85526-6. PMID: 33731753; PMCID: PMC7969942.
77. **Hackett TL**, Osei ET. Modeling Extracellular Matrix-Cell Interactions in Lung Repair and Chronic Disease. *Cells*. 2021 Aug 20;10(8):2145. doi: 10.3390/cells10082145. PMID: 34440917; PMCID: PMC8394761.
78. Heijink IH, **Hackett TL**, Pouwels SD. Effects of cigarette smoking on SARS- CoV-2 receptor ACE2 expression in the respiratory epithelium[†]. *J Pathol*. 2021 Apr;253(4):351-354. doi: 10.1002/path.5607. Epub 2021 Jan 26. PMID: 33368245; PMCID: PMC7986690.
79. Hoiland RL, Ainslie PN, Wellington CL, Cooper J, Stukas S, Thiara S, Foster D, Fergusson NA, Conway EM, Menon DK, Gooderham P, Hirsch-Reinshagen V, **Griesdale DE**, Sekhon MS. Brain Hypoxia Is Associated With Neuroglial Injury in Humans Post-Cardiac Arrest.

Circ Res. 2021 Aug 20;129(5):583-597. doi: 10.1161/CIRCRESAHA.121.319157. Epub 2021 Jul 21. PMID: 34287000; PMCID: PMC8376277.

80. Hoiland RL, **Griesdale DE**, Gooderham P, Sekhon MS. Intraparenchymal Neuromonitoring of Cerebral Fat Embolism Syndrome. *Crit Care Explor.* 2021 May 12;3(5):e0396. doi: 10.1097/CCE.0000000000000396. PMID: 34079943; PMCID: PMC8162500.
81. Hoiland RL, **Griesdale DE**, Sekhon MS. Invasive neuromonitoring post-cardiac arrest: Key considerations. *Resuscitation.* 2021 Jul;164:144-146. doi: 10.1016/j.resuscitation.2021.05.003. Epub 2021 May 14. PMID: 34000353.
82. Hoppenbrouwer XLR, Rollinson AU, Dunsmuir D, **Answermino JM**, Dumont G, Oude Nijeweme-d'Hollosy W, Veltink P, Garde A. Night to night variability of pulse oximetry features in children at home and at the hospital. *Physiol Meas.* 2021 Oct 29;42(10). doi: 10.1088/1361-6579/ac278e. PMID: 34713819.
83. Horowitz MA, **Wright JM**, Taylor D. Risks and Benefits of Benzodiazepines. *JAMA.* 2021 Jun 1;325(21):2208. doi: 10.1001/jama.2021.4513. Erratum in: *JAMA.* 2021 Sep 7;326(9):873. PMID: 34061151.
84. Ikezoe K, **Hackett TL**, Peterson S, Prins D, Hague CJ, Murphy D, LeDoux S, Chu F, Xu F, Cooper JD, Tanabe N, Ryerson CJ, Paré PD, Coxson HO, Colby TV, Hogg JC, Vasilescu DM. Small Airway Reduction and Fibrosis Is an Early Pathologic Feature of Idiopathic Pulmonary Fibrosis. *Am J Respir Crit Care Med.* 2021 Nov 1;204(9):1048-1059. doi: 10.1164/rccm.202103-0585OC. PMID: 34343057.
85. Iosifidis T, Sutanto EN, Montgomery ST, Agudelo-Romero P, Looi K, Ling KM, Shaw NC, Garratt LW, Hillas J, Martinovich KM, Kicic-Starcevic E, Vijayasekaran S, Lannigan FJ, Rigby PJ, **Knight DA**, Stick SM, Kicic A. Dysregulated Notch Signaling in the Airway Epithelium of Children with Wheeze. *J Pers Med.* 2021 Dec 7;11(12):1323. doi: 10.3390/jpm11121323. PMID: 34945795; PMCID: PMC8707470.
86. Jen TTH, Gusti V, **Badh C**, Mehta S, Denomme J, **Lockhart S**, Shams B, **Klaibert B**, **Chau A**. The impact of a barrier enclosure on time to tracheal intubation: a randomized controlled trial. *Can J Anaesth.* 2021 Sep;68(9):1358-1367. doi: 10.1007/s12630-021-02024-z. Epub 2021 May 10. PMID: 33973161; PMCID: PMC8109846.
87. Jen TTH, Gusti V, Badh C, Mehta S, Denomme J, Lockhart S, Shams B, **Klaibert B**, Chau A. The impact of a barrier enclosure on time to tracheal intubation: a randomized controlled trial. *Can J Anaesth.* 2021 Sep;68(9):1358-1367. doi: 10.1007/s12630-021-02024-z. Epub 2021 May 10.
88. Jen TTH, **Prabhakar C**. Alternative method of establishing the first rib under ultrasound guidance. *Reg Anesth Pain Med.* 2022 Apr;47(4):272-273. doi: 10.1136/rapm-2021-103225. Epub 2021 Nov 8. PMID: 34750166.
89. Johnson KT, **Görges M**, Murthy S. Characteristics and Timing of Mortality in Children Dying With Infections in North American PICUs. *Pediatr Crit Care Med.* 2021 Apr 1;22(4):365-379. doi: 10.1097/PCC.0000000000002667. PMID: 33591070.
90. Jones AA, Gicas KM, Mostafavi S, Woodward ML, Leonova O, Vila-Rodriguez F, Procyshyn RM, Cheng A, Buchanan T, Lang DJ, MacEwan GW, Panenka WJ, **Barr AM**, Thornton AE, Honer WG. Dynamic networks of psychotic symptoms in adults living in precarious housing or homelessness. *Psychol Med.* 2021 Jan 18:1-11. doi: 10.1017/S0033291720004444. Epub ahead of print. PMID: 33455593.

91. Jutzeler CR, Linde LD, Rosner J, Hubli M, Curt A, **Kramer JLK**. Single-trial averaging improves the physiological interpretation of contact heat evoked potentials. *Neuroimage*. 2021 Jan 15;225:117473. doi: 10.1016/j.neuroimage.2020.117473. Epub 2020 Oct 21. PMID: 33099013.
92. Karim S, Islam A, Rafiq S, **Laher I**. The COVID-19 Pandemic: Disproportionate Thrombotic Tendency and Management Recommendations. *Trop Med Infect Dis*. 2021 Feb 18;6(1):26. doi: 10.3390/tropicalmed6010026. PMID: 33670475; PMCID: PMC7930939.
93. **Ke JXC**, George RB, Wozney L, Munro A. Perioperative mobile application for mothers undergoing Cesarean delivery: a prospective cohort study on patient engagement. *Can J Anaesth*. 2021 Apr;68(4):505-513. doi: 10.1007/s12630-020-01907-x. Epub 2021 Jan 9. PMID: 33420678; PMCID: PMC7794079.
94. **Ke JXC**, Wafa K, Piccott D, Galgay S. Near-complete glottic obstruction from a loose glottic cancer mass. *Can J Anaesth*. 2021 Sep;68(9):1437-1439. doi: 10.1007/s12630-021-02009-y. Epub 2021 May 4. PMID: 33948906.
95. **Ke JXC**, Waslen A, Park C, Hung O. Accelerating innovation in medicine: a wake-up call amidst the COVID-19 pandemic. *Can J Anaesth*. 2021 Dec;68(12):1744-1746. doi: 10.1007/s12630-021-02087-y. Epub 2021 Aug 17. PMID: 34405357; PMCID: PMC8370453.
96. **Kidson KM**, Ayas NT, Henderson WR. Chapter 11: Respiratory System Mechanics and Energetics. Murray and Nadel's Textbook of Respiratory Medicine 7th edition. Editors: Broaddus, Ernst, King, Lazarus, Sarmiento, Schnapp, Stapleton, Gotway. Publisher: Elsevier Saunders. June 2021.
97. **Kidson KM**, Lapinsky S, Grewal J. A Detailed Review of Critical Care Considerations for the Pregnant Cardiac Patient. *Can J Cardiol*. 2021 Dec;37(12):1979-2000. doi: 10.1016/j.cjca.2021.08.020. Epub 2021 Sep 15. PMID: 34534620.
98. **Kidson KM**, **Park J**, Charles MK, Omar M, Kraiden M, Wright AJ, Hussaini T, Kim PTW, Chung SW, Yoshida EM. Successful Liver Transplantation in a Patient With Acute COVID-19 Infection and Acute Liver Failure: A Case Report. *Transplant Direct*. 2021 Aug 26;7(10):e747. doi: 10.1097/TXD.0000000000001210
99. Kim DD, **Barr AM**, Lian L, Yuen JWY, Fredrikson D, Honer WG, Thornton AE, Procyshyn RM. Efficacy and tolerability of aripiprazole versus D₂ antagonists in the early course of schizophrenia: a systematic review and meta-analysis. *NPJ Schizophr*. 2021 May 25;7(1):29. doi: 10.1038/s41537-021-00158-z. PMID: 34035313; PMCID: PMC8149726.
100. Kim DD, **Barr AM**, Rafizadeh R, Procyshyn RM. Population pharmacokinetics and dosing of long-acting injectable antipsychotics. *J Psychiatry Neurosci*. 2021 Sep 1;46(5):E516-E517. doi: 10.1503/jpn.210079. PMID: 34467748; PMCID: PMC8526156.
101. Kim DD, **Barr AM**, Stewart SE, White RF, Honer WG, Procyshyn RM. Relationship between clozapine dose and severity of obsessive-compulsive symptoms. *Med Hypotheses*. 2021 Mar;148:110506. doi: 10.1016/j.mehy.2021.110506. Epub 2021 Jan 21. PMID: 33515917.
102. Kim DD, Lang DJ, Warburton DER, **Barr AM**, White RF, Honer WG, Procyshyn RM. Exercise and Worsening of Extrapyrimalidal Symptoms during Treatment with Long-Acting Injectable Antipsychotics. *Pharmacy (Basel)*. 2021 Jul 3;9(3):123. doi: 10.3390/pharmacy9030123. PMID: 34287361; PMCID: PMC8293348.

