

DEPARTMENT of ANESTHESIA
Sunnybrook Health Sciences Centre

2023 – 2024

ANNUAL ACADEMIC REPORT

September 25 2024

2023 – 2024 ANNUAL ACADEMIC REPORT

DEPARTMENT OF ANESTHESIA SUNNYBROOK HEALTH SCIENCES CENTRE

This annual report highlights the Department of Anesthesia's key achievements and priorities. As a cornerstone of patient care across the ORs, ERs, ICUs, and beyond, we collaborate with our colleagues to deliver high-quality anesthesia services and research. Our commitment to research, advocacy, education, and patient-centred care directly supports our hospital's mission and priorities, reinforcing the Department's ongoing dedication to excellence in healthcare and research.

We sincerely thank the Sunnybrook Anesthesia Academic Partnership, the Department of Anesthesia, Sunnybrook Health Sciences Centre (Sunnybrook HSC), the Department of Anesthesia and Pain Medicine, University of Toronto, and the Restore Hyperbaric Clinic for supporting our research program. We also thank our investigators, collaborators, anesthesia research team, trainees, and colleagues in the Orser Lab, Department of Physiology, for leading several initiatives within our Department's and Investigators' Research Programs.

This report outlines our successes, key initiatives, and actions to achieve our goals. The Department's goals are to:

1. Promote Perioperative Brain Health

- The Department of Anesthesia and the Perioperative Brain Health Centre (PBHC) continue jointly to explore how brain health research and care can improve our patients' perioperative outcomes by raising awareness and advocating for advancements in brain health education and research.
- The Direct-to-Patient Education Program (DPEP), our online information hub, offers a breadth of educational materials on delirium and perioperative brain health, empowering our patients with the knowledge and tools to protect their brain health.
- Dr. Stephen Choi continues collaborating with the Senior Friendly Program at Sunnybrook HSC to facilitate delirium prevention and improve perioperative outcomes for older surgical patients through *PBHC* and *DPEP*.
- We are participating in the Delirium Prevention Committee, which oversees the development, implementation, and evaluation of strategies to prevent delirium in hospitalized patients. The committee focuses on identifying risk factors, promoting early intervention, and fostering an interprofessional approach to delirium prevention.
- Completed recruitment (130 participants) for *Phase I* of the PROMoTE trial – an observational study aiming to prevent both incidence and severity of postoperative delirium in older surgical patients.
- Launched *PROMoTE's Phase II* study, evaluating the effectiveness of cognitive screening and education for patients, patient partners, and healthcare providers in the perioperative setting.
- Our clinician investigators work together and conduct several important studies aimed at increasing our ability to identify and prevent postoperative delirium and postoperative neurocognitive disorders, as well

as mitigating the impact of this condition on our surgical (*PROMoTE, CODEX*) and trauma (*Neuro-SAVE-ICU*) patients.

2. Advance Immersive Simulation-Based Medical Education

- Facilitate Virtual Reality (VR) studies in healthcare (*BURN 360, PERFECT-VR, TREASURE*).
- Advance medical education through Immersive Virtual Reality (IVR) for the next generation of clinicians, researchers and healthcare providers (*HoloSIM, HoloPatient, RIVR*).
- Equip medical students with spatial awareness and navigation skills using IVR, and guide the allocation of hospital resources to better prepare students for clinical practice (*IMPROVE*).

3. Optimize the Use of Existing Resources

- Through the *DPEP* program, the Department of Anesthesia is actively engaged in promoting awareness and advocating for advances in brain health education and research.
- The *DPEP* materials were used to create information brochures and sessions for patients as part of a new initiative by the [Schulich Heart Program: Patient & Family Classes](#). This program is designed for patients awaiting their cardiac surgery, focusing on cognitive stimulation. Notably, implementing this initiative would not have been possible without the team at PBHC laying the groundwork for the class content through the *DPEP*.
- Fellows and residents are assigned to support ongoing research projects (e.g., cognitive screening, delirium assessment, flagging high-risk patients, critical care, virtual reality, ultrasound-guided *cACB, UNPIN, IMPROVE, RIVR, LUS*).
- Two summer students and four research volunteers, including two U of T medical students, have been recruited this year to assist investigators with current and new research projects.
- Two out of four of the 2023 – 2024 AFP projects shortlisted for submission to the Innovation Fund Provincial Oversight Committee (IFPOC) were successful (the total funding awarded is ~\$200,000).
- Monthly research meetings are held to discuss progress, address challenges, and develop strategies for improvement.
- Weekly Anesthesia Research-In-Progress rounds foster clinical practice discussion and actively engage trainees in clinical research.

4. Provide Opportunities for Trainee-led Initiatives and Contributions

- **Dr. Beverley A. Orser's Preclinical Research Program Highlights:**

Vanier Canada Graduate Scholarship: Dr. Connor Brenna, a third-year trainee in the anesthesia residency program and a PhD candidate in the Clinician-Investigator Program (CIP) of the Royal College of Physicians and Surgeons of Canada (under the supervision of Dr. Beverley A. Orser) was awarded a Vanier Canada Graduate Scholarship. This prestigious and competitive award is one of the highest honours for graduate studies offered by the Canadian Government.

Repurposing General Anesthetic Drugs to Treat Depression: A New Frontier for Anesthesiologists in Neuropsychiatric Care: a special article led by Dr. Connor Brenna and published in collaboration with international experts, including Dr. Beverley A. Orser, Dr. Carlos Zarate and Dr. Benjamin Goldstein, reviews

the promising properties of anesthetic drugs and outlines strategies to foster strong partnerships in the emerging field of anesthetic neuropsychiatry neuropharmacology. The article explores the rapid and sustained antidepressant properties of several general anesthetic drugs, emphasizing the critical need for collaboration between anesthesiologists and psychiatrists to advance clinical treatments and deepen our understanding of the mechanisms behind these novel therapies (*Brenna et al, Anesthesiology*).

▪ **Dr. Angela Jerath's Clinical Research Program Highlights:**

Malignant Hyperthermia Review: first review for intensivists supported by Jiawen Deng (medical student, UofT) in *Critical Care Medicine* (in press) with Dr. Sheila Riazzi (UHN), Dr. Teeda Pinyavat (Columbia University), and Dr. Brian Cuthbertson (Sunnybrook HSC).

Sedative and Analgesic Use in Burn ICU: led by Byron Koitsopoulos (medical student, UofT) and presented at the Society of Critical Care Medicine and Sunnybrook Research Institute (data under analysis).

Systematic/Meta-Analysis Reviews: focused on inhalational agents for status asthmaticus, status epilepticus, and complex sedation, and impact on cognitive outcomes, led by Kevin Gorsky (staff anesthesiologist, Humber River Hospital), Sean Cuninghame (ICU fellow, LHSC), and Kesikan Jayraj (medical student, UofT) published in *Critical Care Explorations* and *British Journal of Anaesthesia*.

▪ **Dr. Stephen Choi's Clinical Graduate Research Program Highlights:**

Depressive Symptoms in Cardiac Surgery Patients: Dexmedetomidine vs. Standard sedation: this sub-study of the *CODEX* trial, led by Hannah Rosales (MSc candidate), aims to advance our understanding of dexmedetomidine and its impact on postoperative recovery outcomes. While the main *CODEX* trial uses PHQ-9 scores to measure mood and its effects on cognitive function, this sub-study will specifically focus on assessing depressive symptoms before and after open-heart surgery using PHQ-9 scores (*in progress*).

▪ **Dr. Fahad Alam's Clinical Graduate Research Program Highlights:**

Mediators of the antidepressant effects of ketamine: this project, led by Omer Syed (MSc candidate), investigates intravenous subanesthetic ketamine for treatment-resistant depression, combining a retrospective study (*Psychiatry Research*, under review), which identified key predictors and mediators of ketamine's antidepressant effects - such as early treatment response and pre-treatment anxiety levels - at the Ontario Ketamine & Infusion Centre, with an upcoming prospective trial exploring how combining the dissociative effect of ketamine with virtual reality may enhance ketamine's antidepressant effects (*TREASURE* trial, supported by Restore clinic).

5. Promote Perioperative Clinical and Implementation Research

- Developing new healthcare delivery pathways for surgical and critically ill patients (*SAVE-ICU, ABOVE*):

Dr. Angela Jerath's open-label randomized *SAVE-ICU* (*adults, recruitment near completion, 703/758*) and *ABOVE* (*pediatrics, recruiting*) multisite clinical trials on the efficacy of inhalational volatile-based sedation in critical care units.

- Promoting surgical brain health education and perioperative cognitive screening (*PROMoTE, OPIOIDS*):

Dr. Stephen Choi's *PROMoTE* trial, facilitating delirium education and improving perioperative cognitive safety, is well underway in our department (*177/260*). We have successfully completed recruitment for *Phase I* (*130 participants over 2 years*) and are now recruiting for *Phase II*.

Dr. Ahtsham Niazi's OPIOIDS study is investigating the effectiveness of a short, internet-based, preoperative educational video on reducing pain and opioid use after hip and knee arthroplasty. This custom-designed video presentation combines two proven and effective interventions: opioid counselling and pain coping skills education. Recruitment is currently ongoing at the Sunnybrook Holland Centre.

- Investigating and repurposing existing drugs to optimize current (*CODEX*) and test new uses (*TXA-Dosing*):

Dr. Stephen Choi's CODEX study is a pragmatic, interventional, randomized multisite trial assessing whether Precedex can reduce P-NCD and accelerate cognitive recovery after anesthesia and open cardiac surgery. This study is the first trial to use newly published diagnostic criteria and nomenclature for P-NCD and to explore a preventative pharmacological treatment. Recruitment is ongoing at six sites across Canada.

Dr. Angela Jerath's TXA-Dosing for Joint Replacement Surgery translational study was completed in collaboration with UofT Leslie Dan Centre, Faculty of Pharmacy. This novel study was supported by Drs. Chris Idestrup, Bheeshma Ravi, John Murnaghan, Stephen Choi, Ben Safa, Beverley Orser, Yulia Lin and the Anesthesia Research team (*manuscript under review*).

- Evaluating a non-opioid approach for post-operative pain management (*RELIFE*):

Drs. Howard Meng and Colin McCartney's RELIFE study is an interventional, randomized trial focusing on evaluating the effectiveness of duloxetine, a non-opioid analgesic with antidepressant properties, in managing postoperative pain for patients undergoing total knee arthroplasty (TKA). This study explores how duloxetine can improve pain outcomes and potentially reduce the need for opioid-based analgesia, addressing issues of persistent pain and patient dissatisfaction after TKA. Recruitment has launched at the Sunnybrook Holland Centre.

- Evaluating and comparing existing methods to optimize care delivery (*FARES II, UNPIN, LUS*):

The FARES II international multicentre comparative effectiveness study, led by Dr. Yulia Lin (Sunnybrook HSC) and supported by Drs. Sophia Wong and Pablo Perez d'Empaire, compared four-factor prothrombin complex concentrate (4F-PCC, octaplex) to frozen plasma in adult cardiac surgery patients aimed at optimizing care delivery (*manuscript under review*).

Dr. Ben Safa's UNPIN study is a prospective, randomized, feasibility trial designed to evaluate whether cryoneurolysis offers superior and long-lasting pain relief with rib fractures in trauma patients. The study is currently recruiting.

Dr. Jacobo Moreno's LUS study is a prospective, observational, feasibility trial designed to compare nurse/trainee-performed bedside lung ultrasound to standard portable chest X-ray for the detection of pneumothorax following chest tube removal, in cardiac surgery or trauma patients (*manuscript in preparation*).

- Enabling Mixed-Reality techniques (VR/AR/IR) in care (*HoloLens, BURN 360, PERFECT-VR*):

Drs. Julian Wiegelmann and Fahad Alam's HoloLens was a prospective cohort randomized trial that found that mixed-reality guidance with a head-mounted display improves procedural efficiency compared to traditional epidural anesthesia. The study suggests that implementing this tool in clinical settings could improve patient outcomes by reducing failure rates, patient discomfort, and complications, though further research is needed to confirm these benefits (*Req Anesth Pain Med:rapm-2023-104703*).

Dr. Fahad Alam's BURN 360 prospective randomized study utilizes VR as a distraction tool during painful dressing change procedures. This study aims to establish and validate the efficacy of VR in reducing opioid

analgesic use, pain, and anxiety in burn patients (*recruitment near completion, 79/82*).

Dr. Fahad Alam's *PERFECT-VR* study, a collaboration with the Department of Psychiatry, investigates the use of an immersive VR-360 video to educate patients and reduce anxiety before electroconvulsive therapy (ECT). The custom-made VR-360 video offers patients and their families a first-person experience of ECT days before the procedure, aiming to strengthen the relationship between healthcare providers, patients, and their families (*recruitment complete, 64/64*).

6. Align the Preclinical and Clinical Research Programs

- A major focus of current preclinical and clinical studies is cognition, depression, TBI, critical care, trauma, regional anesthesia/opioid reduction, pain management, and medical education.
- Drs. Beverley A. Orser and Stephen Choi, co-directors of the Perioperative Brain Health Centre, are collaborating on studies to assess for and find preventative measures for PND and depression.
- Knowledge-translation rounds will be held quarterly to facilitate networking and foster collaboration between preclinical and clinical research teams.

7. Enhance our Profile and Advancement Strategies

- Dr. Beverley A. Orser was appointed to the prestigious Order of Ontario in recognition of her contributions to anesthesia research and efforts to improve access to safe care in rural Canadian communities.
- Dr. Beverley Morningstar was awarded the 2024 Interprofessional Teaching Award, Department of Anesthesia and Pain Medicine, University of Toronto.
- Dr. Colin McCartney was honoured as a recipient of the Distinguished Service Award, The American Society of Regional Anesthesia and Pain Medicine's 2024 Distinguished Service Award.
- Dr. Faraj Massouh was awarded the 2024 New Faculty Teaching Excellence Award, Department of Anesthesia and Pain Medicine, University of Toronto.
- Dr. James Helman was awarded the 2024 Clinical Excellence Award, Department of Anesthesia and Pain Medicine, University of Toronto.
- Dr. Chadi Saliba was awarded the 2024 Dr. Gerald Edelist Award, Department of Anesthesia and Pain Medicine, University of Toronto.
- Dr. David B. MacLean was awarded the 2023 Intraoperative Coaching Award, Department of Anesthesia, Sunnybrook HSC.
- Dr. Jacobo Moreno Garijo was awarded the 2023 Staff Dr. Congeniality Award, Department of Anesthesia and Pain Medicine, University of Toronto.
- Drs. Chris Idestrup and Angela Jearth's project '*TXA-Dosing*' was selected to be one of three projects nominated from SHSC AFP for the 2023 IFPOC (Innovation Fund Provincial Oversight Committee) award.

8. Focus on Patients' Health, Health Services and Clinical Outcomes

- Exploring Canadian evidence - addressing health disparities and enhancing health care value:

Dr. Beverley A. Orser & the Canadian Health Workforce Network Group study entitled, *'The physician anesthesia workforce in Canada from 1996 to 2018: A longitudinal analysis of health administrative data'* provided important insights into anesthesia workforce trends in Canada between 1996 and 2018, highlighting substantial growth, international medical graduate reliance, gender imbalance, and rural care dynamics. These findings represent the most comprehensive and current national-level data available (*Simkin et al., Anesthesia & Analgesia*). Notably, the findings of this study, along with recommendations from the Anesthesia Health Human Resources Working Group, have been featured in various media releases, including radio broadcasts and TV discussions, all advocating for increased provincial support for anesthesia care teams and funding of anesthesia assistants.

Drs. Ahtsham Niazi and Beverley Orser's *'Needs Assessment of Ultrasound Guided Regional Anesthesia in Rural and Remote Canada'* study seeks to assess the current expertise and practices of ultrasound guided regional anesthesia (UGRA) across rural and remote regions of Canada. The study will also evaluate the appetite for learning UGRA, particularly specific nerve blocks of interest, and receptiveness to learning using remote methods such as telesimulation and mentorship.

Drs. Angela Jerath's study *'Evaluation of Physician Attributes'* is supported by Kiyam Heybati (Mayo Clinic, medical student), Kirusanthi Kaneshwaran (UofT anesthesia resident), Ashton Chang (UofT anesthesia fellow), and a multidisciplinary mixed methods team including Natalie Coburn, Frances Wright, Colin McCartney, Sarah Gould, and Christopher Wallis (Mount Sinai Hospital). This study on surgeon sex and long-term postoperative outcomes ranked *in the top 5% of all research outputs scored by Altmetric* and *2nd in JAMA Surgery's* all-time papers.

- Recognition within our community:

Drs. Beverley Morningstar, Chris Idestrup, Fahad Alam and Ben Safa were recognized as *2024 Top Doctors* in the city. Dr. Beverley Morningstar and Dr. Fahad Alam have been voted among the top doctors in 2022, 2023, and 2024.

9. Promote Communication and Collaboration

- Collaborative Launch of Clinical Projects with Restore Hyperbaric Clinic

The successful collaboration between the Anesthesia, Psychiatry, Surgical Dentistry, and Obstetrics and Gynecology departments at Sunnybrook HSC and Restore Hyperbaric Clinic resulted in the launch of three clinical projects supported by AFP grants (*HEROES*, *PCS-HBOT*, *PENTOCLO*) and *in-kind* contributions from Restore Clinic for hyperbaric treatments. The study investigators include Drs. Jordan Tarshis, Keith Tanner, Fahad Alam, Ben Safa, Chris Idestrup, Oskar Singer, Keith Tanner, Marcos Silva Restrepo, Jacobo Moreno, Howard Meng and Stephen Choi.

HEROES: The upcoming *HEROES* trial is a prospective, randomized trial to explore hyperbaric oxygen therapy for the treatment of endometriosis-related pelvic pain.

PCS-HBOT: This pilot study seeks to examine the feasibility of a definitive trial to determine the effectiveness of hyperbaric oxygen therapy for the treatment of post COVID-19 Syndrome.

PENTOCLO: This pilot, randomized control trial seeks to examine the feasibility of a definitive trial to study combined modified *PENTOCLO* and hyperbaric oxygen therapy in the treatment of osteoradionecrosis (ORN). This combination of *HBOT* and *mPENTOCLO* will provide a unique therapeutic modality that relies on the potential additive or synergistic effects of the two to augment treatment of ORN patients.

- Dr. Angela Jerath (site PI) collaborates with Ottawa Hospital to partake in the ALOFT multisite pilot trial.
- Drs. Angela Jerath (study co-PI) and Stephen Choi (site PI) collaborate with St. Michael's Hospital to partake in the FAST-WALK multisite trial.
- Dr. Fahad Alam is collaborating with the Departments of Psychiatry, Ross Tilley Burn Centre, Odette Cancer Centre and Department of Surgery to implement IVR in patient education and optimize patient outcomes.
- Dr. Stephen Choi collaborates with UHN to partake in the CHAMP multisite trial.
- Dr. Stephen Choi is collaborating with the various departments at Sunnybrook HSC to educate and meet the needs of older surgical patients and improve perioperative outcomes through the PBHC and DPEP.
- Drs. Stephen Choi (site PI), Howard Meng, James Helman and Julian Wiegelmann are collaborating with Mount Sinai Hospital and Toronto General Hospital to partake in the PLAN multisite trial.
- Drs. Jason Taam, Colin McCartney and Stephen Choi (site PI) collaborate with Ottawa Hospital Research Institute to partake in the SCALE-UP multisite study.
- PBHC collaborates with the Communication Departments at Sunnybrook Research Institute and the Department of Anesthesiology & Pain Medicine to enhance our department's profile through social media.

10. Advance Healthcare through Targeted Research

- Dr. Fahad Alam was appointed as a Co-chair for the Program Committee, the Society of Surgical Ergonomics Conference.
- Dr. Jordan Tarshis was appointed as a Vice-President, Ontario Hyperbaric Medical Society.
- Dr. Jordan Tarshis was appointed as a Chair, Simulation Accreditation Integration Working Group, RCPSC.
- Dr. Pablo Perez d'Empaire was appointed as a Co-director and Faculty, Basic and Advanced POCUS Course, 2024 Canadian Anesthesiologists' Society (CAS) Annual Meeting.
- Dr. Jacobo Moreno was appointed as a Course Director, CME Planning Committee, University of Toronto.
- The graduate student program in Clinical Perioperative Brain Health Sciences was established in 2019 and has since flourished.
- Over ten awards were received by graduate students in pre-clinical and clinical PBHC programs.
- Several manuscripts were published, and abstracts were presented by our research team including investigators, graduate/medical students, and residents at international and national conferences.
- The number of annual publications and the overall median impact factor have steadily increased (Appendix 1).
- Annual progress for all investigators is reported using various metrics (*H*-index, # of publications, Appendix 4).

2023 – 2024

ANNUAL ACADEMIC PERFORMANCE

**DEPARTMENT OF ANESTHESIA
SUNNYBROOK HEALTH SCIENCES CENTRE**

ALAM, Fahad

Publications

Mah A, Hallet J, **Alam F.** (2023) The need for new interdisciplinary education approaches in surgical ergonomics. *Am J Surg*: 28:S0002-9610(23)00636-0 (online ahead of print)

Wiegelmann JR, Choi S, McHardy PG, Matava C, Singer O, Kaustov L, **Alam F.** (2024) Randomized Control Trial of a Holographic Needle Guidance Technique for Thoracic Epidural Placement. *Reg Anesth Pain Med*: rapm-2023-104703

Alam F, LeBlanc VR, Baxter A, Tarshis J, Piquette D, Gu Y, Filipowska C, Krywenky A, Kester-Greene N, Cardinal P, Andrews M, Chartier F, Burrows C, Houzé-Cerfon CH, Burns JK, Kaustov L, Au S, Lam S, DeSousa S, Boet S; Perioperative Anesthesia Clinical Trials Group (PACT). (2024) Age and its impact on crisis management performance and learning after simulation-based education by acute care physicians: a multicentre prospective cohort study. *Br J Anaesth*:132(2):383-391

Thomson H, Prospero LD, Xiao S, Legere L, Harth T, Rashleigh L, Parzanese M, Graves L, Wilcocks K, **Alam F.** (2024) Experiencing COVID-19 Through the Patient Lens to Promote Empathy: Pilot Testing a Virtual Reality Learning Opportunity. *J Patient Exp*: 11:23743735241241462

Matava CT, Bordini M, Sullivan BO, Garcia-Tejedor GA, Gai N, Petroz G, Donnell CM, **Alam F,** Brazel K, Caldeira-Kulbakas M. (2024) Virtual parental presence with coaching for reducing preoperative anxiety in children: a feasibility and pilot randomized controlled trial. *Braz J Anesthesiol*:74(5):844533

Non-peer review publications

Hallet J, **Alam F,** Hallbeck S. (2024) Surgical ergonomics: how and where to start? *BJS Academy*: <https://doi.org/10.58974/bjss/azbc030>

Lectures (*virtual)

Immersive Virtual Environments: an overview and augmented reality medicine – the what, why and how? QEII Simulation Program, Dalhousie Medical School, Dalhousie University, Halifax, NS, September 19, 2023*

Rural & Remote Anesthesia: Parallels to Aerospace Medicine. Aerospace Medicine Rounds, Division of Occupational Medicine, University of Toronto, Toronto, ON, December 5 2023*

Strategies to support high acuity care in remote environments. Aerospace Medicine Rounds, Division of Occupational Medicine, University of Toronto, Toronto, ON, December 5 2023*

Virtual Reality and Novel Simulation Technologies. Canadian Simulation Exchange Webinar Series. University of Ottawa, Ottawa, ON, March 2024*

OR team ergonomics: all for one and one for all. 2024 SAGES Annual Meeting, Cleveland, OH, April 17-20 2024

Ultrasound guided injector and problem fixer. Complications. Injectable Complication Management Course, Woodbridge, ON, June 5 2024

Guardians of Safety: Decoding the Reality of Operating Room Ergonomics and Conquering Challenges, 2024 Canadian Anesthesiologists' Society (CAS) Annual Meeting, Victoria Island, BC, June 7-10 2024 (*moderator, plenary session*)

Conference/Workshop Presentations (*virtual)

Mah A, **Alam F**, Dandal MA, Helman JD, Cohen T, Hallbeck S, Tetteh E, Norasi H, Kallocsai C, Siriam S, Perez d'Empaire P, Larouche J, Hallet J. Interdisciplinary operating room ergonomics needs and priorities: a survey of operating room staff. The 2nd Annual Symposium of the Society of Surgical Ergonomics, September 8 2023*

Hallet J, **Alam F**, Rocha F, Del Rivero J, Partelli S, Koea J, Ladowski S, Saliba C, Pommier R. Perioperative management of carcinoid crisis: protocol for a modified Delphi international expert consensus with patient engagement. North American Neuroendocrine Tumors Society (NANETS), Montréal, QC, October 4-6 2023

Wiegelmann J, Lappin E, McHardy P, Choi S, Singer O, Kaustov L, **Alam F**. A randomized control trial of a holographic needle guidance technique for thoracic epidural placement (HOLOLENS). Innovation Fund Showcase: The Future of Academic Medicine, Metro Toronto Convention Centre, Toronto, ON, November 8 2023

Gupta S, **Alam F**, Tarshis J, Choi S, Belfiore E, Kaustov L, Brenna CTA, May V, Da Cruz T, Wiegelmann J. HOLOSIM: The way forward in complex crisis training. *Cureus* 16(1):a119 (*published abstract*)

Alam F, Tu A, Shaheen S, Hadley H, Cartotto R, Kaustov L, Choi S, Rogers A. BURN 360: Reducing Pain and Anxiety during Dressing Changes after Burn Surgery Using Virtual Reality – a Randomized Controlled Trial. Tory Trauma Program Academic Day, Sunnybrook Health Sciences Centre, Toronto ON, February 26 2024

Kalun P, Hamstra S, Whyne C, Robert N, Kreder H, Wong M, Dandal M, Joson J, Hong JY, **Alam F**, Wiegelmann J, Idestrup C, Taam J, Yee A, Tile M, Nousiainen M. Assessment Framework to Measure Orthopaedic Surgical Team Performance. The Department of Surgery's 50th Gallie Day, University of Toronto, MaRS, Toronto ON, May 3, 2024

Gupta S, **Alam F**, Tarshis J, Choi S, Belfiore E, Kaustov L, Brenna CTA, May V, Da Cruz T, Wiegelmann J. HOLOSIM: The Way Forward in Complex Crisis Training. Gary Johnson Research Day 2024, Department of Anesthesiology and Pain Medicine, University of Ottawa, Ottawa ON, May 24 2024

Early career investigators/Trainees (invited lectures)

Mah A, **Alam F**, Larouche J, Dandal MA, Cohen T, Hallbeck S, Tetteh E, Hamid Norasi, Csilla Kallocsai C, Siriam S, Helman JD, Perez d'Empaire P, Hallet J. Interdisciplinary operating room ergonomics needs and priorities: a survey of operating room staff. Scientific Forum at Clinical Congress 2023, Boston, MA, October 22-25 2023 (*selected for oral presentation, presenter Alexis Mah*)

Gupta S, **Alam F**, Tarshis J, Choi S, Belfiore E, Kaustov L, Wiegelmann J. HOLOSIM: the way forward in complex crisis training. The 2023 SIM Expo, Ottawa, ON, December 11-12 2023 (*selected for oral presentation, presenter Sanchit Gupta*)

Grants

Project Title: Core domain measures for extended reality technologies for acute, recurrent, and chronic pain

across the life span: A consensus conference.
Funder: CIHR Planning and Dissemination Grant.
Amount: \$30,000.00 for 1 year (February 2024 – January 2025)
CPI(s): Stintson J, Ouellette C, **Alam F**, Rosenblum B.
CI(s): Linkiewich D, Hess CW, Logan D, Mesaroli G.

Project Title: The HEROES trial: hyperbaric oxygen therapy for endometriosis-related pain: A prospective randomized study
Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$105,000.00 for 2 years (April 2024 – March 2026)
PI: Silva Restrepo M. co-PI: Liu G.
CI(s): **Alam F**, Kaustov L, Moreno J, Choi S, Tarshis J, Meng H, Kung R, Skolnik E, Po L, Sriram S.

Project Title: Development of a Web-based Tutorial for Teaching Regional Anesthesia for Hip Fractures Patients: A Feasibility Study
Funder: Specialty Excellence Scholarship Award. The Ottawa Hospital Anesthesia Alternate Funds Association (SESAW)
Amount: \$30,000 for 1 year (January 2024 – January 2025)
PI: Gu Y.
CI(s): **Alam F**, Boet S, Crooks S, Chandy J, Ramlogan R, Wong P.

Title: Immersive reality in medical education and care delivery: an innovative vision of healthcare
Funder: Education Merit Award, 2023 -2025 Merit Award Program, Department of Anesthesiology & Pain Medicine, University of Toronto
Amount: \$80,000 for 2 years (January 2024 – December 2025)
PI: **Alam F**.

Project Title: Improving Post-Covid Syndrome with Hyperbaric Oxygen Treatments (PCS-HBOT study)
Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$105,000 for 2 years (April 2023 – March 2025)
PI: Tarshis J. CPI: Singer O.
CI(s): **Alam F**, Chan A, Choi S, Hamstra S, Giacobbe P.

Project Title: A Functional Task Analysis of a Novel Virtual Reality Ultrasound Guided Regional Anesthesia Simulator
Funder: 2023 Operating Grant, Anesthesiology and Pain Medicine, University of Ottawa
Amount: \$30,000 for 18 months (April 2023 – March 2024)
PI: Gu Y.
CI(s): Boet S, Ramlogan R, Wong P, **Alam F**, Etherington C, Mansour F.

Project Title: The Holographic Standardized Patient: using mixed reality to reduce barriers to crisis simulation in acute care
Funder: Society for Technology in Anesthesia
Amount: \$4,000 for 1 year (January 2023 – February 2024)
PI: Wiegelmann J.
CI(s): **Alam F**, Choi S, Piquette D, Filipowska C, Kaustov L.
Project Title: The Holographic Standardized Patient - Using Mixed Reality to Reduce Barriers to Crisis Simulation in Acute Care.
Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$86,700.00 for two years (April 2022 – April 2024)

PI: Wiegelmann J.

CI(s): **Alam F**, Piquette D, Filipowska C, Kaustov L, Choi S.

Project Title: Remote Immersive Virtual Reality (RIVR) Teaching: Use in Ultrasound-Guided Regional Anesthesia Procedural Skills Acquisition.

Funder: Sunnybrook Education Advisory Council (SEAC) Education Research Unit (ERU) and Scholarship Grant (ESRG)

Amount: \$10,000 for 2 years (March 2022 – February 2024)

PI: Niazi AU.

CA(s): **Alam F**, Wilckocs K, Choi S.

Project Title: Female Pelvic Examination Training and Assessment via an Augmented Reality System: A pilot study with system development and evaluation of its utility as a teaching tool

Funder: Sunnybrook Education Advisory Council (SEAC) and Education Research Unit (ERU) Education Research and Scholarship Grant (ESRG)

Amount: \$10,000 for 2 years (March 2022 – February 2024)

PI: Dr. Dini H.

CI(s): **Alam F**, Ladhani N, Pittini R, Santoro A.

Project Title: Simulation for Operating Room Ergonomics – The SORE Study: creating an inter-disciplinary simulation curriculum for operating room ergonomics (*the inaugural recipient*).

Funder: Sunnybrook Education Advisory Council (SEAC) Education Research Unit (ERU) and the Alternative Funding Plan (AFP)

Amount: \$20,000.00 for two years (March 2022 – February 2024)

PI: **Alam F**.

CI(s): Tavares W, Kallocai C, Ashamalla S, Dandal MA, Larouche J, Helman J, Hallet J, Sevigny M, Sriram S, Ryzynski A, De-Sousa S, Brar S, Hallbeck S, Cohen T.

Project Title: Exploring the Validity of Virtual Clinical Performance Assessments.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$ 62,217 for two years (April 2022 – April 2024)

PI: **Alam F**.

CI(s): Wiegelmann J, Tavares W, Matava C, Kapralos B, Dubrowski A, Brydges R, Kaustov L, Belifiore E.

Project Title: Exploring validity evidence for the use of immersive virtual environments for formative and summative assessment purposes.

Funder: The Edward J. Stemmler, MD Medical Education Research Fund of the National Board of Medical Examiners (NBME)

Amount: \$US 111,723 for 2 years (January 2022 – January 2024)

PI(s): Tavares W, **Alam F**.

CI(s): Matava C, Kapralos B, Brydges R, Dubrowski A.

Project Title: Virtual Reality as a tool to reduce pre-procedure anxiety prior ECT via enhancing patient education (PERFECT-VR).

Funder: Physicians Service's Incorporated Foundation, Health Services Research Grant (PSI Foundation)

Amount: \$250,000 for 3 years (September 2020 – August 2023, extension granted until August 2024)

PI(s): **Alam F**, Giacobbe P.

CI(s): Choi S, Rapoport M, Herrmann N, Kaustov L, Matava M.

