



**DEPARTMENT OF ANESTHESIOLOGY,
PHARMACOLOGY & THERAPEUTICS**

2022

**ACADEMIC HOSPITAL SITES
& CLINICAL DIVISIONS**

REPORT

Hospitals and Health Centres

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.

2022 was a difficult year for the Department. It brought the untimely death of Dr. Lindsay Rawling, friend & colleague. It brought a post-pandemic respiratory virus season of unparalleled virulence and duration, causing months of reduced operating capacity over the winter of 2021-22, compounding that already inflicted by the pandemic and the move to electronic health records.

2022 was also a busy year in some regards, with the hospital undergoing (successful) re-accreditation, as well as receiving ChildKind accreditation, which latter recognises the organisation's efforts to standardise and continuously improve comfort measures for children throughout their hospital experience. While much of that experience takes place outside of our immediate Department, in her role as Director of the Acute Pain Service, Dr Randa Ridgway has been instrumental in leading the wider hospital community in the right direction in many ways.

Our clinical Faculty expanded in the academic 2022-23 year with the arrivals of Drs. Michelle Correia, Lynnne Correll and Teresa Skelton. In addition, Dr. Mary-Claire Simmonds graduated from her Fellowship & joined us in a 1-year term position, which she has since extended to two years.

The clinical Fellowship program remained strong and active, providing both advanced pediatric anesthesia clinical training and academic research and teaching opportunities for our Fellows. In 2022 our program doubled in size, from two to four: Drs. Ridhima Bhatia (India), Lorna Murphy (Ireland via Australia), Mei Foong Yeoh (Australia) and Arna Verholt (Netherlands). All four had a successful year. Drs Bhatia and Murphy both achieved acceptance of posters at international anesthesia meetings.

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. Dr. Zoë Brown stepped down from the Residency Site Coordinator (RSC) position to step up into the Program Director role; Dr Lynnne Correll has succeeded her as RSC.

The Pediatric Anesthesia Research Team (PART) underwent major changes in 2022. After six years our research manager & coordinator, Andrew Poznikoff, moved to a role at the BC Children's Hospital Research Institute. Recognising how that role has grown, we hired both a new coordinator, Bianca Vizcaino, and a new manager, Steffanie Fisher. We were extremely fortunate, and grateful, to have former research coordinator Nick West visiting with us in person in the Summer of 2022, to help smooth this operational leadership transition at a time when we had also expanded our UBC Co-op Student hiring to three students and were supporting three Summer Students! Then, in a planned and graduated leadership transition, Drs. Terri Skelton & Lynnne Correll took over the PART co-chair roles (that Drs. Simon Whyte and Matthias Görges had assumed on a 1-year interim basis in 2016!). The PART'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 to increase the number of Department members who are also BCCHRI members.

In September 2022 the BCCH Anesthesia Department hosted the Canadian Pediatric Anesthesia Society Scientific Meeting. This international three-day conference was postponed from pandemic-struck 2020 & had last been held in Vancouver in 2004. With 100 attendees, national and international acclaimed guest speakers, workshops run by BCCH Anesthesia faculty, an associated BCCH Surgical Suites Grand Rounds and a city-wide Wednesday morning UBC Anesthesia Grand Rounds, the conference provided a once-in-a-generation opportunity to host a series of invaluable teaching events & showcase the UBC & BCCH Departments of Pediatric Anesthesia.

BRITISH COLUMBIA WOMEN'S HOSPITAL & HEALTH CENTRE



DEPARTMENT OF ANESTHESIA

Dr. James Brown
Department Head
Drs. Katie Seligman and Jonathan Collins
Associate Department Heads

2022 has been a year of recovery and getting used to the new normal, living with the aftermath of the pandemic (and CST implementation!). We have come out the other side busier than ever on the Obstetric side with increased cesarean section and epidural rates, and continued expansion of our Gynecology Surgical program, furthering our role of shifting low-risk ambulatory surgery from the larger centres to allow them to focus on procedures that can only be done at their sites. After a successful introduction the previous year, we have doubled the number of 23-hour inpatient stay beds, which has allowed the scope of surgeries we support to expand.

With increased services we continue to grow; we have been actively recruiting, most successfully from our Residency and Fellowship programs – we are lucky to have Dr. Katie Clark (One of our current Clinical Fellows; originally Canadian, completed undergrad in Ireland and Postgrad in the US), and two of our local UBC residents, Dr. Naima Kotadia (joint appointment with VGH) and Dr. Amir Siddiqui joining us after completion of their respective Fellowship Programs. We are still aspiring to 24/7 Anesthesia Assistant (AA) coverage, but are not there yet despite concerted efforts to bring on and train more AAs.

We have split up the roles of our Research and Fellowship Director; the idea is to allow Dr. Anton Chau more time to concentrate his own research interests and at the same time still be able to support the Department and Fellowship research education and programs. Dr. Clare Burlinson has taken over the Fellowship Director role and we are refreshing the curriculum to include medical leadership, QI/QA, and ethics to complement the traditional clinical and research focus. We are grateful for Dr. Helen Parker's work as our Education and Simulation lead, organising multiple in-house sessions and our first Provincial OB Anesthesia Simulation update session which was very successful. Many of you will know Dr. Katie Seligman from her tireless work with BCAS, she is our Quality and Safety Lead, and we are appreciative of her agreeing to also take on the role of Associate Department Head, expanding our leadership capacity.

We are learning to live with and make the most of CST, working hard to maximize the potential that is there for QI and QA. After much effort we are able to produce regular individualized anesthesiologist activity reports (including procedure volumes, numbers of epidurals requiring resites, % successfully topped-up for OR, complications etc...) – thank you to Drs. Elise Hindle and Mike Wong! We have generally managed to move things in the right direction this last year. In the first half of the coming year we have a Hospital Accreditation, which is expected to take up significant bandwidth. As well as the Group contract negotiations with the PHSA/MOH (with consideration of whether we adopt the Provincial APP), hopefully this will be an opportunity for the group to reflect and be a forum for discussions on how to support the ongoing development of our Department and services.

LIONS GATE HOSPITAL



Dr. Magdalena Lipowska
Department Head- Anesthesiology
VCH Coastal Community of Care.

2022 saw LGH continuing to recover from the effects of the COVID pandemic and the significant challenges brought on by being the COVID referral site for the VCH Coastal Community of Care. The entire OR team and our Anesthesia Department have worked hard to make progress on the OR cases canceled during the pandemic.

The summer of 2022 saw a transition in leadership in Anesthesia. Dr. Clare Morrison, who had held the dual positions of Department Head of Anesthesia for VCH Coastal Community of Care as well as the Comedical Director of the Surgical Program from 2019-2022, stepped down from her Department Head role in July 2022. During her tenure, she led the LGH Department of Anesthesia through an exceptionally challenging time, including the loss of a colleague as well as the COVID pandemic. She was, through it all, able to represent anesthesia and champion excellent clinical care as well as continue to build significant relationships with our anesthesia partners across the 3 VCH Coastal Community of Care Surgical programs in Squamish, Sechelt, and Qathet Hospital in Powell River. After several years as Deputy Department Head, Dr. Magda Lipowska was appointed to the position of Department Head in July 2022. Dr. Clare Morrison continues her very active involvement in the surgical program as Comedical Director of the surgical program, a role which has now been split from that of Department Head. Dr. Riley Senft has stepped into the role of Deputy Department Head. Dr. Teresa Ripley continues to be our Preadmission Clinic Medical Lead.

Dr. Randy Hewgill continues in his role of Education lead at our site, overseeing the ever-expanding presence of residents at Lions Gate Hospital. Our site also provides opportunities for refresher days and extra training for currently practicing FPA's, as well as providing teaching for paramedic students and Anesthesia Assistant trainees.