103. Kingma JG Jr, **Laher I**. Effect of endothelin on sex-dependent regulation of tone in coronary resistance vessels. *Biochem Biophys Res Commun*. 2021 Feb 12;540:56-60. doi: 10.1016/j.bbrc.2020.12.103. Epub 2021 Jan 12. PMID: 33445111.
104. **Kisilevsky AE, Addison CM, Flexman AM**. Neurosurgical Interventions for Neurotrauma in the Obstetric Population: A Systematic Review. *J Neurosurg Anesthesiol*. 2021 Jul 1;33(3):203-211. doi: 10.1097/ANA.0000000000000665. PMID: 31743275.
105. Klimas J, Hamilton MA, Carney G, Cooper IR, Croteau NS, Dong H, Dormuth C, **Maclure M**, Socias ME, Ti L, Wood E, McCracken R. Individualized prescribing portraits to reduce inappropriate initiation of opioid analgesics to opioid naïve patients in primary care: Protocol for a randomized controlled trial. *Contemp Clin Trials*. 2021 Aug;107:106462. doi: 10.1016/j.cct.2021.106462. Epub 2021 May 31. PMID: 34082074.
106. Krepiakevich A, Khowaja AR, Kabajaasi O, Nemetchek B, **Answermino JM**, Kisson N, Mugisha NK, Tayebwa M, Kabakyenga J, **Wiens MO**. Out of pocket costs and time/productivity losses for pediatric sepsis in Uganda: a mixed-methods study. *BMC Health Serv Res*. 2021 Nov 19;21(1):1252. doi: 10.1186/s12913-021-07272-9. PMID: 34798891; PMCID: PMC8605527.
107. Kuchibhotla VNS, Starkey MR, Reid AT, Heijink IH, Nawijn MC, Hansbro PM, **Knight DA**. Inhibition of β -Catenin/CREB Binding Protein Signaling Attenuates House Dust Mite-Induced Goblet Cell Metaplasia in Mice. *Front Physiol*. 2021 Jul 27;12:690531. doi: 10.3389/fphys.2021.690531. PMID: 34385933; PMCID: PMC8353457.
108. Ladha KS, McLaren-Blades A, Goel A, Buys MJ, Farquhar-Smith P, Haroutounian S, Kotteeswaran Y, Kwofie K, Le Foll B, Lightfoot NJ, Loïselle J, Mace H, Nicholls J, Regev A, Rosseland LA, Shanthanna H, Sinha A, **Sutherland A**, Tanguay R, Yafai S, Glenly M, Choi P, Ladak SSJ, Leroux TS, Kawpeng I, Samman B, Singh R, Clarke H. Perioperative Pain and Addiction Interdisciplinary Network (PAIN): consensus recommendations for perioperative management of cannabis and cannabinoid-based medicine users by a modified Delphi process. *Br J Anaesth*. 2021 Jan;126(1):304-318. doi: 10.1016/j.bja.2020.09.026. Epub 2020 Oct 29. PMID: 33129489.
109. Lee S, Allen AJH, Morley E, **Swart P**, Henderson W, Jen R, Ayas N. Perioperative myocardial injury risk after elective knee and hip arthroplasty in patients with a high risk of obstructive sleep apnea. *Sleep Breath*. 2021 Mar;25(1):513-515. doi: 10.1007/s11325-020-02068-3. Epub 2020 Apr 7. PMID: 32253610.
110. **Lee SM**, Meyler P, Mozel M, Choi J, **Tauh T**. Provider attitudes and satisfaction with rapid preoperative point-of-care COVID-19 testing using ID NOW™. *Can J Anaesth*. 2021 Nov;68(11):1659-1667. doi: 10.1007/s12630-021-02073-4. Epub 2021 Jul 22. PMID: 34292525; PMCID: PMC8296831.
111. **Lee SM**, Missirlis PI. Low intraoperative end-tidal carbon dioxide: a promising target to improve outcomes or a marker of physiologic instability? *Can J Anaesth*. 2021 Nov;68(11):1587-1591. English. doi: 10.1007/s12630-021-02095-y. Epub 2021 Aug 23. PMID: 34426960.
112. Lei M, Rintoul K, Stubbs JL, Kim DD, Jones AA, Hamzah Y, Procyshyn RM, Gicas KM, Cho LL, Panenka WJ, Thornton AE, Lang DJ, MacEwan GW, Honer WG, **Barr AM**. Characterization of Bodily Pain and Use of Both Prescription and Non- Prescription Opioids in Tenants of Precarious Housing. *Subst Use Misuse*. 2021;56(13):1951-1961. doi: 10.1080/10826084.2021.1958865. Epub 2021 Aug 2. PMID: 34338612.

113. Leising J, **Barr AM**, Procyshyn RM, Ainsworth NJ, White RF, Honer W, Vila- Rodriguez F. High-Dose Fluvoxamine Augmentation to Clozapine in Treatment- Resistant Psychosis. *J Clin Psychopharmacol*. 2021 Mar-Apr 01;41(2):186-190. doi: 10.1097/JCP.0000000000001342. PMID: 33587389.
114. Leister I, Linde LD, Vo AK, Haider T, Mattiassich G, Grassner L, Schaden W, Resch H, Jutzeler CR, Geisler FH, **Kramer JLK**, Aigner L. Routine Blood Chemistry Predicts Functional Recovery After Traumatic Spinal Cord Injury: A Post Hoc Analysis. *Neurorehabil Neural Repair*. 2021 Apr;35(4):321-333. doi: 10.1177/1545968321992328. Epub 2021 Feb 22. PMID: 33615895.
115. Leung L, Lee LHN, Lee B, **Chau A**, Wang EHZ. The safety of high-dose dexmedetomidine after cardiac surgery: a historical cohort study. *Can J Anaesth*. 2022 Mar;69(3):323-332. English. doi: 10.1007/s12630-021-02167-z. Epub 2021 Dec 29. PMID: 34966972.
116. Li ECK, Grays S, Tagoola A, Komugisha C, Nabweteme AM, **Answermino JM**, Mitton C, Kissoon N, Khowaja AR. Cost-effectiveness analysis protocol of the Smart Triage program: A point-of-care digital triage platform for pediatric sepsis in Eastern Uganda. *PLoS One*. 2021 Nov 17;16(11):e0260044. doi: 10.1371/journal.pone.0260044. PMID: 34788338; PMCID: PMC8598020.
117. Lian L, Kim DD, Procyshyn RM, Fredrikson DH, Cázares D, Honer WG, **Barr AM**. Efficacy of long-acting injectable versus oral antipsychotic drugs in early psychosis: A systematic review and meta-analysis. *Early Interv Psychiatry*. 2021 Jul 14. doi: 10.1111/eip.13202. Epub ahead of print. PMID: 34263540.
118. Liang G, Bhiladvala C, **Preston R**. Nutritional preferences of women during labour: a survey study. *Int J Obstet Anesth*. 2021 Nov;48:103209. doi: 10.1016/j.ijoa.2021.103209. Epub 2021 Jul 28. PMID: 34391026.
119. Lin JJ, **Loucks CM**, Trueman JN, Drögemöller BI, Wright GEB, Yoshida EM, Ford JA, Lee SS, Kim RB, Al-Judaibi B, Schwarz UI, Ramji A, Tam E, Ross CJ, Carleton BC. Novel variant in glycophorin c gene protects against ribavirin-induced anemia during chronic hepatitis C treatment. *Biomed Pharmacother*. 2021 Nov;143:112195. doi: 10.1016/j.biopha.2021.112195. Epub 2021 Sep 22. PMID: 34562771.
120. Lin R, Zhu K, **Poznikoff AK**, **Görges M**, **Brown ZE**. The effect of intraoperative lidocaine infusion on postoperative opioid consumption in adolescents undergoing posterior spinal instrumentation and fusion for idiopathic scoliosis. *Spine J*. 2021 Jul;21(7):1047-1048. doi: 10.1016/j.spinee.2021.03.024. Epub 2021 Mar 25. PMID: 33774208.
121. Lindberg AP, **Flexman AM**. Perioperative stroke after non-cardiac, non- neurological surgery. *BJA Educ*. 2021 Feb;21(2):59-65. doi: 10.1016/j.bjae.2020.09.003. Epub 2020 Nov 5. PMID: 33889431; PMCID: PMC7810781.
122. Liu H, Joseph TS, Xiang QS, Tam R, Kozlowski P, Li DKB, MacKay AL, **Kramer JLK**, Laule C. A data-driven T₂ relaxation analysis approach for myelin water imaging: Spectrum analysis for multiple exponentials via experimental condition oriented simulation (SAME-ECOS). *Magn Reson Med*. 2022 Feb;87(2):915-931. doi: 10.1002/mrm.29000. Epub 2021 Sep 7. PMID: 34490909.
123. Lix LM, Sobhan S, St-Jean A, Daigle JM, **Fisher A**, Yu OHY, Dell'Aniello S, Hu N, Bugden SC, Shah BR, Ronksley PE, Alessi-Severini S, Douros A, Ernst P, Fillion KB. Validity of an algorithm to identify cardiovascular deaths from administrative health records: a multi-