Awards

2023 – 2025 Education Merit Award (\$40,000 per annum for 2 years), 2023-2025 Merit Award Program, University of Toronto Anesthesia Merit Award, Department of Anesthesia, Temerty Faculty of Medicine

Appointments/Honours (selected)

Education Scholar II, 2024 Education Research Appointee, Sunnybrook Hub for Applied Research in Education (SHARE), Sunnybrook Health Sciences Centre, June 2024 – present

Co-chair, International Society of Surgical Ergonomics Annual Conference Program Committee, 2023 – 2024

Executive Member, Canadian Anesthesiologists' Society Annual Conference Program Committee, 2023 – present

Chair, Continuing Education and Professional Development, Canadian Anesthesiologists' Society, September 2022 – present

Member, International Complications in Medical Aesthetics Collaborative (CMAC), 2022 – present

Recognized as Toronto's Top Doctor in the city, March 2024

Letter of recognition for enhancing CAS Members' education and experience. The session, "*Guardians of Safety: Decoding the Reality of Operating Room Ergonomics and Conquering Challenges*", supported 2024 CAS's commitment to providing innovative education and enhancing professional experience within the anesthesia community (June 2024)

Letter of Recognition for the contributions *to the 2023 Anesthesiology Exam Board and all of the collaborative efforts with the team of The McLaughlin Centre for Evaluation* for both the Oral Exam Committee and Written Test Committee, The Royal College of Physicians and Surgeons of Canada (July 2023)

Medical and Research Director, Sunnybrook Canadian Simulation Centre, Sunnybrook Health Sciences Centre, January 2021 – present

Oral examiner and the written test committee member, The Royal College of Physicians and Surgeons of Canada, September 2021 – present

Chair, Simulation & Education Section, Canadian Anesthesiologists' Society, 2017 – present

Awards to Trainees

2023 RHSE Entrance Scholarship to Omer Syed, MSc candidate, under the supervision of Drs. Peter Giacobbe and **Fahad Alam**, Departments of Anesthesia and Psychiatry
Amount: \$5,000

Medical Education

Immersive/Virtual Reality Education Platform - a library of 360 educational videos, Sunnybrook's Canadian Simulation Centre in partnership with FNIHB-Ontario Region, Indigenous Services Canada/Government of Canada:

<https://sunnybrook.ca/education/content/?page=education-sim-centre-o2-therapy-protocol-covid-19>

Media Release

'Study shows age and time in practice inversely impact a physician's crisis resource management skills, but learning through simulation-based education is effective across all ages.' Anesthesiology & Pain Medicine News, February 23 2024: <https://anesthesia.utoronto.ca/news/study-shows-age-and-time-practice-inversely-impact-physicians-crisis-resource-management>

'Faculty Spotlight: Dr. Fahad Alam.' Anesthesiology & Pain Medicine News, August 21 2023: <https://anesthesia.utoronto.ca/news/faculty-spotlight-dr-fahad-alam>

'Toronto's Top Doctors'. Street of Toronto, May 2024: <https://issuu.com/postcity/docs/yorkville-2024-03>

ANGLE, Pamela

Lectures (*virtual)

Understanding the Stressors Women Experience during Urgent/Emergent CS: An Interdisciplinary Approach. Presented to Women's and Babies Program Leaders, Sunnybrook Health Sciences Centre, Toronto, ON, December 12 2023

Possible Solutions to Stressors women Experience during Urgent/Emergent CS: Building Consensus. Presented to Women's and Babies Program Leaders, Sunnybrook Health Sciences Centre, Toronto, ON, January 9 2024

Conference/Workshop Presentations (*virtual)

Pardy B, **Angle P**, Lay C, Gawel M, Kiss A, Kong J, van Der Vyver M, Roberts L, Hussain K, Halpern S. Diagnostic cohort study comparing the accuracy of PDPH trial criteria vs International Headache Society criteria for post-epidural PDPH. University of Toronto Shields Research Day, Toronto ON, May 4 2024

Sharma I, **Angle P**, Kurtz-Landy C, Barrieau G, Pardy B, Berndl A, Osepchook C, Fleming K, Sarbia M, Prescod A. Women's experiences of anesthesia care during urgent or emergent cesarean section: A qualitative study examining stressors and potential solutions. University of Toronto Shields Research Day, Toronto ON, May 4 2024

Angle P, Lay C, Kiss A, Silva Restrepo M, Kong J, van Der Vyver M. Diagnostic cohort study comparing the accuracy of PDPH Trial criteria vs International Headache Society criteria for post-epidural PDPH. Obstetric Anaesthetists' Association (OAA) Annual Scientific Meeting 2024. Birmingham, England, UK, May 9-10 2024

Angle P, Kurtz-Landy C, Barrieau G, Berndl A, Osepchook C, Fleming K. Women's experiences of anesthesia care during urgent or emergent cesarean section: a qualitative study examining stressors and potential solutions. Obstetric Anaesthetists' Association (OAA) Annual Scientific Meeting 2024. Birmingham, England, UK, May 9-10 2024 (*Felicity Reynolds Prize Competition, accepted for oral presentation, presenter Dr. Pamela Angle*)

Barrieau G, **Angle P**, Kurtz-Landy C, Berndl A, Osepchook C, Fleming K. Women's experiences of urgent/emergent cesarean section (UE-CS): A qualitative study, in a patient-centric approach, examining

stressors and possible interventions to improve the childbirth experience. Canadian National Perinatal Research Meeting, Vancouver BC, June 3-6 2024

Kurtz-Landy C, **Angle P**, Barrieau G, Berndl A, Osepchook C, Fleming K. Exploring women's experiences of preterm urgent/emergent Caesarean Section (UE-CS): A qualitative study examining stressors and potential interventions to mitigate negative emotional/psychological impact. Canadian National Perinatal Research Meeting, Vancouver BC, June 3-6 2024

AWAD, Imad

Book Chapters/E-modules

Xu RS, **Awad IT**, McCartney CJL. Ultrasound-Guided Nerve Blocks of the Lower Limb in Atlas of Ultrasound-guided Procedures. In: Narouze SN, eds. *Interventional Pain Management*. ISBN: (in process)

CHOI, Stephen

Publications

Moorthy A, Perry-Nguyen D, Zhou L, Meng H, **Choi S**, Niazi AU. (2023) Evaluation of the effect of erector spinae plane block catheter for traumatic rib fractures on patient experience: a quality assurance initiative. *Reg Anesth Pain Med*:rapm-2023-104549

Khaled M, Uppal V, Youssef N, Marcucci M, **Choi S**, Chiu J, Madden K, Shanthanna H. (2023) Preoperative Assessment of Postoperative Delirium: A Cross-sectional study of Patients and Anesthesiologists in Canada. *Can J Anesth*:70(10):1600-1610

Wiegelmann JR, **Choi S**, McHardy PG, Matava C, Singer O, Kaustov L, Alam F. (2024) Randomized Control Trial of a Holographic Needle Guidance Technique for Thoracic Epidural Placement. *Reg Anesth Pain Med*: rapm-2023-104703

Prowle JR, Croal B, Abbott TEF, Cuthbertson BH, Wijeyesundera DN; METS study investigators (Jerath A, **Choi S**, McCartney CJL). (2024) Cystatin C or creatinine for pre-operative assessment of kidney function and risk of post-operative acute kidney injury: a secondary analysis of the METS cohort study. *Clin Kidney J*:17(1):sfae004

Khan JS, Gilron I, Devereaux PJ, Clarke H, Ayach N, Tomlinson G, Quan ML, Ladha KS, **Choi S**, Munro A, Brull R, Lim DW, Avramescu S, Richebé P, Hodgson N, Paul J, Mclsaac DI, Derzi S, Zbitnew GL, Easson AM, Siddiqui NT, Miles SJ, Karkouti K; PLAN Trial Investigators. (2024) Prevention of persistent pain with lidocaine infusions in breast cancer surgery (PLAN): study protocol for a multicenter randomized controlled trial. *Trials*:25(1):337

Lectures (*virtual)

Anesthesia Research update. The Holland Bone and Joint Research Day, Holland Orthopaedic & Arthritic Centre, Sunnybrook Health Sciences Centre, Toronto, ON, October 27 2023

USS Guidance for Peripheral Nerve Blockade – Literature Bias. Irish Society of Regional Anesthesia (ISRA), Dublin, Ireland, April 19 2024

Conference/Workshop Presentations (*virtual)

McCartney C, Safa B, Idestrup C, Meng H, Lee TSJ, McCarron A, Galochkin G, Niazi AU, **Choi S**. Positioning of Continuous Adductor Canal Catheters after Total Knee Arthroplasty (CACB). SRI Summer student poster competition, Sunnybrook Health Sciences Centre, Toronto, ON, August 17 2023

Wiegelmann J, Lappin E, McHardy P, **Choi S**, Singer O, Kaustov L, Alam F. A randomized control trial of a holographic needle guidance technique for thoracic epidural placement (HOLOLENS). Innovation Fund Showcase: The Future of Academic Medicine, Metro Toronto Convention Centre, Toronto, ON, November 8 2023

Oliveira FS, Sivanathan L, **Choi S**, Meng H. Evaluation of psychosocial risk factors for persistent opioid use in a trauma pain clinic – a quality improvement initiative. 22nd Annual Pain Medicine, New Orleans, LA, November 10-11 2023

Gupta S, Alam F, Tarshis J, **Choi S**, Belfiore E, Kaustov L, Brenna CTA, May V, Da Cruz T, Wiegelmann J. HOLOSIM: The way forward in complex crisis training. *Cureus* 16(1):a119 (*published abstract*)

McCarron A, Di Renna T, Tarshis J, Safa B, Ravi B, Flynn J, Kiss A, Kaustov L, **Choi S**, Niazi AU. Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption. 9th Annual Sunnybrook Clinical Impact through Innovation Expo, Sunnybrook Health Science Centre, Toronto, ON, February 1 2024*

Alam F, Tu A, Shaheen S, Hadley H, Cartotto R, Kaustov L, **Choi S**, Rogers A. BURN 360: Reducing Pain and Anxiety during Dressing Changes after Burn Surgery Using Virtual Reality – a Randomized Controlled Trial. Tory Trauma Program Academic Day, Sunnybrook Health Sciences Centre, Toronto ON, February 26 2024

Oliveira F, Sivanathan L, **Choi S**, Meng M. Evaluation of persistent opioid use and psychiatric risk factors in transitional trauma pain clinic - a quality improvement initiative. Tory Trauma Program Academic Day, Sunnybrook Health Sciences Centre, February 26 2024

Oliveira FS, Sivanathan L, **Choi S**, Meng H. Evaluation of psychosocial risk factors for persistent opioid use in a trauma pain clinic – a quality improvement initiative. Anesthesiology and Acute Pain Medicine Meeting, San Diego, CA, March 21-23 2024

Zhang C, Kaustov L, Orser BA, Rosales H, Huang J, Idestrup C, Liu B, Haas B, Ravi B, **Choi S**. Redesigning the surgical pathway: optimizing PReOperative assessMent in anesthesia clinic for adult surgical patients (PROMoTE). 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024

Gupta S, Alam F, Tarshis J, **Choi S**, Belfiore E, Kaustov L, Brenna CTA, May V, Da Cruz T, Wiegelmann J. HOLOSIM: The Way Forward in Complex Crisis Training. Gary Johnson Research Day 2024, Department of Anesthesiology and Pain Medicine, University of Ottawa, Ottawa ON, May 24 2024

Early career investigators/Trainees (invited lectures)

Gupta S, Alam F, Tarshis J, **Choi S**, Belfiore E, Kaustov L, Wiegelmann J. HOLOSIM: the way forward in complex crisis training. The 2023 SIM Expo, Ottawa, ON, December 11-12 2023 (*selected for oral presentation, presenter Sanchit Gupta*)

Niazi AU, Di Renna T, Tarshis J, Safa B, Ravi B, **Choi S**, Flynn J, Kiss A, McCarron A. Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption. Staff Elevator Research Pitch, The Holland Bone and Joint Research Day, Holland Orthopaedic & Arthritic Centre, Sunnybrook Health Sciences Centre, Toronto, ON, October 27 2023 (*selected for oral presentation, presenter Aaron McCarron*)

Rosales H, Zhang C, Kaustov L, Orser BA, Huang J, Idestrup C, Liu B, Haas B, Ravi B, **Choi S**. Redesigning the surgical pathway: optimizing PReOperative assessMent in anesthesia clinic for aduLT surgical patients (PROMoTE). 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024 (*selected for oral presentation, presenter Hannah R. Rosales*)

Grants

Project Title: Effect of perioperative duloxetine administration on opioid consumption following total knee arthroplasty

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000.00 for 2 years (April 2024 – March 2026)

PI: McCartney CJL.

CI(s): Meng H, Tomescu S, **Choi S**, Nestor S.

Project Title: The HEROES trial: hyperbaric oxygen therapy for endometriosis-related pain: A prospective randomized study

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000.00 for 2 years (April 2024 – March 2026)

PI: Silva Restrepo M. CPI: Liu G.

CI(s): Alam F, Kaustov L, Moreno J, **Choi S**, Tarshis J, Meng H, Kung R, Skolnik E, Po L, Sriram S.

Project Title: Unravelling perioperative neurocognitive disorders

Funder: Merit Award, 2023 -2025 Merit Award Program, Department of Anesthesiology & Pain Medicine, University of Toronto

Amount: \$80,000 for 2 years (January 2024 – December 2025)

PI: **Choi S**.

Project Title: Remote Immersive Virtual Reality (RIVR) Teaching: Use in Ultrasound Guided Regional Anesthesia Procedural Skills Acquisition

Funder: Education and Simulation in Anesthesia Research Grant, Canadian Anesthesiologists' Society

Amount: \$10,000 for 2 years (July 2023 – June 2025)

PI: Niazi AU.

CI(s): Wilcocks K, Moorthy A, **Choi S**.

Project Title: Ultrasound-guided percutaneous intercostal nerve cryoneurolysis for analgesia following traumatic rib fracture, a pilot randomized control trial

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000 for 2 years (April 2023 – March 2025)

PI: Safa B, CPI: Nathens A.

CI(s): Meng H, **Choi S**.

Title: Combination therapy: Hyperbaric oxygen therapy and PENTOCLO for treatment of osteoradionecrosis of the mandible

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000 for 2 years (April 2023 – March 2025)

PI: Tanner K, CPI: Blanas N.

CI(s): Safa B, Higgins K, Eskander A, Tarshis J, **Choi S**, Kiss A.

Title: Improving Post-Covid Syndrome with Hyperbaric Oxygen Treatments (PCS-HBOT study).

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000.00 for 2 years (April 2023 – March 2025)

PI: Tarshis J, CPI: Singer O.

CI(s): Alam F, Chan A, **Choi S**, Hamstra S, Giacobbe P.

Project Title: Perioperative vitamin C to reduce persistent pain after total knee arthroplasty (PROVISION): a pilot randomized controlled trial

Funder: CIHR – Institute of Musculoskeletal Health and Arthritis. Arthritis Society Canada Strategic Operating Grant

Amount: \$100,000 for 1 year (February 2023 – January 2024)

PI: Mundi R, CPI: Khan J.

CA(s): Chaudhry H, Wolfstadt J, Clarke H, **Choi S**, Backstein D, Siddiqui N, Flamer D, Tomlinson G, Miles S, Dana E.

Project Title: Perioperative vitamin C to reduce persistent pain after total knee arthroplasty (PROVISION): a pilot randomized controlled trial

Funder: Arthritis Society Canada, Strategic Operating Grant

PI: James Khan; CPI(s): Chaudhry H, Mundi R, Wolfstadt J.

CA(s): Clarke H, **Choi S**, Backstein D, Siddiqui N, Flamer D, Tomlinson G, Miles S, Dana E.

Amount: \$408,843 for 3 years (January 2023 – December 2025)

Project Title: The Holographic Standardized Patient: using mixed reality to reduce barriers to crisis simulation in acute care

Funder: Society for Technology in Anesthesia

Amount: \$4,000 for 1 year (January 2023 – February 2024)

PI: Wiegelmann J.

CI(s): Alam F, **Choi S**, Piquette D, Filipowska C, Kaustov L.

Project Title: FAST Walk (Functional Assessment for Surgery by a Timed Walk) Study: A multicentre prospective cohort study of the six-minute walk test for improving preoperative risk stratification for major non-cardiac surgery

Funder: PSI Foundation Health Research Grant

Amount: \$249,500 for 3 years (January 2023 - December 2025)

PA: Wijeyesundera DN.

CPA(s): McIsaac DI, Jerath A, Kennedy E

CA(s): Khadaroo R, Alibhai S, Bartoszko J, Chesney T, **Choi S**, Crampton N, Cuthbertson B, Del Giudice L, Gomez Jaramillo D, Granton J, Karanicolas P, Ladha KS, Lebovic G, McCluskey S, Parotto M, Perlas A, Puts M, Salbach N, Santa Mina D, Siddiqui N, Stephenson A, VanVlymen J, Wijeyesundera H, Wong K, Avramescu S, *et al.*

C(s): Racz E, Wilmshurst L.

Project Title: Comprehensive health assessment for my plan: initial implementation study (CHAMP implementation study)

Funder: Canadian Institute of Health Research (CIHR) Project Grant

Amount: \$229,500 for 2 years 6 months (October 2022 – March 2025)

PI(s): Puts MT, Alibhai SM, Chesney T, Munteanu C.

CI(s): Brar MS, Chadi SA, **Choi S**, Donison V, Dumchin N, Emmenegger U, Goldstein DP, Haase K, Kulkarni GS, Mehta R, Papadakos JK, Perlis N, Quereshy F, Wijeyesundera DN, Wong CL, Yeung JC.

Project Title: Redesigning the surgical pathway: optimizing PRoOperative assessMent in anesthesia clinic for adult surgical patients (PROMoTE).

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$100,048 for two years (April 2022 – April 2024)

PI: **Choi S**.

CI(s): Huang J, Liu B, Orser BA, Haas B, Ravi B, Slaughter G.

Project Title: Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption

Funder: Sunnybrook Education Advisory Council (SEAC) Education Research Unit (ERU) and the Alternative Funding Plan (AFP)

Amount: \$100,032 for two years (April 2022 – March 2024)

PI: Niazi AU.

CI(s): Di Renna T, Tarshis J, Safa B, Ravi B, **Choi S**, Kiss A, Flynn J.

Project Title: The Holographic Standardized Patient - Using Mixed Reality to Reduce Barriers to Crisis Simulation in Acute Care.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$86,700.00 for two years (April 2022 – March 2024)

PI: Wiegelmann J.

CI(s): Alam F, Piquette D, Filipowska C, Kaustov L, **Choi S**.

Project Title: Prevention of persistent pain with Lidocaine infusions in breast cancer surgery (PLAN): a multicentre randomized controlled trial.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$99,987 for two years (April 2022 – March 2024)

CPI(s): Meng H, Helman J.

CI(s): **Choi S**, Khan J, Look Hong N, Wright F, Roberts A, Wiegelmann J.

Project Title: Remote Immersive Virtual Reality (RIVR) Teaching: Use in Ultrasound-Guided Regional Anesthesia Procedural Skills Acquisition.

Funder: Sunnybrook Education Advisory Council (SEAC) Education Research Unit (ERU) and Scholarship Grant (ESRG)

Amount: \$10,000 for 2 years (March 2022 – February 2024)

PI: Niazi AU.

CA(s): Alam F, Wilcocks K, **Choi S**.

Project Title: Redesigning the surgical pathway: optimizing preoperative assessment in anesthesia clinic for adults surgical patients (*PROMoTE trial*).

Funder: Anesthesia Patient Safety Foundation (**designated as the APSF/ASA President Award*)

Amount: US \$150,000 for two years (January 2022 – December 2024)

PI: **Choi S**.

CI(s): Huang J, Orser BA, Liu B.

Project Title: FAST Walk (Functional Assessment for Surgery by a Timed Walk) Study: A Multicentre Prospective Cohort Study of the Six-Minute Walk Test for Improving Preoperative Risk Stratification for Major Non-Cardiac Surgery

Funder: Canadian Institute of Health Research (CIHR) Project Grant

PI(s): Wijeyesundera DN, Jüni P, Khadaroo R, McIsaac D.

CI(s): Alibhai S, Bagry H, Bartoszko J, Bruce E, Chesney T, **Choi S**, Crampton N, Cuthbertson B, Del Giudice L, Ferguson-Pell M, Gomez Jaramillo D, Granton J, Guiang C, Jacobsohn E, Jerath A, Karanicolas P, Kennedy E, Ladha KS, Lebovic G, MacDonald D, MacDonell S, McCluskey S, Parotto M, Perlas A, Puts M, Russell S, Salbach N, Santa Mina D, Siddiqui N, Stephenson A, Thoreifson M, VanVlymen J, Wijeyesundera H, Wong K, Wright F.

C(s): Carmichael G, Depoe M.

Amount: \$1,410,813 for 4 years (October 2021 – March 2025)

Project Title: Prevention of persistent pain with Lidocaine infusions in breast cancer surgery (PLAN): a multicentre randomized controlled trial.

Funder: Canadian Institute of Health Research (CIHR)

Amount: \$1,285,000 over 4 years (October 2020 – September 2024)

PI(s): Khan JS, Gilron I.

CI(s): Avramescu S, Brull R, Brulotte V, Buckley DN, Busse JW, **Choi S**, Clarke HA, Devereaux PJ, Dillane D, Friedman Z, Hah JM, Hung L, Karkouti K, Ladha K, Lim DW, Look Hong N, MacDonell SY, Mackey SC, Miles S, Paul JE, Richebe PGN, Sessler DI, Shanthanna H, Siddiqui N, Tomlinson GA, Wang L, Turan A, Usichenko T, Wang L, Wright F.

Project Title: Virtual Reality as a tool to reduce pre-procedure anxiety prior ECT via enhancing patient education (PERFECT-VR).

Funder: Physicians Service's Incorporated Foundation, Health Services Research Grant (PSI Foundation)

Amount: \$250,000 for 3 years (September 2020 – August 2023, extension granted until August 2024)

PI(s): Alam F, Giacobbe P.

CI(s): **Choi S**, Rapoport M, Herrmann N, Kaustov L, Matava M.

Title: Does the Self-Bleeding assessment tool score accurately predict perioperative bleeding (SELF-BAT)?

Lead-I/Sponsor: Scholzberg M, St. Michael's Hospital

Funder: Hemostasis and Thrombosis Research Society (HTRS) Mentored Research Award and Baxalta Canadian Hemophilia Epidemiological Research Program (B-CHERP)

Amount: \$61,000 for 5 years (July 2019 – June 2024)

Site PI: **Choi S**. (collaborator); Site CI(s): Teitel J, Selby R.

Awards

2023-2025 Research Merit Award (\$40,000 per annum for 2 years), 2023-2025 Merit Award Program, University of Toronto Anesthesia Merit Award, Department of Anesthesia, Temerty Faculty of Medicine

Appointments/Honours (selected)

Association of Canadian Universities' Departments of Anesthesia Research Committee, University of Toronto representative, 2022 – present

Professorship in Perioperative Sciences, Department of Anesthesia, University of Toronto, January 1 2019 – December 30 2024

Associate Member to the graduate faculty of the Institute of Medical Science, University of Toronto, May 1 2019 – June 30 2024

Awards to Trainees

Tin-Suet Joan Li (a summer student in the Department of Anesthesia, Sunnybrook HSC) – 2023 Sunnybrook Summer Research Program Award, supervisors Drs. Colin McCartney and **Stephen Choi** (\$3,200 for 3 months, June – August 2023)

Clinical Collaborations

Project Title: Does the Self-Bleeding assessment tool score accurately predict perioperative bleeding (SELF-BAT)?
Lead-I/Sponsor: Scholberg M, St. Michael's Hospital
Site PI: **Choi S**

Project Title: Prevention of persistent pain with Lidocaine infusions in breast cancer surgery (PLAN): a multicentre randomized controlled trial.
Lead-I/Sponsor: Khan JS, Gilron I., Toronto General Hospital
Site PI: **Choi S**, site C(s): Meng H, Helman JD, Look Hong N, Wright F, Roberts A, Wiegelmann J.

Project Title: Comprehensive health assessment for my plan: initial implementation study (CHAMP implementation study)
Lead-I/Sponsor: Puts MT, Alibhai SM, Chesney T, Munteanu C., University Health Network
Site PI: **Choi S**.

Project Title: FAST Walk (Functional Assessment for Surgery by a Timed Walk) Study: A multicentre prospective cohort study of the six-minute walk test for improving preoperative risk stratification for major non-cardiac surgery
Lead-I/Sponsor: Wijesundera DN.
Site PI: **Choi S**, site CI: Jerath A.

DEBASHIS, Roy

Lectures

Massive transfusion protocol in trauma. Indian Society of Anaesthesiologists, Annual Conference, Delhi, India, November 2023

HALPERN, Stephen

Book Chapters/E-modules

MacLean DB, **Halpern SH**. Disorders of Intermediaries of Metabolism and Malignant Hyperthermia. In: Obstetric Anesthesia and Uncommon Disorders. *Editors:* Gambling DR, Douglas MJ, Lim G. Cambridge University Press; 2024:273-289

Conference/Workshop Presentations (*virtual)

Pardy B, Angle P, Lay C, Gawel M, Kiss A, Kong J, van Der Vyver M, Roberts L, Hussain K, **Halpern S**. Diagnostic cohort study comparing the accuracy of PDPH trial criteria vs International Headache Society criteria for post-epidural PDPH. University of Toronto Shields Research Day, Toronto ON, May 4 2024

HELMAN, James D.

Conferences/Workshop Presentations (*virtual)

Mah A, Alam F, Dandal MA, **Helman JD**, Cohen T, Hallbeck S, Tetteh E, Norasi H, Kallocsai C, Siriam S, Perez d'Empaire P, Larouche J, Hallet J. Interdisciplinary operating room ergonomics needs and priorities: a survey of operating room staff. The 2nd Annual Symposium of the Society of Surgical Ergonomics, September 8 2023*

Early Career Investigators/Trainees (invited lectures)

Mah A, Alam F, Larouche J, Dandal MA, Cohen T, Hallbeck S, Tetteh E, Hamid Norasi, Csilla Kallocsai C, Siriam S, **Helman JD**, Perez d'Empaire P, Hallet J. Interdisciplinary operating room ergonomics needs and priorities: a survey of operating room staff. Scientific Forum at Clinical Congress 2023, Boston, MA, October 22-25 2023 (*selected for oral presentation, presenter Alexis Mah*)

Grants

Project Title: Prevention of persistent pain with Lidocaine infusions in breast cancer surgery (PLAN): a multicentre randomized controlled trial.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$99,987 for two years (April 2022 – March 2024)

CPI(s): Meng H, **Helman JD**.

CI(s): Choi S, Khan J, Look Hong N, Wright F, Roberts A, Wiegelmann J.

Project Title: Simulation for Operating Room Ergonomics – The SORE Study: creating an inter-disciplinary simulation curriculum for operating room ergonomics (*the inaugural recipient*).

Funder: Sunnybrook Education Advisory Council (SEAC) Education Research Unit (ERU) and the Alternative Funding Plan (AFP)

Amount: \$20,000.00 for two years (March 2022 – February 2024)

PI: Alam F.

CI(s): Tavares W, Kallocsai C, Ashamalla S, Dandal MA, Larouche J, **Helman JD**, Hallet J, Sevigny M, Sriram S, Ryzynski A, De-Sousa S, Brar S, Hallbeck S, Cohen T.

Awards

2024 Anesthesia Award for Clinical Excellence, Department of Anesthesiology & Pain Medicine, University of Toronto

HUANG, Jane

Conference/Workshop Presentations (*virtual)

Zhang C, Kaustov L, Orser BA, Rosales H, **Huang J**, Idestrup C, Liu B, Haas B, Ravi B, Choi S. Redesigning the surgical pathway: optimizing PReOperative assessMent in anesthesia clinic for adult surgical patients (PROMoTE). 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024

Early Career Investigators/Trainees (invited lectures)

Rosales H, Zhang C, Kaustov L, Orser BA, **Huang J**, Idestrup C, Liu B, Haas B, Ravi B, Choi S. Redesigning the surgical pathway: optimizing PReOperative assessMent in anesthesia clinic for adult surgical patients (PROMoTE). 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024 (accepted for oral presentation, presenter Hannah R. Rosales)

Grants

Project Title: Redesigning the surgical pathway: optimizing preoperative assessment in anesthesia clinic for adults surgical patients (*PROMoTE trial*).

Funder: Anesthesia Patient Safety Foundation (**designated as the APSF/ASA President Award*)

Amount: US \$150,000 for two years (January 2022 – December 2024)

PI: Choi S.

CI(s): **Huang J**, Orser BA, Liu B.

Project Title: Redesigning the surgical pathway: optimizing PReOperative assessMent in anesthesia clinic for adult surgical patiEnts (PROMoTE).

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$100,048 for two years (April 2022 – March 2024)

PI: Choi S.

CI(s): **Huang J**, Liu B, Orser BA, Haas B, Ravi B, Slaughter G.

HUSSAIN, Kamal

Conferences/Workshops (*virtual)

Pardy B, Angle P, Lay C, Gawel M, Kiss A, **Kong J**, van Der Vyver M, Roberts L, Hussain K, Halpern S. Diagnostic cohort study comparing the accuracy of PDPH trial criteria vs International Headache Society criteria for post-epidural PDPH. University of Toronto Shields Research Day, Toronto ON, May 4 2024

IDESTRUP, Christopher P.

Publications

Hallet J, Jerath A, Perez d'Empaire P, Eskander A, Carrier FM, Mclsaac DI, Turgeon AF, **Idestrup C**, Flexman AM, Lorello G, Darling G, Kidane B, Kaliwal Y, Barabash V, Coburn N, Sutradhar R. (2023) The association between hospital high-volume anesthesiology care and patient outcomes for complex gastrointestinal cancer surgery: a population-based study. *Ann Surg*:278(3):e503-e510

Hallet J, Sutradhar R, Eskander A, Carrier FM, Mclsaac D, Turgeon AF, Perez d'Empaire P, **Idestrup C**, Flexman A, Lorello G, Darling G, Kidane B, Kaliwal Y, Barabash V, Coburn N, Jerath A. (2023) Variation in Anesthesiology Provider-Volume for Complex Gastrointestinal Cancer Surgery: A Population-Based Study. *Ann Surg*: 278(4):e820-e826

Conferences/Workshops (*virtual)

McCartney C, Safa B, **Idestrup C**, Meng H, Lee TSJ, McCarron A, Galochkin G, Niazi AU, Choi S. Positioning of Continuous Adductor Canal Catheters after Total Knee Arthroplasty (CACB). SRI Summer student poster competition, Sunnybrook Health Sciences Centre, Toronto, ON, August 17 2023

Kalun P, Hamstra S, Whyne C, Robert N, Kreder H, Wong M, Dandal M, Joson J, Hong JY, Alam F, Wiegelmann J, **Idestrup C**, Taam J, Yee A, Tile M, Nousiainen M. Assessment Framework to Measure Orthopaedic Surgical Team Performance. The Department of Surgery's 50th Gallie Day, University of Toronto, MaRS, Toronto ON, May 3, 2024

Zhang C, Kaustov L, Orser BA, Rosales H, Huang J, **Idestrup C**, Liu B, Haas B, Ravi B, Choi S. Redesigning the surgical pathway: optimizing PReOperative assessMent in anesthesia clinic for adult surgical patients (PROMoTE). 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024

Early Career Investigators/Trainees (invited lectures)

Rosales H, Zhang C, Kaustov L, Orser BA, Huang J, **Idestrup C**, Liu B, Haas B, Ravi B, Choi S. Redesigning the surgical pathway: optimizing PReOperative assessMent in anesthesia clinic for adult surgical patients (PROMoTE). 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024 (*accepted for oral presentation, presenter Hannah R. Rosales*)

Grants

Project Title: Designing new care models for anesthesiology in complex gastrointestinal surgery by leveraging volume-outcome relationships.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$69,117 for two years (April 2022 – April 2024)

PI: Perez d'Empaire P.

CI(s): Hallet J, Jerath A, **Idestrup C**, Coburn N, Eskander A, Gotlib Conn L, Sutradhar R, Wright F.

Appointments/Honors

Dr. Christopher Idestrup and Dr. Angela Jerath – Nominated by the Sunnybrook Innovation Fund Sub-Committee for this year's IFPOC Showcase and Awards for your project entitled 'Tranexamic acid dosing for major joint replacement surgery.'