Dr. John McAlpine serves in the role of Director of the Family Practice Anesthesia Program and Dr. Rob Fingland is the Local Site representative for the Family Practice Anesthesia Program. Due to our position as one of the hospitals in the Coastal Community of Care, Lions Gate Hospital and its Anesthesia Department maintain ties with the surgical programs across the other VCH Coastal Community of Care sites.

Under the excellent guidance of Dr. Rob Fingland and Dr. Teresa Ripley, Anesthesiology at LGH now also runs monthly perioperative Simulations for Department members and perioperative staff. We have also been involved in enhancing perioperative staff wellness with Dr. Clare Morrison and Dr. Kelly Chatterson representing the Department on the Perioperative Wellness Committee. Both initiatives have been well received and are helping with staff collegiality and morale.

In 2022 we added two extra ORs per week, providing extra capacity for Therapeutic Endoscopy and Closed Urology to our roster.

We also continued with an expanded half-day slate every day providing access to Obstetrical and Minor Gynecology cases outside of the Major Gynecology OR.

Work is continuing on the new Acute Care Facility Tower at Lions Gate Hospital, slated to open at the end of 2024. This will see our ORs expand by 2, and bring with it much-anticipated innovation in patient care spaces.

Staffing Changes:

2022 saw the addition of Dr. Stephanie Peters and Dr. Ryan Latimer to our Department. Dr. Tom Kuca left the Department to pursue work outside of the Lower Mainland.

ROYAL COLUMBIAN HOSPITAL AND EAGLE RIDGE HOSPITAL



Dr. Feisal Mohamedali
Regional Medical Director & Regional Department Head

The Department of Anesthesiology and Perioperative Medicine at Royal Columbian Hospital (RCH) provides anesthesia services at both RCH and Eagle Ridge Hospital (ERH). RCH along with Vancouver General Hospital is one of two Level 1 trauma centers in the province and serves as the tertiary care referral center 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.

RCH is the highest-volume cardiac center in BC, and cares for an ever-growing volume of trauma patients, as a result of its large population base, and 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 orthopedic 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 orthopedic and plastic surgery patients. RCH is the regional neurosurgical referral center 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 center of excellence for high-risk obstetrical care, specifically the management of complex invasive placenta conditions (eg. placenta accrete), 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 multi-centre 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 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 center 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. Alexander Vesely
Dr. Clara Gramberg
Dr. Freda Wong
Co-Heads, Department of Anesthesiol-

2022 was a year of growth and maturation for the SMH Department of Anesthesiology, continuing a trend beginning during, and in part stimulated by, the Covid-19 pandemic. From head count to department engagement and leadership, governance and economics issues, steady incremental gains were seen across the board.

Involvement with the UBC Residency Program has continued to increase, led by 2019 UBC alumni Drs. Disha Mehta and Christine Graf. As a "tertiary teaching community hospital", R1 to TTP Residents rotating through SMH/JPOCSC quickly appreciate the fertile learning environment, and the challenging but enjoyable combination of volume and acuity in community setting. Perennial favourites continue to include Pediatrics, major Head and Neck, and Thoracics, for all of which we are the designated FHA site, as well as our now well-established Block Program, which has excelled as both a high quality clinical service and a popular educational experience in providing thoracic epidurals, upper and lower extremity, and truncal blocks to SMH surgical patients.

Our in-house Surgical and Obstetric Hi-Fidelity Simulation Program, led by Dr. Clara Gramberg, has become a valuable safety/quality and team building asset. AA support remains strong, supporting an efficient and sustainable practice for our group.

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 further 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. Highly collaborative relations with our Surgical Department and our effective Management Team have allowed for sustainable growth, resulting in preserved working conditions, staffing and morale, and therefore very low closures. Despite lack of new construction, ongoing investments in modernizing, reactivating and optimizing OR spaces within the existing footprint are allowing growth of what is already the busiest surgical program in FHA.

At year end, our Department was sitting at 35 members totaling 25 FTE, having added several new members with a diverse range of expertise over the 2022 academic year. Our most recent hiring cycle brought substantial interest from prospective 2024 candidates. There is no question that UBC graduates will be integral part of meeting our attrition and expansion needs in 2023-2025 and beyond.

ST. PAUL'S HOSPITAL



Dr. Jim Kim
Chair, Department of Anesthesiology, PHC

St. Paul's is a Clinical Medical Academic Centre in downtown Vancouver that is integral to the University of British Columbia Faculty Of Medicine. It is part of Providence Health, which comprises St. Paul's Hospital, Mt. St. Joseph's Hospital, and a number of residential facilities. The Department of Anesthesiology is an integral part of the surgical program and has demonstrated excellence in numerous aspects of perioperative care. Areas of clinical focus include Cardiac Anesthesia, Regional Anesthesia, Perioperative Medicine, Interventional and Complex Pain. The Department of Medicine houses major initiatives in Respiratory, Cardiac, Addictions, and Nephrology areas. The Department of Surgery aside from Cardiac sciences also has components including Urology, Otolaryngology, General, Gynecologic, Plastic, and Orthopedic surgery as well as Vascular surgery. Anesthesiology at St. Paul's Hospital is a major Department comprising 57 anesthesiologists and up to 6 subspecialty fellows. The Department also delivers anesthetic services at Mt. St. Joseph's hospital (a community hospital) with 4 Operating Rooms and 3 Ophthalmology Procedure Rooms.

The Cardiac Anesthesia Group is comprised of 15 members responsible for the intra-operative Trans-esophageal Echo Program, CSICU, Structural Heart and Open Heart and Transplant programs. The longtime leader, Dr Bobby Lee transitioned his role to Dr Anne Marie Madden at the end of the year. Dr Matt Klass leads the TEE group; Dr Matt Coley is the CSICU Lead; and Dr Simon Bruce is the anesthesia lead for structural heart program. Our successful Cardiac Anesthesia Fellowship program is lead by Dr. Kevin Rondi and welcomes 2 Fellows each year. The Cardiac Group welcomed the addition of two new members in 2021, Dr Jean Raubenheimer from South Africa and Dr Terri Sun who returned from a Cardiac Fellowship in the University of Washington and in 2022, Dr Dmitry Mebel who returned from training in Australia. Dr Terri Sun is the PI for two research projects that completed in 2022.

The Pain Group has been very active with Dr. Jill Osborn is the Physician lead for SPH Complex Pain Program (6 members) as well as Interventional Pain. Dr Ainsley Sutherland leads the Acute Pain Team (9 members) as well as the Transitional Pain Clinic where she is joined by Dr. Kat Kojic. The multidisciplinary Complex pain clinic provides services with outreach to many areas outside the lower mainland. Given its unique and well-planned efficiency this is hoped to be used as a model for the evolution of various chronic pain programs in the province. The multidisciplinary Neuromodulation Program (Dr Jill Osborn and Dr. Vishal Varshney) received extra funding because of the successful Health Technology Review which more than doubled resources available to the program. Working together with the SPH Foundation, two initiatives were prioritised: The creation of an Endowed Chair in Pain Medicine and support for the Neuromodulation Program. In 2022, the Transitional Pain Clinic was launched after the completion of a multimillion-dollar Supercluster project jointly funded by government, industry and PHC.