database population-based cohort study. *BMC Health Serv Res.* 2021 Jul 31;21(1):758. doi: 10.1186/s12913-021-06762-0. PMID: 34332563; PMCID: PMC8325284.

124. Lo C, Yu J, **Görges M**, Matava C. Anesthesia in the modern world of apps and technology: Implications and impact on wellness. *Paediatr Anaesth.* 2021 Jan;31(1):31-38. doi: 10.1111/pan.14051. Epub 2020 Nov 23. PMID: 33119935.
125. Lobo D, Devys JM. Timing of surgery following SARS-CoV-2 infection: an international prospective cohort study. *Anaesthesia.* 2022 Jan;77(1):110. doi: 10.1111/anae.15540. Epub 2021 Jul 12. PMID: 34251685; PMCID: PMC8444636.
126. Looi K, Larcombe AN, Perks KL, Berry LJ, Zosky GR, Rigby P, **Knight DA**, Kicic A, Stick SM. Previous Influenza Infection Exacerbates Allergen Specific Response and Impairs Airway Barrier Integrity in Pre-Sensitized Mice. *Int J Mol Sci.* 2021 Aug 16;22(16):8790. doi: 10.3390/ijms22168790. PMID: 34445491; PMCID: PMC8395745.
127. Lorello GR, **Flexman AM**. Authorship of Women in Neuroanesthesia and Neurocritical Care: Publish or Perish? *J Neurosurg Anesthesiol.* 2021 Oct 1;33(4):283-284. doi: 10.1097/ANA.0000000000000792. PMID: 34267155.
128. Lorello GR, Silver JK, Flores LE, Larson AR, McCarthy K, Odonkor CA, **Flexman AM**. Diversity of residency applicants to anaesthesiology and other specialties in the USA from 2014 to 2019. *Br J Anaesth.* 2021 Jul;127(1):e27-e30. doi: 10.1016/j.bja.2021.04.013. Epub 2021 May 25. PMID: 34045063.
129. Lorello GR, Silver JK, Flores LE, Larson AR, McCarthy K, Odonkor CA, **Flexman AM**. Diversity of residency applicants to anaesthesiology and other specialties in the USA from 2014 to 2019. *Br J Anaesth.* 2021 Jul;127(1):e27-e30. doi: 10.1016/j.bja.2021.04.013. Epub 2021 May 25. PMID: 34045063.
130. **Loucks CM**, Yan K, Tanoshima R, Ross CJD, Rassekh SR, Carleton BC. Pharmacogenetic testing to guide therapeutic decision-making and improve outcomes for children undergoing anthracycline-based chemotherapy. *Basic Clin Pharmacol Toxicol.* 2022 Jan;130 Suppl 1:95-99. doi: 10.1111/bcpt.13593. Epub 2021 May 11. PMID: 33900042.
131. Lunny C, Neelakant T, Chen A, Shinger G, Stevens A, Tasnim S, Sadeghipouya S, Adams S, Zheng YW, Lin L, Yang PH, Dosanjh M, Ngsee P, Ellis U, Shea BJ, Reid EK, **Wright JM**. Bibliometric study of 'overviews of systematic reviews' of health interventions: Evaluation of prevalence, citation and journal impact factor. *Res Synth Methods.* 2022 Jan;13(1):109-120. doi: 10.1002/jrsm.1530. Epub 2021 Oct 25. PMID: 34628727.
132. Lunny C, Ramasubbu C, Puil L, Liu T, Gerrish S, Salzwedel DM, Mintzes B, **Wright JM**. Over half of clinical practice guidelines use non-systematic methods to inform recommendations: A methods study. *PLoS One.* 2021 Apr 22;16(4):e0250356. doi: 10.1371/journal.pone.0250356. PMID: 33886670; PMCID: PMC8062080.
133. Lunny C, Reid EK, Neelakant T, Chen A, Zhang JH, Shinger G, Stevens A, Tasnim S, Sadeghipouya S, Adams S, Zheng YW, Lin L, Yang PH, Dosanjh M, Ngsee P, Ellis U, Shea BJ, **Wright JM**. A new taxonomy was developed for overlap across 'overviews of systematic reviews': A meta-research study of research waste. *Res Synth Methods.* 2021 Dec 19. doi: 10.1002/jrsm.1542. Epub ahead of print. PMID: 34927388.
134. Lunny C, Salzwedel DM, Mintzes B, Puil L, Liu T, Ramasubbu C, Gerrish S, **Wright JM**. Reply to Kelly Farrah and David Kaunelis regarding our study "Validation of five search filters for retrieval of clinical practice guidelines produced low precision". *J Clin*

Epidemiol. 2021 May;133:156-157. doi: 10.1016/j.jclinepi.2020.07.023. Epub 2020 Oct 6. PMID: 33031933.