Recognized as Toronto's Top Doctor in the city, March 2024

Media Release

'Toronto's Top Doctors'. Street of Toronto, May 2024: <https://issuu.com/postcity/docs/yorkville-2024-03>

JERATH, Angela

Publications

Rajendran L, Hopkins A, Hallet J, Sinha R, Tanwani J, Kao MM, Eskander A, Barabash V, Idestrup C, Perez d'Empaire P, **Jerath A.** (2023) Role of intraoperative processes of care during major upper gastrointestinal oncological resection in postoperative outcomes: a scoping review protocol. *BMJ Open*:13(7):e068339

Cuninghame S, **Jerath A**, Gorsky K, Sivajohan A, Francoeur C, Withington D, Burry L, Cuthbertson BH, Orser BA, Martin C, Owen AM, Slessarev M; Sedating with Volatile Anesthetics Critically Ill COVID-19 Patients in ICU: Effects on Ventilatory Parameters and Survival study investigators. (2023) Effect of inhaled anaesthetics on cognitive and psychiatric outcomes in critically ill adults: a systematic review and meta-analysis. *Br J Anaesth*:131(2):314-327. Erratum in: *Br J Anaesth*:131(4):788

Mclsaac DI, Talarico R, **Jerath A**, Wijeyesundera DN. (2023) Days alive and at home after hip fracture: a cross-sectional validation of a patient-centred outcome measure using routinely collected data. *BMJ Qual Saf*: 32(9):546-556

Hallet J, **Jerath A**, Perez d'Empaire P, Eskander A, Carrier FM, Mclsaac DI, Turgeon AF, Idestrup C, Flexman AM, Lorello G, Darling G, Kidane B, Kaliwal Y, Barabash V, Coburn N, Sutradhar R. (2023) The association between hospital high-volume anesthesiology care and patient outcomes for complex gastrointestinal cancer surgery: a population-based study. *Ann Surg*:278(3):e503-e510

Azizi PM, Wijeyesundera DN, Wijeyesundera HC, Austin PC, **Jerath A**, Kayssi A, Ko DT. (2023) Association between hospital postoperative troponin use and patient outcomes after vascular surgery. *Anesth Analg*:137(3):629-637

Riveros C, Ranganathan S, Shah YB, Huang E, Xu J, Geng M, Melchiode Z, Hu S, Miles BJ, Esnaola N, Kaushik D, **Jerath A**, Wallis CJD, Satkunasivam R. (2023) Postoperative Discharge Destination Impacts 30-Day Outcomes: A National Surgical Quality Improvement Program Multi-Specialty Surgical Cohort Analysis. *J Clin Med*: 12(21):6784

Riveros C, Ranganathan S, Huang E, Ordonez A, Xu J, Geng M, Miles BJ, Esnaola N, Klaassen Z, **Jerath A**, Kim SJ, Wallis CJD, Satkunasivam R. (2023) Glomerular hyperfiltration is an independent predictor of postoperative outcomes: A NSQIP multi-specialty surgical cohort analysis. *Nephrology (Carlton)*:28(10):548-556

Hallet J, Sutradhar R, Eskander A, Carrier FM, Mclsaac D, Turgeon AF, Perez d'Empaire P, Idestrup C, Flexman A, Lorello G, Darling G, Kidane B, Kaliwal Y, Barabash V, Coburn N, **Jerath A.** (2023) Variation in Anesthesiology Provider-Volume for Complex Gastrointestinal Cancer Surgery: A Population-Based Study. *Ann Surg*: 278(4):e820-e826

Wallis CJ, **Jerath A**, Ikesu R, Satkunasivam R, Dimick JB, Orav EJ, Maggard-Gibbons M, Li R, Salles A, Klaassen Z, Coburn N, Bass BL, Detsky AS, Tsugawa Y. (2023) Association between patient-surgeon gender concordance and mortality after surgery in the United States: retrospective observational study. *BMJ*: 383:e075484

Wallis CJD, **Jerath A**, Aminoltejari K, Kaneshwaran K, Salles A, Coburn N, Wright FC, Gotlib Conn L, Klaassen Z, Luckenbaugh AN, Ranganathan S, Riveros C, McCartney C, Armstrong K, Bass B, Detsky AS, Satkunasivam R. (2023) Surgeon Sex and Long-Term Postoperative Outcomes Among Patients Undergoing Common Surgeries. *JAMA Surg*: 158(11):1185-1194 *Most viewed article 2023

Lenet T, McIsaac DI, Hallett JH, **Jerath A**, Lalu MM, Nicholls SG, Presseau J, Tinmouth A, Verret M, Wherrett CG, Fergusson DA, Martel G; Ottawa Consensus on Intraoperative Patient Blood Management. (2023) Intraoperative Blood Management Strategies for Patients Undergoing Noncardiac Surgery: The Ottawa Intraoperative Transfusion Consensus. *JAMA Netw Open*:6(12):e2349559

Prowle JR, Croal B, Abbott TEF, Cuthbertson BH, Wijeyesundera DN; METS study investigators (**Jerath A**, Choi S, McCartney CJL). (2024) Cystatin C or creatinine for pre-operative assessment of kidney function and risk of post-operative acute kidney injury: a secondary analysis of the METS cohort study. *Clin Kidney J*:17(1):sfae004

Wallis CJD, **Jerath A**, Aminoltejari K, Kaneshwaran K, Salles A, Buntin M, Coburn NG, Wright FC, Gotlib Conn L, Heybati K, Luckenbaugh AN, Ranganathan S, Riveros C, McCartney C, Armstrong KA, Bass BL, Detsky AS, Satkunasivam R. (2023) Surgeon Sex and Health Care Costs for Patients Undergoing Common Surgical Procedures. *JAMA Surg*: 159(2):151-159

Ranganathan S, Riveros C, Geng M, Chang C, Tsugawa Y, Ravi B, Melchiodi Z, Hu S, Kobashi K, Miles B, Klaassen Z, Nathens A, Coburn N, Detsky A, **Jerath A**, Wallis C, Satkunasivam R. (2024) Superstition in surgery: a population-based cohort study to assess the association between surgery on Friday the 13th and postoperative outcomes. *Ann Surg Open*:12(5):e375

Gorsky K, Cuninghame S, Jayaraj K, Slessarev M, Francoeur C, Withington DE, Chen J, Cuthbertson BH, Martin C, Chapman M, Ganesan SL, McKinnon N, **Jerath A**. (2024) Inhaled Volatiles for Status Asthmaticus, Epilepsy, and Difficult Sedation in Adult ICU and PICU: A Systematic Review. *Crit Care Explor*:6(2):e1050

Jerath A, Satkunasivam R, Kaneshwaram K, Coburn N, Wright F, McCartney C, Kealey A, Sarmah A, Ladowski S, Nabecker S, Aminoltejari K, Chang A, MacDonnell SY, Riveros C, Flexman A, Lorello G, Detsky A, Wallis CJD. (2024) Association between anesthesiologist sex and patients' postoperative outcomes: a population-based cohort study. *Ann Surg*:279(4):569-574

Wallis CJD, **Jerath A**, Satkunasivam R. (2024) Examining Gender Disparities Among Physicians When Sample Sizes Differ-Reply. *JAMA Surg*:159(4):468-469

Ai B, Zhang J, Zhang S, Chen G, Tian F, Chen L, Li H, Guo Y, **Jerath A**, Lin H, Zhang Z. (2024) Causal association between long-term exposure to air pollution and incident Parkinson's disease. *J Hazard Mater*:469:133944

Saka N, Yamamoto N, Watanabe J, Wallis CJD, **Jerath A**, Someko H, Hayashi M, Kamijo K, Ariie T, Kuno T, Kato H, Mohamud H, Chang A, Satkunasivam R, Tsugawa Y. (2024) Comparison of Postoperative outcomes Among Patients Treated by Male Versus Female Surgeons: A Systematic Review and Meta-analysis. *Ann Surg*:doi: 10.1097/SLA.0000000000006339 (Epub ahead of print)

Hallet J, Sutradhar R, Flexman A, Mclsaac D, Carrie FM, Turgeon A, McCartney C, Chan W, Coburn N, Eskander A, **Jerath A**, Perez d'Empaire P, Lorello G. (2024) Association between anaesthesia–surgery team sex diversity and major morbidity. *Br J Surg*:111(5):znae097

Jerath A, Wallis CJD, Fremes S, Rao V, Yau TM, Heybati K, Lee DS, Wijeyesundera HC, Sutherland J, Austin PC, Wijeyesundera DN, Ko DT. Days alive and out of hospital for adult female and male cardiac surgery patients: a population-based cohort study. *BMC Cardiovasc Disord*:24(1):215. Erratum in: *BMC Cardiovasc Disord*:24(1):274

Reise K, Macartney J, La R, **Jerath A**, Slessarev M, Cuthbertson B, Ganesan SL, McKinnon N. (2024) Volatile gas scavenging in the paediatric intensive care unit: Occupational health and safety assessment. *Can J Respir Ther*:60:95-102

Deb S, Sud M, Coburn N, **Jerath A**, Motamed M, Shah B, Sheth J, Ko DT. (2024) Race and ethnicity research in cardiovascular disease in Canada: challenges and opportunities. *Can J Cardiol*:40(6): 1172-1175

Lectures (*virtual)

Inhaled volatile anesthetics for critical care. Ottawa Hospital, Ottawa, ON, September 2023

Evidence for or against the use of inhalational anesthetic use outside the OR. 2024 Critical Care Congress, Society Critical Care Medicine, Phoenix, AZ, January 21-23 2024

Impact of physician characteristics on patient outcomes after surgery. Virtual Fellowship Professor's Rounds, Department of Anesthesiology & Pain Medicine, University of Toronto, Toronto, ON, February 26 2024*

Volatile anesthetics in pediatric intensive care: ABOVE trial - McMaster University, Ontario, March 2024*

Volatile anesthetics in pediatric intensive care: ABOVE trial - Montreal Children's Hospital, Quebec, March 2024*

Physician characteristics and patient outcomes, Schulich Heart Program, Sunnybrook Research Institute, Ontario, March 2024

Evidence-based sedation management in ventilated patients. Mechanical Ventilation Course, The Interdepartmental Division of Critical Care Medicine (IDCCM), University of Toronto, April 23 – 25 2024 (*hybrid meeting*)

Critical Care Sedation: The emerging role of inhalational anesthetics. Inter-department Division of Critical Care Medicine, Art Slutsky Day, June 20 2024

Conference/Workshop Presentations (*virtual)

Lenet T, Mclsaac D, Hallet J, **Jerath A**, Lalu M, Nicholls S, Pesseau J, Tinmouth A, Verret M, Wherrett C, Fergusson D, Martel G; for the Ottawa Consensus On Intraoperative PBM. Defining appropriate intraoperative patient blood management strategies in noncardiac surgery: the Ottawa Intraoperative Transfusion Consensus. 2023 Canadian Surgery Forum, September 20-23 2023, Vancouver, BC (2023 *Can J Surg*: 66(6 Suppl 1):S54-S136 (doi: 10.1503/cjs.014223, *published abstract*)

Jerath A, Chapman M, Scales D, Ferguson ND, Cuthbertson BH. Randomised, controlled, implementation trial of volatile based sedation in patients with COVID 19: The SAVE-ICU clinical trial. Department of Anesthesia &

Critical Care, Sunnybrook Health Sciences Centre, University of Toronto, Metro Convention Centre, Toronto, ON, November 8 2023

Puts M, Toledano, N, Low, C, Breunis, H, Haase, K, Wijeyesundera D, Mclsaac D, Chesney T, Crampton N, Davis M, Del Giudice L, Gregory A, Jacobsohn E, **Jerath A**, Kuluski K, Ladha K, Lorello G, Macdonald D, Macdonell SY, Mazer D, Mcgilton K, Mccluskey S, Parotto M, Siddiqui N, Van Vlymen J, Alibhai, S. (2023) Experiences of older adults and their caregivers with recovery after major elective surgery. *Journal of Geriatric Oncology: 14(8)*, S77 (*published abstract*)

Hamad D, Hass B, Tillman B, **Jerath A**, Guttman M, Subacius H, Thomas A, Nathens A. A multi-dimensional approach to identifying the highest performing trauma centres across the United States. EAST Annual Scientific Assembly, The Eastern Association for the Surgery of Trauma, Orlando, FL, January 9-13 2024

Koitsopoulos B, Cuthbertson B, Chapman M, McKinnon N, Slessarev M, Ganesan R, Nardi J, Zamperion J, Rogers A, Shaw E, Nardi J, Zampieron J, **Jerath A**. Analgosedative drug use in burn ICU patients after initiation of inhaled volatile-based sedation. Society of Critical Care Medicine, Phoenix, AZ, January 21-23 2024 (*published abstract*)

Erbetta I, Hadley H, **Jerath A**, McCartney C, Haas B, Fremes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A, Moreno Garijo J. Lung ultrasound versus chest radiography for detection of pneumothorax after mediastinal and chest drainage removal. 9th Annual Sunnybrook Clinical Impact through Innovation Expo, Sunnybrook Health Science Centre, Toronto, ON, February 1 2024

Shaw E, Chapman M, Cuthbertson BH, Scales D, Nardi B, Linseman B, **Jerath A**. Randomized & controlled study of volatile-based sedation in ventilated critical care patients: the SAVE-ICU clinical trial. 9th Annual Sunnybrook Clinical Impact through Innovation Expo, Sunnybrook Health Science Centre, Toronto, ON, February 1 2024*

Erbetta I, Kaustov L, Hadley H, **Jerath A**, Haas B, Fremes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A, McCartney CJL, Moreno Garijo J. Lung ultrasound versus chest Radiography for detection of pneumothorax after mediastinal and chest drainage removal. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024

Ribeiro T, Bonndzi-Simpson A, Chan W, Mahar AL, **Jerath A**, Coburn N, Hallet J. Days-at-home after gastrointestinal cancer surgery: a novel patient-centred outcome measure. *Gastroenterology*, Volume 166, Issue 5, S-1852 - S-1853. 65th Annual Meeting Society for Surgery of the Alimentary Tract (SSAT) *in partnership with Digestive Disease Week*, Washington DC May 18-21 2024 (*published abstract*)

Other Conference/Workshop Activities (*virtual)

The role of resuscitative transesophageal echocardiography. Canadian Anesthesiologists' Society Perioperative Webinar, Toronto, ON, October 24 2023 (*moderator*)

Perioperative mental health: The elephant in the (operating) room. CAS Pinnacle Rounds. Canadian Anesthesiologists' Society, March 6 2024 (*moderator*)

Early Career Investigators/Trainees (invited lectures)

Heybati K, **Jerath A**, Satkunasivam R, Kaneshwaran K, Aminoltejari K, Chang A, MacDonell SY, Kealey A, Ladowski S, Sarmah A, Flexman AM, Lorello G, Nabecker S, Conurn N, Gotlib Conn L, Klaassen Z, Ranganathan S, Riveros

C, McCartney CJL, Detsky AS, Wallis JDC. Association between anesthesiologist sex and postoperative outcomes: A population-based cohort study. 2024 IARS Annual Meeting, Seattle WA, May 17-19 2024 (*selected for oral presentation, presenter Kiyam Heybati, Mayo Clinic*)

Rouhani S, Gupta S, Hanley C, Raheel H, Gao A, Iansavitchene A, Cao X, Slessarev M, **Jerath A**. The effects of volatile and intravenous sedative agents on pulmonary and systemic inflammation: A systematic review and meta-analysis. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024 (*selected for oral presentation, presenter Soroush Rouhani, University of Ottawa*)

Acher A, Lorello G, Sutradhar R, Coburn N, Chan WC, Carrier F, Mclsaac D, Flexman A, Turgeon A, McCartney C, Eskander A, **Jerath A**, Perez d'Empaire P, Hallet J. Higher sex-diversity of operative teams is associated with better post-operative outcomes for hepato-pancreato-biliary surgery. World Congress, IHPBA. Cape Town, South Africa, May 15-18 2024 (*published abstract, accepted for oral presentation, presenter Alexandra Acher, University of Toronto*)

Grants

Project Title: Perioperative care models and morbidity on patient and health system outcomes (PROPEL)
Funder: Merit Award, 2023 -2025 Merit Award Program, Department of Anesthesiology & Pain Medicine, University of Toronto
Amount: \$80,000 for 2 years (January 2024 – December 2025)
PI: **Jerath A**.

Project Title: Lung ultrasound versus chest radiography for detection of pneumothorax after mediastinal and chest drainage removal, a pilot study
Funder: The 2023 Reichman Family Chair in Cardiovascular Research
Amount: \$30,000 for 1.5 years (May 2023 – November 2024)
PI: Moreno Garijo J.
CI(s): **Jerath A**, McCartney C, Haas B, Fremes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A.

Project Title: A qualitative approach to understanding variation in surgeon decision-making and communication practices for elective surgical care.
Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$103,556 for 2 years (April 2023 – March 2025)
PI: **Jerath A**.
CI(s): Wallis CJD, Gotlib-Conn L, Coburn N, Wright F, Lee J, Hamidi M.

Project Title: EEG and the adaptive reconfiguration index to predict recovery after traumatic brain injury
Funder: 2022 - 2023 Kimel-Schatzky Traumatic Brain Injury Grant, Tory Trauma program, Sunnybrook Research Institute
Amount: \$250,000 for 2 years (January 2023 – January 2025)
CPI(s): Jirsch J, Chapman M.
CI(s): Blain-Moraes S, Cuthbertson B, Scales D, Lim A, Khosravani H, Slessarev M, Mantia J.
CPL: **Jerath A**.

Project Title: Non-hOme Transition risk Following surgery (NOTIFY) study
Funder: CIHR Project Grant
Amount: \$378,676 over 3 years (March 2023 – February 2026)
PI(s): Mclsaac DII, Kidd GD, Wijeyesundera DN, Flexman AM, Garland A, Hallet J, Wong CL, Kobewka DM, Van Walraven C.

CI(s): Khadaroo R, Hladkovicz E, Lee SM, Lalu MM, Mbadjeu H, Arnaud R, Ladha K, Aucoin SD, Boet S, Bryson GL, Carrier FM, Chesney T, Forster AJ, Abdellatif S, Alkadri J, Ma G, Gagné S, Grudzinski AL, Holroyd-Leduc JM, Huang AR, **Jerath A**, Moloo H, Power BE, McIsaac S, Auer RAC, Beattie WS, Mayson KV, Talarico RF, Huang S, Reich K, Martel G, Lavallée LT, Ke XC, Beckerleg W, Taljaard M, Sutherland JM, Tanuseputro P, Backman C, Breau RH.

Project Title: FAST Walk (Functional Assessment for Surgery by a Timed Walk) Study: A multicentre prospective cohort study of the six-minute walk test for improving preoperative risk stratification for major non-cardiac surgery

Funder: PSI Foundation Health Research Grant

Amount: \$249,500 for 3 years (January 2023 – December 2025)

PA: Wijeyesundera DN.

CPA(s): McIsaac DI, **Jerath A**, Kennedy E

CA(s): Khadaroo R, Alibhai S, Bartoszko J, Chesney T, Choi S, Crampton N, Cuthbertson B, Del Giudice L, Gomez Jaramillo D, Granton J, Karanicolas P, Ladha KS, Lebovic G, McCluskey S, Parotto M, Perlas A, Puts M, Salbach N, Santa Mina D, Siddiqui N, Stephenson A, VanVlymen J, Wijeyesundera H, Wong K, Avramescu S, van Klei W, Lapierre D, El-Beheiry.

C(s): Racz E, Wilmshurst L.

Project Title: Lung and diaphragm protection in acute hypoxemic respiratory failure: the LANDMARK II plot and feasibility randomized clinical trial

Funder: Canadian Institute of Health Research (CIHR) Project Grant

Amount: \$339,600 for 2 years (October 2022 – September 2024)

PI(s): Goligher EC, Fan E.

CI(s): Bagshaw SM, Binnie A, Brochard LJ, Burry LD, Cuthbertson BH, Del Sorbo L, Dianti J, Dos Santos CC, Downar J, Ferguson ND, Fowler RA, Gelinas C, Heath A, Herridge MS, **Jerath A**, Lawler PR, Long MG, Marshall JC, Maslove D, Munshi L, Razak F, Reid WD, Rochweg BN, Sklar MC, Slutsky AS, Telias IG, Tomlinson GA, Tsang JLY, Urner MA, Verma A, Wong J, Yarnell CJ, Seely A, Juni P, Slutsky A, Yan T, da Costa B, Reynolds S, Zarychanski R.

Project Title: The anesthesia for Lower limb revascularization to optimize functional outcomes (ALOFT) Trial: a pilot multicenter randomized trial

Funder: Canadian Institute of Health Research (CIHR) Project Grant

Amount: \$202,725 for 2.5 years (October 2022 – March 2025)

PI(s): McIsaac DI, **Jerath A**, Kidd GD, Saha T, Roberts DJ, Taljaard M, Wijeyesundera DN.

CI(s): Boet S, Carrier FM, Flexman AM, Lalu MM, McCartney CJL, Nagpal S, Thavorn K, Bragg S, Dubois DG, Grudzinski AL, Lee SM, McKeen DM, Parotto M, Uppal V, Bryson GL, Fergusson DA, Kayssi A, MacDonald DBS, McCluskey SA, Nagpal S, Spence J, Van Walraven C, de Mestral C.

Project Title: A Training Platform in Pragmatic Registry-Based Trials: Connecting Canada's Health, Data, and Biomanufacturing Sectors

Funder: Canadian Institute of Health Research (CIHR) Project Grant

Amount: \$3,479,320 for 3 years (September 2022 – August 2025)

NPI: Garg A.

CPA(s): Clemens KK, Fowler RA, **Jerath A**, Lee DS, Katz A, McAlister FA, Presseau J, Sontrop JM, Schull MJ, et al.

CA(s): Basile E, Bhatia RS, Dixon S, Jean-Francois Ethier JF, Gagnier JJ, Garrison SR, Grimshaw JM, Hohl CM, Ivers NM, Jairath V, James MT, Katz A, Krzyzanowska MK, Leblanc A, McGrail KM, McIntyre LA, Mittmann N, Naylor K, Presseau J, Spence J, Taljaard M, Tangri N, Udell JA, Weijer CE, et al.

Project Title: Advancing Brain Outcomes in pediatric critically ill patients sedated with Volatile Anesthetic Agents:

A pilot multicentre randomized controlled trial (ABOVE Trial)
Funder: Canadian Institute of Health Research (CIHR) Project Grant
Amount: \$1,121,996 for 3 years (September 2022 – August 2025)
NPA: **Jerath A.**

CPA(s): McKinnon NKA, Lalgudi Ganesan S, Slessarev M, Cuthbertson BC.
CA(s): Buckley L, Fraser DD, Ogilvie J, Burry L, Gilfoyle E, Orser BA, Cuninghame SM, Kaneshwaran K, Pinto R, Duerden E, Mueller M, Seto W.

Project Title: The use of biometric monitoring and machine learning to improve Preoperative risk stratification in major non-cardiac surgery.

Funder: McCain Centre for Urological Innovation and Education
Amount: \$100,000 for 3 years (July 2022 – June 2025)
CPI(s): **Jerath A**, Wallis CJD.

Project Title: Designing new care models for anesthesiology in complex gastrointestinal surgery by leveraging volume-outcome relationships.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$69,117 for 2 years (April 2022 – March 2024)
PI: Perez d'Empaire P.
CI(s): Drs. Hallet J, **Jerath A**, Idestrup C, Coburn N, Eskander A, Gotlib Conn L, Sutradhar R, Wright F.

Project Title: FAST Walk (Functional Assessment for Surgery by a Timed Walk) Study: A Multicentre Prospective Cohort Study of the Six-Minute Walk Test for Improving Preoperative Risk Stratification for Major Non-Cardiac Surgery

Funder: Canadian Institute of Health Research (CIHR, Project Grant)
Amount: \$1,410,813 for 4 years (October 2021 – March 2025)
PI(s): Wijeyesundera DN, Jüni P, Khadaroo R, Mclsaac D.
CI(s): Alibhai S, Bagry H, Bartoszko J, Bruce E, Chesney T, Choi S, Crampton N, Cuthbertson B, Del Giudice L, Ferguson-Pell M, Gomez Jaramillo D, Granton J, Guiang C, Jacobsohn E, **Jerath A**, Karanicolas P, Kennedy E, Ladha KS, Lebovic G, MacDonald D, MacDonell S, McCluskey S, Parotto M, Perlas A, Puts M, Russell S, Salbach N, Santa Mina D, Siddiqui N, Stephenson A, Thoreifson M, VanVlymen J, Wijeyesundera H, Wong K, Wright F.
C(s): Carmichael G, Depoe M.

Project Title: A mixed methods study to evaluate functional recovery, care needs, and caregiver needs in older adults undergoing surgery: The Frail sub-study of the Fit After Surgery study

Funder: Canadian Institute of Health Research (CIHR, Project Grant)
Amount: \$424,575 for 3 years (October 2021 – December 2024)
PI(s): Puts MT, Alibhai SM, Haase K, Mclsaac DI, Wijeyesundera DN.
CI(s): Bennie F, Chesney T, Choi PT, Crampton N, Davis M, Del Giudice LM, Donison V, Dumchin N, Gregory AJ, Jacobsohn E, **Jerath A**, Kuluski KH, Ladha K, Lebovic G, Lorello GR, MacDonald DB, MacDonell SY, Mazer D, et al.

Awards

2023-2025 Research Merit Award (\$40,000 per annum for 2 years), 2023-2025 Merit Award Program, University of Toronto Anesthesia Merit Award, Department of Anesthesia, Temerty Faculty of Medicine

Appointments/Honors (selected)

Past Chair, Perioperative Group, Canadian Anesthesiologists' Society, 2023 - 2024

Dr. Christopher Idestrup and **Dr. Angela Jerath** – Nominated by the Sunnybrook Innovation Fund Sub-Committee for this year’s IFPOC Showcase and Awards for your project entitled ‘*Tranexamic acid dosing for major joint replacement surgery.*’

Co-director, Pragmatic Clinical Trial course, Institute of Health Policy, Management and Evaluation, University of Toronto, January 2021 – present

Member, Steering Subcommittee, Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre, July 2021 – present

Clinical Collaborations:

Project Title: The anesthesia for Lower limb revascularization to optimize functional outcomes (ALOFT) Trial: a pilot multicenter randomized trial

Funder: Canadian Institute of Health Research (CIHR) Project Grant

Lead-I/Sponsor: McIsaac DI, Ottawa Hospital

Site PI: **Jerath A**, site CI: **Perez d’Empaire P**.

Project Title: FAST Walk (Functional Assessment for Surgery by a Timed Walk) Study: A multicentre prospective cohort study of the six-minute walk test for improving preoperative risk stratification for major non-cardiac surgery

Lead-I/Sponsor: Wijeyesundera DN, St. Michael Hospital

Site PI: **Choi S**, site CI: Jerath A.

Media Release

‘Patients fare better with female surgeons, studies reveal.’ The Times, August 30 2023*: <https://www.thetimes.com/uk/healthcare/article/patients-fare-better-with-female-surgeons-studies-reveal-bxbtjd6st>

‘Females surgeons bring better outcomes for patients, two studies show. US News, August 30 2023*: <https://www.usnews.com/news/health-news/articles/2023-08-30/female-surgeons-bring-better-outcomes-for-patients-two-studies-show>

‘Female surgeons get better results than male counterparts. Wall Street Journal, August 30 2023: <https://www.wsj.com/health/wellness/female-surgeons-get-better-results-than-male-counterparts-7ba9b9c2>

‘Patients treated by female surgeons ‘less likely to die’, research finds.’ The Independent, August 30 2023: <https://www.independent.co.uk/news/science/female-surgeons-patient-death-less-likely-b2402327.html>

‘Patients fare better with female surgeons, studies reveal.’ The Guardian, August 31 2023*: <https://www.theguardian.com/society/2023/aug/30/female-surgeons-patient-outcomes-better-studies>

‘Patients treated by female surgeons see better post-operation outcomes.’ Women’s Agenda, August 31 2023*: <https://womensagenda.com.au/latest/patients-treated-by-female-surgeons-see-better-post-operation-outcomes/>

'A kinder cut: research suggests patients of female surgeons do better.' ABC News, September 5 2023*: <https://www.abc.net.au/listen/programs/radionational-drive/research-suggests-patients-of-female-surgeons-do-better/102818142>

'There may be differences in postsurgical outcomes based on the surgeon's sex.' American Academy of Ophthalmology, October 2 2023*: <https://www.aao.org/education/editors-choice/there-may-be-differences-in-postsurgical-outcomes->

'Study finds lower health-care costs among Ontario patients who had female surgeons.' CTV News, November 29 2023: <https://toronto.ctvnews.ca/study-finds-lower-health-care-costs-among-ontario-patients-who-had-female-surgeons-1.6665981>⁵

'Study finds lower health-care costs among Ontario patients who had female surgeons.' CP24News, November 29 2023⁶: <https://www.cp24.com/news/study-finds-lower-health-care-costs-among-ontario-patients-who-had-female-surgeons-1.6666854>

'SRI scientists featured in JAMA Surgery's list of Most Viewed Articles of 2023.' Inside SRI, January 25 2024: <http://read.alerts.jamanetwork.com/csb/Public/show/axac-2rqx78--15l8cd-1b5mhjc3>

Most viewed/featured articles:

Drs. Christopher Wallis and **Angela Jerath** study "Surgeon sex and long-term postoperative outcomes among patients undergoing common surgeries" ([doi:10.1001/jamasurg.2023.3744](https://doi.org/10.1001/jamasurg.2023.3744)) received national and international coverage from **92** news outlets and is in the top of **5%** of all research outputs scored by Altmetric: <https://jamanetwork.altmetric.com/details/153449489>

Drs. Christopher Wallis and **Angela Jerath** study "Surgeon Sex and Health Care Costs for Patients Undergoing Common Surgical Procedures" ([doi:10.1001/jamasurg.2023.6031](https://doi.org/10.1001/jamasurg.2023.6031)) mentioned by **17** news outlets and is in the top of **5%** of all research outputs scored by Altmetric: <https://jamanetwork.altmetric.com/details/156928130>

Jivraj, Naheed

Publications

Jivraj NK, Hill AD, Shieh MS, Hua M, Gershengorn HB, Ferrando-Vivas P, Harrison D, Rowan K, Lindenauer PK, Wunsch H. (2023) Use of Mechanical Ventilation Across 3 Countries. *JAMA Intern Med*:183(8):824-831

Trivedi V, Ladha KS, **Jivraj NK**, Saskin R, Thorpe KE, Wijeyesundera DN, Cuthbertson BH. (2023) Association between preoperative cardiac risk assessment and health care costs in major noncardiac surgery: a multicentre health economic analysis. *Can J Anaesth*:70(8):1340-1349

KAUSTOV, Lilia

Publications

Wiegelmann JR, Choi S, McHardy PG, Matava C, Singer O, **Kaustov L**, Alam F. (2024) Randomized Control Trial of a Holographic Needle Guidance Technique for Thoracic Epidural Placement. *Reg Anesth Pain Med*: rapm-2023-104703

Alam F, LeBlanc VR, Baxter A, Tarshis J, Piquette D, Gu Y, Filipowska C, Krywenky A, Kester-Greene N, Cardinal P, Andrews M, Chartier F, Burrows C, Houzé-Cerfon CH, Burns JK, **Kaustov L**, Au S, Lam S, DeSousa S, Boet S; Perioperative Anesthesia Clinical Trials Group (PACT). (2024) Age and its impact on crisis management performance and learning after simulation-based education by acute care physicians: a multicentre prospective cohort study. *Br J Anaesth*:132(2):383-391

Wang DS, Ju L, Pinguelo AG, Kaneshwaran K, Haffey SC, Lecker I, Gohil H, Wheeler MB, **Kaustov L**, Ariza A, Yu MF, Volchuk A, Steinberg BE, Goldenberg NM, Orser BA. (2024) Crosstalk between GABA_A receptors in astrocytes and neurons triggered by general anesthetic drugs. *Transl Res*:1:S1931-5244(23)00201-3

Conferences/Workshop Presentations (*virtual)

Wiegelmann J, Lappin E, McHardy P, Choi S, Singer O, **Kaustov L**, Alam F. A randomized control trial of a holographic needle guidance technique for thoracic epidural placement (HOLOLENS). Innovation Fund Showcase: The Future of Academic Medicine, Metro Toronto Convention Centre, Toronto, ON, November 8 2023

Brenna CTA, Wang DS, **Kaustov L**, Orser BA. Exploring the involvement of GABA_A receptors in the antidepressant effects of nitrous oxide. 2023 CIP-MD/PhD Symposium, University of Toronto, Toronto, ON, November 20 2023

Gupta S, Alam F, Tarshis J, Choi S, Belfiore E, **Kaustov L**, Brenna CTA, May V, Da Cruz T, Wiegelmann J. HOLOSIM: The way forward in complex crisis training. *Cureus* 16(1):a119 (*published abstract*)

McCarron A, Di Renna T, Tarshis J, Safa B, Ravi B, Flynn J, Kiss A, **Kaustov L**, Choi S, Niazi AU. Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption. 9th Annual Sunnybrook Clinical Impact through Innovation Expo, Sunnybrook Health Science Centre, Toronto, ON, February 1 2024*

Alam F, Tu A, Shaheen S, Hadley H, Cartotto R, **Kaustov L**, Choi S, Rogers A. BURN 360: Reducing Pain and Anxiety during Dressing Changes after Burn Surgery Using Virtual Reality – a Randomized Controlled Trial. Tory Trauma Program Academic Day, Sunnybrook Health Sciences Centre, Toronto ON, February 26 2024

Brenna CTA, Wang D-S, Yu MF, **Kaustov L**, Orser BA. Characterizing GABA-A receptor contributions to the antidepressant effect of nitrous oxide. 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024

Ariza A, Naeini S, Khodaei S, Yu MF, Brenna CTA, **Kaustov L**, Orser BA. LPS-induced neuroinflammation increases hippocampal α 5GABA-A receptor expression and disrupts its interaction with radixin in a mouse model. 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024

Zhang C, **Kaustov L**, Orser BA, Rosales H, Huang J, Idestrup C, Liu B, Haas B, Ravi B, Choi S. Redesigning the surgical pathway: optimizing PRoOperative assessMent in anesthesia clinic for adult surgical patients (PROMoTE). 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024

Erbetta I, **Kaustov L**, Hadley H, Jerath A, Haas B, Fremes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A, McCartney CJL, Moreno Garijo J. Lung Ultrasound Versus Chest Radiography For Detection Of Pneumothorax After Mediastinal And Chest Drainage Removal. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024

Gupta S, Alam F, Tarshis J, Choi S, Belfiore E, **Kaustov L**, Brenna CTA, May V, Da Cruz T, Wiegelmann J. HOLOSIM: The Way Forward in Complex Crisis Training. Gary Johnson Research Day 2024, Department of Anesthesiology and Pain Medicine, University of Ottawa, Ottawa ON, May 24 2024

Brenna CTA, Wang D-S, Yu MF, **Kaustov L**, Orser BA. GABA-A receptor contributions to the antidepressant effect of Nitrous Oxide. Temerty Faculty of Medicine Research Showcase, Toronto ON, June 7 2024

Brenna CTA, Wang D-S, Yu MF, **Kaustov L**, Orser BA. GABA-A receptor activity in the novel antidepressant effect of Nitrous Oxide. Sunnybrook Research Day, Sunnybrook Health Science Centre, Toronto ON, June 10 2024

Yu MF, Ariza A, Wang DS, **Kaustov L**, Orser BA. A novel peptide to reduce sevoflurane-mediated excess cell-surface expression $\alpha 5$ GABA_A receptors. Sunnybrook Research Day, Sunnybrook Health Science Centre, Toronto ON, June 10 2024

Early Career Investigators/Trainees (invited lectures)

Gupta S, Alam F, Tarshis J, Choi S, Belfiore E, **Kaustov L**, Wiegelmann J. HOLOSIM: the way forward in complex crisis training. The 2023 SIM Expo, Ottawa, ON, December 11-12 2023 (selected for oral presentation, presenter Sanchit Gupta)

Rosales H, Zhang C, **Kaustov L**, Orser BA, Huang J, Idestrup C, Liu B, Haas B, Ravi B, Choi S. Redesigning the surgical pathway: optimizing PreOperative assessment in anesthesia clinic for adult surgical patients (PROMoTE). 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024 (selected for oral presentation, presenter Hannah R. Rosales)

Brenna CTA, Wang D-S, Yu MF, **Kaustov L**, Orser BA. Exploring the role of GABA_A receptors in the antidepressant properties of nitrous oxide. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024 (selected for mini-oral presentation, presenter Dr. Connor AT. Brenna)

Brenna CTA, Wang DS, Yu M, **Kaustov L**, Orser BA. May 2024. Exploring GABA_A receptor-mediated signalling in the antidepressant effect of nitrous oxide. 44th Annual Frontiers in Physiology (FIP) Research Symposium, Department of Physiology, University of Toronto, Toronto ON, May 31 2024 (selected for mini-oral presentation, presenter Connor TA. Brenna)

Yu MF, Ariza A, Wang DS, **Kaustov L**, Orser BA. A novel peptide to reduce sevoflurane-mediated excess cell-surface expression $\alpha 5$ GABA_A receptors. 44th Annual Frontiers in Physiology (FIP) Research Symposium, Department of Physiology, University of Toronto, Toronto ON, May 31 2024 (selected for mini-oral presentation, presenter MeiFeng Yu)

Grants

Project Title: The HEROES trial: hyperbaric oxygen therapy for endometriosis-related pain: A prospective randomized study

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$105,000.00 for 2 years (April 2024 – March 2026)
PI: Silva Restrepo M. CPI: Liu G.
CI(s): Alam F, **Kaustov L**, Moreno Garijo J, Choi S, Tarshis J, Meng H, Kung R, Skolnik E, Po L, Sriram S.

Project Title: The Holographic Standardized Patient: Using Mixed Reality to Reduce Barriers to Crisis Simulation in Acute Care
Funder: Society for Technology in Anesthesia
Amount: \$4,000 for 1 year (January 2023 – February 2024)
PI: Wiegelmann J.
CI(s): Alam F, Choi S, Piquette D, Filipowska C, **Kaustov L**.

Project Title: The Holographic Standardized Patient – Using Mixed Reality to Reduce Barriers to Crisis Simulation in Acute Care.
Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$86,700.00 for two years (April 2022 – March 2024)
PI: Wiegelmann J.
CI(s): Alam F, Piquette D, Filipowska C, **Kaustov L**, Choi S.

Project Title: Exploring the Validity of Virtual Clinical Performance Assessments.
Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$ 62,217 for two years (April 2022 – March 2024)
PI: Alam F.
CI(s): Wiegelmann J, Tavares W, Matava C, Kapralos B, Dubrowski A, Brydges R, **Kaustov L**, Belifiore E.

Project Title: Virtual Reality as a tool to reduce pre-procedure anxiety prior ECT via enhancing patient education (*PERFECT-VR*).
Funder: Physicians Service’s Incorporated Foundation, Health Services Research Grant (PSI Foundation)
Amount: \$250,000 for 3 years (September 2020 – August 2023, extension granted until August 2024)
PI(s): Alam F, Giacobbe P.
CI(s): Choi S, Rapoport M, Herrmann N, **Kaustov L**, Matava M.