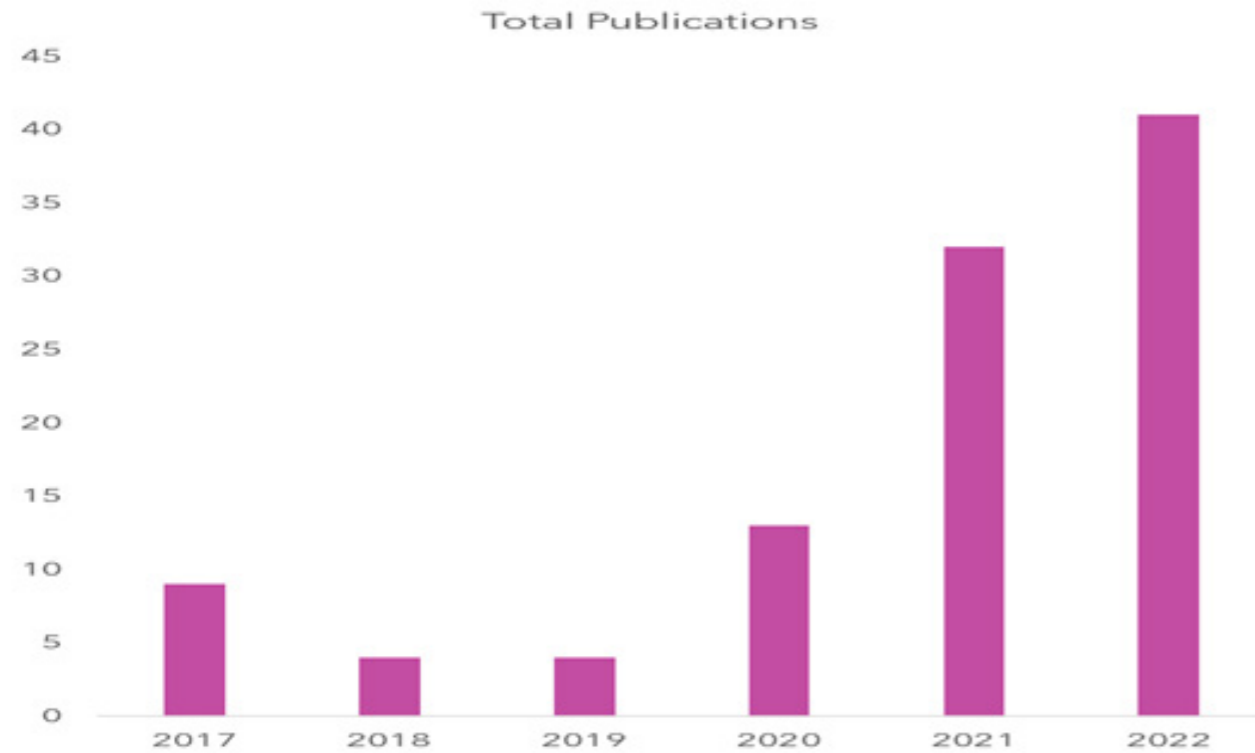
The Regional Anesthesia Group is lead by Dr. Chris Prabhakar and has 12 members. They perform over 4500 regional blocks per year at 3 separate locations with dedicated block areas (two at SPH and one at MSJ). There are three active research projects with cardiac surgery group. Dr Thomas Prasloski joined the group after completing Regional Fellowship in Australia. The Regional Fellowship is very competitive and welcomes two Fellows/year and a large number of residents. Dr Steve Petrar is the overall department Fellowship program director and also leads the Regional Fellowship program.

The Perioperative medicine group welcomed a new Physician Lead in Dr. Sui Yin McDonell. In 2022, Dr. Vincent Fruci joined the group. He recently completed his qualification in Palliative Care Medicine after completing his Anesthesia training in Ottawa. He will build bridges between the two specialties. The group continues to be innovative in terms of its team-based approach to perioperative care with residents, fellows and internal medicine staff.

Simulation is a major focus of the department with Dr. Shannon Lockhart as the Co-physician lead for PHC Simulation.

The PHC Anesthesia Research program, led by Dr. Alana Flexman, had numerous milestones including the following grants and awards and a record number of publications (42):

- Michael Smith Research BC \$450,000 (Dr. Alana Flexman)
- UBC New Faculty Grant \$10,000 (Dr. Tim Jen)
- UBC Health Innovation Award \$30,000 (Dr. Janny Ke)
- PHCRI Early Career Clinician Investigator Award \$35,000 (Dr. Janny Ke)
- PHC Skunkworks Innovation Award (Pain) \$65,000 (Dr. Ron Ree, Dr Michael Jew)
- BC MOH Research Priorities Award \$35,000 (Dr. Janny Ke)



The Department of Anesthesia at St. Paul's Hospital will continue to develop as one of the larger departments in Providence Health Care. New staff who will go on to subspecialty training include:

- Dr. Lily Chew (Regional Anesthesia)
- Dr. Michael Jew (Regional Anesthesia)
- Dr Charles Yu (Perioperative Medicine)

The PHC Anesthesia Academic Leadership continues to be active in the UBC system and abroad. These are some of the highlights from this year's activity.

- Stephan Schwarz, Editor-in-Chief, Canadian Journal of Anesthesia, Director of the UBC Hugill Anesthesia Research Centre
- Bobby Lee, Head, UBC Division of Cardiac Anesthesiology
- Alana Flexman, President, Society for Neuroscience in Anesthesiology and Critical Care & Past-Chair, Neuroanesthesia Section, Canadian Anesthesiologists' Society; Associate Editor, Journal of Neurosurgical Anesthesiology
- Su-Yin MacDonell, Head, UBC Division of Perioperative Anesthesiology
- Cynthia Yarnold, Co-Chair, UBC Promotions Committee; UBC Competency Committee
- Jim Kim, Past-Treasurer, Canadian Anesthesiologists' Society
- Vishal Varshney & Jill Osborn, Board Members-at-Large, Canadian Neuromodulation Society
- Anton Chau, Board Member, Anaesthesia Journal
- Raja Rajamohan and Vishal Varshney, Board Member, BCAS

The Department continues to grow and expand under the APP contract. Looking forward, major initiatives in 2023 include the creation of two clinical endowed Chairs of excellence (Chair in Pain Medicine and Chair in Perioperative Brain Health). The Department has weathered the Covid Pandemic and is excited to push new frontiers in clinical work, education, research in all disciplines of anesthesiology.



Dr. Jens Lohser
Department Head
Dr. Andrea Brovender, Dr. Raymond Tang
& Dr. Jacqueline Trudeau

Clinical Activity:

The year 2022 saw a continued focus on OR expansion with the full implementation of our 24 OR suite at VGH. We performed roughly 15,000 cases in JPOR in 2022, 50% of which were urgent or emergent bookings.

Transplantation has become a growing and increasingly normalized part of our environment. In 2022 we performed 54 lung transplants and 101 liver transplants.

We run eight operating rooms at UBCH and performed nearly 7,000 procedures during the year. Additionally, we operate the full complement of out-of-OR sites, including interventional radiology, Cath lab, electrophysiology, urology, lithotripsy/ stone center and ECT.

In order to operate the 51-53 daily assignments, our department had expanded to 75 full-time staff by the end of 2022. We maintain a small temporary staff pool of 2-3 individuals for longitudinal assessment with the intent to hire. We maintain a locum arrangement with BCWH providing exposure to general anesthesia cases at UBCH to their staff.