135. Lunny C, Tricco AC, Veroniki AA, Dias S, Hutton B, Salanti G, **Wright JM**, White I, Whiting P. Methodological review to develop a list of bias items used to assess reviews incorporating network meta-analysis: protocol and rationale. *BMJ Open*. 2021 Jun 24;11(6):e045987. doi: 10.1136/bmjopen-2020-045987. PMID: 34168027; PMCID: PMC8231030.
136. Luong C, Kim JM, Wong GC, **Klein R**, Brunner N. Loculated Pericardial Effusion: An Uncommon Cause of Left Ventricular Outflow Tract Obstruction. *JACC Case Rep*. 2021 Jan 20;3(1):128-132. doi: 10.1016/j.jaccas.2020.11.035. PMID: 34317485; PMCID: PMC8305648.
137. MacCallum CA, Eadie L, **Barr AM**, Boivin M, Lu S. Practical Strategies Using Medical Cannabis to Reduce Harms Associated With Long Term Opioid Use in Chronic Pain. *Front Pharmacol*. 2021 Apr 30;12:633168. doi: 10.3389/fphar.2021.633168. PMID: 33995035; PMCID: PMC8120104.
138. Majdoubi A, Michalski C, O'Connell SE, Dada S, Narpala S, Gelinis J, Mehta D, Cheung C, Winkler DF, Basappa M, Liu AC, **Görges M**, Barakauskas VE, Irvine M, Mehalko J, Esposito D, Sekirov I, Jassem AN, Goldfarb DM, Pelech S, Douek DC, McDermott AB, Lavoie PM. A majority of uninfected adults show preexisting antibody reactivity against SARS-CoV-2. *JCI Insight*. 2021 Apr 22;6(8):e146316. doi: 10.1172/jci.insight.146316. PMID: 33720905; PMCID: PMC8119195.
139. Majdoubi A, Michalski C, O'Connell SE, Dada S, Narpala S, **Gelinis J, Mehta D**, Cheung C, Winkler DF, Basappa M, Liu AC, Görges M, Barakauskas VE, Irvine M, Mehalko J, Esposito D, Sekirov I, Jassem AN, Goldfarb DM, Pelech S, Douek DC, McDermott AB, Lavoie PM. A majority of uninfected adults show preexisting antibody reactivity against SARS-CoV-2. *JCI Insight*. 2021 Apr 22;6(8):e146316. doi: 10.1172/jci.insight.146316. PMID: 33720905; PMCID: PMC8119195.
140. Mawji A, Akech S, Mwaniki P, Dunsmuir D, Bone J, **Wiens MO, Görges M**, Kimutai D, Kissoon N, English M, Ansermino MJ. Derivation and internal validation of a data-driven prediction model to guide frontline health workers in triaging children under-five in Nairobi, Kenya. *Wellcome Open Res*. 2021 Apr 19;4:121. doi: 10.12688/wellcomeopenres.15387.3. PMID: 33997296; PMCID: PMC8097734.
141. Mawji A, Li E, Chandna A, Kortz T, Akech S, **Wiens MO**, Kissoon N, Ansermino M. Common data elements for predictors of pediatric sepsis: A framework to standardize data collection. *PLoS One*. 2021 Jun 10;16(6):e0253051. doi: 10.1371/journal.pone.0253051. PMID: 34111209; PMCID: PMC8192005.
142. **Mayson K**, Wallace T. Collaboration transforms delivery of care for surgical patients. *BCM J*. 2021 Oct; 63: 326-7.
143. **Mayson, K** with COVIDSurg Collaborative; GlobalSurg Collaborative. SARS-CoV-2 infection and venous thromboembolism after surgery: an international prospective cohort study. *Anaesthesia*. 2021 Aug 24. doi: 10.1111/anae.15563.
144. **Mayson, K** with COVIDSurg Collaborative; GlobalSurg Collaborative. Effects of pre-operative isolation on postoperative pulmonary complications after elective surgery: an international prospective cohort study. *Anaesthesia*. 2021 Nov;76(11):1454-1464. doi: 10.1111/anae.15560.

145. **Mayson, K** with COVIDSurg Collaborative; GlobalSurg Collaborative. Timing of surgery following SARS-CoV-2 infection: an international prospective cohort study. *Anaesthesia*. 2021 Jun;76(6):748-758. doi: 10.1111/anae.15458.
146. McDougall JF, Bailey NGN, Banga R, Linde LD, **Kramer JLK**. The Influence of Examiner Gender on Responses to Tonic Heat Pain Assessments: A Preliminary Investigation. *Front Pain Res (Lausanne)*. 2021 Dec 23;2:729860. doi: 10.3389/fpain.2021.729860. PMID: 35295446; PMCID: PMC8915545.
147. McGinnis E, Guo RJ, Marcon KM, Berry B, Coupland R, Meneghetti V, Morrison D, Onell R, Steele L, **Trudeau J**, Wong M, Shih AW. Adaptations of transfusion systems to the COVID-19 pandemic in British Columbia, Canada: Early experiences of a large tertiary care center and survey of provincial activities. *Transfusion*. 2021 Apr;61(4):1102-1111. doi: 10.1111/trf.16265. Epub 2021 Jan 16. PMID: 33452826; PMCID: PMC8014229.
148. McManus B, **Knight D**. Long-chain fatty acids are bad in IPF, or are they? *Respirology*. 2021 Mar;26(3):220-221. doi: 10.1111/resp.13981. Epub 2020 Nov 22. PMID: 33225574.
149. Meineri M, Arellano R, Bryson G, Arzola C, Chen R, Collins P, Denault A, Desjardins G, Fayad A, Funk D, Hegazy AF, Kim H, Kruger M, Kruisselbrink R, Perlas A, **Prabhakar C**, Syed S, Sidhu S, Tanzola R, Van Rensburg A, Talab H, Vegas A, Bainbridge D. Canadian recommendations for training and performance in basic perioperative point-of-care ultrasound: recommendations from a consensus of Canadian anesthesiology academic centres. *Can J Anaesth*. 2021 Mar;68(3):376-386. English. doi: 10.1007/s12630-020-01867-2. Epub 2020 Nov 24. PMID: 33236278.
150. Meineri M, Arellano R, Bryson G, Arzola C, Chen R, Collins P, Denault A, Desjardins G, Fayad A, Funk D, Hegazy AF, Kim H, Kruger M, Kruisselbrink R, Perlas A, **Prabhakar C**, Syed S, Sidhu S, Tanzola R, Van Rensburg A, Talab H, Vegas A, Bainbridge D. Canadian recommendations for training and performance in basic perioperative point-of-care ultrasound: recommendations from a consensus of Canadian anesthesiology academic centres. *Can J Anaesth*. 2021 Mar;68(3):376-386. English. doi: 10.1007/s12630-020-01867-2. Epub 2020 Nov 24. PMID: 33236278.
151. Mendel A, Ennis D, Go E, Bakowsky V, Baldwin C, Benseler SM, Cabral DA, Carette S, Clements-Baker M, Clifford AH, Cohen Tervaert JW, Cox G, Dehghan N, Dipchand C, Dhindsa N, Famorca L, Fifi-Mah A, Garner S, Girard LP, Lessard C, Liang P, Noone D, Makhzoum JP, Milman N, Pineau CA, Reich HN, Rhéaume M, Robinson DB, Rumsey DG, Towheed TE, **Trudeau J**, Twilt M, Yacyshyn E, Yeung RSM, Barra LB, Khalidi N, Pagnoux C. CanVasc Consensus Recommendations for the Management of Antineutrophil Cytoplasm Antibody-associated Vasculitis: 2020 Update. *J Rheumatol*. 2021 Apr;48(4):555-566. doi: 10.3899/jrheum.200721. Epub 2020 Sep 15. PMID: 32934123.
152. Merali Z, Malhotra AK, Balas M, Lorello GR, **Flexman A**, Kiran T, Witiw CD. Gender-based differences in physician payments within the fee-for-service system in Ontario: a retrospective, cross-sectional study. *CMAJ*. 2021 Oct 18;193(41):E1584-E1591. doi: 10.1503/cmaj.210437. PMID: 34663601; PMCID: PMC8547248.
153. Millichap JJ, Harden CL, Dlugos DJ, French JA, **Butterfield NN**, Grayson C, Aycardi E, Pimstone SN. Capturing seizures in clinical trials of antiseizure medications for <i>KCNQ2</i>-DEE. *Epilepsia Open*. 2021 Jan 29;6(1):38-44. doi: 10.1002/epi4.12466. PMID: 33681646; PMCID: PMC7918316.
154. Miyasaka K, Shelley K, Takahashi S, Kubota H, Ito K, Yoshiya I, Yamanishi A, Cooper JB, **Steward DJ**, Nishida H, Kiani J, Ogino H, Sata Y, Kopotic RJ, Jenkin K, Hannenberg A,