KEALEY, Alayne

Publications

Jerath A, Satkunasivam R, Kaneshwaram K, Coburn N, Wright F, McCartney C, **Kealey A**, Sarmah A, Ladowski S, Nabecker S, Aminoltejari K, Chang A, MacDonnell SY, Riveros C, Flexman A, Lorello G, Detsky A, Wallis CJD. (2024) Association between anesthesiologist sex and patients’ postoperative outcomes: a population-based cohort study. *Ann Surg*:279(4):569-574

Early Career Investigators/Trainees (invited lectures)

Heybati K, Jerath A, Satkunasivam R, Kaneshwaran K, Aminoltejari K, Chang A, MacDonnell SY, **Kealey A**, Ladowski S, Sarmah A, Flexman AM, Lorello G, Nabecker S, Conurn N, Gotlib Conn L, Klaassen Z, Ranganathan S, Riveros C, McCartney CJL, Detsky AS, Wallis JDC. Association between anesthesiologist sex and postoperative outcomes:

A population-based cohort study. 2024 IARS Annual Meeting, Seattle WA, May 17-19 2024 (*selected for oral presentation, presenter Kiyam Heybati, Mayo Clinic*)

Appointments/Honors (selected)

Member, Faculty Council, Temerty Faculty of Medicine, July 2023 – present

Member, Faculty of Medicine Appeals Committee, Temerty Faculty of Medicine, July 2023 – present

Co-Chair, Anesthesiology Examination Board, Royal College of Physicians and Surgeons of Canada, July 2021 – present

Member, Anesthesiology Specialty Committee, Royal College of Physicians and Surgeons of Canada, June 2021 – present

KONG, Jonathan

Conference/Workshop Presentations (*virtual)

Pardy B, Angle P, Lay C, Gawel M, Kiss A, **Kong J**, van Der Vyver M, Roberts L, Hussain K, Halpern S. Diagnostic cohort study comparing the accuracy of PDPH trial criteria vs International Headache Society criteria for post-epidural PDPH. University of Toronto Shields Research Day, Toronto ON, May 4 2024

Angle P, Lay C, Kiss A, Silva Restrepo M, **Kong J**, van Der Vyver M. Diagnostic cohort study comparing the accuracy of PDPH Trial criteria vs International Headache Society criteria for post-epidural PDPH. Obstetric Anaesthetists' Association (OAA) Annual Scientific Meeting 2024. Birmingham, England, UK, May 9-10 2024

LADOWSKI, Stephanie

Publications

Jerath A, Satkunasivam R, Kaneshwaram K, Coburn N, Wright F, McCartney C, Kealey A, Sarmah A, **Ladowski S**, Nabecker S, Aminoltejari K, Chang A, MacDonnell SY, Riveros C, Flexman A, Lorello G, Detsky A, Wallis CJD. (2024) Association between anesthesiologist sex and patients' postoperative outcomes: a population-based cohort study. *Ann Surg*:279(4):569-574

Conference/Workshop Presentations (*virtual)

Hallet J, Alam F, Rocha F, Del Rivero J, Partelli S, Koea J, **Ladowski S**, Saliba C, Pommier R. Perioperative management of carcinoid crisis: protocol for a modified Delphi international expert consensus with patient engagement. North American Neuroendocrine Tumors Society (NANETS), Montréal, QC, October 4-6 2023

Early Career Investigators/Trainees (invited lectures)

Heybati K, Jerath A, Satkunasivam R, Kaneshwaran K, Aminoltehari K, Chang A, MacDonell SY, Kealey A, **Ladowski S**, Sarmah A, Flexman AM, Lorello G, Nabecker S, Conurn N, Gotlib Conn L, Klaassen Z, Ranganathan S, Riveros C, McCartney CJL, Detsky AS, Wallis JDC. Association between anesthesiologist sex and postoperative outcomes: A population-based cohort study. 2024 IARS Annual Meeting, Seattle WA, May 17-19 2024 (*selected for oral presentation, presenter Kiyam Heybati, Mayo Clinic*)

MASSOUH, Faraj

Awards

2024 New Faculty Teaching Excellence Award, Department of Anesthesiology & Pain Medicine, University of Toronto

2023 MD Program Teaching Award for Excellence, Undergraduate Medicine, Temerty Faculty of Medicine, University of Toronto

Media

'Congratulations to the 2022-2023 MD Program Teaching Award Recipients!' Anesthesiology & Pain Medicine News, June 19 2024: <https://anesthesia.utoronto.ca/news/congratulations-2022-2023-md-program-teaching-award-recipients>

MacLEAN, David B.

Publications

MacDermott R, Berger FH, Phillips A, Robins JA, O'Keeffe ME, Mughli RA, **MacLean DB**, Liu G, Heipel H, Nathens AB, Qamar SR. (2024) Initial Imaging of Pregnant Patients in the Trauma Bay - Discussion and Review of Presentations at a Level-1 Trauma Centre. *Diagnostics (Basel)*:14(3):276.

Book Chapters/E-modules

MacLean DB, Halpern SH. Disorders of Intermediaries of Metabolism and Malignant Hyperthermia. In: Obstetric Anesthesia and Uncommon Disorders. *Editors: Gambling DR, Douglas MJ, Lim G. Cambridge University Press; 2024:273-289.*

Lectures (*virtual)

Obstetric General Anesthesia – Best Practice Panel: Maintenance and Emergence. Canadian Anesthesiologists' Society Annual Meeting. Victoria, BC, June 8 2024

Conference/Workshop Presentations (*virtual)

Postpartum hemorrhage and massive transfusion protocol in obstetrics. Family Practice Anesthesia (FPA) Problem Rounds. April 8 2024* (*panelists*: Siddiqui Z, Callum J, **MacLean DB**, Yee D.)

Awards

2023 Intraoperative Coaching Award, Department of Anesthesia, Sunnybrook Health Sciences Centre

2023 MD Program Teaching Award for Excellence, Undergraduate Medicine, Temerty Faculty of Medicine, University of Toronto

Appointments/Honors

Member, Curriculum Development team, Practical Obstetric Multi-Professional Training (PROMPT), 2023-2024 academic year. Sunnybrook Hospital. Toronto, Canada

Integrated Clinical Experience (ICE-2) Clinical Skills tutor, 2023-2024 academic year, Peters-Boyd Academy, Sunnybrook Hospital. University of Toronto, Temerty Faculty of Medicine, Undergraduate Medicine

Media Release

'Congratulations to the 2022-2023 MD Program Teaching Award Recipients!' Anesthesiology & Pain Medicine News, June 19 2024: <https://anesthesia.utoronto.ca/news/congratulations-2022-2023-md-program-teaching-award-recipients>

McCARTNEY, Colin JL.

Publications

Schwenk ESS, **McCartney CJL.** (2023) General anesthesia is an acceptable choice for hip fracture surgery. *Reg Anesth Pain Med*:48(8):428-429

Shaw JF, Ouyang Y, Fergusson DA, McArdle T, Martin C, Cook D, Graham ID, Hawken S, **McCartney CJL**, Menon K, Saginur R, Seely A, Stiell I, Fox-Robichaud A, English S, Marshall J, Thavorn K, Taljaard M, McIntyre LA; Canadian Critical Care Trials Group. (2023) A Hospital-Wide Open-Label Cluster Crossover Pragmatic Comparative Effectiveness Randomized Trial Comparing Normal Saline to Ringer's Lactate: Protocol and Statistical Analysis Plan of The FLUID Trial. *JMIR Res Protoc*:12:e51783

El-Boghdadly K, Albrecht E, Wolmarans M, Mariano ER, Kopp S, Perlas A, Thottungal A, Gadsden J, Tulgar S, Adhikary S, Aguirre J, Agur AMR, Altıparmak B, Barrington MJ, Bedford N, Blanco R, Bloc S, Boretsky K, Bowness J, Breebaart M, Burckett-St Laurent D, Carvalho B, Chelly JE, Chin KJ, Chuan A, Coppens S, Costache I, Dam M, Desmet M, Dhir S, Egeler C, Elsharkawy H, Bendtsen TF, Fox B, Franco CD, Gautier PE, Grant SA, Grape S, Guheen C, Harbell MW, Hebbard P, Hernandez N, Hogg RMG, Holtz M, Ihnatsenka B, Ilfeld BM, Ip VHY, Johnson RL, Kalagara H, Kessler P, Kwofie MK, Le-Wendling L, Lirk P, Lobo C, Ludwin D, Macfarlane AJR, Makris A, **McCartney**

C, McDonnell J, McLeod GA, Memtsoudis SG, Merjavy P, Moran EML, Nader A, Neal JM, Niazi AU, Njathi-Ori C, O'Donnell BD, Oldman M, Orebaugh SL, Parras T, Pawa A, Peng P, Porter S, Pulos BP, Sala-Blanch X, Saporito A, Sauter AR, Schwenk ES, Sebastian MP, Sidhu N, Sinha SK, Soffin EM, Stimpson J, Tang R, Tsui BCH, Turbitt L, Uppal V, van Geffen GJ, Vermeylen K, Vlassakov K, Volk T, Xu JL, Elkassabany NM. (2023) Standardizing nomenclature in regional anesthesia: an ASRA-ESRA Delphi consensus study of upper and lower limb nerve blocks. *Reg Anesth Pain Med*:rapm-2023-104884 (online ahead of print)

Wallis CJD, Jerath A, Aminoltejari K, Kaneshwaran K, Salles A, Coburn N, Wright FC, Gotlib Conn L, Klaassen Z, Luckenbaugh AN, Ranganathan S, Riveros C, **McCartney C**, Armstrong K, Bass B, Detsky AS, Satkunasivam R. (2023) Surgeon Sex and Long-Term Postoperative Outcomes Among Patients Undergoing Common Surgeries. *JAMA Surg*: 158(11):1185-1194 *Most viewed article 2023

Shaw JF, Hladkowicz E, **McCartney CJL**, Bryson GL, Mclsaac DI. (2023) A model to predict level of adherence to prehabilitation in older adults with frailty having cancer surgery. *Can J Anaesth*:70(12):1950-1956

Prowle JR, Croal B, Abbott TEF, Cuthbertson BH, Wijeyesundera DN; METS study investigators (Jerath A, Choi S, **McCartney CJL**). (2024) Cystatin C or creatinine for pre-operative assessment of kidney function and risk of post-operative acute kidney injury: a secondary analysis of the METS cohort study. *Clin Kidney J*:17(1):sfae004

Wallis CJD, Jerath A, Aminoltejari K, Kaneshwaran K, Salles A, Buntin M, Coburn NG, Wright FC, Gotlib Conn L, Heybati K, Luckenbaugh AN, Ranganathan S, Riveros C, **McCartney C**, Armstrong KA, Bass BL, Detsky AS, Satkunasivam R. (2023) Surgeon Sex and Health Care Costs for Patients Undergoing Common Surgical Procedures. *JAMA Surg*: 159(2):151-159

Jerath A, Satkunasivam R, Kaneshwaram K, Coburn N, Wright F, **McCartney C**, Kealey A, Sarmah A, Ladowski S, Nabecker S, Aminoltejari K, Chang A, MacDonnell SY, Riveros C, Flexman A, Lorello G, Detsky A, Wallis CJD. (2024) Association between anesthesiologist sex and patients' postoperative outcomes: a population-based cohort study. *Ann Surg*:279(4):569-574

Hallet J, Sutradhar R, Flexman A, Mclsaac D, Carrie FM, Turgeon A, **McCartney C**, Chan W, Coburn N, Eskander A, Jerath A, Perez d'Empaire P, Lorello G. (2024) Association between anaesthesia–surgery team sex diversity and major morbidity. *Br J Surg*:111(5):zxae097

Book Chapters/E-modules

A Sadler, R Brull and **McCartney CJL**. Neurological complications of regional anaesthesia. In: Principles and Practice of Regional Anaesthesia, 5th edition. *Editors*: McLeod GA, **McCartney CJL**, MacFarlane A. McLeod G, **McCartney CJL**, Wildsmith T. History and Development of Local Anaesthesia. In: Principles and Practice of Regional Anaesthesia, 5th edition. *Editors*: McLeod GA, **McCartney CJL**, MacFarlane A. Oxford University Press (in process)

Stimpson J, **McCartney CJL**. Upper Limb blocks. In: Principles and Practice of Regional Anaesthesia, 5th edition. *Editors*: McLeod GA, **McCartney CJL**, MacFarlane A. Oxford University Press (in process)

Xu RS, Awad IT, **McCartney CJL**. Ultrasound-Guided Nerve Blocks of the Lower Limb in Atlas of Ultrasound-guided Procedures. In: Narouze SN, eds. *Interventional Pain Management*. ISBN: (in process)

Conference/Workshop Presentations (*virtual)

McCartney CJL, Safa B, Idestrup C, Meng H, Lee TSJ, McCarron A, Galochkin G, Niazi AU, Choi S. Positioning of Continuous Adductor Canal Catheters after Total Knee Arthroplasty (CACB). SRI Summer student poster competition, Sunnybrook Health Sciences Centre, Toronto, ON, August 17 2023

Erbetta I, Hadley H, Jerath A, **McCartney CJL**, Haas B, Fremes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A, Moreno Garijo J. Lung ultrasound versus chest radiography for detection of pneumothorax after mediastinal and chest drainage removal. 9th Annual Sunnybrook Clinical Impact through Innovation Expo, Sunnybrook Health Science Centre, Toronto, ON, February 1 2024

Erbetta I, Kaustov L, Hadley H, Jerath A, Haas B, Fremes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A, **McCartney CJL**, Moreno Garijo J. Lung Ultrasound Versus Chest Radiography For Detection Of Pneumothorax After Mediastinal And Chest Drainage Removal. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024

Early Career Investigators/Trainees (invited lectures)

Acher A, Lorello G, Sutradhar R, Coburn N, Chan WC, Carrier F, Mclsaac D, Flexman A, Turgeon A, **McCartney C**, Eskander A, Jerath A, Perez d'Empaire P, Hallet J. Higher sex-diversity of operative teams is associated with better post-operative outcomes for hepato-pancreato-biliary surgery. World Congress, IHPBA. Cape Town, South Africa, May 15-18 2024 (*published abstract, accepted for oral presentation, presenter Alexandra Acher, University of Toronto*)

Heybati K, Jerath A, Satkunasivam R, Kaneshwaran K, Aminoltejari K, Chang A, MacDonell SY, Kealey A, Ladowski S, Sarmah A, Flexman AM, Lorello G, Nabecker S, Conurn N, Gotlib Conn L, Klaassen Z, Ranganathan S, Riveros C, **McCartney CJL**, Detsky AS, Wallis JDC. Association between anesthesiologist sex and postoperative outcomes: A population-based cohort study. 2024 IARS Annual Meeting, Seattle WA, May 17-19 2024 (*selected for oral presentation, presenter Kiyam Heybati Mayo Clinic*)

Grants

Project Title: Effect of perioperative duloxetine administration on opioid consumption following total knee arthroplasty

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000.00 for 2 years (April 2024 – March 2026)

PI: **McCartney CJL**.

CI(s): Meng H, Tomescu S, Choi S, Nestor S.

Project Title: Lung ultrasound versus chest radiography for detection of pneumothorax after mediastinal and chest drainage removal, a pilot study

Funder: The 2023 Reichman Family Chair in Cardiovascular Research

Amount: \$30,000 for 1.5 years (May 2023 – November 2024)

PI: Moreno Garijo J.

CI(s): Jerath A, **McCartney CJL**, Haas B, Fremes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A.

Project Title: The anesthesia for Lower limb revascularization to optimize functional outcomes (ALOFT) Trial: a pilot multicenter randomized trial

Funder: Canadian Institute of Health Research (CIHR) Project Grant

PI(s): Mclsaac DI, Jerath A, Kidd GD, Saha T, Roberts DJ, Taljaard M, Wijeyesundera DN.

CI(s): Boet S, Carrier FM, Flexman AM, Lalu MM, **McCartney CJL**, Nagpal S, Thavorn K, Bragg S, Dubois DG, Grudzinski AL, Lee SM, McKeen DM, Parotto M, Uppal V, Bryson GL, Fergusson DA, Kayssi A, MacDonald DBS, Mccluskev SA, Nagpal S, Spence J, Van Walraven C, de Mestral C.
Amount: \$202,725 for 2 years 6 months (October 2022 – March 2025)

Awards

2024 The American Society of Regional Anesthesia (ASRA) and Pain Medicine's 2024 Distinguished Service Award

Appointments/Honours (selected)

Anesthesia Chief, Sunnybrook Health Sciences Centre, September 2022 - present

Awards to Trainees

Tin-Suet Joan Lee (a summer student in the Department of Anesthesia, Sunnybrook HSC) – 2023 SRI Summer Student Award, supervisors Drs. **Colin McCartney** and Stephen Choi
Amount: \$3,200 (June – August 2023)

Media Release

'Dr. Colin McCartney will receive ASRA Pain Medicine's distinguished service award this spring.' ASRA Pain Medicine, January 12 2024: <https://www.asra.com/news-publications/asra-updates/blog-landing/asra-updates/2024/01/12/dr.-colin-mccartney-will-receive-asra-pain-medicine's-distinguished-service-award-this-spring>

'Dr. Colin McCartney receives the ASRA Pain Medicine distinguished service award for 2024.' Anesthesiology & Pain Medicine News, University of Toronto, January 15 2024: <https://anesthesia.utoronto.ca/news/dr-colin-mccartney-receives-asra-pain-medicine-distinguished-service-award-2024>
<https://www.asra.com/about-asra/recognition-awards/distinguished-service-award>

'Interview with the 2024 Distinguished Service Award Recipient: Dr. Colin J. McCartney.' ASRA Pain Medicine News 2024;49:<https://www.asra.com/news-publications/asra-newsletter/newsletter-item/asra-news/2024/02/08/interview-with-the-2024-distinguished-service-award-recipient-dr.-colin-j.-mccartney>

McHARDY, Paul G.

Publications

Dhingra P, **McHardy PG**, Jenkinson R, Meng H. (2023) Genicular nerve and fracture site chemical neurolysis for distal femoral fracture: a case report. *Reg Anesth Pain Med*:48(7):378-382

Wiegelmann JR, Choi S, **McHardy PG**, Matava C, Singer O, Kaustov L, Alam F. (2024) Randomized Control Trial of a Holographic Needle Guidance Technique for Thoracic Epidural Placement. *Reg Anesth Pain Med*: rapm-2023-104703

Lectures (*virtual)

Case-Based Management Demonstrations (Combination of live RA and PoCUS scanning; snapshot updates). Irish Society of Regional Anesthesia (ISRA), Dublin, Ireland, April 19 2024

Conference/Workshop Presentations (*virtual)

Wiegelmann J, Lappin E, **McHardy PG**, Choi S, Singer O, Kaustov L, Alam F. A randomized control trial of a holographic needle guidance technique for thoracic epidural placement (HOLENS). Innovation Fund Showcase: The Future of Academic Medicine, Metro Toronto Convention Centre, Toronto, ON, November 8 2023

MENG, Howard

Publications

Moorthy A, Perry-Nguyen D, Zhou L, **Meng H**, Choi S, Niazi AU. (2023) Evaluation of the effect of erector spinae plane block catheter for traumatic rib fractures on patient experience: a quality assurance initiative. *Reg Anesth Pain Med*:rapm-2023-104549

Dhingra P, McHardy PG, Jenkinson R, **Meng H**. (2023) Genicular nerve and fracture site chemical neurolysis for distal femoral fracture: a case report. *Reg Anesth Pain Med*:48(7):378-382

Hong P, Kapadia A, Lai C, Kingston W, **Meng H**. (2023) Timeliness to definitive treatment to avoid severe neurologic complications associated with spontaneous intracranial hypotension. *Can J Anaesth*: 70(11):1854-1856

Di Renna T, Burke E, Bhatia A, Clarke H, Flamer D, Flannery J, Furlan A, Kumbhare D, Khan J, Ladha K, **Meng H**, Smith A, Sussman D, Bosma R. (2024) Improving access to chronic pain care with central referral and triage: The 6-year findings from a single-entry model. *Can J Pain*: 8(1):2297561

Lectures (*virtual)

Perioperative pain management and regional anesthesia. Sheikh Jaber Al Ahmad Al-Sabah Hospital, Kuwait Ministry of Health, Government of Kuwait, Kuwait City, Kuwait, February 2024

Perioperative and acute trauma pain management. Sichuan Provincial People's Hospital, Sichuan Academy of Medical Sciences, People's Republic of China, May 2024

Pain Medicine and MSK ultrasound Cadaver Course. American Society of Regional Anesthesia and Pain Medicine, Chicago, IL, June 8-9 2024

Conference/Workshop Presentations (*virtual)

McCartney C, Safa B, Idestrup C, **Meng H**, Lee TSJ, McCarron A, Galochkin G, Niazi AU, Choi S. Positioning of Continuous Adductor Canal Catheters after Total Knee Arthroplasty (CACB). SRI Summer student poster competition, Sunnybrook Health Sciences Centre, Toronto, ON, August 17 2023

Oliveira FS, Sivanathan L, Choi S, **Meng H**. Evaluation of psychosocial risk factors for persistent opioid use in a trauma pain clinic – a quality improvement initiative. 22nd Annual Pain Medicine, New Orleans, LA, November 10-11 2023

Oliveira F, Sivanathan L, Choi S, **Meng M**. Evaluation of persistent opioid use and psychiatric risk factors in transitional trauma pain clinic - a quality improvement initiative. Tory Trauma Program Academic Day, Sunnybrook Health Sciences Centre, February 26 2024

Oliveira FS, Sivanathan L, Choi S, **Meng H**. Evaluation of psychosocial risk factors for persistent opioid use in a trauma pain clinic – a quality improvement initiative. Anesthesiology and Acute Pain Medicine Meeting, San Diego, CA, March 21-23 2024

Grants

Project Title: Prevention of persistent pain with Lidocaine infusions in breast cancer surgery (PLAN): a multicentre randomized controlled trial.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$99,987 for two years (April 2022 – March 2024)

CPI(s): **Meng H**, Helman JD.

CI(s): Choi S, Khan J, Look Hong N, Wright F, Roberts A, Wiegelmann J.

Project Title: Ultrasound-guided percutaneous intercostal nerve cryoneurolysis for analgesia following traumatic rib fracture, a pilot randomized control trial

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,004.07 for 2 years (April 2023 – March 2025)

PI: Safa B, Co-PI: Nathens A.

CI(s): **Meng H**, Choi S.

Project Title: Effect of perioperative duloxetine administration on opioid consumption following total knee arthroplasty

Source: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

PI: McCartney CJL.

CI(s): **Meng H**, Tomescu S, Choi S, Nestor S.

Amount: \$105,000.00 for 2 years (April 2024 – March 2026)

Project Title: The HEROES trial: hyperbaric oxygen therapy for endometriosis-related pain: A prospective randomized study

Source: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

PI: Silva Restrepo M. CPI: Liu G.

CI(s): Alam F, Kaustov L, Moreno J, Choi S, Tarshis J, **Meng H**, Kung R, Skolnik E, Po L, Sriram S.

Amount: \$105,000.00 for 2 years (April 2024 – March 2026)

Project Title: The Op-Sleep Program: Development and implementation of a novel multi-disciplinary combined opioid management and sleep health optimization program to address the opioid crisis in patients with chronic non-cancer pain

Source: University of Toronto Center for Study of Pain (UTCSP)

PI: Singh M.

CI(s): Sivanathan L, Ng K, Pappu A, Di Renna T, Bhatia A, Clarke H, **Meng H**.

Amount: \$30,000 for 1 year (January 2024 – December 2024)

Clinical Collaborations

Project Title: Prevention of persistent pain with Lidocaine infusions in breast cancer surgery (PLAN): a multicentre randomized controlled trial.

Lead-I/Sponsor: Khan JS, Gilron I., Toronto General Hospital

Site PI: Choi S, site C(s): **Meng H**, Helman JD, Look Hong N, Wright F, Roberts A, Wiegelmann J.

MORENO GARIJO, Jacobo

Publications

Shum S, **Moreno Garijo J**, Tomlinson G, Rodrigues J, Greyling G, Shafiepour D, McRae K, Slinger P. (2023) A clinical comparison of two bronchial blockers vs. double-lumen tubes for one-lung ventilation. *J Cardiothorac Vasc Anesth*:37(12):2577-2583

Moreno Garijo J, Gadotti G, Amador Y, Fan CPS, Silverton N, Ralph-Edwards A, Meineri M. (2024) Quantitative Assessment of Three-Dimensional Aorto-Mitral Angle in Hypertrophic Cardiomyopathy. *Ann Thorac Surg Short Reports*:2(1):136-140

Non-peer review publications

Perez d'Empaire P, Neethling E, Giron-Arango L, **Moreno Garijo J**. POCUS spotlight: resuscitative perioperative transesophageal echocardiography. *ASRA PAIN Medicine News*: 49: <https://doi.org/10.52211/asra020124.014>

Book Chapters/E-modules

Moreno Garijo J, Chetrit M, Courbe A, Lamarche Y. Pericardial disease and therapeutic considerations. In: *Transesophageal Echocardiography Multimedia Manual*, 3rd edition. Éditions Informa HealthCare, 2024. ISBN: *in process*

Lectures (*virtual)

Lung ultrasound versus chest radiography for detection of pneumothorax after mediastinal and chest drainage removal, a pilot study. Schulich Research Executive Committee (SREC), Sunnybrook Health Sciences Centre, Toronto, ON, November 29 2023

3D for the left heart and 3D TEE in the ICU. Workshop Faculty. 26th Annual Canadian Society of Echocardiography Hybrid Weekend, Montreal QC, April 19-21 2024

Conference/Workshop Presentations (*virtual)

Erbetta I, Hadley H, Jerath A, McCartney C, Haas B, Femes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A, **Moreno Garijo J**. Lung ultrasound versus chest radiography for detection of pneumothorax after mediastinal and chest drainage removal. 9th Annual Sunnybrook Clinical Impact through Innovation Expo, Sunnybrook Health Science Centre, Toronto, ON, February 1 2024

Erbetta I, Kaustov L, Hadley H, Jerath A, Haas B, Femes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A, McCartney CJL, **Moreno Garijo J**. Lung Ultrasound Versus Chest Radiography For Detection Of Pneumothorax After Mediastinal And Chest Drainage Removal. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024

Other Conference/Workshop Activities (*virtual)

Tricuspid Valve Session. Annual Toronto Perioperative ECHO Symposium, Toronto, ON, September 23-24 2023 (*curator and co-organizer*)*

TEE Workshop Costa Rica Society of Anesthesia, San Jose, Costa Rica, May 19-24 2024 (*CME planning committee*)

Advanced POCUS Course, 2024 Canadian Anesthesiologists' Society (CAS) Annual Meeting, Victoria Island, BC, June 7-10 2024 (*instructor, workshop faculty*)

Advanced POCUS Course, 2024 Canadian Anesthesiologists' Society (CAS) Annual Meeting, Victoria Island, BC, June 7-10 2024 (*instructor, workshop faculty*)

Grants

Project Title: The HEROES trial: hyperbaric oxygen therapy for endometriosis-related pain: A prospective randomized study

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000.00 for 2 years (April 2024 – March 2026)

PI: Silva Restrepo M. CPI: Liu G.

CI(s): Alam F, Kaustov L, **Moreno Garijo J**, Choi S, Tarshis J, Meng H, Kung R, Skolnik E, Po L, Sriram S.

Project Title: Lung ultrasound versus chest radiography for detection of pneumothorax after mediastinal and chest drainage removal, a pilot study

Funder: The 2023 Reichman Family Chair in Cardiovascular Research

PI: **Moreno Garijo J**.

CI(s): Jerath A, McCartney C, Haas B, Femes S, Cohen G, Roifman I, Ko D, Linseman B, Harrington H, Kiss A.

Amount: \$30,000 for 1.5 years (May 2023 – November 2024)

Awards

2023 Staff Dr. Congeniality Award, University of Toronto Anesthesia Merit Award, Department of Anesthesia & Pain Medicine, Temerty Faculty of Medicine, University of Toronto

Appointments/Honours (selected)

Mentor, Anesthesia Assistants training for ultrasound guided radial arterial line insertion, and Delegated Controlled Act and Medical Directive application. Sunnybrook HSC, 2022 – present

Course Director, 3D TEE Course. Barcelona, Spain, 2022 – present
Course Director, 3D TEE Course, Toronto, Canada, 2019 – present

PhD in Anesthesiology, International Doctor, Autonomous University of Barcelona, Barcelona, Spain, June 26 2024

MORNINGSTAR, Beverley

Awards

2024 Interprofessional Teaching Award, Department of Anesthesiology & Pain Medicine, University of Toronto

2022 - 2023 MD Program Teaching Award for Excellence, Undergraduate Medicine, Temerty Faculty of Medicine, University of Toronto

Appointments/Honours (selected)

Recognized as Toronto's Top Doctor in the city, March 2024

Media Release

'Congratulations to the 2022-2023 MD Program Teaching Award Recipients!' Anesthesiology & Pain Medicine News, June 19 2024: <https://anesthesia.utoronto.ca/news/congratulations-2022-2023-md-program-teaching-award-recipients>

'Toronto's Top Doctors'. Street of Toronto, May 2024: <https://issuu.com/postcity/docs/yorkville-2024-03>

NIAZI, Ahtsham U.

Publications

Moorthy A, Perry-Nguyen D, Zhou L, Meng H, Choi S, **Niazi AU**. (2023) Evaluation of the effect of erector spinae plane block catheter for traumatic rib fractures on patient experience: a quality assurance initiative. *Reg Anesth Pain Med*:rapm-2023-104549

El-Boghdadly K, Albrecht E, Wolmarans M, Mariano ER, Kopp S, Perlas A, Thottungal A, Gadsden J, Tulgar S, Adhikary S, Aguirre J, Agur AMR, Altıparmak B, Barrington MJ, Bedford N, Blanco R, Bloc S, Boretsky K, Bowness J, Breebaart M, Burckett-St Laurent D, Carvalho B, Chelly JE, Chin KJ, Chuan A, Coppens S, Costache I, Dam M, Desmet M, Dhir S, Egeler C, Elsharkawy H, Bendtsen TF, Fox B, Franco CD, Gautier PE, Grant SA, Grape S, Guheen C, Harbell MW, Hebbard P, Hernandez N, Hogg RMG, Holtz M, Ihnatsenka B, Ilfeld BM, Ip VHY, Johnson RL, Kalagara H, Kessler P, Kwofie MK, Le-Wendling L, Lirk P, Lobo C, Ludwin D, Macfarlane AJR, Makris A, McCartney

C, McDonnell J, McLeod GA, Memtsoudis SG, Merjavy P, Moran EML, Nader A, Neal JM, **Niazi AU**, Njathi-Ori C, O'Donnell BD, Oldman M, Orebaugh SL, Parras T, Pawa A, Peng P, Porter S, Pulos BP, Sala-Blanch X, Saporito A, Sauter AR, Schwenk ES, Sebastian MP, Sidhu N, Sinha SK, Soffin EM, Stimpson J, Tang R, Tsui BCH, Turbitt L, Uppal V, van Geffen GJ, Vermeylen K, Vlassakov K, Volk T, Xu JL, Elkassabany NM. (2023) Standardizing nomenclature in regional anesthesia: an ASRA-ESRA Delphi consensus study of upper and lower limb nerve blocks. *Reg Anesth Pain Med*:rapm-2023-104884 (online ahead of print)

Lectures (*virtual)

Virtual Chair Rounds. Department of Anesthesiology & Pain Medicine, University of Toronto, Toronto, ON, December 1 2023*

Teaching USS Regional Anaesthesia: Here & Beyond. Irish Society of Regional Anesthesia (ISRA), Dublin, Ireland, April 19 2024

City-Wide Grand Rounds, Department of Anesthesiology and Pain Management, University of Toronto, May 24 2024*

Conference/Workshop Presentations (*virtual)

McCartney C, Safa B, Idestrup C, Meng H, Lee TSJ, McCarron A, Galochkin G, **Niazi AU**, Choi S. Positioning of Continuous Adductor Canal Catheters after Total Knee Arthroplasty (CACB). SRI Summer student poster competition, Sunnybrook Health Sciences Centre, Toronto, ON, August 17 2023

McCarron A, Di Renna T, Tarshis J, Safa B, Ravi B, Flynn J, Kiss A, Kaustov L, Choi S, **Niazi AU**. Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption. 9th Annual Sunnybrook Clinical Impact through Innovation Expo, Sunnybrook Health Science Centre, Toronto, ON, February 1 2024*

Early Career Investigators/Trainees (invited lectures)

Niazi AU, Di Renna T, Tarshis J, Safa B, Ravi B, Choi S, Flynn J, Kiss A, McCarron A. Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption. Staff Elevator Research Pitch, The Holland Bone and Joint Research Day, Holland Orthopaedic & Arthritic Centre, Sunnybrook Health Sciences Centre, Toronto, ON, October 27 2023 (oral presentation, presenter Aaron McCarron, Sunnybrook HSC)

Grants

Project Title: Remote Immersive Virtual Reality (RIVR) Teaching: Use in Ultrasound Guided Regional Anesthesia Procedural Skills Acquisition

Funder: Education and Simulation in Anesthesia Research Grant, Canadian Anesthesiologists' Society

Amount: \$10,000 for 2 years (July 2023 – June 2025)

PI: **Niazi AU**.

CI(s): Wilcocks K, Moorthy A, Choi S.

Project Title: Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption

Funder: Sunnybrook Education Advisory Council (SEAC) Education Research Unit (ERU) and the Alternative Funding Plan (AFP)

Amount: \$100,000 for two years (April 2022 – April 2024)

PI: **Niazi AU.**

CI(s): Di Renna T, Tarshis J, Safa B, Ravi B, Choi S, Kiss A, Flynn J.

Project Title: Remote Immersive Virtual Reality (RIVR) Teaching: Use in Ultrasound-Guided Regional Anesthesia Procedural Skills Acquisition.

Funder: Sunnybrook Education Advisory Council (SEAC) Education Research Unit (ERU) and Scholarship Grant (ESRG)

Amount: \$10,000 for 2 years (March 2022 – February 2024)

PI: **Niazi AU.**

CA(s): Alam F, Wilcocks K, Choi S.

Awards

2023-2025 Commendation Award for his project “*Remote Immersive Virtual Reality (RIVR) Teaching: Use in Ultrasound Guided Regional Anesthesia Procedural Skills Acquisition.*” 2023-2025 Merit Award Program, University of Toronto Anesthesia Merit Award, Department of Anesthesia, Temerty Faculty of Medicine

Appointments/Honours (selected)

Associate Editor, Regional Anesthesia & Pain Medicine (RAPM), effective April 2023

Awards to Trainees

Chloe A. Lowry (summer student in the Department of Anesthesia, Sunnybrook HSC)– 2024 SRI Summer Student Award, supervisor **Dr. Ahtsham U. Niazi**

Amount: \$3,500 (May 2024 – August 2024)

ORSER, Beverley A.

Publications

Ariza A, Malekian Naeini S, Khodaei S, Ba J, Wang DS, **Orser BA.** (2023) Cell-surface biotinylation of GABA_A receptors in mouse hippocampus after sevoflurane anesthesia. *STAR Protocols*:4(3):102450

Onodera Y, Liang J, Li Y, Griffin B, Thanabalasingam T, Lu C, Zhu J, Liu M, Moraes T, Zheng W, Khateeb J, Khang J, Huang Y, Jerkic M, Nakane M, Baker A, **Orser BA,** Chen YW, Wirnsberger G, Penninger JM, Rotstein OD, Slutsky AS, Li Y, Mubareka S, Zhang H. (2023) Inhalation of ACE2 as a therapeutic target on sex-bias differences in SARS-CoV-2 infection and variant of concern. *iScience*:26(8):107470.