We have multiple novel and exciting initiatives ongoing:

1. Our environmental stewardship group has moved Desflurane out of the operating room suites and has facilitated the decommissioning of our nitrous oxide manifold system throughout the hospital.
2. Our regional group has embarked on a number of pain pathway initiatives in collaboration with surgical services. Our rib fracture pathway identifies trauma patients who will benefit from regional anesthesia for pain control and morbidity prevention. Our hip fracture pathway delivers regional anesthesia to patients prior to surgical fixation irrespective to their in-hospital location, in period hold, the emergency department or on the orthopedic ward.
3. Our perioperative anaphylaxis clinic investigates perioperative events from our health authority and others in collaboration with allergist Dr Ruiz. Workups include skin testing and, if required challenge testing in PACU.
4. We run a resident POCUS rotation supported by cardiac and perioperative anesthesia staff members. Residents are exposed to a vast array of ultrasound pathology in the cardiac surgery ICU, the intensive PACU and in the preoperative arena. The feedback from residents has been overwhelmingly positive. We also support multiple POCUS-themed resident boot-camps per year.
5. Our perioperative group is responsible for the postoperative care of all non-cardiac patients going through PACU, facilitating recovery and triage to ward or ICU for patients after hepatobiliary, thoracic, vascular and major general surgery.
6. The Pre-Admission Clinic has benefited from the full integration of Pharmacy in the clinic. As well, pathways of Pre-Surgical Optimization continue to be developed for surgical patient benefit before their procedure. Optimization pathways include: Smoking Cessation, Perioperative Blood Management, Frail Patients, Blood Sugar management, Nutrition, Pain and Addiction Services.
7. Our Perioperative Blood Management Program (PBMP) is a part of our pre-anesthesia consultative clinic and aims to optimize patients with anemia or blood-related disorders prior to surgery. The current focus of the clinic is to provide surgical services with data and education to facilitate appropriate blood work ordering in elective surgical patients. As a result, we have decreased preoperative patient bloodwork resulting in fewer patient trips to the hospital and improved patient satisfaction, decreased CO2 emissions, and significant cost savings.

Clinical Activity:

Drs Josh Bennitz and Beau Klaibert, unfortunately, left our department for family reasons.

New staff hires:

Drs Ayda Askari, Julia Cory, Jimmy Lam and Kate Mittermaier joined our department after completion of their residency at UBC. Dr Sham Karmali, a former fellow, joined our Department after completion of his UK anesthesia training. Dr Brendon Chung joined our Department from the University of Alberta. Dr Claire Broe joined our Department, staying on after completing a fellowship and locum with us. Dr Simone Schulein joined our Department and Cardiac division from Royal Columbian Hospital. Finally, yet importantly, we were excited to welcome Professor Hilary Grocott, from the University of Manitoba (and previously Duke University) into our Department and Cardiac division.

Staff returns:

Dr. Kristen Kidson returned after a Critical Care Fellowship at VGH with plans to complete an additional Cardiac Anesthesia Fellowship at Stanford University in 2023. Dr Sandy Pitfield returned after a combined cardiac and thoracic fellowship at St Paul's Hospital and Toronto General Hospital, respectively. Dr. Rana Hamidzadeh returned from a Regional Anesthesia fellowship at St Paul's Hospital.

Anesthesia Division Reports

DIVISION OF CARDIOVASCULAR ANESTHESIA

Dr. Anne-Marie Madden and Dr. Juliet Atherstone
Division Co-Heads

The UBC Division of Cardiac Anesthesiology continues to grow and thrive as we expertly navigate the increased demands of growing cardiac surgical waitlists, increased surgical acuity and patient complexity, as well as educating more junior level UBC Anesthesiology residents.

While providing the highest level of care to our patients, we contributed to and initiated robust research and participated in practice changing multi-centre trials as well as important local research. Many members of the division have taken advantage of the leadership and QI training and mentorship programs that are available and this has resulted in important practice changing and outcome changing site specific interventions which makes us all proud and renews our passion for our work and our patients. The division is also making strides in equity hiring across the province which is great to see.

Importantly, Cardiac Anesthesiology is taking on an increased role with cardiac surgery triage at many sites, working to help optimize patients prior to their surgery and help patients determine the best course of treatment based on their wishes. We are instituting early recovery programs for certain cardiac surgery procedures and making strides in preoperative optimization. As we are limited by lack of database data for our specific patients and outcomes, many sites participate QI/QA and M and M rounds at our sites to help inform and optimize care for future patients.

Cardiac Anesthesiology divisions are also contributing and leading education in the post Cardiac Surgery Intensive Care Unit and are physician leads at many of the units. The cardiac anesthesiologists are very involved in protocol development as well as have been leading educational simulation sessions for critical events for all members of the patient care team.

UBC Anesthesia Residency and Fellowship Training

UBC offers residents a 2-month rotation in cardiac anesthesia at one of the sites: Vancouver General (VGH), Royal Columbian (RCH), St. Paul's Hospitals (SPH), Royal Jubilee Hospital (Victoria). Residents can also pursue elective educational opportunities in cardiac anesthesia at Kelowna General Hospital. Fellowships are offered at the 3 primary sites and new in 2022 at the Royal Jubilee Hospital is their Cardiac Anesthesia Fellowship affiliated with UBC.

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.

An additional one-month TEE/POCUS elective is also offered, focusing on both cardiac anesthesia and perioperative medicine. We have our fellows participate in regular echo education rounds.
Site Updates/Highlights

Kelowna General Hospital

New Hires:
Dr. Elmari Neethling
Dr. Tonia Tauh

Research:

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 Jubilee Hospital

The section of Cardiac Anesthesia in the Capital City has experienced a number of positive developments in 2022, especially in the areas of quality assurance, CVICU program development, and human resources, and fellowship development. We welcomed our first Cardiac Anesthesia Fellow, Dr Jeffrey Campbell. He has been a practicing anesthesiologist in Victoria for several years. Jeff is also a physician member of the Canadian Armed Forces, and participates in specialized front-line operative management of personnel injury. To further refine his skills in the management of critically ill and hemodynamically unstable patients, he has endeavored to complete a Cardiac Anesthesia Fellowship with us and sit the National Board of Echocardiography Transesophageal Echo Exam. His fellowship will be completed in early 2025.

New Hires:
Dr. Mark German

Education/Quality Initiatives:

Quality Measures tracking Cardiac Surgery patients: Multidisciplinary sessions with monthly quality meetings led by Cardiac Anesthesia and Cardiac Surgery. Dr. Paul Serowka co-chair role of quality in Cardiac Surgery, which he shares with our cardiac surgical colleague Dr Kenny Kumar. Topics for meetings and ongoing improvement include morbidity and mortality, continuous renal replacement therapy, and mechanical circulatory support among others. Implementation of cardiac anesthesia lead CRRT program. Wanting improved access to renal replacement therapy for our patients, and in working closely with our nurse educators, we launched the program in 2021. The program launch involved widespread education and training for our members, as well as members of our nursing team. We continue to take part in regular continuing education in the area of renal replacement therapy, and in 2022 the CVICU ran a total of 3360 hours of CRRT therapy, making us a major user on Vancouver Island.

Royal Columbian Hospital:

New Hires:

Dr. Jared McCormick
Dr. Ryan Best
Dr. Renier Verbeek

Research:

FARES-II . RCH PI Dr. Brar
CODEX trial. RCH PI Dr. Martinka

Education/Quality Initiatives:

Assumption of formal echo reporting from cardiology, local echo rounds

St Paul's Hospital

Research:

SPH Publications 2022

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.