- Gawande A. Tribute to Dr. Takuo Aoyagi, inventor of pulse oximetry. *J Anesth.* 2021 Oct;35(5):671-709. doi: 10.1007/s00540-021-02967-z. Epub 2021 Aug 2. PMID: 34338865; PMCID: PMC8327306.
155. Moneo J, **Kramer JLK**, Nightingale TE, Berger MJ. Can Magnetic Resonance Imaging Reveal Lower Motor Neuron Damage after Traumatic Spinal Cord Injury? A Scoping Review. *Neurotrauma Rep.* 2021 Nov 29;2(1):541-547. doi: 10.1089/neur.2021.0019. PMID: 34901947; PMCID: PMC8655802.
 156. Moreault O, Couture EJ, Provencher S, Somma J, **Lohser J**, Ugalde PA, Lemieux J, Lellouche F, Bussièrès JS. Double-lumen endotracheal tubes and bronchial blockers exhibit similar lung collapse physiology during lung isolation. *Can J Anaesth.* 2021 Jun;68(6):791-800. English. doi: 10.1007/s12630-021-01938-y. Epub 2021 Feb 16. PMID: 33594596.
 157. Moriello C, Paterson JM, Reynier P, Dahl M, Aibibula W, **Fisher A**, Gamble JM, Kuo IF, Ronksley PE, Winqvist B, Filion KB; Canadian Network for Observational Drug Effect Studies (CNODES) Investigators. Off-label postpartum use of domperidone in Canada: a multidatabase cohort study. *CMAJ Open.* 2021 May 14;9(2):E500-E509. doi: 10.9778/cmajo.20200084. PMID: 33990364; PMCID: PMC8157989.
 158. Morrow RL, Mintzes B, Gray G, Law MR, Garrison S, **Dormuth CR**. Industry Sponsor Influence in Clinical Trial Reporting in Canada: A Qualitative Interview Study. *Clin Ther.* 2021 Dec 23:S0149-2918(21)00493-8. doi: 10.1016/j.clinthera.2021.11.019. Epub ahead of print. PMID: 34955232.
 159. Mostaco-Guidolin LB, Loube J, Barlow A, Osei ET, Vasilescu DM, Hsieh A, Fouadi M, Young C, Scott AL, Mitzner W, **Hackett TL**. Second harmonic generation imaging of collagen scaffolds within the alveolar ducts of healthy and emphysematous mouse lungs. *Histochem Cell Biol.* 2021 Feb;155(2):279-289. doi: 10.1007/s00418-020-01959-6. Epub 2021 Jan 30. PMID: 33515079.
 160. Mostaçõ-Guidolin LB, Yang CX, **Hackett TL**. Pulmonary Vascular Remodeling Is an Early Feature of Fatal and Nonfatal Asthma. *Am J Respir Cell Mol Biol.* 2021 Jul;65(1):114-118. doi: 10.1165/rcmb.2020-0339LE. PMID: 34241585; PMCID: PMC8662529.
 161. Napoleone G, **van Heusden K**, Cooke E, West N, **Görges M**, Dumont GA, **Answermino JM**, **Merchant RN**. The Effect of Low-Dose Intraoperative Ketamine on Closed-Loop-Controlled General Anesthesia: A Randomized Controlled Equivalence Trial. *Anesth Analg.* 2021 Nov 1;133(5):1215-1224. doi: 10.1213/ANE.0000000000005372. PMID: 33560659.
 162. Neira VM, Baghaffar A, Doggett N, **Ke JXC**, Stewart K. Coagulopathy Management of an Acute Type A Aortic Dissection in a Patient Taking Apixaban. *J Cardiothorac Vasc Anesth.* 2021 Mar 24:S1053-0770(21)00270-6. doi: 10.1053/j.jvca.2021.03.028. Epub ahead of print. PMID: 33896711.
 163. Neuman MD, Feng R, Carson JL, Gaskins LJ, Dillane D, Sessler DI, Sieber F, Magaziner J, Marcantonio ER, Mehta S, Menio D, Ayad S, Stone T, Papp S, Schwenk ES, Elkassabany N, Marshall M, Jaffe JD, Luke C, Sharma B, Azim S, Hymes RA, Chin KJ, Sheppard R, Perlman B, Sappenfield J, Hauck E, Hoeft MA, Giska M, Ranganath Y, Tedore T, Choi S, Li J, Kwofie MK, Nader A, Sanders RD, Allen BFS, Vlassakov K, Kates S, Fleisher LA, Dattilo J, Tierney A, Stephens-Shields AJ, Ellenberg SS; REGAIN Investigators. Spinal Anesthesia or General Anesthesia for Hip Surgery in Older Adults. *N Engl J Med.* 2021 Nov

25;385(22):2025-2035. doi: 10.1056/NEJMoa2113514. Epub 2021 Oct 9. PMID: 34623788

164. **Park J**, Lin MY, Wray CL, Kaldas FM, Benharash P, Gudzenko V. Applications and Outcomes of Extracorporeal Life Support Use in Adult Liver Transplantation: A Case Series and Review of Literature. *ASAIO J.* 2021 Sep 2. doi: 10.1097/MAT.0000000000001562.
165. Peel JK, **Flexman AM**, Kirkham KR, Lorello GR. Gender and sexuality-based discrimination in anesthesiology within Canada: a cross-sectional survey. *Can J Anaesth.* 2021 Aug;68(8):1263-1265. doi: 10.1007/s12630-021-01997-1. Epub 2021 Apr 23. PMID: 33890238.
166. Peel JK, **Trudeau J**, Tano R, Jadunandan S, Callum J, Moussa F, Lin Y. Determining Optimal Treatment to Correct Preoperative Anemia and Reduce Perioperative Allogeneic Blood Transfusions in Cardiac Surgery: A Retrospective Cohort Study. *J Cardiothorac Vasc Anesth.* 2021 Sep;35(9):2631-2639. doi: 10.1053/j.jvca.2020.12.044. Epub 2021 Jan 5. PMID: 33483268.
167. Peres BU, Hirsch Allen AJ, Daniele P, Humphries KH, Taylor C, **Laher I**, Almeida F, Jen R, Sandford AJ, van Eeden SF, Ayas NT. Circulating levels of cell adhesion molecules and risk of cardiovascular events in obstructive sleep apnea. *PLoS One.* 2021 Jul 30;16(7):e0255306. doi: 10.1371/journal.pone.0255306. PMID: 34329349; PMCID: PMC8323915.
168. Petrosyan Y, Thavorn K, **Maclure M**, Smith G, Mclsaac DI, Schramm D, Moloo H, **Preston R**, Forster AJ. Long-term Health Outcomes and Health System Costs Associated With Surgical Site Infections: A Retrospective Cohort Study. *Ann Surg.* 2021 May 1;273(5):917-923. doi: 10.1097/SLA.0000000000003285. PMID: 30907758.
169. Petrosyan Y, Thavorn K, Smith G, **Maclure M**, **Preston R**, van Walraven C, Forster AJ. Predicting postoperative surgical site infection with administrative data: a random forests algorithm. *BMC Med Res Methodol.* 2021 Aug 28;21(1):179. doi: 10.1186/s12874-021-01369-9. PMID: 34454414; PMCID: PMC8403439.
170. Prêle CM, Iosifidis T, McAnulty RJ, Pearce DR, Badrian B, Miles T, Jamieson SE, Ernst M, Thompson PJ, Laurent GJ, **Knight DA**, Mutsaers SE. Reduced *SOCS1* Expression in Lung Fibroblasts from Patients with IPF Is Not Mediated by Promoter Methylation or Mir155. *Biomedicines.* 2021 Apr 30;9(5):498. doi: 10.3390/biomedicines9050498. PMID: 33946612; PMCID: PMC8147237.
171. Protopapas AD, **Valchanov K**, Catarino P, Zochios V. Neuroprotection and the Aorta: One System, One Artery, One Expectation, One Team. *J Cardiothorac Vasc Anesth.* 2021 Apr;35(4):1189-1191. doi: 10.1053/j.jvca.2020.12.020. Epub 2020 Dec 17. PMID: 33431269.
172. Ramos-Miguel A, Jones AA, Petyuk VA, Barakauskas VE, **Barr AM**, Leurgans SE, De Jager PL, Casaletto KB, Schneider JA, Bennett DA, Honer WG. Proteomic identification of select protein variants of the SNARE interactome associated with cognitive reserve in a large community sample. *Acta Neuropathol.* 2021 May;141(5):755-770. doi: 10.1007/s00401-021-02282-7. Epub 2021 Mar 1. PMID: 33646358.
173. Rash JA, Campbell TS, Cooper L, Flusk D, **MacInnes A**, Nasr-Esfahani M, Mekhael AA, Poulin PA, Robert M, Yi Y. Evaluating the efficacy of intranasal oxytocin on pain and function among individuals who experience chronic pain: a protocol for a multisite, placebo-controlled, blinded, sequential, within-subjects crossover trial. *BMJ Open.* 2021

Sep 23;11(9):e055039. doi: 10.1136/bmjopen-2021-055039. PMID: 34556520; PMCID: PMC8461687.