Cuninghame S, Jerath A, Gorsky K, Sivajohan A, Francoeur C, Withington D, Burry L, Cuthbertson BH, **Orser BA,** Martin C, Owen AM, Slessarev M; Sedating with Volatile Anesthetics Critically Ill COVID-19 Patients in ICU: Effects on Ventilatory Parameters and Survival study investigators. (2023) Effect of inhaled anaesthetics on cognitive

and psychiatric outcomes in critically ill adults: a systematic review and meta-analysis. *Br J Anaesth*:131(2):314-327. Erratum in: *Br J Anaesth*:131(4):788

Simkin S, **Orser BA**, Wilson CR, McVicar JA, Crozier M, Bourgeault IL. (2023) The Physician Anesthesia Workforce in Canada From 1996 to 2018: A Longitudinal Analysis of Health Administrative Data. *Anesth Analg*:137(6):1128-1134

Wang DS, Ju L, Pinguelo AG, Kaneshwaran K, Haffey SC, Lecker I, Gohil H, Wheeler MB, Kaustov L, Ariza A, Yu MF, Volchuk A, Steinberg BE, Goldenberg NM, **Orser BA**. (2024) Crosstalk between GABAA receptors in astrocytes and neurons triggered by general anesthetic drugs. *Transl Res*:1:S1931-5244(23)00201-3

Orser BA. (2024) Discovering the Intriguing Properties of Extrasynaptic GABAA Receptors. *Anesthesiology* 140(6):1192-1200

Gordon M, Jayakumar N, Atzema C, Korczak D, Kennedy S, Schaffer A, Goldstein B, **Orser BA**, Yee D, Fiksenbaum L, Choi L, Phillips A, McFarlan A, Kreller M, Freedman C, Tanenbaum B, McDowall D, Ceniti A, Sinyor M. (2024) Self-Harm Presentations to Hospital Trauma Centre Emergency Departments during the First Year of the COVID-19 Pandemic. *Psychiatry Res*:36:115892

Byrick R, **Orser BA**. (2024) David Richard Bevan, MA, MB, BChir (Cantab) with Distinction, MRCP (London), FRCA, RCPSC, FRCPC. *Can J Anaesth*:doi: 10.1007/s12630-024-02796-0 (*Epub ahead of print*)

Non-peer review publications

Brenna CTA, Cole D, **Orser BA**. The new frontier of repurposing anesthetic drugs for depression. Your Patient's Brain, *ASA Monitor* 2024; 88:1-10: <https://doi.org/10.1097/01.ASM.0001004724.70369.15>

Book Chapters/E-modules

Evered, L, **Orser BA**, Berger M. The Perioperative Neurocognitive Disorders. In *Miller's Anesthesia*, 10th edition. Elsevier. Editors: Gropper MA, Eriksson LI, Fleisher LA, Cohen NH, Leslie K, Johnson-Akeju O. (*in progress*)

Policies/Guidelines

Position Statement: Anesthesia Human Resources. Ontario's Anesthesiologists: A section of Ontario Medical Association (OMA): <http://ontariosanesthesiologists.ca/s/OA-Position-Statement-Anesthesia-Human-Resources-2.pdf>

Working group members: Alam N, Brown S, Bryan R, Filteau L, Gill P, Kumar R, Olsen M, **Orser BA**, Richards D, Triverdi V, Wong M, Yang H.

Lectures (*virtual)

Acute cognitive changes after anesthesia and surgery. 2023 Forum of Psychiatry for Universal Conversation and Innovation (PUCI Forum), Shanghai, China, July 15 2023*

Tackling access to anesthesia care through research and education. The Anesthesiology Annual Meeting, American Society of Anesthesiologists (ASA), San Francisco, CA, October 16 2023

The unexpected properties of general anesthetic drugs and postoperative cognitive disorders. Korea University, Seoul, South Korea, November 9 2023

Brain Health in the perioperative period and beyond. Neuroanesthesia, The 100th Annual Scientific Meeting of the Korean Society of Anesthesiologists, Seoul, South Korea, November 9 2023 (*moderator and invited speaker*)
Strategies for strengthening the anesthesia workforce. Plenary Session. The 100th Annual Scientific Meeting of the Korean Society of Anesthesiologists, Seoul, South Korea, November 10 2023

Virtual Chair Rounds. Department of Anesthesiology & Pain Medicine, University of Toronto, Toronto, ON, December 1 2023*

Rural & Remote Anesthesia: Parallels to Aerospace Medicine. Aerospace Medicine Rounds, Division of Occupational Medicine, University of Toronto, Toronto, ON, December 5 2023*

Perioperative Neurocognitive Deficits and the Unexpected Properties of General Anesthetic Drugs. Fellowship Professor's Rounds, Department of Anesthesia & Pain Medicine, University of Toronto, Toronto, ON, January 22 2024*

Preserving brain function in surgical patients. Annual Scientific Symposium: Drug development and related topics, Society of Chinese Bioscientists in America (SCBA), Toronto Chapter 2024 Conference, Toronto, ON, February 23 2024

New Lessons from Old Drugs: Dysregulation of GABA_A receptors by anesthetic drugs. University of Toronto Centre for Study of Pain (UTCSP) Annual Scientific Meeting, University of Toronto, Toronto, ON, March 18 2024 (*keynote speaker and poster judge*)

Is Access to Anesthesia Care Equitable in High-Income Countries? Anesthesia & Analgesia: Access to Anesthesia Care – A Universal Challenge? 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle, WA, May 17-29 2024

City-Wide Grand Rounds, Department of Anesthesiology and Pain Management, University of Toronto, May 24 2024*

Health Human Resources in Anesthesia. Annual Research Day, Department of Anesthesia, Northern Ontario School of Medicine University, May 31 2025 (*keynote speaker*)

Discoveries that shaped the journey. The story behind a 'Classic Papers Revisited.' Research-in-progress rounds, Department of Anesthesia, Sunnybrook HSC, Toronto, ON, June 7 2024

Strategies to preserve brain function. Anesthesiology Grand Rounds, Department of Anesthesia, Stanford University School of Medicine, June 11 2024

Workforce planning to fight fatigue. World Federation of Societies of Anesthesiologists Seminar, June 12 2024

Conference/Workshop Presentations (*virtual)

Orin R, Ariza A, Malekian Naeini S, Yu MF, **Orser BA**. Rapid-acting antidepressant ketamine reduces cell-surface $\alpha 5$ GABA_A receptors. Sunnybrook Research Institute Summer Research Day, Toronto, ON, Canada, August 17 2023.

Brenna CTA, Wang DS, **Kaustov L, Orser BA**. Exploring the involvement of GABA_A receptors in the antidepressant effects of nitrous oxide. 2023 CIP-MD/PhD Symposium, University of Toronto, Toronto, ON, November 20 2023
Ba J, Ariza A, Wang DS, **Orser BA**. Surgery causes a sustained increase in cell-surface expression and redistribution of GABA_A receptors in the mouse hippocampus. Research in Progress Webinar, Department of Anesthesiology and Pain Medicine, University of Toronto, Toronto ON, May 2 2024.

Brenna CTA, Wang D-S, Yu MF, Kaustov L, **Orser BA**. Characterizing GABA-A receptor contributions to the antidepressant effect of nitrous oxide. 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024

Ariza A, Naeini S, Khodaei S, Yu MF, Brenna CTA, Kaustov L, **Orser BA**. LPS-induced neuroinflammation increases hippocampal α 5GABA-A receptor expression and disrupts its interaction with radixin in a mouse model. 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024

Zhang C, Kaustov L, **Orser BA**, Rosales H, Huang J, Idestrup C, Liu B, Haas B, Ravi B, Choi S. Redesigning the surgical pathway: optimizing PreOperative assessment in anesthesia clinic for adult surgical patients (PROMOTE). 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024

Crozier M, McVicar J, Lorello GR, Mottiar M, Wilson RC, **Orser BA**. Females in the Canadian anesthesia workforce: A retrospective analysis using Canadian Institute for Health Information data. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024 (*selected for oral presentation, presenter Dr. Beverley A. Orser*)

Ba J, Ariza A, Wang DS, **Orser BA**. Surgery-Induced Expression and Redistribution of GABA_A Receptors. 44th Annual Frontiers in Physiology (FIP) Research Symposium, Department of Physiology, University of Toronto, Toronto ON, May 31 2024

Brenna CTA, Wang D-S, Yu MF, Kaustov L, **Orser BA**. GABA-A receptor contributions to the antidepressant effect of Nitrous Oxide. Temerty Faculty of Medicine Research Showcase, Toronto ON, June 7 2024

Ba J, Ariza A, Wang DS, **Orser BA**. Surgery increases and redistributes hippocampal GABA_A receptors. Temerty Faculty of Medicine Research Showcase, University of Toronto, Toronto ON, June 7 2024

Brenna CTA, Wang D-S, Yu MF, Kaustov L, **Orser BA**. GABA-A receptor activity in the novel antidepressant effect of Nitrous Oxide. Sunnybrook Research Day, Sunnybrook Health Science Centre, Toronto ON, June 10 2024

Ba J, Ariza A, Wang DS, **Orser BA**. Altered GABA_A Receptor Expression and Activity Following Surgery. Sunnybrook Student Research Conference, Sunnybrook Research Institute, Toronto ON, June 10 2024

Yu MF, Ariza A, Wang DS, Kaustov L, **Orser BA**. A novel peptide to reduce sevoflurane-mediated excess cell-surface expression α 5GABA_A receptors. Sunnybrook Research Day, Sunnybrook Health Science Centre, Toronto ON, June 10 2024

Other Conference/Workshop Activities (*virtual)

External Reflections on Potential and Impact of Longitudinal Cohort Research in Clinical Populations. Panel Discussion (*panelists*: Drs. **Beverley A. Orser**, Harold Pincus, Miranda Wolpert and Aristotle Voineskos), 2023 Research Day, Campbell Family Mental Health Research Institute, Toronto, ON, November 3 2023
Ensuring Patients Benefit From Your Work: Intellectual Property, Patents, and Commercialization. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle, WA, May 17-29 2024 (*moderator*)

International Science Symposium - Role of the Anesthetist in the Opioid Crisis and the Science of Mitigation. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle, WA, May 17-29 2024 (*moderator*)

T.H. Seldon Memorial Lecture: Soft, Skin-Interfaced Wireless Electronic and Microfluidic Sensors in Medicine. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle, WA, May 17-29 2024 (*moderator*)

Women in Anesthesia Networking Breakfast. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle, WA, May 17-29 2024 (*moderator*)

Fighting Fatigue Together: Prioritizing Workforce Well-being for Enhanced Patient Safety: The Human Factors Concerning Safety. World Federation of Societies of Anesthesiologists Seminar, June 12 2024 (*co-host*)

Annual Research Day Anesthesiology Grand Rounds, Department of Anesthesia, Stanford University School of Medicine, June 9 2024 (*Judge and Reviewer*)

Early Career Investigators/Trainees (*invited lectures*)

Brenna CTA, Wang DS, Yu M, Kaustov L, **Orser BA**. May 2024. Exploring GABAA receptor-mediated signalling in the antidepressant effect of nitrous oxide. 44th Annual Frontiers in Physiology (FIP) Research Symposium, Department of Physiology, University of Toronto, Toronto ON, May 31 2024 (*selected for mini-oral presentation, presenter Connor TA. Brenna, University of Toronto*)

Yu MF, Ariza A, Wang DS, **Kaustov L, Orser BA**. A novel peptide to reduce sevoflurane-mediated excess cell-surface expression $\alpha 5$ GABA_A receptors. 44th Annual Frontiers in Physiology (FIP) Research Symposium, Department of Physiology, University of Toronto, Toronto ON, May 31 2024 (*selected for mini-oral presentation, presenter MeiFeng Yu, University of Toronto*)

Ba J, Ariza A, Wang D-S, **Orser BA**. Surgery causes a sustained increase in cell-surface expression and redistribution of GABAA receptors in the mouse hippocampus. 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024 (*selected for mini-oral presentation, presenter Joycelyn Ba, University of Toronto*)

Brenna CTA. How is Laughter the Best Medicine? Three Minute Thesis (3MT) Competition, Centre for Graduate Professional Development, University of Toronto, Toronto, ON, February 2024, March 2024 (*selected for oral presentation, presenter Connor TA. Brenna, University of Toronto*)

Rosales H, Zhang C, Kaustov L, **Orser BA**, Huang J, Idestrup C, Liu B, Haas B, Ravi B, Choi S. Redesigning the surgical pathway: optimizing PreOperative assessment in anesthesia clinic for adult surgical patients (PROMoTE). 45th Academic Shields Research Day, Department of Anesthesiology & Pain Medicine, University of Toronto, The Westin Harbour Castle, Toronto ON, May 3 2024 (*selected for mini-oral presentation presenter Hannah R. Rosales, Sunnybrook HSC*)

Brenna CTA, Wang D-S, Yu MF, Kaustov L, **Orser BA**. Exploring the role of GABA_A receptors in the antidepressant properties of nitrous oxide. 2024 Annual Meeting, International Anesthesia Research Society (IARS), Seattle WA, May 17-19 2024 (*selected for mini-oral presentation, presenter Dr. Connor AT. Brenna, University of Toronto*)

Grants

Project Title: Advancing Brain Outcomes in pediatric critically ill patients sedated with Volatile Anesthetic Agents: A pilot multicentre randomized controlled trial (ABOVE Trial)

Funder: Canadian Institute of Health Research (CIHR) Project Grant

Amount: \$1,121,997 for 3 years (September 2022 – August 2025)

NPA: Jerath A.

CPA(s): McKinnon NKA, Ganesan R, Slessarev M, Cuthbertson BC.

CA(s): Buckley L, Fraser D, Ogilvie J, Burry L, Gilfoyle E, **Orser BA**, Cuninghame S, Kaneshwaran K, Pinto R, Duerden E, Mueller M, Seto W.

Project Title: Redesigning the surgical pathway: optimizing PreOperative assessment in anesthesia clinic for adult surgical patients (PROMoTE trial).

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$100,048 for two years (April 2022 – April 2024)

PI: Choi S.

CI(s): Huang J, Liu B, **Orser BA**, Haas B, Ravi B, Slaughter G.

Project Title: Redesigning the surgical pathway: optimizing preoperative assessment in anesthesia clinic for adults surgical patients (PROMoTE trial).

Funder: Anesthesia Patient Safety Foundation (**designated as the APSF/ASA President Award*)

Amount: US \$150,000 for two years (January 2022 – December 2023)

PI: Choi S.

CI(s): Huang J, **Orser BA**, Liu B.

Title: Targeting GABA-A receptors to mitigate postanesthetic cognitive deficits.

Funder: Canadian Institute of Health Research (CIHR, Foundation Grant)

Amount: \$3,579,083 for 7 years (July 2017 – June 2024, extended until June 2025)

PI: **Orser BA**.

Awards to Trainees

Welna He (summer student in **Dr. Beverley A. Orser's** laboratory) – 2024 Undergraduate Research Opportunity Program Award, Department of Physiology, University of Toronto

Amount: \$2,500

Dr. Connor T. A. Brenna (PhD candidate in **Dr. Beverley A. Orser's** laboratory) – Winter 2024 School of Graduate Studies (SGS) Conference Grant

Amount: \$580

Dr. Connor T. A. Brenna (PhD candidate in **Dr. Beverley A. Orser's** laboratory) – Finalist, “*How is Laughter the Best Medicine?*” Three Minute Thesis (3MT) Competition, Centre for Graduate Professional Development, University of Toronto, Toronto, March 2024

Dr. Connor T. A. Brenna (PhD candidate in **Dr. Beverley A. Orser's** laboratory) – CIHR Vanier Canada Graduate Scholarship (Vanier CGS) – Doctoral's Award to carry out his project “Targeting α 5GABA Receptors to treat depression with Nitrous Oxide.”

Amount: \$150,000 for 3 years (September 2024 – August 2027)

Joycelyn Ba (MSc candidate in **Dr. Beverley A. Orser's** laboratory) – 2023 Alan W. Conn Graduate Award, Department of Physiology, University of Toronto to carry out her project “Does surgery persistently increase GABAA receptor function and cause sustained cognitive impairment?”

Amount: \$4,000 (September 2023 – August 2024)

Dr. Connor T. A. Brenna (PhD candidate in **Dr. Beverley A. Orser's** laboratory) – Canadian Institutes of Health Research (CIHR) Canada Graduate Scholarships – Master's program (CGS-M) to carry out his project “Do α 5GABA_A Receptors Mediate the Antidepressant Properties of Nitrous Oxide?”

Amount: \$17,500 (September 2023 – August 2024, declined)

Dr. Connor T. A. Brenna (PhD candidate in **Dr. Beverley A. Orser's** laboratory) – Ministry of Health Clinician Investigator Program Salary Support Grant to carry out his project “Do α 5GABA_A Receptors Mediate the Antidepressant Properties of Nitrous Oxide?”

Amount: \$68,328 (September 2023 – August 2024)

MeiFeng Yu (MSc candidate in **Dr. Beverley A. Orser's** laboratory) – 2023-2024 Weber Award, Department of Physiology, University of Toronto

Amount: \$10,000 (September 2023 – August 2024)

Raysa Orin (summer student in **Dr. Beverley A. Orser's** laboratory) – 2023 SRI Summer Student Award

Li Ju (MSc candidate in **Dr. Beverley A. Orser's** laboratory) – 2023 School of Graduate Studies (SGS) Conference Grant

Amount: \$470

Appointments/Honours (selected)

Immediate Past Chair, International Anesthesia Research Society (IARS), 2024 – 2025

Chair, International Anesthesia Research Society (IARS) Board of Trustees Executive Committee, 2023–2025

Advisory Board Member to Anesthesiology Performance Improvement and Reporting Exchange (ASPIRE), Multicenter Perioperative Outcomes Group (MPOG), effective May 2024

Member, Collaborative Advisory Group for General and Family Practice Anesthesia (CAGA), 2023 – present

2022 Order of Ontario Appointee

Adjunct Professor, an Honorary Appointment, The Chinese University of Hong Kong, Shenzhen, December 2021 - November 2024

Elected Representative, Collaborative Advisory Group for General and Family Practice Anesthesia on behalf of the 17 Chair of the Association of Canadian University Departments of Anesthesia (ACUDA), March 2021 – present

Member, Temerty Entrepreneur-in-Residence Advisory Committee, University of Toronto, 2021 – present

Member, Foundations for Anesthesia Education and Research (FAER) Nominations Committee, February 2021 – present

Member, Centre for Addiction and Mental Health (CAMH) Discovery Fund External Advisory Committee, September 2020 – present

Member, External Review Committee Toronto Academic Pain Management Institute, 2020 – present

Member, Executive Committee Executive Committee C-QuIPS, 2020 – present

Co-Chair, Clinical Chairs, Temerty Faculty of Medicine, University of Toronto, 2020 – present

Member, Clinical Relations Full Committee, Temerty Faculty of Medicine, University of Toronto, 2020 – present

Chair, Selection Advisory Committee, Department of Family & Community Medicine, University of Toronto, 2020 – present

Awards

The WFSA Fresenius Kabi Anaesthesia Innovation Award, 1st Place: Global PRoMiSe: Perioperative Recommendations for Medication Safety

Media Release

'Position statement: Anesthesia Human Resources.' Ontario's Anesthesiologists Blog, July 2023: <http://ontariosanesthesiologists.ca/anesthesia-human-resources>

'In the news: OMA Study Highlights Shortage of Anesthesiologists in Ontario.' Anesthesiology & Pain Medicine News, August 2023: <https://anesthesia.utoronto.ca/news/news-oma-study-highlights-shortage-anesthesiologists-ontario>

'University of Toronto: Edgy, Dissatisfied, Curious, and Committed.' ASA Monitor, Vol. 87, 37, August 2023: <https://pubs.asahq.org/monitor/article/87/8/37/138462/University-of-Toronto-Edgy-Dissatisfied-Curious>

'The 2022 Appointees to the Order of Ontario.' Ontario Newsroom, November 6 2023: <https://news.ontario.ca/en/backgrounder/1003769/the-2022-appointees-to-the-order-of-ontario>

'Sunnybrook physician and scientist appointed to the Order of Ontario.' Sunnybrook News & Media, November 9 2023: <https://sunnybrook.ca/media/item.asp?c=1&i=3668&f=sunnybrook-physician-order-of-ontario>

'Dr. Beverley Orser appointed to the Order of Ontario.' Anesthesiology & Pain Medicine News, November 10 2023: <https://anesthesia.utoronto.ca/news/dr-beverley-orser-appointed-order-ontario>

'Clearing Brain Fog: Can We Stop Memory Loss?' University of Toronto, Medical Magazine, December 10 2023: <https://uoftmedmagazine.utoronto.ca/2024-winter/>

Article of the month – December 2023 – Drs. Jean-Francois Pittet and Beverley A. Orser discuss the article “The Physician Anesthesia Workforce in Canada From 1996 to 2018: A Longitudinal Analysis of Health Administrative Data”. *Anesthesia & Analgesia* podcast: <https://openanesthesia.libsyn.com/article-of-the-month-december-2023-jean-francois-pittet-and-beverley-a-orser>

‘Drs. Karen Nanji, Beverley A. Orser, Alan Merry, Adrian Gelb, Joyce Wahr – Fresenius Kabi Innovation Awards 2023 Winners Introduced’, January 6 2024: <https://wfsahq.org/news/latest-news/fresenius-kabi-innovation-award-2023-winners-introduced/>

‘Dr. Connor Brenna Receives a Vanier Canada Graduate Scholarship.’ *Anesthesiology & Pain Medicine News*, May 30 2024: <https://anesthesia.utoronto.ca/news/dr-connor-brenna-receives-vanier-canada-graduate-scholarship>

‘Dr. Connor Brenna awarded Vanier Canada Graduate Scholarship’. PBHC SRI News, June 5 2024: <https://sunnybrook.ca/research/media/item.asp?c=37&i=3714&f=connor-brenna-awarded-vanier-canada-graduate-scholarship>

‘Dr. Beverley Orser says there is a new treatment for depression.’ *Alabama’s Morning News*, iHeart, June 21 2024*: <https://www.iheart.com/podcast/139-alabamas-morning-news-with-28158320/episode/dr-beverly-orser-says-there-is-187828114/>

‘New treatments for depression.’ *West Michigan’s Morning News*, iHeart, June 21 2024*: <https://www.iheart.com/podcast/139-west-michigans-morning-new-28352435/episode/new-treatments-for-depression-187826094/>

‘An Unexpected Frontier: Repurposing Anesthetics for Depression.’ *Anesthesiology & Pain Medicine News*, June 26 2024. <https://anesthesia.utoronto.ca/news/unexpected-frontier-repurposing-anesthetics-depression>

*The article ‘*Repurposing General Anesthetic Drugs to Treat Depression*’ has been featured on multiple radio stations by FOX News ([WOOD](#) Grand Rapids, MI; [WERC](#) Birmingham, AL; WHO Des Moines, IA; [KURV](#) Harlington, TX. Radio podcasts, June 21 2024)

PEREZ D’EMPAIRE, Pablo

Publications

Rajendran L, Hopkins A, Hallet J, Sinha R, Tanwani J, Kao MM, Eskander A, Barabash V, Idestrup C, **Perez d’Empaire P**, Jerath A. (2023) Role of intraoperative processes of care during major upper gastrointestinal oncological resection in postoperative outcomes: a scoping review protocol. *BMJ Open*:13(7):e068339

Hallet J, Jerath A, **Perez d’Empaire P**, Eskander A, Carrier FM, Mclsaac DI, Turgeon AF, Idestrup C, Flexman AM, Lorello G, Darling G, Kidane B, Kaliwal Y, Barabash V, Coburn N, Sutradhar R. (2023) The association between hospital high-volume anesthesiology care and patient outcomes for complex gastrointestinal cancer surgery: a population-based study. *Ann Surg*:278(3):e503-e510

Hallet J, Sutradhar R, Eskander A, Carrier FM, Mclsaac D, Turgeon AF, **Perez d’Empaire P**, Idestrup C, Flexman A, Lorello G, Darling G, Kidane B, Kaliwal Y, Barabash V, Coburn N, Jerath A. (2023) Variation in Anesthesiology

Provider-Volume for Complex Gastrointestinal Cancer Surgery: A Population-Based Study. *Ann Surg*: 278(4):e820-e826

Hallet J, Sutradhar R, Flexman A, Mclsaac D, Carrie FM, Turgeon A, McCartney C, Chan W, Coburn N, Eskander A, Jerath A, **Perez d’Empaire P**, Lorello G. (2024) Association between anaesthesia–surgery team sex diversity and major morbidity. *Br J Surg*:111(5):znae097

Non-peer review publications

Perez d’Empaire P, Neethling E, Giron-Arango L, Moreno Garijo J. POCUS spotlight: resuscitative perioperative transesophageal echocardiography. *ASRA PAIN Medicine News*: 49: <https://doi.org/10.52211/asra020124.014>

Book Chapters/E-modules

Douffle G, Cavayas A, **Perez d’Empaire P**, Soliman H, Viellard-Baron A. TEE in the Intensive Care Unit. In: *Transesophageal Echocardiography Multimedia Manual*, 3rd edition. Éditions Informa HealthCare, 2024. ISBN: *in process*

Lectures (*virtual)

Intraoperative Lung Ultrasound. XXIV Annual Congress, Venezuelan Society of Anesthesiology, October 2023

The role of resuscitative transesophageal echocardiography. CAS Perioperative Webinar, Toronto, ON, October 24 2023

Perioperative POCUS for shock. 55th Annual Mexican Congress of Anesthesiology, Mazatlán, Mexico, November 2023

Role of Resuscitative TEE in Critical Care. 22nd International Symposium in Medical Emergencies and Critical Care. Chilean Society of Critical Care Medicine and Emergency Medicine. Santiago de Chile, May 16 2024

Using POCUS for the undifferentiated shock. 22nd International Symposium in Medical Emergencies and Critical Care. Chilean Society of Critical Care Medicine and Emergency Medicine. Santiago de Chile, May 16 2024

Current strategies for the management of refractory vasoplegia after cardiac surgery. 22 International Symposium in Medical Emergencies and Critical Care. Chilean Society of Critical Care Medicine and Emergency Medicine. Santiago de Chile, May 16 2024

Conference/Workshop Presentations (*virtual)

Mah A, Alam F, Dandal MA, Helman JD, Cohen T, Hallbeck S, Tetteh E, Norasi H, Kallocsai C, Siriam S, **Perez d’Empaire P**, Larouche J, Hallet J. Interdisciplinary operating room ergonomics needs and priorities: a survey of operating room staff. The 2nd Annual Symposium of the Society of Surgical Ergonomics, September 8 2023*

Point-of-Care Ultrasound (POCUS) Session. Annual Toronto Perioperative ECHO Symposium, Toronto, ON, September 23-24 2023 (*curator and co-organizer*)*

Advanced POCUS Course, 2024 Canadian Anesthesiologists’ Society (CAS) Annual Meeting, Victoria Island, BC, June 7-10 2024 (*facilitator, workshop faculty*)

Basic POCUS Course, 2024 Canadian Anesthesiologists' Society (CAS) Annual Meeting, Victoria Island, BC, June 7-10 2024 (*facilitator, workshop faculty*)

POCUS for all Anesthesiologist Course. American Society of Anesthesiology Annual Meeting, San Francisco, CA, October 24 2023

Advanced POCUS Workshop. 22nd International Symposium in Medical Emergencies and Critical Care. Chilean Society of Critical Care Medicine and Emergency Medicine. Santiago de Chile, May 15 2024

Early Career Investigators/Trainees (*invited lectures*)

Mah A, Alam F, Larouche J, Dandal MA, Cohen T, Hallbeck S, Tetteh E, Hamid Norasi, Csilla Kallocai C, Siriam S, Helman JD, **Perez d'Empaire P**, Hallet J. Interdisciplinary operating room ergonomics needs and priorities: a survey of operating room staff. Scientific Forum at Clinical Congress 2023, Boston, MA, October 22-25 2023 (*oral presentation, presenter Alexis Mah*)

Acher A, Lorello G, Sutradhar R, Coburn N, Chan WC, Carrier F, Mclsaac D, Flexman A, Turgeon A, McCartney C, Eskander A, Jerath A, **Perez d'Empaire P**, Hallet J. Higher sex-diversity of operative teams is associated with better post-operative outcomes for hepato-pancreato-biliary surgery. World Congress, IHPBA. Cape Town, South Africa, May 15-18 2024 (*published abstract, accepted for oral presentation, presenter Alexandra Acher*)

Grants

Project Title: Designing new care models for anesthesiology in complex gastrointestinal surgery by leveraging volume-outcome relationships.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$69,117 for two years (April 2022 – April 2024)

PI: **Perez d'Empaire P**.

CI(s): Drs. Hallet J, Jerath A, Idestrup C, Coburn N, Eskander A, Gotlib Conn L, Sutradhar R, Wright F.

Project Title: Study to Actively WARM Trauma Patients – 2 (STAYWARM-2): A pilot feasibility trial of chemical versus passive warming blankets in massively bleeding patient

Funder: Practice Based Research Innovation Seed Grant

Amount: \$10,000 for 12 months (May 2023 – April 2024)

PI(s): Notario L, Da Luz LT.

CI(s): Callum J, **Perez d'Empaire P**, Tillmann B, Pannell D, Freedman C, Nathans A, Kainer L, Linseman B, Wong M, Kron A, Hajjaj O, Strauss R, Lewis M.

Appointments/Honors (*selected*)

Co-director and faculty. Basic POCUS Course, Canadian Anesthesiologists' Society (CAS) Annual Meeting, Victoria, BC, June 7 2024

Co-director and faculty. Advanced POCUS Course, Canadian Anesthesiologists' Society (CAS) Annual Meeting, Victoria, BC, June 7 2024

Appointed member. Adult Ultrasound Committee. Society of Critical Care Medicine, Illinois, USA, January 2024 – present

Appointed Member. Annual Meeting Scientific Program Committee, Canadian Anesthesiology Society, May 2023 – present

Appointed member and Local Mentor, ASA POCUS Certificate Program, American Society of Anesthesiology, July 2023 – present

ROBERTS, Lisa M.

Awards

2023 Interprofessional Teaching Award, University of Toronto Department of Anesthesia Alumni Association, Temerty Faculty of Medicine, University of Toronto

2023 Excellence in Interprofessional Continuing Professional Development (CPD) Award, Temerty Faculty of Medicine, University of Toronto

SAFA, Behnam

Conference/Workshop Presentations (*virtual)

McCartney C, **Safa B**, Idestrup C, Meng H, Lee TSJ, McCarron A, Galochkin G, Niazi AU, Choi S. Positioning of Continuous Adductor Canal Catheters after Total Knee Arthroplasty (CACB). SRI Summer student poster competition, Sunnybrook Health Sciences Centre, Toronto, ON, August 17 2023

McCarron A, Di Renna T, Tarshis J, **Safa B**, Ravi B, Flynn J, Kiss A, Kaustov L, Choi S, Niazi AU. Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption. 9th Annual Sunnybrook Clinical Impact through Innovation Expo, Sunnybrook Health Science Centre, Toronto, ON, February 1 2024*

Early Career Investigators/Trainees (invited lectures)

Niazi AU, Di Renna T, Tarshis J, **Safa B**, Ravi B, Choi S, Flynn J, Kiss A, McCarron A. Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption. Staff Elevator Research Pitch, The Holland Bone and Joint Research Day, Holland Orthopaedic & Arthritic Centre, Sunnybrook Health Sciences Centre, Toronto, ON, October 27 2023 (*oral presentation, presenter Aaron McCarron, Sunnybrook HSC*)

Grants

Project Title: Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption
Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$100,000 for two years (April 2022 – April 2024)

PI: Niazi AU.

CI(s): Di Renna T, Tarshis J, **Safa B**, Ravi B, Choi S, Kiss A, Flynn J.

Project Title: Ultrasound-guided percutaneous intercostal nerve cryoneurolysis for analgesia following traumatic rib fracture, a pilot randomized control trial

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000 for 2 years (April 2023 – March 2025)

PI: **Safa B**, Co-PI: Nathens A.

CI(s): Meng H, Choi S.

Title: Combination therapy: Hyperbaric oxygen therapy and PENTOCLO for treatment of osteoradionecrosis of the mandible

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000 for 2 years (April 2023 – March 2025)

PI: Tanner K, CPI: Blanas N.

CI(s): **Safa B**, Higgins K, Eskander A, Tarshis J, Choi S, Kiss A.

Appointments/Honours (selected)

Recognized as Toronto's Top Doctor in the city, March 2024

Media Release

'Toronto's Top Doctors'. Street of Toronto, May 2024: <https://issuu.com/postcity/docs/yorkville-2024-03>

SALIBA, Chadi

Conference/Workshop Presentations (*virtual)

Hallet J, Alam F, Rocha F, Del Rivero J, Partelli S, Koea J, Ladowski S, **Saliba C**, Pommier R. Perioperative management of carcinoid crisis: protocol for a modified Delphi international expert consensus with patient engagement. North American Neuroendocrine Tumors Society (NANETS), Montréal, QC, October 4-6 2023

Awards

2024 Dr. Gerald Edelist Award, Department of Anesthesiology & Pain Medicine, University of Toronto

SARMAH, Anita

Publications

Jerath A, Satkunasivam R, Kaneshwaram K, Coburn N, Wright F, McCartney C, Kealey A, **Sarmah A**, Ladowski S, Nabecker S, Aminoltejari K, Chang A, MacDonnell SY, Riveros C, Flexman A, Lorello G, Detsky A, Wallis CJD.

(2024) Association between anesthesiologist sex and patients' postoperative outcomes: a population-based cohort study. *Ann Surg*:279(4):569-574

Early Career Investigators/Trainees (invited lectures)

Heybati K, Jerath A, Satkunasivam R, Kaneshwaran K, Aminoltejari K, Chang A, MacDonell SY, Kealey A, Ladowski S, **Sarmah A**, Flexman AM, Lorello G, Nabecker S, Conurn N, Gotlib Conn L, Klaassen Z, Ranganathan S, Riveros C, McCartney CJL, Detsky AS, Wallis JDC. Association between anesthesiologist sex and postoperative outcomes: A population-based cohort study. 2024 IARS Annual Meeting, Seattle WA, May 17-19 2024 (*selected for oral presentation, presenter Kiyam Heybati, Mayo Clinic*)

Awards

2022 - 2023 MD Program Teaching Award for Excellence, Undergraduate Medicine, Temerty Faculty of Medicine, University of Toronto

Media Release

'Congratulations to the 2022-2023 MD Program Teaching Award Recipients! Anesthesiology & Pain Medicine News, June 19 2024: <https://anesthesia.utoronto.ca/news/congratulations-2022-2023-md-program-teaching-award-recipients>

SILVA RESTREPO, Marcos

Conference/Workshop Presentations (*virtual)

Angle P, Lay C, Kiss A, **Silva Restrepo M**, Kong J, van Der Vyver M. Diagnostic cohort study comparing the accuracy of PDPH Trial criteria vs International Headache Society criteria for post-epidural PDPH. Obstetric Anaesthetists' Association (OAA) Annual Scientific Meeting 2024. Birmingham, England, UK, May 9-10 2024

Grants

Project Title: The HEROES trial: hyperbaric oxygen therapy for endometriosis-related pain: A prospective randomized study

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000.00 for 2 years (April 2024 – March 2026)

PI: **Silva Restrepo M**. CPI: Liu G.

CI(s): Alam F, Kaustov L, Moreno J, Choi S, Tarshis J, Meng H, Kung R, Skolnik E, Po L, Sriram S.