Rahmouni K, Naidu J, Pearce N, Chan V. Successful Explantation of a Ball and Cage Mitral Valve Prosthesis 48 Years After Initial Implantation. *CJC Open*. 2021 Nov 21;4(3):344-346. doi: 10.1016/j.cjco.2021.11.007. eCollection 2022 Mar. PMID: 35386136

Sharma VJ, Arghami A, Pasupala D, Haddad A, Ke JXC. Outcomes of Coronary Artery Bypass Grafting in Patients with Poor Myocardial Viability: A Systematic Review and Meta-Analysis of the Last Decade. *Heart Lung Circ*. 2022 Mar 23; S1443-9506(22)00071-3. doi: 10.1016/j.hlc.2021.12.016. Online ahead of print. PMID: 35339371

Pitfield AF, Bedard A, Bashir J, Bruce S, Augoustides JG, Cormican DS, Marchant BE, Fernando RJ. Anesthetic Management for Cardiac Surgery During Pregnancy Complicated by Postoperative Threatened Abortion. *J Cardiothorac Vasc Anesth*. 2023 Jan;37(1):158-166. doi: 10.1053/j.jvca.2022.09.098. Epub 2022 Oct 3. PMID: 36319562.

Ongoing Research:

Cognitive Outcomes after Dexmedetomidine Sedation in Cardiac Surgery Patients: CODEX Trial. Lead Site: Sunnybrook Health Science Centre Site PI: Dr. Raja Rajamohan Status: Actively Recruiting since May 9th, 2022.

The Efficacy of Superficial Parasternal Intercostal Plane Catheter for Sternal Pain Reduction in Patients undergoing Cardiac Surgery with Complete Median Sternotomy: A Quadruple-Blinded, Randomized, Placebo-Controlled Trial- Lead investigator: Dr. Tim Jen Outcomes after Perioperative Stroke in Cardiac Surgical Patients Lead Investigator Dr. Alana Flexman Feasibility of Perioperative Stroke Screening Tools in Cardiac Surgery Patients: A Pilot Study Lead Investigators: Dr. Alana Flexman, Dr. Terri Sun Pragmatic Cluster Crossover Randomized Trial: Benzodiazepine-free Cardiac Anesthesia for Reduction of Postoperative Delirium (B-Free). Site lead: Dr. Raja Rajamohan

Vancouver General Hospital

New Hires

Dr Hilary Grocott
Dr Sandy Pitfield

Retirement from Cardiac Anesthesiology Division
Dr Paul Kapnoudhis

Research/Publications

TRICS IV: An international, multi-centre, randomized controlled trial to assess transfusion thresholds in younger patients undergoing cardiac surgery. [clinicaltrials.gov: NCT04754022](https://clinicaltrials.gov/ct2/show/study/NCT04754022)
Enrollment: 50 patients at VGH. Estimated completion Jan 2024
VGH P.I. Darren Mullane. Sub- Investigators: Juliet Atherstone, Rael Klein, Joel Price

FARES II: Prospective, multi-center, active-control randomized trial comparing prothrombin complex concentrate with frozen plasma in bleeding adult cardiac surgical patients. [Clinicaltrials.gov: NCT05523297](https://clinicaltrials.gov/ct2/show/study/NCT05523297)
Enrollment: 50 patients at VGH. Estimated date of completion October 2024. VGH P.I. Darren Mullane. Sub Investigators: Bevan Hughes, Andrew Shih

NOAC OHS Trial: "A randomized trial of the safety of non-vitamin K oral anticoagulants compared to warfarin early after cardiac surgery: a pilot study" PI Erica Wana. CoInvestigators: Ricky Turgeon, Terri Sun, Jain Ye, Jamil Bashir, Richard Cook, Juliet Atherstone, Tracy Leanne Gwozd, Catherine Gauthier. Ethics Approval 2022.

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). *Journal of Cardiothoracic and Vascular Anesthesia*. 2022 Mar 1;36(3):880-92.

Shuster C, Kanji H, Isac G, Jeovens R, Sidhu A, Kalan S, Yee J, Finlayson G. Seventy-seven days on veno- venous extracorporeal membrane oxygenation for severe acute respiratory distress syndrome from SARS-CoV-2. *Perfusion*. 2023 Sep;38(6):1311-1314. doi: 10.1177/02676591221103545. Epub 2022 Jun 2. PMID: 35653234; PMCID: PMC9519602.

Pitfield AF, Bedard A, Bashir J, Bruce S, Augoustides JG, Cormican DS, Marchant BE, Fernando RJ. Anesthetic Management for Cardiac Surgery During Pregnancy Complicated by Postoperative Threatened Abortion. *J Cardiothorac Vasc Anesth*. 2023 Jan;37(1):158-166. doi: 10.1053/j.jvca.2022.09.098. Epub 2022 Oct 3. PMID: 36319562.

Hilzenrat RA, English JC, McGuire A, Finlayson G, Choi J, Yee J. Lung transplantation for COVID-19 acute respiratory distress syndrome: The British Columbian experience with new disease pathology. *Semin Thorac Cardiovasc Surg*. 2022 Dec 23;S1043-0679(22)00282-9. doi: 10.1053/j.semctvs.2022.12.004. Epub ahead of print. PMID: 36572370; PMCID: PMC9788843.

Erin Long, Juan Camilo Ruiz, Julena Foglia, Kamen Valchanov, Andrew Meikle. Recognition, treatment, and prevention of perioperative anaphylaxis: a narrative review[J]. *AIMS Medical Science*, 2022, 9(1): 32- 50. doi: 10.3934/medsci.2022005

Azar P, Westenberg JN, Ignaszewski MJ, Wong JSH, Isac G, Mathew N, Krausz RM. Case report: acute care management of severe opioid withdrawal with IV fentanyl. *Addict Sci Clin Pract*. 2022 Apr 5;17(1):22. doi: 10.1186/s13722-022-00305-6. PMID: 35382882; PMCID: PMC8980769.

Klaibert B, Lohser J, Tang R, Jew M, McGuire A, Wilson J. Efficacy of ultrasound-guided single injection erector spinae plane block for thoracoscopic wedge resection: a prospective randomized control trial. *Reg Anes Pain Med*. 2022, doi:10.1136/rapm-2022-103602.

Kramer AH, Holliday K, Keenan S, Isac G, Kutsogiannis DJ, Kneteman NM, Kim P, Robertson A, Nickerson PW, Tibbles LA. Premortem anticoagulation timing and dose in donation after circulatory death: multicentre study of associations with graft function. *Can J Surg*. 2022 Jul 28;65(4):E474-E484. doi: 10.1503/cjs.023120. PMID: 35902105; PMCID: PMC9343016.

Shuster C, Kanji H, Isac G, Jeovens R, Sidhu A, Kalan S, Yee J, Finlayson G. Seventy-seven days on veno- venous extracorporeal membrane oxygenation for severe acute respiratory distress syndrome from SARS-CoV-2. *Perfusion*. 2022 Jun 2;2676591221103545. doi: 10.1177/02676591221103545. Epub ahead of print. PMID: 35653234.

COVIDSurg 3. Kelly Mason site lead. Shirley Lim and Dr Mullane Cardiac Anesthesia Representation.