174. Razi O, Mohammadi M, Zamani N, Hackney AC, Tourny C, Zouita S, **Laher I**, Zouhal H. Walking exercise and lower-body blood flow restriction: Effects on systemic inflammation, lipid profiles and hematological indices in overweight middle-aged males. *Res Sports Med.* 2022 Jan-Feb;30(1):41-49. doi: 10.1080/15438627.2021.1888100. Epub 2021 Feb 16. PMID: 33593160.
175. Rikhranj KJK, Wood MD, Hoiland RL, Thiara S, **Griesdale DEG**, Sekhon MS. Determining Optimal Mean Arterial Pressure After Cardiac Arrest: A Systematic Review. *Neurocrit Care.* 2021 Apr;34(2):621-634. doi: 10.1007/s12028-020-01027-w. PMID: 32572823.
176. Rosner J, **Negraeff M**, Bélanger LM, Tsang A, Ritchie L, Mac-Thiong JM, Christie S, Wilson JR, Dhall S, Charest-Morin R, Street J, Ailon T, Paquette S, Dea N, Fisher CG, Dvorak MF, Finnerup NB, Kwon BK, **Kramer JLK**. Characterization of Hyperacute Neuropathic Pain after Spinal Cord Injury: A Prospective Study. *J Pain.* 2022 Jan;23(1):89-97. doi: 10.1016/j.jpain.2021.06.013. Epub 2021 Jul 21. PMID: 34302956.
177. Rubenstein J, Harvey AW, **Vincent D**, Winston P. Cryoneurotomy to Reduce Spasticity and Improve Range of Motion in Spastic Flexed Elbow: A Visual Vignette. *Am J Phys Med Rehabil.* 2021 May 1;100(5):e65. doi: 10.1097/PHM.0000000000001624. PMID: 33105153.
178. Saczkowski R, **Kuzak N**, Grunau B, Schulze C. Extracorporeal life support rewarming rate is associated with survival with good neurological outcome in accidental hypothermia. *Eur J Cardiothorac Surg.* 2021 Apr 13;59(3):593-600. doi: 10.1093/ejcts/ezaa385. PMID: 33230533.
179. Saeidi A, Haghghi MM, Kolahdouzi S, Daraei A, Abderrahmane AB, Essop MF, **Laher I**, Hackney AC, Zouhal H. The effects of physical activity on adipokines in individuals with overweight/obesity across the lifespan: A narrative review. *Obes Rev.* 2021 Jan;22(1):e13090. doi: 10.1111/obr.13090. Epub 2020 Jul 13. PMID: 32662238.
180. Saeidi A, Shishvan SR, Soltani M, Tarazi F, Doyle-Baker PK, Shahrbanian S, Mollabashi SS, Khosravi N, **Laher I**, Moriarty TA, Johnson KE, VanDusseldorp TA, Zouhal H. Differential Effects of Exercise Programs on Neuregulin 4, Body Composition and Cardiometabolic Risk Factors in Men With Obesity. *Front Physiol.* 2022 Feb 7;12:797574. doi: 10.3389/fphys.2021.797574. PMID: 35197860; PMCID: PMC8859436.
181. Saeidi A, Soltani M, Daraei A, Nohbaradar H, Haghghi MM, Khosravi N, Johnson KE, **Laher I**, Hackney AC, VanDusseldorp TA, Zouhal H. The Effects of Aerobic-Resistance Training and Broccoli Supplementation on Plasma Dectin-1 and Insulin Resistance in Males with Type 2 Diabetes. *Nutrients.* 2021 Sep 9;13(9):3144. doi: 10.3390/nu13093144. PMID: 34579020; PMCID: PMC8471572.
182. Saeidi A, Tayebi SM, To-Aj O, Karimi N, Kamankesh S, Niazi S, Khosravi A, Khademosharie M, Soltani M, Johnson KE, Rashid H, **Laher I**, Hackney AC, Zouhal H. Physical Activity and Natural Products and Minerals in the SARS-CoV-2 Pandemic: An Update. *Ann Appl Sport Sci.* 2021 Spring;9(1):e976. doi: 10.29252/aassjournal.976. PMID: 35237740; PMCID: PMC8887880.
183. Samuel R, **Froese N**, Betts K, Gandhi S. Intraoperative Extubation Post Arterial Switch Operation for Transposition of the Great Arteries With Intact Ventricular Septum: A One-Year, Single Center Experience. *Semin Thorac Cardiovasc Surg.* 2021

Spring;33(1):134-140. doi: 10.1053/j.semtcvs.2020.06.038. Epub 2020 Jul 2. PMID: 32621961.

184. Schüler SS, **Petersen CL**, West NC, Ansermino JM, Merchant RN, Görges M. The effect of ketamine on depth of hypnosis indices during total intravenous anesthesia-a comparative study using a novel electroencephalography case replay system. *J Clin Monit Comput*. 2021 Oct;35(5):1027-1036. doi: 10.1007/s10877-020-00565-0. Epub 2020 Jul 25. PMID: 32712762.
185. Schüler SS, Petersen CL, West NC, **Ansermino JM, Merchant RN, Görges M**. The effect of ketamine on depth of hypnosis indices during total intravenous anesthesia-a comparative study using a novel electroencephalography case replay system. *J Clin Monit Comput*. 2021 Oct;35(5):1027-1036. doi: 10.1007/s10877-020-00565-0. Epub 2020 Jul 25. PMID: 32712762.
186. **Schwarz SKW**, Jones PM. Editors' note: 2021 Special Issue on airway management. *Can J Anaesth*. 2021 Sep;68(9):1313-1316. doi: 10.1007/s12630-021-02059-2. Epub 2021 Jun 21. PMID: 34155613; PMCID: PMC8216582.
187. **Schwarz SKW**. Accepting the baton at the Journal: a moment to celebrate success, science, diversity, and future opportunities. *Can J Anaesth*. 2021 Jan;68(1):1-7. doi: 10.1007/s12630-020-01841-y. Epub 2020 Nov 10. PMID: 33174165; PMCID: PMC7654843.
188. Sekhon MS, Hoiland RL, **Griesdale DE**. The importance of the oxygen cascade after cardiac arrest. *Resuscitation*. 2021 Nov;168:231-233. doi: 10.1016/j.resuscitation.2021.09.017. Epub 2021 Sep 27. PMID: 34592401.
189. **Seligman KM**, Abir G. Emergency Resources in Obstetrics. *Anesthesiol Clin*. 2021 Dec;39(4):631-647. doi: 10.1016/j.anclin.2021.08.004. PMID: 34776101.
190. Shahangian K, Ngan DA, Chen HHR, Oh Y, Tam A, Wen J, Cheung C, **Knight DA**, Dorscheid DR, **Hackett TL**, Hughes MR, McNagny KM, Hirota JA, Niikura M, Man SFP, Sin DD. IL-4R α blockade reduces influenza-associated morbidity in a murine model of allergic asthma. *Respir Res*. 2021 Mar 2;22(1):75. doi: 10.1186/s12931-021-01669-0. PMID: 33653328; PMCID: PMC7922715.
191. Shawish MI, Bagheri B, Musini VM, Adams SP, **Wright JM**. Effect of atorvastatin on testosterone levels. *Cochrane Database Syst Rev*. 2021 Jan 22;1(1):CD013211. doi: 10.1002/14651858.CD013211.pub2. PMID: 33482034; PMCID: PMC8094971.
192. Shopsowitz KE, Lim C, Shih AW, Fishbane N, Berry BR, Bigham M, Petraszko T, **Trudeau J**, Wyatt M, Yan MTS, Morrison D. Impacts of COVID-19 and elective surgery cancellations on platelet supply and utilization in the Canadian Province of British Columbia. *Vox Sang*. 2022 Feb;117(2):251-258. doi: 10.1111/vox.13180. Epub 2021 Jul 26. PMID: 34309031; PMCID: PMC8447158.
193. Singh I, Gusti V, **Vaghadia H**. Role of computed tomography (CT) in identifying foreign body ingestion in an individual with autism - A case report. *Radiol Case Rep*. 2021 Nov 15;17(1):216-218. doi: 10.1016/j.radcr.2021.10.014. PMID: 34824653; PMCID: PMC8605191.
194. Somma J, Couture ÉJ, Pelletier S, Provencher S, Moreault O, **Lohser J**, Ugalde PA, Vigneault L, Lemieux J, Somma A, Guay SE, Bussièrès JS. Non-ventilated lung deflation during one-lung ventilation with a double-lumen endotracheal tube: a randomized-controlled trial of occluding the non-ventilated endobronchial lumen before pleural

opening. *Can J Anaesth.* 2021 Jun;68(6):801-811. English. doi: 10.1007/s12630-021-01957-9. Epub 2021 Apr 2. PMID: 33797018.