SINGER, Oskar

Publications

Wiegelmann JR, Choi S, McHardy PG, Matava C, **Singer O**, Kaustov L, Alam F. (2024) Randomized Control Trial of a Holographic Needle Guidance Technique for Thoracic Epidural Placement. *Reg Anesth Pain Med: rapm-2023-104703*

Conference/Workshop Presentations (*virtual):

Wiegelmann J, Lappin E, McHardy P, Choi S, **Singer O**, Kaustov L, Alam F. A randomized control trial of a holographic needle guidance technique for thoracic epidural placement (HOLOLENS). Innovation Fund Showcase: The Future of Academic Medicine, Metro Toronto Convention Centre, Toronto, ON, November 8 2023

Grants

Title: Improving Post-Covid Syndrome with Hyperbaric Oxygen Treatments (PCS-HBOT study).
Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$105,000.00 for 2 years (April 2023 – March 2025)
PI: Tarshis J; CPI: **Singer O**.
CI(s): Alam F, Chan A, Choi S, Hamstra S, Giacobbe P.

SIVANATHAN, Lavarnan

Lectures

Pain Medicine and MSK ultrasound Cadaver Course. American Society of Regional Anesthesia and Pain Medicine, Chicago, IL, June 8-9 2024

Conferences/Workshop Presentations (*virtual)

Oliveira F, **Sivanathan L**, Choi S, Meng M. Evaluation of persistent opioid use and psychiatric risk factors in transitional trauma pain clinic - a quality improvement initiative. Tory Trauma Program Academic Day, Sunnybrook Health Sciences Centre, February 26 2024

Oliveira FS, **Sivanathan L**, Choi S, Meng H. Evaluation of psychosocial risk factors for persistent opioid use in a trauma pain clinic – a quality improvement initiative. Anesthesiology and Acute Pain Medicine Meeting, San Diego, CA, March 21-23 2024

Grants

Project Title: The Op-Sleep Program: Development and implementation of a novel multi-disciplinary combined opioid management and sleep health optimization program to address the opioid crisis in patients with chronic non-cancer pain
Funder: University of Toronto Center for Study of Pain (UTCSP)
Amount: \$30,000 for 1 year (January 2024 – January 2025)
PI: Singh M.

CI(s): **Sivanathan L**, Ng K, Pappu A, Di Renna T, Bhatia A, Clarke H, Meng H.

SLABBERT KEILTY, Marietjie

Lectures (*virtual)

Breaking down the silo's between EMS, A & E and Critical Care. 2023 Master of Resuscitation Conference, Johannesburg, Gauteng, South Africa, September 7-9 2023 (*keynote speaker and master of ceremony*)

TANNER, Keith

Grants

Title: Combination therapy: Hyperbaric oxygen therapy and PENTOCLO for treatment of osteoradionecrosis of the mandible

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000.66 for 2 years (April 2023 – March 2025)

PI: **Tanner K**, Co-PI: Blanas N.

CI(s): Safa B, Higgins K, Eskander A, Tarshis J, Choi S, Kiss A.

TAAM, Jason

Conferences/Workshop Presentations (*virtual):

Kalun P, Hamstra S, Whyne C, Robert N, Kreder H, Wong M, Dandal M, Joson J, Hong JY, Alam F, Wiegelmann J, Idestrup C, **Taam J**, Yee A, Tile M, Nousiainen M. Assessment Framework to Measure Orthopaedic Surgical Team Performance. The Department of Surgery's 50th Gallie Day, University of Toronto, MaRS, Toronto ON, May 3, 2024

TARSHIS, Jordan

Publications

Yee MS, **Tarshis J**. (2023) Anesthesia quality indicators to measure and improve your practice: a modified delphi study. *BMC Anesthesiol*: 23(1): 256

Genis H, Li M, Eng-Chong M, Zaltz A, **Tarshis J**, Elligsen M, Leis JA, Lam PW. (2023) Optimizing Cefazolin Prophylaxis in Obstetrical Patients with Reported Beta-Lactam Allergy Undergoing Cesarean Delivery. *J Obstet Gynaecol Can*:45(8):574-580

Alam F, LeBlanc VR, Baxter A, **Tarshis J**, Piquette D, Gu Y, Filipowska C, Krywenky A, Kester-Greene N, Cardinal P, Andrews M, Chartier F, Burrows C, Houzé-Cerfon CH, Burns JK, Kaustov L, Au S, Lam S, DeSousa S, Boet S; Perioperative Anesthesia Clinical Trials Group (PACT). (2024) Age and its impact on crisis management performance and learning after simulation-based education by acute care physicians: a multicentre prospective cohort study. *Br J Anaesth*:132(2):383-391

Lectures (*virtual)

Harm Reduction in Perioperative Medicine: Incivility. International Conference: Controversies in Perioperative Medicine, Ronda, Spain, June 2024

Novel Evidence-Based Indications for Hyperbaric Oxygen Therapy. International Conference: Controversies in Perioperative Medicine, Ronda, Spain, June 2024

Conferences/Workshop Presentations (*virtual)

Gupta S, Alam F, **Tarshis J**, Choi S, Belfiore E, Kaustov L, Brenna CTA, May V, Da Cruz T, Wiegelmann J. HOLOSIM: The way forward in complex crisis training. *Cureus* 16(1):a119 (*published abstract*)

McCarron A, Di Renna T, **Tarshis J**, Safa B, Ravi B, Flynn J, Kiss A, Kaustov L, Choi S, Niazi AU. Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption. 9th Annual Sunnybrook Clinical Impact through Innovation Expo, Sunnybrook Health Science Centre, Toronto, ON, February 1 2024*

Gupta S, Alam F, **Tarshis J**, Choi S, Belfiore E, Kaustov L, Brenna CTA, May V, Da Cruz T, Wiegelmann J. HOLOSIM: The Way Forward in Complex Crisis Training. Gary Johnson Research Day 2024, Department of Anesthesiology and Pain Medicine, University of Ottawa, Ottawa ON, May 24 2024

Early Career Investigators/Trainees (invited lectures)

Niazi AU, Di Renna T, **Tarshis J**, Safa B, Ravi B, Choi S, Flynn J, Kiss A, McCarron A. Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption. Staff Elevator Research Pitch, The Holland Bone and Joint Research Day, Holland Orthopaedic & Arthritic Centre, Sunnybrook Health Sciences Centre, Toronto, ON, October 27 2023 (*oral presentation, presenter Aaron McCarron, Sunnybrook HSC*)

Gupta S, Alam F, **Tarshis J**, Choi S, Belfiore E, Kaustov L, Wiegelmann J. HOLOSIM: the way forward in complex crisis training. The 2023 SIM Expo, Ottawa, ON, December 11-12 2023 (*oral presentation, presenter Sanchit Gupta, University of Toronto*)

Grants

Project Title: The HEROES trial: hyperbaric oxygen therapy for endometriosis-related pain: A prospective randomized study

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000 for 2 years (April 2024 – March 2026)

PI: Silva Restrepo M. co-PI: Liu G.

CI(s): Alam F, Kaustov L, Moreno J, Choi S, **Tarshis J**, Meng H, Kung R, Skolnik E, Po L, Sriram S.

Title: Improving Post-Covid Syndrome with Hyperbaric Oxygen Treatments (PCS-HBOT study).

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000 for 2 years (April 2023 – March 2025)

PI: **Tarshis J**; CPI: Singer O.

C.I.(s): Alam F, Chan A, Choi S, Hamstra S, Giacobbe P.

Title: Combination therapy: Hyperbaric oxygen therapy and PENTOCLO for treatment of osteoradionecrosis of the mandible

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre

Amount: \$105,000 for 2 years (April 2023 – March 2025)

PI: Tanner K, Co-PI: Blanas N.

CI(s): Safa B, Higgins K, Eskander A, **Tarshis J**, Choi S, Kiss A.

Project Title: Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption

Funder: Sunnybrook Education Advisory Council (SEAC) Education Research Unit (ERU) and the Alternative Funding Plan (AFP)

Amount: \$100,000 for 2 years (April 2022 – March 2024)

PI: Niazi AU.

CI(s): Di Renna T, **Tarshis J**, Safa B, Ravi B, Choi S, Kiss A, Flynn J.

Appointments/Honours (selected)

Chair, Simulation Accreditation Integration Working Group, Royal College of Physicians and Surgeons of Canada (RCPSC)

Member, Continued Professional Development (CPD) Accreditation Committee, RCPSC

Member, Corporate Accreditation Committee, RCPSC

Vice-President, Ontario Hyperbaric Medical Society

WIEGELMANN, Julian R.

Publications

Wiegelmann JR, Choi S, McHardy PG, Matava C, Singer O, Kaustov L, Alam F. (2024) Randomized Control Trial of a Holographic Needle Guidance Technique for Thoracic Epidural Placement. *Reg Anesth Pain Med*: rapm-2023-104703

Lectures (*virtual)

Rural & Remote Anesthesia: Parallels to Aerospace Medicine. Aerospace Medicine Rounds, Division of Occupational Medicine, University of Toronto, Toronto, ON, December 5 2023*

Strategies to support high acuity care in remote environments. Aerospace Medicine Rounds, Division of Occupational Medicine, University of Toronto, Toronto, ON, December 5 2023*

Conference/Workshop Presentations (*virtual)

Wiegelmann J, Lappin E, McHardy P, Choi S, Singer O, Kaustov L, Alam F. A randomized control trial of a holographic needle guidance technique for thoracic epidural placement (HOLOLENS). Innovation Fund Showcase: The Future of Academic Medicine, Metro Toronto Convention Centre, Toronto, ON, November 8 2023

Gupta S, Alam F, Tarshis J, Choi S, Belfiore E, Kaustov L, Brenna CTA, May V, Da Cruz T, **Wiegelmann J**. HOLOSIM: The way forward in complex crisis training. *Cureus* 16(1):a119 (*published abstract*)

Kalun P, Hamstra S, Whyne C, Robert N, Kreder H, Wong M, Dandal M, Joson J, Hong JY, Alam F, **Wiegelmann J**, Idestrup C, Taam J, Yee A, Tile M, Nousiainen M. Assessment Framework to Measure Orthopaedic Surgical Team Performance. The Department of Surgery's 50th Gallie Day, University of Toronto, MaRS, Toronto ON, May 3, 2024

Gupta S, Alam F, Tarshis J, Choi S, Belfiore E, Kaustov L, Brenna CTA, May V, Da Cruz T, **Wiegelmann J**. HOLOSIM: The Way Forward in Complex Crisis Training. Gary Johnson Research Day 2024, Department of Anesthesiology and Pain Medicine, University of Ottawa, Ottawa ON, May 24 2024

Early Career Investigators/Trainees (invited lectures)

Gupta S, Alam F, Tarshis J, Choi S, Belfiore E, Kaustov L, **Wiegelmann J**. HOLOSIM: the way forward in complex crisis training. The 2023 SIM Expo, Ottawa, ON, December 11-12 2023 (*selected for oral presentation, presenter Sunchit Gupta, University of Toronto*)

Grants

Project Title: The Holographic Standardized Patient - Using Mixed Reality to Reduce Barriers to Crisis Simulation in Acute Care.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$86,700.00 for two years (April 2022 – April 2024)

PI: **Wiegelmann J**.

CI(s): Alam F, Piquette D, Filipowska C, Kaustov L, Choi S.

Project Title: Exploring the Validity of Virtual Clinical Performance Assessments.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$ 62,217 for two years (April 2022 – April 2024)

PI: Alam F.

CI(s): **Wiegelmann J**, Tavares W, Matava C, Kapralos B, Dubrowski A, Brydges R, Kaustov L, Belfiore E.

Project Title: Prevention of persistent pain with Lidocaine infusions in breast cancer surgery (PLAN): a multicentre randomized controlled trial.

Funder: Academic Health Sciences Centres (AHSC) AFP Innovation Fund, Sunnybrook Health Sciences Centre
Amount: \$99,987 for two years (April 2022 – April 2024)

CPI(s): Meng H, Helman J.

CI(s): Choi S, Khan J, Look Hong N, Wright F, Roberts A, **Wiegelmann J**.

Project Title: HoloSIM - Development and Validation of a Holographic Medical Crisis Training Simulator
Funder: Merit Award Program, Department of Anesthesiology & Pain Medicine, University of Toronto
Amount: \$80,000 for 2 years (January 2024 – December 2025)
PI: **Wiegelmann J.**

Project Title: The Holographic Standardized Patient: Using Mixed Reality to Reduce Barriers to Crisis Simulation in Acute Care
Funder: Society for Technology in Anesthesia
Amount: \$4,000 for 1 year (January 2023 – February 2024)
PI: **Wiegelmann J.**
CI(s): Alam F, Choi S, Piquette D, Filipowska C, Kaustov L.
Amount: \$4,000 for 1 year (January 2023 – February 2024)

Awards

Early Investigator Award, 2023 – 2025 Merit Award Program, Department of Anesthesiology & Pain Medicine, Temerty Faculty of Medicine, University of Toronto

Clinical Collaborations

Project Title: Does the Self-Bleeding assessment tool score accurately predict perioperative bleeding (SELF-BAT)?
Lead-I/Sponsor: Scholzberg M, St. Michael's Hospital
Site PI: **Choi S**

Project Title: Prevention of persistent pain with Lidocaine infusions in breast cancer surgery (PLAN): a multicentre randomized controlled trial.
Lead-I/Sponsor: Khan JS, Gilron I., Toronto General Hospital
Site PI: Choi S, site C(s): Meng H, Helman JD, **Wiegelmann J.**

YEE, Doreen

Publications

Gordon M, Jayakumar N, Atzema C, Korczak D, Kennedy S, Schaffer A, Goldstein B, Orser BA, **Yee D**, Fiksenbaum L, Choi L, Phillips A, McFarlan A, Kreller M, Freedman C, Tanenbaum B, McDowall D, Ceniti A, Sinyor M. (2024) Self-Harm Presentations to Hospital Trauma Centre Emergency Departments during the First Year of the COVID-19 Pandemic. *Psychiatry Res*:36:115892

Conference/Workshop Presentations (*virtual)

Postpartum hemorrhage and massive transfusion protocol in obstetrics. Family Practice Anesthesia (FPA) Problem Rounds. April 8 2024* (*panelists*: Siddiqui Z, Callum J, MacLean DB, **Yee D.**)

Appointments/Honours (selected)

Chair, The Canadian Anesthesia Research Foundation (CARF), 2022 – present

van der Vyver, Martin

Publications

Tapley PLC, **van der Vyver M**, Coburn NG, Hallet J, Law C, Roke R, Karanicolas PJ. (2023) Rectus sheath catheters reduce opiate use in pancreaticoduodenectomy: a pre- and postintervention cohort study. *Can J Surg*: 66(4):E367-E377

Conference/Workshop Presentations (*virtual):

Pardy B, Angle P, Lay C, Gawel M, Kiss A, Kong J, **van der Vyver M**, Roberts L, Hussain K, Halpern S. Diagnostic cohort study comparing the accuracy of PDPH trial criteria vs International Headache Society criteria for post-epidural PDPH. University of Toronto Shields Research Day, Toronto ON, May 4 2024

Angle P, Lay C, Kiss A, Silva Restrepo M, Kong J, **van Der Vyver M**. Diagnostic cohort study comparing the accuracy of PDPH Trial criteria vs International Headache Society criteria for post-epidural PDPH. Obstetric Anaesthetists' Association (OAA) Annual Scientific Meeting 2024. Birmingham, England, UK, May 9-10 2024

2023 – 2024 Annual Research Report Appendices

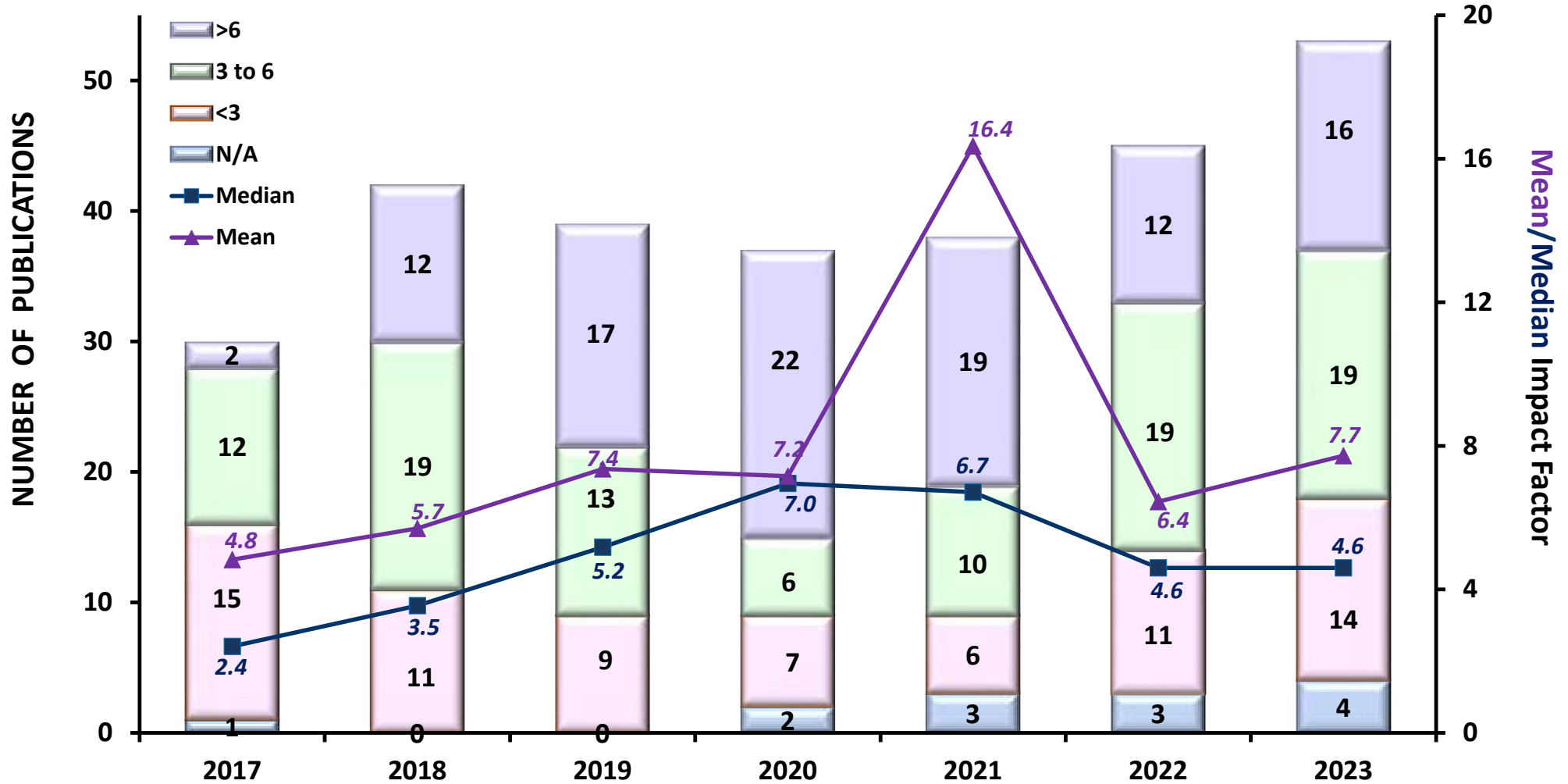
- Department of Anesthesia Annual Research Publications (Appendix 1)
- Department of Anesthesia Annual Presentations (Appendix 2)
- Department of Anesthesia Annual Research Funding (Appendix 3)
- Department of Anesthesia Annual Progress of Investigators (Appendix 4)
- Department of Anesthesia Research Portfolio (Appendix 5)
- List of Abbreviations (Appendix 6)

DEPARTMENT of ANESTHESIA
Sunnybrook Health Sciences Centre

PUBLICATIONS
PRESENTATIONS
FUNDING

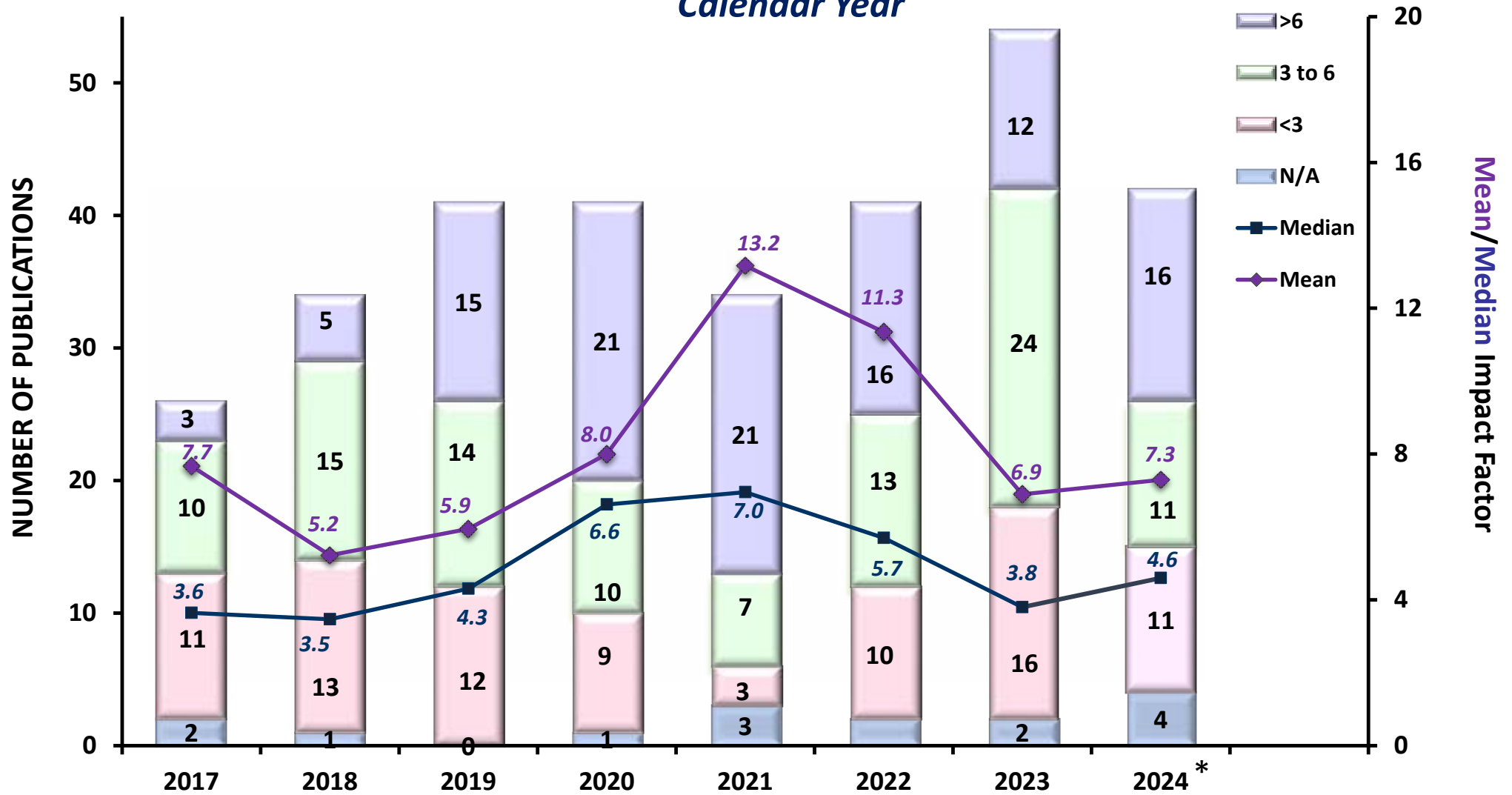
Appendix 1 – 3

(A) **Publications and Impact Factor**
Academic Year



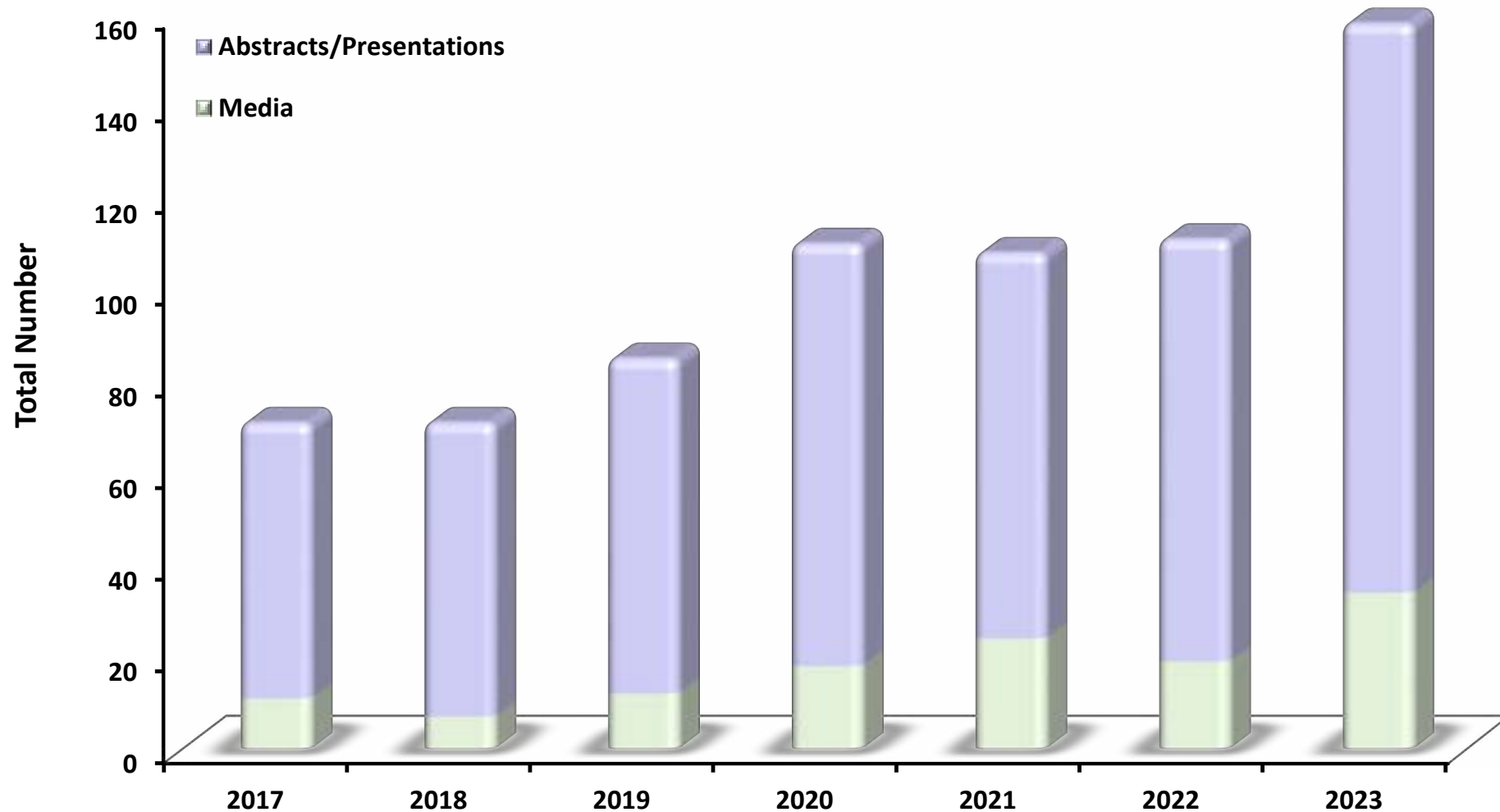
Appendix 1. Publications and Impact Factor for the periods: **(A)** Academic (July 1 to June 30) and **(B)** Calendar (January 1 – December 30) from 2017 to 2024. The 2023 – 2024 academic year includes only published manuscripts. The 2024 calendar year includes manuscripts published/had an ‘in press’ status between January and September 2024.

(B) **Publications and Impact Factor**
Calendar Year



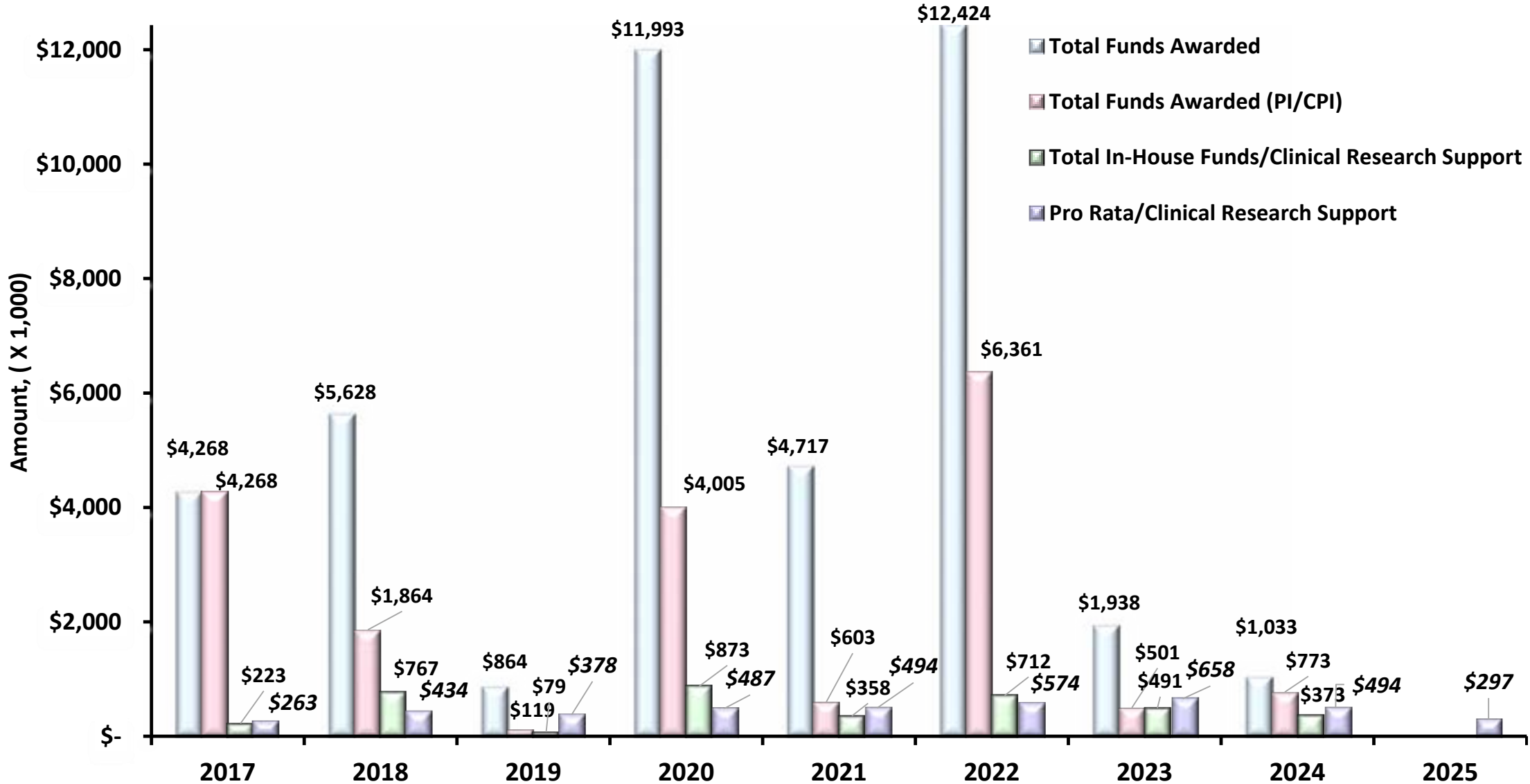
Appendix 1. *Continued.* *The 2024 Calendar year only includes manuscripts that were published/had an 'in press' status between January and September 2024.

Abstracts and Media *Academic Year*



Appendix 2. Abstracts and Presentations (2017 – 2023): includes all abstracts, lectures, workshops, trainees lectures and media releases.

Annual Research Funds *Calendar Year*



Appendix 3. Annual Research Funds (2017 – 2024): **blue**, total funds awarded; **pink**, total funds awarded by investigators as PI/CPI; **green**, total in-house funds allocated for clinical research support; **violet**, Pro Rata funds for clinical research support. Funding sources include funds awarded by investigators as PI/CPI, CI, and C; Merit Awards, PBHC Professorship, and UofT Chair support. PI, principal investigator; CPI, co-principal investigator; CI, co-principal investigator; C, collaborator.

DEPARTMENT OF ANESTHESIA
Sunnybrook Health Sciences Centre

**INVESTIGATORS’
RESEARCH PRODUCTIVITY**

Appendix 4

(A) 2023 - 2024 INVESTIGATORS' RESEARCH PRODUCTIVITY REPORT^

CLINICIAN INVESTIGATOR	H-index	CITATIONS	PUBLICATIONS (peer-reviewed)*			PROJECTS
			SCOPUS	TOTAL	2023 - 2024	
Alam, Fahad	11	313	37	5		7
Angle, Pamela	11	551	31		1	7
Choi, Stephen	26	3872	82	5	1	19
Jerath, Angela	27	2522	114	23	6	14
Jivraj, Naheed	14	731	28	2	1	2
Meng, Howard	7	283	16	4		8
Moreno Garijo, Jacobo	4	79	19	2		2
Niazi, Ahtsham U.	17	1174	48	2		6
Orser, Beverley A.	55	13037	222	8	3	
Safa, Ben	3	109	6		1	3
Wiegelmann, Julian R.	1	12	6	1		5
TOTAL		22683		46	12	

^ Updated on August 11 2024; *Scopus (www.scopus.com/freelookup/form/author.uri)

(B) RESEARCH TIME ALLOCATION

	Research Time per week			2023 - 2025
	Current	Requested	Approved	Comments
Alam, F.	2	2	2	\$80,000 Merit Award
Angle, PJ		1		
Choi, S.	2	2	2	\$80,000 Merit Award
Jerath, A.	3	3	3	\$80,000 Merit Award
Jivraj, N.		0.5	0.5	The research program is supported by both DOA and CCM departments
Meng, H.	1	0.5	0.5	
Moreno Garijo, J.	1	1	1	
Niazi, AU.	1	1	1	
Orser, BA.	2.5	2.5	2.5	Total 2.5 days, 1 day is funded externally/ \$104,000 UofT support
Safa, B.	1	0.75	0.75	
Wiegelmann, JR.	1	1	1	\$40,000 Merit Award
TOTAL	14 days	15.25 days	14.25 days	

Appendix 4. Investigators' Research Productivity

(A) Clinician-investigators research progress report. Projects include investigator initiated and collaborative projects. Trainees: students, fellows, residents, research personnel.

(B) Allocation of Research Time.

DEPARTMENT of ANESTHESIA
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RESEARCH PORTFOLIO
OVERVIEW

Appendix 5

Department of Anesthesia Research Program Sunnybrook Health Sciences Centre

CLINICAL RESEARCH PROGRAM

Co-I, co-investigator; C, collaborator; lead-I, lead investigator; NPA, nominated principal investigator; PA – principal applicant; co-PA, co-principal applicant; PI, principal investigator; co-PI, co-principal investigator; site-PI, site principal investigator; site-Co-I, site co-investigator.

1. Neuroscience and Surgery: Perioperative Neurocognitive Disorders

Assessing postoperative cognitive changes after major joint arthroplasty surgery: a prospective cohort study - COGNIGRAM (Drs. Choi/PI, Avramescu, Orser & Collaborators)

COGNIGRAM ([NCT03147937](#)) is a single center prospective, observational study aiming to model the trajectory of cognitive changes and identify risk factors that worsen cognitive function in patients undergoing hip or knee arthroplasty. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$96,330). This study has finished recruitment, and is completing data analysis.