Presentation: "Behind the Mask: Art in Medicine, and Anesthesiology on the Pandemic Front Line." Visual Art and Storytelling Presentation. Celebration of Art in Medicine, VGH and UBC Hospital Foundation 17-June-2022. Dr Cyrus MacEachern

Vancouver General Hospital

Education/Quality Initiatives:

- 1) QI for Transesophageal Echocardiography. Echo studies reviewed by independent reviewers quarterly with report generated. **Simone Schulein and Sean McLean**
- 2) Prevention of post-operative atrial fibrillation after cardiac surgery. Development of a risk score and treatment algorithm/order set aimed at preventing atrial fibrillation in patients at risk post cardiac surgery. **Sean McLean Dr S Egan, G Ghatti.**
- 3) Ventricular Fibrillation Post Aortic Cross Clamp Removal Audit/prevention QI: **Dr Collins- Smyth, Dr Darren Mullane, Dr Juliet Atherstone** Assessing our current practice and creating a departmental approach to this common complication. Dr Coilin CollinsSmyth, Dr Sean McLean, Dr Juliet Atherstone
- 4) **TEVAR Temperature management QI project.**
Investigators: Jamie Head, Darren Mullane, Travis Schisler, Hilary Grocott.
Site leads: Joel Price, Darren Mullane, Jason Faulds
- 5) **IPU Quality Initiative for TEVAR surgery.**
Site leads: Joel Price, Darren Mullane, Jason Faulds
- 6) Combined cardiac surgery and anesthesiology critical incident/MM/ECHO interesting case rounds Dr Mullane Dr Atherstone Dr McLean, Dr Au
- 7) **ERAS MIS Cardiac Surgery Implementation: Lead physician Dr Travis Shisler, Dr Mullane**
- 8) **IPU for Cardiac Surgery: Multidisciplinary support for improving patient outcomes.** Lead Physicians: **Dr Joel Price, Dr Darren Mullane, Dr Juliet Atherstone**
- 9) Comparison of patient outcomes and pain management in patients with and without PVB catheters post MIS cardiac surgery. Dr T Schisler, Dr R Cook

Education/patient care:

- Combined Cardiac Anesthesiology Cardiac Surgery M and M rounds.
- Participation in Cardiac Surgery Triage Rounds with the goals of being better informed of cardiac surgical patient triage process and Identifying high risk in-patients that MAY come to the OR and coordinate anesthesia consultation for the purposes of optimization and complex case discussion CSICU simulations/education.
- Monthly Perioperative echo rounds.

DIVISION OF CARDIOVASCULAR ANESTHESIA

Dr. Alexandra Kisilevsky and Dr. William Rieley
Division Co-Heads

2022 members:
Dr Josh Bennitz
Dr Bali Dhaliwal
Dr Cynthia Henderson
Dr Henrik Huttunen
Dr Sandy Kisilevsky
Dr Kelly Mason
Dr Jon McEwen
Dr Lynn Martin
Dr Yvonne Peng
Dr William Rieley
Dr Evan Shao
Dr Jason Wilson

Division Member Updates:

Dr Evan Shao returned from neuroanesthesia fellowship at Toronto Western Hospital and joined the division in July 2022.

Dr Josh Bennitz left the division in August 2022 to relocate to Foothills Hospital in Calgary, AB. He is missed by the entire department of anesthesiology at VGH and especially the neuroanesthesia division. We thank him for his contributions towards our subspecialty over the past few years.

Resident Education:

Dr Evan Shao took over the role of Neuroanesthesia Resident Subspecialty Co-ordinator from Dr Kisilevsky in September 2022. UBC anesthesiology residents spent 3 weeks each (as part of their VGH subspecialty block) in neuroanesthesiology and spine surgery in the 2022. During this time, each resident completed a unique neuroanesthesia specific "Question of the Month". Resident write-ups can be found at <https://www.vghanes.com/neuro-questions-of-the-month>.

The neuroanesthesia resident journal club took place in-person on November 15, 2022 and was well attended.

Dr Liz Kim (R2) presented the article Chowdury et al. 2022. Brain Cancer Progression: A retrospective multicenter comparison of awake craniotomy versus general anesthesia in high grade glioma resection. JNA. 34(4): 392-400. Dr Stewart Brown (neuroanesthesia fellow) moderated the discussion.

The second article was presented by Dr Cassandra Poirier (R2). This was Koch et al. 2020. Ephedrine versus phenylephrine effect on cerebral blood flow and oxygen consumption in anesthetized brain tumor patients: A randomized controlled trial. Anesthesiology. 133: 304-313. The discussion was moderated by Dr Evan Shao.

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 Lillian Lukoko completed fellowship in October 2022 and returned 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 aprotinin for PONV in posterior fossa craniotomy cases. The successive fellow Dr Stewart Brown started fellowship in July 2022. He attended the 50th SNACC annual symposium in Seattle in September 2022 which included the neuroanesthesia fellow bootcamp. His two quality improvement projects include use and de-commission of nitrous oxide at VGH and UBCH and a comparison of telephone versus in person cognition testing.

Multi-disciplinary rounds:

Combined neuroanesthesia, neurointerventional radiology, and stroke neurology rounds took place in-person on November 17, 2022. Notable events during “code stroke” activation for mechanical thrombectomy were reviewed. A stream-lined process for activation and information sharing, including a formal time out with all services present, was advocated. The importance of clear, timely and respectful communication during these cases was highlighted. A guideline for peri-procedural management of these patients for all anesthesiology department members was created by Dr William Rieley.

Publications:

Dr L Lukoko “Neuroanesthesia Experience in Vancouver” 2022 ICPNT newsletter

Dr S Brown “Fellow’s report of the ICPNT EEG workshop” fall 2022 SNACC newsletter

Presentations

Dr Lillian Lukoko presented the following:

- “Management of spinal cord injury” at the resident academic day in 2022
- “Spinal anesthesia vs GA in hip surgery” at departmental grand rounds in 2022

Dr Stewart Brown presented the following:

- “Nitrous oxide project proposal at VCH executive meeting on October 5 2022
- “An update in TBI” November 16 2022 at the resident academic day
- “Reducing Nitrous oxide waste” 2nd May 2023 at an international forum and also as a poster at the CAS
- “A lucky catch!” case report at the ICPNT webinar on April 27 2022

Dr Rieley presented “Postoperative airway management of patients undergoing transsphenoidal surgery” at the CAS annual meeting in Halifax June 2022

Dr Kisilevsky “Post-op cognitive outcomes: Is general anesthesia harmful?” Whistler Anesthesiology Summit (WAS) Whistler, BC, March 2022.

DIVISION OF PAIN MANAGEMENT

Dr. Aaron MacInnes
Division Head

The Division of Pain Management has continued to see growing activities as well as ongoing interest provincially in the arena of chronic pain and pain medicine.

Within the last year we have seen formal announcement of Pain Care BC (PCBC) as a provincial health improvement network. PCBC is dedicated to working with health-care partners to optimize health outcomes for patients living with pain and to improve the quality and coordination of pain services across B.C. The network also promotes innovation in pain care to enhance provider and patient experience. PCBC is in the process of recruiting a medical director and we look forward to the work to come from this group to help assist the one in five British Columbians that are living with chronic pain.

Educational opportunities continue through the BC Echo Program. The monthly meetings provide multidisciplinary case-based education for all health care providers within the province 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>.

The Canadian Pain Society provides monthly National Pain Rounds to discuss a range of basic science and clinical topics. The rounds occur on the last Friday of each month and more information can be obtained from the following link. <https://www.canadianpainsociety.ca/painrounds>.

DIVISION OF PERIOPERATIVE

Dr. Su-Yin MacDonell
Division Head

Division Highlights:

In 2021 Dr. Su-Yin MacDonell (SPH) proposed the creation of the Perioperative Medicine division of UBC Medicine. Perioperative Medicine fellowship-trained anesthesiologists are now found in many hospitals in BC, including Lions Gate, St. Paul's, VGH, and Victoria. The focus of the division has been engagement, collaboration (both in anesthesia and in other specialties) and education.

A provincial group of those engaged in perioperative medicine was created, not only to disseminate information on perioperative medicine, but also to ask questions and share information between one another.

Dr. Lindi Thibodeau (Comox Valley Hospital) is leading an exciting collaborative project called "Perioperative Care Alignment and Digital Screening Committee" with collaboration from the BCAS and Perioperative Clinical Action Network. This committee has diverse representation in both site and specialty and is creating an alignment of pre-surgical screening, perioperative medication management, choosing wisely investigations, and prehabilitation guidelines.