195. Streijger F, Kim KT, So K, Manouchehri N, Shortt K, Okon EB, Morrison C, Fong A, Gupta R, Allard Brown A, Tigchelaar S, Sun J, Liu E, Keung M, Daly CD, Crompton PA, Sekhon MS, **Griesdale DE**, Kwon BK. Duraplasty in Traumatic Thoracic Spinal Cord Injury: Impact on Spinal Cord Hemodynamics, Tissue Metabolism, Histology, and Behavioral Recovery Using a Porcine Model. *J Neurotrauma.* 2021 Nov 1;38(21):2937-2955. doi: 10.1089/neu.2021.0084. Epub 2021 Jun 18. PMID: 34011164.
196. Stubbs JL, Thornton AE, Gicas KM, O'Connor TA, Livingston EM, Lu HY, Mehta AK, Lang DJ, Vertinsky AT, Field TS, Heran MK, Leonova O, Sahota CS, Buchanan T, **Barr AM**, MacEwan GW, Rauscher A, Honer WG, Panenka WJ. Characterizing Traumatic Brain Injury and Its Association with Losing Stable Housing in a Community-based Sample. *Can J Psychiatry.* 2022 Mar;67(3):207-215. doi: 10.1177/07067437211000665. Epub 2021 Mar 15. PMID: 33719613; PMCID: PMC8935598.
197. Sy E, Amram O, Baer HJ, Hameed SM, **Griesdale DEG**. Transport Time and Mortality in Critically Ill Patients with Severe Traumatic Brain Injury. *Can J Neurol Sci.* 2021 Nov;48(6):817-825. doi: 10.1017/cjn.2021.5. Epub 2021 Jan 12. PMID: 33431101.
198. Tam A, Leclair P, Li LV, Yang CX, Li X, Witzigmann D, Kulkarni JA, **Hackett TL**, Dorscheid DR, Singhera GK, Hogg JC, Cullis PR, Sin DD, Lim CJ. FAM13A as potential therapeutic target in modulating TGF- β -induced airway tissue remodeling in COPD. *Am J Physiol Lung Cell Mol Physiol.* 2021 Aug 1;321(2):L377-L391. doi: 10.1152/ajplung.00477.2020. Epub 2021 Jun 9. PMID: 34105356.
199. **Tauh T, Lee SM**, Meyler P, Mozel M, McLennan M, Hoang LMN. Correction to: Diagnostic performance and clinical application of preoperative COVID-19 bedside testing with ID NOW™. *Can J Anaesth.* 2021 Nov;68(11):1729. doi: 10.1007/s12630-021-02064-5. Erratum for: *Can J Anaesth.* 2021 Oct;68(10):1569-1571. PMID: 34268718; PMCID: PMC8282174.
200. **Tauh T, Lee SM**, Meyler P, Mozel M, McLennan M, Hoang LMN. Diagnostic performance and clinical application of preoperative COVID-19 bedside testing with ID NOW™. *Can J Anaesth.* 2021 Oct;68(10):1569-1571. doi: 10.1007/s12630-021-02035-w. Epub 2021 May 21. Erratum in: *Can J Anaesth.* 2021 Jul 15;: PMID: 34021477; PMCID: PMC8139543.
201. **Taylor J, Chau A**, Gunka V, Polishchuk E, Albert A, Chen J, **Massey S**. The incidence of dry chlorhexidine gluconate transfer from skin to surgical gloves: a simulation and in vitro study. *Int J Obstet Anesth.* 2021 Feb;45:111-114. doi: 10.1016/j.ijoa.2020.11.007. Epub 2020 Nov 22. PMID: 33334665.
202. **Taylor J, Chau A, Massey S**. In reply. *Int J Obstet Anesth.* 2021 May;46:102966. doi: 10.1016/j.ijoa.2021.102966. Epub 2021 Feb 20. PMID: 33714669.
203. Tehrani AY, Ciufolini MA, **Bernatchez P**. Nitric oxide in the Marfan vasculature: Friend or foe? *Nitric Oxide.* 2021 Nov 1;116:27-34. doi: 10.1016/j.niox.2021.08.006. Epub 2021 Aug 31. PMID: 34478846.
204. Tehrani AY, White Z, Milad N, Esfandiarei M, Seidman MA, **Bernatchez P**. Blood pressure-independent inhibition of Marfan aortic root widening by the angiotensin II receptor blocker valsartan. *Physiol Rep.* 2021 May;9(10):e14877. doi: 10.14814/phy2.14877. PMID: 34042309; PMCID: PMC8157789.

205. Thiara S, **Griesdale DEG**. The pulmonary artery catheter: a solution still looking for a problem. *Can J Anaesth*. 2021 Nov;68(11):1592-1596. English. doi: 10.1007/s12630-021-02084-1. Epub 2021 Aug 17. PMID: 34405360.
206. Thompson E, Eldstrom J, **Fedida D**. Hormonal Signaling Actions on Kv7.1 (KCNQ1) Channels. *Annu Rev Pharmacol Toxicol*. 2021 Jan 6;61:381-400. doi: 10.1146/annurev-pharmtox-010919-023645. Epub 2020 Jul 15. PMID: 32667860.
207. Todd KR, Shaw RB, **Kramer JLK**, Martin Ginis KA. Using ecological momentary assessment to evaluate neuropathic pain experienced by adults with SCI: recommendations and participant perceptions. *Disabil Rehabil*. 2021 Aug;43(17):2439-2446. doi: 10.1080/09638288.2019.1702724. Epub 2019 Dec 18. PMID: 31850813.
208. **Trudeau J**, Dawe P, Shih AW with Canadian Blood Services. Massive Hemorrhage and Emergency Transfusion. Canadian Blood Services Professional Education Series. Sept 2021. <https://professionaleducation.blood.ca/en/transfusion/clinical-guide/massive-hemorrhage-and-emergency-transfusion>
209. Tsutsui M, Cheung CY, Wada T, Jaw JE, Yang CWT, **Bernatchez P**, White Z, Yang CX, Bae EJA, Choi LH, Gelbart D, Lichtenstein S, Machan L, Elizur E, Wolff K, Goodacre E, Lipnicki M, Wong D, Sin DD. Radiofrequency therapy improves exercise capacity of mice with emphysema. *Sci Rep*. 2021 Oct 8;11(1):20056. doi: 10.1038/s41598-021-99474-8. PMID: 34625605; PMCID: PMC8501094.
210. Usman K, Hsieh A, **Hackett TL**. The Role of miRNAs in Extracellular Matrix Repair and Chronic Fibrotic Lung Diseases. *Cells*. 2021 Jul 6;10(7):1706. doi: 10.3390/cells10071706. PMID: 34359876; PMCID: PMC8304879.
211. **van Heusden K**, Cooke E, Brodie S, West N, **Görges M**, Dumont GA, **Answermino JM**, **Merchant RN**. Effect of ketamine on the NeuroSENSE WAV_{CNS} during propofol anesthesia; a randomized feasibility trial. *J Clin Monit Comput*. 2021 May;35(3):557-567. doi: 10.1007/s10877-020-00511-0. Epub 2020 Apr 19. PMID: 32307624.
212. **Varshney V**, **Osborn J**, Chaturvedi R, Shah V, Chakravarthy K. Advances in the interventional management of neuropathic pain. *Ann Transl Med*. 2021 Jan;9(2):187. doi: 10.21037/atm-20-6190. PMID: 33569489; PMCID: PMC7867895.
213. Vaseghi G, Malakoutikhah Z, Shafiee Z, Gharipour M, Shariati L, Sadeghian L, Khosravi E, Javanmard SH, Pourmoghaddas A, **Laheer I**, Zarfeshani S, Sarrafzadegan N. Apolipoprotein B gene mutation related to familial hypercholesterolemia in an Iranian population: With or without hypothyroidism. *J Res Med Sci*. 2021 Oct 18;26:94. doi: 10.4103/jrms.JRMS_970_19. PMID: 34899932; PMCID: PMC8607183.
214. Vo AK, Geisler F, Grassner L, Schwab J, Whiteneck G, Jutzeler C, **Kramer JLK**. Serum albumin as a predictor of neurological recovery after spinal cord injury: a replication study. *Spinal Cord*. 2021 Mar;59(3):282-290. doi: 10.1038/s41393-020-00536-x. Epub 2020 Aug 24. PMID: 32839519.
215. **Walker M**, d'Arville A, Lacey J, Lancman B, Moloney J, Hendel S. Mass casualty, intentional vehicular trauma and anaesthesia. *Br J Anaesth*. 2022 Feb;128(2):e190-e199. doi: 10.1016/j.bja.2021.08.030. Epub 2021 Oct 13. PMID: 34654520.
216. Wang D, Macharia WM, Ochieng R, Chomba D, Hadida YS, Karasik R, Dunsmuir D, Coleman J, Zhou G, Ginsburg AS, **Answermino JM**. Evaluation of a contactless neonatal