Cognitive Outcomes After Dexmedetomidine Sedation in Cardiac Surgery Patients: CODEX Trial (Drs. Choi/PI, Orser, Jerath & Collaborators)

CODEX ([NCT04289142](#)) is a multicentre pragmatic interventional randomized trial investigating whether dexmedetomidine (Precedex) sedation after open cardiac surgery is effective at reducing post-operative cognitive dysfunction and accelerating cognitive recovery after anesthesia and surgery. This will be the first trial to employ newly published diagnostic criteria and [nomenclature for NCD](#) and to identify and evaluate the preventative pharmacological treatment for major Postoperative Neurocognitive Disorder (P-NCD, former POCD). If we demonstrate that this drug is neuroprotective, we will improve post-operative outcomes by optimizing anesthetic care and advocate for Precedex to become the standard of care for cardiac surgery sedation at Sunnybrook and hospitals across Canada. Endorsed by the Canadian Perioperative Anesthesia Clinical Trials Group, CODEX brings together investigators with expertise in anesthesiology, cardiac surgery, neuroscience and clinical trials. We are now in the process of expanding CODEX into a major multi-site trial, with secondary recruiting locations already established at Toronto General Hospital, London Health Sciences Centre, Royal Columbian Hospital, St. Paul's Hospital, Royal University Hospital (more to come). This trial is funded by the Dana Foundation (\$US 300,000), the AHSC AFP Innovation Fund Innovation Fund, SHSC (\$91,816) and the Alzheimer Association Research Grant (\$US 200,000). The study is currently recruiting.

2. Immersive and Virtual Reality

2.1 Virtual Reality Innovative Initiatives (Drs. Alam & Giacobbe)

A grateful patient and his wife (*Pasare family*) have donated \$250,000 in support of Virtual Reality (“VR”) innovative initiatives. This generous donation from Mr. & Mrs. Pasare will help fund necessary personnel, equipment, VR application development as well as outreach.

2.2 Immersive Reality as a mechanism of exposure therapy/patient education

Reducing Pain and Anxiety During Dressing Changes After Burn Surgery Using Virtual Reality – BURN-360 (Drs. Alam/co-PI, Choi & Collaborators)

BURN-360 ([NCT04820400](#)) is a collaborative study with the Ross Tilley Burn Centre, the largest burn centre in Canada, managing ~80% of Ontario’s burn injuries. In this prospective randomized controlled study, we use virtual reality (VR) as a distraction tool during painful dressing change procedures. This study aims to establish and validate the efficacy of VR-360 videos during dressing changes in reducing opioid analgesic use, pain and anxiety in burn patients. This study obtained funding from the AHSC AFP Innovation Fund (\$102,325). The study recruitment is near completion (79/82).

Virtual Reality to Reduce Pre-procedure Anxiety prior Electroconvulsive Therapy – PERFECT-VR (Drs. Alam/co-PI, Choi & Collaborators)

PERFECT-VR ([NCT04291196](#)), a collaborative study with the Department of Psychiatry investigates the use of an immersive VR-360 video to educate patients and reduce anxiety prior to electroconvulsive therapy (ECT) procedures. The custom-made VR-360 video allows patients (and their families) to learn about ECT from the *first-person* perspective days before actually having to undergo the real life procedure. This prospective randomized trial will help to develop a relationship between healthcare providers and patients and their families before the ECT treatment. This study obtained funding from the PSI Foundation (\$250,000). The study recruitment is near completion (62/64).

2.3 Immersive Reality as a therapy for treatment-resistant depression

Intravenous Ketamine and Immersive Virtual Reality to Treat Depression – TREASURE (Drs. Alam, Giacobbe & Brenna/co-PIs, Tarshis, Safa, Choi & Collaborators)

This prospective, randomized, controlled pilot trial will investigate the feasibility of a protocol to study the combination of intravenous ketamine infusion and immersive VR for treatment-resistant depression. The full trial will study whether the combined treatment protocol has a synergistic antidepressant effect compared to ketamine treatment alone. TREASURE has the potential to improve existing standards of care for the treatment of depression, a common and costly condition. Recruitment will commence in 2025.

2.4 Medical education

Exploring the Validity of Virtual Clinical Performance Assessments – IVE (Drs. Alam/PI, Wiegmann, Belfiore & Collaborators)

In this study we will address the validity of using virtual reality (VR) simulations for medical education and assessment by comparing if trainee and/or evaluator behaviors shift, and in what ways, when physical mannequin-based simulations are used *versus* simulations using immersive virtual environments (IVE). This study will support the use of VR simulations in medical training and assessment, increasing cost-effectiveness and accessibility. This study obtained funding from the Medical Council of Canada (\$30,444),

AHSC AFP Innovation Fund, SHSC (\$62,217) and The Edward J. Stemmler, MD Medical Education Research Fund of the National Board of Medical Examiners (\$US 111,000). This study has finished recruitment, and is completing data analysis.

Remote Immersive Virtual Reality Teaching: Use in Ultrasound Guided Regional Anesthesia Procedural Skills Acquisition – RIVR (Drs. Niazi/PI, Alam, Choi & Collaborators)

This study ([NCT05755724](#)) will compare the use of 3D Remote Immersive VR (using Oculus headsets) to traditional 2D teleconferencing (using webcams and computer screens) for teaching ultrasound guided regional anesthesia (UGRA) techniques remotely. Remote teaching is necessary to overcome cost and accessibility barriers (i.e., access to rural physicians) associated with teaching the complex technical and non-technical skills required for this superior method of administering regional anesthesia. This study has obtained funding from the SEAC ERU Education Research and Scholarship Grant (\$10,000) and Education and Simulation in Anesthesia Research Grant, Canadian Anesthesiologists' Society (\$10,000). This study has finished recruitment (24/24), and is completing data analysis.

The Holographic Standardized Patient: Using Mixed Reality to Reduce Barriers to Crisis Simulation in Acute Care – HoloPatient (Drs. Wiegelmann/PI, Alam, Choi & Collaborators)

This study ([NCT05729802](#)) will use the Microsoft HoloLens, a mixed-reality headset which inserts interactable, animated holograms into a user's workspace, to assess if this novel technology has sufficient usability for regular teaching/assessment and to demonstrate non-inferiority to mannequin-based simulation for teaching decision making and crisis management to medical residents in a simulated crisis scenario. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$86,700). The study is actively recruiting.

The Way Forward in Complex Crisis Training - HoloSIM (Drs. Wiegelmann/PI, Alam, Tarshis & Collaborators)

HoloSIM ([NCT04591041](#)), a prospective randomized trial testing a novel simulation mixed reality platform for teaching complex crisis management to medical students, using the Microsoft HoloLens headset. This platform includes a software (HoloSIM) and uses a headset (HoloLens) to display interactable holograms in the user's real world field of view and will be compared to gold standard mannequin-based training for the teaching of both technical and non-technical skills related to anesthesia crisis management. This study has obtained funding from the SEAC ERU Education Research and Scholarship Grant (\$10,000) and the AHSC AFP Innovation Fund, SHSC. This study has finished recruitment, and is completing data analysis.

Virtual Reality: a Teaching-learning Strategy for Cognitive Mastery in Airway Trauma Management – AW&VR (Drs. Tarshis/PI, Alam & Collaborators)

The purpose of this study ([NCT04451590](#)) is to determine if VR can be used to educate medical students on airway injury management. VR training will involve managing the care of a patient with an airway injury in an immersive, interactive VR hospital trauma bay. This study will help to develop a new cost-effective approach to airway management training which is more easily available to medical trainees than mannequin training. This educational tool could lead to better treatment of airway trauma in future patients. This study has obtained funding from the SEAC ERU Education Research and Scholarship Grant (\$10,000). This study has finished recruitment (40/40), and is completing data analysis.

The Efficacy of Immersive 360-Degree Video in Improving Spatial Orientation Among Medical Students – IMPROVE (Drs. Niazi/PI, Alam & Collaborators)

The purpose of this project ([NCT05894005](#)) is to investigate whether immersive 360° video enhances spatial orientation and recall for pre-clerkship students, as compared to standard 2D video instructions. The IMPROVE study will optimize medical education methods and resources, thereby improving training outcomes and better preparing students for clinical practice. The study is currently recruiting (3/40).

3. Perioperative Clinical, Educational and Implementation Research

Using Augmented Reality to 3D Map Needle Pathways in Real Time to Enhance Neuraxial Anesthesia – Hololens (Drs. Singer/PI, Alam, Choi, Wiegelmann & Collaborators)

Hololens ([NCT04028284](#)), a prospective cohort randomized trial, was done to determine if the use of Microsoft Hololens, a head mounted augmented reality tool to assist with epidural anesthesia will increase the accuracy of needle placement and decrease procedure time. This study will lead to implementation of a new ‘state-of-the-art’ tool that will help decrease patient discomfort and increase procedure success rate. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$89,659). The results of the study were published in [JMIR Form Res](#) & [Req Anesth Pain Med](#).

Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption – OPIOIDS (Drs. Niazi/PI, Tarshis, Safa, Choi & Collaborators)

OPIOIDS ([NCT05202080](#)) investigates the effectiveness of a short, internet-based, preoperative, educational video on reducing pain and opioid usage after hip and knee arthroplasty. This custom-designed, cost-effective video presentation provided to patients pre-operatively combines two proven and effective interventions, opioid counselling and pain coping skills education. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$100,032). The study is currently recruiting (194/220).

Redesigning the surgical pathway: optimizing PReOperative assessMent in anesthesia clinic for adult surgical patients – PROMOTE (Drs. Choi/PI, Huang, Idestrup, Orser & Collaborators)

The aim of this project ([NCT05114876](#)) is to prevent both incidence and severity of postoperative delirium (POD), a serious neurological complication common in older surgical patients. We will identify *at-risk* patients using cognitive screening and promote effective non-pharmacological intervention strategies through comprehensive patient, caregiver and healthcare provider education (i.e., intervention bundle). This study obtained funding from the Anesthesia Patient Safety Foundation (\$US 150,000) and AHSC AFP Innovation Fund, SHSC (\$100,048). The study is currently recruiting (170/260).

*Prevention of persistent pain with LidocAine iNfusions in breast cancer surgery – PLAN (Drs. Choi/Clinical Principal Lead, Meng/PI, Helman/co-PI, Wiegelmann & Collaborators)**

PLAN ([NCT04874038](#)) is a multicentre trial to assess the use of an intraoperative intravenous lidocaine infusion, a promising intervention to prevent persistent pain, a common complication following breast cancer surgery. This trial has the potential to identify the first intervention that definitively prevents persistent pain after breast surgery. Reducing incidence of persistent pain will increase quality of life,

decrease opioid use and reduce healthcare costs in breast cancer surgery patients. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$99,987). The study is currently recruiting (83/100).

*Collaborative study, Lead-I/Sponsor Dr. Khan, UHN. This study funded by CIHR (\$1,285,000).

Reassessing Normative Cardiac Chamber Measurements: A Comparative Study of TTE and TEE under General Anesthesia – TTE vs. TEE (Drs. Moreno/PI, Perez d’Empaire & Collaborators)

This prospective, observational, longitudinal cohort study will evaluate the agreement between transthoracic echocardiography (TTE) and intraoperative transesophageal echocardiography (TEE) measurements in patients undergoing cardiac surgery. By re-examining and updating normative values for TEE, the project aims to establish a more relevant and robust foundation for the use of this indispensable tool in cardiac assessment and monitoring. Recruitment will commence in 2025.

Lung ultrasound versus chest radiography for detection of pneumothorax after mediastinal and chest drainage removal – LUS vs CXR (Drs. Moreno/PI, Jerath, McCartney & Collaborators)

The LUS vs CXR study ([NCT06022081](#)) is a prospective, observational, pilot trial designed to assess the feasibility of a study to compare nurse/trainee-performed bedside lung ultrasound to standard portable chest X-ray for the detection of pneumothorax following chest tube removal, in cardiac surgery or trauma patients. A full multi-site trial would then determine whether nurse/trainee-performed bedside lung ultrasound is accurate compared to chest X-ray for the detection of pneumothorax in this population, thereby offering a protocol that could be implemented in Sunnybrook and other hospitals. This study obtained funding from The 2023 Reichman Family Chair in Cardiovascular Research (\$30,000). The study recruitment is complete (60/60).

Effect of Perioperative Duloxetine Administration on Opioid Consumption Following Total knee Arthroplasty – RELIFE (Drs. Meng/PI, McCartney/Co-PI, Choi & Collaborators)

The prospective, randomized, placebo-controlled trial ([NCT06423716](#)) seeks to investigate the efficacy of duloxetine in reducing cumulative opioid consumption and pain after total knee arthroplasty, when administered in appropriate dosage and duration. If successful, RELIFE will be able to support the implementation of a low-cost, opioid-sparing, pharmacologic intervention to improve patient satisfaction and outcome on a procedure that increasingly affects an aging Canadian population. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$105,000). The study is currently recruiting.

Simulation for Operating Room Ergonomics – The SORE Study: Creating an Inter-disciplinary Simulation Curriculum for Operating Room Ergonomics (Drs. Alam/PI, Helman, Perez d’Empaire & Collaborators)

The SORE study ([NCT05541354](#)) seeks to assess the ergonomic needs of teams in the OR, and develop an education simulation curriculum to teach relevant ergonomic recommendations. If proven to be effective in improving OR team ergonomics parameters, the SORE study’s simulation curriculum has the potential to improve OR staff wellbeing by reducing musculoskeletal symptoms and disorders. Consequently, the sore study has the potential to improve patient outcomes and access to care by reducing medical errors and staff absenteeism due to injury, as well as creating long-term benefits for institutional and health system resources. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$20,000). The study is currently recruiting.

Needs Assessment of Ultrasound Guided Regional Anesthesia in Rural and Remote Canada – UGRA Study (Drs. Niazi/PI, Choi, Orser & Collaborator)

The UGRA study seeks to assess the current expertise and practices of ultrasound-guided regional anesthesia (UGRA) across rural and remote regions of Canada. The study will also evaluate the appetite for learning UGRA, particularly specific nerve blocks of interest, and receptiveness to learning using remote methods such as telesimulation and mentorship. Findings from this study will help to inform collaborative networks of care between rural and urban providers, to support widespread UGRA practice and competence and improve clinical care across Canada.

4. Regional Anesthesia

The Efficacy of Ultrasound Guided Supra-inguinal Fascia Iliaca Compartment Block on Early Postoperative Analgesia after Total Hip Arthroplasty – HIP-FIB (Drs. Safa/PI, Choi, McHardy & Collaborators)

HIP-FIB ([NCT03069183](#)), a prospective interventional randomized controlled trial, aims to determine if using a specific form of regional anesthetic block (ultrasound-guided supra-inguinal fascia iliaca compartment block) reduces pain and opioid consumption after total hip arthroplasty, relative to standard procedures. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$89,081). The study has published in [Br J Anaesth](#).

Positioning of continuous adductor canal catheters after total knee arthroplasty – CACB (Drs. McCartney & Choi/co-PIs, Safa, Idestrup & Meng)

This prospective pilot study ([NCT05961085](#)) aims to review the efficacy of ultrasound-guided continuous adductor canal block (CACB) 24 hours after insertion, as determined by placement and continuing sensory block in a total knee arthroplasty population. This study will offer clinicians better guidance on how to optimize placement of CACB and effectively deliver analgesia. The study is currently recruiting (54/100).

Ultrasound-guided Percutaneous Intercostal Nerve Cryoneurolysis for Analgesia Following Traumatic Rib Fracture, a Pilot Randomized Control Trial – UNPIN (Drs. Safa/PI, Nathens, Meng, Choi & Collaborators)

The UNPIN study ([NCT05865327](#)), a prospective, randomized feasibility study, aims to evaluate whether cryoneurolysis offers superior and long-lasting pain relief with rib fractures in trauma patients. If successful, the subsequent full randomized controlled trial will provide evidence to support cryoneurolysis as a safe and effective standard of care, potentially improving patient satisfaction and reducing morbidity, mortality, hospital stays, and healthcare costs. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$105,000). The study is currently recruiting (9/24).

5. Quality Improvement Studies

Retrospective evaluation of adverse effects, tolerability, and safety of low dose ketamine infusion for patients with acute pain in non-intensive care setting – Ketamine APS (Drs. Meng/PI, Choi & Collaborator)

Ketamine APS is a retrospective study of adverse events associated with low-dose ketamine infusions for acute pain management. This analysis of safety has the potential to offer practice-changing insights, particularly in light of SHSC's high-volume experience with low-dose ketamine in Acute Pain Service.

Evaluation of pain characteristics, functional outcomes, psychosocial risk factors, and opioid use patterns in a transitional trauma pain clinic: a quality improvement initiative – Pain-QI (Drs. Meng/PI, Choi & Collaborators)

Pain-QI is a retrospective chart review to analyze the characteristics of the initial patient cohort to the Trauma Pain Clinic, in order to understand their pain profile, functional outcomes, psychosocial barriers, and pattern of opioid use. The goal is to gain insight into the needs of this polytrauma population in order to improve services for transitional pain care.

Use of Regional Anesthesia Infusion to Facilitate Liberation from Mechanical Ventilation in Rib Fracture Patients – A Retrospective Study (Drs. Meng/PI, Niazi, Choi & Collaborator)

This retrospective study will review all documented ICU consultations to the Acute Pain Service for mechanically ventilated traumatic rib fracture patients appropriate for regional anesthesia. The aim of the study is to determine the patient characteristics that identify those who become successfully extubated \leq 5 days after instituting regional anesthesia infusion. If a subset of patients can be identified who particularly benefit from regional anesthesia infusion while mechanically ventilated, a prospective trial will follow to further investigate the findings of this quality improvement study.

Retrospective study examining sedative drug use in burns patients after implementation of inhaled anesthetic based sedation (Drs. Jerath/PI & Collaborators)

This retrospective study will review all documented inhaled sedation treatments for mechanically ventilated burn patients and determine what sedative and analgesics drugs including daily doses are used in adult ventilated burn patients.

6. Hyperbaric Oxygen Therapy

Combination Therapy: Hyperbaric Oxygen and PENTOCLO for Treatment of Osteoradionecrosis of the Mandible (PENTOCLO), a Pilot Randomized Control Trial (Drs. Tanner/PI, Safa, Tarshis, Choi, Alam, Idestrup & Collaborators)

The *mPENTOCLO* ([NCT06055257](#)) study combines the therapeutic regimens of *mPENTOCLO* and Hyperbaric Oxygen Treatment to investigate their combined effect on osteoradionecrosis treatment. This combination of treatments will provide a unique therapeutic modality that relies on the potential additive or synergistic effects of hyperbaric oxygen therapy and *mPENTOCLO* to augment treatment of ORN patients. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$105,000). The study is currently recruiting.

Hyperbaric Oxygen Therapy for Endometriosis-Related Pain (HEROES) Trial: A prospective randomized study (Drs. Silva Restrepo/PI, Alam, Tarshis, Moreno, Choi, Meng & Collaborators)

The HEROES trial is a prospective, randomized, controlled trial to study the efficacy of hyperbaric oxygen

therapy in the treatment of endometriosis-related pelvic pain. This study will investigate a novel treatment strategy for a distressing condition that significantly impairs quality of life, and has the potential to provide relief to patients at Sunnybrook and other hospitals in Ontario. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$105,000). Recruitment will commence in October 2024.

Improving Post-COVID Syndrome with Hyperbaric Oxygen Treatments (PCS-HBOT) Study: (Drs. Tarshis/PI, Alam, Singer, Choi & Collaborators)

This pilot study ([NCT06082518](#)) will determine the feasibility of a definitive trial to investigate the efficacy of hyperbaric oxygen therapy in improving post COVID-19 syndrome symptoms, specifically fatigue. As nearly 15% of adults experienced post COVID-19 symptoms according to Health Canada, this study addresses an important research priority. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$105,000). The study is currently recruiting (17/42).

7. PROPEL Program – Dr. Angela Jerath

Impact of Perioperative Care Models on Patient and Health System Outcomes

Sedating with volatile anesthetics in critically ill COVID-19 patients in ICU (SAVE-ICU trial): Effects on ventilator parameters and survival (Drs. Jerath/PI, Cuthbertson & Collaborators)

SAVE-ICU ([NCT04415060](#)) is a multi-centre international trial investigating the use of inhalational anesthetic drugs to facilitate sedation and improve lung function in critically ill patients who are undergoing mechanical ventilation, including COVID-19 patients. This study will compare a widely available volatile anesthetic drug (Isoflurane) administered using the AnaConDa device with standard of care I.V. sedation and will evaluate if use of volatiles can reduce inflammation, speed up recovery, and decrease time spent on a ventilator. If successful, these benefits can be implemented as standard of care for mechanically ventilated COVID-19-related ARDS patients. This study obtained funding from CIHR (\$2,020,648; ranked 1st out of 437 applications), AHSC AFP Innovation Fund, SHSC COVID-19 Rapid Research Fund Grant (\$100,000), and Ministry of Colleges and Universities, COVID-19 Rapid Research Fund Grant, Ontario Government (\$1,210,523). Recruitment is near completion (705/758).

SAVE-ICU aligned sub-projects:

Neuro-SAVE-ICU: prospective observational cohort study investigating whether inhaled sedation impacts cognitive or mental health outcomes in ventilated ICU patients with acute respiratory distress syndrome (ARDS), relative to standard IV sedation. This sub-study also includes a neuroimaging (i.e. MRI) component, which will determine if ICU sedation method has an impact on brain structure and whether these changes are associated with cognitive outcomes. The study is currently recruiting.

Biomarkers-SAVE-ICU: clinical translation study using 'omics' technology to study immune and thrombotic differences in Covid-19 and non-Covid-19 ICU patients sedated with volatile and IV sedation. This study has finished recruitment, and is completing data analysis.

E-SAVE-ICU: An economic analysis to compare the cost-effectiveness of inhaled vs intravenous sedation for critically ill, ventilated ICU patients with ARDS relative to quality-adjusted life-years. This study has finished recruitment, and is completing data analysis.

Reviews: Several aligned projects supported by trainees in anesthesia, critical care and internal medicine have been developed. This includes evaluating effects of inhalational sedation on cognitive outcomes (*published in [Br J Anaesth](#)*), and in complex medical scenarios like status asthmaticus and epilepticus (*published in [Critical Care Medicine Explorations](#)*).

Tranexamic Acid Dosing for Major Joint Replacement Surgery – TXA-Dosing (Drs. Idestrup/PI, Jerath, Safa, Choi & Collaborators)

The goal of this study ([NCT05075200](#)) is to optimize dosing of tranexamic acid (TXA), an anti-fibrinolytic medication which reduces bleeding during surgery, for patients undergoing major joint arthroplasty (hip and knee). This will be done by assessing TXA blood concentrations and creating robust pharmacokinetic models of TXA metabolism in patients with varying levels of renal dysfunction. TXA-Dosing study will lead to the creation of new TXA dosing guidelines which maximize anti-fibrinolytic effects while avoiding toxic plasma concentrations. New dosing algorithms will also translate to other non-cardiac surgery ORs and trauma. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$99,626, *manuscript under review*).

Advancing Brain Outcomes in Pediatric Critically Ill Patients sedated with Volatile Anesthetic Agents: A pilot multicentre randomized controlled trial – ABOVE (Dr. Jerath/PI & Collaborators)

Inhaled volatile agents may provide better quality of sedation and neurocognitive outcomes for critically ill pediatric patients needing ventilation and sedation. ABOVE is the first North American trial that will study the use of inhalational sedation in acutely ill children. The objective of this multi-centre pilot trial is to evaluate the feasibility of using sedation with inhaled anesthetics in critically ill children, assess its safety and provide early information on delirium compared to intravenous sedatives (NCT05867472). Funded by CIHR (\$1,121,997). The study is actively recruiting.

Design Thinking to Optimize Pre-surgical Care: Using Big Data for Holistic and Integrated Patient Care – PEACE (Dr. Jerath & Collaborators; Lead-I/Sponsor: Morais AR, George Brown College)

In collaboration with the George Brown College School of Design, this project aims to transform the pre-surgical care process by creating a new, centralized e-health platform which can be used by patients, caregivers and healthcare providers. This study uses a mixed methods approach, including semi-structured interviews and design “jams”/charrettes, to engage relevant stakeholders and integrate existing knowledge on the pre-operative process. This will then be used to support centralizing data collection, and create a novel, cost-effective e-health platform, improving pre-operative workflow and standardizing patient care (i.e., promote faster patient flow, collect data to support patient recovery and discharge). This study has completed recruitment and data collection at Sunnybrook Health Sciences Centre. This study obtained funding from CCSIF NSERC (\$360,000). This study has finished recruitment, and is completing data analysis.

The use of biometric monitoring and machine learning to improve preoperative risk stratification in major non-cardiac surgery – Bio-Surgery Study (Dr. Jerath/co-PI & Collaborators)

The Bio-Surgery Study will evaluate whether the addition of free living biometric data, collected using a smartwatch, improves preoperative risk prediction of postoperative adverse outcomes after major noncardiac surgery. This study adds an innovative approach to the perioperative care pathway, with the

goal of improving risk-assessment capabilities. This study obtained funding from McCain Centre for Urological Innovation and Education (\$100,000). Recruitment will commence in 2025.

A qualitative approach to understanding variation in surgeon decision-making and communication practices for elective surgical care (Dr. Jerath/PI & Collaborators)

This qualitative ethnographic study seeks to understand how different values, practice styles, and communication patterns across general surgeons lead to more desirable and safer care for surgical patients. By recruiting surgeons across 12 potential sites within the Toronto Academic Health Science Network, this project will identify desirable and less desirable communication and care practices that help improve patient safety and outcomes, and identify barriers and enablers to optimal communication and care. This study will provide insights that are relevant for patients, healthcare providers, health system leaders, and policymakers, together leading to improved care experiences for our diverse patient populations. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$103,556). The study is actively recruiting.

Evaluating physician attributes on perioperative patient outcomes (Dr. Jerath/PI & Collaborators)

This quantitative data science program leverages large datasets (> 1 million patients) that facilitates assessing physician attributes on postoperative outcomes, processes of care and healthcare costs. This is an international program that uses Ontario and US Medicare data. This program has developed numerous high impact papers including evaluation of physician sex on long term outcomes which was ranked 3rd of all-time JAMA Surgery papers. Activity in this program continues with a mixed funding model.

EEG and the adaptive reconfiguration index to predict recovery after traumatic brain injury (Dr. Jerath/PI & Collaborators)

This single centre active observational pilot study aims to assess to feasibility of using standard and advanced EEG systems on assessment of recovery of consciousness in patients with traumatic brain injury. Funding Tory Trauma program, Sunnybrook Research Institute. CAD\$225,000.

8. Obstetrical Anesthesia

Validation of the Angle Labor Pain Questionnaire (A-LPQ): Testing A-LPQ Performance during Early Active Labor in Pre-term Pregnancy (Dr. Angle/PI)

The study examines the test-retest reliability, sensitivity to change and responsiveness of the Angle Labor Pain Questionnaire (A-LPQ) in women in pre-term labor without pain relief during early active labor. This research represents part of the larger program of validation work being conducted for the A-LPQ. The ability to use a validated tool for women experiencing pre-term labor pain is important for future research in this area, as well as for the care women receive during pre-term labor and delivery. We have finished recruitment (60/60) and findings support the test-retest reliability of the A-LPQ for measurement of pre-term labor pain. Manuscript submission is anticipated in Fall 2024.

Validation of the Angle Labor Pain Questionnaire (A-LPQ): Testing the Reliability of Short-term Pain Recall during Early Active Labor using the A-LPQ (Dr. Angle/PI)

The scientific foundation which underpins treatment of childbirth pain is currently weak and in need of new approaches to permit valid assessment of pain throughout labor and delivery. The current study examines the reliability of women's short-term recall of baseline pain during early active labor with the Angle Labor Pain Questionnaire (A-LPQ), when this pain is reassessed starting 20-30 minutes after the epidural test dose. If short-term pain recall is shown to be reliable ($ICC > 0.7$), additional studies will be planned to examine the reliability of short-term pain recall in women with severe/extreme pain receiving epidural top-ups for obstructive labor pain, pain during advanced labor or at delivery. Recruitment is complete (111/110) and manuscript revision for submission is anticipated for Fall 2024.

Can We Reduce the Psychological Impact of Urgent/Emergent Cesarean Delivery on Parturients? A Sequential Mixed-Methods Study Exploring Women's Perspectives with Development of a New Interdisciplinary Patient Support Tool (Drs. Angle/PI, Kurtz-Landy/co-PI, Barrieau, Berndt, Fleming)

Urgent and emergent (UE) cesarean sections (CS) are an important predictor of a traumatic childbirth experience and post-traumatic stress disorder amongst women. This three-phase sequential, mixed-methods study explored/described women's perspectives of their interdisciplinary care during UE CS as part of the development of a new Interdisciplinary Patient Support Tool (IPST). The IPST will help guide the supportive care provided by the interdisciplinary team (i.e., obstetrics, family practice, nursing, midwifery, anesthesia) during each stage of UE CS. This study obtained funding from the AHSC AFP Innovation Fund, SHSC (\$54,685). Recruitment is complete (100/100) and three manuscripts are currently being prepared for publication. We will be applying for the AHSC AFP Innovation Fund grant this Fall to fund the IPST's clinical testing.

Assessing the Diagnostic Performance of the PDPH Trial Criteria, compared with International Headache Society ICHD-11 and ICHD-3 Criteria for PDPH after Labor Epidural Placement (Drs. Angle/PI, Lay, Gawel, Silva, Kong, Van der Vyver, Roberts, Hussain & Halpern)

The methods used to diagnose postdural puncture headache (PDPH) after accidental dural injury with epidural needles currently vary between studies, despite the availability of International Headache Society Criteria (ICHD) for PDPH. This study compares the performance of three sets of clinical diagnostic criteria (ICHD-3 Criteria, recently replaced ICHD-11 Criteria and PDPH Trial Criteria developed by the PI) for PDPH based on assessment of 184 case report forms of women identified with possible PDPH within the first 14 days after labor epidural insertion in the Multicentre PDPH Trial. Results show that the PDPH Trial Criteria were superior for the diagnosis of PDPH than both ICHD criteria and should be used as part of a new diagnostic pathway being developed by the PI for PDPH after accidental dural puncture with an epidural. Manuscript submission planned for late Fall/Winter 2024.

Development of a Novel Diagnostic Test for Post-epidural PDPH using Transcranial Doppler (Dr. Angle/PI & Collaborators)

This study represents the first of a series of studies aimed at developing novel point-of-care tests for PDPH based on Transcranial Doppler Sonography (TCD) and examining its underlying pathophysiology. In this prospective, two-phase, exploratory, cross-sectional study, we will use TCD to determine the optimal threshold change in downstream resistance to cerebral blood flow which best discriminates between

postpartum women with and without postdural puncture headache (PDPH). Once the optimal threshold change is determined using ROC analyses (Phase 1), a preliminary assessment of diagnostic performance will be determined using the derivation dataset (Phase 2). This work will be followed by future prospective studies examining the diagnostic performance of these thresholds for PDPH diagnosis in women receiving labor epidural analgesia. We are currently piloting the study; we will be applying for a PCORI and PSI grants to aid in this research investigation.

A Retrospective Cohort Study Examining the Impact of Using Video vs Direct Laryngoscopy on First Pass Intubation Success During General Anesthesia for Cesarean Section (Drs. Angle/PI, Sharma/co-PI, Melamed/co-PI & Collaborators)

Airway management in obstetric patients is one of the more challenging propositions faced by anesthesiologists. Although Videolaryngoscopy has been associated with improved intubation success compared to Direct Laryngoscopy in other populations, this has yet to be studied in the chaotic environment that exists when general anesthesia (GA) is required for operative delivery on maternity units. This retrospective chart review (cohort) study examines first pass intubation success rates using Videolaryngoscopy vs. Direct Laryngoscopy in women undergoing cesarean section using GA. It also includes an embedded study that will examine information related to neuraxial block testing, additional drugs given to cover intraoperative pain, and the timing of conversion to GA— an important area of litigation in obstetric anesthesia practice. The study population will include women who had a cesarean under GA (for any reason) at Sunnybrook Health Sciences Center from 2010-2023 (March). We are currently preparing for data collection (0/700).

Developing and Testing the Usability, Feasibility, Acceptability, and Preliminary Effect of a Virtual Serious Game (VSG) Patient Decision Aid (PtDA) for Women Considering a Trial of Labour After a Cesarean Section (TOLAC) or Elective Repeat Cesarean Section (ERCS): A Four-Phase Study (Drs. Kurtz-Landy/PI, Angle/Co-PI, Berndt, da Silva, Dastjerdi, McLeod, Svystonyuk & Collaborators)

Rates of non-medically indicated caesarean sections (CS), including Elective Repeat Cesarean Sections (ERCS), are increasing worldwide, adding to the burden on healthcare costs. This four phase sequential multi-methods study aims to develop and test a virtual serious game (VSG) education intervention to educate women with one previous CS about their childbirth options (i.e., TOLAC and ERCS). This structured framework comprises four phases: development, piloting, evaluation, and implementation. Phase 1 will be a secondary analysis of in-depth interviews with 34 women to identify their narratives around factors they consider when deciding their preferred mode of delivery. Women's narratives on the factors they considered will be incorporated into the storyline of the VSG education intervention. Phase 2 will develop and evaluate a paper prototype of the VSG education intervention, followed by Phase 3 which will test the prototype's usability. Phase 4 will assess the feasibility, acceptability, and preliminary effectiveness of the refined VSG education intervention with 30 participants who previously had one CS. The VSG education intervention will improve women's access to high-quality, accessible information about childbirth options in a gaming format and a resource that healthcare providers can use to help counsel women with prior CS on birth options. It may also aid in the reduction of non-medically indicated CS. This study was submitted for a CIHR Project Grant requesting \$185,000 in funding.

9. Collaborations with other institutions

Does the Self-administered Bleeding Assessment Tool score accurately predict perioperative bleeding? - SELF-BAT (Dr. Choi/site-PI; Lead-I/Sponsor: Scholzberg M, St. Michael's Hospital)

The goal of this prospective study is to determine whether a self-administered bleeding assessment tool is an accurate predictor of major bleeding and transfusion requirements in the immediate postoperative period, filling an important gap in pre-operative risk assessment. This study obtained funding from the Hemostasis and Thrombosis Research Society (HTRS) Mentored Research Award and Baxalta Canadian Hemophilia Epidemiological Research Program (B-CHERP). Funds received at SHSC: \$61,000. The study is actively recruiting (574/700).

The Functional Improvement Trajectories After Surgery Study (FIT After Surgery) Study: A Multicentre Prospective Cohort Study to Evaluate the Incidence, Trajectories, Risk Factors, Impact and Healthcare Costs Related to Significant New Disability after Major Elective Surgery (Dr. Choi/Site-PI; Lead-I/Sponsor: Wijesundera DN, St. Michael's Hospital)

The aim of this prospective, multicentre study is to identify the incidence and predictive preoperative factors related to the development of persistent significant new disability within 1 year after major elective surgery. This study will address an important deficiency in healthcare research, related to an important patient-centred outcome, postoperative disability. FIT After Surgery obtained funding from CIHR (\$1,410,813). Funds received at SHSC: per patient fee budget schedule. This study has finished recruitment, and is completing data analysis.