Dr. Amelie Pelland (Lions Gate Hospital) is the CAS Perioperative Section Chair. After her perioperative medicine fellowship, she practiced in Quebec, St. Paul's Hospital/Lion's Gate and now practices solely at Lion's Gate Hospital. She continues to lead the resident Perioperative Medicine academic days in addition to her leadership role within CAS.

Resident Education:

Perioperative medicine has been a dedicated subspecialty rotation since 2019. Until recently, this was composed of both a junior and senior rotation. The junior rotation was discontinued to maximize other learning opportunities, but the senior call-protected rotation has been increased from three weeks to four weeks this year.

Dr. Mario Kovacevic (R5) created a perioperative medicine website and has summarised almost 75 key perioperative papers. Residents who complete their senior rotation routinely assist this project by summarizing new perioperative papers. These summaries can be found at sphpom.com under "curriculum".

St. Paul's Hospital hosts two weeks of Perioperative Medicine academic days and was last led by Drs. Flexman, MacDonell, and Pelland. The Perioperative Medicine division looks forward to this year's perioperative medicine academic days in March/April 2024.

Multi-Disciplinary Rounds:

St. Paul's hosts a provincially broadcast monthly rounds on a topic within perioperative medicine. The program frequently gets asked to include other provinces on this monthly teaching and looks forward to broadening its reach. The Perioperative Medicine division is looking for other sites to present on one of these rounds to share information and encourage discussion.

A successful journal club was held on October 10, 2023 and led by the SPH perioperative fellow, Dr. Michele Homsy. This hybrid event was not only held in person at Boulevard Kitchen and Oyster Bar, but also broadcasted to BCAS members (organized by Dr. Alan Tung, BCAS education chair and RCH anesthesiologist). This hybrid format allowed people to discuss perioperative medicine and maximized participation. It probably was the best attended UBC journal clubs to date, with over 100 people (in-person and online combined) attending this session.

Research Report:

Ongoing:

ALOFT. RCT of GA versus neuraxial for vascular surgery. RCH PI/Project lead: Drs. Dan McIsaac/Susan Lee.

Anesthesia Technique in COVID-19 Positive Hip Fracture Patients. (Manuscript in-press at Canadian Journal of Anesthesia). PHC PI/Project lead: Dr. Janny Ke.

Association between wildfire smoke exposure and emergency room visit, readmission, and death after major inpatient surgeries: a retrospective population cohort study. PHC PI/Project lead: Dr. Janny Ke.

Association between extreme weather events and postoperative adverse outcomes: a systematic review. PHC PI/Project lead: Dr. Janny Ke.

BuTT-OUT. Pilot RCT of remote intervention vs control for smoking cessation. RCH PI/Project lead: Dr. Susan Lee.

Continuous noninvasive troponin monitoring in patients after noncardiac surgery: prospective feasibility cohort study. PHC PI/Project lead: Drs. Charles Yu and Janny Ke.

Defining the Minimal Clinically Important Difference (MICD) of Days Alive and At Home (DAH) within 30 days after inpatient noncardiac surgery. PHC PI/Project lead: Dr. Janny Ke.

Development and internal validation of models involving vital signs to predict troponin level and myocardial injury after noncardiac surgery: a single-centre retrospective cohort study. (Presented at the Oct 2023 American Society of Anesthesiologists conference by 2023 graduate Dr. Ryan Best). PHC PI/Project lead: Dr. Janny Ke.

Development and internal validation of a model to predict the risk of functional decline after discharge from elective total knee arthroplasty in functionally independent elderly adults: a retrospective population cohort study. PHC PI/Project lead: Dr. Janny Ke.

Machine learning modeling of intraoperative hemodynamic predictors of postoperative morbidity and health utilization outcomes (manuscripts in progress, presented at the Oct 2023 American Society of Anesthesiologists conference). PHC PI/Project lead: Dr. Janny Ke.

Mortality and outcomes after perioperative stroke (Master's Candidate Jaycee Farmer): Analysis of a large cohort of non-cardiac and cardiac surgical patients who experienced a perioperative stroke; identified predictors of poor outcome after perioperative stroke in these populations. Presented results at the ASA 2022 & SNACC 2022. PHC PI/Project lead: Dr. Alana Flexman.

Mizubuti GB, Maxwell S, Shatenko S, Braund H, Phelan R, Ho AHM, Dalgarno N, Hobbs H, Szulewski A, Haji F, Collins P, Tan CHE, Couture EJ, St-Pierre M, Denault AY, Azzam MA, Amir A, Miller EC, Allard R, Tanzola R, Lapierre D, d'Empaire PP, Mashari A, McDonald S, Smith R, Borger J, Gonzalez N, Li GJ, de Souza CM, Lucy M, Sidhu S, Kruger M, Maher NP, MacDonell DS, Prabhakar CPK, Fridfinnson J, Arellano R. Defining Competencies for Basic Proficiency in Point-Of-Care Ultrasound in Anesthesiology: A National Delphi Consensus. Pending publication.

Predictive Time-to-Event Model for Major Medical Complications After Colectomy. PHC PI/Project lead: Dr. Janny Ke.

PREPARE Trial. Ottawa based exercise-based prehabilitation study in frail elderly. RCH PI/Project lead: Drs. Dan McIsaac/Susan Lee.

Screening for stroke in surgical patients 2022-2023: A feasibility study to investigate the application of large-vessel occlusion stroke screening tools in surgical patients. Abstract presented at the ASA 2023. PHC PI/Project lead: Dr. Alana Flexman.

TAK-330. Takeda trial for emergency reversal of DOAC. RCH PI/Project lead: Dr. Susan Lee.

The impact of enhanced postoperative continuous vitals monitoring for high-risk patients in-hospital and at home on days alive and at home after surgery within 30 days postoperatively: A pilot randomized controlled study. PHC PI/Project lead: Dr. Janny Ke, co-investigators Drs. Charles Yu and Su-Yin MacDonell.

Published:

Carrier FM, Vincelette C, Trottier H, Amzallag É, Carr A, Chaudhury P, Dajani K, Fugère R, Giard JM, Gonzalez-Vallencia N, Joosten A, Kandelman S, Karvellas C, McCluskey SA, Özelsel T, Park J, Simoneau É, Chassé M. Perioperative clinical practice in liver transplantation: a cross-sectional survey. *Can J Anaesth.* 2023 Jul;70(7):1155-1166. English. doi: 10.1007/s12630-023-02499-y. Epub 2023 Jun 2. PMID: 37266852.

Conen D, Popova E, Wang MK, Chan MTV, Landoni G, Reimer C, Srinathan SK, Cata JP, McLean SR, Trujillo Reyes JC, Grande AM, Gonzalez Tallada A, Sessler DI, Fleischmann E, Maziak DE, Kabon B, Voltolini L, Gutiérrez-Soriano L, Tandon V, DuMerton D, Kidane B, Rajaram R, Shargall Y, Neary JD, Wells JR, McIntyre WF, Blum S, Ofori SN, Vincent J, Xu L, Li Z, Healey JS, Garg AX, Devereaux PJ; COP-AF Investigators. Rationale and design of the colchicine for the prevention of perioperative atrial fibrillation in patients undergoing major noncardiac thoracic surgery (COP-AF) trial. *Am Heart J.* 2023 May; 259:87-96. doi: 10.1016/j.ahj.2023.01.018. Epub 2023 Feb 7. PMID: 36754105.

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.* 2022 Jul 1;34(3):327-332. doi: 10.1097/ANA.0000000000000779. Epub 2021 May 31. PMID: 34054030.