- physiological monitor in Nairobi, Kenya. *Arch Dis Child*. 2021 Nov 5:archdischild-2021-322344. doi: 10.1136/archdischild-2021-322344. Epub ahead of print. PMID: 34740876.
217. Warner FM, Bailey NG, Scheuren PS, Lütolf R, McGregor R, Banga R, Hsieh JTC, **Kramer JLK**. Clinical trials and tribulations: lessons from spinal cord injury studies registered on ClinicalTrials.gov. *Spinal Cord*. 2021 Dec;59(12):1256-1260. doi: 10.1038/s41393-021-00699-1. Epub 2021 Sep 3. PMID: 34480090.
218. West N, **Görges M**, Poznikoff A, **Whyte S**, **Malherbe S**. Association of dexmedetomidine with recovery room and hospital discharge times: A retrospective cohort analysis. *Paediatr Anaesth*. 2021 Nov;31(11):1170-1178. doi: 10.1111/pan.14257. Epub 2021 Aug 2. PMID: 34292656.
219. White Z, Milad N, Sellers SL, **Bernatchez P**. Effect of Dysferlin Deficiency on Atherosclerosis and Plasma Lipoprotein Composition Under Normal and Hyperlipidemic Conditions. *Front Physiol*. 2021 Jul 22;12:675322. doi: 10.3389/fphys.2021.675322. PMID: 34366880; PMCID: PMC8339577.
220. White Z, Theret M, Milad N, Tung LW, Chen WW, Sirois MG, Rossi F, **Bernatchez P**. Cholesterol absorption blocker ezetimibe prevents muscle wasting in severe dysferlin-deficient and mdx mice. *J Cachexia Sarcopenia Muscle*. 2022 Feb;13(1):544-560. doi: 10.1002/jcsm.12879. Epub 2021 Dec 19. PMID: 34927367; PMCID: PMC8818667.
221. **Wiens MO**, Kissoon N, Holsti L. Challenges in pediatric post-sepsis care in resource limited settings: a narrative review. *Transl Pediatr*. 2021 Oct;10(10):2666-2677. doi: 10.21037/tp-20-390. PMID: 34765492; PMCID: PMC8578768.
222. Wilton J, Abdia Y, Chong M, Karim ME, Wong S, **MacInnes A**, Balshaw R, Zhao B, Gomes T, Yu A, Alvarez M, Dart RC, Kraiden M, Buxton JA, Janjua NZ, Purssell R. Prescription opioid treatment for non-cancer pain and initiation of injection drug use: large retrospective cohort study. *BMJ*. 2021 Nov 18;375:e066965. doi: 10.1136/bmj-2021-066965. PMID: 34794949; PMCID: PMC8600402.
223. Wilton J, Chong M, Abdia Y, Purssell R, **MacInnes A**, Gomes T, Dart RC, Balshaw RF, Otterstatter M, Wong S, Yu A, Alvarez M, Janjua NZ, Buxton JA. Cohort profile: development and characteristics of a retrospective cohort of individuals dispensed prescription opioids for non-cancer pain in British Columbia, Canada. *BMJ Open*. 2021 Apr 13;11(4):e043586. doi: 10.1136/bmjopen-2020-043586. PMID: 33849849; PMCID: PMC8051385.
224. Winston P, Hashemi M, **Vincent D**. Ultrasound With E-Stimulation Diagnostic Nerve Blocks for Targeted Muscle Selection in Spasticity. *Am J Phys Med Rehabil*. 2021 Nov 1;100(11):e167. doi: 10.1097/PHM.0000000000001801. PMID: 34673709.
225. Wong JSH, Nikoo M, Westenberg JN, Suen JG, Wong JYC, Krausz RM, Schütz CG, Vogel M, Sidhu JA, Moe J, Arishenkoff S, **Griesdale D**, Mathew N, Azar P. Comparing rapid micro-induction and standard induction of buprenorphine/naloxone for treatment of opioid use disorder: protocol for an open-label, parallel- group, superiority, randomized controlled trial. *Addict Sci Clin Pract*. 2021 Feb 12;16(1):11. doi: 10.1186/s13722-021-00220-2. PMID: 33579359; PMCID: PMC7881636.
226. Wood MD, Boyd JG, Wood N, Frank J, Girard TD, Ross-White A, Chopra A, Foster D, **Griesdale DEG**. The Use of Near-Infrared Spectroscopy and/or Transcranial Doppler as Non-Invasive Markers of Cerebral Perfusion in Adult Sepsis Patients With Delirium: A

Systematic Review. *J Intensive Care Med.* 2022 Mar;37(3):408-422. doi: 10.1177/0885066621997090. Epub 2021 Mar 9. PMID: 33685273; PMCID: PMC8772019.

227. Xu F, Tanabe N, Vasilescu DM, McDonough JE, Coxson HO, Ikezoe K, Kinose D, Ng KW, Verleden SE, Wuyts WA, Vanaudenaerde BM, Verschakelen J, Cooper JD, Lenburg ME, Morshead KB, Abbas AR, Arron JR, Spira A, **Hackett TL**, Colby TV, Ryerson CJ, Ng RT, Hogg JC. The transition from normal lung anatomy to minimal and established fibrosis in idiopathic pulmonary fibrosis (IPF). *EBioMedicine.* 2021 Apr;66:103325. doi: 10.1016/j.ebiom.2021.103325. Epub 2021 Apr 13. PMID: 33862585; PMCID: PMC8054143.
228. Xu F, Vasilescu DM, Kinose D, Tanabe N, Ng KW, Coxson HO, Cooper JD, **Hackett TL**, Verleden SE, Vanaudenaerde BM, Stevenson CS, Lenburg ME, Spira A, Tan WC, Sin DD, Ng RT, Hogg JC. The molecular and cellular mechanisms associated with the destruction of terminal bronchioles in chronic obstructive pulmonary disease. *Eur Respir J.* 2021 Oct 21:2101411. doi: 10.1183/13993003.01411-2021. Epub ahead of print. PMID: 34675046.
229. **Young D** with Enhanced Recovery Canada. Clinical pathway for inpatient and outpatient hip and knee arthroplasty. June 2021.
https://www.healthcareexcellence.ca/media/k0mbozhc/erc_clinicalpathway_arthro_july2021_en.pdf
230. Yuan J, Wang M, Pan Y, Liang M, Fu Y, Duan Y, Tang M, **Laheer I**, Li S. The mitochondrial signaling peptide MOTS-c improves myocardial performance during exercise training in rats. *Sci Rep.* 2021 Oct 11;11(1):20077. doi: 10.1038/s41598-021-99568-3. PMID: 34635713; PMCID: PMC8505603.
231. Yuen JWY, Kim DD, Procyshyn RM, Panenka WJ, Honer WG, **Barr AM**. A Focused Review of the Metabolic Side-Effects of Clozapine. *Front Endocrinol (Lausanne).* 2021 Feb 25;12:609240. doi: 10.3389/fendo.2021.609240. PMID: 33716966; PMCID: PMC7947876.
232. Yuen JWY, Wu C, Wang CK, Kim DD, Procyshyn RM, Panenka WG, Honer WG, **Barr AM**. A ganglionic blocker and adrenoceptor ligands modify clozapine-induced insulin resistance. *Psychoneuroendocrinology.* 2021 Jul;129:105257. doi: 10.1016/j.psyneuen.2021.105257. Epub 2021 May 12. PMID: 34023734.
233. Zarin B, Eshraghi A, Zarifi F, Javanmard SH, **Laheer I**, Amin B, Vaseghi G. A review on the role of tau and stathmin in gastric cancer metastasis. *Eur J Pharmacol.* 2021 Oct 5;908:174312. doi: 10.1016/j.ejphar.2021.174312. Epub 2021 Jul 8. PMID: 34245746.
234. Zouhal H, Jayavel A, Parasuraman K, Hayes LD, Tourny C, Rhibi F, **Laheer I**, Abderrahman AB, Hackney AC. Effects of Exercise Training on Anabolic and Catabolic Hormones with Advanced Age: A Systematic Review. *Sports Med.* 2021 Dec 22. doi: 10.1007/s40279-021-01612-9. Epub ahead of print. PMID: 34936049.
235. Zouhal H, Zare-Kookandeh N, Haghghi MM, Daraei A, de Sousa M, Soltani M, Abderrahman AB, M Tijani J, Hackney AC, **Laheer I**, Saeidi A. Physical activity and adipokine levels in individuals with type 2 diabetes: A literature review and practical applications. *Rev Endocr Metab Disord.* 2021 Dec;22(4):987-1011. doi: 10.1007/s11154-021-09657-x. Epub 2021 Apr 30. PMID: 33931803.