Anesthesia for Lower Limb Revascularization to Optimize Functional Outcomes (ALOFT) Pilot Trial (Dr. Jerath/Site-PI & Co-PI; Lead-I/Sponsor: Mclsaac D, Ottawa Hospital Research Institute)

The ALOFT Pilot Trial ([NCT06067789](https://clinicaltrials.gov/ct2/show/study/NCT06067789)) will evaluate the pragmatic elements of neuraxial versus general anesthesia for lower limb revascularization surgery that are necessary to support a successful, large-scale evaluation. The future full trial will evaluate the comparative effectiveness of neuraxial versus general anesthesia for improving patient-reported outcomes, designed with patients and knowledge user partners. ALOFT obtained funding from the CIHR (\$202,725). Funds received at SHSC: per patient fee budget schedule. The study is actively recruiting.

Does a Theory-Based Intervention to Improve Accountability Reduce Low-Value Preoperative Investigations in Patients Undergoing Ambulatory Surgery – Scale-Up Pre-Op (Dr. Choi/Site-PI, Taam & McCartney; Lead-I: Kirkham K, Toronto Western Hospital; Study Director/Sponsor: Grimshaw J, Ottawa Hospital Research Institute)

Scale-Up Pre-Op ([NCT05526495](https://clinicaltrials.gov/ct2/show/study/NCT05526495)) is a cluster randomized trial across 22 Ontario hospitals to evaluate whether a strategy to improve accountability reduces unnecessary preoperative tests in patients undergoing low-risk surgery. Using their de-implementation strategy, the study has the potential to lead both institutional and systems-level savings by reducing low-value preoperative testing. The study is active.

Functional Assessment for Surgery by a Timed Walk (FAST Walk) Study: A multicenter prospective cohort study of the six-minute walk test for improving preoperative risk stratification for major non-cardiac surgery (Drs. Choi/Site-PI, Jerath/site Co-I; Lead-I/Sponsor: Wijesundera DN, Unity Health Toronto)

This study ([NCT06412367](#)) aims to determine whether performance on the 6-minute walk test, conducted preoperatively, adds prognostic value to usual clinical factors and other assessments in predicting major postoperative complications. FAST Walk seeks to address an important priority, namely preoperative risk-assessment, using a low-cost and easily implementable tool to assess cardiopulmonary fitness. FAST Walk obtained funding from the CIHR (\$1,410,813) and the PSI Foundation (\$249,500). Funds received at SHSC: per patient fee budget schedule. Recruitment will commence in October 2024.

Comprehensive Health Assessment for My Plan: initial implementation study – CHAMP Implementation Study (Dr. Choi/Site-PI; Lead-I/Sponsor: Puts M, University of Toronto)

The aim of this study ([NCT06464471](#)) is to assess the implementation of a recently developed geriatric assessment tool, Comprehensive Health Assessment for My Plan (CHAMP), across four institutions. Secondary outcomes will demonstrate the efficacy of CHAMP in identifying geriatric issues and developing supportive care strategies. As geriatric assessment is known to predict negative outcomes, this study will address an important need in improving treatment decision-making and support planning for older adults. CHAMP obtained funding from the CIHR (\$229,500). Recruitment will commence in November 2024.

Benzodiazepine-free cardiac anesthesia for reduction of postoperative delirium in the intensive care unit (B-Free): A multi-centre, randomized, cluster crossover trial. (Dr. Choi/site-PI; Lead-I/Sponsor: Dr. Connolly SJ, PHRI/McMaster University)

The primary goal of this pragmatic, multicentre, cluster crossover trial ([NCT03928236](#)) is to evaluate the impact of benzodiazepine use on the incidence of postoperative delirium following cardiac surgery, comparing an institutional policy of limited intraoperative benzodiazepine use with a policy of 'ad libitum' administration. This study has completed primary recruitment and data collection at SHSC. B-FREE was funded by the CIHR (\$482,936). Funds received at SHSC: \$20,000. This study has finished recruitment, published in [CJC Open](#).

Active-control Randomised Trial Comparing 4-factor Prothrombin Complex Concentrate With Frozen Plasma in Cardiac Surgery – FARES II (Drs. Jerath, Perez d'Empaire, Wong/Collaborators; Lead-I/Sponsor: Lin Y, University of Toronto)

Non-inferiority multicentre clinical trial ([NCT05523297](#)) evaluating prothrombin complex concentrate to fresh frozen plasma in adult cardiac surgery patients on hemostasis. This international trial has completed recruitment and the manuscript is under review.

PRE-CLINICAL RESEARCH PROGRAM

Dr. Beverley A. Orser, Department of Physiology, U of T

Funded by CIHR Foundation Fund

(\$3,579,083 for 7 years: 04/2017 - 03/2024, extended until 03/2027)

RESEARCH OVERVIEW AND OBJECTIVES

Dr. Orser's preclinical research aims to explore how anesthesia and surgery change brain function. Using various anesthetic drugs and a hybrid-methods approach, Dr. Orser discovered the unique pharmacological properties of extrasynaptic GABA_A receptors (GABA_ARs) and their mechanistic role in anesthetic-induced impairment of memory. Overall, her studies have led to the identification of extrasynaptic GABA_ARs as novel targets for the treatment of a variety of neurocognitive disorders.

Dr. Orser's research program aims 1) to discover and decipher novel cellular pathways related to human brain physiology, and 2) to explore the ability to modulate those pathways using potent 'chemical probes' or drug-like molecules. The specific objectives are:

Aim 1. Investigating the molecular mechanisms of anesthetics

The pre-clinical laboratory investigates the role of GABA_A receptors and cross-talk between glia and neurons, and their contribution to inflammation and anesthetic-induced cognitive deficits. Specifically, we aim to understand how anesthetic drugs target specific protein receptors, modify neurons and networks, and disrupt brain function using mouse models. Additionally, we have expanded the studies to examine the effects of nitrous oxide on GABA_A receptor function.

Aim 2. Investigating the persistent effect of surgery on the brain

The laboratory investigates the lasting impact of sterile inflammation and surgery on the brain using mouse models. In particular, we focus on how these factors lead to cellular changes in the brain at the level of proteins, disrupt excitatory/inhibitory neurotransmission and plasticity, and impair cognition.

Aim 3. Further a pipeline to test new compounds and repurpose approved drugs

One of the major problems that limit the discovery of new medicines is identifying a specific cellular protein that is causally linked to a given disease, so that this protein can be targeted for drug development. We use our existing infrastructure as *a pipeline* to develop inhibitors for protein function and show in animal, human cell and tissue models that its inhibition has the desired effects. If successful, or if this inhibitor (also called 'compound' or 'chemical probe') is well-characterized and specific to the target, it may also form a starting point for a new, potentially more successful drug discovery program. We will continue to collaborate with non-commercial laboratories to study the effects of negative allosteric modulators that target $\alpha 5$ GABA_A receptors ($\alpha 5$ GABA_ARs), as well as the role of our patented peptide to reduce cell-surface expression of $\alpha 5$ GABA_ARs. In parallel, our laboratory screens existing pharmaceuticals, such as ketamine and nitrous oxide, to explore the possibility of repurposing them for new indications.

Aim 4. From bench to bedside: discovering optimum anesthetics and therapeutic strategies

Continue to build a translational program to study the effectiveness of cognitive-sparing strategies to mitigate perioperative neurocognitive disorders. Expand the activities of the Perioperative Brain Health Centre to ensure it is patient focused, multi-disciplined and productive.

Aim 5. New test methods implementation

We strive to develop better models to study the effects of anesthetic drugs and surgery on the brain. We have developed a surgical mouse model to study postoperative cognitive deficits, and developed a platform to expose cultured neurons and astrocytes to volatile anesthetic drugs. We will continue to expand our methodologies, with the development of immunostaining and utilization of the cutting-edge Centre for Optophysiology supported by our CFI grant to develop target-based cell assays and cell culture models to study the effects of anesthesia and surgery on the brain.

RESEARCH PROJECTS

1. Evaluation of $\alpha 5\text{GABA}_A$ receptor trafficking as a therapeutic target

Increased expression of $\alpha 5\text{GABA}_A$ receptors at the neuronal surface likely contributes to cognitive deficits after general anesthesia and surgery. One outstanding question is where specifically on the neuronal surface these additional receptors are localized: do they remain in extrasynaptic regions, or do they migrate at the synapse and alter fast synaptic inhibition? Recent findings from the lab suggest that these receptors may be migrating to the synapse and increasing synaptic inhibition after surgery. This project aims to further explore this question, and discover the signaling cascades connecting surgery with altered $\alpha 5\text{GABA}_A$ receptor trafficking and localization. These findings will expand our understanding of the role of $\alpha 5\text{GABA}_A$ receptors in perioperative neurocognitive disorders. This project is supported by an Ontario Graduate Scholarship for its lead MSc student.

2. Astrocytic mechanisms for perioperative neurocognitive disorders

The laboratory has previously shown that surgery and anesthesia increase the expression of $\alpha 5\text{GABA}_A$ receptors on the surface of neurons. These $\alpha 5\text{GABA}_A$ receptors have high affinity for ambient GABA, and mediate a tonic inhibitory conductance that impairs cognition. This project aims to explore a parallel mechanism, and determine whether increased ambient GABA, due to release from astrocytes, also contributes to increased tonic inhibition and impaired cognition after anesthesia and surgery. These findings will increase our understanding of the mechanisms underlying perioperative neurocognitive disorders, and highlight potential treatment strategies based on targeting GABA release from astrocytes. This project is supported by an Ontario Graduate Scholarship for its lead MSc student.

3. Ketamine: exploring drug effects and its potential to prevent persistent memory deficits in mice

In recent years, the recreational drug ketamine has emerged as a potential treatment for postoperative delirium, but its clinical efficacy remains controversial. Ketamine primarily targets NMDA receptors, and has the potential to protect against neurological injury. The aim of this project was to determine whether co-treatment of general anesthetics with ketamine can prevent the sustained anesthetic-induced increase in $\alpha 5\text{GABA}_A\text{R}$ receptor activity *in vitro*, and prevent cognitive deficits *in vivo*. The results showed that ketamine prevented the persistent increase in GABA_AR activity and sustained memory deficits after anesthesia. The project will provide preclinical data which can better inform clinical trials involving

ketamine and may identify a novel, cost-effective approach to mitigate cognitive impairment in patients after anesthesia and surgery (manuscript under review).

4. *The use of nitrous oxide as an antidepressant: Collaboration with Dr. Ben Goldstein*

The objective of this project is to elucidate the mechanism by which N₂O exerts its antidepressant effects. This project builds on previous discoveries in the laboratory lab which have demonstrated that other common anesthetics such as sevoflurane and etomidate trigger a sustained increase in α 5GABA_ARs, which mediate post-anesthetic cognitive deficits, and that the α 2 adrenergic receptor agonist dexmedetomidine is able to stimulate the release of brain-derived neurotrophic factor (BDNF) which rescues the phenotype caused by α 5GABA_AR overexpression. Interestingly, α 5GABA_AR overactivity is implicated in depression as well, and may indeed be the critical link between both depression and post-anesthetic cognitive deficits. The project will determine whether N₂O treatment reverses depressive endophenotypes in a mouse model, and investigate whether N₂O decreases a tonic inhibitory current generated by α 5GABA_ARs in neurons. This study is supported by a Vanier Graduate Scholarship and a CAS Residents' Research grant for its lead doctoral student.

Perioperative Brain Health Centre

The [Perioperative Brain Health Centre \(PBHC\)](#) was established in 2017 by Drs. Orser, Avramescu and Choi. PBHC is committed to protecting the brain health of surgical patients in Canada and internationally by advancing patient/provider engagement and education, health literacy and evidence-based medicine. *We envision* a future where clinicians, patients and their families are empowered to make informed healthcare decisions and take actions to preserve their brain health in the perioperative period. *Our mission* is to develop innovative diagnostic, preventative, and treatment strategies for frontline healthcare to improve quality of life, reduce morbidity, and lessen the economic burden. *We aim* to establish a fully integrated translational research program designed to develop new medicines/treatments and better diagnostics in brain and mental health, a true bench-to-bedside enterprise.

The PBHC is unique as it includes both preclinical and clinical research programs. Since its formal establishment, the PBHC has successfully worked in the perioperative brain health space toward our strategic goals. Highlights of our recent accomplishments include:

Research Progress

- The CODEX multisite trial led by Dr. Choi, studying the effectiveness of dexmedetomidine sedation in preventing P-NCD, continues to grow: there are now six sites across Canada recruiting participants, and discussions are ongoing to add a further four sites.
- The CODEX study received an AARG research grant from the Alzheimer's Association.
- Phase II of the *PROMoTE* trial, to optimize the surgical care pathway and reduce the incidence and severity of delirium, has now launched at Bayview and HOAC after the completion of Phase I.
- Data collection for the *COGNIGRAM* study was completed, with data under analysis.

Trainee Success

- The first graduate student program in perioperative sciences at the Department of Anesthesia, SHSC, was established by the PBHC in 2019 and remains flourishing.
- Dr. Stephen Choi's trainee, Hannah Rosales, received the Ontario Graduate Scholarship (OGS).
- In the preclinical program, Meifeng Yu (Weber Award, OGS) and Howell Fang (OGS) were also successful in competitive scholarship competitions.
- We are proud to welcome our first trainee within the Clinician-Investigator Program, Dr. Connor Brenna, who started in September 2023 under the supervision of Dr. Orser. Dr. Brenna has received the CAS Residents' Research Grant, the Alan W. Conn Graduate Award, the Weber Award and the prestigious Vanier Canada Graduate Scholarship from the CIHR.
- A new post-doctoral fellow will be joining the Orser laboratory in January 2025.

Outreach and Knowledge Dissemination

- For our patients, their families and healthcare team, we have established the *Direct-to-Patient Education Program*, an online hub that offers a variety of educational material on delirium and perioperative brain health to empower our patients and their caregivers with the knowledge and tools to protect their brain health.
- For the academic community, we have presented our findings at national and international conferences. The *PROMoTE* study was presented at the IARS conference in Seattle, as was the nitrous oxide pre-clinical study, which was selected for an oral presentation by Dr. Connor Brenna.

- The PBHC was also showcased at the 2024 SRI research day.

Collaborations and Partnerships

- Dr. Choi continues to collaborate with the Senior Friendly program at Sunnybrook HSC to facilitate delirium prevention and improve perioperative outcomes for older patients.
- We are participating in the Delirium Prevention Committee, which oversees the development, implementation, and evaluation of strategies to prevent delirium in hospitalized patients.
- Dr. Connor Brenna organized the *TOronto Nitrous oxide Consortium (TONIC) night*, which brought together researchers across TAHSN to discuss the applications of nitrous oxide and other anesthetic drugs as psychotropics, and identify new opportunities for collaboration.
- Dr. Choi is involved with new collaborations with UHN and Ottawa Hospital Research Institute on several studies, including CHAMP, PLAN, Self-BAT and SCALE-UP.
- Dr. Orser collaborated with Dr. Ivy Lynn Bourgeault and others to analyse the anesthesia workforce in Canada over the past two decades. Their work was published in [Human Resources for Health](#) and [Anesthesia & Analgesia](#).
- Dr. Orser is collaborating with Dr. Ahtsham Niazi at Sunnybrook HSC to explore the need and interest in virtual UGRA training among physicians providing anesthesia services in rural and remote Canada.

Recognition

- An invited report by Drs. Orser and Brenna, titled “The new frontier of repurposing anesthetic drugs for depression,” was published in [ASA Monitor](#).
- Dr. Orser’s groundbreaking career achievements were recognized by the province’s highest honour, as she was appointed to the prestigious 2022 Order of Ontario.
- The *Direct-to-Patient Education Program* was highlighted in a [piece](#) by the Department of Anesthesiology & Pain Medicine.

For up to date information, visit the [PBHC](#) website for news.

DEPARTMENT OF ANESTHESIA
Sunnybrook Health Sciences Centre

LIST OF ABBREVIATIONS

Appendix 6

Appendix 6: LIST OF ABBREVIATIONS

3MT	Three Minute Thesis
4F-PCC	Four-factor Prothrombin Complex Concentrate
α 5GABA _A R	α 5 subunit-containing γ -aminobutyric acid type A receptors
AARG	Alzheimer's Association Research Grant
ABOVE study	Full study title: ' <i>Advancing Brain Outcomes in pediatric critically ill patients sedated with Volatile Anesthetic Agents</i> ' (NPA: Dr. Angela Jerath). The objective of this multi-centre pilot trial is to evaluate the feasibility of using sedation with inhaled anesthetics in critically ill children, assess its safety and provide early information on delirium compared to intravenous sedatives.
ACE2	Angiotensin Converting Enzyme 2
ACUDA	Association of Canadian University Departments of Anesthesia
AFP	Alternative Funding Plan
<u>AHSC</u>	Academic Health Sciences Centre
ALOFT Trial	Full study title: ' <i>The Anesthesia for Lower limb revascularization to optimize functional outcomes trial</i> ' (CPA: Dr. Angela Jerath). This study will evaluate the pragmatic elements of neuraxial versus general anesthesia for lower limb revascularization surgery that are necessary to support a successful, large-scale evaluation.
A-LPQ	Angle Labor Pain Questionnaire
APS	Acute Pain Service
APSF	<u>Anesthesia Patient Safety Foundation</u>
AR	<u>Augmented Reality</u>
ASA	<u>American Society of Anesthesiologists</u>
ASPIRE	Anesthesiology Performance Improvement and Reporting Exchange
ASRA	American Society of Regional Anesthesia and Pain Medicine
AW&VR study	Study full title: ' <i>Virtual Reality: a teaching-learning strategy for cognitive mastery in airway trauma management</i> ' (PI: Dr. Jordan Tarshis, CI: Dr. Fahad Alam).

	The purpose of this study is to determine if virtual reality can be used to educate medical students on airway injury management as effectively as mannequin-based simulation.
B-CHERP	Baxalta Canadian Hemophilia Epidemiological Research Program
B-FREE study	Study full title: <i>'Benzodiazepine-free Cardiac Anesthesia for Reduction of Postoperative Delirium'</i> (Site PI: Dr. Stephen Choi, Site Collaborator: Dr. Angela Jerath). This trial is studying whether a hospital policy limiting benzodiazepines during heart surgery decreases delirium, when compared with a hospital policy which does not limit benzodiazepines.
BDNF	Brain-derived Neurotrophic Factor
BURN 360 study	Study full title: <i>'BURN 360: Reducing Pain and Anxiety During Dressing Changes After Burn Surgery Using Virtual Reality'</i> (PI: Dr. Fahad Alam). This study aims to determine if using VR as a distraction tool during dressing changes can reduce pain and anxiety, and therefore opioid medication requirements.
C	Collaborator
CA	Co-Applicant
cACB	Continuous adductor canal block
CAGA	Collaborative Advisory Group for General and Family Practice Anesthesia in Rural Canada
CAMH	The Centre for Addiction and Mental Health
CARF	Canadian Anesthesia Research Foundation
CAS	Canadian Anesthesiologists' Society
CGS	Canada Graduate Scholarship
CHAMP	Comprehensive Health Assessment for My Plan
CI	Co-Investigator
CIHR	Canadian Institutes of Health Research
CIP	Clinical-Investigator Program
CMAC	Complications in Medical Aesthetics Collaborative
CME	Continuing Medical Education

CODEX study	<p>Study full title: <i>'Cognitive Outcomes after Dexmedetomidine Sedation in Cardiac Surgery Patients: CODEX Trial'</i> (PI: Dr. Stephen Choi).</p> <p>In this clinical trial we investigate whether the addition of Dexmedetomidine to usual postoperative care reduces the incidence of P-NCD three months after surgery and enhances early postoperative recovery in those undergoing open cardiac surgery.</p>
COGNIGRAM study	<p>Study full title: <i>'Assessing Postoperative Cognitive Changes After Major Joint Arthroplasty: A Prospective Cohort Study'</i> (PI: Dr. Stephen Choi).</p> <p>The purpose of this study is to determine the prevalence of postoperative cognitive dysfunction in major joint arthroplasty patients using cognitive testing before and after surgery.</p>
COVID-19	Coronavirus disease 2019
CPA	Co-Principal Applicant
CPD	Continuing Professional Development
CPI	Co-Principal Investigator
CPL	Clinical Principal Lead
CQuIPS	Centre for Quality Improvement and Patient Safety
CS	Caesarian Section
CXR	Chest X-ray
DPEP	Direct-to-patient Education Program
ECRS	Elective Repeat Caesarian Section
ECT	Electroconvulsive Therapy
EEG	Electroencephalography
ER	Emergency Room
ERU	Education Research Unit
ESRA	European Society of Regional Anaesthesia and Pain Therapy
ESRG	Education Research and Scholarship Grant
FAER	Foundations for Anesthesia Education and Research
FARES II study	<p>Full study title: <i>'Active-control Randomised Trial Comparing 4-factor Prothrombin Complex Concentrate With Frozen Plasma in Cardiac Surgery'</i> (C(s): Dr. Angela Jerath, Pablo Perez d'Empaire, Sophia Wong).</p>

	This multicentre trial is evaluating prothrombin complex concentrate to fresh frozen plasma in adult cardiac surgery patients on hemostasis.
FAST-WALK study	<p>Full study title: <i>'Functional Assessment for Surgery by a Timed Walk'</i> (CPA: Dr. Angela Jerath, Site PI: Dr. Stephen Choi).</p> <p>This study aims to determine whether performance on the 6-minute walk test, conducted preoperatively, adds prognostic value to usual clinical factors and other assessments in predicting major postoperative complications.</p>
FIP	Frontiers in Physiology
FIT-After-Surgery study	<p>Study full title: <i>'The Functional Improvement Trajectories After Surgery (FIT After Surgery) Study: A Multicentre Prospective Cohort Study to Evaluate the Incidence, Trajectories, Risk Factors, Impact and Healthcare Costs Related to Significant New Disability after Major Elective Surgery'</i> (Site PI: Dr. Stephen Choi, Site Collaborator: Dr. Angela Jerath).</p> <p>The purpose of this study is to measure the risk and impact of significant new disability after surgery, and identify which types of patients, surgeries and complications are likely to lead to disability.</p>
FNIHB	First Nations and Inuit Health Branch
FPA	Family Practice Anesthesia
GA	General Anesthesia
GABA _A	γ-aminobutyric acid type A
HBOT	Hyperbaric Oxygen Therapy
HEROES study	<p>Study full title: <i>'Hyperbaric oxygen therapy for endometriosis-related pain: A prospective randomized study'</i> (PI: Marcos Silva Restrepo).</p> <p>This is a prospective, randomized, controlled trial to study the efficacy of hyperbaric oxygen therapy in the treatment of endometriosis-related pelvic pain.</p>
HIP-FIB study	<p>Study full title: <i>'The efficacy of ultrasound guided supra-inguinal fascia iliaca compartment block on early postoperative analgesia after total hip arthroplasty'</i> (PI: Dr. Ben Safa).</p> <p>The study aims to determine if using ultra-sound guided supra-inguinal fascia iliaca compartment block reduces pain and opioid consumption after total hip arthroplasty, relative to standard procedures.</p>

HOAC	Holland Orthopaedic & Arthritic Centre
HoloLens study	<p>Study Full Title: <i>'Using augmented reality to 3D map needle pathways in real time to enhance neuraxial anesthesia'</i> (CPI: Dr. Fahad Alam, CPI: Dr. Julian Wiegelmann).</p> <p>Microsoft HoloLens is a head mounted augmented reality tool, which has been used in the HoloLens study to combine the ultrasound image and angulation of the ultrasound probe to instantly create, in real time, spatially stable holograms overlaying the patient's anatomy in the user's field of view.</p>
HoloPatient study	<p>Study full title: <i>'The Holographic Standardized Patient: Using Mixed Reality to Reduce Barriers to Crisis Simulation in Acute Care'</i> (PI: Dr. Julian Wiegelmann).</p> <p>Uses the Microsoft HoloLens headset to display interactable 3D animated objects in a user's real world field of view. The purpose of this study is to determine if this technology could be used for medical crisis management training.</p>
HoloSIM study	<p>Study full title: <i>'HoloSIM: The Way Forward in Complex Crisis Training'</i> (PI: Dr. Julian Wiegelmann).</p> <p>HoloSIM is an easy-to-use mixed reality telemedicine platform consisting of laptop-based instructor software and Microsoft HoloLens headset-based student software.</p> <p>This study will determine if a mixed-reality platform using the Microsoft HoloLens headset (which displays interactable 3D animated objects in a user's real world field of view) would be as effective as mannequin-based training.</p>
HSC	Health Sciences Centre
HTRS	Hemostasis and Thrombosis Research Society
IARS	International Anesthesia Research Society
ICC	Intraclass Correlation Coefficient
ICE	Integrated Clinical Experience
ICHD	International Classification of Headache Disorders
ICU	Intensive Care Unit
IDCCM	Interdepartmental Division of Critical Care Medicine
IFPOC	Innovation Fund Provincial Oversight Committee
IHPBA	International Hepato-Pancreato-Biliary Association

IMPROVE study	Study full title: <i>'The efficacy of immersive 360-degree video in improving spatial orientation among medical students'</i> (PI: Dr. Ahtsham U. Niazi). The purpose of this project is to investigate whether immersive 360° video enhances spatial orientation and recall for pre-clerkship students, as compared to standard 2D video instructions.
IPST	Interdisciplinary Patient Support Tool
IR	Immersive Reality
ISRA	Irish Society of Regional Anesthesia
IVE	Immersive Virtual Environment
JAMA	Journal of the American Medical Association
LHSC	London Health Sciences Centre
LPS	Lipopolysaccharide
LUS	Lung Ultrasound
METS study	Measure of Exercise Tolerance before Surgery study
mPENTOCLO	Modified PENTOCLO
MPOG	Multicentre Perioperative Outcomes Group
MSK	Musculoskeletal
NANETS	North American Neuroendocrine Tumors Society
NBME	National Board of Medical Examiners
NOTIFY study	Full study title: <i>'Non-hOme Transition risk Following surgery'</i> (CI: Dr. Angela Jerath).
NPA	Nominated Principal Applicant
NSQIP	National Surgical Quality Improvement Program
OAA	Obstetrics Anaesthetists' Association
OGS	Ontario Graduate Scholarship
OMA	Ontario Medical Association
OPIOIDS study	Study full title: <i>'Effect of a pre-operative internet-based educational video, providing both opioid counselling and pain coping skills, on post-operative opioid consumption - OPIOIDS study'</i> (PI: Dr. Ahtsham U. Niazi). This study investigates the effectiveness of a short, internet-based, preoperative, educational video on reducing pain and opioid usage after hip and knee

	arthroplasty. This custom-designed, cost-effective video presentation provided to patients pre-operatively combines two proven and effective interventions, opioid counselling and pain coping skills education.
OR	Operating Room
PA	Principal Applicant
PACT	Perioperative Anesthesia Clinical Trials group
PBHC	Perioperative Brain Health Centre
PBM	Patient Blood Management
PCORI	Patient-Centered Outcomes Research Institute
PCS-HBOT study	<p>Full study title: <i>'Improving Post-Covid Syndrome with Hyperbaric Oxygen Treatments'</i></p> <p>(CPI: Dr. Fahad Alam, CPI: Dr. Jordan Tarshis).</p> <p>This pilot study will determine the feasibility of a definitive trial to investigate the efficacy of hyperbaric oxygen therapy in improving post COVID-19 syndrome symptoms, specifically fatigue</p>
PDPH	Post dural puncture headache
PEACE study	<p>Study full title: <i>'Design thinking to optimize Pre-surgical Care (PEACE): using big data for holistic and integrated patient care'</i> (Site PI: Dr. Angela Jerath).</p> <p>The purpose of this study is to use design principles and interactive technologies to transform the pre-surgical patient assessment workflow by creating a new e-health platform that can be used by patients, caregivers and healthcare providers.</p>
PENTOCLO study	<p>Full study title: <i>'Combination therapy: Hyperbaric oxygen therapy and PENTOCLO (Pentoxifylline, Tocopherol & Clodronate) for treatment of osteoradionecrosis of the mandible'</i> (PI: Dr. Keith Tanner).</p> <p>This study combines the therapeutic regimens of mPENTOCLO and Hyperbaric Oxygen Treatment to investigate their combined effect on osteoradionecrosis treatment.</p>
PERFECT-VR study	<p>Study full title: <i>'PERFECT-VR: Virtual Reality as a Tool to Reduce Pre-procedure Anxiety Prior ECT via Enhancing Patient Education'</i> (PI: Dr. Fahad Alam).</p>

	The purpose of this study is to determine if using Virtual Reality (VR) to allow patients' to experience a hospital-based ECT education session prior to treatment is useful in lowering pre-procedure anxiety and increasing knowledge related to ECT treatment when compared to a standard treatment.
PHQ-9	Patient Health Questionnaire-9
PI	Principal Investigator
PLAN study	Study full title: <i>'Prevention of persistent pain with LidocAine iNfusions in breast cancer surgery (PLAN) Trial'</i> (Site PI: Dr. Stephen Choi). The purpose of this multisite study is to determine if giving lidocaine as an infusion during breast cancer surgery will reduce the amount of pain a patient has when recovering from surgery.
PND	Perioperative Neurocognitive Disorders
P-NCD	Post-operative Neurocognitive disorders
POCUS	Point-of-Care Ultrasound
PRoMiSe	Perioperative Recommendations for Medication Safety
PROMOTE study	Study full title: <i>'Redesigning the surgical pathway: optimizing PReOperative assessMent in anesthesia clinic for adult surgical patiEnts (PROMoTE)'</i> (PI: Dr. Stephen Choi). The aim of this study is to identify patients at risk for delirium using cognitive screening and test the effectiveness of a simple no-medication approach for preventing POD.
PROMPT	Practical Obstetric Multi-Professional Training
PROPEL program	Full title: <i>'Perioperative care models and morbidity on patient and health system outcomes'</i> (PI: Dr. Angela Jerath).
PROVISION study	Full study title: <i>'Perioperative vitamin C to reduce persistent pain after total knee arthroplasty'</i> (C: Dr. Stephen Choi).
PSI	Physicians' Services Incorporated
PtDA	Patient Decision Aid
PUCI Forum	Forum of Psychiatry for Universal Conversation and Innovation
QI	Quality Improvement
RA	Regional Anesthesia

RAPM	Regional Anesthesia & Pain Medicine
RCPSC	Royal College of Physicians and Surgeons of Canada
RELIFE study	<p>Study full title: <i>'Effect of peRiopErative duLoxetine Administration on Opioid Consumption Following Total kneE Arthroplasty'</i> (PA: Dr. Colin McCartney, CPA: Dr. Howard Meng).</p> <p>This trial focuses on evaluating the effectiveness of duloxetine, a non-opioid analgesic with antidepressant properties, in managing postoperative pain for patients undergoing total knee arthroplasty (TKA).</p>
RHSE	Research and Health Science Education
RIVR study	<p>Study full title: <i>'Remote Immersive Virtual Reality Teaching: Use in Ultrasound Guided Regional Anesthesia Procedural Skills Acquisition – RIVR'</i> (PI: Dr. Ahtsham U. Niazi).</p> <p>This study compares the use of 3D Remote Immersive VR (using Oculus headsets) to traditional 2D teleconferencing (using webcams and computer screens) for teaching ultrasound guided regional anesthesia (UGRA) techniques remotely.</p>
SAVE-ICU study	<p>Study full title: <i>'Sedating With Volatile Anesthetics Critically Ill COVID-19 Patients in ICU: Effects On Ventilatory Parameters And Survival'</i> (PI: Dr. Angela Jerath).</p> <p>The aim of this study is to compare two forms of sedation (volatile vs intravenous drugs) for critically ill patients in the Intensive Care Unit who require mechanical ventilation.</p>
SCALE-UP study	<p>Full study title: <i>'Does a Theory-Based Intervention to Improve Accountability Reduce Low-Value Preoperative Investigations in Patients Undergoing Low Risk Surgery'</i> (Site PI: Dr. Stephen Choi, CA: Dr. Jason Taam, CA: Dr. Colin McCartney).</p> <p>This is a cluster randomized trial across 22 Ontario hospitals to evaluate whether a strategy to improve accountability reduces unnecessary preoperative tests in patients undergoing low-risk surgery.</p>
SCBA	Society of Chinese Bioscientists in America
SEAC	Sunnybrook Education Advisory Council
SELF-BAT study	<p>Study full title: <i>'Does the self-administered Bleeding Assessment Tool score accurately predict postoperative bleeding?'</i> (Site PI: Dr. Stephen Choi).</p>

	The goal of this prospective study is to determine whether a self-administered bleeding assessment tool is an accurate predictor of major bleeding and transfusion requirements in the immediate postoperative period.
SESAW	Specialty Excellence Scholarship Award
SGS	School of Graduate Studies
SHARE	Sunnybrook Hub for Applied Research in Education
SIM Expo	Simulation Expo
SORE study	Study full title: ' <i>Simulation for Operating Room Ergonomics: Creating an interdisciplinary simulation curriculum for operating room ergonomics</i> ' (PI: Dr. Fahad Alam). The purpose of this study is to identify ergonomic problems in the operating room through interviews and live operating room observations, and develop an educational simulation curriculum to teach ergonomics to operating room teams.
SRA	Senior Responsible Author
SREC	Schulich Research Executive Committee
SRI	Sunnybrook Research Institute
SSAT	Society for Surgery of the Alimentary Tract
STAYWARM-2 study	Study full title: ' <i>STudy to Actively WARM Trauma Patients – 2</i> ' (CI: Dr. Pablo Perez D'Empaire).
TAHSN	Toronto Academic Health Science Network
TBI	Traumatic Brain Injury
TCD	Transcranial Doppler Sonography
TEE	Transesophageal Echocardiography
TKA	Total Knee Arthroplasty
TOLAC	Trial of Labour After a Caesarian Section
TONIC	TORonto Nitrous oxide Consortium
TREASURE trial	Study full title: ' <i>InTRavenous kEtAmine and immerSive virtUal Reality to treat dEpression</i> ' (CPI: Dr. Fahad Alam).

	This pilot trial will investigate the feasibility of a protocol to study the combination of intravenous ketamine infusion and immersive VR for treatment-resistant depression.
TTE	Transthoracic Echocardiography
TXA	Tranexamic Acid
TXA-Dosing	Study full title: <i>'Tranexamic Acid Dosing for Major Joint Replacement Surgery'</i> (PI: Dr. Angela Jerath). The purpose of this study is to find an optimal dose of tranexamic acid (TXA) to be given during a hip or knee replacement surgery.
UE-CS	Urgent/emergent caesarean section
UGRA	Ultrasound Guided Regional Anesthesia
UHN	University Health Network
UNPIN Study	Full study title: <i>'Ultrasound-guided percutaneous intercostal nerve cryoneurolysis for analgesia following traumatic rib fracture'</i> (PI: Dr. Ben Safa). This study aims to evaluate whether cryoneurolysis offers superior and long-lasting pain relief with rib fractures in trauma patients.
UofT	University of Toronto
UTCSP	University of Toronto Centre for the Study of Pain
VR	Virtual Reality
VSG	Virtual Serious Game