Garg AX, Cuerden M, Cata J, Chan MTV, Devereaux PJ, Fleischmann E, Grande AM, Kabon B, Landoni G, Maziak DE, McLean S, Parikh C, Popova E, Reimer C, Trujillo Reyes JC, Roshanov P, Sessler DI, Srinathan S, Sontrop JM, Gonzalez Tallada A, Wang MK, Wells JR, Conen D. Effect of Colchicine on the Risk of Perioperative Acute Kidney Injury: Clinical Protocol of a Substudy of the Colchicine for the Prevention of Perioperative Atrial Fibrillation Randomized Clinical Trial. *Can J Kidney Health Dis.* 2023 Jul 11; 10:20543581231185427. doi: 10.1177/20543581231185427. PMID: 37457622; PMCID: PMC10338661.

Ke JXC, Flexman AM, Schwarz SKW, MacDonald S, Prabhakar C. Association of anaesthesia technique with 30-day primary graft patency after open lower limb revascularization: retrospective cohort study. *BJS Open.* 2022 May 2;6(3):zrac061. doi: 10.1093/bjsopen/zrac061. PMID: 35657135; PMCID: PMC9164863.

Ke JXC, McIsaac DI, George RB, Branco P, Cook EF, Beattie WS, Urquhart R, MacDonald DB. Postoperative mortality risk prediction that incorporates intraoperative vital signs: development and internal validation in a historical cohort. *Can J Anaesth.* 2022 Sep;69(9):1086-1098. English. doi: 10.1007/s12630-022-02287-0. Epub 2022 Aug 22. PMID: 35996071.

Lemanowicz AN, Grocott HP. Is the Latency Between Symptom Onset and Diagnosis a Confounder in Understanding the Potential Relationship Between Intraoperative Blood Pressure and Long-Term Neurodevelopmental and Neuropsychiatric Disorders in Children? *Anesth Analg.* 2023 Jun 1;136(6):e32-e33. doi: 10.1213/ANE.0000000000006415. Epub 2023 May 19. PMID: 37205815.

Long E, Ruiz JC, Foglia J, Valchanov K, Meikle A. Recognition, treatment, and prevention of perioperative anaphylaxis: a narrative review[J]. *AIMS Medical Science*, 2022, 9(1): 32-50. doi: 10.3934/medsci.2022005.

Luoma AMV, Flexman AM. Value-based Care and Quality Improvement in Perioperative Neuroscience. *J Neurosurg Anesthesiol.* 2022 Oct 1;34(4):346-351. doi: 10.1097/ANA.0000000000000864. Epub 2022 Aug 2. PMID: 35917131.

Moskven E, Charest-Morin R, Flexman AM, Street JT. The measurements of frailty and their possible application to spinal conditions: a systematic review. *Spine J.* 2022 Sep;22(9):1451-1471. doi: 10.1016/j.spinee.2022.03.014. Epub 2022 Apr 3. PMID: 35385787.

Nann P, Nabavi N, Ziafat K, Preston R, Chau A, Krausz MR, Schwarz SKW, Maclure M. Trends in opioid dispensing after common abdominal and orthopedic surgery procedures in British Columbia: a retrospective cohort analysis. *Can J Anaesth.* 2022 Aug;69(8):986-996. doi: 10.1007/s12630-022-02272-7. Epub 2022 Jun 29. PMID: 35768720; PMCID: PMC9244383.

Wijesundera DN, Alibhai SMH, Ladha KS, Puts M, Chesney TR, Daza JF, Ehtesham S, Hladkovicz E, Lebovic G, Mazer CD, van Vlymen JM, Wei AC, McIsaac DI on behalf of the FIT After Surgery Investigators. Functional Improvement Trajectories After Surgery (FIT After Surgery) Study: Protocol for a multicentre prospective cohort study to evaluate significant new disability after major surgery in older adults. *BMJ Open.* 2022;12: e062524.

Wooding DJ, Field TS, Schwarz SKW, MacDonell SY, Farmer J, Rajan S, Flexman AM. Current Recommendations for Perioperative Brain Health: A Scoping Review. *J Neurosurg Anesthesiol.* 2023 Jan 1;35(1):10-18. doi: 10.1097/ANA.0000000000000861. Epub 2022 Jul 14. PMID: 35834388.

DIVISION OF REGIONAL ANESTHESIA

Dr. Alexander Wong
Division Head

Clinical Report:

In the era of climate change, PACU nursing shortages, and emphasis of multimodal analgesia, regional anesthesia continues to have a prominent role going forward for all UBC-affiliated sites in providing high quality of care in a system with finite resources. St. Paul's Hospital (SPH) has continued on with its well-established block room program with a high volume of both upper and lower limb nerve blocks. This is in addition to the breast program at Mount St. Joseph's Hospital, which continues to provide paravertebral blocks for various oncological breast procedures. At Vancouver General Hospital (VGH), the hip fracture and rib fracture protocols have continued to provide improved analgesia and care for these clinically vulnerable patient populations using regional anesthesia. A wide variety of techniques are commonly utilized including SIFI, PENG, and serratus anterior plane blocks. Furthermore, there has been ongoing growth and planned further expansion of the block program at VGH for elective and urgent cases. The growing contingent of staff with advanced regional anesthesia training has allowed for the full implementation of the Perioperative Anesthesia Intervention Service (PAIS) to provide this increase in regional anesthesia for optimal patient care.

Academic Report:

Training of Residents:

With the significant increase in the size of the residency program, SPH will not have the capacity to accommodate all the residents for their core regional anesthesia rotations in the current format for coming academic years. Therefore, the Distributed Site Regional Anesthesia Training Committee was established to oversee the expansion of the regional anesthesia rotation to include sites other than SPH. Members on this committee include the Division Head of Regional Anesthesia, Program Director, and representatives from each potential distributed site (SPH, VGH, Surrey Memorial Hospital, and Burnaby Hospital). The specific details are still to be determined pending further review and discussions. The new rotation format will be rolled out for the 2023/2024 academic year with plans for ongoing reassessment to ensure a strong educational experience for the residents.

Training of Fellows:

Dr. Rana Hamidzadeh completed her regional anesthesia fellowship at SPH in 2022 and will return to VGH in 2023. She will be looking to bring her experience and expertise to the expanding block program at VGH.

Conferences:

The Whistler Anesthesia Summit (WAS) returned to in-person attendance in 2022 following a hiatus due to the COVID-19 pandemic. This conference included the regional anesthesia basic and advanced workshops as organized by Dr. Peter Rose. These were well received by the attendees and there was a good turnout of instructors from various UBC-affiliated sites.

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, Drs. Klaibert, Lohser, Tang, Jew, and Wilson published their research on the use of ESP blocks in the setting of VATS wedge resection surgery in the journal of *Regional Anesthesia & Pain Medicine*.

DIVISION OF THORACIC ANESTHESIA

Dr. Chris Durkin and Dr. Travis Schisler
Division Co-heads

Membership

In 2022, there were 10 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. Sandy Pitfield, Dr. Kali Romano, and Dr. Travis Schisler. The division looks forward to welcoming Dr. Julia Cory who is returning from a cardiothoracic fellowship at The Alfred Hospital in Melbourne, Australia.

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 trans-hiatal. 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. With expansion of the residency program we are preparing for a new distributed thoracic anesthesia rotation that will include 2 weeks at Vancouver General Hospital and 4 weeks at either Kelowna, Victoria or Surrey.

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. Dr. Schisler continues to contribute to the "Thoracic Year in Review" published annually in the Journal of Cardiothoracic and Vascular Anesthesia. The division is collaborating on quality improvement work alongside thoracic surgery to discover best practices for pain management after VATS lobectomy surgery.

Research

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